MAAT

2BC multiCORR

User Manual

MAAT Inc.

MAAT Incorporated

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Installation & Setup

When preparing for installation of your MAAT 2BC multiCORR, we recommend that you quit all applications prior to proceeding. Also, after downloading the installer and prior to installation, let any anti–malware measures you may have running scan the installer. Then, temporarily disable all anti–malware measures once scanning is complete.

To install, simply double click on the downloaded Installer for your particular operating system. The installation process will guide you through the install procedure. If you have an older OS version, restarting your host may be required. Don't forget to reënable anti–malware measures or simply restart your host.

Licensing

MAAT software is licensed through our dongle–free, cloud–based license control framework. If your hosts are net–connected, our licenses "float," making it easy to move from one machine to another. All you have to do is close all MAAT stuff on one machine before you open anything on another. If you're going to use the laptop in an environment where internet is spotty or non–existent, you can also go offline temporarily for up to 30 days.

To license your MAAT purchase, open yours or instantiate an example in your preferred plug–in host. When licensing, we recommend you open a new session in your DAW just for this purpose.
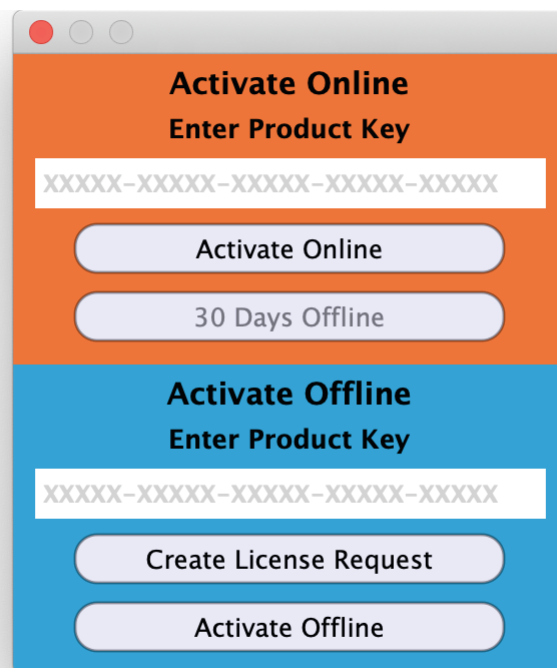

Figure 1: The initial Activation dialog

Online Activation

Once the Activation dialog appears, paste or type in your Product Key supplied at the time of purchase. Then click on Activate/Deactivate Online and follow the prompts.

👁 **NOTE:** **THE ONLINE PROCESS REQUIRES A LIVE INTERNET CONNECTION. YOU MUST HAVE AN ACTIVE INTERNET CONNECTION FOR ACTIVATION.**

A feature of our cloud–connected system is that, if you close a DAW session that contains MAAT plug instances, then open that session on another host, the license will "follow" you onto the new host as long as you have live internet.

You can also return or park your license on our licensing server, and pick it up later on another host. Once your product is licensed, click the Activate/Deactivate Online button to deactivate your license, then repeat to reactivate.

Offline Activation

If, for security reasons you have an offline host computer or you plan on working without a reliable internet connection, it is best to go with an offline license. There are two offline options, temporary offline and full offline.

Temporary Offline

If you plan on working without a reliable internet connection, we designed the temporary offline option just for you. The temporary offline process also requires a live internet connection, but only during activation.

A temp offline license has two unique features:

- It can remain offline, without an internet connection, for up to 30 days

- It auto–renews its lease whenever it does make a server connection

So, if your internet is spotty or unreliable, or you're heading temporarily to a location where an internet connection isn't available, the temporary offline option let's you work untethered to the 'net for up to a month.

