VORSIS Application Note

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Updating Vorsis Audio Processor Factory Preset Packages

March 2008 – Jeff Keith
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Background

During final product certification the Vorsis Factory presets are loaded into the audio processor hardware and then fully tested to ensure correct operation. After this step has been finalized we "Factory Lock" the presets so that they cannot be inadvertently deleted or overwritten in the field.

In designing the preset behavior mechanism we considered the future impact of locking the Factory Presets and didn't want to prevent Vorsis processor owners from easily updating or replacing the original Factory Presets with later ones or from customizing the behavior of their own.

There are up to one hundred and thirty preset storage locations in Vorsis audio processor products. While it is possible that some of the new presets could be loaded into the preset storage locations above and below the existing factory presets, we believe this is a poor solution for three reasons:

1. there simply might not be room for all of them;
2. the introduction of new DSP code-related features and their associated parameters requires that the GUI application and factory presets remain synchronized.
3. Mixing preset versions on the same hardware is sure to cause some unpredictable operation and head scratching…

Vorsis Presets – The Factory Lock Mechanism

What "locks" a Factory Preset is a special software flag stored with the preset that signifies that it has been Factory locked. This flag is invisible to the end user but recognized by the Windows-based GUI in a way that disables (by hiding) the user's ability to unlock a preset that has the Factory Lock flag set.

In order to Factory lock a preset the GUI must first be granted Factory level rights. We use the same GUI at the Factory as our end users use, and what modifies the GUI's rights to allow or disallow changes to the Factory lock flag is a special entry in its configuration file.

During first initialization of the remote GUI software a special configuration file is written to the target installation folder. This file is consulted each time the GUI is started in order to retrieve the 'last known running state' of the GUI which includes such things as the names of the Devices (processors) that have been configured by the

Devices menu, the preset packages that the GUI is configured for and the preset manipulation privilege level.

During GUI installation the preset privileges are set to "User" level and remain that way to prevent inadvertent unlocking or deletion of Factory Presets.

The "Magic" Key

We've written a new Windows-based software tool called Factory Lock Utility that may be downloaded from our www.vorsis.com website. It allows an end user to manipulate presets at the Factory permissions level.   By releasing the mechanism by which our Factory Presets are locked we have made it possible for customers to:

- Easily update the Factory presets with newer versions as they become available;

- Remove Factory Presets that, for certain reasons, particular users should be prohibited from using;

- Configure the Vorsis processor hardware to contain *only* those presets that an audio consultant or corporate engineer has deemed appropriate for the station and its market.

Furthermore, it may be obvious from the foregoing discussion that by appropriately assigning rights to the hardware itself *and* also by limiting the available presets in the hardware, completely customizable preset manipulation and management is possible and at the customer level.

About the Factory Lock Utility

This tool allows a user to alter the state of the GUI's Preset Privileges flag which then allows manipulation of the Factory Lock status. The tool is now included in all of our downloadable preset archives in order to enable customization of Vorsis hardware as may be appropriate for individual field applications.
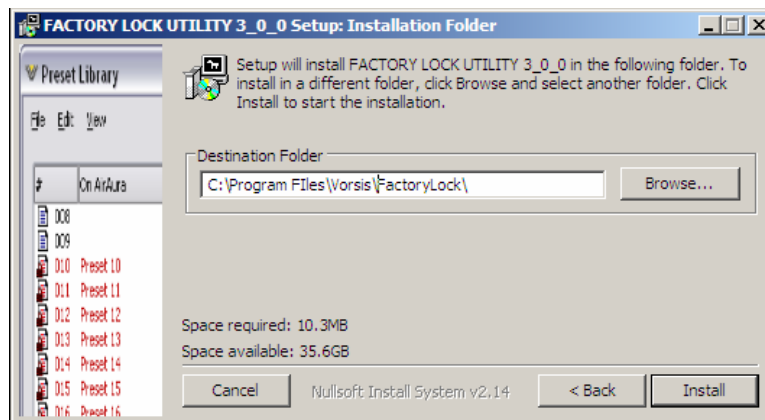
Functionally, the tool parses the GUI's configuration file, modifies it to change the preset manipulation privileges of the GUI, and then rewrites the file back to disk in the original location. Two buttons in the utility allow the user to grant or retract the GUI's permission to have Factory level Preset manipulation. Permissions are granted on a per

