VMACHINE

Operation Manual V1.0

Hardware VST plug-in player

1. Foreword

1.1. Thank you

Congratulations on purchasing the SM Pro Audio V-Machine. You now own an extraordinary product that offers stand-alone playback of VST (Virtual Studio Technology) plug-ins originally designed for operation on the Windows operating system.

We urge you to read this manual from start to finish as some of the concepts of the V-Machine require detailed explanation.

We hope you enjoy making music on the V-Machine!

SM Pro Audio

1.2. Important Notes:

Every effort has been made to ensure all information provided in this manual is accurate at the time of writing.

SM Pro Audio is not liable for any incorrect information contained in this manual and extends no liabilities in regard to this manual other than those required by local law.

SM Pro Audio may update the contents of this manual at any time without prior notice. The latest version of this manual is available from the SM Pro Audio website at all times.

http://www.smproaudio.com

1.3. V-Machine Team

SM Pro Audio would like to thank our V-Machine project partners VFX Systems Pty Ltd and Grey Innovation Pty Ltd.

A very big thank you goes out to everyone involved in the V-Machine project:

Bill Barsby, Joe Berg, Samuel Bolton, Tim Buckley, Vin Curigliano, John Fuller, Denis Greco, Jefferson Harcourt, Peter Howard, Patrick Jose, Brett Kingman, Marcin Koczy, Dr Von K, Mandie Lammens, Leo Lau, David Lim, Rohan Mansell, Stephen Marshall, Kade Miller, Owen Neeson, Sam O'Connor, Danny Olesh, Peter Schlossnagel, Cory Seligman, Mathew Skinner, Mike Smith, Chris Steller, Stuart Summerville, Danusia Szafranski, Tamer Terzi, Sandra Terzi, Felix Thiang, Vincent Thiang, Tony Tran, Rowan Vince, Nicola Wong, Yingying Zhang, Stephanie Zhang.

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Figures:

2. What is the V-Machine?

The V-Machine is a purpose built stand-alone VST/VSTi plug-in player.

Based on the recently developed *Powered by VFX* embedded technology platform, the V-Machine is an extremely versatile musical instrument. By its very nature it can adapt with the push of button and transform from a classic synth into a soaring string section.

Traditional synthesizers, samplers and sound modules are great, however many of today's software instruments have much more to offer. The sonic possibilities are endless with literally hundreds of commercial and free VST instruments widely available.

The V-Machine lets you harness the flexibility of software in a reliable purpose built hardware unit. It represents the best of software and hardware combined.

2.1. What can you do with a V-Machine?

The V-Machine is an extremely versatile instrument that can be used in many ways.

The V-Machine can be used:

- As a synthesizer
- As a sample playback module
- As an outboard effects unit
- To play virtual instruments live with a keyboard controller
- To offload some of the work your computer performs when using virtual instruments in the studio
- To pre-load plug-ins into Banks and Presets for live performances
- To create unique sounds using plug-in chains, splits, and layers
- To connect MIDI controllers and bring plug-in technology to real hardware

2.2. Who can benefit from using a V-Machine?

The V-Machine benefits all types of users; from DJ's wanting trigger synths and samples live, to a piano bar pianist wanting to perform with some of the greatest piano samples ever recorded.

Keyboard players – Musicians – Studio Engineers – Live Engineers - Producers – Students – Teachers - Guitarists – and more.

3. System Requirements

The V-Machine is a stand-alone unit designed to operate without the requirement of PC/Mac computer. However, the full potential of the unit is only realised when connected to a computer and configured for use by the VFX Application software.

The VFX Application has the following requirements:

3.1. Intel based Mac
Minimal: Any Intel based Mac

Suggested: 1.66 GHz Intel Core Duo processor, 1 GB of RAM, Mac OS X 10.4.4 or later.

3.2. Windows based PC
Minimal: Pentium 1GHz / Athlon XP 1.33 GHz, 512 MB of RAM, Windows XP / Vista or later.

Suggested: Pentium 2.4 GHz / Athlon XP 2.4 GHz, 1 GB of RAM, Windows XP / Vista or later.

3.3. Windows based VST plug-ins
The V-Machine hardware offers support for a range of VST plug-ins programmed to originally operate on the Windows operating system. VST plug-ins programmed specifically for the Mac are not supported.

The good news is, the Mac compatible version of the included VFX Application offers built in support for VST plug-ins originally programmed for use on the Windows operating system.

VST and VSTi plug-ins are readily available from a variety of sources. Commercial plug-ins are available from music stores and often directly from the developers websites. Thousands of free plug-ins are also available for download directly from the many VST resource and community based websites on the internet.

4. What comes in the box
- V-Machine
- Power supply
- Quick start guide
- USB cable
- Getting started CD – VFX application, Operation manual (PDF), and a range of Free plug-ins to get started.

5. Overview and concepts
The V-Machine is a music synthesiser and effects unit. It has been designed to receive MIDI data from external MIDI controllers (e.g. a MIDI keyboard controller) and audio from a line level input source. Processed audio signal can be sent to headphones, an amplifier, a mixing desk, or similar.

The V-Machine does not implement any particular audio synthesis algorithm. Instead it acts as a host for a range of Windows VST and VSTi plug-ins. Individual plug-ins hosted on the V-Machine implement their own particular synthesis algorithms.

Figure 2 shows an over view of how the V-Machine is used.

- Load VST plug-ins into the VFX Application on a Mac or PC
- Use the VFX Application to create Banks of Presets. Each Preset consists of a particular configuration of one or more VST plug-ins.
- Use the VFX Application to copy these configured Banks to the V-Machine via a USB Cable or a USB Stick. Alternatively, you can copy compatible VST Plug-in .DLL files

directly to a USB Stick and from there to the V-Machine without using the VFX Application.

- The V-Machine is connected to one or more MIDI controllers. MIDI messages from the controllers are sent to the VST plug-ins. The VST plug-ins resulting audio is sent to both the headphone and stereo outputs.

The V-Machines front panel displays four (4) lines of text:

- The currently selected Bank
- The currently selected Preset within the selected Bank
- The currently selected plug-in parameter within the selected Preset
- The currently selected parameter value
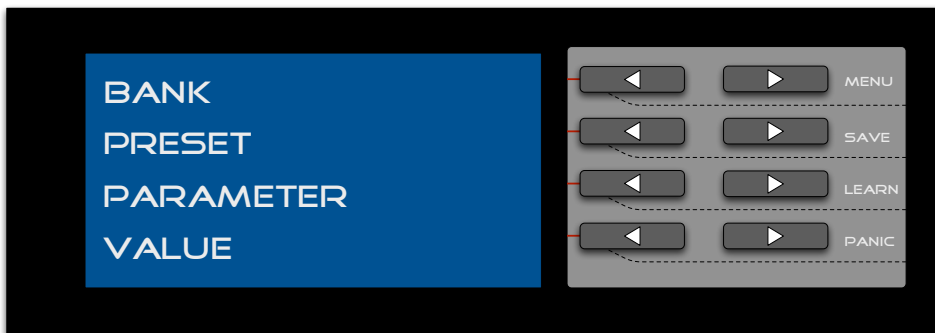
Figure 1: Standard LCD display view

Special Notes:

1. Previous/Next interface keypads adjacent to each line of text allow the corresponding item to be navigated or adjusted.
2. Dual press keypad functions (pressing two buttons at the same time) are designed to enter the Global System Settings menu.
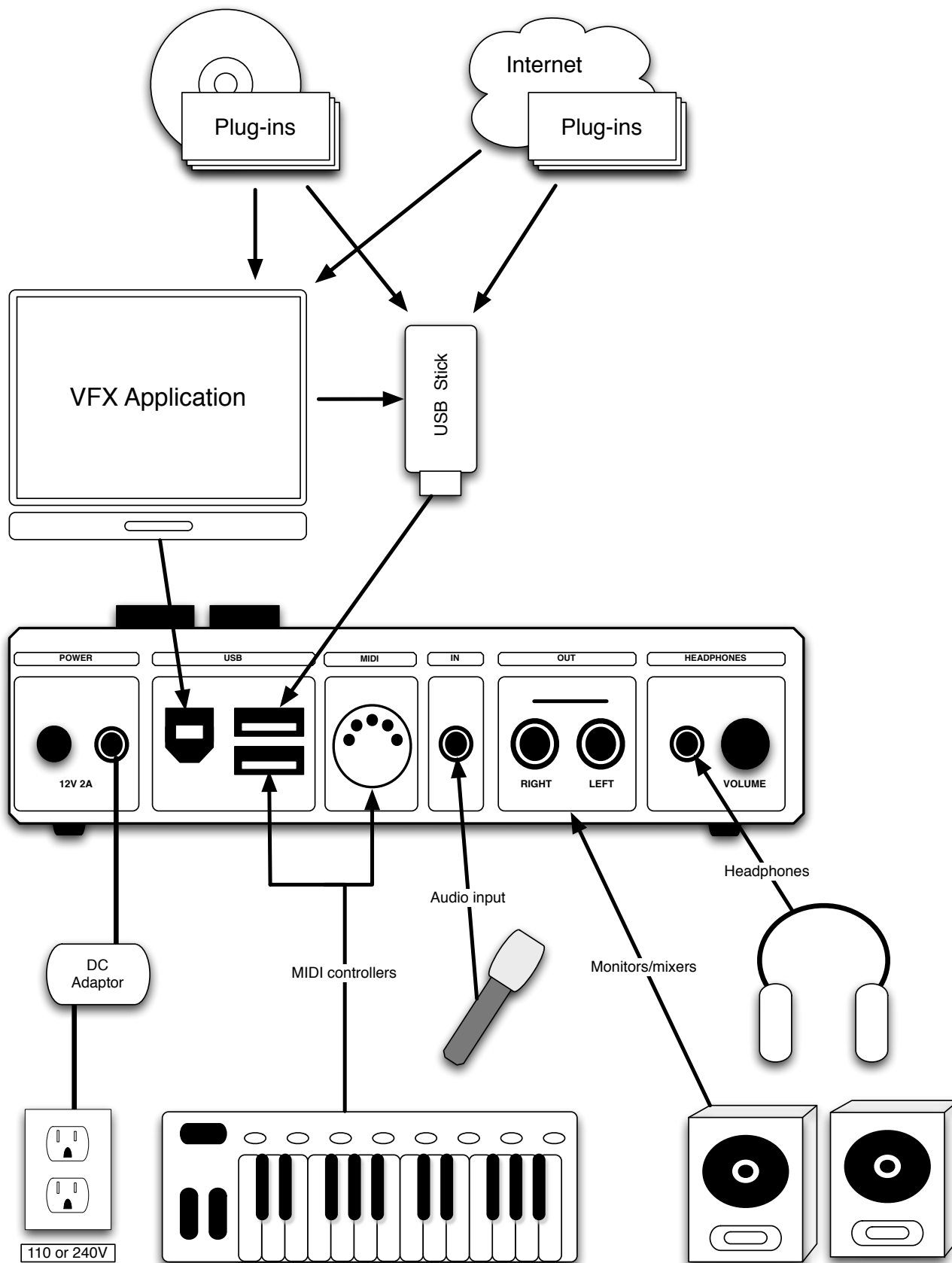
Figure 2: Operational overview
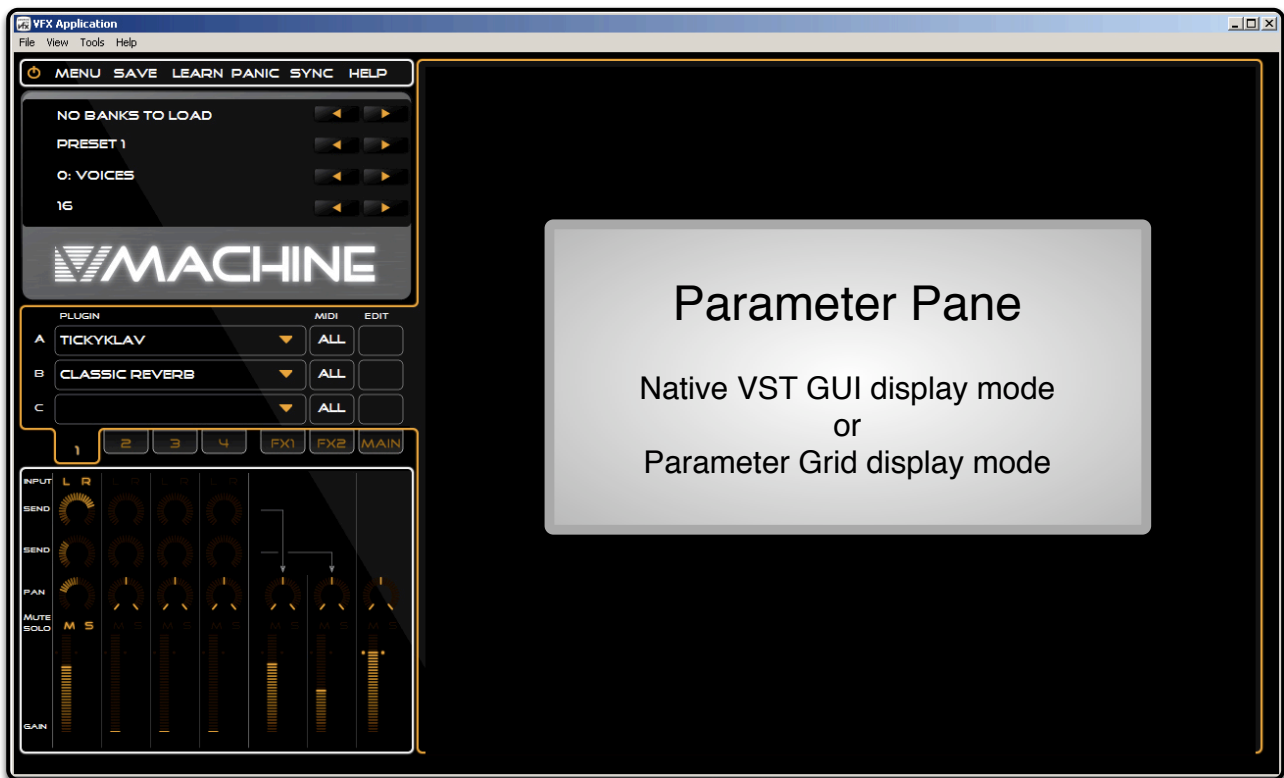
Figure 3: VFX Application

