USER'S MANUAL

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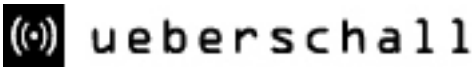
SOUND SAMPLES

MODERNBEATS


UltimateSoundBank


ueberschall

Thank you for purchasing Spark Creative Drum Machine!

This manual concerns two distinctive products:

- *Spark* software, a highly creative beat production center
- *Spark* MIDI controller.

Spark Creative Drum Machine user's manual also covers Spark Dubstep 'Special Version' product. However, some features are not available for Spark Dubstep 'Special Version' and are tagged with this icon:

In this package you will find:

- A DVD-ROM containing Spark Creative drum machine installer for Mac OS X and Windows XP/Vista/Seven
- A registration card (credit card format) including the Serial Number and Unlock Code.
- The User's Manual for Spark Creative Drum Machine software and the Spark MIDI Controller.
- Spark MIDI controller
- An USB cable

Carefully store your registration card!

In order to actually use the software, you have to **register**, then **authorize** your virtual instrument. By registering, you identify yourself as the legitimate owner and thus will be sure to receive the latest news and updates for your instrument.

The Serial Number and Unlock Code are required to register & authorize Spark, so these codes are the real value of your product.

See chapter 3 Registration & Authorization for more information about the authorization process.

Special Message Section

The MIDI controller uses USB or an external power adapter. Do not connect this product with any other power supply or adapter than the one described in this manual specifically recommended by Arturia. (See chapter 7.1.9 for more details).

WARNING:

Do not place this product in a place or position where one might walk on, trip over or roll anything over power or connecting cords.

The use of an extension cord is not recommended! If you must use one, make sure the cord has the ability to handle maximum current needed by this product. Please consult a local electrician for more information on your power requirements.

This product should be used only with the components supplied or recommended by Arturia. When used with any other components, please observe all safety markings and instructions that accompany the accessory products.

SPECIFICATIONS SUBJECT TO CHANGE:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

IMPORTANT:

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, damages, fire or other risks.

The product used either alone or in combination with an amplifier, headphones or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable.

If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

NOTICE:

Service charges incurred due to a lack of knowledge relating to how a function or feature works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting service.

PRECAUTIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- Read and understand all the instructions.
- Always follow the instructions on the instrument.
- Before cleaning the instrument, always remove the electrical plug from the outlet, as well as the USB cable. When cleaning, use a soft and dry cloth. Do not use gasoline, alcohol, acetone, turpentine or any other organic solutions; do not use a liquid cleaner, spray or cloth that's too wet.
- Do not use the instrument near water or moisture, such as a bathtub, sink, swimming pool or similar place.
- Do not place the instrument in an unstable position where it might accidentally fall over.
- Do not place heavy objects on the instrument. Do not block openings or vents of the instrument; these locations are used for air circulation to prevent the instrument from overheating. Do not place the instrument near a heat vent or any place of poor air circulation.
- Only use the recommended specified AC adaptor (9 Vdc, 800 mA)
- Make sure the line voltage in your location matches the input voltage specified on the AC power adaptor.
- Do not open and insert anything into the instrument that may cause a fire or electrical shock.
- Do not spill any kind of liquid onto the instrument.
- Always take the instrument to a qualified service center. You will invalidate your warranty if you open and remove the cover, and improper assembly may cause electrical shock or other malfunctions.
- Do not use the instrument with thunder and lightning present; otherwise it may cause long distance electrical shock.
- Do not expose the instrument to hot sunlight.
- Do not use the instrument when there is a gas leak nearby.
- Arturia is not responsible for any damage or data loss caused by improper operations to the instrument.

HANDLING CD-ROMS:

Avoid touching or scratching the shiny underside (encoded surface) of the disc. A damaged or dirty CD-ROM disc may not read properly. Keep your CD-ROMs clean, using a commercially available CD cleaner.

Table of Contents

1 INTRODUCTION

1.1 WELCOME TO SPARK

BEAT THE FUTURE

Combining the power of analog synthesis, physical modeling and samples, through the intuitive workflow of a hardware drum machine, Spark is a highly creative beat production center. Spark will save you time when looking for the right drum kit and will get you hooked by its amazing ease-of-use and sound possibilities.

Spark embeds vintage analog drum machines, sample based beatboxes and acoustic drum sets. Then Spark lets you break through their sonic boundaries thanks to a highly tweakable controller.

With in-depth control over your sounds, an advanced loop mode and an XY touchpad with 8 real time effects, Spark will allow you to create unique beat experiments and constantly feed your creativity with innovative ideas.

Spark's sonic power is nothing but huge, embedding three distinctive drum engines: analog synthesis, sampling and physical modelling. Thanks to its automations available on all parameters, every kit is very tunable and customizable, bringing a fun and complementary approach to sample browsing while making it more interactive and user-friendly than similar products.

Incorporating a 16-step sequencer and 8 velocity sensitive touch pads into a sturdy beat station, Spark is your weapon of choice to bring the best groove into your tracks whether you are working in the studio or performing on stage.

1.2. HISTORY

In early 2001, Arturia began working on advanced algorithms for the digital emulation of analog circuit audio characteristics. They are known as TAE®, standing for True Analog Emulation. In non-technical language, this is an unprecedented way of creating the very unique sound one finds in a synthesizer such as the Moog Modular. Nearly a year after they began work on the algorithms, Arturia was ready for feedback. At the 2002 NAMM show in California, Arturia shared an early version of what would later be the Moog Modular V with the renowned maker of the original Moog synthesizer, Doctor Bob Moog.

In seeking insight from sound production experts, such as Dr. Moog, as well as avid synthesizer users, Arturia was able to ensure the quality of the instruments they made; so well in fact the Dr. Moog himself endorsed the Moog Modular V. The launch of this sound powerhouse was an instant success, winning awards from several top magazines, and leading to the development of other synth recreations.

Shortly thereafter, Arturia started receiving many requests from musicians, producers and bands. Many of them explained how they were planning to replace their original hardware synthesizers by virtual instruments. Artists around the globe were beginning to see the advantages of a software alternative to hardware-based synthesizers.

The CS-80V emulated the legendary Yamaha CS-80, considered by many as "the ultimate polyphonic" synthesizer, and was launched at the AES 2003 in New York. Imagine some of your favorite music from diverse artists such as Keith Emerson or Stevie Wonder, and you'll get an idea of what the CS-80V is capable of.

The ARP 2600 V was launched at the NAMM 2005 in Anaheim. This is a faithful reproduction of the ARP 2600 and is great for just about any sound one might wish to create: everything from drum n' bass stabs to Star Wars' R2-D2 sounds have been made with the ARP.

At the Winter NAMM Show 2006, ARTURIA announced the release of its seventh product: the Prophet V. This powerful hybrid gives you two instruments in one: it combines the warmth of the legendary Prophet 5 programmable analog synth with the unique Vector Synthesis textures of the digital Prophet VS.

And finally, at the summer 2007 NAMM Show, Arturia launched the Jupiter-8V. In terms of sonic possibilities, it complemented its "Arturian siblings" by bringing something different. The Jupiter-8 V was capable of creating very versatile sounds. You could easily make 'fat' or 'Crystal' sounds with it. In fact, the Jupiter-8 sounded the way it looked, 'sleek and polished'.

The electro-pop community became quickly convinced by the qualities of the original Jupiter-8. 'Relax', by Frankie Goes to Hollywood was produced incorporating a Jupiter 8, and players such Vince Clarke, John Foxx, and Martyn Ware also used it abundantly. The path to classic status of the Jupiter started there.

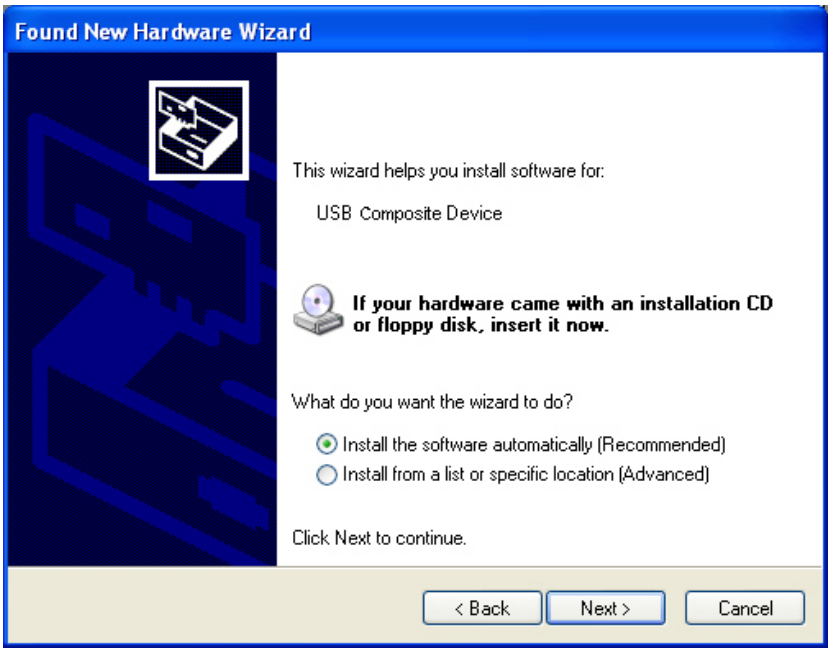
Other artists that have used The Jupiter-8 include: Howard Jones, Tangerine Dream, Underworld, Jean Michel Jarre, Depeche Mode, Prince, Gary Wright, Adrian Lee, Heaven 17, Kitaro, Elvis Costello, Tears for Fears, Huey Lewis and the News, Journey, Moog Cookbook, Yes, Devo, Freddy Fresh, Simple Minds, Jan Hammer and BT.

2 INSTALLATION

2.1 WINDOWS INSTALLATION (7/XP/VISTA)

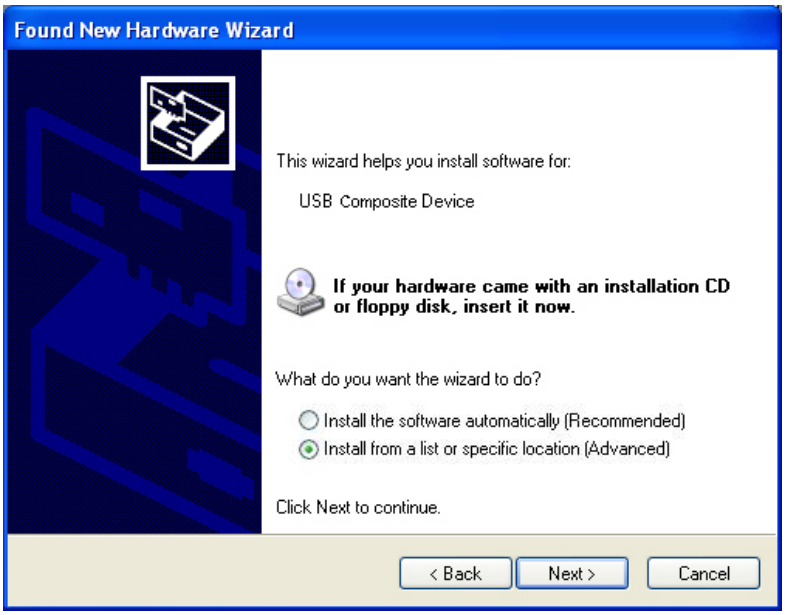
- Place the installation DVD in your computer's DVD-ROM drive.
- Use Windows® Explorer to browse the content of the DVD-ROM.
- Double-click the installer file named **`SPARK Setup.exe`**.
- Click Next.
- To continue, you need to first accept the license agreement. After you have read the license agreement, check the corresponding checkbox and click Next.
- To perform a complete installation, leave the Complete option checked and click Next. To deselect components or to install the SPARK application and sound library to an alternative location, select Custom. Then click Next. In the next dialog, choose the destination folders for the installation. To use the default path, just click Next. If you wish to select a custom path for a SPARK component, click Change, browse to the folder where you want to install the application or sound library. Then click Next. If you select VST (and/or VST 64 bits) you will have to select your VST (and/or VST 64 bits) folder.
- The Setup Program will lead you through the installation procedure. Follow the onscreen instructions.
- After the installation has been performed successfully, click Finish.
- Next, in order to install the SPARK Controller hardware driver, you need to connect the SPARK Controller to your computer. On Windows® Vista, the driver setup will finish automatically. On Windows® XP, installation is a two step process, described below. The following screen should appear:
- Installation starts with Composite Device install:

- Choose “Yes this time only”, and click next.

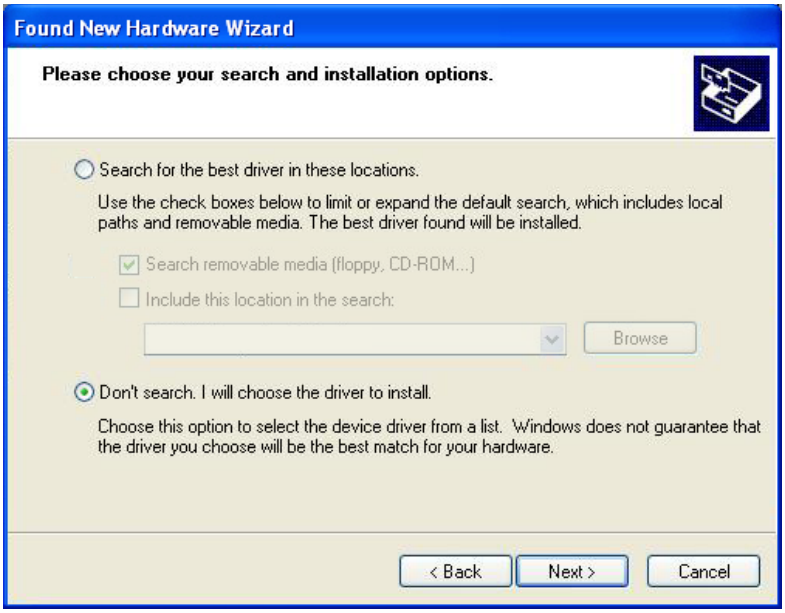


- Click next.
- After processing, Composite Device will be installed correctly.
- Installation should continue with USB Audio Device install.

