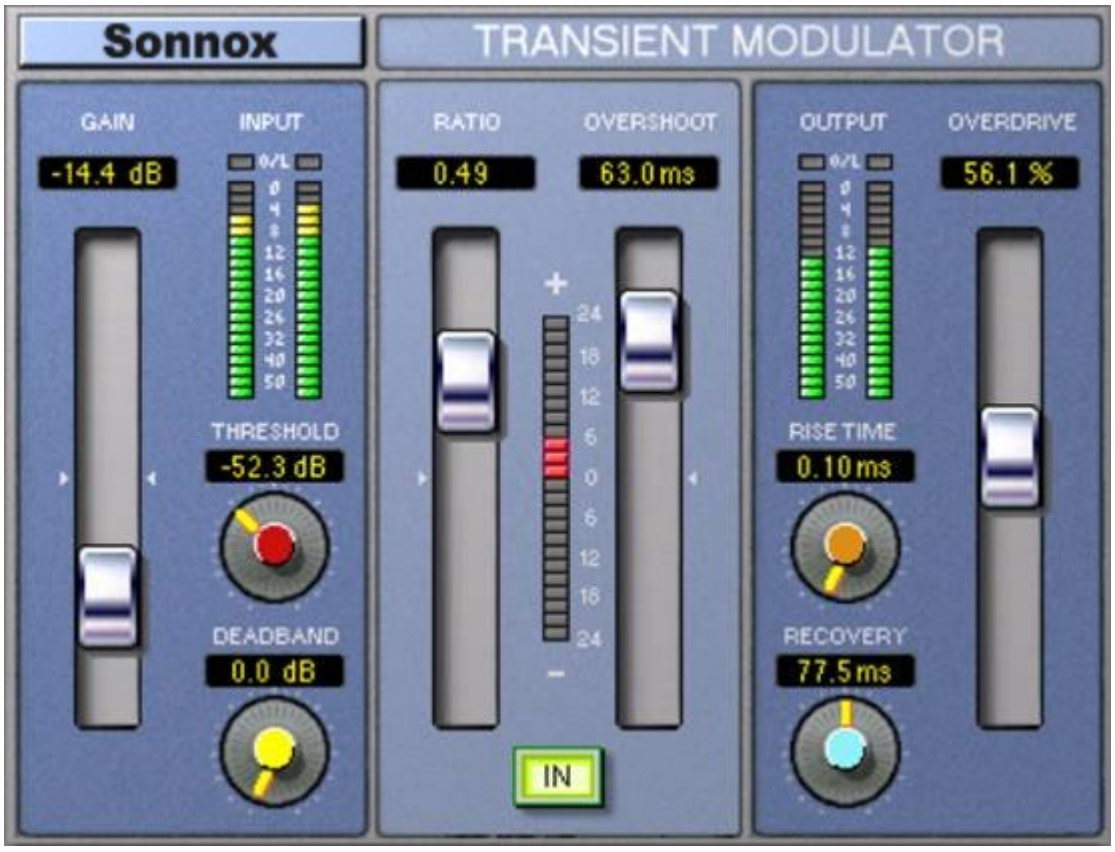
Transient Modulator Plug-in Manual



Sonnox Transient Modulator Plug-in Operation Manual

1 General description.

The Transient Modulator is an application that allows dynamic level of signals to be modified by the transients in the programme material over time. The effect is to bring transient events in the programme forwards, or push them into to the background, such that the attacks of instruments can be accentuated or softened depending on settings.
The application was developed to address the common situation where there is a need to selectively tighten up percussive instruments or soften the unwanted percussive effects of acoustic musical instruments. Such effects are easily achieved with the Transient Modulator because its purpose designed adaptive processing acts on differential information in the programme so that the overall long-term programme level is minimally affected and sensitivity to control parameters is drastically reduced.

- Radically change the dynamics of instruments.
- Accentuate or flatten attacks and transients.
- Bring sounds forward or push them back.
- Increase or reduce the effects of ambience.
- Produce rounded and dynamic percussive effects.
- Harden up and give life to dull or flat-sounding recordings and mixes, without the unwanted changes in overall timbre associated with multi-band compression techniques.
- Increase overall modulation potential by the reduction of very short peaks.

