Video and Image Processing Blockset Release Notes

Contents

Summary by Version

This table provides quick access to what's new in each version. For clarification, see "About Release Notes" on page 1.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Latest Version V2.1 (R2006a)	Yes Details	Yes Summary	Bug Reports at Web site	Printable Release Notes: PDF V2.1 product documentation
V2.0 (R14SP3+)	Yes Details	No	Bug Reports at Web site	No
V1.2 (R14SP3)	Yes Details	Yes Summary	Bug Reports at Web site	No
V1.1 (R14SP2)	Yes Details	Yes Summary	Bug Reports at Web site	No
V1.0.1 (R14SP1)	Yes Details	No	Fixed bugs	No
V1.0 (R14)	Yes Details	No	No bug fixes	No

About Release Notes

Use release notes when upgrading to a newer version to learn about new features and changes, and the potential impact on your existing files and practices. Release notes are also beneficial if you use or support multiple versions.

If you are not upgrading from the most recent previous version, review release notes for all interim versions, not just for the version you are installing. For example, when upgrading from V1.0 to V1.2, review the New Features and Changes, Version Compatibility Considerations, and Bug Reports for V1.1 and V1.2.

New Features and Changes

These include

- New functionality
- Changes to existing functionality
- Changes to system requirements (complete system requirements for the current version are at the MathWorks Web site)
- Any version compatibility considerations associated with each new feature or change

Version Compatibility Considerations

When a new feature or change introduces a known incompatibility between versions, its description includes a **Compatibility Considerations** subsection that details the impact. For a list of all new features and changes that have compatibility impact, see the "Compatibility Summary for the Video and Image Processing Blockset" on page 20.

Compatibility issues that become known after the product has been released are added to Bug Reports at the MathWorks Web site. Because bug fixes can sometimes result in incompatibilities, also review fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

MathWorks Bug Reports is a user-searchable database of known problems, workarounds, and fixes. The MathWorks updates the Bug Reports database as new problems and resolutions become known, so check it as needed for the latest information.

Access Bug Reports at the MathWorks Web site using your MathWorks Account. If you are not logged in to your MathWorks Account when you link to Bug Reports, you are prompted to log in or create an account. You then can view bug fixes and known problems for R14SP2 and more recent releases.

The Bug Reports database was introduced for R14SP2 and does not include information for prior releases. You can access a list of bug fixes made in prior versions via the links in the summary table.

Related Documentation at Web Site

Printable Release Notes (PDF). You can print release notes from the PDF version, located at the MathWorks Web site. The PDF version does not support links to other documents or to the Web site, such as to Bug Reports. Use the browser-based version of release notes for access to all information.

Product Documentation. At the MathWorks Web site, you can access complete product documentation for the current version and some previous versions, as noted in the summary table.

Version 2.1 (R2006a) Video and Image Processing Blockset

This table summarizes what's new in Version 2.1 (R2006a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Bug Reports at Web site	Printable Release Notes: PDF V2.1 product documentation

New features and changes introduced in this version are

Autothreshold Block Enhanced

The Autothreshold block lets you scale the threshold value computed by Otsu's method using the new **Scale threshold** and **Threshold scaling factor** parameters.

Draw Shapes Block Enhanced

For lines, polylines, polygons, and circles, the Draw Shapes block can now draw antialiased shapes.

isfilterseparable Function Added

Use the `isfilterseparable` function to determine whether filter coefficients are separable.

Lane Departure Warning System Demo Added

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vipldws` at the MATLAB® command prompt.

MPlay GUI Access Changed

Before, you could open the MPlay GUI using the MPlay block or by typing `mplay` at the MATLAB command prompt. The MPlay block has been removed. So, you can only open the GUI using the command prompt.

Compatibility Considerations

Delete the MPlay blocks in your old models.

Version 2.0 (R14SP3+) Video and Image Processing Blockset

This table summarizes what's new in Version 2.0 (R14SP3+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Bug Reports at Web site	No

New features and changes introduced in this version are

Blocks Added

Block Matching

Use the Block Matching block to estimate motion between images or video frames.

Deinterlacing

Use the Deinterlacing block to remove motion artifacts by deinterlacing the input video signal.

Gaussian Pyramid

Use the Gaussian Pyramid block to perform Gaussian pyramid decomposition.

Optical Flow

Use the Optical Flow block to estimate object velocities.

Projective Transformation

Use the Projective Transformation block to transform a quadrilateral into another quadrilateral.

PSNR

Use the PSNR block to compute the peak signal-to-noise ratio (PSNR) between two images.

Block Enhancements

2-D Mean, 2-D Standard Deviation, and 2-D Variance

The 2-D Mean, 2-D Standard Deviation, and 2-D Variance blocks let you compute the statistic value over a particular region of interest (ROI).

Blob Analysis

The Blob Analysis block lets you calculate the perimeter of blobs.

Color Space Conversion

The Color Space Conversion block lets you specify the standard to use for conversions between R'G'B' and Y'CbCr color spaces. Your choices are `Rec. 601 (SDTV)` or `Rec. 709 (HDTV)`.