GUI instance so only the GUI whose permissions have been changed by the Factory Lock Utility will have its permissions raised to the Factory level.
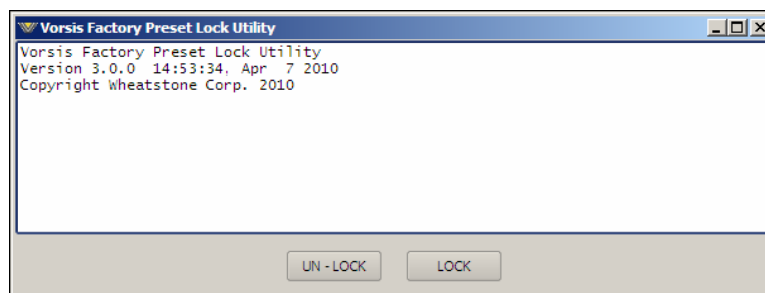
Installing the Factory Lock Utility

First download FactoryLockUtility.exe from the Vorsis website www.vorsis.com, noting that we include this utility along with all of the downloadable Preset Packages.

Double click the FactoryLockUtility.exe file to run the installer. Normally the utility should be installed to C:\Program Files\Vorsis unless the user opts to have it installed in a different location.
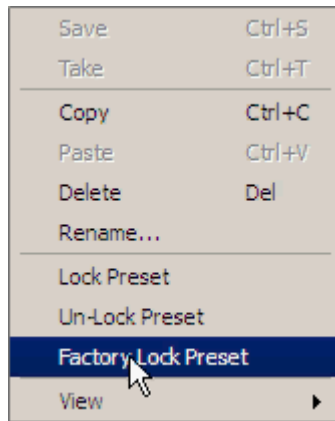

Using the Factory Lock Utility Tool

First ensure that the GUI you wish to modify is NOT running. If it is, the procedure will **not** work! Then select the Factory Lock Utility from the Windows start menu to start the utility. The window shown below should open, revealing two buttons; UN-LOCK and LOCK.

Select UN-LOCK to give the Vorsis GUI privileges to unlock Factory presets. A 'Browse For Folder' window will open allowing you to navigate to the folder where the GUI is installed. Select this folder and a message should appear indicating that the operation has been completed.
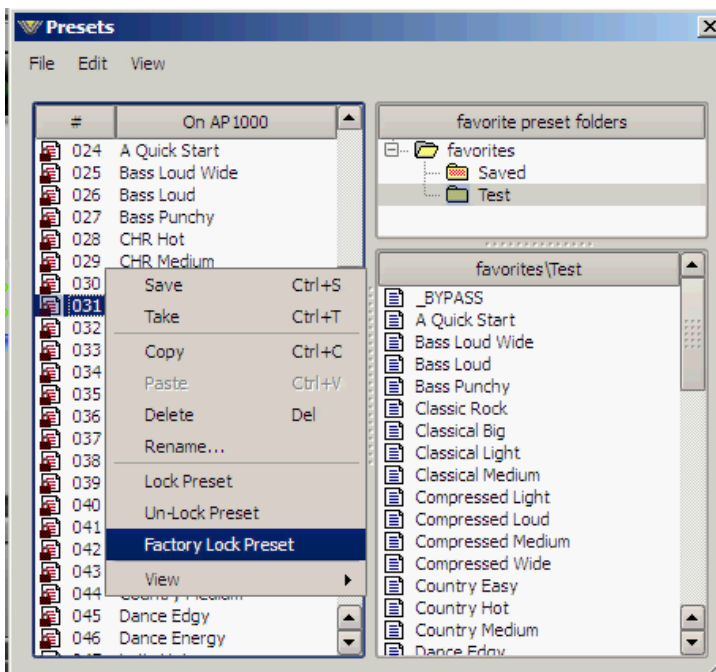

Now that the desired Vorsis GUI has been granted Factory level privileges you may start the GUI again. Now when you right-click on a preset you will have an extra option called Factory Lock Preset. When this option is present the GUI *also* has Factory *Unlock* privileges.

Note again that there is no entry for Factory Unlock. This is because when the GUI has been granted Factory *lock* privileges it automatically acquires the ability to Factory Unlock a preset. What appears to be the usual user-level Unlock option actually operates at the Factory permissions level when the Factory Lock Preset is available.