2 Supported Platforms.

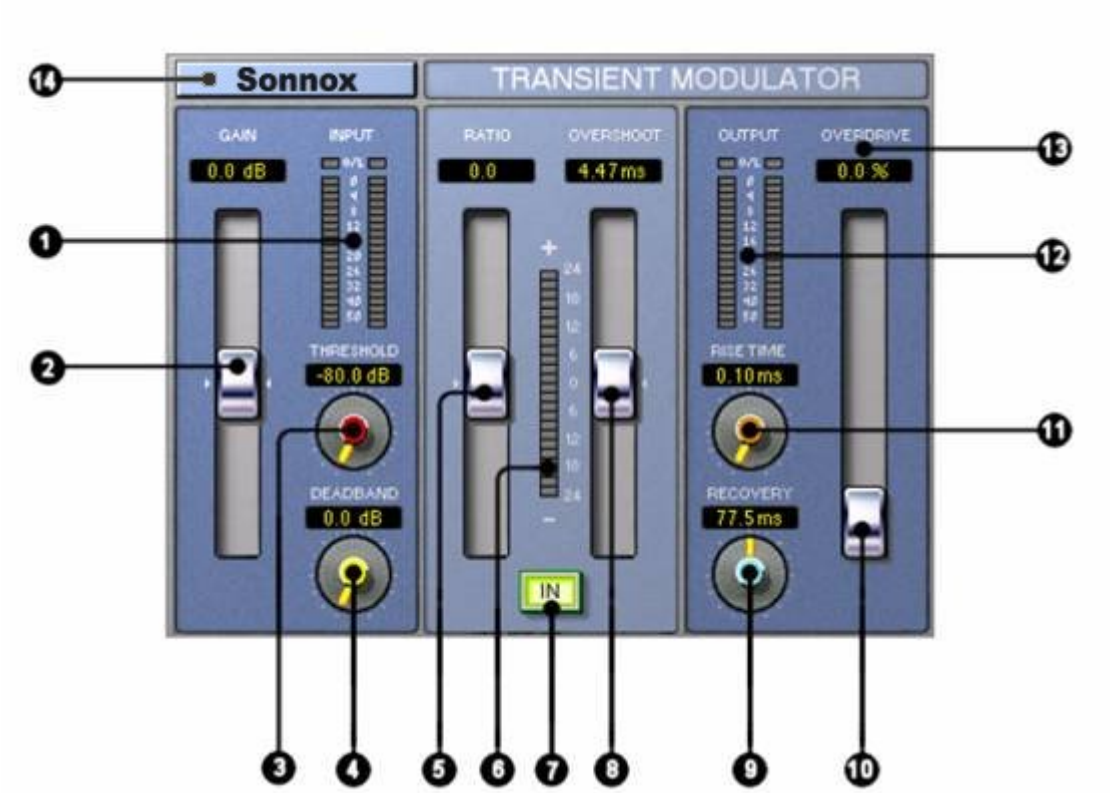
Digidesign Pro Tools (TDM and LE)
TC PowerCore
VST
Audio Units

See supplement for platform specific data.

3 Revision History

- 1st April 2007 – Generic Sonnox version

4 Description of controls.



1. Input meter.

Displays Input drive levels.

2. Gain control.

Provides adjustment of gain from –24 to +24dB.

3. Threshold Control.

Adjusts the level threshold for the onset of processing.

4. Deadband control.

Controls the range of transient programme change that is ignored by the TransMod process, from 0dB to 6dB.

5. Ratio control.

Controls the overall effect of the TransMod process. Positive settings produce transient enhancement and negative settings cause reduction.

6. Effect meter.

Displays the peak overall gain and loss of transients in the programme material resulting from the TransMod process over a + & -24dB range.

7. In button.

Switches effect in and out, maintaining constant delay and gain for comparison purposes.

8. Overshoot control.

Controls the timing profile of the transient modification

9. Recovery control

Controls the response of the TransMod process to long-term programme level changes, from 3 to 200mS.

10. Overdrive control.

Provides additional harmonic and overload enhancement effects to the TransMod output signal, from 0% to 100%.

11. Rise time control.

Controls the response speed of the TransMod process to short duration envelope transients, from 100uS to 30mS.

12. Output meter.

Displays output drive levels.

13. Parameter displays.

Display setting values at all times and provide type-in fields to change values directly via keyboard entry.

14. Options menu button.

ProTools

Clicking the ‘Sonnox’ button produces the options menu.