Compositing, Image Data Type Conversion, Median Filter, and SAD

The Compositing, Image Data Type Conversion, Median Filter, and SAD blocks accept Boolean data types on their input ports.

MPlay

The MPlay GUI has been enhanced, so it is easier to use and has greater capabilities.

Demos Added

Projecting Videos onto a Rotating Cube

You can find this demo in the Geometric Transformation library. Open the demo model by typing `viprm` at the MATLAB command prompt.

Tracking Cars Using Optical Flow

You can find this demo in the Detection and Tracking library. Open the demo model by typing `viptrafficof` at the MATLAB command prompt.

Traffic Warning Sign Recognition

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vipwarningsigns` at the MATLAB command prompt.

Demo Enhancements

Periodic Noise Reduction

You can find this demo in the Video Enhancement library. Open the demo model by typing `vipstripes` at the MATLAB command prompt. This demo now includes a frequency domain filtering technique.

Version 1.2 (R14SP3) Video and Image Processing Blockset

This table summarizes what's new in Version 1.2 (R14SP3):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Bug Reports at Web site	No

New features and changes introduced in this version are

Block Enhancements

2–D FIR Filter

The 2-D FIR Filter block now supports separable filters.

Blob Analysis

The Blob Analysis block lets you specify the size of the blobs you want to find and to exclude the blobs touching the image border.

Color Space Conversion

The Color Space Conversion block supports conversions between the R'G'B' and HSV, sR'G'B' and XYZ, and sR'G'B' and La*b* color spaces.

Draw Shapes

The Draw Shapes block lets you draw filled polygons on your video.

Edge Detection

The Edge Detection block supports the Canny edge detection method for floating-point arithmetic.

Location Port of the Insert Text and Compositing Blocks No Longer Supports as Many Data Types

The Location port of the Insert Text and Compositing blocks used to support double-precision floating-point, single-precision floating-point, and Boolean data types as well as 8-, 16-, and 32-bit signed and unsigned integers. Now this port supports only double-precision floating-point and single-precision floating-point data types when the block input is a floating-point data type.

Compatibility Considerations. You might need to change the data type of the signal input to the Location port.

MPlay

The MPlay GUI can stop and start a Simulink® simulation. Also, its interface has been enhanced, so it is easier to use and has greater capabilities.

Read AVI File, Read Binary File, and From Multimedia File

The Read AVI File, Read Binary File, and From Multimedia File blocks can return an end-of-file indicator, which lets you determine when the end of your video file has been reached.

Read Binary File and Write Binary File

The Read Binary File and Write Binary File blocks let you specify the byte ordering in custom files. You can choose between big endian and little endian data organization.

Fixed-Point Support

The Autothreshold block now supports fixed-point data types.

Demos Added

Cell Counting

You can find this demo in the Video Segmentation Using Morphology library. Open the demo model by typing `vipcellcounting` at the MATLAB command prompt.

Color Segmentation

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vipcolorsegmentation` at the MATLAB command prompt.

MPlay Simulink Tutorial

You can find this demo in the Video Playback library. Open the demo model by typing `vipmplaytut` at the MATLAB command prompt.

People Tracking

You can find this demo in the Detection and Tracking library. Open the demo model by typing `viptrackpeople` at the MATLAB command prompt.

Visual Effects

You can find this demo in the Miscellaneous library. Open the demo model by typing `vipeffects` at the MATLAB command prompt.

Version 1.1 (R14SP2) Video and Image Processing Blockset

This table summarizes what's new in Version 1.1 (R14SP2):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Bug Reports at Web site	No

New features and changes introduced in this version are

Blocks Added

Blob Analysis

Use the Blob Analysis block to compute statistical values for labeled regions.

Draw Markers

Use the Draw Markers block to mark locations by drawing circles, x-marks, plus signs, stars, or squares.

Draw Shapes

Use the Draw Shapes block to draw rectangles, lines, polygons, or circles on images.

Find Local Maxima

Use the Find Local Maxima block to find local maxima in matrices.

Hough Lines

Use the Hough Lines block to find Cartesian coordinates of lines that are described by rho and theta pairs.

Image Data Type Conversion

Use the Image Data Type Conversion block to convert and scale input image to specified output data type.

MPlay

Use the `MPlay` GUI to block to convert and scale input image to specified output data type.

Read Binary File

Use the Read Binary File block to read binary video data from files.

Variable Selector

Use the Variable Selector block to select a subset of rows or columns from input.

Write Binary File

Use the Write Binary File block to write binary video data to files.

Demos Added

Bouncing balls

You can find this demo in the Miscellaneous library. Open the demo model by typing `vipbouncingballs` at the MATLAB command prompt.

Lane detection and tracking

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vipdetectlane` at the MATLAB command prompt.

Tracking cars in video

You can find this demo in the Detection and Tracking library. Open the demo model by typing `viptraffic` at the MATLAB command prompt.

Block Obsoleted

Draw Shape

The Draw Shape block is obsolete. It may be removed in a future version of the Video and Image Processing Blockset. Use the replacement block Draw Shapes.

