Module 5: Working with Timebases and Virtual Instruments
Module 5: Working with Timebases and Virtual Instruments

Objectives:

• Understand the difference between Sample-based and Tick-based timescales and tracks

• Understand the difference between plug-in virtual instruments and stand-alone virtual instruments

• Recognize the main controls for the Transfuser, Xpand!2, Hybrid, and Structure virtual instruments
Understanding Track Timebases

• Sample-Based Operation versus Tick-Based Operation
  • Absolute Time Scales = specific duration regardless of tempo:
    • Samples, Min:Secs, Time Code, Feet+Frames
  • Relative Time Scales = durations change relative to tempo:
    • Bars|Beats
Understanding Track Timebases (2)

• Tick-Based Timing and Note Values

<table>
<thead>
<tr>
<th>Note Value</th>
<th>Normal</th>
<th>Dotted</th>
<th>Triplet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 Note</td>
<td>1920</td>
<td>2880</td>
<td>1280</td>
</tr>
<tr>
<td>1/4 Note</td>
<td>960</td>
<td>1440</td>
<td>640</td>
</tr>
<tr>
<td>1/8 Note</td>
<td>480</td>
<td>720</td>
<td>320</td>
</tr>
<tr>
<td>1/16 Note</td>
<td>240</td>
<td>360</td>
<td>160</td>
</tr>
<tr>
<td>1/32 Note</td>
<td>120</td>
<td>180</td>
<td>80</td>
</tr>
<tr>
<td>1/64 Note</td>
<td>60</td>
<td>90</td>
<td>40</td>
</tr>
</tbody>
</table>

• Track Timebases

  • Audio Tracks – *Sample-Based* by default
  • MIDI/Instrument Tracks – *Tick-Based* by default
Virtual Instruments

• Using Plug-In Virtual Instruments
  • Real-time software plug-ins that run within Pro Tools
  • Formats:
    • Native
    • DSP
  • Monitoring Sound from Plug-In Virtual Instruments
    • Typically monitored through Instrument or Aux Input track
• Virtual MIDI Nodes
  • Created when using MIDI with virtual instrument plug-ins
  • Provide software MIDI connection between Pro Tools and the instrument plug-in
Plug-In Virtual Instrument Overviews

- **Transfuser**
  - Modular loop-manipulating and beat-munging groove generator

- **Xpand!2**
  - Virtual workstation synthesizer

- **Hybrid**
  - Premium analog modeling synthesizer

- **Structure**
  - Professional sampler workstation
Using Stand-Alone Virtual Instruments

• About ReWire
  • Protocol that enables applications to communicate with one another
  • Enables you to record, process, and mix inputs from stand-alone virtual instruments
  • Can synchronize transport controls and song position

• Using ReWire Applications with Pro Tools
  • ReWire-compatible Applications:
    • Torq LE from M-Audio
    • Reason and Record from Propellerhead
    • Live from Ableton
    • BFD from FXpansion
    • Melodyne from Celemony
Review/Discussion Questions


2. Which Pro Tools timescales are absolute? Which are relative? What is the difference between absolute and relative timescales?

3. Pro Tools provides 960 ticks per quarter note; how many ticks does it provide per half note? How many per eighth note?

4. How do audio clips respond to tempo changes on a sample-based track? How do they respond if you change the track to tick-based (without using Elastic Audio)?

5. What are virtual instruments?
Review/Discussion Questions (2)

6. What are the two types of virtual instruments available for use in Pro Tools? Which type uses ReWire?

7. What type of plug-in virtual instrument is available for all Pro Tools systems? What type is available on Pro Tools|HD and HDX systems only?

8. What is the Tranfuser virtual instrument used for? What control lets you create variations of sequencer patterns with a single click?

9. What type of virtual instrument is the Hybrid plug-in? What type of instrument is Structure?

10. Name some stand-alone virtual instruments. Describe how they can be used with Pro Tools.