The menu allows the selection of overload indication duration between ‘permanent until reset’, 5 seconds or 2 second auto-reset modes. The GUI knob mode can also be selected for control operation in linear or circular modes.

PowerCore

Displays a menu allowing an about box with version information to be displayed, ‘No Latency’ mode to be switched on or off, and the meter peak hold behaviour to be changed (between click to reset, hold for 2 seconds, and hold for 5 seconds).

Additionally, the ‘Load Preset’ and ‘Save Preset’ options allow settings to be exchanged independent of the host application.

5 Operation and modes.

The Sonnox Transient Modulator functions by producing a continuous value that is proportional to the dynamic level encountered at its input (i.e. the programme level envelope). This value is then subjected to processing that extracts the rate of change of the programme level envelope, which is used to modify the forward gain of the output signal during the periods of dynamic activity in the programme. In this way the resulting level envelope at the output of the TransMod can be modified dramatically to accentuate or attenuate aspects of the dynamic profile of the sound, whilst drawing from the natural characteristics of the original programme signal.

5.1 Ratio Value.

The ratio value represents the linear dB ratio by which the output gain will be modified by instantaneous changes in the input level. Positive values will increase the gain of the signal during transients. So for instance when the ratio control is set at +1, a drum attack that has a peak of 10dB above the average level will produce a level increase of twice that (20dB) at the output, because the gain during the transient will be increased by the same amount as its level difference.
For negative ratios the reverse is true and for a negative ratio of -1 the drum attack transient would be reduced to the corresponding average level of the signal and therefore will be removed. In the central position (0) the TransMod process does not affect the signal at all.

5.2 Overshoot Value.

The overshoot time sets the period over which the dynamic changes occur depending on the input programme dynamics. A short overshoot period will enhance (or reduce) transients for a very short time and cause only the leading edges of the transients to be modified. For instance a small overshoot time can accentuate short-term events in the programme such as small percussion – bells and the like whilst largely ignoring large and softer transients due to instruments such a drums etc.
Increasing the overshoot period allows transient enhancement to occur over longer periods, therefore providing a method to tune the action to suit the programme material and produce the required effect.

The adaptive nature of the processing, over both level and time, allows optimal settings of the timing value can be achieved for complete tracks and even complex final mixes. Because the TransMod process is so rapid, low settings may not be heard because the duration of the transients being affected are too short. Generally the most audible effects occur from mid position upwards.

5.3 Recovery Value.

The recovery value modifies the long-term timing of the envelope processing. Small recovery values will allow action to almost each and every transient, even if they repeated very rapidly in the programme material. Longer recovery values will gently and progressively reduce the action depending on the rate at which transients occur in the programme. So for instance, setting a long recovery value can prevent excessive action on small rapid transients in the signal (i.e. Hi-hat spill), which directly follow large transients (i.e. a Bass or Snare hit). The recovery time is adaptive such that after a period of absence for large transients, small transients in quieter sections of the programme will be progressively included once more into the process in the normal way. The effects of changing the recovery are usually quite subtle and for the most part small to midrange settings will work best for most popular material.

5.4 Rise time Value.

The rise time value modifies the response of the envelope detector to fast transients and provides a method to decrease the sensitivity of the process to short term events in the programme. With the control set at minimum all transients, however short, will be processed. Increasing the rise time control reduces the overall speed of the envelope detector, such that short-term transients will be progressively ignored as they fall beneath the value of the rise time setting.
The control can be used to prevent unwanted action from fast, largely inaudible transients, or it can be used as a sound effect. For instance, a rise time value can be arranged such that the initial attack of an instrument is excluded during an overall transient reduction or increase. This allows you to ‘model’ the sound of the overshoot to soften or harden the effect.

5.5 Deadband Value.

The dead band value provides a method to exclude less significant transient modifications from the final processing output. For instance, if a dead band of 3dBs is set, changes resulting from the TransMod processing below a total differential gain change of 3dBs are excluded from the process and the signal is unaffected during these conditions.
The dead band control can be used to prevent action from small level changes or insignificant transients, which may otherwise adversely affect the programme. In this case it is best to start with the dead band set to zero and increase it only if unwanted action becomes evident, particularly during quiet sustained passages.
The dead band control may also be used to produce dramatic effects by focussing the TransMod action on to only the loudest transients in the programme. In this case it’s best to set low thresholds and high ratios to get the maximum action, before progressively increasing the dead band to exclude smaller events from the effect.