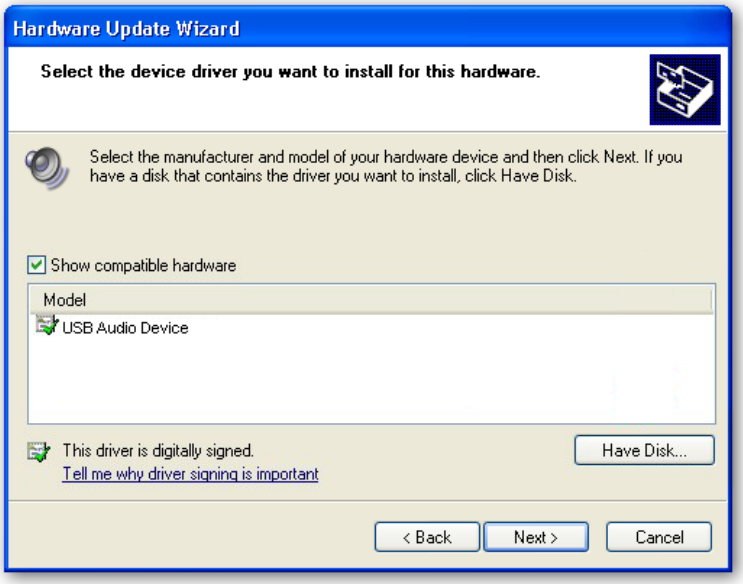
- Choose “No, not this time”, and click next.



- Choose "Install from a list or specific location", and click next

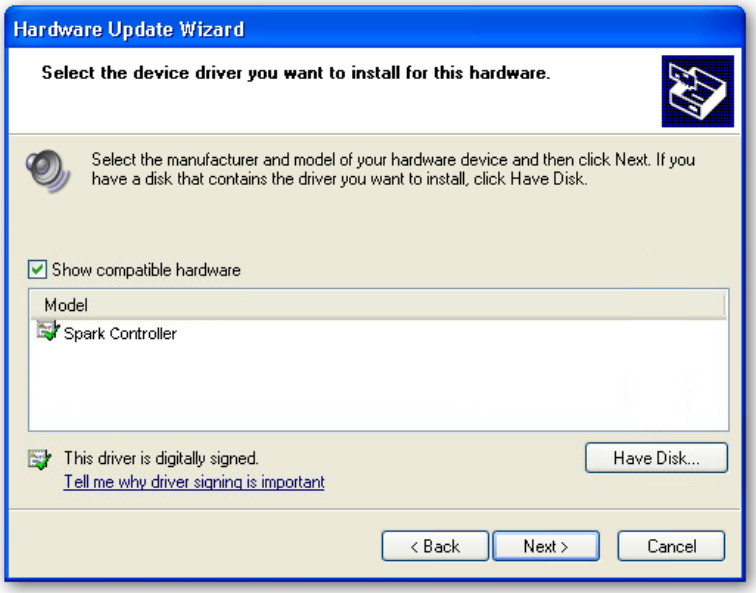


- Choose "Don't search, I will choose the driver to install".
- Click Next.

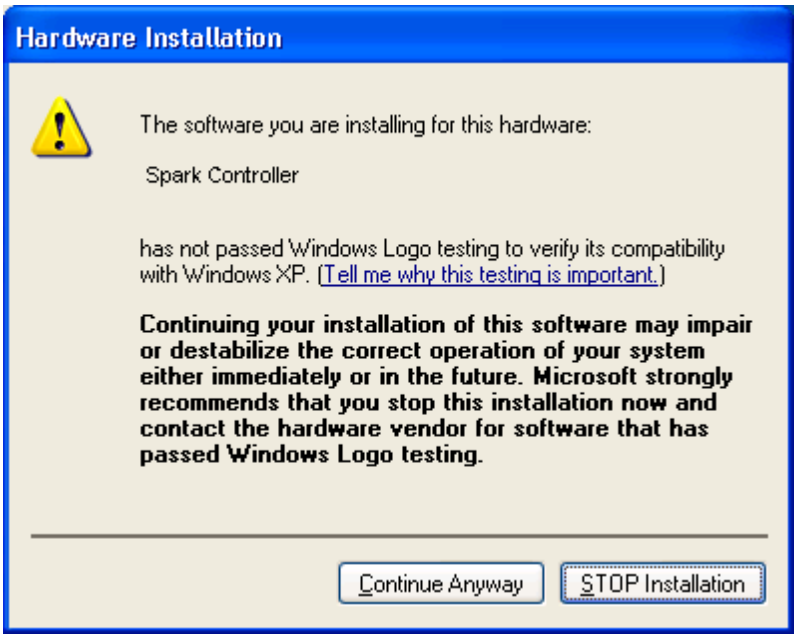


- Click “Have Disk”
- Click Browse, and locate Spark_XP.inf on Spark install DVD :

`[YourDVDdrive]:\Driver\Spark_XP.inf`



- Choose “Spark Controller”, and click Next



- Click "Continue Anyway".

Your Spark Controller should now be ready to use.

2.2 MAC OSX INSTALLATION (10.5/10.6)

- Place the installation DVD-ROM in your computer's DVD-ROM drive. Its icon will appear in the Mac OS® X Finder.
- Connect the SPARK Controller using the USB cable. If you want to connect the Controller to a USB-hub instead, make sure the hub has its own power supply. SPARK's Controller will not work on a passive (bus-powered) USB hub.
- Double-click the SPARK DVD icon to display the content of the DVD.
- Double-click the installer file named SPARK.
- Click Continue to proceed.
- To continue, you need to first accept the license agreement. After you have read the license agreement, press Continue and click Agree.
- Select the hard disk onto which you would like to install SPARK. Please note that you can only install SPARK onto hard disks which contain a Mac OS® X version matching the system requirements. Hard disks with an incompatible Mac OS® X version will be flagged with a red Stop sign and you will not be able to select them from the Installation Destination dialog. From Mac OS® X 10.5 on, this screen will be skipped automatically.
- Click Continue.
- Select the elements you want to install (we recommend installing all elements, however if you know that you don't need a certain element like a plug-in format, uncheck the checkbox next to it).

- If you want to install the SPARK Library contents to a custom location, e.g. to an external hard disk, click the folder icon in the Location column to open a dialog in which you can specify a destination for the installation.
- Click Install to continue. The Setup Program will lead you through the installation procedure. Follow the onscreen instructions.

3 REGISTRATION & AUTHORIZATION

3.1 REGISTRATION

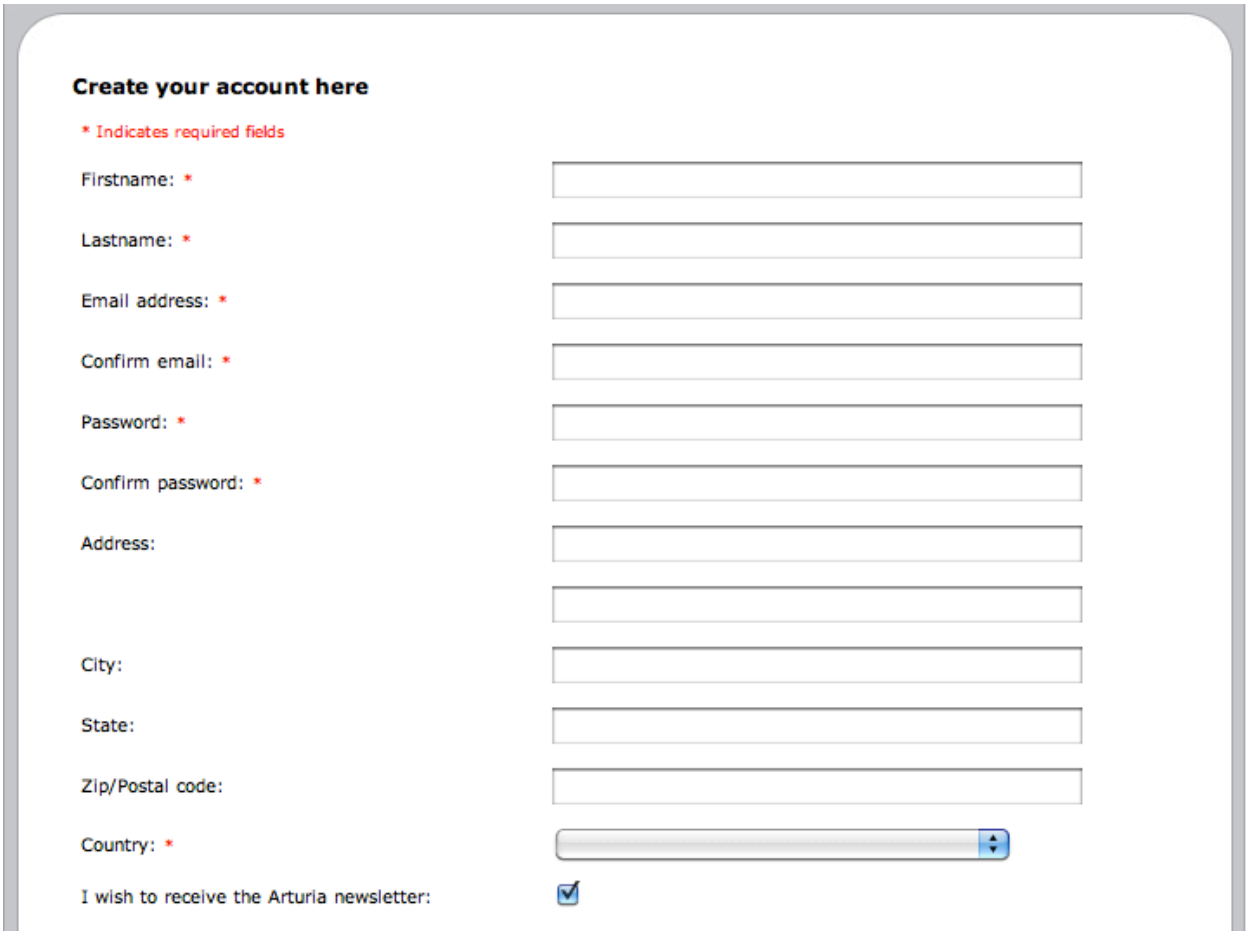
Now that your SPARK Software has been installed, the first step is to register your software in order to obtain the activation code that will enable you to actually use the software.

You should have handy the license serial number of SPARK Software and the unlock code (these are an integral part of the software and are printed on a small plastic card).

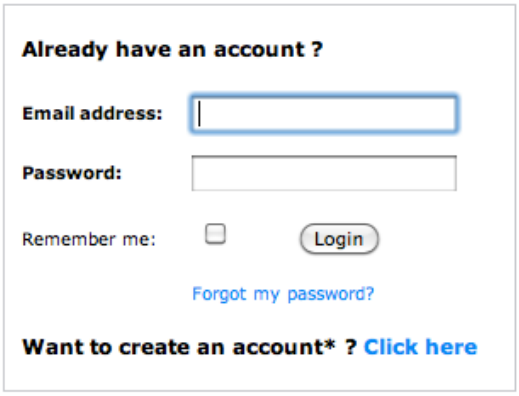
Connect your computer to the Internet, and go to this web page:

http://www.arturia.com/login

If you don't have an Arturia account yet, please create one now. This will take you to this form:

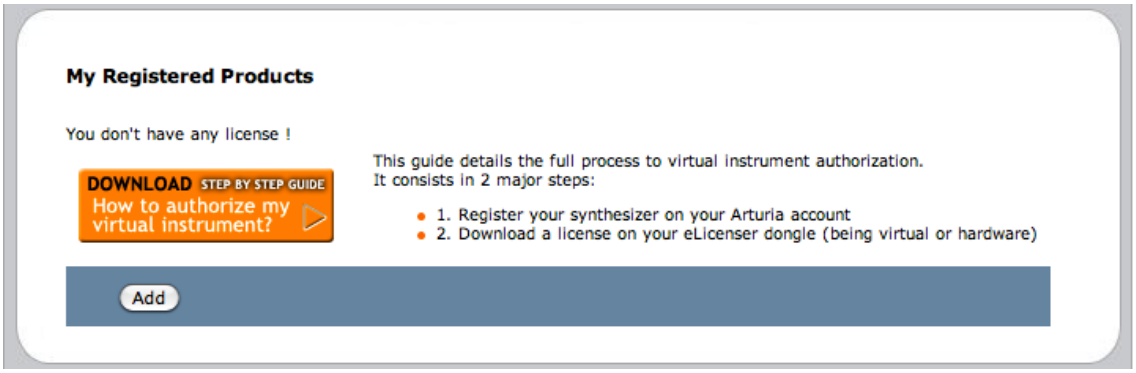


If you already have an account, simply log in:

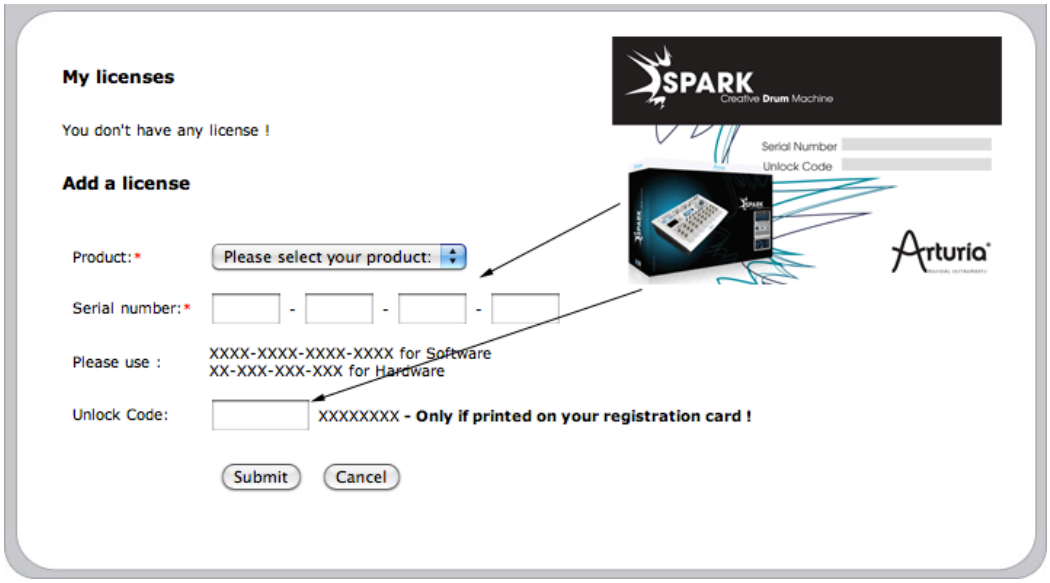


Once you are logged into your account, you can register your Spark and request your activation code.