5.1. The VFX Platform

The V-Machine runs on the *Powered by VFX* platform developed by VFX Systems Pty Ltd, Melbourne Australia.

The *Powered by VFX* platform is a software framework designed to provide robust audio media support in embedded devices.

Built on a modern operating system core, the *Powered by VFX* platform is a dedicated lightweight solution offering extremely low overheads in comparison to traditional computer based solutions. The result is a robust powerful platform well suited for the high performance requirements of low latency audio hardware devices.

Built in support for leading audio processing technologies such as Steinberg's renowned VST (Virtual Studio Technology) plug-in format means dedicated hardware units can take advantage of the benefits of computer audio plug-in technology.

Expect to see the *Powered by VFX* platform bring powerful audio processing capabilities to mixers, keyboards, and guitar products in the future.

5.2. About Windows VSTi/VST plug-ins

Steinberg GmbH shook up the audio industry when they released their now famous Virtual Studio Technology (VST) interface back in 1996. Studio production changed forever as professional results were suddenly available on a standard PC or Mac based computer system.

Designed to integrate virtual instruments and effect processors into a digital audio environment, the VST format has quickly became the most widely adopted audio plug-in standard.

5.2.1. VSTi plug-ins

VST instruments (known as VSTi's) are typically virtual synthesizers or sampler units. They are triggered by MIDI controllers or sequencer devices and generate audio in real time. Plug-in parameters can often be assigned to external controllers effectively delivering a real hardware instrument experience.

VST instrument emulations are available for just about every known instrument. There are instruments for pianos, drums, strings, and everything through to classic synthesizers.

5.2.2. VST plug-ins

A VST plug-in contains computer code that provides instructions to process audio in real time. Typically a VST plug-in is inserted in a digital audio signal path to process audio as per the specified plug-in purpose.

There are many VST plug-in equivalents that emulate famous audio effect hardware devices in addition to a huge selection of interesting effects that have never before been possible.

Some common plug-ins offerings provide audio processing effects such as compression, reverb, and equalization.

5.2.3. VST plug-in hosts

VST instruments and effects are loaded and used within a VST Host. A VST host is usually a software application. In this case however, the VST Host is the V-Machine hardware device.

5.3. Plug-in considerations and limitations

Thousands of commercially developed and Freeware VST plug-ins are available today. As is to be expected, the quality of plug-ins varies considerably from excellent to not so professional.

You will notice when testing plug-ins you may experience a great sounding highly featured plug-in that runs extremely efficiently on the V-Machine, and then wonder why a lesser featured plug-in seems to place excessive demands on the CPU. The answer usually comes down to whether or not the developer has written quality-optimized code.

Only testing of each plug-in will determine how suitable it may be for your creative demands on the V-Machine.

The V-Machine is based on a custom operating system. The VST plug-ins that the V-Machine recognizes are generally intended to run on Microsoft's Windows operating system. As such, some VST plug-ins may not function correctly or at all on the V-Machine.

Note: It is our intention over time to compile and maintain a certified V-Machine plug-in compatibility list on the SM Pro Audio website. Please check the website for more information.

5.4. V-Machine additional Preset parameters

The V-Machine adds a few additional parameters to each plug-ins normal parameter list. This is to facilitate special features tailored to the V-Machines hardware operation.

For more information see section *11* V-Machine specific plug-in parameters

5.5. Master and Persistent based memory states

The V-Machine has two memory states for individual Presets.

5.5.1. Master Saved State

The V-Machine Master Saved State refers to a Presets permanent saved state as written into non-volatile memory. When the V-Machine is turned on, Presets are loaded with parameter values presented in their Master Saved State.

For more information on how to save a Presets Master Saved State refer to section 10.3.2 Save command

5.5.2. Persistent Saved State

The V-Machine has provision to retain a Presets state during individual performance sessions. This option is accessed via a parameter known as the Persistent State Parameter.

The Persistent State Parameter is useful for configuring the Preset to either retain edits made to plug-in parameters during a performance session or to revert to the Master Saved State each time the Preset is selected.

For more information see section *11* V-Machine specific plug-in parameters

6. Freedom comes with responsibility!

The V-Machine is an extremely flexible device. As such we urge you to understand how creating a preset sound without due consideration of the possible pitfalls can lead to unexpected results.

Just as a master builder with a lot of experience will often build a masterpiece, a less experienced builder may take some time to achieve similar results. This analogy is also true when creating preset sounds for use on the V-Machine. With patience and experience you will learn how to get the most out of the V-Machine.

Please read this manual to understand the some of the concepts you need to be aware of when creating your presets. Consideration should be given to things such as the impact of CPU intensive plug-ins, whether you need to adjust buffer setting per sound for latency refinement, and keeping gain structures under control so your preset does not over load the V-Machine's DAC (digital audio converter).

The V-Machine and the VFX application are the tools, what you do with them is up to you!

6.1. Building your own sounds – Main considerations

6.1.1. Excessive gain staging resulting in digital clipping

Digital clipping sounds terrible and is definitely something to be avoided. Preset sounds created without proper gain staging consideration can result in digital clipping in the V-Machines output converters.

Gain staging is the art of setting multiple gain controls in the signal path to achieve the cleanest possible resulting signal. Too much gain in the signal path prior to conversion at the DAC (Digital Audio converter) results in digital clipping.

Possible gain stages in signal path when creating Presets in the VFX Application;

- Plug-in output gain settings (plug-ins can clip within themselves, check the plug-in GUI)
- VFX application Individual channel Gain controls
- VFX application FX 1&2 Bus Gain controls

- VFX application Main channel Gain control

Adding plug-ins in chains and layers can often build up excessive gain in the overall preset thus overdriving the V-Machine's DAC.

Set your levels according to the maximum velocity you will be playing the preset sound from your MIDI keyboard. This allows for dynamic playing without clipping.

Quick Tip: Put a limiter plug-in on the master output channel!

6.1.2.   Use the presets wisely
Try to use presets as much as possible rather than building up layers of sounds in the Mixer. This is a powerful way to get the most out of the V-Machine. You can quickly toggle between sounds whilst keeping the CPU and latency performance under control. The more you load into a single preset the more likely you are to reach the CPU performance ceiling.

6.2. Managing resources

6.2.1.   CPU considerations
The V-Machines firmware is purpose built for high performance operation and optimized to ensure most CPU cycles are dedicated to processing audio. However, just like any standard computer, there is a performance ceiling where the processor will have reached its maximum performance capability.

The performance ceiling of the V-Machine with regard to CPU power is dependant on many factors. It is only by using the V-Machine you will learn to appreciate how to obtain the best possible performance results. The main thing to remember at all times is that any active feature/function consumes CPU calculation power.

6.2.2.   Optimising presets
Some of the following tips are worth considering to help make the best use of the V-Machine's CPU:

- Be mindful that all Gain adjustment calculations consume CPU cycles. As such, if you can set mixer faders to zero dB efficiencies can be made. It can be useful to keep the master fader at zero dB and adjust the channel volumes accordingly to reduce gain calculations.

- Adjust each Presets Audio Buffer Parameter to achieve the best balance of performance latency and CPU usage. The Audio Buffer Parameter setting can be configured on a per Preset basis. See section 11.2 for more information.

- Setting Pan settings hard left, hard right, or absolute centre in the Mixer reduces the quantity of stereo field calculations demanded of the CPU.

- Select a mono input if appropriate. There is no need to process a stereo input signal for a mono source such as an electric or bass guitar.

- If you only want to run a single plug-in in a particular Preset, it is advisable to load the plug-in into Plug-in Slot A in channel 1 of the Mixer. The V-Machine recognises this state and passes audio directly though the Mixer enabling efficiencies.

- Utilize FX sends rather than inserting a dedicated effect plug-in on each channel. This way you can share the effect resource between multiple channels.

- Setting an audio channels FX send parameter to set to zero will not use any CPU resources. As such, if a plug-in is using very small amounts of a particular shared effect in the FX bus it may be advisable to switch it off entirely!

- Switch off plug-ins that you can hardly hear. They are using up precious resources!

- Shorten the length of release tails for VSTi's if at all possible. Long release tails can build up polyphony (the number of notes playing simultaneously) during performances placing a burden on the CPU. Release tails can often be reduced without being detrimental to performances.

- Reduce plug-in polyphony if supported by the plug-in. Many VSTi plug-ins offer the ability to reduce polyphony. Every extra note consumes CPU cycles.

- Every single feature you turn on and off impacts CPU performance. Think efficient and program wisely!

7. Auditioning a Sound

For those who have read the manual to this point and cannot wait to get started, please refer to the printed quick start guide included with your V-Machine. The quick start guide outlines the basics to get you up and running without delay.

8. V-Machine Internal Architecture

8.1. VFX hardware host firmware concepts

The V-Machine audio architecture is designed around a flexible four (4) channel mixer concept. Each mixer channel can be configured to host three (3) plug-ins and offers a dedicated volume, pan, mute, solo, and two effects sends. Complex sound creations can be made by mixing layers of plug-in instruments together, adding effects, and routing the result to the main stereo output. Each of the two effects returns and the master output offers 3 plug-in slots for a total of 21 plug-in slots per individual mixer setup. Mixer setups are saved as user presets, and can be arranged into banks for quick navigation and access when loaded to the V-Machine.

8.2. Banks and presets

All V-Machine sounds and setups can be arranged in user definable Banks and Presets. This allows for simple navigation and organisation of your sounds.
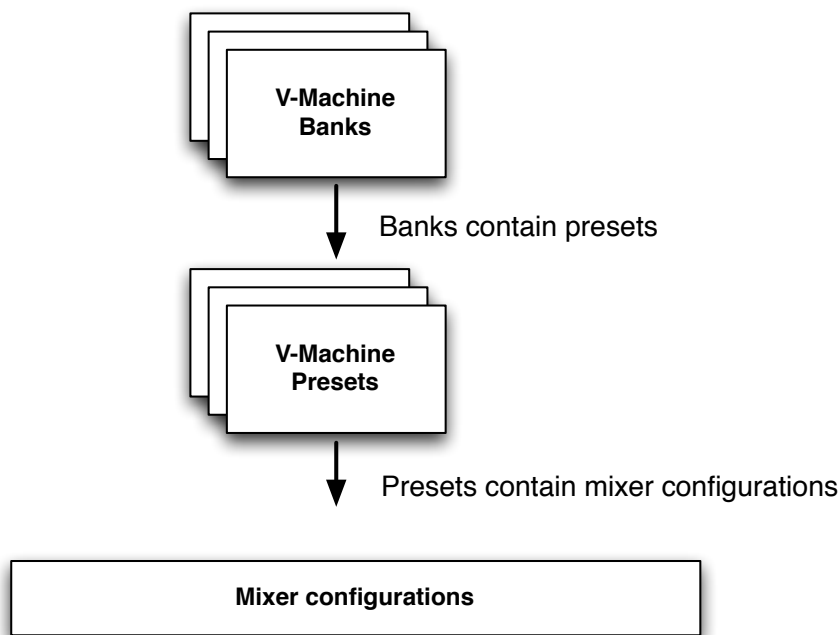
Figure 4: Bank and Preset structural hierarchy

8.2.1. Banks

Banks are collections of Presets. It is entirely up to you how you prefer to categorize your sounds. Some users may wish to organise similar types of sounds together in a Bank while others may wish to create a bank of sounds that are used in a particular performace.