5.6 Threshold Value.

The threshold control causes the process to operate only on programme above the set level, ignoring all signals below that value. Unlike all the other processing in the plug-in, the threshold is related to absolute input levels and therefore care must be taken to set a low enough threshold value to allow action on the required range of programme.
Careful threshold setting may be used to focus only on the louder events in the programme. This may be particularly useful when aiming for compression sounds with negative ratio settings. For generating increased attack with positive ratios, the TransMod process works most effectively when operating on the majority of the programme range, i.e. the lower the threshold the greater the possible effect may be.

Note: Care must be taken with very low threshold settings since programme starting from silence may be subjected to a large initial overshoot.

5.7 Level Control and Overdrive settings.

Although the TransMod process works to maintain constant average signal levels in the programme, the process can produce significantly larger peak levels if positive ratio values are used. In highly percussive sounds and long overshoot settings, the peak levels can potentially increase up to +24dB greater than in the original programme. This effect will be seen on the peak meters provided in the plug-in.
Since most workstation applications provide no headroom above the peak level operating target that most users aim for, the extra transient information provided by the TransMod is highly susceptible to clipping in the application environment. If this occurs the transients are lost forever and cannot be recovered in the mix by level control further down line (i.e. faders etc). Therefore care must be taken to set appropriate gain settings to avoid clipping.

5.7.1 Overdrive processing.

The Overdrive process is included to allow a degree of relief from premature clipping if high modulation levels are required, by providing a method for the harmonic content of peak information above digital max to be included in the final output of the TransMod process.
When set to maximum (100%) the overdrive process will allow peak information up to 6dB greater than max to be included without the sound of hard clipping, whilst avoiding digital overloads entirely. Overdrive processing will also change the harmonic content of the programme to provide warmth and richness to many programme types.

5.7.2 Loudness enhancement.

The TransMod when used with negative ratios can provide an efficient method to increase the loudness of programme by reducing very short transients that may otherwise cause overloads. In many cases very short transients may not be a prominent part of the programme sound and can be reduced without damaging the sonic character of the results. If very short-term peaks are reduced, more modulation gain can be achieved without overloads. Since look-ahead process timing can act on the signal before it appears at the output of the plug-in, short-term peaks can be effectively reduced without apparent loss of overall sonic character.

To achieve this effectively, very small Overshoot and Recovery values should be used with a minimum Rise time setting, in order to catch the fastest transients only. A negative ratio coupled with a suitable dead band setting can be obtained that reduces transients by the required amount, allowing the overall level of the programme to be increased before limiting occurs.

Note: Since the TransMod is an adaptive process that constantly changes with programme content, the peak limiting function will not be as predictable and accurate as that provided by a programme limiter.

6 Copyright and acknowledgements

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With special thanks to Jamie Rosenberg of Great Divide Studios in Aspen, Colorado.

Platform Specific Supplement

1. Available Applications.

Digidesign Pro Tools (TDM and LE)
TC PowerCore
VST
Audio Units

2. System Requirements.

For latest System requirements, please see www.sonnoxplugins.com

Pro Tools

- Approved Digidesign CPU and configuration
- Pro Tools HD or Mix system (TDM version).
- Pro Tools LE system (LE version)
- iLok USB Key

PowerCore

- Approved TC Powercore CPU and hardware configuration
- Macintosh version: OSX 10.4 (Tiger) or higher with a VST or Audio Units compliant host application (Nuendo, Cubase, Logic, AU Lab, Digital Performer, etc).
- Windows version: Windows XP with a VST compliant host application (eg Nuendo, Cubase, Ableton Live, etc)
- 800x600 minimum display
- A VST or Audio Unit compliant host application (e.g. Cubase / Logic / Nuendo / Spark / Digital Performer)
- One or more TC Powercore devices (PowerCore PCI mkII, FireWire, Compact, Element, Unplugged, and soon PowerCore Express) with driver version 2.0 or higher.
- iLok USB key, loaded with the appropriate authorisations.

VST Native

- Windows XP with a VST compliant host application (eg Nuendo, Cubase, Ableton Live, etc)
- 800x600 minimum display
- iLok USB key, loaded with the appropriate authorisations.

Audio Units

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- Approved Apple CPU and OS X 10.4 or higher.
- Audio Unit Host application.
- iLok USB key required.