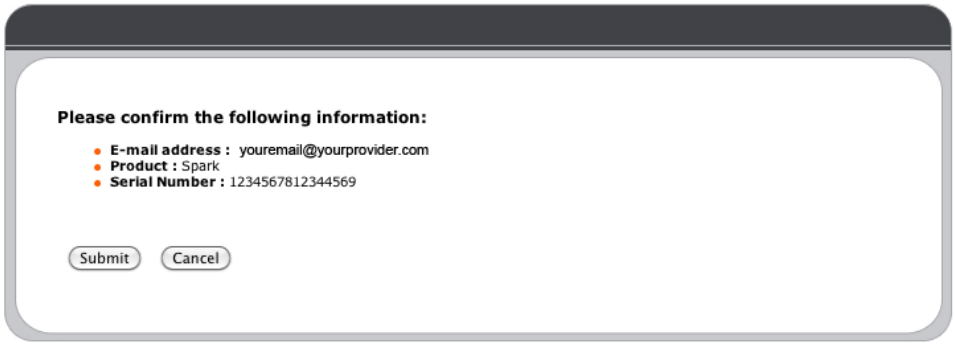
Go to the "My Registered Products" section of your account and click on the "Add" button:



In the form that appears, select "SPARK Software" from the drop down menu, and key in your software serial number and unlock code (as written on the registration card), and click Submit:



You should then see the confirmation screen, click Submit:

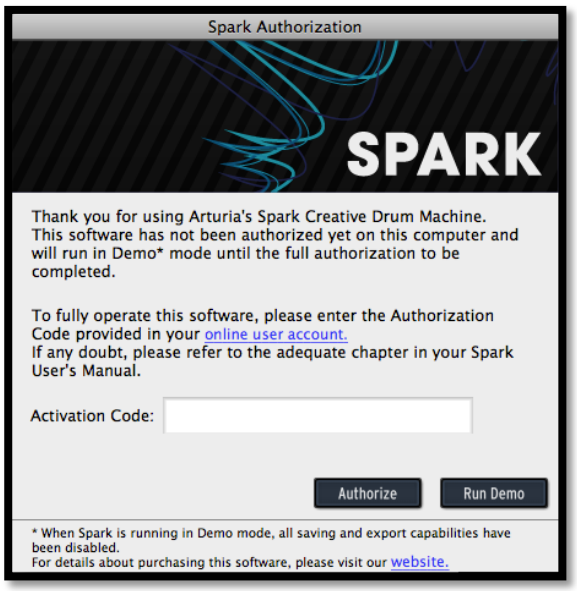


3.2 AUTHORIZATION

Please refer to the registration chapter in the Spark Dubstep Quick Start Guide.

Finally there is a screen to copy the **activation code**. The very same information is sent to you by email as a backup.

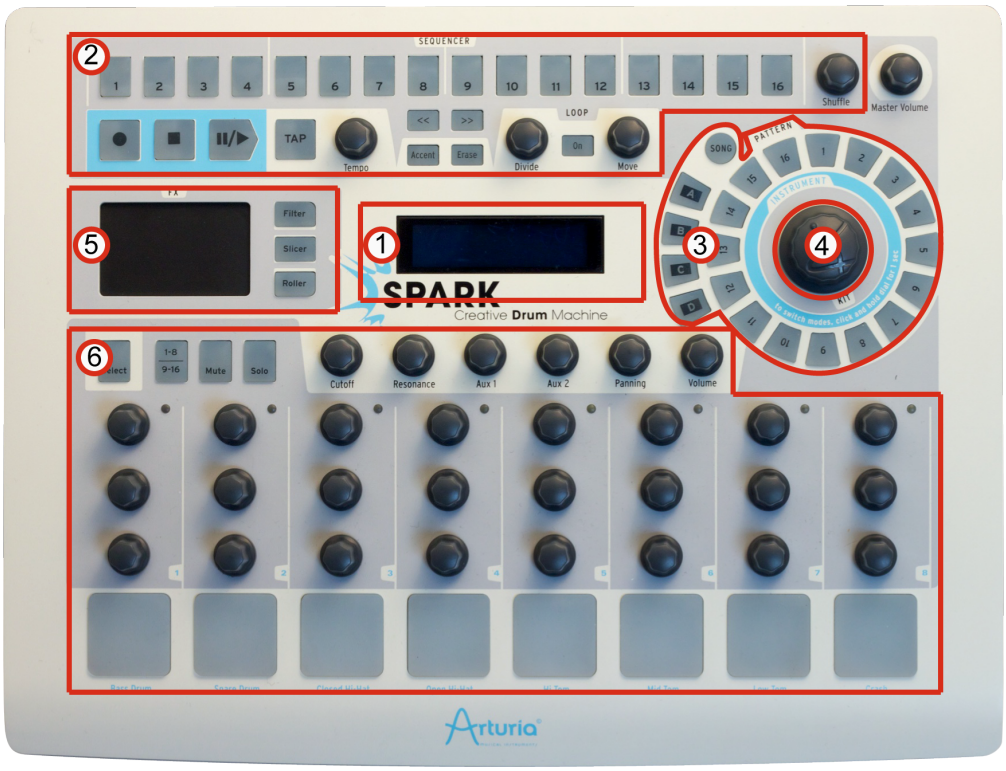
Copy the **activation code** and paste it in the window that shows when you launch SPARK:



If your activation code has been entered correctly, the software will launch.

4 QUICK START

4.1 SPARK CONTROLLER OVERVIEW



1.	Digital Display
2.	Sequencer zone
3.	Song/Pattern zone
4.	Jog dial
5.	FX live Pad
6.	Instruments control zone

Connect the SPARK Controller using the USB cable. If you want to connect the Controller to a USB-hub instead, make sure the hub has its own power supply. SPARK's Controller will not work on a passive (bus-powered) USB hub.

4.2 SPARK SOFTWARE OVERVIEW

This chapter will introduce you to the SPARK software's user interface elements. If you need to look up a certain user interface element's name, you can return to this chapter at any time for a refresher!

Spark's user interface is divided in three main panels called: "TOP", "CENTER" and "BOTTOM".

4.2.1 The Center panel

When launching SPARK, the CENTER PANEL will appear by default.

1.	Digital Display
2.	Sequencer zone
3.	Song/Pattern zone
4.	Jog dial
5.	FX live Pad
6.	Instruments control zone

4.2.2 The Bottom panel

The Bottom panel features the Studio, the Mixer and the Library.

1.	Studio Button
2.	Display Instruments 1 to 8
3.	Display Instruments 9 to 16
4.	Display all Instruments
5.	Mixer button
6.	Library button

4.2.3 The Top panel

The Top panel features the Pattern, the Song and the Preferences interfaces.

1.	Pattern button
2.	Song button
3.	Preferences

4.3 NAMES AND CONCEPTS YOU SHOULD KNOW

This chapter will introduce you to SPARK's terminology and explain how these different elements relate to one another.

4.3.1 Project

A Project contains all data needed for a Song: a 16 instrument kit and up to 64 Patterns with their settings, automations and FX.

4.3.2 Kit

Each kit is made up of 16 instruments, i.e. Bass drum, Hi-hat, etc.

You will find all of the instrument Kits in the Library, under the project window (Bottom panel).

4.3.3 Instrument

An instrument is a sound generated from an audio source assigned to a track pad. For example, you can assign the instrument Bass Drum to track 1, which you will then hear when hitting the bottom left pad in the main panel.

4.3.4 Audio Source

Sample (.wav, .aiff audio files)

Physical (Physical parameters)

Analog (Vintage drum machines with analog parameters)

4.3.5 Bank

SPARK features 4 banks of 16 MIDI patterns each, called A-B-C-D.

Go to the main panel, click on "A" and then "1" in the Song/Pattern zone. Then click on the play/pause button: you will hear the pattern number 1 of Bank A.

4.3.6 Pattern

A Pattern is a sequence of notes played by instruments.

4.3.7 Song

A Song is an editable ordered sequence of several patterns that defines your song structure.

SPARK allows songs made of 64 patterns maximum.

4.3.8 Channel

A specific channel is assigned to each instrument in the Mixer.

The channels are numbered from 1 to 16 in the same way the instruments are.

4.3.9 Track

The pattern window in the Top Panel shows you the 16 instrument tracks. Each track is the score played by one instrument.

4.4 AUDIO AND MIDI SETUP

4.4.1 Windows

To access the preferences window, click on the SPARK menu > Setup > Audio & MIDI Settings. This window allows you to configure the global preferences of SPARK. These are saved automatically.

4.4.2 Mac OS X

To access the preferences window click on the SPARK menu>Preferences. The Audio settings window will appear. This window features the global preferences of SPARK. These are saved automatically.

For further details on how to setup Audio and MIDI, please refer to Chapter6 : MODES OF OPERATIONS of this manual.

4.5 FIRST STEPS WITH SPARK1

A help mode is available for displaying all controller shortcuts. Click on the ? in the upper left corner in order to switch Spark interface to show all the shortcuts. Any text that is in Blue above a button shows that by pressing and holding SELECT+ the button, you will select this secondary function.

4.5.1 Loading a project

To load a project, go to the tool bar and click on LOAD.

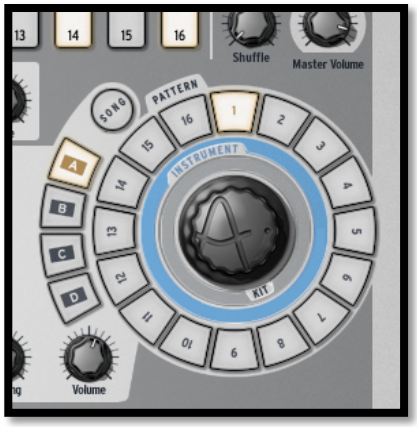
Move your cursor over "Factory Project" and click on a project in the drop-down list, for example "FUNK".

This project is now loaded into SPARK and its name appears in the window next to the button "SAVE".

1 When reading "Click" for the software version of SPARK, replace by "Press" for the Hardware version or refer

4.5.2 Select and play a pattern

To select and play a pattern, move your cursor to the "Song/Pattern" zone and choose a Bank of patterns, for example the BANK A (click on "A") and a pattern in BANK A, for example pattern #1 (Click on "1"). You will notice that your selection is now highlighted.



Now, go to the transport zone and click on the "Play/Pause" button to listen to Pattern #1 in Bank A. To listen to a different pattern, just click on another pattern number. You do not necessarily need to stop playing a pattern to listen to another. The same applies to switching from Bank to Bank.

4.5.3 Change Instrument parameters

The three knobs above each of the instrument's pad are the instrument's parameters. Let's try and change the pitch of the snare drum. While the pattern is playing, place your cursor over the "Pitch" knob, click on it and while maintaining your click and move your cursor up and down slowly. This will turn the "Pitch" knob up and down. Listen how the pitch of the Snare drum is changing. The Digital display window in the center of the main panel shows the changes applied to the Pitch (number of semitones).

4.5.4 Select an Instrument and change filter and mixer parameters

To select an instrument, for example the snare drum, move your cursor to the dividing line above the 2nd pad from the left called "Snare Drum". The dividing line is to the right of the instrument and will be highlighted to let you know that you have entered its selection zone.

Click once. The "Snare drum" pad is now lit as well as the red LED. The instrument "Snare Drum" is now selected. Alternatively, hold the Select Button and press an instrument pad to select it.

To change the filter and/or the mixer parameters, first select an instrument and simply click on one of the filter or mixer parameter buttons. While holding your click, move your mouse up or down to change the parameter's value. The Digital display window in the center of the main panel shows you the changes applied to the selected parameter in real time.

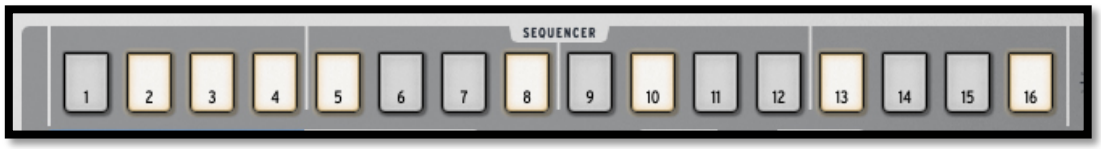
4.5.5 Play and edit a pattern

To play a pattern use the Play/Pause button located in the upper left corner of the CENTER PANEL interface.