Each Bank can store 127 Preset configurations.

Example 1 - You may prefer to keep your piano Preset sounds in a Bank named "Pianos" and all your bass Preset sounds in a Bank named "Basses".

Example 2 - You may prefer to organise Preset sounds into Banks according to a particular performance. Your performance may be the keyboard part of a song performed by your band requiring three different Preset sounds. If you store the three Preset sounds together in a Bank named "Song 1", you can access them quickly as needed during your performance. Then simply move to the next Bank (possible Song 2) for the next performance.

Banks can be loaded, saved, and renamed from within the VFX application.

8.2.2. Presets

Presets are your individual performance sounds. They are essentially saved mixer configuration states. A saved mixer configuration includes all information relating to audio and MIDI routing, selected plug-ins, and mixer settings such as channel volumes, pan settings, and so forth.

Preset sounds can be loaded, saved, and renamed from within the VFX application.

8.3. Plug-in Slot

A Plug-in Slot is a position in the V-Machine's internal audio signal path whereby you can load a VSTi or VST plug-in.

VSTi instrument plug-ins can be loaded into the first Plug-in Slot (plug-in slot A) in each mixer channel. All other Plug-in Slots are designed to accommodate VST effect plug-ins.

Plug-in Slots are available in three areas of the V-Machine's hardware mixer design;

- 3 x Plug-in Slots for each Mixer channel (1 x VSTi, 2 x VST)
- 3 x Plug-in Slots for each FX return channel (3 x VST)
- 3 x Plug-in Slots for the Main output channel (3 x VST)

The architecture of the V-Machine's mix engine allows for a total of 21 Plug-in Slots per individual Preset (mixer configuration).

The V-Machine's internal mixer architecture is designed for maximum flexibility. It is not meant to indicate the maximum CPU performance ceiling of the V-Machine. In practice, the total amount plug-ins that can be loaded into an individual Preset mixer configuration with acceptable performance results depends entirely on the CPU requirement of each chosen plug-in.

For a diagram outlining the internal mixer architecture see Figure 5: Mixer architecture

8.4. Audio routing

The audio routing architecture of the V-Machine is based around a simple four-channel Mixer design incorporating two (2) FX return channels and a Main output.

Audio signal for each channel is either generated by a VSTi instrument plug-in or received at the V-Machine's analog audio hardware input.

Audio enters each and passes through three (3) VST Plug-in Slots. Audio is passed from one plug-in to the next in series. This allows you to chain plug-ins as desired. If the Plug-in Slot is empty, the audio will pass directly to the next stage of the Mixer.

Audio signal can be routed to one of two (2) FX buses for further processing.

All Mixer channels and FX buses are summed together and directed to the Main output channel.

For a diagram outlining the internal Mixer architecture see Figure 5: Mixer architecture

8.5. MIDI Routing

MID data enters the V-Machine via either the 5-pin standard MIDI input or USB connector on the rear panel.

MIDI can be routed to each of the 21 Plug-in Slots in the V-Machine's Mixer architecture.

Configuration of the MIDI routing is performed within the VFX application. This offers a simple interface to assist in the configuration of MIDI channel assignment and the "MIDI learn" plug-in parameter function. MID learn allows you to assign individual plug-in parameters to external hardware control devices.

8.6. .VFX files

The file extension ".VFX" identifies files used by the V-Machine and VFX Application.

Files using the .VFX format are used for storing Bank and Preset configuration information.

Mixer configuration

MIDI Controller

Audio Source
Electric guitar, bass,
mixer, microphone, etc

| Channel 1 | Channel 2 | Channel 3 | Channel 4 | FX Bus 1 | FX Bus 2 | Main Mix |

Plug-in Slot A · Plug-in Slot B · Plug-in Slot C

Send 1 · Send 2

Solo · Mute · Pan · Vol

To Master Mix Bus

Stereo audio output

Audio Signal ——————
MIDI Signal – – – – – – –

Headphones

Monitors
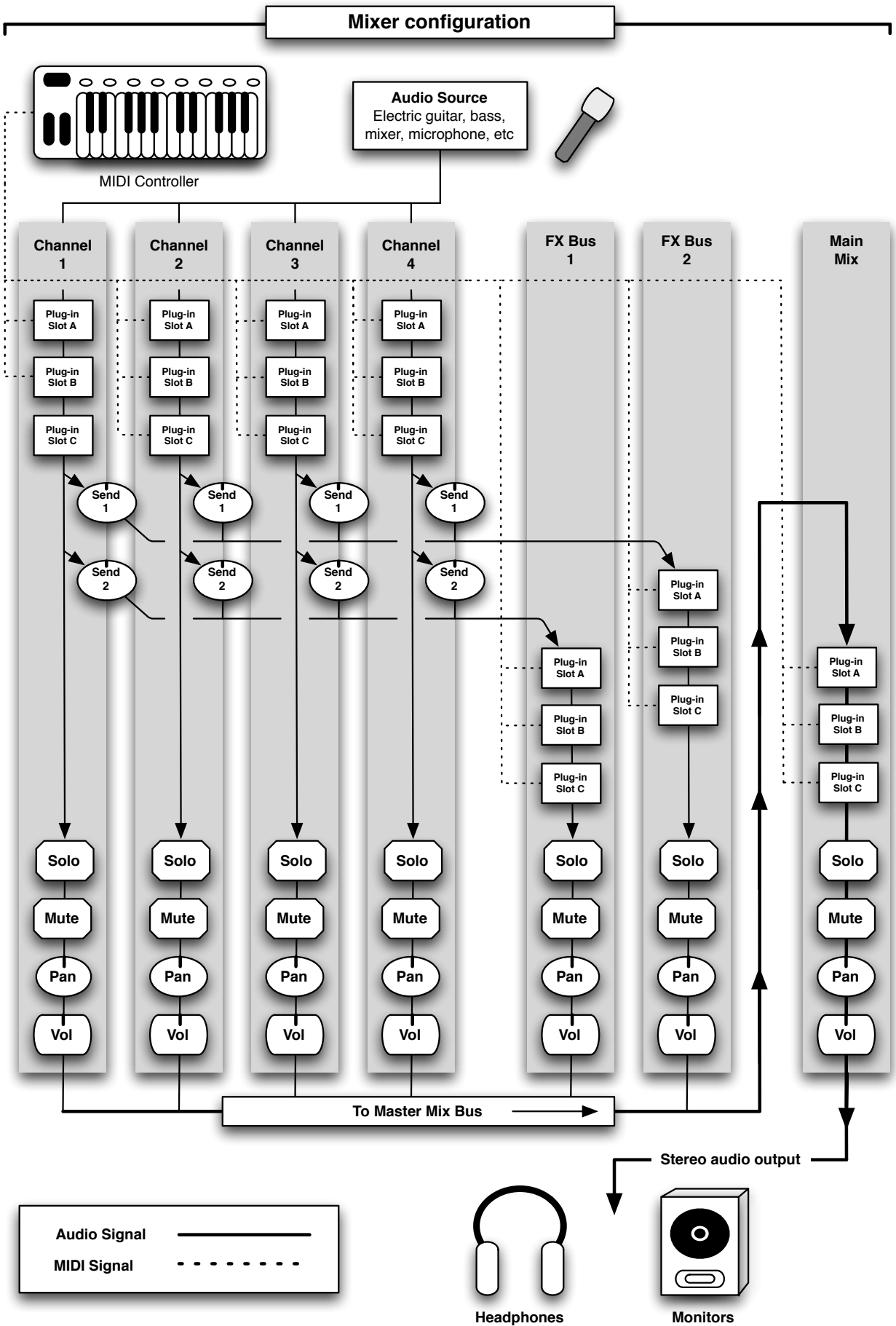
Figure 5: Mixer architecture – Audio and MIDI routing

9. V-Machine hardware & connections

9.1. Hardware introduction

The V-Machine is a compact purpose built audio processor. It has been designed to interface seamlessly within a wide range of common audio production and performance environments. Much attention to detail has been made to designing a modern, compact, high performance product that is simple to operate.

The chassis structure of the V-Machine has been designed in such a way as to:

- Provide a powerful yet compact unit suitable for live and studio applications
- Offer users a simple uncomplicated user interface
- Allow easy access for connection to peripheral devices
- Protect the V-Machine's critical electronics
- Provide adequate heat dissipation and air flow to the internal electronics

Many of the common connection options typical of audio processor units can be found on the rear panel including: Audio inputs and outputs, USB host and slave connectors, headphone connector, 5-pin MIDI, and a power connector.

9.2. Top panel

An LCD Panel display and keypad button user interface is provided on the V-Machine's top panel.

Figure 6: Front panel

9.2.1. Keypad button user interface

The V-Machine's keypad interface has been designed to provide a simple mechanism for navigation and control the V-Machine.

The keypads are arranged in four (4) rows of two (2) buttons.

Single and dual selection combo functions (pressing two buttons at the same time) are possible.

For more information please see section: *10* Turning on and navigating the V-Machine
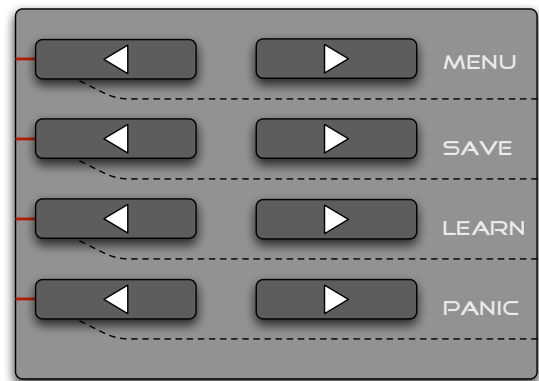
Figure 7: Button interface

9.2.2. LCD Panel

The V-Machine's LCD Panel displays information relevant for navigating and operating the system.

Automatic contrast control provides optimum LCD contrast settings under a wide variety of lighting conditions.

Contrast and backlight settings can be manually adjusted to suit preferred viewing angles from within the Global System Settings.

