



# Digital Audio Workstation (DAW)

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## Partially based on:

- Christopher Ariza. 21M.380 Music and Technology: Recording Techniques and Audio Production. Spring 2012. Massachusetts Institute of Technology: MIT OpenCourseWare, <https://ocw.mit.edu>. License: [Creative Commons BY-NC-SA](#).
- Digital Audio Production IT3038PA, NITEC Digital Audio & Video Production. 2013. Institute of Technical Education College West.

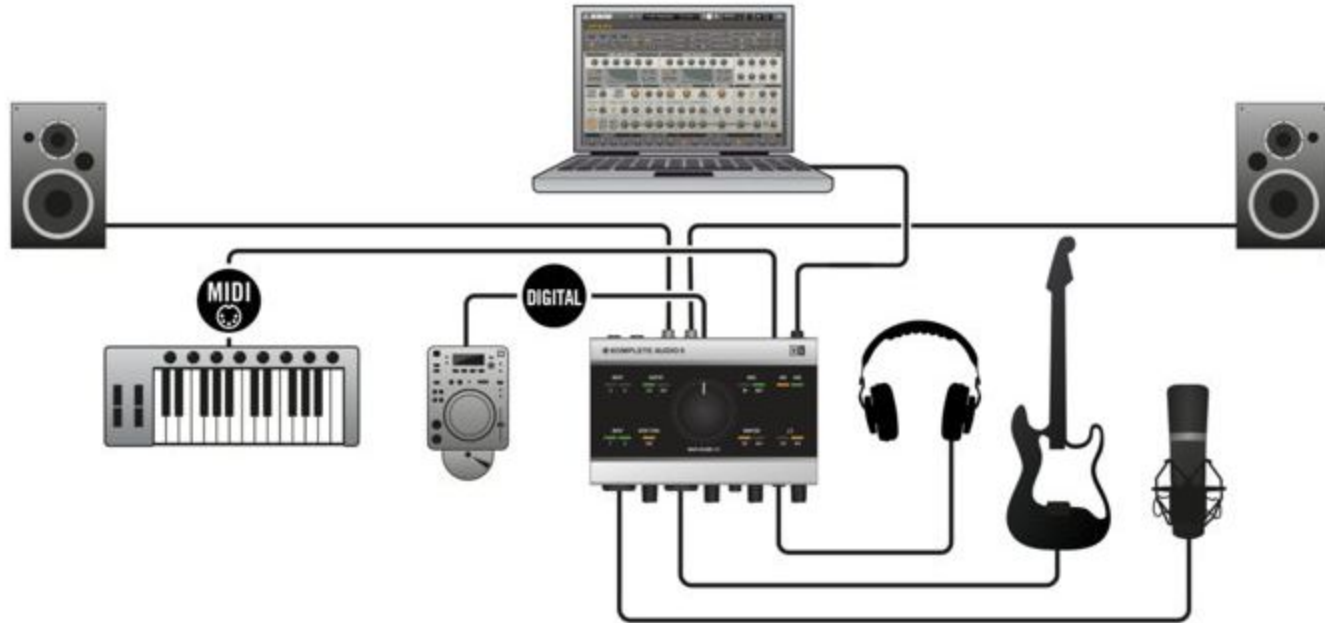
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# Digital Audio Workstation (DAW)

- Digital Audio Workstation (DAW) is a system designed to record, edit and playback digital audio.
- Types of DAWs:
  - Integrated DAWs
  - Computer-based DAWs



# Software DAW Connections





# Software DAW Layout

- Standard layout of a software DAW:
  - Transport controls (play, stop, pause, record, etc.)
  - Track controls
  - Mixer
  - Waveform display and/or other analyzers

Transport controls

The main workspace displays a multi-track arrangement. On the left, track controls for 9 tracks are visible: Drums, Upright Bass, Rhodes, Congas, Percussion, Scratching 1, Scratching 2, Matrix In 1, and Matrix In 2. Each track has a gain knob, pan knob, and a 'Clips' button. The central area is a waveform display with a time axis from 00:00:13:12 to 00:00:16:00. The tracks are color-coded: Drums (blue), Upright Bass (purple), Rhodes (green), Congas (yellow), Percussion (black), Scratching 1 (red), Scratching 2 (orange), Matrix In 1 (dark red), and Matrix In 2 (brown). A yellow box labeled 'Waveform display' is centered over the Rhodes track.