To edit a pattern, you will use the 16 small pads located at the top of the main panel. You will notice that when you play a pattern, the current playing position is shown with a lit pad in real time. When a pad lights up, it means that the sequencer will play a MIDI note-on (a beat) at this pattern's position. If a pad is not lit, it means that no note will be played, therefore no sound will be heard. You can trigger a note-on or remove it by pressing these pads.

To better understand, click on Bank A / pattern #1 and then select the snare drum track:

Look at the 16 small pads at the top of the main panel: some pads are lit and others are not. The ones lit are the note-ons, those unlit are not triggering note-on messages.



Every lit pad is a Snare drum's beat. You can edit this track by pressing a pad to add or remove a note-on. Try it! While the pattern plays, click on pads 2, 3, 4 and 5. They are now unlit, therefore you do not hear any snare drum beats any more. Now click on pads 1 and 4: you are starting to compose your own pattern.

4.5.6 Record a pattern with instrument pads

To do so, we will start by erasing the current pattern and start from scratch.

First, click on the "ERASE" BUTTON, right above the digital display window and then go to the Song/Pattern zone and click on the currently selected pattern – it should be Pattern #1 of BANK A:

The pattern #1 of Bank A is now erased. The 16 editing pads are not lit anymore (since the snare drum track is now empty as well as all the other instrument tracks). Click on Pattern #1. We are now ready to record a new pattern #1 with the instruments pads.

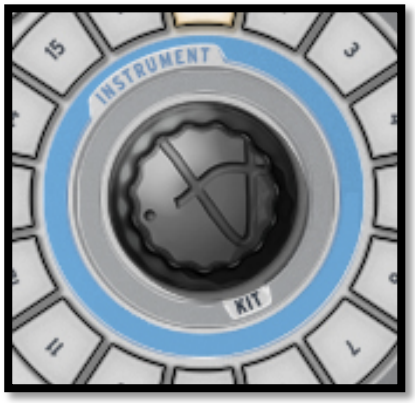
To use the Metronome, click on the Metronome Button, set its volume and proceed with recording your pattern. Clicking on the Metronome button again will switch the metronome off.

Click on the pad called Bass Drum at the bottom left side of the Center panel. You are now playing bass drum. To record a Bass drum, click first on the record button and then on the play button, the recording has now started.

Play your Bass drum part on the Bass Drum pad and then click stop. By clicking "Play", you will now listen to the track you just recorded. To record another instrument, select another instrument track (If you forgot how to do this, go back to 4.5.4 Select an instrument) and repeat the same steps to start recording.

4.5.7 Change Instruments/Kits with the jog

To change an instrument with the Jog Dial, you need to first select the instrument you want to change. Now, go to the Song/Pattern zone. Click above the Jog Dial where it says: "Instrument". Click on the Jog Dial and while holding your click, move your mouse up or down to select a new instrument. The name of the instrument will be displayed in the Digital display window in the center of the main panel. Once your choice is made, click on the Jog Dial to load the new instrument.



The procedure to change a Kit is the same, except that you do not need to select an instrument since you're loading all of them. Just click below the Jog Dial where it says: "Kit", and follow the same procedure as with the instrument selection.

Jog dial used in instrument mode includes a menu for selecting the instrument type and the generator type. (See 5.2.4 Jog Dial section).

4.5.8 Save your project

To save your project, go to the toolbar and click "Save". A drop down menu will appear. Choose "Save as…"

Give a name to your project and choose a style from the drop down menu. Click "OK". Your first project is now saved. Congratulations!

The name you gave to your project is now showing in the display window next to the button save.

4.5.9 Switching views

SPARK's interface is made up of 3 main panels. The "TOP" panel, the "CENTER" panel, and the "BOTTOM" panel. Up until now, you have only been introduced to the main or "CENTER" panel.

You are now ready to discover everything SPARK has to offer.

To show the "TOP" panel, go to the toolbar and click on "TOP".

To show the "BOTTOM" panel, click on "BOTTOM"

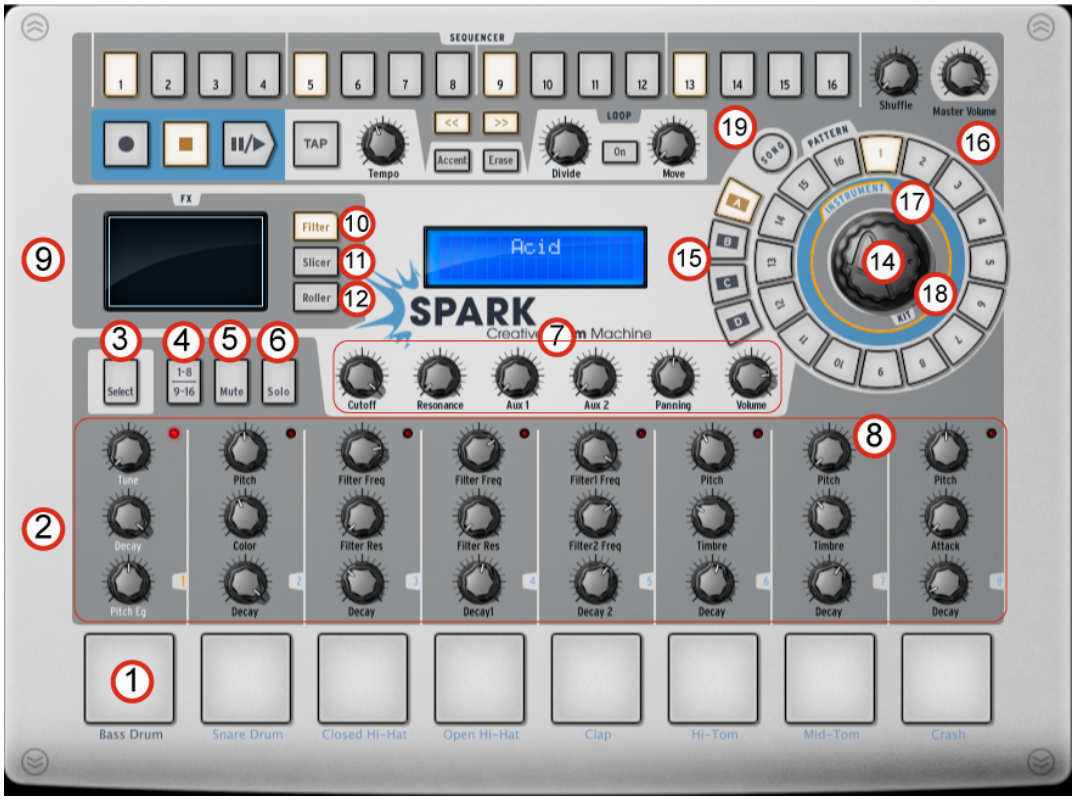
All 3 panels are now showing, you can scroll up and down to go from one panel to another.

5 USING SPARK

5.1 THE TOOLBAR

1.	Load button
2.	Save button
3.	New Project window/Quick Load Menu (Most recently opened projects)
4.	Set Metronome volume button
5.	Set Metronome on
6.	Open or center "TOP" panel in the main window
7.	Open or center "CENTER" panel in the main window
8.	Open or center "BOTTOM" panel in the main window
9.	Connect Hardware
10.	CPU Meter
11.	Main volume meter
12.	Clipping indicator
13.	Set Soft clip on/off
14.	Tempo indicator. Double click to enter a tempo manually.

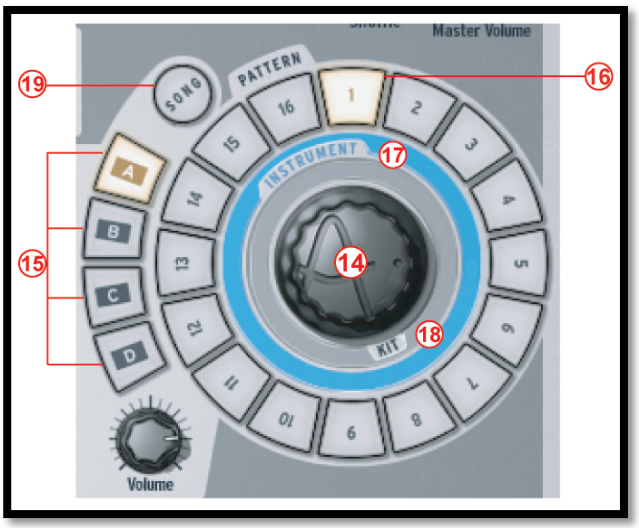
5.2 THE MAIN PANEL (OVERVIEW)[2]



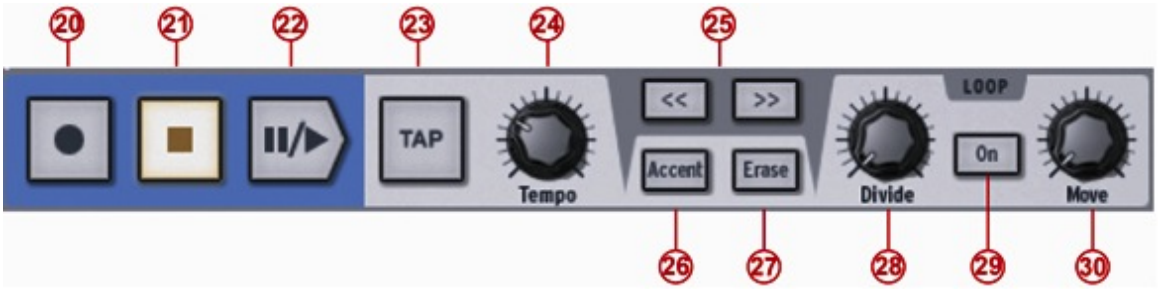
1.	Play instruments with Pads (Right click: Edit instrument)
2.	Instrument parameter knobs (Right click: edit motion/disable motion)
3.	Instrument Select Button (Hold select, then press an instrument pad.)
4	Instruments page Button (Instrument 1-8 and 9-16)
5.	Mute Button (Click on mute, then on instrument(s).)
6.	Solo Button (Click on solo, then on instrument.)
7.	FX – Aux 1 and 2 – Pan and volume Knobs (Right click: edit motion/disable motion)
8.	Click zone to select instrument track

2 When reading "Click" for the software version of SPARK, replace by "Press" for the Hardware version or refer to chapter 8 of this manual: THE SPARK MIDI CONTROLLER.

9.	FX display window
10.	Filter Button (Right click: Always on/only on touch)
11.	Slicer Button (Right click: Always on/only on touch)
12.	Roller Button (Right click: Always on/only on touch)



14.	Jog Dial (Right click: Instrument mode/Kit mode)
15.	Bank select Buttons (A-B-C-D)
16.	Pattern select Buttons (1 to 16)
17.	Instrument select Button
18.	Kit select button
19	Song select Button



20.	Record button (Right click to select quantized/unquantized recording)
21.	Stop Button
22.	Play/Pause Button
23.	Tap Button (Tap tempo)
24.	Tempo knob (Change Tempo)
25.	Display previous/next 16 pattern steps
26.	Set accent mode Button (On patterns or steps)
27.	Erase/Cancel Erase Button (Use to erase Instruments tracks or Patterns)
28.	Divide loop size knob
29.	Loop On/Off Button
30.	Move loop locator knob (Right click: Shift by one step/Shift by one loop size)

31.	Sequencer Steps: ON/OFF pads
32.	Shuffle knob (Right click: Swing range / velocity mode)
33.	Master volume knob

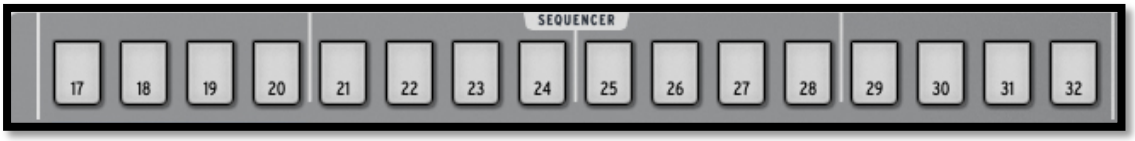
5.2.1 The Digital display

The digital display is of an invaluable help. It displays all the information needed while using SPARK. (i.e. Project name, precise changes applied when using Volume knob, FX knobs, etc.)

5.2.2 The Sequencer zone

The Sequencer zone is divided into several zones:

5.2.2.1 The Step Pads



16 Step pads numbered from 1 to 16.

These pads allow you to edit your pattern by triggering note-on messages on your instrument track. Patterns have a maximum number of 64 steps. If your pattern has more than 16 steps, use the << or >> buttons to navigate to the previous or next page. If you click on the >> next page button, you will see the numbering on the pads switch from 1-16 to 17-32 for the second page, and so on.

You may choose to follow the cursor as it advances on the step pads (the pages will change automatically) by right clicking on the >> button. A contextual menu will appear allowing you to check or uncheck the "follow current step" option. If this option is activated, both << and >> buttons will be lit. If the follow option is deactivated, the buttons will not be lit up.

The step resolution is a sixteenth of a note by default. You can change the resolution in the pattern panel. (See Chapter 5.4.3)

5.2.2.2 The Shuffle Knob

This knob sets the amount of shuffle applied to a pattern. Shuffle is a rhythmic shifting of a Pattern in which the first note in a series of two plays for a longer time than the one that follows.