Figure 8: LCD Display

9.3. Rear panel connections

The V-Machine's rear panel provides connectivity options to facilitate the connection of a range of peripheral devices.
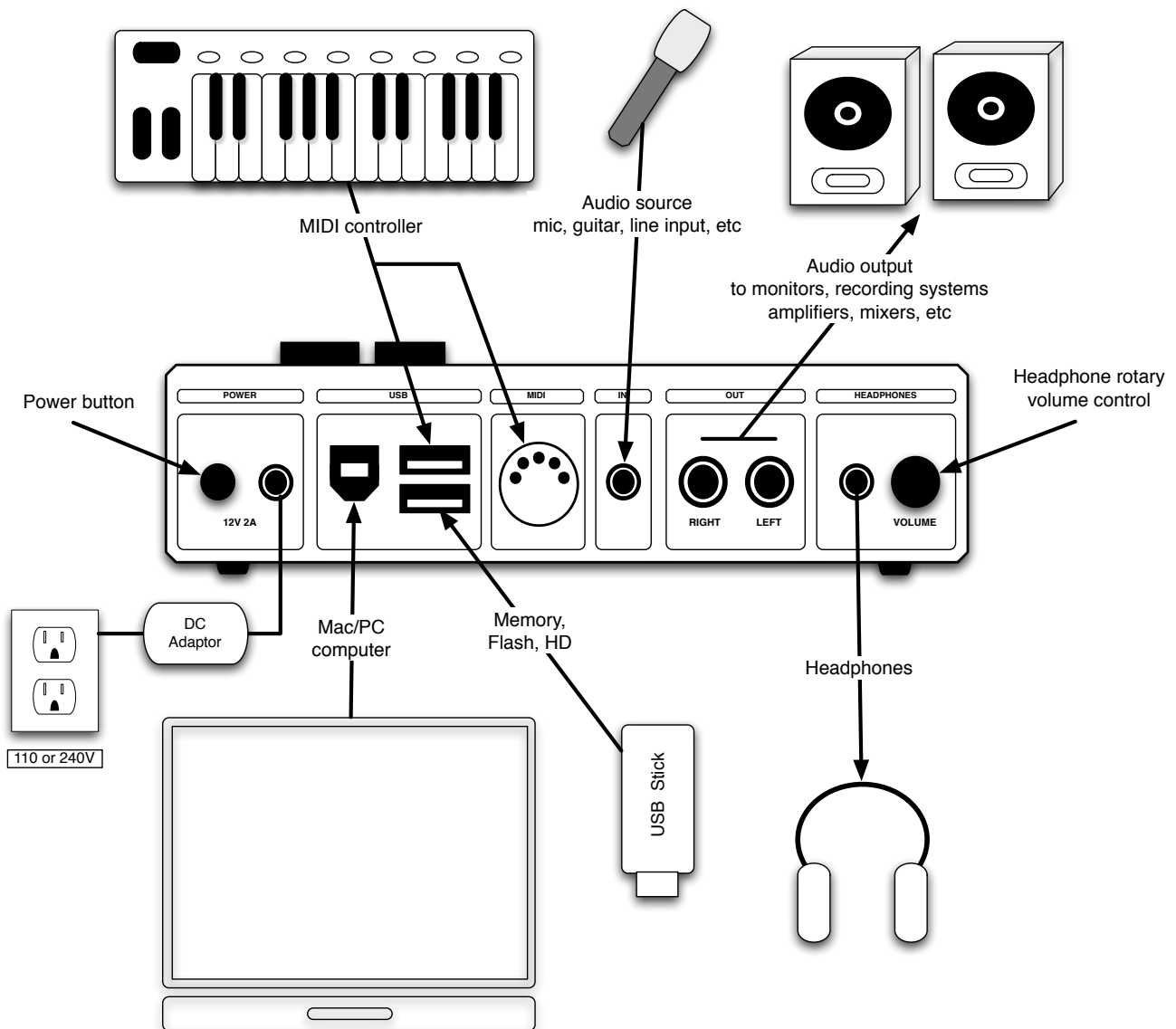
Figure 9: Rear panel connections

9.3.1. Power connector

The V-Machine features a power source input connector on the rear panel for connection of the included 12V 2A external 110-240V 50/60Hz plug-pack. The plug-pack is a compact, high-efficiency, low-noise switch-mode design that has been optimized and certified for audio applications.

Before you turn on the power check the following points:

- Ensure all peripheral connections made correctly
- Turn down all volume controls of the amplifier or destination equipment

9.3.2. Power button

The V-Machine's power button is located next to the power source input connector. To activate power to the unit, simply press the power button.

9.3.3. USB Slave connector

A USB Slave connector is provided for connection to a host PC. This is necessary to take advantage of the benefits of configuring the V-Machine directly from your computer.

9.3.4. USB Host connectors

Two (2) USB host connectors are provided for connection to USB peripherals such as USB Memory Sticks, USB Disk Drives, and USB MIDI controllers. Both Host connectors provide USB bus power.

9.3.5. MIDI input

A standard 5-pin MIDI connector is provided on the rear panel for connection to MIDI compatible devices.

Quick Tip: If you have a MIDI device that offers both 5-Pin MIDI and MIDI over USB it may be a better choice to connect via USB as the USB host connectors on the V-Machine deliver bus power!

9.3.6. Audio input

One (1) 3.5mm stereo (-10dBV) mini jack audio input is provided on the rear panel.

The input level sensitivity can be adjusted in the Global System Settings (see section 10.3.1)

Quick Tip: If connecting a mono input source for processing it is a good idea to activate only the Left input channel in your Preset configuration. This ensures the processor is not actively processing non-existent and irrelevant data.

9.3.7. Audio outputs

Two (2) 6.5mm TS analog (-10dBV, Left and Right) output connectors are provided on the rear panel. These connectors deliver the V-Machine's stereo analog audio signal. Left and Right outputs are marked clearly for identification.

Note: When the mono output option is activated in the Global Menu options all audio is summed to both the LEFT and RIGHT outputs.

9.3.8. Headphone amplifier output

The V-Machine includes a quality headphone amplifier for monitoring the stereo audio output signal.

A standard 3.5mm TRS stereo output connector is provided on the rear panel to facilitate the connection of one (1) pair of headphones.

The headphone output is designed only to drive headphones. Never connect the headphone output to other peripherals such as a mixing desk as damage may result to the peripheral or V-Machine.

9.3.9. Headphone rotary volume control

The volume of the V-Machine's built in headphone amplifier can be adjusted by rotating the volume encoder to your preferred monitoring level.

Special Note: Always turn down the headphone amplifier volume prior to connecting and listening to the V-Machine via headphones. Start with the volume control at minimum, and gradually increase the level to and acceptable level. Protect your precious ears at all times!

9.4. Kensington Security Slot

A Kensington Security Slot (also known as a K-Slot or Kensington lock) is part of an anti-theft security system designed by Kensington Computer.

The lock is a metal-reinforced hole found on the front panel of the V-Machine. It is used for attaching a lock-and-cable product that can be purchased from Kensington and through their partner channels.

More information on the Kensington lock and associated products can be found at the Kensington website (http://www.kensington.com). The Kensington lock is a registered trademark and owned by Kensington.

10. Turning on and navigating the V-Machine

10.1. Power up the V-Machine

On powering on the V-Machine an initialisation progress bar will be displayed on the LCD panel.

The progress bar will advance as the V-Machine loads its firmware and discovers any compatible connected USB peripheral devices such as USB Sticks, USB Disk Drives, or USB MIDI controllers.

Any compatible and appropriately configured files (Presets, Plug-ins, etc) residing on USB memory devices will be recognized and made available for use.

Following initialisation, the LCD Panel displays a standard four (4) row text display;

- The currently selected Bank
- The currently selected Preset within the selected Bank
- The currently selected plug-in parameter within the selected Preset
- The currently selected parameter value
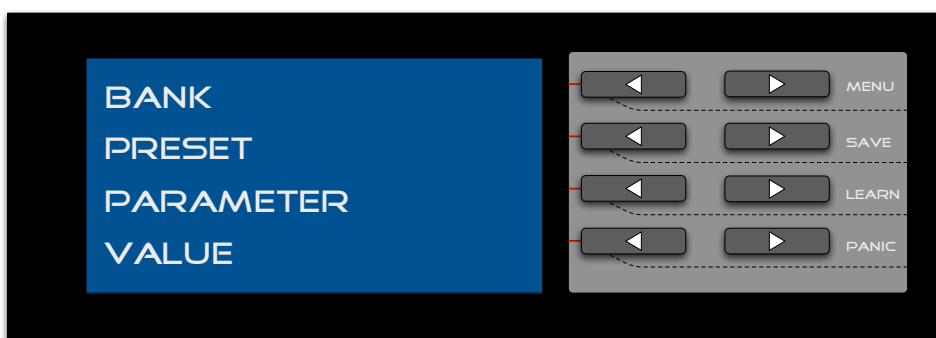
Figure 10: Standard LCD display view

Proceed to navigate the V-Machine with the keypad button user interface.

Special Note: The fitment of some USB storage devices may prevent the V-Machine from starting up. Delay connection of USB storage devices until the V-Machine is fully operational. For more information see the V-MACHINE FAQ at www.smproaudio.com

10.2. Single keypad navigation

Defined below are the single press Next and Previous keypad interface functions.

10.2.1. Bank navigation Next/Previous

Use the Previous and Next buttons as shown to navigate quickly through predefined Banks of Preset collections.

Quick Tip: For speedy access to Presets during a performance it may be useful to store Presets in Banks according to the order you plan on

performing them. For example: A Bank named "Song1" might include all the Presets you will use in song 1.

Figure 11: Bank navigation

Special Note: When a Bank is selected, the first Preset residing in that Bank will be loaded automatically.

10.2.2. Preset navigation Next/Previous

Use the Previous and Next buttons as shown to navigate quickly through predefined Presets of sounds (mixer configurations).

Special Note: When using a Preset for the first time after booting the V-Machine there may be a small delay as plug-ins are initially loaded into memory.

Once loaded into memory, subsequent selected Presets that contain the same plug-in will be available immediately without delay.

Figure 12: Preset navigation

10.2.3. Parameter navigation Next/Previous

Use the Previous and Next buttons as shown to navigate quickly through plug-in parameters associated with the currently selected Preset.

Quick Tip: As some plug-ins have literally hundreds of available parameters it may be useful to

prioritize the order of the parameter list for speedy access. Priority parameter assignment can be configured per individual Preset in the VFX Application.

Figure 13: Parameter navigation

10.2.4. Value adjustment Next/Previous

Use the Previous and Next buttons as shown to adjust the currently selected Parameter Value up or down as desired.
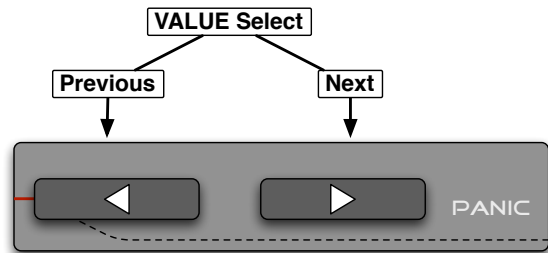
Figure 14: Value adjustment

Quick Tips:

1. Hold the Previous or Next button down to scroll the up/down value with greater speed.
2. Map all your favourite parameters to knobs and faders on an external MID controller for hands on access to multiple plug-in parameters.

10.3. Dual keypad combo selection functions

Defined below are the dual press keypad menu functions.

Pressing two keypad buttons at the same time!

10.3.1. Global System Settings MENU

Pressing the two in-line keypads adjacent to the MENU command label allows you to navigate and configure the V-Machine's Global System Settings MENU.
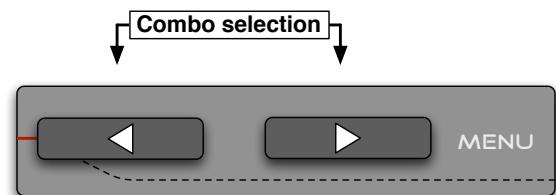
Figure 15: Global Menu keypad combo

Global System Settings include:

- Master Volume – adjusts the total output level
- CPU Meter – shows current CPU usage
- Mono Output ON/OFF – enables the summing of the stereo signal to mono
- Audio Input Level – adjusts the sensitivity of the audio input
- File Management – offers file management options such as copying data to and from memory locations, and saving the V-Machines current configuration to USB Memory Stick.
- LCD Settings – offers adjustment of the LCD's brightness and contrast setting

When in the Global System Settings use the Next/Previous keypad buttons adjacent to the MENU label to scroll through the available options.

Adjustment of individual settings can be made using the keypad buttons adjacent to each option displayed on the LCD Panel.

To exit the Global System Settings press the keypad button adjacent to the CANCEL text displayed on the LCD Panel

Quick Tip: The Master volume is one function you need quick access to. As the first active Global setting, it provides immediate control over the V-Machine's total output volume.

10.3.2. Save command

Pressing the two in-line keypads adjacent to the SAVE command label activates the SAVE command.

The SAVE command saves a snapshot of the currently selected Preset including all parameter values to non volatile memory. This is the Master Saved State of the selected Preset.

Note: This differs from the Persistent Saved State as defined in section 5.5.2
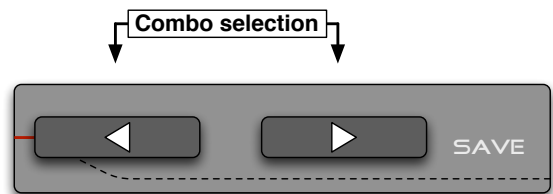
Figure 16: Save command keypad combo

10.3.3. Learn command

Pressing the two in-line keypads adjacent to the LEARN command label activates the LEARN command.

The LEARN command is used for assigning plug-in parameters to external MIDI controllers. This is a great way to have hands-on control during performances.

Figure 17: Learn command keypad combo

To use this function follow these steps:

1. Make sure you have the plug-in parameter selected that you wish to assign to an external controller knob/fader
2. Activate the LEARN function
3. Move the controller knob/fader on your connected MIDI controller

The plug-in parameter has now been assigned to receive MIDI control messages from your chosen controller.

