
Chapter 1: Basics I

Pro Tools

App 2

Week 1

Overview

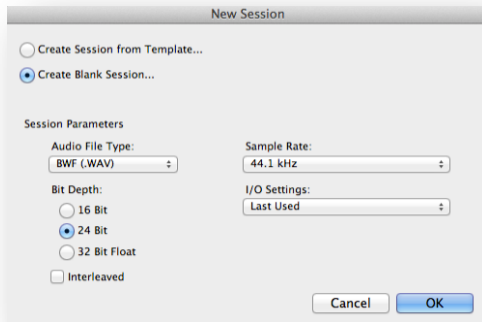
By the end of this lesson you should be able to open pro tools, create a new session, create audio, midi and instrument tracks. You should be able to record and playback basic audio and midi information and be familiar with common tools in the pro tools environment.

Creating A Blank Session in Pro Tools:

After opening pro tools you can create a new session by selecting new from the file menu or using the quick key (Command + N)

Quick Keys:

New Session: Command + N



Within The New Session Dialog Box:

1. Select the “Create a Blank Session...” Radio Button we will discuss templates at a later date.

Session Parameters:

Audio File Types

Broadcast Wave Format (BWF) is an extension of the popular Microsoft WAVE audio format and is the recording format of most file-based non-linear digital recorders used for motion picture, radio and television production. Initially released in 1997 it has now become the standard for most audio production. This format commonly called “Wave” is now standard across most platforms and allows for simple collaboration. The file extension for a Wave file is (.WAV).

Audio Interchange File Format (AIFF) is an audio file format standard used for storing sound data for personal computers and other electronic audio devices. The format was developed by Apple Inc. in 1988 based on Electronic Arts' Interchange File Format (IFF, widely used on Amiga systems) and is most commonly used on Apple Macintosh computer systems. This file format is restricted to Apple systems and can cause problems in collaboration. The file extension for an AIFF file is (.AIFF).

Sample Rate:

Digital recording reduces a continuous signal to a discrete signal through the process of sampling. Simply put a sample is a value or set of values at a point in time.

When recording in a digital system we have to select a sample rate. The sample rate is the number of times per second the computer will take sample.

Thanks to the Nyquist–Shannon sampling theorem we know that 44,100 is the minimum amount of samples we need to take per second in order to recreate audio at a level to fool human hearing.

Sample rate options in pro tools include: 44.1 kHz 48 kHz 88.2 kHz 96 kHz 176.4 kHz 192 kHz

Bit Depth:

Bit Depth is most simply put as the resolution of the sample size taken. The bit depth defines your word length.

Bit Depth options in Pro Tools are 16 Bit, 24 Bit and 32 Bit Float

Simply put this identifies how many 1s and 0s will be available.

16 bit has 16 places.

0000 0000 0000 0000

24 bit has 24 places

0000 0000 0000 0000 0000 0000

Given that each place only gives you the option for 1 or a 0 we can easily calculate the maximum resolution of a 16-bit system by squaring the number of potential values by the number of place values.

$$2^{16} = 65,536$$

Therefore at 16 bit your audio will have 65,536 points of resolution per sample.

24 bit would be:

$$2^{24} = 16,777,216$$

Therefore at 24 bit your audio will have 16,777,216 points of resolution per sample.

32 Bit Floating Point operates on a different concept involving non-fixed audio so we won't include it here. The resolution itself is not necessarily higher but it allows for variable processing in the dynamic range.

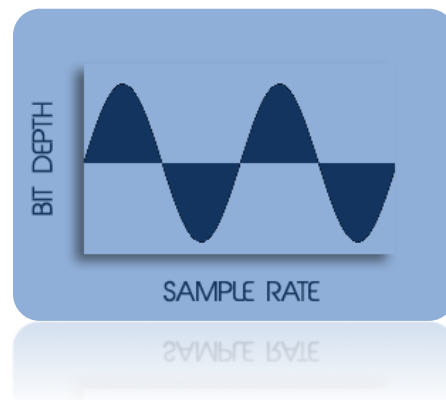
The interleaved option defines whether or not you would like pro tools to handle stereo audio files individually as left and right or combined into a singular file.

Key Terms:

Hz: (Hertz) is the unit of frequency in the International System of Units (SI) and is defined as one cycle per second. It is named for Heinrich Rudolf Hertz, the first person to provide conclusive proof of the existence of electromagnetic waves.

kHz: (Kilohertz) is one thousand Hertz

Word Length: In computing, word is a term for the natural unit of data used by a particular processor design. A word is a fixed-sized piece of data handled as a unit by the instruction set or the hardware of the processor.



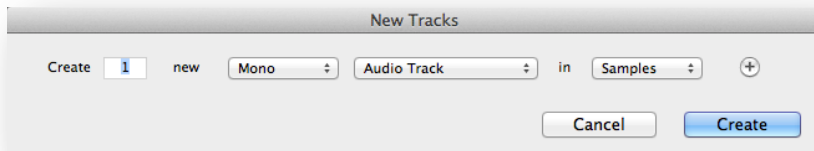
I/O Settings:

This box simply allows you to select which pre-made I/O settings file you would like to build your session off of. We will discuss I/O settings in greater detail later. For Now selecting “Last Used” should suffice.