Using the New Privileges to Unlock Presets

As we covered previously, assuming that the Unlock option was just utilized, the next time the GUI is run and the presets menu is accessed it will have a new option available when a preset is right clicked – <u>Factory Lock Preset</u>:

When the Factory Lock option is available the GUI will also have rights to unlock Factory presets, noting that:
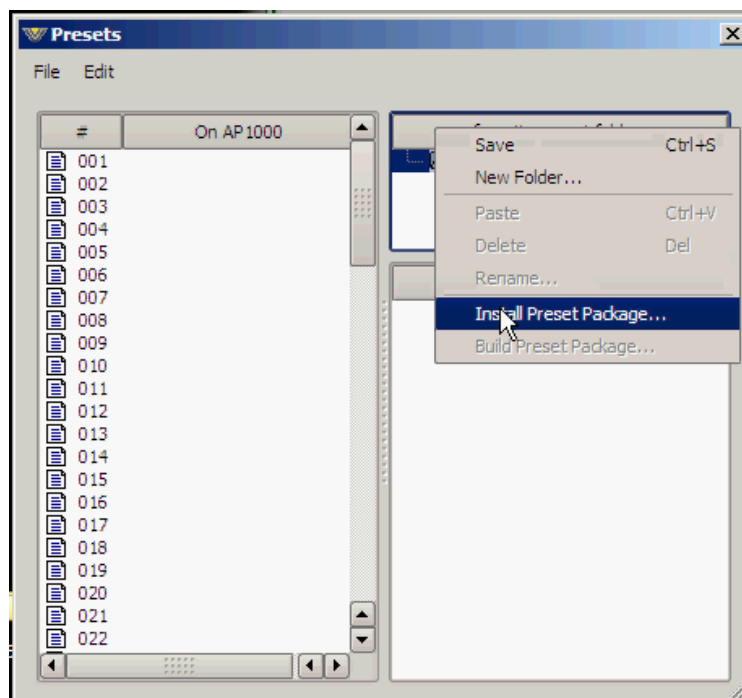
- Presets *must* be unlocked *first* before they can be deleted!
- Locked presets *cannot* be written over by the Save Preset dialog!

Removing the Old Factory Presets

First We Unlock Them… Highlight all presets you wish to delete in the left hand pane. While the presets are highlighted, right-click and then select Un-Lock Preset. Each highlighted preset will be unlocked in turn as indicated by the removal of the red (Factory) padlock symbol disappearing from the preset index number.
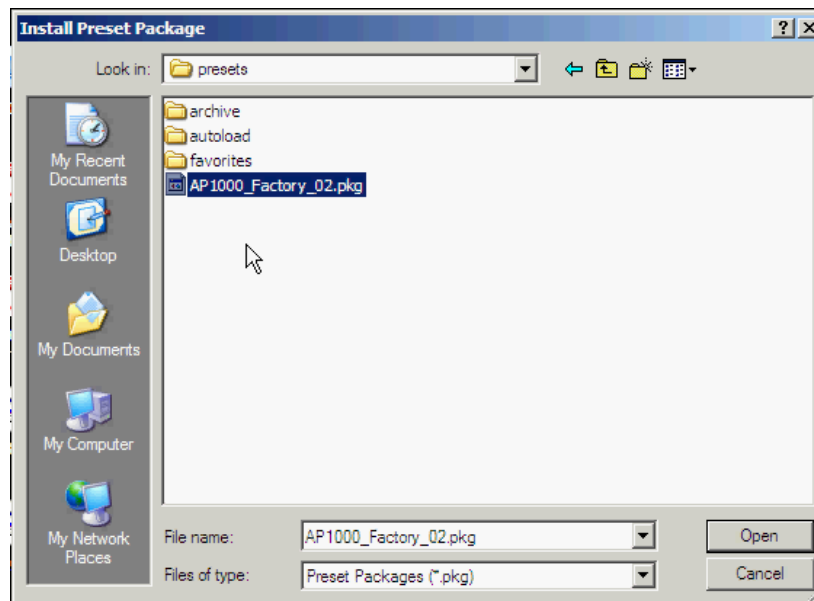
Then We Delete Them… Next, highlight the presets you want to delete in the left hand pane. While they are highlighted, right-click and select Delete. When prompted for "Are you sure?" select Yes. The presets will then be deleted from the processor hardware.