Quick Tip: If you wish to permanently use the assigned MIDI control message you should also SAVE the Preset after using the LEARN command.

10.3.4. Panic command

Pressing the two in-line keypads adjacent to the PANIC command label activates the MIDI PANIC command.

The MIDI PANIC command sends an "all notes off" MIDI command to the V-Machine engine. This may be necessary to eliminate troublesome "stuck MIDI notes" as can sometimes occur with various combinations of MIDI controllers and VSTi plug-ins.
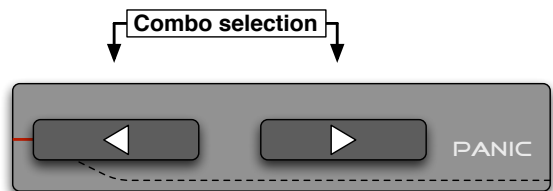
Figure 18: Panic command keypad combo

11. V-Machine specific plug-in parameters

V-Machine specific plug-in parameters are parameters that have been added to each plug-ins normal parameter list to assist using plug-ins live on the V-Machine.

11.1. Patch Parameter

Some plug-ins have the ability to store multiple patch sounds within the plug-in themselves. We refer to this type of plug-ins as a Multi-Patch plug-in. The Patch Parameter facilitates access to these internal plug-in Patch sounds.

When the Patch Parameter is selected for a Preset incorporating a Multi-Patch plug-in, the Value area will display the plug-ins Patch name. Changing the Value of the Patch Parameter will scroll through the Multi-Patch plug-ins Patches.

11.2. Audio Buffer Parameter

The latency of individual Presets is adjustable by configuring the Audio Buffer Parameter.

The Audio Buffer Parameter sets the size of the buffers used when sending audio data between the V-Machine host software and the V-Machine hardware output connectors.

The lowest buffer setting of 64 samples is equivalent to approximately 1.5ms output latency.

Considerations:

- Buffer size settings affect CPU processing power
- Lower buffer sizes allow you to decrease latency and demand more CPU cycles
- Higher buffer settings increase CPU efficiencies whilst increasing latency

The most appropriate buffer setting for each of your Presets can depend on the amount of plug-ins used in the Preset and their individual requirements.

You will need to experiment to find the best setting for each Preset on the V-Machine.

Quick Tip: Only Presets that truly require low latency (clav, synth, and drums sounds, etc) should be set to the lower buffer settings. You may find that Presets with slow attacks such as Synth Pads and Reverb effects perform just as well with higher settings. Think efficient!

11.3. Persistent State Parameter

The Persistent State Parameter has two values ON and OFF. It defines whether or not the state of the plug-in parameters is retained while switching between Presets during a single V-Machine session. A single session refers to the time the V-Machine remains powered on.

Use case – VALUE ON

When the Persistent State Parameter is set to ON, the state of plug-in parameters within the Preset are retained for the duration of the session.

For example: Select Preset 1 and adjust some parameters, switch to Preset 2, and then return to Preset 1. The original parameter adjustments you made to Preset 1 will have been retained just as you left them.

Use case – VALUE OFF

When the Persistent State Parameter is set to OFF, the state of plug-in parameters within the Preset are NOT retained for the duration of the session. Each time the Preset is selected the parameters will be set as per the last Master Saved State.

For example: Consider a synth Preset that uses a synth plug-in. You have preconfigured the plug-ins Cutoff frequency parameter to be controlled by an external MIDI controller during live performance. At a certain part of the performance you change Presets to a piano Preset sound, and then switch back to the synth Preset. With the Persistent State Parameter set to OFF your synth Preset will revert to the last Master Saved State (lasted saved state) rather than the persistent state where you had left the Cutoff frequency parameter value.
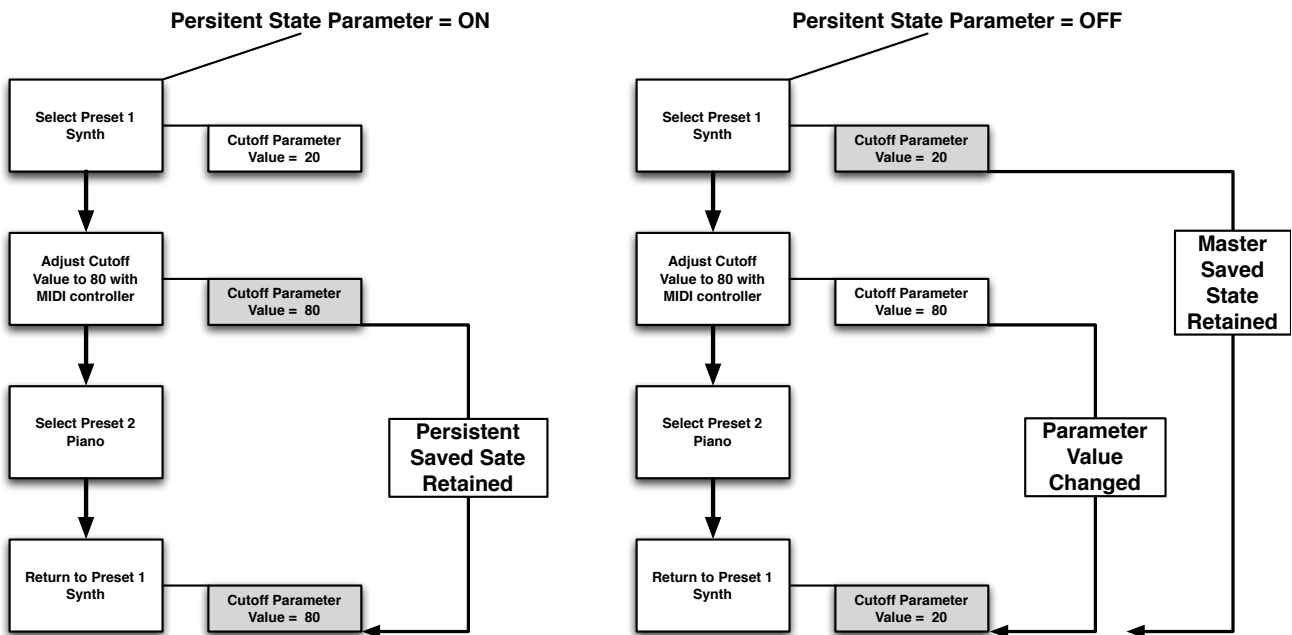
Figure 19: Persistent State Parameter

11.4. Consume Program Change Parameter

The Consume Program Change Parameter has two values ON and OFF. It dictates whether the currently selected Preset receives program changes internally (for Multi-Patch plug-in patch selection) or if the V-Machine receives them to change Presets.

Use case – VALUE ON

When the Consume Program Change Parameter is set to ON Presets pass program change messages directly to plug-ins within the Preset. This is useful to send program change messages from an external MIDI controller to scroll through a multi-patch plug-ins internal patch list.

Use case – VALUE OFF

When the Consume Program Change Parameter is set to OFF program change messages do not pass directly to the plug-ins within the Preset. Instead the V-Machine accepts the program change messages to change Presets.

11.5. Navigating Banks and Presets from an external MIDI device

By sending MIDI Bank and Program change messages from a connected MIDI controller it is possible to change the current Bank and Preset of the V-Machine. This can be handy if the V-Machine controlled by a sequencer, or is not within reach to click the keypad buttons manually.

Please refer to your MIDI controller devices operational manual for information on how to transmit MIDI Bank and program change messages.

Special Note: The V-Machine only responds to program change messages for selection of Presets if the currently selected Preset has the Consume Program Change Parameter set to OFF (as stated in section 11.4). If this parameter is set to ON Bank and Program change messages are routed to the Presets plug-ins directly.

The V-Machine always responds to standard MIDI Bank messages.

11.6. Mixer configuration specific additional parameters

Mixer adjustments for the Channel Gains, Pan, Send level, etc, are accessible on the V-Machine hardware as additional Preset Parameters.

See the website FAQ or download a more recent Operation Manual for further information.

12. The VFX Application

12.1. Application concepts

The VFX Application is a PC and Mac compatible application designed to assist in the creation and configuration of sounds and settings for the V-Machine hardware.

Although the V-Machine can be used in 'stand-alone' mode, connecting the unit to your computer and running the VFX application software will offer greater flexibility when modifying the unit to suit your personal preferences. It's also a great place to start learning about the architecture of the V-Machine hardware.

The V-Machine does not have to be connected to you computer to enjoy the benefits of the VFX Application. Auditioning of Preset sounds is possible in real-time using your computers built sound card or connected audio interface.

The VFX Application provides a selection of tools that facilitate:

- Installation of plug-ins
- Creation of Preset sounds incorporating plug-in chaining, layering, keyboard mapping, and mixing
- Auditioning of Presets
- Synchronization of all settings including Banks and Presets to the V-Machine

It is important to understand that you can Save as many configurations of the mixer as Presets as you want. Each Preset has it's own mixer state!

The basic process for using the VFX application is visually represented in the diagram below.
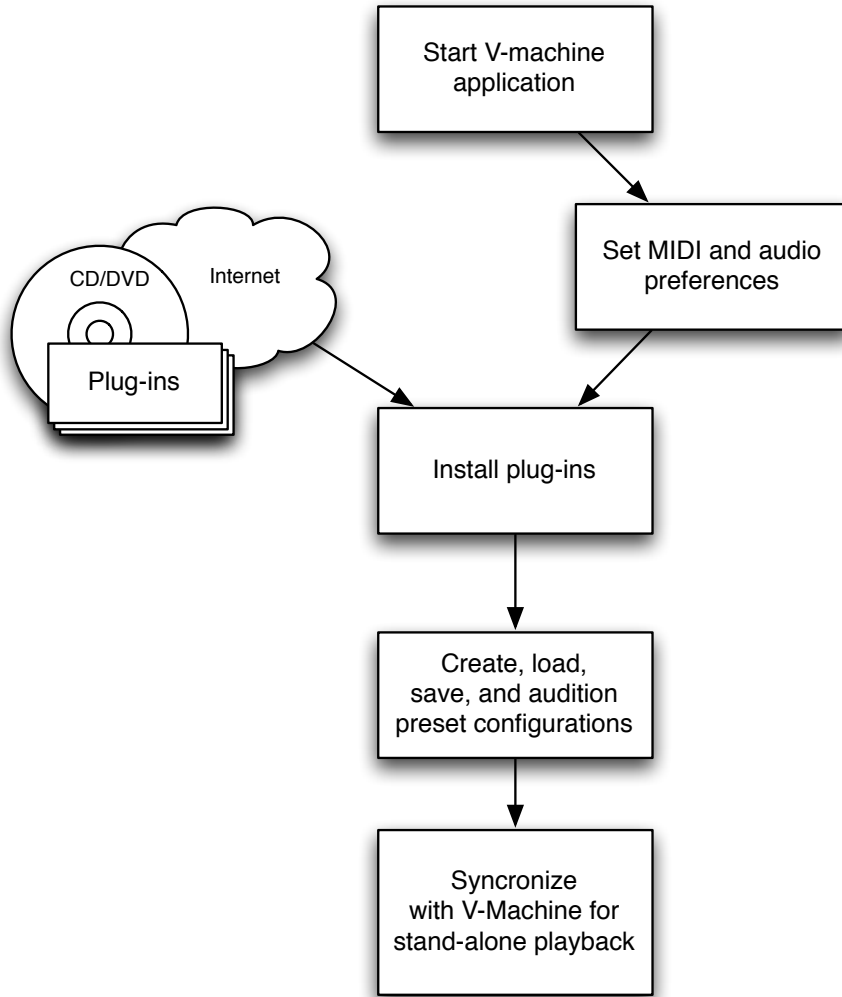
Figure 20: VFX Application user process

12.2. First steps
Make sure you install the software BEFORE connecting the V-Machine!

Most of the information and images in this manual relate to the version of the VFX Application designed to run on the Windows operating system. Although many of the concepts, processes, and images are identical when running the Mac version of the VFX Application, there are several differences you should be aware of. Most notably these are the installation method, file directory structures, and audio interface preference settings. A Mac specific manual addendum is provided when you download the Mac VFX Application from the SM Pro Audio website.

12.2.1. Installation of the VFX Application for the Windows operating system
The 'Getting Started CD' includes a download wizard (VFXWebSetup.exe) for the Windows operating system. The wizard automatically downloads the most up to date version of the VFX Application from the SM Pro Audio website.