Quick Keys:

New Track: Command + Shift + N

Creating Audio Tracks



From The Track Pull-down menu you can select New... or use the quick key!

If you hit the quick key again you can add additional rows within the dialog box.



Track Types

Audio Tracks can be mono or stereo and are used for recording audio.

Aux Inputs can be mono or stereo and are used for routing audio, they can be used in conjunction with busses or Virtual Instruments to move audio around the Pro Tools system.

Master Fader can be mono or stereo and controls the physical outputs of the hardware interface.

MIDI Track stores midi information that can be routed to Virtual Instruments or external hardware instruments.

Instrument Track can be mono or stereo and Combines the routing capabilities of an Aux Input with the midi storage capabilities of a MIDI Track and is intended for use with Virtual Instruments.

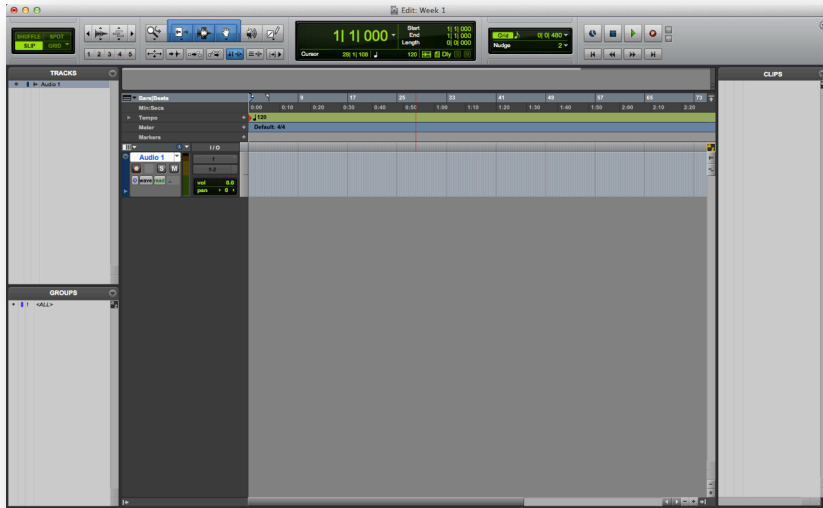
Ticks VS Samples

Samples: Absolute time based on the sample rate of the session.

Ticks: Variable time which can be adjusted dynamically based on the ruler options in Pro Tools.

Edit Window

The edit window is where you will spend most of your time in Pro Tools.



Quick Keys:

With track selected:

Arm Record Track: Shift + R

Input Monitor Track: Shift + I

Solo Track: Shift + S

Mute Track: Shift + M

The Edit Window has a large number of functions but for now we will only concern ourselves with the main track controls area.



These are your main track controls with 3 buttons including Record Arm, Solo and Mute. In Pro Tools HD you will find an additional button for Input Monitoring. Here you will also find the Sample/Ticks, track view options, automation state, and elastic audio state controls.

Recording

In order to record in Pro Tools you must first arm the track that you want to record to. Arming a track puts it in a record ready mode so that when the system is put into record the track will begin recording. Only armed tracks will record. Arm the desired track(s) by selecting the record arm button on the left of your track controls.

Record Arm Button

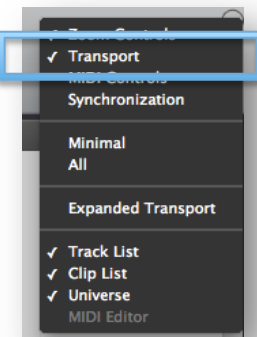


Once Armed the record button will flash red.

Basic Transport:

On the top toolbar of the edit window you should see your basic transport.

If you cannot locate the basic transport then either right click (control + click) on a blank section of the tool bar or click on the dropdown menu in the top right hand corner of the toolbar and enable the basic transport.



Click on the record button marked with a red circle to put Pro Tools into record mode. Then click the play button marked with a green arrow to begin recording.

There are also 3 available Quick Keys for recording.

- 1: Command + Space
- 2: Number Pad 3
- 3: F12

Chapter Review:

You should now be able to open Pro Tools and create a new session while being confident in the settings you have selected to begin working on your project. You should also be able to create tracks, arm them and activate recording in the software.

Quick Keys:

- New Session: Command + N
- New Track: Command + Shift + N
- Arm Record Track: Shift + R
- Input Monitor Track: Shift + I
- Solo Track: Shift + S
- Mute Track: Shift + M
- Play: Space Bar
- Record 1: Command + Space Bar
- Record 2: Number Pad 3
- Record 3: F12

Quick Keys:

- Play:
- Space bar
- Record:
- Command + Space
- Number Pad 3
- F12