

**Spectrum Analyzer and  
Graphic Equalizer On-line  
Help  
(Version 1.1)**

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# 1 Introduction

## 1.1 Overview

Beginning with version 5.0, Total Recorder supports add-on programs. These add-ons can be used to process a sound stream or to monitor some sound characteristics. The features provided by the add-on depend upon the particular add-on. To learn more about add-ons, refer to the add-on's help file and add-on home page.

The Total Recorder Spectrum Analyzer and Graphic Equalizer Add-on lets you display and modify the levels of different sound frequencies. For example, you can use the Graphic Equalizer to set sound frequency levels, and then use the Spectrum Analyzer to review the results.

The Spectrum Analyzer and Graphic Equalizer Add-on Version 1.1 requires Total Recorder Version 7.0 or higher. This add-on is available at no additional charge and does not require registration.

This add-on contains these two independent modules: Spectrum Analyzer and Graphic Equalizer.

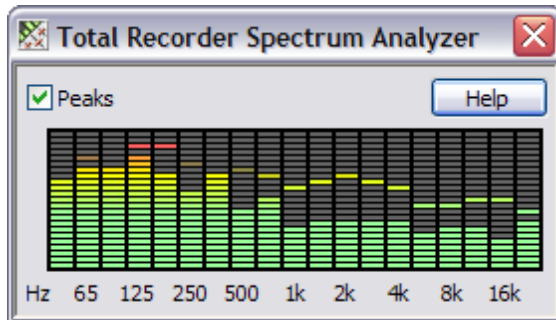
## 2 Using Spectrum Analyzer and Graphic Equalizer Add-on

### 2.1 Spectrum Analyzer

The Total Recorder Spectrum Analyzer module provides a real-time display of the signal level for different frequency bands during playback or recording.

To use the Spectrum Analyzer for a file being played or recorded:

1. From the "Process" menu, select "Spectrum Analyzer and Graphic Equalizer" –>"Spectrum Analyzer". The following display appears.



2. Optionally, select the "Peaks" check box to display peak levels for the individual frequency bands.

### 2.2 Graphic Equalizer

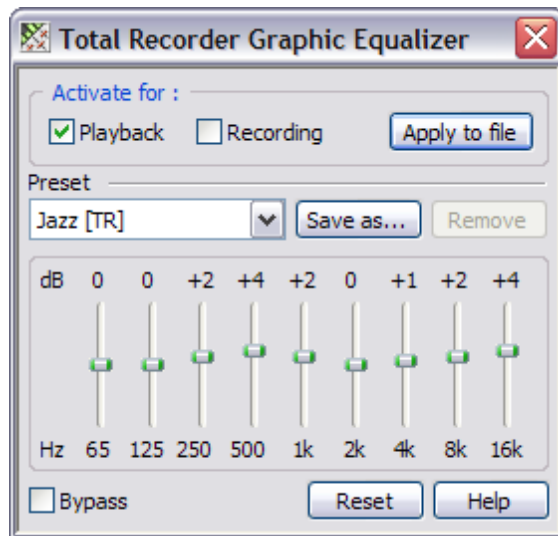
The Total Recorder Graphic Equalizer is a 9-band linear phase equalizer you can use to enhance audio signals. This equalizer is based on the Finite Impulse Response (FIR) filter. It allows accurate equalization without any phase distortion.

#### Using the Graphic Equalizer



To use the Graphic Equalizer:

1. From the "Process" menu, select "Spectrum Analyzer and Graphic Equalizer" –> "Graphic

Equalizer". This opens the Total Recorder Graphic Equalizer dialog shown below.



2. Select "Playback" or "Recording" to indicate when the equalizer will be used.
3. From the "Preset" drop-down list, choose a preset, or adjust the controls as desired.

When the equalizer is active, the audio stream passes through the graphic equalizer. In active mode, the equalizer icon in the Total Recorder's "Status" panel is highlighted as . When the equalizer is inactive, the equalizer icon appears as grayed out .

## WARNINGS

- *It is not recommended you use the equalizer during a recording unless it is absolutely necessary. You will not be able to revert any changes later. It is recommended you record sound without any changes first, and then apply equalization to the resulting file.*
- *It is not recommended you select/clear the "Playback" and "Recording" boxes when a file is actually being played back or recorded. This may lead to sound distortion (e.g. clicks). Also, if this distortion occurs during a recording, it cannot be removed later.*

## Adding a Preset

To add a preset, take the following steps:

1. Set the slider controls as required.
2. Click the "Save as" button.
3. Enter a name for the preset. You can use up to 99 characters.

The new preset is added to the Preset drop-down list.