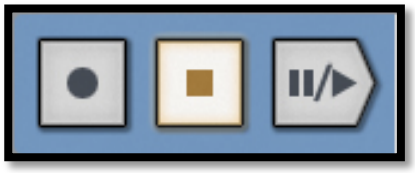
When the Shuffle knob is turned all the way up, the first note in a series will play twice as long as the one that follows.

Right click on the shuffle button to set the swing range (1/4, 1/16, 1/32 of a note). This will define the value of the note on which the swing will be applied.

Click on velocity mode to apply shuffle to the note velocity.

Shuffle is a function better heard than described. Try it!

5.2.2.3 The Transport Zone



These buttons, from left to right, are:

- Record
- Stop
- Play/Pause

To record, click on the Record button and then on the Play/Pause button. The Record button will turn to red to indicate recording mode is on.

To stop recording, click on the Stop button.

To disable recording mode, click on the Record button again.

While a pattern plays, clicking on the Play/Pause button will pause the playing. Click again on Play/Pause to resume playing.

Click on Stop to reset current position to the beginning of the pattern.

Right-click on the Record button to choose between quantized or unquantized recording function.

In Quantize mode; the recorded notes will be set exactly to the nearest step position. When quantize mode is disabled, the recorded notes will keep the exact position they were played on. Spark uses the Shift parameter (see Chapter 5.4.5) to remember the exact triggering time relative to a step position.

5.2.2.4 The Tap Button

The Tap button allows you to define the tempo of your pattern by simply tapping this pad at the desired tempo. It is a beat/minute counter, so you have to tap the beats.

5.2.2.5 The Tempo knob

The Tempo knob allows you to set the tempo for your pattern when SPARK is not externally synced to a host. The internal Tempo range is 10BPM to 300BPM.

To temporarily push or pull tempo like a DJ might, hold the SELECT button and turn Tempo knob to temporarily increase or decrease the tempo, as you would push or pull a turntable, in order to synchronize Spark to an external audio source.

5.2.2.6 The Accent Button

The accent button allows you to set accents onto steps. Setting accents is very similar to writing a "forte" on a music score. The accented steps will be played with more strength that the unaccented ones. This allows for a very "natural" feel when listening to a pattern.

Click on the accent button to set the sequencer steps to Edit accent mode. Now the sequencer's steps in the main panel show the accents set on steps (not to be confused with the note-ons in the normal Step mode).

Set an accent by clicking on the step: the step will light up. Remove the accent by clicking on a highlighted step.

To exit accent mode, click on the accent button again.

Accent ON sets velocity to 127, Accent OFF sets velocity to 64.

5.2.2.7 The Erase Button

Click on the erase button to set Erase mode.

You can erase Instrument tracks, Banks, Patterns and Automations.

For example, to erase pattern 1 in Bank A, make sure Bank A is selected then click on Erase and then on 1 in the Pattern section.

To erase Instrument 1 track, make sure Instrument 1 is the current instrument then click on Erase and then on pad 1.

To erase a selection in a track, set Rec on, click on Erase, then press the pad at the time you want to start to delete the selection, and release it when you want to stop erasing.

To delete an automation you created, click on Erase then turn the knob of the parameter whose automation you want to delete.

5.2.2.8 The Loop zone

Click on the button "ON" to set Loop mode on.

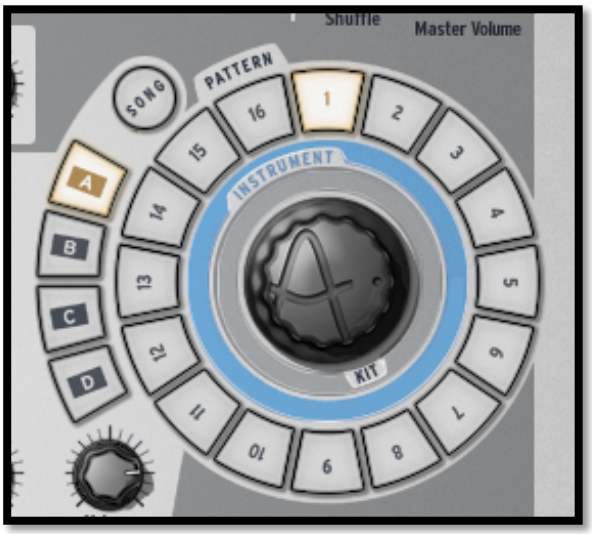
The Divide knob allows you set the loop size.

Moving the knob one notch will halve the loop size.

The settings are 1/2, 1/8 and 1/4 of the pattern size, all the way down to the minimum loop size: one step.

The Move knob allows you to move the loop start in one of two ways. Using "Shift by one step" mode will shift the loop start to any given step of the pattern (stepwise). Alternatively, you can move the loop in increments of the loop size (defined with the divide knob) by using "shift by one loop size" mode. Right click on the Move knob to choose the Move Loop mode: "Shift by one step" or "Shift by one loop size".

5.2.3 The Song/Pattern zone



The Song/Pattern zone is where you can trigger the Song mode, select and play your patterns, load Instruments or load a kit into your project.

5.2.3.1 The Song Mode

A Song is made up of a maximum of 64 patterns chained together. Click on the Song button to enter the Song mode. The Song button will flash continuously to let you know that you are now in Song mode. Click on the Play button in the transport zone.

Listen! Your patterns are now chained together and played one after another from pattern to pattern and Bank to Bank.

The Step pads (numbered from 1 to 16 at the top of the Center Panel) light up as each pattern is being played. They show you which pattern is currently being played.

To edit your Song, refer to Chapter: 5.4.6 The song panel

5.2.3.2 Editing Songs from the Main panel

As we have just seen, a Song is made up of several patterns chained together. The order in which each pattern is played can be changed from the main panel.

When in Song mode, each step pad, numbered from 1 to 64 represents the position occupied by a pattern in the chain (to select the next page, click on the next 16 steps page button >>).

When the Song plays, the step pads will light up successively showing you which pattern is currently being played in the chain.

The number under the step pad represents the position of a given pattern in the chain. This number has no relation whatsoever with the pattern number. For example, you can decide that the pattern B-12 will be played first, then pattern A-1, and so forth.

To edit a song, first of all make sure you've selected the Song mode by clicking on the Song Button. The song button should blink.

Then, press the record button in the transport zone. You are now ready to assign a location to your patterns in the chain.

Let's say you want pattern A-2 to be in first position when playing the song. Click on Step pad #1 and then, in the Song/pattern zone, click on Bank A then on pattern 2. That's it. When you will play your song, pattern A-2 will be the first pattern of your song.

Repeat this operation to create your song. Remember to click on the next or previous 16 pattern page button [>> or <<] to go to the next or previous page.

5.2.3.3 Banks and Patterns

The patterns are organized in 4 banks (labeled from A to D) of 16 patterns each (numbered from 1 to 16).

To select pattern number 6 of Bank B, click on Bank B and then on pattern 6. The selected pattern can now be played when clicking on the Play button in the transport zone.

But you can also use the Song/Pattern zone to copy or swap patterns in the currently selected Bank.

To swap a pattern, drag and Drop a pattern number while holding [Option/Alt] on Mac OSX or [Ctrl] on Windows and drop it on another pattern number. A pop-up menu will ask you to confirm your choice. Click Ok.

To copy patterns, simply drag and Drop a pattern number onto another one. A pop-up menu will ask you to confirm your choice.

The exact same procedure applies to copying or swapping Banks.

To export a pattern to a MIDI file on your system or in your host, drag the pattern outside Spark window and drop it on your system window or host window.

5.2.4 The Jog Dial

The Jog Dial allows you to load Kits, Instruments or projects when working on an open project. You may choose (via the preferences tab in the upper screen) to assign the Jog dial to switch between either Instruments and Kits using the "Switch from Instrument to Kit Mode", or else between Instruments and Projects using the "Switch from Instruments to Projects Mode". By default Spark is set to "Switch from Instrument to Kit Mode".

To load a kit (or Project, depending on preference settings), click on "Kit" under the Jog Dial. Click on the Jog dial and while maintaining your click, move your mouse up or down to select a kit.

The kits name will appear in the center display window. Then, click on the Jog dial again to load a new kit.

To load a new instrument to an instrument pad, first select the instrument pad you want the instrument to be assigned to. Then, click on "Instrument" above the Jog dial. Next, click on the Jog Dial and while holding move your mouse up or down to select a different instrument. The list of Instruments will appear in the center display window. Select an Instrument and then click on the Jog dial once again to confirm your selection.

You may switch between Kit and Instrument modes by either clicking on their names, or else by right clicking on the Jog Dial. A contextual menu will appear and allow you to choose between the two Jog Dial modes.

The new instrument is now assigned to the previously selected Instrument pad; the new instrument's name appears below the pad.

The Jog dial, while used in instrument select mode, includes the ability to select the instrument type and the generator type.

By default, the jog dial scrolls through a list of instruments without having to select the menu options. The default list is made of all available instruments with the same type of the selected instrument.

By pressing and holding SELECT and then pressing the switch on the Jog Dial, you can select the Instrument type and Generator type.

First menu level is for selecting the instrument type or ALL types:

ALL, Bass drum, Snare Drum, Close Hit-Hat…

Second level is for selecting the generator type or ALL types:

ALL, Analog, Physical Model, or Sample

The result list will then be displayed. If you choose Bass Drum > ALL, all bass drums will be displayed. If you choose Snare Drum > Analog, all analog snare drums will be displayed.

Pressing the Jog Dial again will then take you to the list of instruments with the selection filters applied.

You can choose to switch to infinite or non-infinite mode in the preferences. Default mode is infinite Mode. In non-infinite Mode the Jog dial will stop scrolling at the end of the instrument, kit, or project list when scrolling forward and at the beginning of the list when scrolling backward.

5.2.5 The FX Live Pad

The FX live pad is an amazing performance tool, especially if you plan on playing live. Its touch sensitive screen will apply live effects in real time to your song or patterns, allowing you to shape your sound with great precision. When your cursor enters the FX pad zone, it turns from an arrow to a cross.

The FX Pad features 3 main effect buttons called Filter, Slicer and Roller. By right clicking on any of them, you can choose between: "Latch" or "Touch". "Latch" will not cut off the effect when releasing your finger, the "Touch" option will cut off the effect upon releasing your finger: the effect is only active when the Pad is touched/clicked on.

You can also enable LATCH mode from the hardware by pressing and holding SELECT and then pressing the Filter, Slicer or Roller buttons.

In Latch mode you can combine the Filter and Slicer effects together: To slice the filtered sound, set the filter effect to latch mode. Now you can touch the pad and set your filter setting you want. Next press the Slicer button on. You will have the Filter set to your last setting and can play the slicer on the XY pad.

Note that the Roller effect is not active when Slicer is set to latch mode.

5.2.6 The Filter / Slicer / Roller

5.2.6.1 The Filter Button

The Filter button offers a Low pass, a Band pass and a High pass filter, Oberheim Low, High, Band and MiniMoog filters with cutoff and resonance.

To select your filter click on the FILTER button repeatedly. Your choice will be displayed on the center display window. Alternatively you can use the direct access keeping the Filter button pressed to show the current filter, and moving your cursor or finger on the sub-effect you want to select.

The Cutoff and resonance can be modulated with the mouse on the software version or your finger on the hardware XY pad.

The resonance is modulated vertically from the bottom of the pad to the top of the pad.

Cutoff is modulated horizontally, from the right side of the pad to the left side of the pad.

Play a pattern of your choice and click or touch anywhere on the right edge of the FX pad while maintaining your click or touch; draw a straight horizontal line towards the left side of the FX pad. You will hear the cutoff modulating. The amount of modulation applied can be seen on the center display panel.

Now place the cursor close to the bottom right corner of the FX pad and trace a line straight up to the top edge of the pad. You are modulating the resonance.

Of course, both Cutoff and Resonance can be modulated simultaneously by moving your finger or the mouse in any direction and at any speed you wish.

5.2.6.2 The Slicer button

The Slicer will repeat the value of the note selected while applying an effect. You can choose between the following effects:

Repeat mix

Click to choose the value of the note to be repeated with the Repeat mix effect. The effect will be applied for the amount of time your mouse click is maintained. Release your click to cancel and resume normal playing.

Repeat mix will continue playing the pattern while the effect is applied.

Repeat

The Repeat effect is the same as Repeat mix, except the pattern is **not** played while applying the effect.

Tape

The Tape effect simulates the effect of slowing down a tape player.

Reverse

The Reverse effect simulates the effect of playing a tape recording backwards.

Strobe

The Strobe effect will play and shut off the sound alternatively at the rate of the selected note value.

Pan

The Pan effect will move the sound from the left speaker to the right speaker at the rate of the selected note value.

Bit Crush

The Bit Crush effect allows you to reduce the audio bit rate, creating a Bit Reduction or Bit crushing sound effect. Reduce the audio anywhere from 7 down to 2 bits.

5.2.6.3 The Roller button

The roller could be described as a "Drum roll" tool.

Choose the note value for the Roller effect. Then, click and maintain your click on the snare drum pad. The snare drum will play a basic drum roll. The roll speed depends on the selected note value.

You can play, of course, any instrument pad using this effect.

The beginning of the roll is quantized by default.

A swing (dotted or triplet) effect can be added by simply clicking on the upper note values for Swing on, or on the bottom values for Swing off. When swing is off, one beat is played per note value.

When Swing dotted effect is on, a dotted beat is added after the first beat.

When Triplet is on, three notes are played per note value.

Roller Swing Mode' preference let you choose between dotted notes or triplet notes.

The ROLLER can be LATCHED on by pressing and holding SELECT + ROLLER button. Now any pad you play will have the roll effect played. This is a great way to enter notes into a pattern.