Track controls

The mixer console at the bottom of the interface shows 11 channels. Each channel has a pan knob, a fader, and a level meter. The channels are: 1 Drums, 2 UprightBss, 3 Rhodes, 4 Congas, 5 Percussion, 6 Scratching1, 7 Scratching2, 8 Matrix In1, 9 Matrix In2, 10 Matrix In3, 11 Matrix In4, and a Master channel. A yellow box labeled 'Mixer' is positioned over the Matrix In3 and Matrix In4 channels.

For Help, press F1



# DAW Projects

- Projects are a folder that contain many components
- The project file is small
  - it only contains control and parameter information
- The project contains subdirectories for audio files and other data
- It is critical to keep all project components together

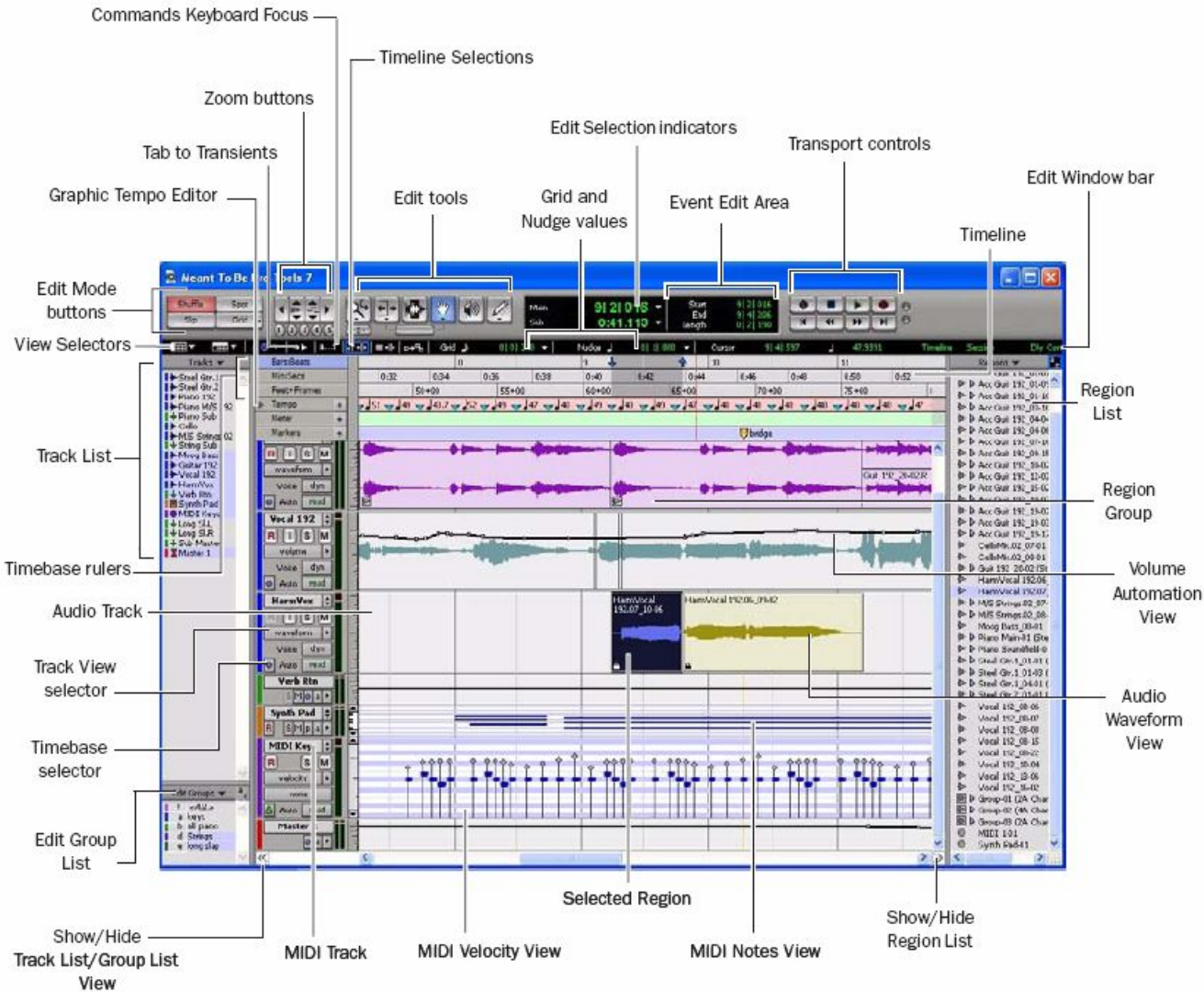


# Importing Audio

- DAWs provide representations of associated sound files and regions
- Source audio files may or may not be in the project
- Linking versus copying: always copy if possible