## Adjusting the Sliders

You can move the sliders to adjust the volume of each frequency band. The range is from -15 dB to 15 dB. If you wish to bring all slider levels to the zero position, press the "Reset" button. This is useful before you specify new settings for the equalizer.

## Disabling Equalization Temporarily

If you wish to temporarily disable equalization, select the “Bypass” check box. This allows you to monitor the equalization process during playback and you can compare the original sound with the equalized sound.

### Applying Equalization to an Entire File

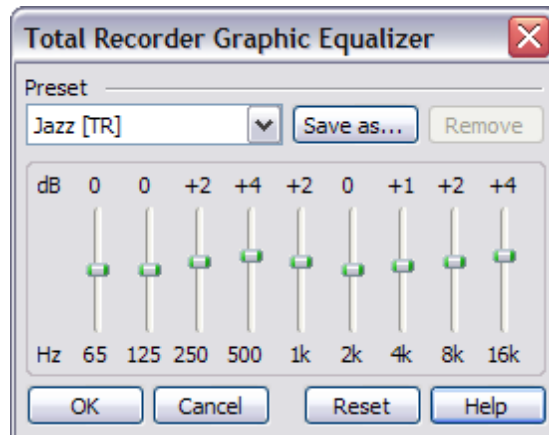
To apply equalization to an entire file and save the changes, take the following steps:

1. Make a backup copy of the file.
2. From the Total Recorder Graphic Equalizer dialog, select “Playback”.
3. Set at least one slider to a non-zero position.
4. Listen to the file.
5. Use the “Apply to file” button.

### Using the Graphic Equalizer during Batch Processing (Professional and Developer Editions of Total Recorder only)

To use the Graphic Equalizer during batch processing:

1. In the Total Recorder's “Batch Processing Wizard – Choose Operations” dialog, select “Graphic Equalizer”, and press the “Parameters...” button. This opens the Total Recorder Graphic Equalizer dialog for batch processing, as shown below.



2. From the “Preset” drop-down list, choose a preset, or move the sliders as desired.
3. Press “OK”.

## 2.3 COM and Automation (Total Recorder Developer Editions only)

With Total Recorder Developer Edition, you can control add-ons using the COM and Automation technologies. The following properties and methods are available: AddonsCount, AddonName, AddonNumber, AddonParamsCount, AddonParamName, AddonParamNumber, AddonParamValue, AddonExecuteChanges. For detailed descriptions of all properties and methods, refer to the Automation Online Help supplied with the Developer Edition of Total Recorder.

All parameters available with the Spectrum Analyzer and Graphic Equalizer Add-on, Version 1.1, are listed in the table below:

Number	Name
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0	Version number
1	Analyzer window is open/closed (0 or 1)
2	Equalizer window is open/closed (0 or 1)
3	Analyzer peak indicator is on/off (0 or 1)
4	Equalizer settings will be used for playback (0 or 1)
5	Equalizer settings will be used when recording (0 or 1)
6	Equalizer settings will be used when saving (0 or 1)
7	Bypass mode is on/off (0 or 1)
8	Slider position for line 1 (65 Hz, from -15 to 15 dB)
9	Slider position for line 2 (125 Hz, from -15 to 15 dB)
10	Slider position for line 3 (250 Hz, from -15 to 15 dB)
11	Slider position for line 4 (500 Hz, from -15 to 15 dB)
12	Slider position for line 5 (1.0 kHz, from -15 to 15 dB)
13	Slider position for line 6 (2.0 kHz, from -15 to 15 dB)
14	Slider position for line 7 (4.0 kHz, from -15 to 15 dB)
15	Slider position for line 8 (8.0 kHz, from -15 to 15 dB)
16	Slider position for line 9 (16.0 kHz, from -15 to 15 dB)

#### Notes

If some parameters are set incorrectly or an invalid combination chosen, then some parameters may not be changed.

The "Version number" parameter cannot be changed. This parameter has been converted from a DWORD type to a float type, where the high word corresponds to the high version number and the low word corresponds to the low number. Therefore, for Version 1.1, this parameter equals 65537.0.

When changing the above parameters, note the following:

- The add-on can be in only one mode at a time (i.e. playback, recording, or saving). This means that only one of the 4, 5, 6 parameters can be set to 1.
- If the add-on is in saving mode (parameter 6 is set to 1) then only parameters 1-3 can be changed
- Saving mode cannot be disabled by setting parameter 6 to 0. To disable saving mode, it is necessary to undo the changes (Document.Undo method), save the file (Document.Save or Document.SaveAs method), or close the file without saving (Document.Close method). This will change parameter 6 to 0.
- Saving mode and Bypass mode cannot be on at the same time because properties 6 and 7 cannot

both be equal to 1.