By clicking the "30 Days Offline" button, your online license will become temporarily offline for a maximum of 30 days. If, however, you use the product while connected to the internet at all during that time, the "lease" duration is automatically reset, extending another 30 days.
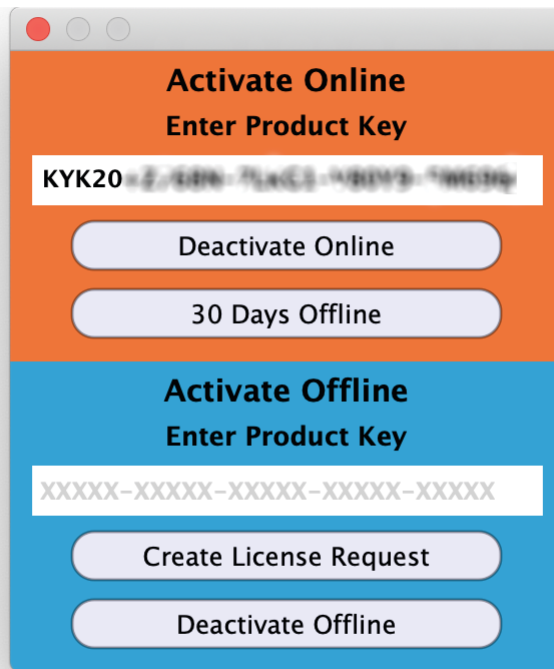
Figure 2: The 30 Days Offline activation option

Full Offline

This will license your MAAT product without the need to periodically contact our licensing server. If you anticipate working without the internet for more than a month at a time or, for security purposes, your studio machine is "air gapped" and has no internet, take a moment to surrender your online license, and replace it with an offline version.

Note: A full offline license does need to be explicitly renewed once a year.

To prepare for offline activation, you will need:

1.   Your Product Key!

2.   Some method to move your License Confirmation file to the offline host machine.

That latter requirement can be accomplished in any number of ways, but a USB flash drive is often readily available and most convenient. You will also need your Product Key that was supplied to you via e–mail when you purchased your MAAT product.

The offline activation process starts with generating a License Request, with a "maatr" file extension, which is submitted on–line to our server or via e–mail to MAAT Support <support@maatinc.zohodesk.com>. A License Confirmation file, with a "maatc" extension, will be returned to you, which will activate your productt.

To proceed, click on the Activate/Deactivate Offline button, and follow the prompts.

In a year's time, 365 days from the date the maatr file is created, a full offline license must be renewed using the same maatr/maatc method.

Introduction

Thanks for installing your copy of MAAT's 2BusControl multiCOR-RELATION, also known as "2BC multiCORR." We've worked hard to make this an exceptionally useful and usable tool set for speeding up your audio workflows.

2BC multiCORR is a universal combination L/R plus M/S monitor control for your stereo master bus. 2BC multiCORR also incorporates metering for balance and correlation, the latter includes interchannel L+R and multi-band versions.

Most correlation meters are derived from analog models. Being MAAT, we take a more informed route. Our correlation meters work on a linear scale, meaning 50% of the "distance" between 0 and 90º is 45, not 60 as it is for other gear. That approach yields improved resolution, and better correspondence between meter readings and what's heard.

Available for all major plug–in formats, including VST 2, VST 3 and AAX for macOS and Windows plus Audio Units for macOS, 2BC multiCORR offers five essential options for specific monitoring modes. Plus, you get a display of left/right balance, an intuitive correlation meter as well as spectrally segregated correlation meter segmented in 32 bands. A standalone, native version is also included to run any time you'd like metering and audio stream manipulation.

The top half of the interface contains a left/right correlation meter, along with 32 bands of correlation across the audio spectrum. Monaural solo is available post–metering with a single button push. Left only/right only soloing can be chosen, or an equally useful M/S or Mid/MONO and Side/DIFF(erence) rendering of the soloed signal. In addition, the stereo perspective can be swapped or "flipped," with the left and right channels changing places. Each solo control is a single button, situated along the bottom of the user interface, allowing you to check placement and amplitude easily for all aspects of your mix. Usable metering is another essential for any engineer, with stereo balance occupying the space above the Solo and Flip controls.

Unlike prior products that provide similar metering functions, 2BC multiCORR's measurement and display algorithms adhere to our guiding philosophy of enhancing your workflow and improving ergonomics

through careful attention to the way you actually work. Ballistics are meticulously tuned to achieve the best match between the aural impression you hear, and the optical rendering by the meters.