3. Installation and Authorisation.

All versions
You will need to authorize your software by transferring the asset for your product to your iLok before use.

CD purchases: you can do this by following the instructions on the inlay card supplied with your CD.

Online purchases: you can do this by following the instructions sent in your order confirmation email after purchase.

3.1. Pro Tools (Macintosh)

Double click the installer icon for your product to begin. Follow the onscreen prompts.

The installer will search for the 'DAE:Plugins' folder (OS9), or '/Library/Application Support/Digidesign/Plug-Ins' folder (OSX). If found, the plug-in will be installed to this location; otherwise, an error will be reported.

You will need your authorised iLok plugged into a free USB port on your machine at all times when using the plug-in.

3.2. Pro Tools (Windows)

Begin installation using the setup menu (CD purchases), or double click the installer icon for your product. Follow the onscreen prompts.

The installer will place your plugins into '<X>:\Program Files\Common Files\Digidesign\DAE\Plug-Ins\', where <X> is the drive containing your Windows directory.

You will need your authorised iLok plugged into a free USB port on your machine at all times when using the plug-in.

3.3. PowerCore (Macintosh)

Double click the .dmg installer file or icon for your product installation to begin. Follow the onscreen instructions.

When you install your plugins, they will be placed into the **'/Library/Audio/Plug-Ins/VST/PowerCore/Sony**' folder, and you have the option of registering them for use as Audio Units compatible plugins. The new mono-only versions will be installed into a sub-directory of the above path called "Mono". The new replacement backward-compatibility versions will be placed into a sub-directory of the above called "Backward-Compatibility".

Please note: In the past there have been unreliability problems with the process of wrapping Oxford plugins for Audio Units compatibility. To improve this situation, the downloaded installer .dmg volume now contains the latest "TCAU Patcher" installer supplied by TC Electronic. Use this if you wish to be sure that your plugins are wrapped correctly for Audio Units compatibility.

3.4. PowerCore (Windows)

If any older versions of the plugins are installed, move them to a safe storage location outside of the VSTPlugins directory so that hosts will not find them. If you do not do this, the loading of old sessions may fail to find the new plugins correctly and there may be conflicts that lead to crashes.

Double click the installer icon for your product to begin, and follow the onscreen instructions.

When the plugins are installed, the setup program will attempt to detect your shared 'VSTPlugins' directory. However, you may also select another location if desired. The default installation location is **…\VstPlugins\PowerCore\Sony** for all the new combined auto-mono-stereo versions, and **…\VstPlugins\PowerCore\Sony\Mono** for the new mono-only versions, and **…\VSTPlugins\PowerCore\Sony\Backward-Compatibility** for the new replacement versions of the old mono-only or stereo-only plugins (applies only to Oxford EQ and Oxford Transient Modulator plugins.)

3.5. VST Native (Windows)

Double click the installer icon for your product to begin, and follow the onscreen instructions.

When the plugins are installed, the setup program will attempt to detect your shared 'VSTPlugins' directory. However, you may also select another location if desired. The default installation location is **…\VstPlugins\Native\Sony.**

3.6. Audio Units (Macintosh)

Double click the installer icon for your product to begin. Follow the onscreen prompts.

You will need your authorised iLok plugged into a free USB port on your machine at all times when using the plug-in.

4. Preset Manager (PowerCore and VST).

4.1. Onboard Presets Manager.

The Sonnox Oxford Transient Modulator version for TC Powercore and VST Native comes equipped with its own on-board Presets Manager, which is displayed at the top of the plug-in window, as if it were created by the host. The reasoning behind this is to allow increased portability of your Sonnox Oxford Transient Modulator presets across all the host applications that support PowerCore or VST, while also providing a consistent and versatile interface. While most host platforms allow creation and loading of presets, these host-created preset files are not portable between different platforms. With the new presets manager for Oxford plugins, you can create a named preset on one platform and load it on a different platform.