Then We Put in the New Presets… To install the new Factory Presets, open the Presets dialog (if it is not already open) and highlight the Favorites folder. Right click it and the following dialog box will appear.
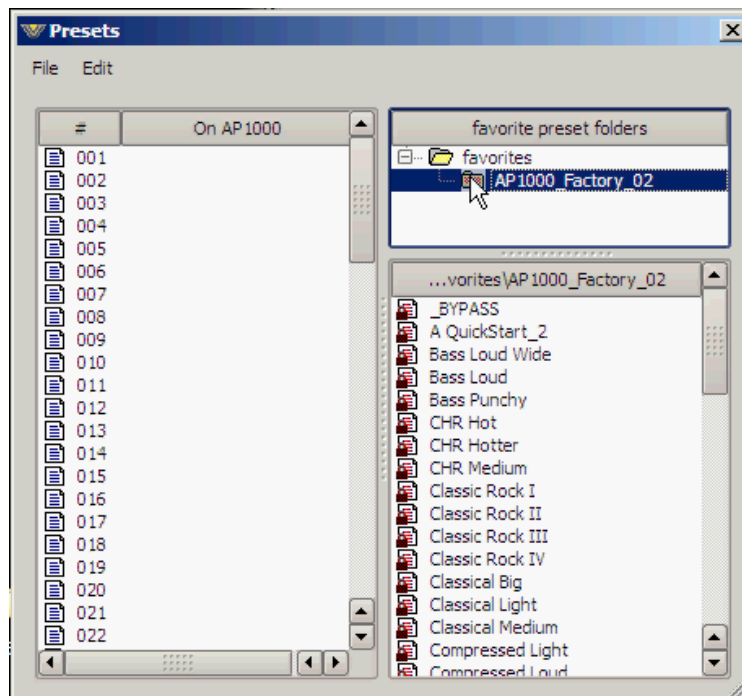

Select the option "Install Preset Package" and a file dialog like that shown below will appear.

Navigate to the location of the **.pkg**** file and then click "Open".

** Vorsis Preset Package as appropriate for your hardware.

Once the Open dialog has been selected the presets residing in the recently selected Preset Package will become visible.
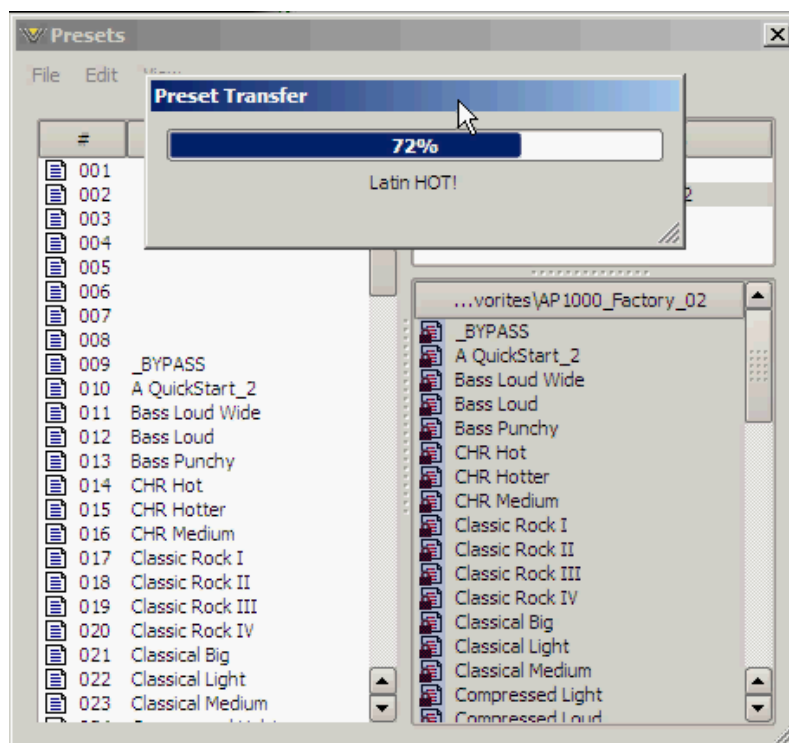

The above graphic shows the new list of factory presets starting with "Bypass". We prefer to start loading factory presets at storage location

#9 to leave the first eight preset slots open because they are assigned to GPI inputs 1 through 8.

Copy the new Factory presets over to the audio processor hardware by highlighting all of the presets displayed within the new Factory Preset folder. Using the drag and drop technique move presets over to the left pane of the Preset dialog which represents the preset locations within the Vorsis hardware.