Steps to install:

- Insert the Getting Started CD into your computers CD drive

- Run the 'VFXWebSetup.exe' download wizard
- The wizard automatically downloads the most up to date version of the VFX Application and prompts for user for confirmation during the installation process on your computer
- After installation is complete the VFX Application is available for use from the Start Menu->All Programs->VFX->VFX Application

Note: It is also possible to download the latest version of the VFX Application from the SM Pro Audio website at any time.

12.2.2. Installation of the VFX Application for the Mac operating system

The 'Getting Started CD' includes a download wizard (Download VMACHINE for Mac) for the Mac OS X operating system (compatible with Intel based Macs only). The wizard directs your web browser to the SM Pro Audio website where you can download the most up to date version of the VFX Application.

Steps to install:

- Insert the Getting Started CD into your computers CD drive
- Run the 'Download VMACHINE for Mac' download wizard
- The wizard directs your web browser to the SM Pro Audio website where you can download the most up to date version of the VFX Application
- The Mac VFX Application is downloaded in .dmg disk image file format
- Double click the .dmg image file to mount the image and follow the installation instructions provided

Note: It is also possible to download the latest version of the VFX Application from the SM Pro Audio website at any time.

12.2.3. Configuring the VFX Application preferences

The VFX Application preferences are available from the Tools drop down menu. These settings provide the VFX Application with details regarding your computers audio system.

Select the Audio System driver model and Audio Device Playback and Capture devices you would like the VFX Application to use. For the best possible performance we recommend selecting the ASIO driver model if supported by your hardware.

Click on the Configure button to open your audio interface's control panel. Your computers audio interface control panel may offer additional settings such as buffer size/latency settings in addition to its own mixer. Please refer to your audio interface operational manual for more details.

Special Notes:

1. The VFX Application automatically accepts MIDI data from any MIDI device correctly installed on the Machine. There is no need for a MIDI preference setting.
2. If the VFX Application does not recognize incoming MIDI, or your computer MIDI drivers are not working it can be advisable to use a USB driver cleanout program and reconnect/reinstall your MIDI devices.

3. There is currently no provision to send MIDI data out of the VFX Application other than to a connected hardware V-Machine over USB.
4. Mac users – please refer to the Mac manual addendum available from the SM Pro Audio website for more information regarding preferences for the Mac VFX Application.

12.3. Installing plug-ins on the computer

12.3.1. Plug-in Installation Wizard
The VFX Application includes a Plug-in Installation Wizard designed to assist you in installing a range of plug-ins on your V-Machine and computer.

Selecting the "Install New Plug-in" command from the VFX Application File Menu initiates the Plug-in Installation Wizard to open.

The wizard prompts for user feedback and confirmation during a step-by-step installation process.

Typically the plug-in .dll files are transferred to the appropriate folder along with any support and sample files.

Special Note: Some plug-ins have complex installation methods that may not yet be incorporated in the VFX plug-in installation Wizard. Plug-ins with specific authorisation requirements will be catered for on a case-by-case basis and added to the wizard over time. Updates will be made available on the SM Pro Audio website.

12.3.2. Installing Windows VST ".dll" plug-in files manually on the computer
Many plug-ins can be installed on your computer by copying the raw VST .dll file to a newly created folder in the following location – My Documents\VFX Plug-ins. The folder name should be the same as the plug-in name.

For example if you have a plug-in called plugA.dll it would reside in the following directory – My Documents\VFX Plug-ins**plugA\plugA.dll**

12.3.3. Installing plug-ins on the V-Machine without the VFX Application
The V-Machine will recognize certain raw VST .dll files when loaded onto the V-Machine. This method will not work with all plug-ins as some plug-ins have much more complex installation requirements.

Example: Procedure for a plug-in named plug1.dll

- Create a folder and rename it "Plug1"
- Copy the plug-in file "Plug1.dll" to the folder "Plug1"
- Copy the folder "Plug1"onto a USB memory stick
- Insert the USB memory stick into the V-Machine's USB connector
- Reboot V-Machine to access a new Preset named Plug1

12.4. VFX Application layout and design
The VFX Application GUI has an intuitive four (4) Pane layout design.

- V-Machine Pane – Represents a virtual V-Machine. The clickable keypad interface responds just as the hardware version.
- Plug-in Pane - A tab layout structure offers quick access to all Plug-in Slots in the current Presets mixer configuration.
- Mixer Pane - The Mixer Pane offers quick access to traditional mixer channel operations such as gain, pan, mute, and solo, etc.
- Parameter Pane - This Pane displays the currently selected VST plug-ins parameters in either Native VST GUI mode or Parameter Grid mode.

12.5. V-Machine Pane

The V-Machine Pane is a virtual representation of the real V-Machine's front panel. Clicking on each of the eight (8) keypad buttons exhibits behaviour just like it would on the real hardware version. This is a great way to assist you when configuring and testing your Presets.

Use the V-Machine Pane to navigate your Banks and Presets, adjust parameter values, assign external MIDI controllers, and enter Global System Settings.
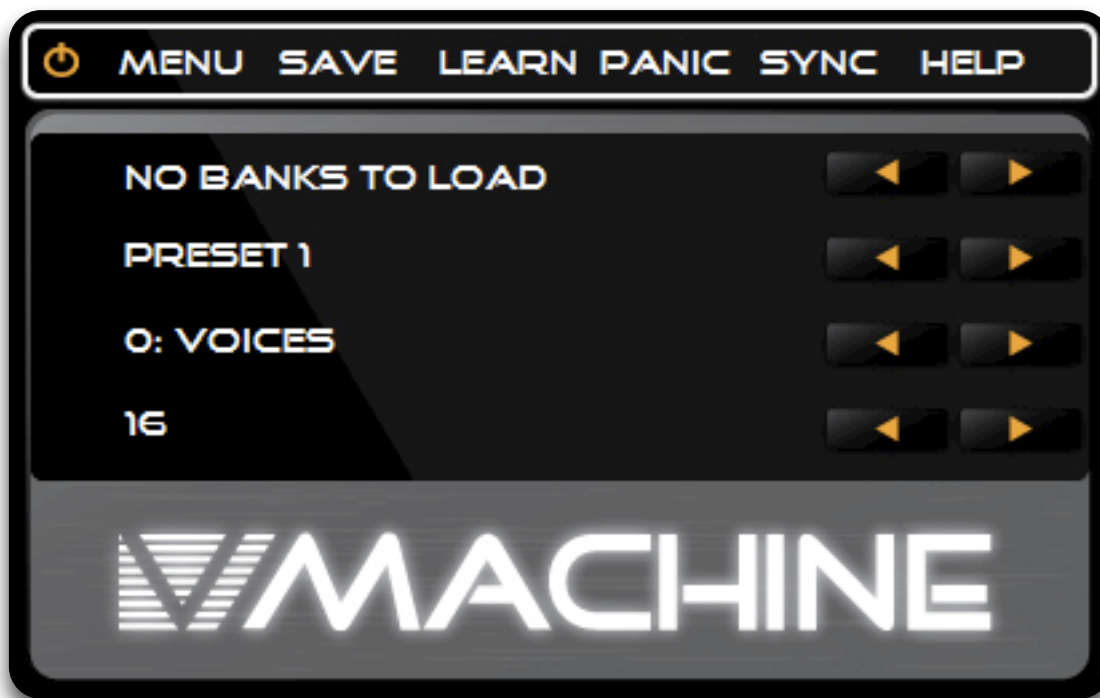

Figure 21: V-Machine Pane

12.5.1. Standard keypad browsing

The keypads on the V-Machine Pane respond just as expected. Browse up and down through Banks and Presets by mouse clicking the virtual Previous/Next virtual keypads.

Parameters can be adjusted with results updated immediately in the Parameter Pane view (either Native VST GUI or Grid mode).

12.5.2. Power down icon

The power down icon simply closes the VFX Application. It does not automatically save the current state of the currently configured Banks and Presets.

Quick Tip: If you don't want to lose your current configuration make sure you select the SAVE command prior to selecting the Power down icon.

12.5.3. Menu icon

Mouse clicking the MENU icon allows you to navigate the available Global System Settings.

Just as on the real V-Machine hardware, the Global System Settings include:

- Master Volume – adjusts the total output level
- CPU Meter – shows current CPU usage
- Mono Output ON/OFF – enables the summing of the stereo signal to mono
- Audio Input Level – adjusts the sensitivity of the audio input
- File Management – offers file management options such as copying data to and from memory locations
- LCD Settings – offers adjustment of the LCD's brightness and contrast setting

Global System Settings can be navigated and adjusted as desired. All settings will be saved and transferred to the V-Machine during the synchronization process via USB or the 'Load/Save to Stick' synchronization method.

Special Note: Some Global System Settings are not applicable for use in the V-Machine Pane. For example CPU meter is only relevant for measuring real CPU usage on the V-Machine hardware, not the computer where the VFX Application is running. The same can be said for the LCD contrast adjustment settings.

To exit the Global System Settings press the keypad button adjacent to the CANCEL text displayed on the LCD Panel.

12.5.4. Save icon

Mouse clicking the SAVE icon activates the SAVE command.

Just as on the real V-Machine the SAVE command saves the current Master Saved State of the currently selected Preset. This function takes a snapshot of the current state of the Preset in its entirety.

12.5.5. Learn icon

Mouse clicking the LEARN icon activates the LEARN command.

The LEARN command is used for assigning plug-in parameters to external MIDI controllers. This is a great way to have hands-on control during performances.

This function operates the same way as on the real hardware V-Machine:

1. Make sure you have the plug-in parameter selected that you wish to assign to an external controller knob/fader
2. Mouse click the LEARN icon to activate the LEARN command
3. Move the controller knob/fader on your connected MIDI controller

The plug-in parameter has now been assigned to receive MIDI control messages from your chosen controller.

12.5.6. Panic icon
Mouse clicking the PANIC icon activates the MIDI PANIC command.

The MIDI PANIC command sends an "all notes off" MIDI command to the V-Machine engine. This may be necessary to eliminate troublesome "stuck MIDI notes" as can sometimes occur with various combinations of MIDI controllers and VSTi plug-ins.

12.5.7. Sync icon
Mouse clicking the SYNC icon activates synchronization if a V-Machine hardware unit is connected via USB.

Synchronization transfers all Global System Settings, Banks, Presets, plug-ins, and associated files (samples and configuration files) to the V-Machine.

Special Note: A dialog box will advise you during synchronization if the current state of the VFX Application exceeds the memory specifications of the hardware V-Machine.

Quick Tip: It may be faster to synchronize the VFX Application state with your V-Machine using the 'Save to Stick' method. This is especially true when transferring sample libraries to the V-Machine. See section 12.10.2

12.5.8. Help icon
Mouse clicking the HELP icon opens this PDF operation manual!

12.6. Plug-in Pane

The Plug-in Pane is where you insert and configure plug-ins for use in your Presets.

A selection of tabs offers quick access to each of the main areas of the Mixers signal path. Select the appropriate channel, FX, or Main tab to view the corresponding Plug-in Slots.

The V-Machine's architecture allows for three plug-ins to be inserted into each section of the mixer; Each of the four (4) mixer channels, two (2) FX returns, and the Main output channel. VST instrument plug-ins can only be loaded into the first Plug-in Slot (Plug-in Slot A) of each Mixer channel.