On Windows XP, the default directory for the factory presets provided with the Sonnox Oxford Transient Modulator is located at:

C:\Program Files\Sony\Oxford Plugins\Presets*PowerCore*\Oxford Transient Modulator

On Mac OS-X systems, the default directory for the factory presets provided with the Sonnox Oxford Transient Modulator is located at:

/Library/Application Support/Sony/Oxford Plug-Ins/Presets/*PowerCore*/Oxford Transient Modulator

…and the presets are also written to the user-domain equivalent (in case more than one user requires private presets) at:

/Users/username/Library/Application Support/Sony/Oxford Plug-Ins/Presets/*PowerCore*/Oxford Transient Modulator

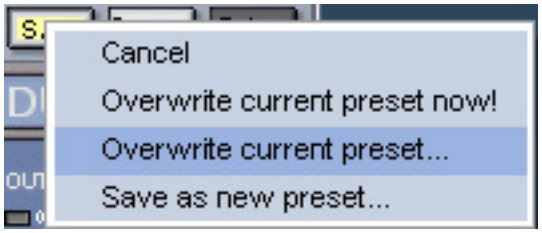
…see section below "Organising Presets for Multiple Users" for more information on this.

For VST Native plugins, replace "PowerCore" in the above directory paths with "Native".

It is recommended that you create a sub-directory within this factory preset directory to store your own presets. You can do this when you save your first preset, or by using a window browser in WinXP. If you wish, you can re-organise the factory presets along with your own presets into any hierarchical directory structure that reflects the way you work. It is recommended that you adopt a convention to help you navigate more intuitively, such as giving directory names all upper case letters. Either way, when you click the "**Load**" button of the presets manager, you will be presented with an alphabetically-sorted hierarchical menu of the available presets that reflects the directory structure you have chosen, and you can navigate the menu to choose which one to load. Once a preset is loaded, its name will appear in the large text display window in the middle to remind you where the current settings originated.

The **Load Next** and **Load Prev** buttons, labelled as "**+**" and "**-**", will step forwards or backwards through the hierarchy of presets, loading them. This allows quick comparisons, or quick stepping. Successive clicking of the load next button will step through every preset in every directory beneath the current directory (see "Browse" below for selecting the current directory.)

The "**Save**" button allows you to create a new preset from the current settings of the plug-in, and allows you to select where in the directory structure you wish to save it. The name of the preset is the same as the file name you give it. Clicking on the save button brings up a menu allowing you options either to overwrite the current preset now, overwrite the current preset with a query request, or create a new preset:



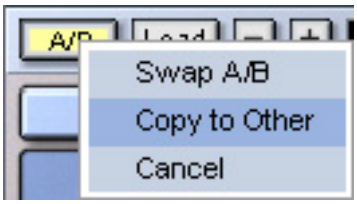
The "**Browse**" button allows you to set the current directory to look in for presets. By default this will be the factory presets directory, but you can temporarily change it to anywhere you want. The current directory is regarded as the top of the directory structure, so when "Load" is clicked, the menu presented will include every preset in every subdirectory beneath the current directory.

The "**Delete**" button allows you to delete a preset. By default, the factory presets are created as read only files, thereby preventing accidental deletions of factory presets.

The **"A/B"** button allows you to compare two sets of settings with a single click. Whenever this button is clicked, the current settings are saved into a backup store, and the contents of the backup store moved to the current settings. Initially, the backup store is loaded with the default state of the plug-in on start-up, so use of the A/B button will compare whatever plug-in settings you have created to the default settings, which will usually be equivalent to comparing the audio with and without the plug-in affecting the sound. However, if you switch to the default settings and change them, this is what the

other settings will be swapped or compared against. Thus the A/B button allows you to quickly compare the audio with and with out the plug-in, or compare one setting against another.

The "**A/B**" button also has a menu beneath it that is accessed by clicking on the A/B button and holding the click for half a second. This submenu allows you to copy the current settings over into the backup store so that you can sync the two together before making some changes for careful comparison of sounds:



The displayed **Preset Name** is fully linked into the VST program name so that saving and restoring the project on the host platform will save and restore the preset name. When a project is restored, the preset manager will attempt to find the preset name given to it in the preset directories so that "+" and "-" will work from that point on.

By default, the displayed **Preset Name** will include a path down from the current directory so that you can tell which sub directory a preset comes from. You can turn this option off using the main plug-in menu option "Display Preset Path Names". You may wish to do this, for example, if you have deeply nested directories of presets, and there is not enough room on the plugin's display to fit both the path and the name.

The **Preset Name** displays a "*" at the end if the settings have been altered in anyway over the original loaded settings.