All of 2BC multiCORR's functionality is wrapped in an information rich yet visually unobtrusive user interface that occupies only a small portion of screen real estate. Likewise, the product is "light weight," demanding a minimum of CPU resources so it won't slow down your host.
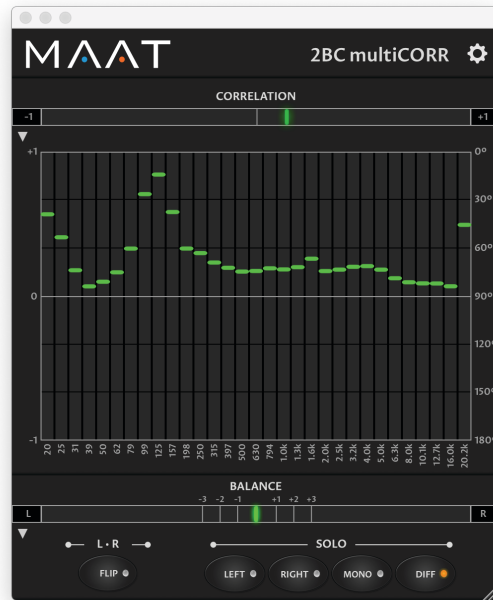

Figure 3: The 2BC multiCORR native user interface

In Depth

Metering

CORRELATION
Horizontally oriented, the stereo Correlation meter at top displays the phase relationship between left and right channels. This meter can also be thought of as graphically displaying mono compatibility, by measuring the phase relationship between left and right.

In–phase content is shown in green, while out of phase content pushes the meter "into the red" to warn you something may be amiss.

  0° of difference between channels = hard right (green is good)

  90° of difference between channels = meter center

  180° of difference between channels = hard left (red equals caution with possible amplitude reduction or total cancellation when summed to mono)

multiCORRELATION

Below the Correlation meter is a grouping of 32 bands of spectrally segregated correlation, with significant resolution aimed at the critical bands and below. Each band behaves in a similar fashion to the large Correlation meter at top, though in a vertical orientation and reduced size. A disclosure triangle located just above the multiCORRELATION group allows you to minimize or visually hide this entire group to avoid visual distraction or reduce screen real estate needs.

Interpreting the multiCORRELATION group

First of all you need to understand the limitations of a stereo correlation meter. Think of it as showing the correlation or phase similarity between left and right channels.

If you have a very solid mono kick and bass, this will drive the stereo correlation meter to show you positive values, despite possibly having some really bad phase cancellations in the mid range or highs, simply because the bass and kick is the energy which drives the meter. When using the stereo correlation meter on the 2Bus in your mix, you can check that by soloing each group and checking if any display red values.

That said, you will never see in which particular frequency areas phase cancellation occurs. In mastering you even don't have the chance to solo groups unless you do stem mastering! Thus multiCORRELATION, which gives you far better feedback on where specifically phase cancellation occurs. This becomes even more relevant with the popularity of multi–band stereo enhancement plug–ins which quite common these days.

Is RED Always Bad?

Not always: Use the multiCORRELATION group in conjunction with the MONO button and listen to the respective frequency bands which show red values. It's always a good idea to keep the bass region, up to ~200Hz, well within the green zone. Red values in reverb are pretty common as reverb tails tend to be decorrelated. If, however, the mid-range goes red when the vocals drop in, check with the MONO button. If the color tends toward red, and the level of your vocals suffer heavily in MONO, adjusts your vocals so that they stay in the green zone.

The same is true for the highs. If the highs show constant red values, your hi–hat and overheads may suffer in MONO. Simply narrow the stereo width of your overheads, or back off with your stereo spreader if one is in use. If a super–stereo synth sound causes red values, simply decide based on toggling between MONO and STEREO. Then, make an artistic decision if the super stereo sensation of the synth is more important for your sound image than the loss of information when played back in MONO. Not all red things are evil, but it's good to keep an eye on it and be able to remedy trouble before it's too late.

Note that 2BC multiCORR is sample rate–agnostic. The horizontal frequency scale for the multiCORRELATION group covers the bandwidth of baseband AES/EBU digital audio, which also happens to be the bandwidth of ideal human hearing. Regardless of either input or output sample rate settings, the user interface and operation does not change.