On the Roller, other functions are available to control the selected instrument main parameters:

- Pressing Roller button once will set the pad to control the Roller.
- Pressing Roller once again will set the pad to control Cutoff and resonance on the selected instrument.
- Pressing Roller once again will set the pad to control Aux1 and Aux2 on the selected instrument.
- Pressing Roller once again will set the pad to control Volume and Pan on the selected instrument.
- Pressing Roller button once again will set the pad to control the Roller again.

5.2.7 The Instrument control zone

The instrument control zone is made up of:

5.2.7.1 The instrument Pads

There are 16 instrument Pads but only 8 of them are shown on SPARK's interface. To navigate to the next set of 8, click on the 1-8/9-16 button.

An instrument is assigned to each pad. The far left pad is by default the Bass Drum, next to it is the Snare drum, and so on; but you can of course personalize this arrangement.

To edit an instrument, right click on the pad, and then Click on edit. This will take you to the "STUDIO" bottom panel where you will be able to edit a full array of instrument parameters. (See next chapter 5.3.1 The Studio).

Pitch Mode

Alternatively, you can use Pads for the pitch of the current instrument when setting Pitch mode to 'on'. Hold Select button and press step sequencer 13 to enter Pitch mode.

You can now use the pads as a keyboard to play notes on the current instrument. You can play 16 semi-tones using the 1-8 / 9-16 button:

With 1-8 / 9-16 button off you can play notes from current instrument pitch minus 8 semi-tones to current instrument pitch minus 1 semi-tone.

With 1-8 / 9-16 button on you can play notes from current instrument pitch to current instrument pitch plus 7 semi-tones.

You can offset the starting pitch moving the jog dial when you are in Pitch mode.

To exit Pitch mode, Hold Select button and press step sequencer 13 again.

Alternatively you can choose to use the sequencer steps for playing notes on the current instrument setting the 16 Tune mode preference in the preferences panel.

Step 9 will play the current instrument pitch.

Step one will play the current instrument pitch minus 8 semi-tones and step 16 will play the current instrument pitch plus 7 semi-tones.

5.2.7.2 The Parameter Knobs

Each instrument pad has 3 parameter knobs above it.

These parameters act on the sound generator to modify the sounds in real time so as to give each sound its own color. Each instrument has 6 parameters (3 of which are mapped to the knobs).

You may choose which parameter each knob modifies by clicking on the name underneath the knob. A contextual menu will appear listing the 6 parameters available in addition to the Filter, Mixer and available Fx parameters (if an effect is set as insert on the instrument's mixer track).

Click on a different parameter name to assign the knob to that parameter. To select different parameters via the hardware controller, Press and hold SELECT and turn the knob that you want to change assignment on. You will see the different parameters in the LCD screen and on the software screen.

Common instrument parameters are tuning/pitch, filter cutoff envelop decay, attack and release, different effect depths and rate (ring, shift, etc).

Filter parameters are Cutoff and Resonance. You can set the filter type for each instrument in the studio panel.

Mixer parameters are Aux1 effect amount, Aux2 effect amount, Panning and Volume.

Fx parameters depend on the chosen insert effect set on the instrument mixer track. Each effect has its own parameters exposed as well (dry/wet, feedback, delay time…)

You do not need to select a specific instrument to change its parameter. Any effect is applied in real time while the pattern is playing.

The parameter motion can be recorded as an automation into the pattern and edited later accurately using the automation graphic editor. (see chapter 5.4.5).

Right click on a parameter knob to edit the corresponding automation. You can also choose to momentarily disable a Motion parameter in this way.

5.2.7.3 Select Button

The Select button allows you to easily select an instrument. Just clickor press[Select] and then on the instrument pad of your choice to specifically select the corresponding instrument.

This function was designed to quickly select an instrument when using the Spark controller.

The Select button is also used to access many other secondary functions of buttons and knobs.

5.2.7.4 1-8 / 9-16 Button

The main panel interface shows 8 instrument pads while a kit contains 16 instruments.

To navigate to the next set of 8 instruments, click on this button.

5.2.7.5 Mute button

This button allows you to bypass the audio sound of a specific instrument. Click on the Mute button and then choose the instrument you wish to mute. You will no longer hear that instrument when playing your pattern. When in mute mode, you can select multiple instruments to mute them together.

5.2.7.6 Solo button

The Solo button mutes the other instruments besides the one(s) selected. Click on the Solo button and then choose the instrument you wish to solo. You will only hear that instrument when playing your pattern. When in solo mode, you can select multiple instruments in order to solo them together.

5.2.7.7 Filter/Mixer parameters

A specific filter is applied to each instrument of a kit. The filter type can be changed in the Studio Edit instrument view. (See next chapter 5.3.1 The Studio).

To change the filter and/or the mixer parameters, first select an instrument and simply click on one of the filter or mixer parameter knobs and while maintaining your click, move your mouse up or down to change the parameter. The Digital display window in the center of the main panel shows you the changes applied to the selected parameter in real time.

These motion parameters can be recorded as automations into the pattern and edited later accurately using the automation graphic editor. (See chapter 5.4.5).

Right-click on a Filter or Mixer knob to edit or disable its Motion.

- Cutoff: Set Filter cutoff on current instrument
- Resonance: Set Filter resonance on current instrument.
- Aux1/Aux2: Set Aux1 or Aux2 amount on current instrument.
- Pan: Set amount of Pan on current Instrument
- Volume: Set the volume on current Instrument

5.3 THE BOTTOM PANEL (OVERVIEW)

The Bottom panel features the Studio, the Mixer and the Library.

To access the Bottom panel from the Main panel, go to the toolbar and click on "Bottom".

Right click on the picture to change the background. A pop-up menu will let you choose between:

No background

Classic drums

Electronic drums

Physical drums

Electro box

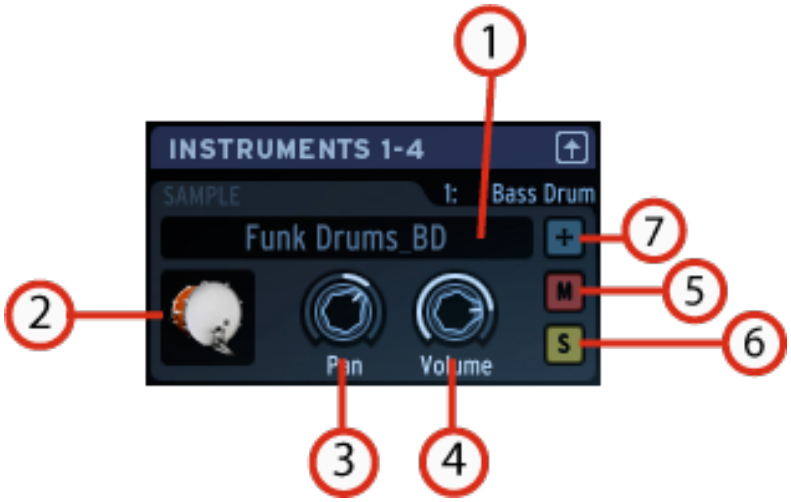
5.3.1 The Studio[4]

The studio panel displays all your instruments as well as their parameters.

From here you can load instruments into slots, apply filters and effects, etc.

The picture above shows the 1-8 instrument view.

Let's look at the Bass drum window:



1.	Load a new instrument To load a new instrument, click on the down arrow. A drop-down menu will appear listing all the instruments available in Spark. They are organized by type (16) from Bass Drum to Synth, and each type has 3 categories (Analog, Physical Model or Sample). Choose a new instrument in the list and click on its name.
2.	Instrument icon Clicking on this icon will trigger the instrument's sound. You may drag the icon to another instrument icon to make a swap operation or hold Ctrl and

4 Not available in the Hardware version of SPARK.

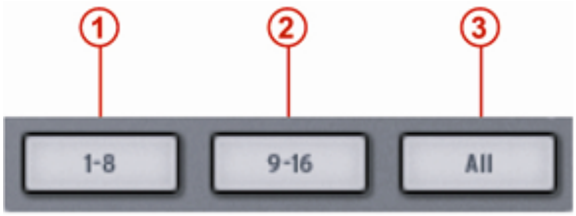
	drag it to another instrument icon to make a copy.
3.	Set Pan Click and maintain click to set panning. A small window appears next to the knob to let you know the amount and direction of pan applied. Click right to edit or disable pan motion.
4.	Set volume Click and maintain click to set volume. A small window appears next to the knob to let you know the amount and direction of volume applied. Click right to edit or disable volume motion.
5.	Mute an instrument The Mute button on the center panel will flash to indicate that a Mute has been set from another panel (studio, mixer or sequencer).
6.	Set solo on an instrument The solo button on the center panel will flash to indicate that a solo has been set from another panel (studio, mixer or sequencer).
7.	Edit mode button Click on the Edit mode button to enter the instrument edit Mode.

5.3.1.1 Instrument Edit Window

1	Change instrument type. You may also drag and drop an audio file here (and also directly onto an instrument pad). *When dragging and dropping onto pads: if the current instrument is sample based it will replace the previous sample with the new one. If the current instrument is not sample based, a menu will appear asking if you'd like to change the instrument type.*
2	Rename instrument.
3	Turn Mute on (M) / Turn solo on (S) / Set choke group. *A 'Choke Group' lets you specify instruments that will cut each other off when triggered. In the edit instrument view, select the choke group for each instrument. The choke group combo is near the solo button. You can set up 8 choke groups.*
4	Set pan.
5	Set volume.
6	Change filter type on instrument.
7	Cutoff filter knob.
8	Resonance filter knob.
9 	Sample layer display for each layer - Numbered 1 to 6 (For Sample type instruments only)
10 	Load new sample.
11 	Set reverse mode on sample.
12 	Unload a sample.
13 	Layer display window. Drag and drop audio file here to change the layer's sample. Choose the layering mode from Velocity, Stack, Random or Circular**.**

14	Layer tool.
15	Gain knob for sample.
16	Change Center panel knob assignment.
17	Change value for parameter 1 (out of 6 total) of edited instrument.
18	Play edited instrument.
19	Link button: links layers together so that gain, reverse, start and end points are the same on all layers. To edit these parameters individually on each layer, Link should be off.

5.3.1.2 *Studio Buttons*



1.	Display Instruments 1 to 8
2.	Display Instruments 9 to 16
3.	Display all instruments / Hide Instrument view

Click on the 1-8 button to display the first eight Instruments.

If you want to see all of your instruments displayed at once, click on "All".

5.3.2 The Mixer[6]

Click on "Mixer" to display the Mixer panel

This panel is your 16 channel mixer panel. This is where all your instruments will be mixed together. Here, the modified signals will be summed to produce the combined output signals.

Each track is numbered from 1 to 16 at the top of the window. To the right of the mixer window are Return1 – Return 2 and finally the Master track.

Let's take a close look at the Mixer.

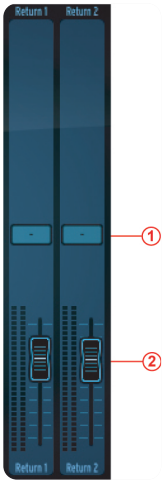
5.3.2.1 The Instrument tracks

6 Not available in the Hardware version of SPARK.

1	Assign an output for instrument 1 (available when Spark is inserted into a host sequencer with Multi-output Mode. See chapter 6.2 Plug-in mode for more details).
2	Set Aux1 amount for instrument/Channel 1
3	Set Aux1 amount for instrument/Channel 1
4	Set Pan for instrument/Channel 1
5	Open FX1 window for instrument/Channel 1
6	Open FX2 window for instrument/Channel 1
7	Set Solo/Mute for instrument/Channel 1
8	Change volume for instrument/Channel 1
9	Instrument name

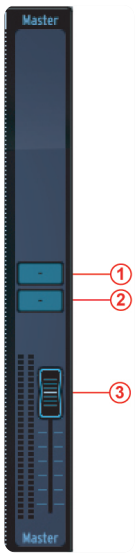
To select a track click on the bottom of the track, on the instrument's name.

5.3.2.2 The Return 1 and 2 tracks



1	Open AUX FX window
2	Set volume for AUX return

5.3.2.3 The Master track



1	Open Master insert 1 FX window
2	Open Master insert 2 FX window
3	Set Master volume

5.3.2.4 The Effects

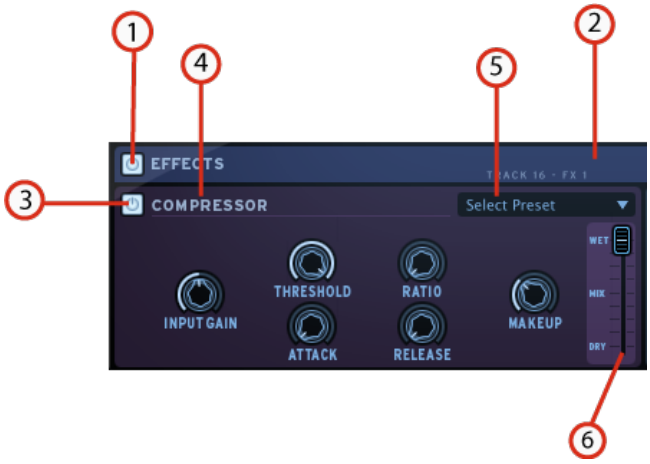
When you click on one of the Aux FX buttons, a scroll up window will appear: this is the AUX FX window.

To select an effect, click on [SELECT EFFECT].

Choose one from the list, for example Compressor. The compressor window appears.

You can now set the parameters for the Compressor FX.

