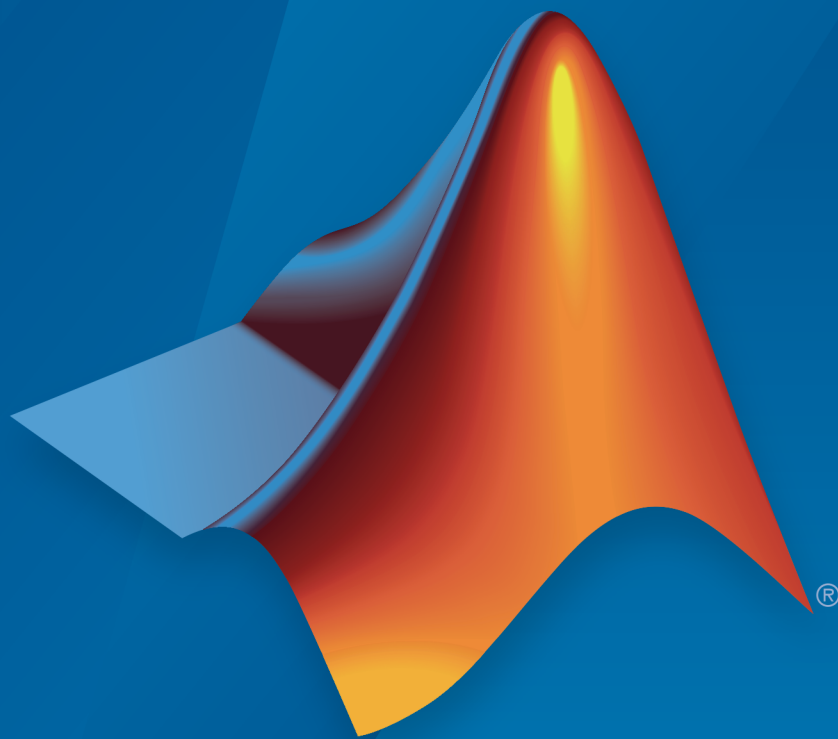


# Audio System Toolbox™ Release Notes



MATLAB® & SIMULINK®

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### *Audio System Toolbox™ Release Notes*

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## R2016b

<b>Audio Plugin Hosting: Run and test VST plugins directly in MATLAB</b> .....	1-2
<b>Improved Audio Test Bench: Choose from a wider range of input signals, and generate VST plugins directly from the app</b> .....	1-2
<b>Loudness Metering: Measure standard-compliant loudness parameters</b> .....	1-2
<b>Octave-Band Filters: Select octave and fractional-octave signal bands using standard-compliant digital filters</b> . . . .	1-2
<b>Audio Weighting Filters: Compensate signal magnitude for perceptual measurements using standard-compliant A-, C-, and K-weighted filters</b> .....	1-3
<b>Plugin class creation and MIDI support for multiband parametric equalizer</b> .....	1-3
<b>Simpler way to call System objects</b> .....	1-3

## R2016a

<b>VST plugin generation for digital audio workstations</b> . . . . .	2-2
<b>Interfaces to ASIO, ALSA, CoreAudio, and Windows Direct Sound</b> .....	2-2

<b>Interfaces to MIDI controls for real-time tuning of MATLAB and Simulink simulations .....</b>	<b>2-2</b>
<b>Audio processing algorithms, sources, and measurements for MATLAB and Simulink .....</b>	<b>2-2</b>
<b>Audio test bench to automatically generate an interactive audio simulation environment .....</b>	<b>2-2</b>
<b>Support for C code generation .....</b>	<b>2-3</b>
<b>Support for MATLAB Compiler .....</b>	<b>2-3</b>

# R2016b

Version: 1.1

New Features

## **Audio Plugin Hosting: Run and test VST plugins directly in MATLAB**

The `loadAudioPlugin` function enables you to host external VST and VST3 plugins in MATLAB®. You can process audio using the algorithm of the hosted plugin. You can interact with the hosted plugin programmatically by getting and setting parameters.

## **Improved Audio Test Bench: Choose from a wider range of input signals, and generate VST plugins directly from the app**

The Audio Test Bench is a graphical debugging and testing suite for audio processing modules.

New abilities of the **Audio Test Bench** include:

- Switch the object under test in a single instance of the test bench.
- New input choices: `wavetableSynthesizer`, `audioOscillator`, `dsp.Chirp`, and `dsp.ColoredNoise`.
- Validate and generate VST plugins directly from the test bench.
- Track overrun and underrun in frames, seconds, or samples.