4.2. Organising Presets with Multiple users.

If multiple users will be using the plugins installed on a single computer, then the best idea is to copy the factory presets into a place belonging to the individual user, and set the root directory of the presets manager to point to this new directory. This root directory will be saved uniquely for each user, so usage by other users will not disturb the preferences of an individual user. Personal presets can then be made in a subdirectory of the root directory. This way, each user has their own copy of the factory presets, and their own private presets.

5. Mono, Stereo and Mono->Stereo Versions (PowerCore).

The Sonnox Oxford Transient Modulator version for TC Powercore automatically detects whether Stereo or Mono operation is called for by requesting the number of input and output audio channels from the host. With one in one out, mono operation is selected. With two in two out, stereo operation is selected. With one in and two out, stereo operation is selected and the single input is automatically duplicated to both DSP channels.

The Oxford Transient Modulator comes as 6 DLL's (Windows) or 6 Bundles (Mac). The two main ones to use are "**Oxford Transient Modulator**" and "**Oxford Transient Modulator Direct**". These will work in both Stereo and Mono mode. The other four are provided to maintain backward compatibility so that projects saved with the old mono-only or stereo-only versions will continue to work.

On Windows XP, the stereo-only and mono-only DLL's are contained in directory **…\VSTPlugins\PowerCore\Sony\Backward-Compatibility**, and the new stereo or mono versions are contained in **…\VSTPlugins\PowerCore\Sony** (the new location for Oxford plugins for PowerCore.)

6. Integrated Native-PowerCore Versions (VST-only)

The VST PowerCore plugins for Mac/Intel-Mac (and WinXP soon) have a major new feature – the Native DSP code is now included and integrated seamlessly.

Project Portability, Upgrade-ability and Fail-Safe Working

This allows for a whole new set of freedoms when it comes to working with Powercore. For example:

Imagine working in your studio using a Powercore-accelerated system. Some of your Oxford Powercore plugins are in Powercore mode, and some in Native mode, to allow you to balance your resources. You save your project and copy it to your laptop (which has no Powercore hardware), and the project runs error free on your laptop because your Oxford Plugins automatically and quietly revert to native processing mode if they do not find any Powercore hardware. So you can continue to work on your mix as you travel on the train or bus or while on tour. When you return to your studio, you can copy your project back in, and your plugins will automatically revert back to Powercore, if they were originally set to Powercore mode. Effectively, this means your Powercore-accelerated system will run with less CPU burden than your non-powercore-accelerated one, but your project is completely portable between the two.

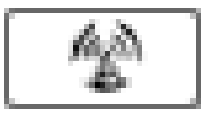
This allows an unprecedented level of portability when using Oxford Plugins. You no longer have to change the Oxford Powercore plugins to Native plugins or vice versa. You simply click on the switch and it is done, with the settings preserved.

Now imagine being a Native plugin user who is running out of CPU power. What you want is to use a hardware accelerator to free your CPU of some of its burden, but without the hardware accelerator taking over your system and the way you work, without having to swap out Native plugins and replace them with Powercore versions. With the new combination Native-PowerCore plugins, this is exactly what you can do. You can work in Native mode until you run out of CPU. Then you can begin switching some of your plugins over to using hardware acceleration (with Powercore cards), and they will run in Powercore mode if the hardware is available, and in Native mode if not. If there is any problem with the hardware that would otherwise cause you to be unable to run the plugins, they simply revert to native mode. Thus the inbuilt native mode acts as a safe-guard against hardware failure, or as a safe-guard against running out of hardware resources.

Finally, forward thinking individuals can purchase or upgrade to the Powercore plugins as an insurance against running out of CPU, long before they even have any Powercore hardware. If or when the individual decides they need hardware acceleration, they can purchase it, and their old projects will continue to work on the new hardware.

How it works.

The new Powercore plugins have some new menu options and indicators to allow you complete control over the way this new feature is handled.
Firstly, on the top right of the plugin in the title bar, there is a new icon that shows the current processing mode that the plugin is actually using, either Powercore or VST Native, like this:



Clicking on this icon brings up a new menu, one that allows you to set which mode you want the plugin to run in, your **desired mode** of operation: either “Use PowerCore hardware if it is available”, or “Use Native DSP”. If you select Native mode, this instance of this plugin will run in Native mode from this moment forward. If you select Powercore mode, this instance of this plugin will use powercore hardware if it is available, or it will automatically switch to native mode if there is no Powercore hardware available, or if there is a problem while loading onto Powercore (such as there are no more hardware resources left, or there is a problem with the fire-wire connection).