FX parameters



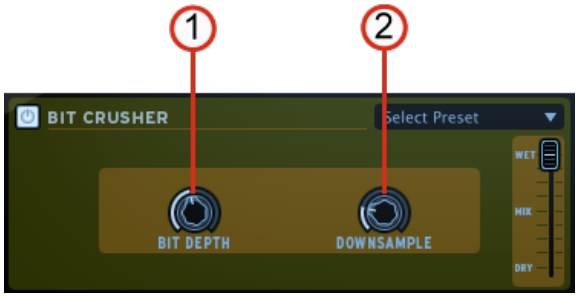
1	Bypass all effects
2	Close FX window
3	Bypass FX1/FX2 for one instrument /channel-Aux-Master insert
4	Change/Remove FX (Inst./Channel, Aux or Master insert)
5	Load a factory FX preset
6	Set Dry/Wet mix (Inst./Channel, Aux or Master insert)

Compressor parameters

1	Change Input gain
2	Change Threshold
3	Change Attack
4	Change Ratio
5	Change Release
6	Change Makeup

A compressor evens out differences in gain by reducing dynamics (difference in volume between quiet sounds and loud sounds). This effect is often used to 'fatten' a sound by making every individual element of the sound closer to the same volume. Every time a sound goes over a certain volume (Threshold), it is reduced by a specified amount (Ratio). Attack and Release determine how quickly the reduction is added and how quickly it disappears. Makeup boosts the compressed signal's level.

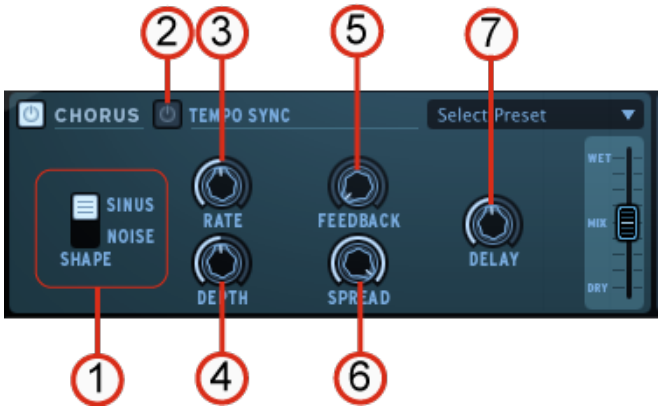
Bit Crusher parameters



1	Change Bit depth
2	Change Downsample

A bit crusher reduces the bit depth and sample rate of the audio signal. The result is a very digital sounding distortion.

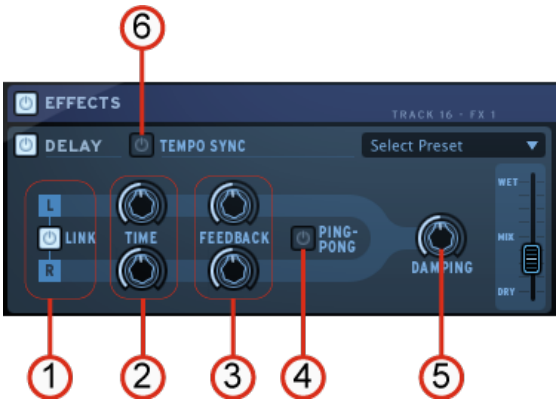
Chorus parameters



1	Change Shape
2	Set Tempo sync on/off
3	Change Rate
4	Change Depth
5	Change Feedback
6	Change Spread
7	Change Delay

Chorus is a classic effect that uses small delay times (that are modulated by an LFO) to double a sound, making it seem fatter and thicker. Shape, rate and depth refer to the LFO. Delay is the delay time and feedback is the amount of delayed signal added back to the dry signal. Both of these parameters emphasize the effect when increased. Spread refers to the width of the sound in the stereo field.

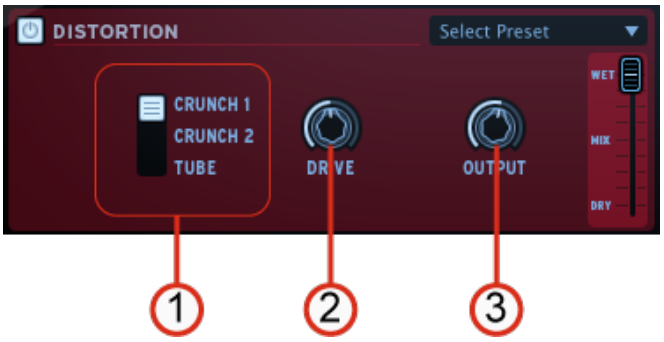
Delay parameters



1	Delay output (Link/Unlink). Apply (Disable) same values for right and left
2	Set time for left and/or right channel
3	Set Feedback for left/right channel
4	Set ping-pong mode on/off (Can be turned on only if "Link" is off.)
5	Set Damping value
6	Set tempo sync on/off

A delay repeats a sound, giving it more space and depth. Linking channels applies the left channel's delay time and feedback to the right channel. For separate parameters on both channels Link should be deactivated. Ping Pong alternates the delayed signal between the left and right channel (for an increased stereo effect), and dampening reduces high frequencies by adding a Lowpass filter to the feedback chain.

Distortion parameters



1	Change Distortion type
2	Change Drive amount
3	Change Output gain

A distortion saturates and distorts a sound by increasing the volume of a signal then clipping the excess. This effect can add strength, high-end and be volume to a sound.

Parametric EQ parameters

1	Change Low gain
2	Change Low frequency
3	Change Middle frequency
4	Change Middle gain
5	Change Middle band frequency width
6	Change High frequency
7	Change High gain

Parametric EQ allows one to boost or reduce the volume of frequency bands. FREQ selects the frequency and GAIN allows one to remove or add volume to that band. Width (MID only) determines the width of the middle band around the specified FREQ.

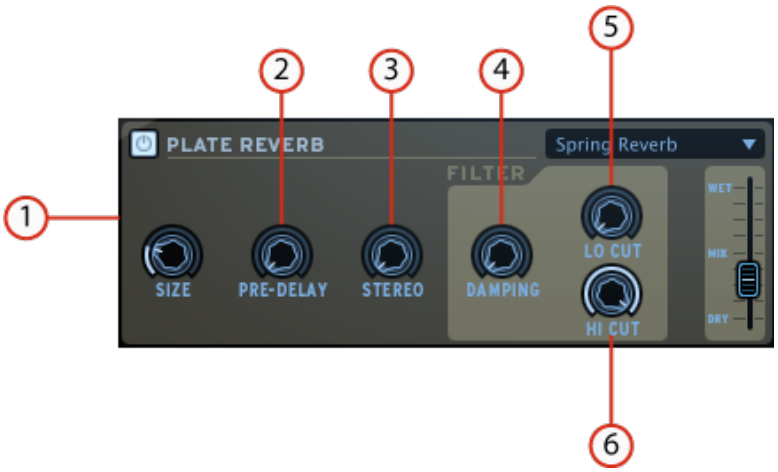
Phaser parameters

1	Change Tempo sync on/off
2	Change Rate on stage 1 and/or stage 2

3	Change Feedback on stage 1 and/or stage 2
4	Change Depth on stage 1 and/or stage 2
5	Change Shape on stage 1 and/or stage 2
6	Set Dual mode on/off

A phaser is similar to a chorus effect, in that it uses small delay times to affect a signal, the result is a sweeping comb-filter sound.

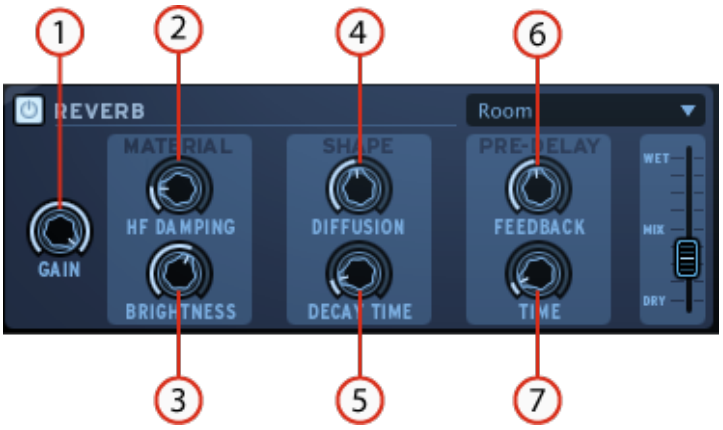
Plate Reverb parameters



1	Change Reverb size
2	Change Pre-delay size
3	Change Stereo value
4	Change Reverb filter damping
5	Change Low cut frequency filter
6	Change High cut frequency filter

A reverb emulates the reflections of a sound in a different space (room, hall, etc). Reverb adds depth and richness to a sound by 'placing' it in a separate physical space. The size knob changes the size of the space. Predelay adds a small amount of delay to the sound to imitate early reflections. Stereo refers to the width of the stereo field of the reverb. Dampening sets how much the reverb should be filtered using the Lo and Hi Cut filter settings.

Reverb parameters



1	Change gain
2	Change High frequency damping
3	Change Brightness
4	Change Diffusion
5	Change Decay time
6	Change Pre-delay Feedback
7	Change Pre-delay Time

A reverb emulates the reflections of a sound in a different space (room, hall, etc). The material section (HF Dampening and brightness) sets the timber for the reverb (dark or bright sounding). The shape section (Diffusion and Decay time) sets the size and duration of the reverb. The pre-delay section (Feedback and Delay) adds a small delay to the reverb to emulate early reflections.

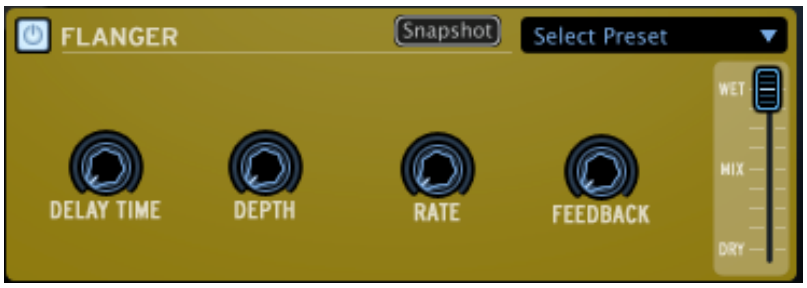
Destroyer parameters

1	Clipping
2	Harmonic Distortion
3	Bit Reducer

4	Resampler
5	Tone
6	Gain

A Destroyer is an digitalizer effect which produces a distortion by the reduction of the resolution or bandwidth of digital audio data. The resulting bit reduction may produce a "warmer" sound impression, or a harsh one, depending on the amount of bit reducter and resampler. Harmonic distortion adds overtones that are whole number multiples of a sound wave's frequencies.

Flanger parameters



1	Delay Time
2	Depth
3	Rate
4	Feedback

Flanging effect by mixing two identical signals together, with one signal delayed by a small and gradually changing period. Varying the time delay causes these to sweep up and down the frequency spectrum. The delay time between signals is modulated: Flanging can create both subtle and extreme effects, depending on the rate and depth of the modulation. High values for Feedback will create repeated echoes.

Space Pan parameters

1	Pan
2	Motion

Space panning is the spread of a sound signal into a new 3D sound field. The sound will be set at a position or automatically (Pan set to 0) and the position will be modulated with the motion parameter. Space pan must be used on stereo sounds.

Sub Generator parameters

1	Type
2	Release
3	Threshold
4	Tune

Sub Generator adds low frequency to your signal. Sub Oscillator adds a decaying boom. Subgrunge and Subgrunge -1 Oct have a similar effect to compress low frequencies. Subgrunge -1 Oct works at an octave below like an octave pedal guitar. Vintage Sub-Harm adds a smooth sub-octave using the release time parameter. Tune is the maximum boosted frequency, at low value it helps

reducing distortion. Threshold is used to gate the low frequency effect and stop unwanted background rumbling.

Sub Generator parameters

1	Threshold
2	Knee
3	Attack
4	Release
5	Gain

A Limiter is a compressor with a high ratio and a fast attack time. A limiter reduces the level of an audio signal if its amplitude exceeds a certain threshold. Attack and Release determine how quickly the reduction is added and how quickly it disappears. Hard of Soft Knee controls whether the bend in the response curve is a sharp angle or has a rounded edge. A soft knee reduces the audible change from uncompressed to compressed.

5.3.3 The Library

Click on "Library" to display the Library panel.

The library is divided into 2 main windows: the library window and the current project window.

5.3.3.1 *The Library Window*

1	Display Factory project only (Click to select)
2	Display User project only (Click to select)
3	Import a project to the Library
4	Make a new project
5	Delete a project from the Library (Only user projects can be deleted)
6	Display Kit/Instruments information for one project in Library. Double click on kit to Load it.
7	Load a Bank (A,B,C or D) from the Library to the corresponding one in the Current project
8	Load a Pattern (1 to 16) from the Library to the corresponding pattern in the Current project
9	Load a kit from the Library to the current project
10	Load an instrument from the Library to the corresponding selected instrument in the Current project
11	Enter "Edit current project" mode
12	Select a project in the coverflow.

5.3.3.2 The Current Project window

1	Import a MIDI file or a REX file in current pattern
2	Export current project as .spk file (SPARK) or export current pattern as MIDI or AUDIO file. Set Export mode to midi or Audio.
3	Save current project
4	Save current project to new project
5	Exit current project edit mode (takes you back to the "Coverflow" dynamic Project menu).
6	Change image for current project
7	Change the style of the current project
8	Change author name
9	Bank list of the current project
10	Pattern list of the current project
11	Loaded instruments of the current project

5.3.3.3 Creating a new project

To create a new project, click on the "New Project" button in the library window.

5.3.3.4 How to load Kits and Instruments

To load a Factory or user project in your current project, double click on an instrument kit in the Library/Project window. This will load the entire kit to your current project.