Individual Plug-in Slots provide a Plug-in Name Display area, MIDI Channel selector, and a Plug-in Slot Edit Menu.
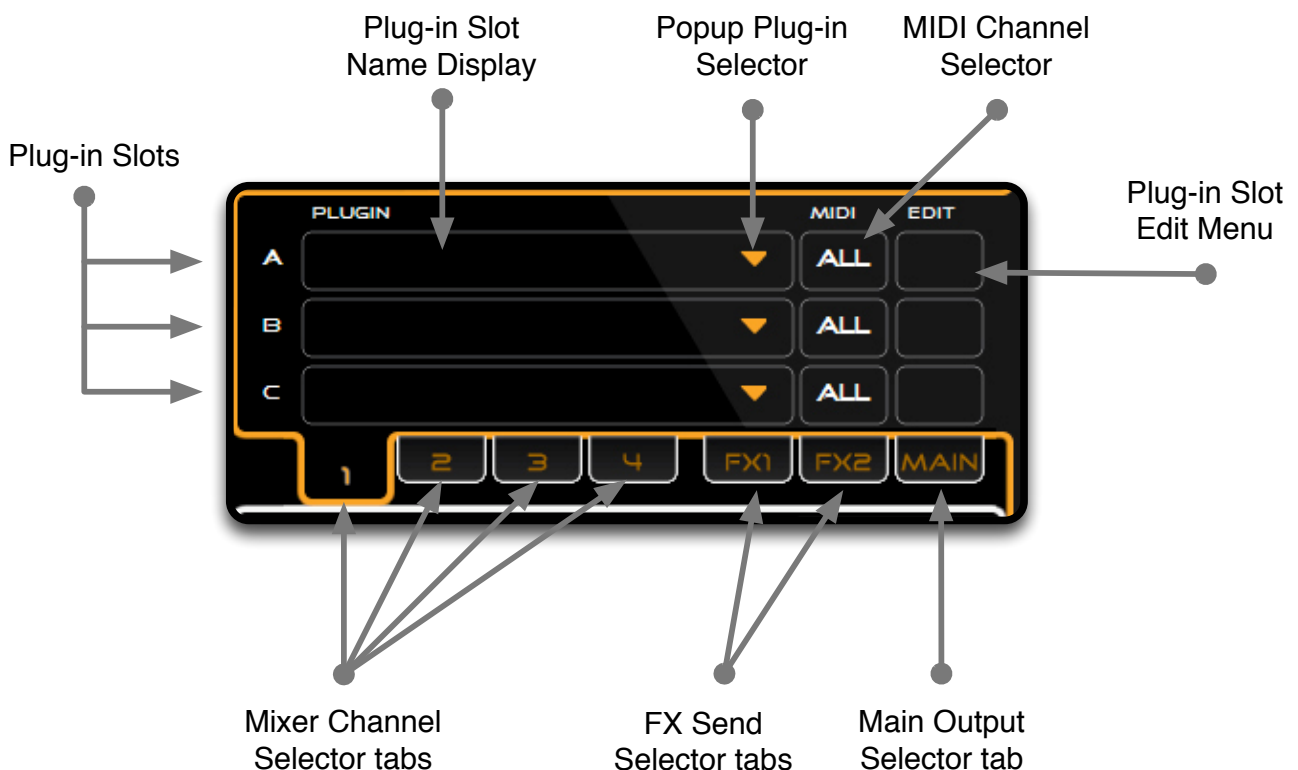
Figure 22: Plug-in Pane

12.6.1. Channel Plug-in Slot

Each Mixer channel features three (3) Plug-in Slots (A, B, and C). VST instrument plug-ins can only be loaded into Plug-in Slot A of each channel. The Plug-in Slot Name Display area shows the name of the currently loaded plug-in.

Audio is routed through each of the three (3) Plug-in Slots in order. The output of Plug-in Slot A is routed to the input of Plug-in Slot B, and then to Plug-in Slot C before continuing to the Main output.

Quick Tip: Clicking your mouse in the Plug-in Slot Name Display area will update the Parameter Pane with the plug-ins VST GUI or parameter list (depending on your View option setting) for the corresponding plug-in. You can then tweak parameters with greater ease on the Parameter Pane.

12.6.2. Popup Plug-in Selector

Clicking your mouse on the Popup Plug-in Selector displays a list of plug-ins that have been previously installed for use by the VFX Application.

Select the desired plug-in from the list to load into the corresponding Plug-in Slot. To remove a plug-in from the Plug-in Slot select 'None' from the Popup Plug-in Selector menu.

12.6.3. Plug-in MIDI Channel Selector

Clicking your mouse on the MIDI Channel Selector adjacent to each Plug-in Slot lets you assign the desired MIDI channel you would like the plug-in to respond to.

MIDI channels 1-16 and an ALL MIDI Channel option are available.

12.6.4. Plug-in Slot Edit Menu

The Plug-in Slot Edit Menu offers High and Low MIDI note range assignments per individual Plug-in Slot.

High and LOW MIDI note range settings are important as they allow you to effectively create keyboard splits and layers. Different virtual instruments can be assigned to different or similar note ranges of the keyboard.

For example – Consider loading a Bass plug-in into Plug-in Slot A on channel one, and a Piano plug-in into Plug-in Slot A on channel two. Configure the High/Low MIDI note range of each of the plug-ins using the Plug-in Slot Edit Menu making sure the ranges do not intersect. This is a simple way to create a split keyboard layout.

To layer sounds within a Preset simply set each virtual instrument plug-ins High/Low MIDI note range to overlap at the point where the layer is desired.

12.6.5. Mixer Channel, FX Send, and Main Output Selector tabs

Selector tabs offer an intuitive way to access any of the 21 Plug-in Slots. Clicking on any of the tabs will update the Plug-in Pane accordingly.

The selector tabs are clearly labelled so you know which channels Plug-in Slots of are currently displayed.

Special Note: When selecting different tabs the Parameter Pane will update to display the parameters of the plug-in residing in Plug-in Slot A of the corresponding tab.

12.7. Mixer Pane

The Mixer Pane provides a graphical user interface designed for configuration of the Mixer settings. A simple channel strip layout displays visual feedback of channel Gain, Pan, and Send values. Typical mixer functions like input select, Mute, and Solo are also accessed from the Mixer Pane.
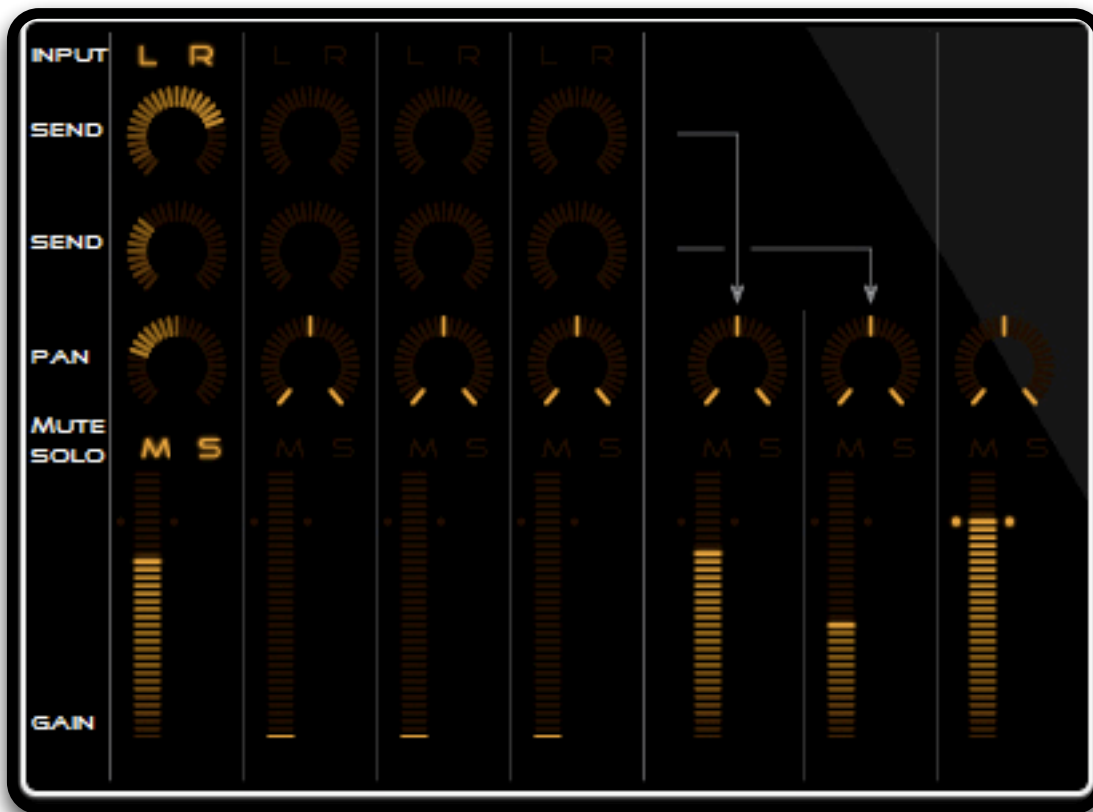
Figure 23: Mixer Pane

12.7.1. Channel Gain

Channel Gain controls are available for the four mixer channels, two (2) FX bus returns, and the stereo Master output channel.

Click and hold your mouse button down over the channel Gain control area and move up or down to adjust the corresponding channel Gain value. Release your mouse button when you have made the desired adjustment.

Peak indicators will illuminate next to the Channel Gain control area during playback when a signal has overloaded (the signal has clipped).

12.7.2. Channel Pan

The channel Pan icon allows the user to place the sound source in the stereo field. Adjustments can be made from extreme left to extreme right.

Click and hold your mouse button down over the Pan icon and move up or down to adjust the Pan value from left to right. Release your mouse button when you have made the desired adjustment.

12.7.3. Channel Mute

The channel Mute icon places the corresponding mixer channel into Mute mode. The Mute mode allows you to mute to one channel at a time while you listen and adjust others.

Click your mouse on a channels Mute icon to toggle the corresponding channels Mute function ON and OFF.

12.7.4. Channel Solo

The channel Solo icon places the corresponding mixer channel into Solo mode. The Solo mode allows you to single out a sound to make refine adjustments.

Click your mouse on a channels Solo icon to toggle the corresponding channels Solo function ON and OFF.

12.7.5. FX Sends 1 & 2

The FX send 1 & 2 sends audio signal to the FX1 & FX2 effects bus Plug-in Slots that are subsequently returned to the mix via the FX1 & FX2 return channels. Each FX bus features three (3) plug-in slots just like the other mixer channels.

Click and hold your mouse button down over the FX send icons and move up or down to adjust the Send value up and down. Release your mouse button when you have made the desired adjustment.

FX sends can be configured as either Pre or Post fader. By default each send is configured as Post fader. Right clicking your mouse on the corresponding Send icon will display a Pre and Post menu option. Select either Pre or Post as desired.

A pre-fader output is independent of the channel fader. The FX send output signal stays the same level no matter how the channel gain fader is set.

A post-fader output depends on the current channel gain fader level. Turning the fader down results in a reduced FX send output signal.

Quick Tip: This is great way to share VST plug-in effects between channels and thus minimize the impact on the CPU. For example this would be beneficial if you needed a similar reverb effect across a multi channel Preset sound creation.

12.7.6. L&R audio input selector

The Left and Right audio input selectors can be enabled to feed external audio source material into mixer channels for further processing.

Click your mouse on a channels L or R audio input selector icon to toggle the corresponding channels Left or Right audio input ON or OFF.

In the case of the VFX Application the corresponding channel will receive audio signal material from the inputs of the audio interface specified in your preference settings.

After you have saved and synchronized your Preset to the V-Machine audio signal material will be received at the V-Machines rear panel audio input.

Quick Tips: Disable the audio inputs for all channels unless required.

12.7.7. FX 1&2 return channels

The FX 1&2 return channels are provided to return signal to your mixer that you had sent through the FX bus plug-in Slots.

Click and hold your mouse button down over the FX 1 or FX 2 Gain control area and move up or down to adjust the channel Gain value. Release your mouse button when you have made the desired adjustment.

Peak indicators will illuminate next to the FX 1&2 Gain control area during playback when a signal has overloaded (the signal has clipped).

12.7.8. Main stereo output channel

A Main channel Gain control is available for adjusting the master volume of the configured Preset.

The Main channel is the last stage in the audio routing structure. It is the sum of the mixed audio signal.

The Main channel features three (3) Plug-in Slots. Main plug-in slots are well suited to effects such as equalizers and limiters that can add some polish to the final sound of your Preset.

Click and hold your mouse button down over the Main channel Gain control area and move up or down to adjust the corresponding channel Gain value. Release your mouse button when you have made the desired adjustment.

Quick Tips:

1. Peak indicators will illuminate next to Main Gain control area during playback when a signal has overloaded (the signal has clipped). Clipping is to be avoided at all times. If you synchronize Presets that clip in the VFX Application, they will also overdrive the V-Machine's DAC (digital audio converter) resulting in distorted audio output.
2. It may be useful to also place a limiter plug-in in the Main channel to protect against clipping!

12.8. Parameter Pane

The Parameter Pane has two selectable view options. It is designed to display parameters relating to the currently selected plug-in.

Native VST GUI Mode – Displays the actual VST graphical user interface for the selected plug-in. All parameter adjustments are updated and displayed in the V-Machine Pane (Parameter name and Value area).

Parameter Grid Mode – Displays a grid table outlining all parameters for the selected plug-in. All parameter adjustments are updated and displayed in the V-Machine Pane (Parameter name and Value area).

To switch display modes select the drop down menu from the VFX Application "View" menu and select your preferred option.