The multiCORRELATION group incorporates a per–band threshold. If the signal strength drops below -90 dB in any band, that band's meter will return to the 0° mark. This filters out any low level noise and other possibly distracting information.

For more tips on how to use 2BCmC, see the section below; *Friedemann on Using 2BC multiCORR.*

BALANCE

Also horizontally oriented, the Balance meter displays traditional left/right balance, with left–heavy signals appearing in blue, and right–heavy signals appearing in orange. Center panned or mono audio is shown as an extra bright green center indicator. The green area spans from 0.5 dB left to 0.5 dB right. Left and right from perfect center, there are +1, +2, & +3 tick marks indicating that the respective channel has 1, 2, or 3 dB more RMS loudness than the other channel. This allows you to see, judge, and react to imbalances appearing over a sustained period of time in a stereo mix.

Note that, unlike our DRMeter and DRMeter MkII, standard R128 Loudness meters display mono measurements, so they can't provide any indication of actual left/right balance.

Monitor Controls

As with the disclosure triangle located just above the multiCORRELA-TION group, a disclosure triangle just below the Balance meter allows you to minimize or conceal the monitor control group to avoid visual distraction or reduce screen real estate needs.
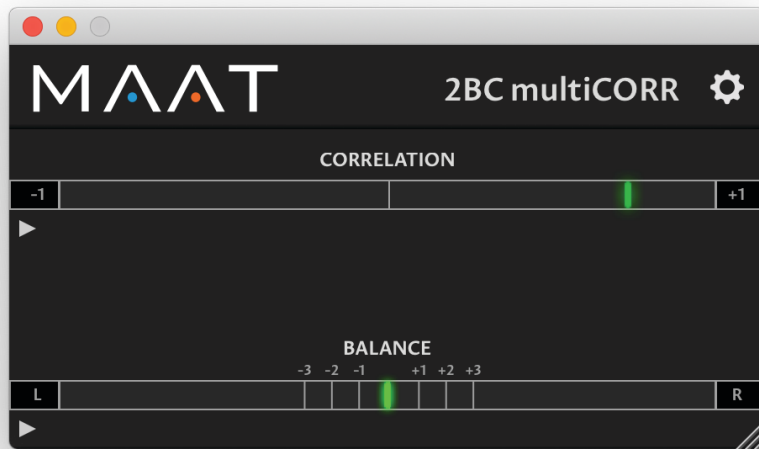
Figure 4t: The 2BC multiCORR interface in minimalist mode

L • R Flip

Situated below the Balance meter, the FLIP or left/right swap button causes the left signal to appear in the right monitor channel and vice versa. This monitor mode button is useful for confirming actual amplitude when your room, monitors or "ears" are not quite calibrated. When active, FLIP mode displays a blue indicator.

SOLO Modes

LEFT/RIGHT

The LEFT and RIGHT buttons provide monaural soloing of either the left or right channels.

MONO/DIFF

The MONO mode provides monaural soloing of the sum of left and right channels. This mode behaves as a typical mono button, summing left plus right channels. Technically, mono and the M or "mid" channel of an M/S matrix are the same.

The DIFF mode provides monaural soloing of the difference between the left and right channels. This is a mono subtraction of left minus right, and can also be thought of as the "side" or difference information from an M/S matrix..

Friedemann on Using 2BC multiCORR

Why, when and how do I take advantage of this plug–in when mixing? Well, reading this will let you get the most out of your copy of 2BC multiCORR…

Balance Meter

Insert the 2BC multiCORR onto your 2Bus, also known as the Master Bus or Stereo Out track as the last instance. When your mix is already set

up to your liking, you can check all center–focused instruments to see if they really do sit in the center. This will yield a mix with a good left/right loudness balance. Simply solo the bass, kick, snare, and lead vocal tracks individually, and verify that the green center LED is right in the center and brightly lit. In this position, the LED will be actually a bit brighter than the small green area surrounding perfect center. It may reveal that weird routing, unbalanced insert tool adjustments, or inserted hardware that has caused off center results as well as off center EFX returns. Correct any problems if desired.