Compatibility Considerations. Replace the Draw Shape blocks in your models with Draw Shapes blocks.

Version 1.0.1 (R14SP1) Video and Image Processing Blockset

This table summarizes what's new in Version 1.0.1 (R14SP1):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Fixed bugs	No

New features and changes introduced in this version are

Picture in Picture Demo Added

You can find this demo in the Miscellaneous library. Open the demo model by typing `vippip` at the MATLAB command prompt.

Panorama Creation Demo Added

You can find this demo in the Miscellaneous library. Open the demo model by typing `vippanorama` at the MATLAB command prompt.

Video stabilization (fixed-point version) Demo Added

You can find this demo in the Video Enhancement library. Open the demo model by typing `vipstabilize_fixpt_win32` (Windows only) or `vipstabilize_fixpt_all` (Platform independent) the MATLAB command prompt.

Version 1.0 (R14) Video and Image Processing Blockset

This table summarizes what's new in Version 1.0 (R14):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	No bug fixes	No

New features and changes introduced in this version are

Introduction to the Video and Image Processing Blockset

The Video and Image Processing Blockset is a tool used for the rapid design, prototyping, graphical simulation, and efficient code generation of video processing algorithms. The Video and Image Processing Blockset blocks can import streaming video into the Simulink environment and perform two-dimensional filtering, geometric and frequency transforms, block processing, motion estimation, edge detection and other signal processing algorithms. You can also use the blockset in conjunction with Real-Time Workshop® to automatically generate embeddable C code for real-time execution.

You can access the main Video and Image Processing Blockset library from the MATLAB command line by typing `viplib`. This main library has 11 libraries that contain 52 blocks.

Demos Introduced

Motion detection

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vipmotion` at the MATLAB command prompt.

Surveillance recording

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vipsurveillance` at the MATLAB command prompt.

Pattern matching

You can find this demo in the Detection and Tracking library. Open the demo model by typing `vippattern` at the MATLAB command prompt.

Video compression

You can find this demo in the Compression library. Open the demo model by typing `vipcodec` at the MATLAB command prompt.

Image compression

You can find this demo in the Compression library. Open the demo model by typing `vipimagecompression` at the MATLAB command prompt.

Histogram display

You can find this demo in the Video Analysis library. Open the demo model by typing `viphistogram` at the MATLAB command prompt.

Edge detection

You can find this demo in the Video Analysis library. Open the demo model by typing `vipedge` at the MATLAB command prompt.

Scene change detection

You can find this demo in the Video Analysis library. Open the demo model by typing `vipscenechange` at the MATLAB command prompt.

Video focus assessment

You can find this demo in the Video Analysis library. Open the demo model by typing `vipfocus` at the MATLAB command prompt.

Video stabilization

You can find this demo in the Video Enhancement library. Open the demo model by typing `vipstabilize` at the MATLAB command prompt.

Periodic noise reduction

You can find this demo in the Video Enhancement library. Open the demo model by typing `vipstripes` at the MATLAB command prompt.

Histogram equalization

You can find this demo in the Video Enhancement library. Open the demo model by typing `viphisteq` at the MATLAB command prompt.

Rotation correction

You can find this demo in the Video Enhancement library. Open the demo model by typing `viphough` at the MATLAB command prompt.

Feature extraction

You can find this demo in the Video Segmentation Using Morphology library. Open the demo model by typing `vipspokes` at the MATLAB command prompt.

Object counting

You can find this demo in the Video Segmentation Using Morphology library. Open the demo model by typing `vipstaples` at the MATLAB command prompt.

Object extraction and replacement

You can find this demo in the Video Segmentation Using Morphology library. Open the demo model by typing `vipobj` at the MATLAB command prompt.

Continuous image rotation

You can find this demo in the Geometric Transformation library. Open the demo model by typing `viprotate` at the MATLAB command prompt.

Data Type Support

All Video and Image Processing blocks support double-precision and single-precision floating-point data types during simulation and code generation. The following two blocks *only* support double-precision and single-precision floating-point data types on their input and output ports:

- 2-D Standard Deviation
- Autothreshold

Many blocks also support fixed-point data types. To use any data type other than double-precision and single-precision floating point, you must install Simulink Fixed Point.

Full Support of Embedded Real-Time (ERT) C Code Generation

All Video and Image Processing Blockset blocks support embedded real-time (ERT) ANSI C code generation (requires the Real-Time Workshop Embedded Coder).

Compatibility Summary for the Video and Image Processing Blockset

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided in the description of the new feature or change.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Version V2.1 (R2006a)	See the **Compatibility Considerations** subheading for this new feature or change: • "MPlay GUI Access Changed" on page 5
V2.0 (R14SP3+)	None
V1.2 (R14SP3)	See the **Compatibility Considerations** subheading for this new feature or change: • "Location Port of the Insert Text and Compositing Blocks No Longer Supports as Many Data Types" on page 10
V1.1 (R14SP2)	See the **Compatibility Considerations** subheading for this new feature or change: • "Block Obsoleted" on page 14
V1.0.1 (R14SP1)	None
V1.0 (R14)	None