Quick Tips:

1. Click on any Plug-in Slot Name area to update the Parameter Pane window.
2. Switch to Parameter grid view to access the plug-in priority check list table. Priority plug-in parameters a moved to the top the plug-in parameter list once synchronized to the V-Machine hardware. This is useful for keeping your favourite parameters readily accessible.

12.9. VFX Application file management

Creating an archive of your Preset sound creations can be achieved by simply loading and saving Banks and Presets individually.

12.9.1. Loading, saving, and renaming Bank files

Saving a Bank automatically saves all Presets residing in the corresponding Bank. It's a useful mechanism to load your favourite groups of Presets quickly.

Bank files are stored in the .VFX file format.

Banks can be loaded, saved, or renamed by clicking your mouse on the Bank name displayed in the V-Machine Pane and selecting the appropriate option from the menu.

Once you have selected your desired option a file browser or dialog box will appear allowing you to load, save, or rename your Bank to the desired location of your choosing.

12.9.2. Loading, saving and renaming Presets

Saving a Preset saves the current individual Preset configuration. It's a useful mechanism to store your individual Preset sounds prior to loading into another Bank, or even sharing configuration files with other users who use the same plug-ins.

Preset files are stored in the .VFX file format.

Presets can be loaded, saved, or renamed by clicking your mouse on the Preset name displayed in the V-Machine Pane and selecting the appropriate option from the menu.

Once you have selected your desired option a file browser or dialog box will appear allowing you to load, save, or rename your Preset to the desired location of your choosing.

12.10. Synchronization of the V-Machine

There are two methods available to maintain a synchronized state between the V-Machine hardware and the VFX Application. Both methods will perform the same task, however the 'Save to Stick' method will perform the task faster if you have large plug-ins or sample libraries that need to be transferred.

Synchronization updates only information that has changed. This speeds up the synchronization process considerably.

12.10.1.   Sync via USB cable

Synchronization to a V-Machine hardware unit connected via USB is outlined in section 12.5.7 Sync icon.

12.10.2.   Load/Save to Stick synchronization method

The Load/Save to Stick synchronization method involves connecting a compatible USB Memory Stick into an available USB connector slot on your computer. Once mounted, you can select the 'Load from Stick' or 'Save to Stick' from the File drop down menu as desired.

'Load from Stick' – Selecting the 'Load from Stick' function will open a file browser where you can navigate to the mounted USB memory stick. Once selected, the VFX Application will ask you if you really want to erase the current V-Machine configuration on your PC and replace it with the contents of the memory stick. If you confirm the VFX Application will proceed to load the full configuration from the stick.

'Save to Stick' - Selecting the 'Save to Stick' function will open a file browser where you can navigate to the mounted USB memory stick. Once selected, the VFX Application will ask you if you really want to erase the existing V-Machine configuration on the memory stick and replace it with what you have running on the PC. If you confirm the VFX Application will proceed to save the full configuration to the stick.

The V-Machine hardware features a file management utility that can be accessed via the Global System Settings Menu. It is possible to perform *'Load from Stick' and 'Save to Stick'* function when a USB Memory stick is connected to V-Machine.

12.11. Uninstalling the VFX Application

To uninstall the VFX Application simply run the Windows add/remove program application from the control panel.

13. Walk through usage examples

The following use cases describe interactions between the V-Machine and a user.

13.1. User without VFX Application software

User: A Musician who has had no prior experience using and setting up a V-Machine.

Scenario: A Musician new to the V-Machine that has a few plug-ins previously installed.

1. The Musician connects a USB MIDI Keyboard, a pair of Headphones and the DC Adapter.
2. The Musician presses the power button.
3. The V-Machine displays a progress bar during initialisation.
4. When initialisation is complete, the V-Machine displays the name of default selected Bank, Preset, Parameter and Parameter Value.
5. The Musician plays some notes on the USB MIDI Keyboard and hears the resulting sound in Headphones.
6. The Musician explores the bundled Banks and Presets by pressing the corresponding next/previous buttons on the front panel. The displayed selected Bank and selected Preset are updated accordingly and the resulting change in sound can be heard in the Headphones.
7. The Musician settles on a Rhodes Piano Preset but decides that the sound is too clean. Using the select Previous Parameter and select Next Parameter keypads the Musician finds the "Overdrive" parameter and presses Parameter Value Up until he is satisfied with the sound. The V-Machine updates the selected Parameter Value display accordingly.
8. The Musician decides they would like to be able to vary the "Overdrive" parameter during a performance by using one of the MIDI knobs on the USB MIDI Controller.
9. The Musician selects "Overdrive" as the Selected Parameter, presses MIDI Learn then adjusts a MIDI knob on the USB MIDI controller.
10. The V-Machine displays "Learn..." and waits until a MIDI CC message is received from the MIDI knob. The V-Machine then "learns" that this MIDI knob should control the "Overdrive" parameter.
11. From this point on, when the Musician adjusts the MIDI knob the V-Machine adjusts the "Overdrive" parameter updates the selected Parameter Value display accordingly.

13.2. New User installs VFX Application

User: A Musician who has explored the V-Machine in stand-alone mode.

Scenario: The Musician wants to use the VFX Application to fine-tune the some Presets.

1. The Musician installs the VFX Application from the CD supplied with the V-Machine onto a PC.
2. The Musician connects a USB MIDI Keyboard, a pair of Headphones and the DC Adapter to the V-Machine. He then connects the V-Machine to the PC using the USB Cable and turns the V-Machine on.
3. The Musician launches the VFX Application.
4. The Musician initiates synchronisation by clicking the Sync command.
5. When synchronisation is complete the VFX Application mirrors the display of the V-Machine in the V-Machine Pane.
6. The Mixer Pane displays the Mixer Configuration for the currently selected Preset.
7. The Plug-in Pane displays the VST plug-in slots for the selected Mixer channel.
8. The Parameter Pane displays a list of the VST plug-in parameters for the selected VST plug-in.
9. The Musician explores the bundled Banks and Presets by pressing the corresponding next/previous buttons on the V-Machine Pane. The Plug-in Pane, the Mixer Pane and the Parameter Pane are updated as the Musician browses.
10. The Musician finds the Preset he wants to fine tune. He uses the Parameter Pane to adjust the parameter settings of the VST plug-ins in the currently selected Preset. He uses the Mixer Pane to adjust the way the sound from the Plug-ins in the selected Preset is blended.
11. The Musician then presses the save selected Preset ("SAVE") button on the V-Machine Pane.
12. The VFX Application prompts the Musician to confirm that he wants to save changes to the selected Preset.

14. V-Machine hardware - firmware updates
The V-Machine offers the ability to receive in-field firmware updates

14.1. What is firmware?
Firmware is the computer program that is embedded into a hardware device. It includes all the instructions required for the V-Machine to operate successfully.

SM Pro Audio plans on offering regular firmware update releases to keep the V-Machine up to date with new features and to fix known operational bugs brought to our attention.

14.2. How to update the V-Machine firmware
There are two methods available to update the V-Machine's firmware. Both methods involve downloading an appropriate firmware update utility from the SM Pro Audio website.

14.2.1. USB Memory Stick firmware update utility method
This method erases all data on the USB Memory Stick used during this process. It is advisable to back up your data!

- Download the 'VFX Memory Stick firmware update utility' from the SM Pro Audio website
- Run the 'VFX Memory Stick firmware update utility' on your computer
- The utility will request you insert a USB Memory Stick into an available USB port on your computer
- The utility will erase all data stored on the USB Memory Stick and proceed to copy the V-Machine firmware to the USB Memory Stick
- The utility will advise when the process is complete
- Remove the USB Memory Stick from the computer and insert into an available USB port on the V-Machine
- Power up the V-Machine
- The V-Machine will recognise the new firmware and complete the firmware upgrade process

14.2.2. Direct computer firmware update utility method

This method involves connecting the V-Machine to your computer and running the VFX firmware update utility.

- Download the 'VFX firmware update utility' from the SM Pro Audio website
- Power up the V-Machine and connect to your computer via USB
- Run the VFX firmware update utility
- The utility will update the firmware on the V-Machine and advise when complete

15. VFX Application - software updates

15.1. VFX Application updates

SM Pro Audio plans on offering regular updates to the VFX Application to incorporate new features and fix known operational bugs that are brought to our attention. VFX Application updates will be made available for download on the SM Pro Audio website.

16. Limitations

- The V-Machine is based on a custom operating system. VST plug-ins are intended to run on Microsoft's Windows operating system. Some VST plug-ins may not function correctly or at all on the V-Machine.
- Performance of the V-Machine and the VFX Application may be limited by the amount of RAM, non volatile memory, and CPU performance
- Display of VST custom GUIs may be limited in the VFX Application.
- Not all VST Plug-ins can be loaded onto the V-Machine by simply copying the .DLL files to a USB stick. Some VST plug-ins demand complex installation procedures. The V-Machine works best when VST plug-ins are packaged as per the VFX API. Support for plug-ins utilizing custom installation procedures may be limited or only supported in future updates of the VFX Application installation wizard.
- The USB-MIDI protocol used for communication between the V-Machine and the VFX Application has inherent throughput limitations due to the maximum packet size

imposed by the standard. Copying large amounts of data from the VFX Application to the V-Machine may take some time. In such cases using the USB Stick to transfer plug-ins may be faster.

17. Safety and Care of your V-Machine

17.1. Safety instructions

- Retain all safety and operating instructions for future reference.
- Follow all installation and operating instructions.
- Unplug the V-Machine from the AC power outlet before cleaning.
- Use only a soft cloth for cleaning the exterior of the V-Machine.
- Do not expose the V-Machine to it water or moisture.
- Do not place the V-Machine on an unstable surface.
- Do not obstruct the air ventilation slots on the side of the V-Machine.
- Never place the V-Machine near or over a radiated heat source.
- Do not place the V-Machine in an enclosure without proper ventilation.
- Do not stack the V-Machine below other electronic devices.
- Only use the included plug-pack
- Never insert objects of any kind into the V-Machine through the ventilation slots

17.2. Temperature operation

The V-Machine operates at temperatures between 0° and 40°C.

18. Specifications

Specification are available on the SM Pro Audio website.

19. Warranty

The SM Pro Audio warranty covers all defects in material and workmanship for a period of 12 months from the date of original purchase. This warranty does not cover defects due to abuse, faulty connections or operation under other than specified conditions. Warranty coverage is voided if the device is repaired by unauthorized persons or tampered with in any way. SM Pro Audio reserves the right to refuse all warranty claims if the product was not sold from an Authorised Dealer to the respective end customer.

This warranty is limited to replacement or repair of the product. It does not limit the customers' rights according to the current product liability regulations of the country where the product was purchased.

The warranty is only valid if the customer has registered the product via a valid SM Pro Audio registration method as outlined below.

Electronic registration – Register the product purchase online at http://www.smproaudio.com

Postal registration – Print the PDF product warranty registration card included on the "Getting Stated CD" and post to your closest SM Pro Audio distributor as listed below.

SM Pro Audio	Kaysound Imports	tt audio GmbH
W25, 26-28 Roberna St	2165 46th Ave	Alfred Krupp Str. 5
Moorabbin 3189	Lachine, Quebec	48291 Telgte
Melbourne, Victoria	Canada H8T 2P1	Germany
Australia		

The product warranty registration form will request such purchase details including serial no., date of sale, Dealer name, as well as name and address of the customer.

If a defect occurs during the warranty period, contact the point of purchase or write an email to warranty@smproaudio.com.

The V-Machine can only be returned once approval has been sought and the following conditions are met:

1. The unit is returned in its original package.
2. A detailed description of the defect and a copy of the purchase receipt are included.

All shipping costs are the responsibility of the end user.

20. Trademarks

V-Machine and Powered by VFX are trademarks of VFX Systems Pty Ltd, Australia.

ASIO and VST are trademarks of Steinberg Soft- und Hardware GmbH.

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Mac, Mac OS and Macintosh are trademarks of Apple.

The Kensington lock is a registered trademark of Kensington.

Other company and product names may be trademarks of their respective owners.

21. FCC and CE Regulation

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications in construction of this device with are not expressly approved by the party responsible for compliance, could void the user's authority to operate equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. If necessary, consult an experienced radio/television technician for additional suggestions.

Special Note: In the presence of electromagnetic interference, the V-Machine may cease to function. Cycle the power off and on to resume operation.

22. Correspondence

For technical support, warranty claims, and all other enquiries, please contact your local SM Pro Audio distributor.

Contact details of all SM Pro Audio distributors list can be found online at http://www.smproaudio.com