## **Loudness Metering: Measure standard-compliant loudness parameters**

Measure integrated loudness and loudness range of an audio signal using the `integratedLoudness` function.

Measure momentary loudness, short-term loudness, integrated loudness, loudness range, and true-peak of streaming audio using the `loudnessMeter System` object™. You can also open an 'EBU-Mode' visualization for loudness metering.

Measure momentary loudness, short-term loudness, and true-peak in the Simulink® environment using the `Loudness Meter` block.

## **Octave-Band Filters: Select octave and fractional-octave signal bands using standard-compliant digital filters**

Perform octave-band and fractional octave-band filtering for arbitrary center frequency using the `octaveFilter System` object. With this object, you can tune center frequency

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and bandwidth while the simulation is running. To check your compliance to the ANSI S1.11-2004 standard, use the `isStandardCompliant` method. To visualize and validate your filter response, use the `visualize` method.

In the Simulink environment, use the `Octave Filter` block.

## Audio Weighting Filters: Compensate signal magnitude for perceptual measurements using standard-compliant A-, C-, and K-weighted filters

Perform frequency-weighted filtering using the `weightingFilter` System object. With this object, you can design A-weighted and C-weighted filters based on the ANSI S1.42-2001 standard, or K-weighted filters based on the ITU-R BS.1770-4 standard. To check your compliance to the IEC 61672-1:2002 standard, use the `isStandardCompliant` method. To visualize and validate your filter response, use the `visualize` method.

In the Simulink environment, use the `Weighting Filter` block.

## Plugin class creation and MIDI support for multiband parametric equalizer

New functionality for the `multibandParametricEQ` System object includes:

- Plugin class creation using `createAudioPluginClass`
- MIDI support using `configureMIDI`

`multibandParametricEQ` is now enabled for the **Audio Test Bench**.

## Simpler way to call System objects

Instead of using the `step` method to perform the operation defined by a System object, you can call the object with arguments, as if it were a function. The `step` method will continue to work. This feature improves the readability of scripts and functions that use many different System objects.

For example, if you create a `weightingFilter` System object named `Cweight`, then you call the System object as a function with that name.

```
Cweight = weightingFilter('C-weighting');  
Cweight(x)
```

The equivalent operation using the `step` method is:

```
Cweight = weightingFilter('C-weighting');  
step(Cweight,x)
```

When the `step` method has the System object as its only argument, the function equivalent has no arguments. This function must be called with empty parentheses. For example, `step(sysobj)` and `sysobj()` perform equivalent operations.



# R2016a

Version: 1.0

New Features

## **VST plugin generation for digital audio workstations**

Audio System Toolbox™ enables the design and generation of VST plugins.

For more information, see [Export a MATLAB Plugin to a DAW](#).

## **Interfaces to ASIO, ALSA, CoreAudio, and Windows Direct Sound**

Audio System Toolbox enables real-time audio processing using low-latency audio drivers.

For more information, see [Audio I/O: Buffering, Latency, and Throughput](#).

## **Interfaces to MIDI controls for real-time tuning of MATLAB and Simulink simulations**

Audio System Toolbox enables real-time tuning in MATLAB and Simulink using MIDI controls.

For more information, see [configureMIDI](#) and [Musical Instrument Digital Interface \(MIDI\)](#).

## **Audio processing algorithms, sources, and measurements for MATLAB and Simulink**

Audio System Toolbox provides algorithms and tools for the design, simulation, and desktop prototyping of audio processing systems.

For more information, see [Audio Processing Algorithm Design](#).

## **Audio test bench to automatically generate an interactive audio simulation environment**

Audio System Toolbox provides an all-in-one graphical debugging and testing suite.

For more information, see [Audio Test Bench](#) and [Use the Audio Test Bench](#).

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## **Support for C code generation**

You can use MATLAB Coder™ to generate efficient C and C++ code for most Audio System Toolbox functions, classes, and System objects.

For a list of supported functions and objects, see Audio System Toolbox.

For a guide to developing code capable of C code generation, see MATLAB Programming for Code Generation.

## **Support for MATLAB Compiler**

You can use MATLAB Compiler™ to share MATLAB programs as standalone applications.

For an example, see Deploy Audio Applications with MATLAB Compiler.