Listening To The Whole Mix

The Balance meter should move within the green area, ±0.5dB loudness deviation, though sometimes it can go further to the left or right depending on the elements and events happening on the sides. However, if the Balance meter shows long term emphasis to either the left or right, you may want to reconsider your panning strategy or verify if some of your center events are off center.

Especially when using an R128 Loudness Meter, which just shows one loudness value for both left and right, the Balance meter is a great complementary support to keep an eye on your overall loudness balance.

Correlation Meters

The world is in order as long everything happens "in the green." This means that you won't get phase cancellation if your mix is played back in mono. Don't get too nervous if the meter sometimes moves toward the red zone, especially within breaks when reverb tails become more prominent. Convincing reverberation is uncorrelated, and reverb tails always have the tendency to go wild in terms of phase — it *is* reverb after all. But, if your mix or any band goes constantly and strongly into the red zone, it's time to use the MONO button. Toggle between MONO and normal STEREO mode, and check the mix for things which drop out of your mix when listening in mono.

Remember, it's not the Correlation meters which make the decision that you are "too red," they just remind you to press MONO to check and decide based on your ears and taste, and what you consider to be acceptable losses for monaural playback.

If you have too much red, indicating signals which will cancel each other out when summed to mono, here is a simple trick: Often this situation results from stereo overheads which are hard panned full left and right. Just back off the panning to 90% left and 90% right and the problem should be gone. The same is true for reverb EFX returns. Remember: "red" means that you have signals on the left which would cancel out with signals on the right when switched to mono. By bringing left a bit closer to right and right a bit closer to left you have less cancellation potential. If this won't solve the problem, look for the problem's source by soloing through your groups and you'll quickly find the culprit.

Also be aware of parallel processing tracks. This can be your complete drum kit mic'd with multiple mics, or a doubled bass track or layered kick…basically any time a similar signal takes two different paths to your 2Bus. If you're mixing, our [RSPhaseShifter](#) is a pristine quality tool built specifically to address phase incompatibilities between multiple signal paths.

Use the Correlation Meter in conjunction with the MONO button. In fact, the Correlation Meter and MONO button are complementary tools and should be used together. The Correlation meter informs you that something in mono may be a problem.

In modern music, especially in electronic music, producers tend to layer multiple kicks upon each other to create a super kick. Sometimes it works and sometimes it doesn't because of phase issues. You need to decide which kick is the "mother" and reference the next kick with your mother whether it sits in phase or not. Use the MONO button! Does the secondary kick add something good, especially in the low end, or does it take away something essential? If the latter, move the kick a few samples so that it actually sums nicely. Then, go and check every kick again against your mother because one kick must be the phase reference. With phase aligned kick drums, you have a far better chance to create the "infinite" kick.

To be technically precise and correct with my kick advice, you must be aware of the abilities of the stereo Correlation Meter. I want to point out the difference between phase cancellation of stereo signals and mono signals: This meter is a stereo correlation meter, thus it shows the correlation of your stereo channels. A kick is mostly monaural, so you won´t see any mono phase cancellations on the stereo correlation meter because one mono kick could possibly cancel out another mono kick. Such cancellation happens equally on both left and right channels, so the correlation meter can't "see it." You simply need to use your ears by hearing where the kick sums in the best way, which is where you hear the most bass.

Also, be aware that the stereo correlation metering is energy–based. As an example, when you have a lot of in–phase LF signals and an out of phase vocal in the higher mids, there is a good chance that the stereo correlation meter won't move far towards red. This is where you should use the MONO button and your ears to hear if the vocals lose energy in the high mids in mono mode.

Why Should I Care?

…about mono?! Monaural playback is more prevalent than ever, with the rise of battery–powered, hand held party speakers and the seemingly ubiquitous "smart speaker." Though a product may advertise stereo playback, the simply fact is that size matters. At low frequencies, playback from any diminutive device is essentially monaural. Also, small sources usually cannot reproduce the bottom octave at all and many begin to roll off below 80 Hz. So make sure to maximize the appropriate amount of LF energy for the material you're working on.