As the new Factory Presets are copied to the hardware a progress dialog is displayed showing the names of the presets as they are transferred. It is normal for the progress dialog to occasionally pause and resume as the file copy integrity check takes place ensuring a bit-for-bit perfect copy of the original Factory preset.

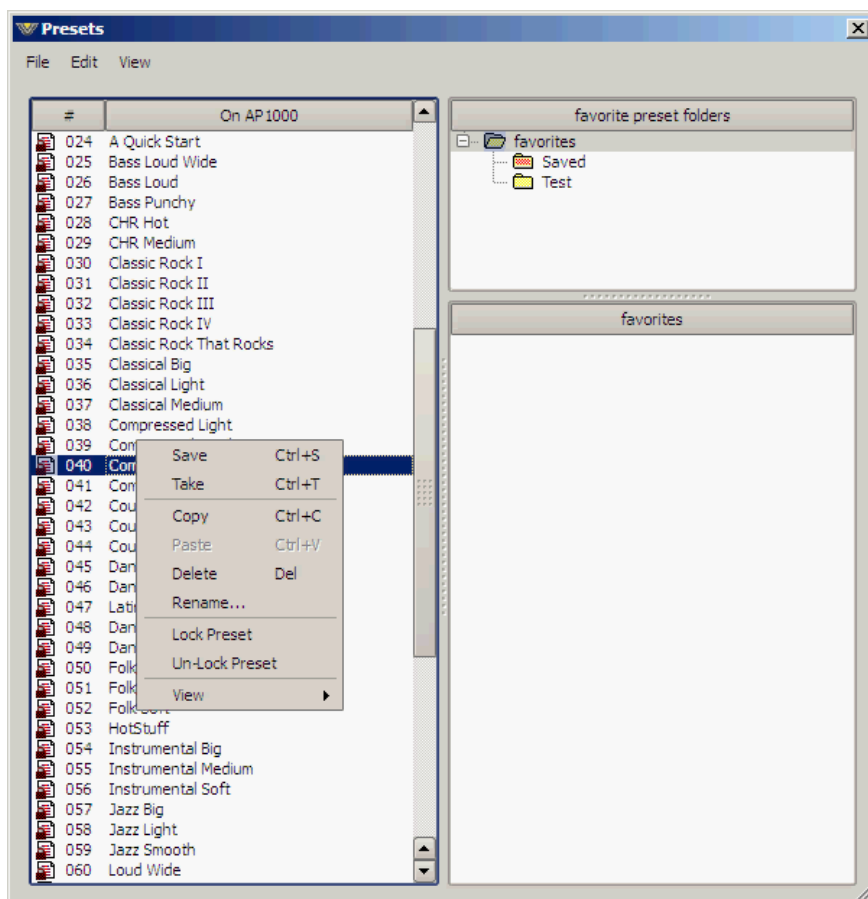The graphic below illustrates how the preset copy process appears while in progress.

Once all the presets have been copied to the hardware you may if you wish relock them to protect them from unintentional overwriting. We recommend this as a final step to ensure that you always have a known safe place to come back to should you wish to return to a well-documented operating condition as far as user adjustments are concerned.

"Lock/Unlock" Privileges and Re-Locking Presets

It may be desirable to lock presets to thwart inadvertent user-level deletion or modification and this can only be accomplished by locking presets at the Factory permissions level. Using the Factory Lock option can accomplish this, protecting important presets from inadvertent changes.

If, in the previous example, the "Lock" option had been used instead, the GUI would *not* have rights to unlock Factory presets and the preset options list would be missing the Factory Lock option as shown below:

Retracting Factory Preset Privileges

Close the GUI – it must not be running when the Factory Lock Utility is used. Open the Factory Lock Utility once again and select the "LOCK" option.   A 'Browse For Folder' window will open allowing you to navigate to the folder where the GUI you wish to retract Factory level privileges to resides. Select this folder and a message should appear indicating that the operation has been completed. Now the GUI has been reset back to User level with no Factory level access to the presets.

Remove the Utility!

As you might imagine, in the wrong hands the Factory Lock Utility can be dangerous. Therefore to prevent others from casually finding and using the Factory Lock Utility it should probably be removed or at least hidden from curious eyes. Because the utility does not put entries in the Windows registry and everything it needs to run is located in its install folder, this folder can be simply deleted or its attributes set to 'hidden' and the start menu shortcut removed.