

## HTDM Q & A

### **Q: What is HTDM?**

A: HTDM stands for "Host TDM" and refers to Plug-Ins that do all audio processing on the host CPU instead of the DSP chips found on your TDM hardware. They use a single, shared DSP on the TDM system to allow the audio from these host Plug-In processes to stream in or out of the system. The faster your computer, the more Plug-Ins you will be able to run.

HTDM Plug-Ins allow the power and flexibility of host-based processing for synths and sampling to directly integrate into Pro Tools. You can work with these Plug-Ins as you would use standard TDM Plug-Ins, including major benefits like using Pro Tools automation (in addition to MIDI) to automate parameters, or using control surfaces for hands-on control of Plug-In parameters.

### **Q: What kind of computer do I need to successfully work with HTDM Plug-Ins?**

A: We highly recommend Macintosh G4 computers to get a good amount of host processing power while keeping screen refresh rates and overall system performance at an acceptable level.

### **Q: How many HTDM Plug-Ins can be used in a session?**

A: Depending on the host CPU speed and the number of audio streams per Plug-In, you can instantiate up to 32 mono or 16 stereo HTDM Plug-Ins. The number of Plug-Ins you can run is also practically limited by available memory, as many HTDM Plug-Ins require large amounts of additional RAM.

As an example, on a G4/450 (not the fastest machine out there now!), you can easily run three or four of these Plug-Ins without the host CPU's UI getting bogged down, or error messages.

### **Q: How much memory will I need?**

A: A good rule of thumb will be to add roughly 20 Megabytes per Plug-In to the memory allocation of DAE. Please note that some HTDM Plug-Ins also require more memory in Pro Tools, so it might be a good idea to allocate significantly more memory to Pro Tools also. Running several Plug-Ins simultaneously might require as much as 200 Megabytes for DAE and Pro Tools or even more!

### **Q: Will I experience latency when using HTDM Plug-Ins?**

A: Yes. Unlike TDM Plug-Ins that run on DSP chips with infinitesimally small amounts of delay, a host-based Plug-In will always add a certain amount of latency. HTDM Plug-Ins will be prone to latencies that depend on the version of Digidesign StreamManager you're using and

can vary between 512 and 128 samples.

**Q: How can I reduce this latency?**

A: The Pro Tools v5.1.1 for Mac installer puts a "standard" 512 sample buffer version of DirectConnect and Digidesign StreamManager into the Plug-Ins and Extensions folder, respectively. You will find a low-latency 128 sample buffer version of those components inside the "Beta/Bug Fix Software" folder on your Pro Tools v5.1.1 Mac CD ROM or downloaded from the DirectConnect downloads section of the Digidesign Web Site at [www.digidesign.com/download](http://www.digidesign.com/download)

Swapping DirectConnect and StreamManager components and reloading Pro Tools will reduce latency drastically from about 11 ms to less than 3 ms. This change affects both DirectConnect and HTDM.

Please remember that currently both DirectConnect and StreamManager are matched pairs and you will need to keep the buffer sizes synchronized (i.e. always change both files) to avoid system problems such as crashes. Future versions of DirectConnect and StreamManager will remove this dependency.

*Important to note: A side effect of the lower buffer size is a higher load on your host CPU. In extreme cases, you might not be able to reach the same level of performance achieved with the standard version of DirectConnect. If you experience excessive "low CPU" warnings, or even audio dropouts, we recommend going back to the standard 512 sample buffer version of DirectConnect.*

**Q: In Pro Tools v5.1 and higher I can use RTAS Plug-Ins on a TDM system. Isn't HTDM the same?**

A: No. There are certain limitations to using RTAS Plug-Ins on a PT 5.1 TDM system. In particular:

- RTAS Plug-Ins can only be instantiated on disk tracks, not on aux tracks or on master faders.
- Even on disk tracks, all RTAS Plug-Ins must be inserted before TDM Plug-Ins.
- RTAS Plug-Ins do not support sidechain inputs on 5.1 TDM systems.
- RTAS Plug-Ins must have symmetric I/O (i.e. 1 in, 2 out is not allowed)

HTDM Plug-Ins do not have any of those limitations.

**Q: What is the difference between DirectConnect and HTDM?**

A: DirectConnect and HTDM are very similar, in that behind the scenes

they are using the same basic StreamManager technology. The audio is "streamed" in or out of the TDM mix environment by a single DSP, which can handle up to 32 mono or 16 stereo "streams" of audio. The difference is that HTDM Plug-Ins exist directly within the Pro Tools mix environment, and can make use of Pro Tools automation rather than using MIDI only.

DirectConnect supports stand-alone applications that can stream in or out of TDM, but they are not directly integrated as HTDM Plug-Ins are. Instead you must move between Pro Tools and other DirectConnect "client applications" when working.

HTDM Plug-Ins also let you use Pro Tools TDM-compatible control surfaces like ProControl, Control|24 and inexpensive MIDI controllers to control these Plug-Ins, a major plus!

**Q: Can I use DirectConnect and HTDM at the same time?**

A: HTDM Plug-Ins and DirectConnect can be used simultaneously in your session because DirectConnect in fact is a special HTDM Plug-In that allows other host-based applications to stream their audio into Pro Tools.

**Q: How about RTAS and HTDM Plug-Ins? Can I mix both Plug-In types in a session?**

A: At this time we highly recommend not using HTDM and RTAS Plug-Ins simultaneously in order to avoid audio artifacts or other problems. We will continue to optimize this new functionality in future Pro Tools releases.

**Q: Are HTDM Plug-Ins available for Pro Tools|24 and Pro Tools III systems?**

A: No, HTDM Plug-Ins require Pro Tools MIX hardware to work. Similar to DirectConnect, HTDM Plug-Ins needs at least one free SRAM DSP on a Pro Tools MIX card to work.

**Q: Are HTDM Plug-Ins available for all CPU platforms?**

A: Currently, HTDM Plug-Ins are available for Macintosh only. We are in the process of developing HTDM for Windows but we can't be more specific about its availability yet.

**Q: I am a Pro Tools LE user. Will HTDM Plug-Ins work for me?**

A: No, Pro Tools LE can take advantage of RTAS Plug-Ins only. Since HTDM Plug-Ins are modified RTAS Plug-Ins it is very likely that a certain HTDM product is also available for the RTAS platform. Please contact the manufacturer of your favorite Plug-In for more information about HTDM and RTAS support.