LF & Vinyl

If your material is destined for LP distribution, also keep in mind that lacquer cutting has difficulty with large amplitude, out–of–phase information at very low frequencies. 2BC multiCORR provides four bands of analysis for the critical bottom octave, six additional bands of metering covering frequencies up to 200 Hz, plus three additional band for the 200 to 400 Hz range.

In general, it is recommended to be more cautious with low frequency phase problems than with high frequency phase problems as the chance of mono cancellation is higher due to longer LF (low frequency) wavelengths. If you expect to be pressing vinyl, you should take phase issues seriously as phase cancellations below 400 Hz will force your cutting engineer to mono out low frequencies, changing your mix. When the vinyl cutter "folds" your phase–troubled bass into mono, there's a high risk of ending up with weak bass, so be proactive.

Stereo widening tools are also the natural enemy of the green zone. Those tools usually work by messing with phase. Once again, don't leave the decision to a Phase Meter or another engineer. Instead, be inspired to use the MONO button and make decisions based on your taste and experience.

L • R Flip

The Flip button swaps channels, it's just nice to have it at hand! I tend to mix everything from the audience prospective. Unless I know that I have to deal with a left hand drummer, I always have the hi hat on the right side. This is the fastest way to get there.

Also, sometimes you may hear a subtle issue that you think may be in one channel or the other. The Flip control, along with the Left–Only/Right–Only buttons discussed below, quickly helps to confirm or identify any problems.

Left–Only & Right–Only

Why the heck should you use them? Well, most of the time both loudspeakers are not 100% matched and sometimes neither are your ears. Having the possibility of swapping Left to your phantom center, and comparing it with Right swapped to your phantom center makes it easier to figure out if you have problems on either channel. Let's say the ride cymbal on the left channel has an awful component frequency at 14 kHz, while the right channel is fine. You instantly know that you just need to get rid of the problem on the left channel without harming the right one.

MONO & DIFF Buttons

As I mentioned before (haven't I?), MONO is the same as Mid or Sum. Basically it's left summed with right, or left plus right. Besides using MONO mode for identifying potential phase issues, you can also use it to figure out the "properties" of the monaural signal opposed to the "properties" of your DIFF(erence) or side signal. Sometimes you can

support the lead vocals with the use of an M/S EQ by just altering the M portion rather than the whole mix. As another example, you may find harsh cymbals on the DIFFERENCE channel, which informs you that you might want to apply multi–band compression to the DIFF signal with the use of a proper M/S multi–band dynamics processor. The DIFF signal can also reveal potential to give the mix more warmth, or to control the low frequency region. You usually don't want to have too much low frequency information on this signal portion, so you would roll off the bass.

M/S tools have become very popular over the years, but you often miss the possibility of monitoring your Mid and Side, or MONO and DIFF signals, as a phantom center. I find it quite annoying to set up M/S tools with MONO on the left speaker and DIFF on the right one. With 2BC multiCORR, you have a better way always at hand.

◉ WARNING!
Remember to switch off the SOLO buttons before closing the user interface! Since the tool will continue to work in one of the solo modes, this will really mess with your monitoring!

Specifications

System Requirements
- macOS: 10.8 and newer, 64 bit only

- Windows 7 and newer, 32 & 64 bit

- Pro Tools 10.3.10 and newer

- 4GB RAM minimum

Supported Sample Rates
- 44.1 to 384 kHz

Supported Hosts
Ableton Live, Cubase, Logic, Nuendo, Pro Tools, Sequoia, Studio One, Wavelab

Updates

Please always use the latest version of the software! You can find your current version on the Info Tab of the back panel. You can download the latest version simply by visiting:

http://maat.digital/support/#installers

For optimal security and stability, you should always stay up to date with Operating System revisions, and we keep up with compatibility changes to our products. We also continue to optimize for reduced CPU load, and

this very user manual gets its own improvements.

To stay up to date with the latest version and product releases, please subscribe to our occasional newsletter. You'll find a opt–in form on our [Contact](#) page, or sign up for a copy of our free and very handy 2BusControl plug–in which will also subscribe you. Don't worry, we know you are busy so we only send out an average of 10 or 12 mailings a year.