# Edit Window

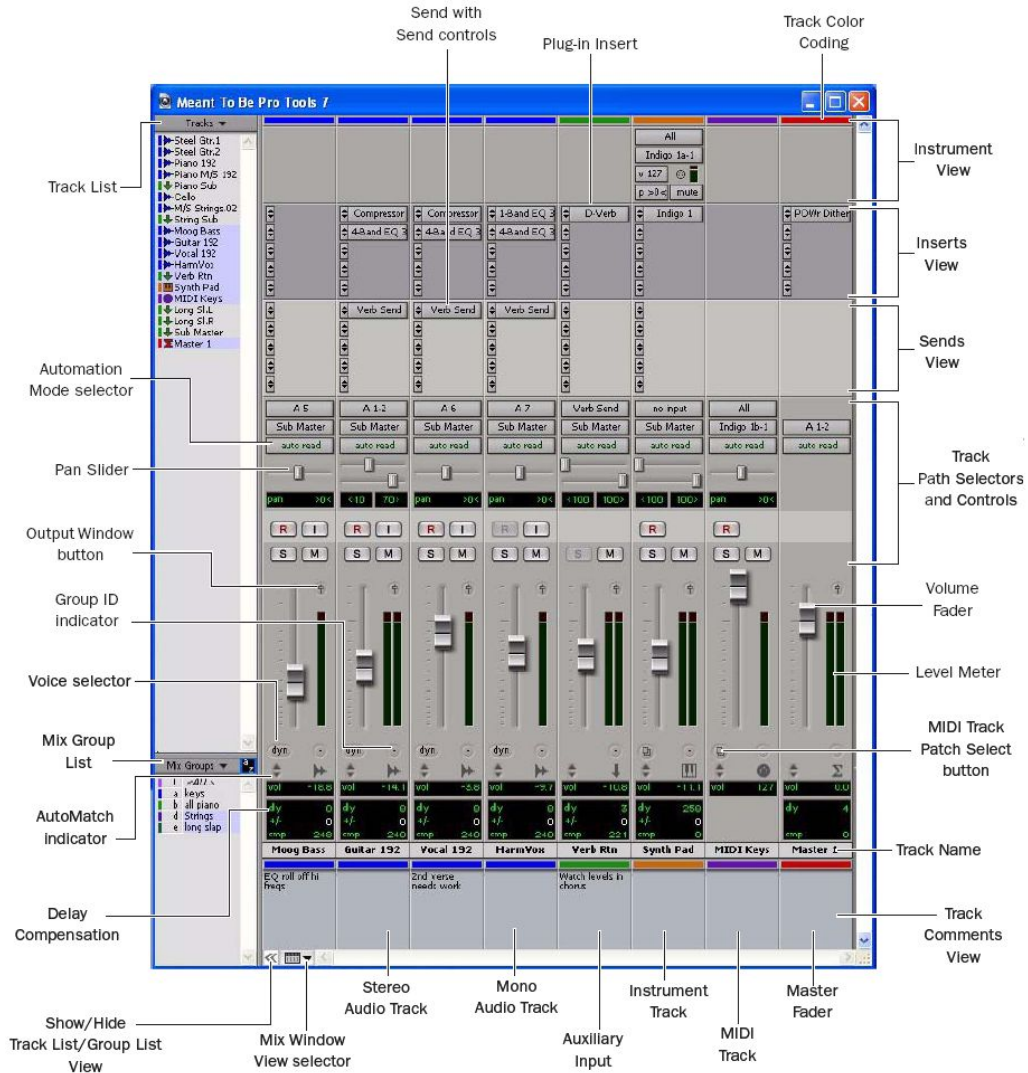




## DAWs: Tracks

- Many types: audio (mono, stereo, surround), MIDI, auxiliary, master
- Input and output assignments may be busses or physical I/O
- Tracks store information about audio files and how to play them back
- Tracks store multiple parallel parameters that change over time
- Managing automation data in Live