Your desired mode of operation is saved with the project so that when you load your project back in, the desired mode returns back to what it was, on a plugin by plugin basis. When you load presets using the on-board preset manager, this desired mode data in the preset is ignored, so your desired mode stays as you set it when trying out different presets. However, when you load presets with the host, or load a project, this mode is acted on so that a project load restores your plugins exactly as you left them.

When using a desired mode of “Use powercore if available”, it is quite normal for the icon to display “VST”, rather than “Powercore”. This shows the actual mode is currently Native mode, for one reason or another.

Switching between Native and Powercore mode can be done at any time, even while playing. However, since switching while playing will cause a temporary discontinuity in the sound, it is wiser to switch while stopped.

By default, the automatic switch over from Powercore to Native (for example because the plugin failed to find any powercore hardware) occurs without error messages being displayed. The menu that pops up when you click on the above icons also has an option that allows you to know about any messages that occur. This is useful, for example, if you are wondering why your plugins are reverting to Native mode when you are expecting them to stay in Powercore mode. In this mode, all error messages will be displayed except for the case where there is no hardware, or there are no powercore drivers (in which case it is obvious why the plugin is running in native mode.)

Lastly, there is now a new preference in the main menu under the Sonnox button that allows you to specify what your default desired mode is for this plugin type. If you prefer your plugin to come up in Native mode when you insert a new plugin, then set this option. If you prefer it to come up in powercore-if-available mode, then leave this preference not set.

Native versus Powercore

Generally speaking **the Native version of the DSP is identical to the Powercore DSP** in terms of the algorithm and order of processing. However, in plugins involving dynamic gain changes such as the Oxford Dynamics, Oxford TransMod and Oxford Limiter, the gain calculations are done in the logarithmic domain. The Native DSP uses a true logarithm/anti-logarithm whereas, by necessity, the Powercore DSP versions have to use a very close approximation. This means that for the Dynamics, TransMod and Limiter, the sound of the Powercore DSP is not 100% exactly the same as the sound of the Native DSP. Neither one sounds better nor worse; it is just that if you try to cancel them out by putting one in anti-phase, they will not quite cancel all the way.

Native mode is best for recording since the inherent delay is smaller. For mixing, when the number of inserts can climb to being very large, this is when using hardware acceleration such as Powercore can really help to relieve the burden on the CPU so that you can still listen in real time.

When changing from one mode to another it is important that you are aware that the delay also changes, and this will upset the delay compensation that your host has arrived at. Although the plugin does re-export the new delay, and tell the host that the delay has changed, you may need to save your project and reload it in order for the host to set up the delay compensation correctly. Indeed, in Cubase/Nuendo, this has always been true for the Oxford Powercore Plugins regardless of this new feature. This is because the delay is dependent on the sample rate and block-size, and so cannot be

determined correctly by the plugin until the plugin is fully loaded, by which time the host has already set up the delay compensation.

One final contrast is that some of the plugins have slight functionality differences when in Native mode. For example, the Limiter and Dynamics plugins have the option of not applying dither when in Native mode. This means that if your plugin is set to the “no dither” option and you switch to powercore mode, it will have to revert to using 24 bit dithering, because when using Powercore it is imperative that the signal is properly dithered to preserve sonic integrity.

Other examples of differences occur in the preferences menus. For example, when in Native mode, the “No Latency” option has no meaning, and is either greyed out or replaced with a preference that is Native specific such as “Enable 24 bit dithering”.

Presets

With regards to presets, the installer installs the factory-supplied presets into two locations – firstly, as VST presets into the default place for the on-board presets manager to see (/library/Application Support/Sonnox/Oxford Plugins/Presets/Powercore), and secondly, as Audio Units presets into the default place for Logic to see (/library/Audio/Presets/Sonnox (AU Poco)). This allows you to use either of these mechanisms for loading factory presets.

There is one important purposeful difference between loading a preset with the on-board preset manager, and using the host mechanism: Loading with the on-board preset manager will leave the Native-Mode/PowerCore-Mode switch as is, where as loading with the Host mechanism will force the mode switch to be as stored in the host preset data. The reason for this is so that loading a project in any Host will return the project exactly as you left it, especially in terms of your Native/Powercore mode setting. However, when using the on-board preset manager, you will be able to step through many presets using +/-, without affecting your current mode.