Support

For product support, please visit:

https://www.maat.digital/supports

License Central

License Central, located in MAAT's Shared directory, is a free utility that validates, repairs and logs your MAAT licenses. It also displays what MAAT products you have installed and assists in downloading both updates and demos.

License Central lists all of our products, and shows you:

- If a product is installed and what licenses you have [CLOUD, SUBSCRIPTION, TRIAL, OFFLINE and TEMP OFFLINE]

- What versions are installed, and version installers are available for download

It also provides:

- A one–click download of an update or a demo

- A button to activate or deactivate any of your licenses

- A copyable list of all your Product Keys

- One–click generation of the MAAT diagnostic report

It also fixes license issues automagically.

In Use

When you launch License Central, it scans your host computer and then attempts to match up each product found with a Product Key on our license server. That scanning happens in real time, and the process is shown as a progress bar. When quitting, this process happens in reverse.

Once all the licenses are validated, a list on the left displays all MAAT products, including License Central. Products that are not installed are grayed out, and installed products are displayed in high contrast. To the right of each product entry is a check mark, which indicated that the product is licensed.

Selecting a product entry displays information about the installed version and if an update is available for download.

Controls

There are two persistent buttons along the top. At upper left is Check for Updates, which refreshes the list of installed products, and pings our server again for currently available versions to download. It also recreates your Product Key list.

At upper right, the Activate/Deactivate button brings up the familiar blue and orange MAAT license window, allowing you to deactivate or return your license to the Cloud, and to switch to a 30 day temporary offline license. If you have requested a 365 day full offline license, use the Create License Request function in the MAAT license window, and have received your ".maatc" confirmation file, you can also take your license offline. Finally, you can also paste in a Product Key to activate a new license.

> Note: Switching to 30 day temp offline requires that your license be already activated. 365 day full offline licenses require a license confirmation file as supplied by MAAT's support department.

If any product is out of date, a third Download Update button will appear when that product is selected. This button is an express method for updating you MAAT products.

At bottom left of the License Central window is an Auto–Refresh check box, which is selected by default. Deselecting that will prevent License Central from frequently scanning your host for changes including new installs. It starts a scan every 3 seconds, waiting for completion of that scan, then begins a new 3 second countdown before starting the next scan. If you find that License Central is interrupting you workflow while scanning, then disable Auto–Refresh.

Preferences

In License Central, the Preferences' gear icon brings up the Preferences window with four tabs.

Paths

For those who set up alternate directories for the management of their plug–ins in a DAW, two alternate plug–in paths can be defined. These directories will be also included when License Central searches.

Keys

This tab lists all of your Product Keys that are known to our license server. Please take a moment to copy all of your Product Keys, paste them into a text or word processor file, and print out a hard copy. Your Product Keys are your proof of purchase and, without them, your purchase will not work and we cannot provide product support.

Troubleshooting

The Troubleshooting tab has one button, which generates a Diagnostics

Report. This report, automatically written to the Desktop, gathers useful, non–personal information about your machine's state that our support team can use to diagnose any problems.

Info

As with all our products, the Info tab lists credits, copyright information, and the version number you are running.

Share The Love

Would you like to help us in our quest for better sound quality? Help support MAAT by sharing the love…Like us on Facebook!

https://www.facebook.com/maatdigital/

and Twitter too:

https://twitter.com/maat_digital

Please tell your friends and colleagues about us. We really appreciate it, and thank you for supporting better quality audio.

Support

For product support, please visit:

https://www.maat.digital/support

Would you like to help MAAT? Help support MAAT by sharing the love…Like us on Facebook:

https://www.facebook.com/maatdigital/

and Twitter:

https://twitter.com/maat_digital

and tell your friends about us!

Credits

Initiator & UX Concept

Friedemann Tischmeyer

Product Management & UX

Oliver Masciarotte

Plug–In Programming

Agent Tad Nicol, MAAT Inc.

VST is a trademark of Steinberg Media Technologies GmbH

About This Manual

This manual was written in Adobe InDesign 15.1.1, and is set in Robert Slimbach's Minion Pro and Myriad Pro. The cover page is set in Aldo Novarese's modernist geometric Eurostyle.

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