# Mix Window

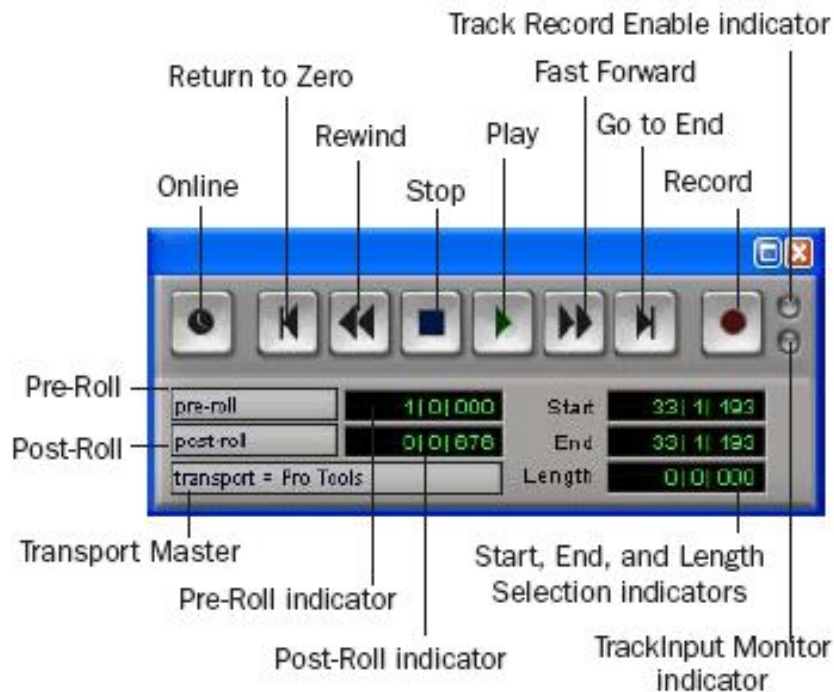




# Master Tracks

- Provides a final level control of mix
- Will generally require 3 to 6 dB (or more) gain reduction below unity
- May do 1 to 3 dB of limiting on master track is sometimes necessary
- Do not compress or do other processing on the master track
- Adding processing to the master track in Live

# Transport Window

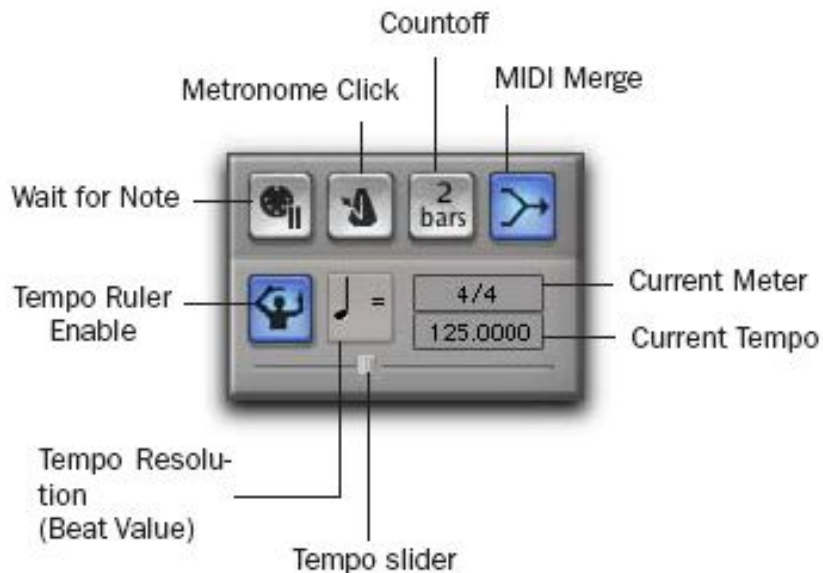


Transport window showing basic transport controls and counters (Main and Sub Counters and MIDI not shown)

Expand/Collapse "+" button



Transport Window with MIDI Controls





## DAWs: Plugins

- Plugins are serial (insert) processors
- Each plug-in requires hardware processing power
- Always conserve plug-in use as necessary
- Using plug-ins for parallel processing requires an auxiliary track with an insert



## Further Learning

- DAW Software
  - <https://www.youtube.com/watch?v=i-MvRDR4jeM>
- What is a DAW?
  - <https://www.youtube.com/watch?v=OqMrgQ0bHYo>