To load one or several instruments from a kit, go to the Library/Instruments window.

Double click on an instrument to load it to your project. When double clicking on an instrument, it is placed in the selected instrument slot in the Loaded Instruments window in the current project window. To select a slot, click on the instrument number in the Loaded Instruments window.

An easier way is to "Drag and Drop" an instrument from the "Instruments" window to any slot in the Loaded Instruments window.

You do not need to select an instrument slot when doing it this way.

5.3.3.5 How to load Banks and Patterns

In the same way, you can load a bank or a pattern from the library to the same bank or same pattern number in your current project by double clicking on it.

If you want to load Bank A from the Library to Bank D of your current project, drag and drop Bank A on to Bank D.

To load pattern A1 to pattern C3 of your current project, simply drag and drop A1 to C3. Pattern C3 will light up to confirm your selection.

5.3.3.6 Importing and Exporting a project

To import a project click on the "Import" button in the current project window. A menu lets you choose between MIDI file and REX file formats.

To export a project click on the "Export" button in the current project window. A menu lets you choose between:

- Exporting as a SPARK project (.spk)
- Exporting selected pattern as a MIDI file (.mid)
- Exporting selected pattern as an AUDIO file (.wav)
- Set the drag export mode preference to midi
- Set the drag export mode preference to audio

It is also possible to export a bank or pattern as a MIDI or WAV file (option to be set clicking on the export button or in the Preferences Panel) by simply dragging and dropping. To do this click on the bank or pattern you wish to export. Hold your click and drag the element to the place of your choice on your computer (desktop or host sequencer for example). If you dragged a Pattern, a single MIDI or WAV file will appear. If you dragged a bank, 16 separate MIDI files or one WAV file (corresponding to the 16 patterns of the Bank) will be created. In case of a pattern Audio export you need to hold your click until rendering is completed, otherwise your render will be cancelled. Alternatively you can right-click on the pattern and select render option. An icon will be added at the end of pattern name to show that the pattern has been rendered. In case of a bank Audio export you need to right click on the bank and select Render Audio option. The drag option is disabled for a bank as the rendering takes a long time.

You can personalize the cover image of your project:

Click on "Change image" next to the current cover image. Choose a picture in your own picture library and click on "Open" to replace it.

5.3.3.7 Saving a project

To save your project, click on the "Save as" button.

A drop down menu will appear. Chose "Save as…" in the current project window. Give a name to your project and choose a style from the drop down menu. Click "OK". Your project is now saved.

If you make changes to a project you already saved just click on the button "Save".

5.3.3.8 Changing kit name

To change the name of your kit, double-click on the kit name in the upper left part of the current project window and rename it. Don't forget to save your project.

5.4 THE TOP PANEL

5.4.1 Overview

The top panel features the Pattern panel and the Song panel as well as SPARK preferences menu.

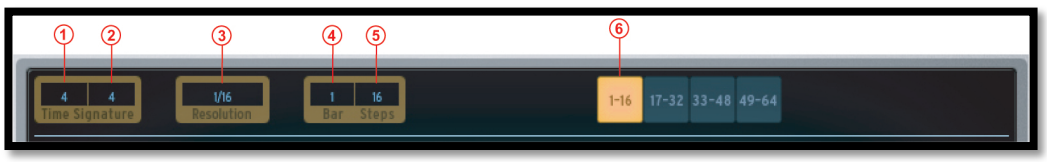
When you click on the "TOP" button in the toolbar the pattern window opens by default.

At the bottom of the panel you will find the Pattern Panel button, the Song panel button as well as the Preferences button.

5.4.2 The Pattern Panel

The Pattern panel features SPARK's sequencer. It is both a composing tool as well as a powerful editing tool.

5.4.3 The Toolbar



1	Change upper part
2	Change lower part
3	Change step resolution

4	Change number of bars
5	Change number of steps
6	Click to display patterns 1 to 16

The time signature is a notational convention used in musical notation to specify how many beats are in each measure and which note value constitutes one beat.

Time signatures consist of two numerals, one stacked above the other: the lower numeral indicates the note value that represents one beat (the "beat unit").

The upper numeral indicates how many such beats there are in a bar.

For instance, 4/4 means four quarter-note (quarter note) beats; 3/8 means three eighth-note (quaver) beats, etc.

1. Click to change the upper part of the time signature of the current pattern. This defines the number of notes (units) in one bar: Setting the signature to 4/4 means that there 4 quarter notes in a bar, if signature is 3/4 (waltz) it means there are 3 quarter notes in a bar.

2. Click to change the lower part of the time signature of the current pattern. This defines the note value (unit): 1=whole - 2=half note - 4=quarter note - 8=eighth note.

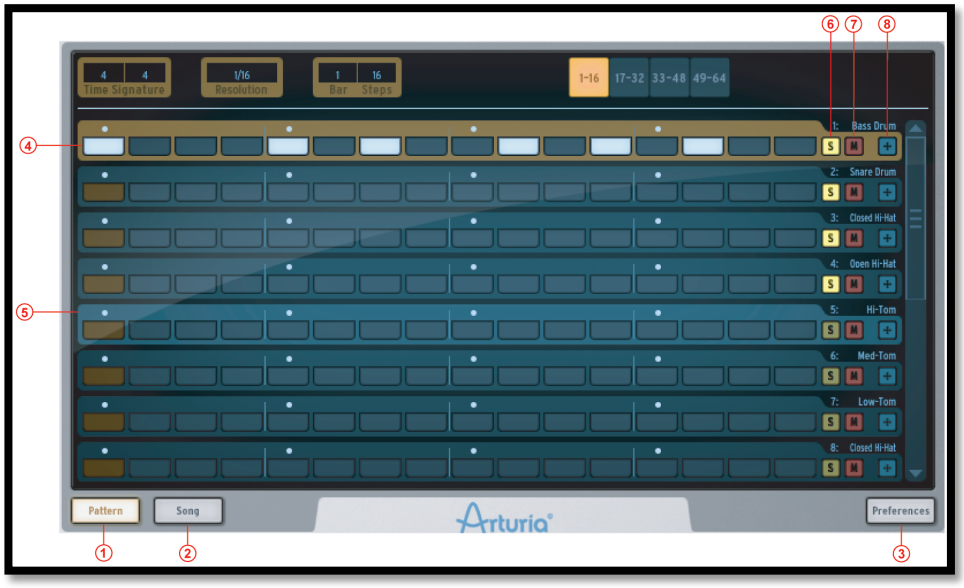
3. Click to change the Step resolution. The step resolution is the value of one step: 1/16=sixteenth note - 1/8=eighth note - 1/4=a quarter note, etc. A pattern has from 1 to a maximum of 64 steps.

4. Click to change the number of bars in the current pattern.

5. Click to change the total number of steps in the current pattern. The number of steps is automatically calculated by Spark using the step resolution, the number of bars in the pattern, and the time signature. But you can adjust it if you want to work with your own bar calculation.

6. Click to display Step 1 to 16 in the current pattern.

5.4.4 The Sequencer



The Pattern panel shows 8 instrument tracks out of the 16 available. To see the next 8 tracks, use the scroll bar.

The picture above shows the pattern panel with a time signature of 4/4, hence 1 bar of 4 quarter notes (each quarter note subdivided into 4 1/16 note steps)- which adds up to 16 1/16 note steps.

1	Click to display the Pattern panel
2	Click to display the Song panel
3	Click to display the preferences panel
4	Set Step on/off on one track in the current pattern
5	Select a track in the current pattern. (Hover above the track until it lights up, then click).
6	Set Solo on/off on one sequencer track in the current pattern. (The solo button in the center panel will flash to indicate that a solo has been set from another panel (studio, mixer or sequencer)).
7	Set Mute on/off on one sequencer track in the current pattern. (The Mute button in the center panel will flash to indicate that a mute has been set from another panel (studio, mixer or sequencer)).
8	Click to open or close the Automation editor for one track in the current pattern.

5.4.4.1 How to select a track

To select a track, move your cursor over the track. When the track lights up, click to select.

5.4.4.2 How to copy or swap tracks

To copy a track, move your cursor over the track. When the track lights up, click [Option/alt] on Mac / [Ctrl] on Windows, then click and drag the track onto another one.

To swap tracks, just drag a track onto another one.

5.4.4.3 How to copy or swap Step parts

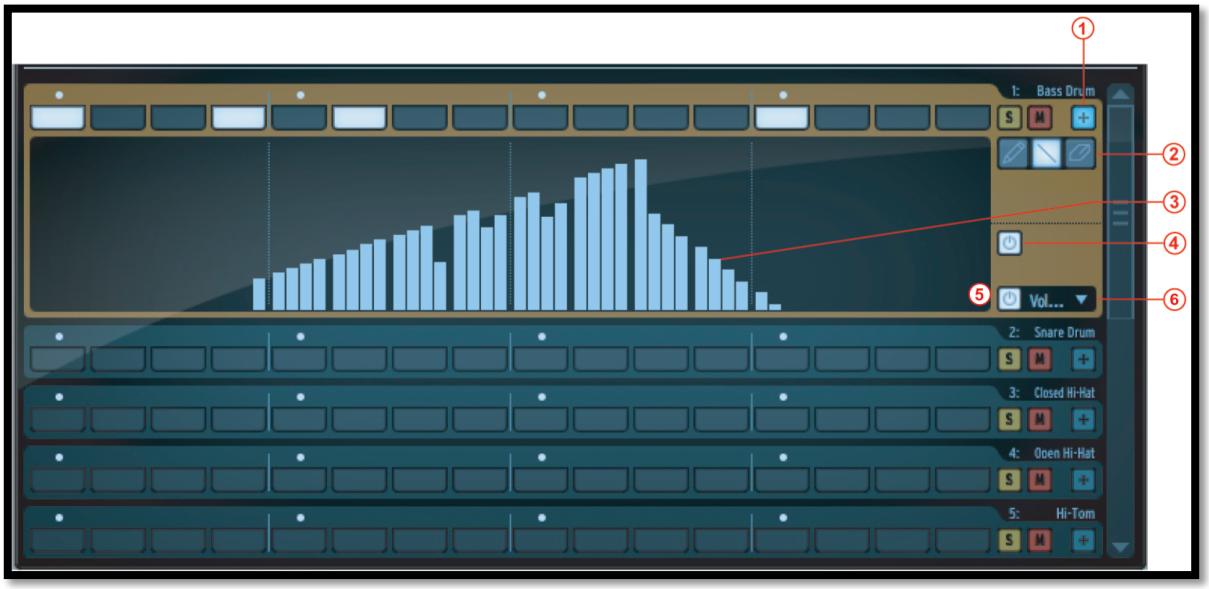
To copy step parts click on a step part button while holding [Option/Alt] on Mac / [Ctrl] on Windows and drag it onto another one.

To swap step parts, click on a step part and drag it onto another one.

5.4.4.4 How to export a track to a MIDI file

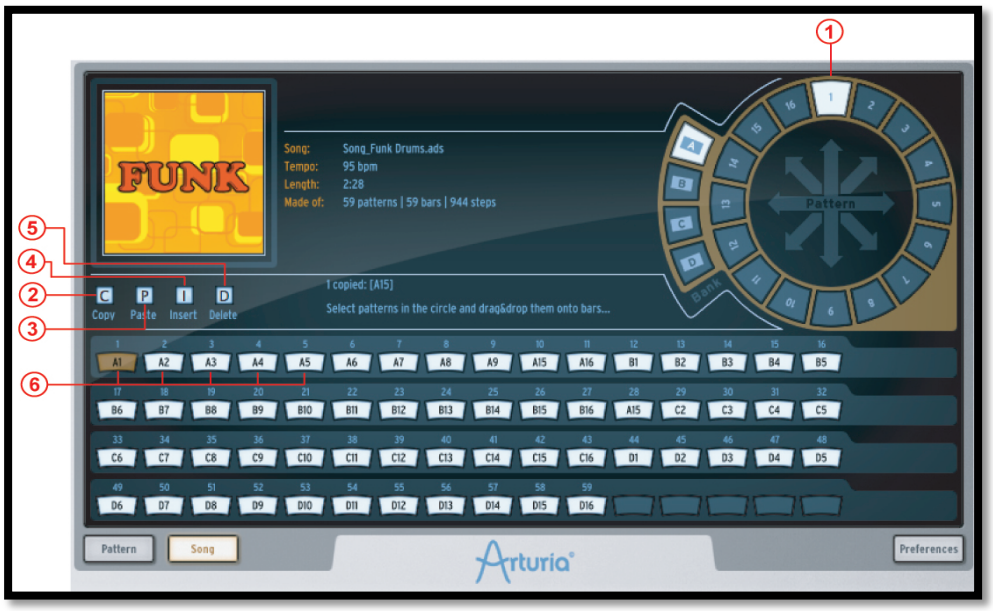
To export a track as a MIDI file, drag the track outside Spark window to a system explorer window or to your host window.

5.4.5 The Automation editor



1	Click to display the automation value of a single parameter in the current pattern.
2	Pen tool – Line tool – Eraser tool
3	Click and drag to draw automation on a single parameter using the pen or line tool or erase drawing. Except for velocity, repeat and shift parameters, you can use up to 4 sub-values per single step. Use Cmd on mac and Ctrl on windows to erase or move the four automation sub-values of a single step note together
4	Disable/Enable all automations in the current pattern.
5	Disable/Enable one single automation in the current pattern.
6	Click to trigger drop down menu of parameters on to which automations may be applied.

5.4.6 The Song Panel



The song panel allows you to chain all your patterns to create a Song.

As we have seen before, a song is an editable ordered sequence of several patterns that defines the structure of your song.

SPARK allows songs made of 64 patterns maximum.

The Song panel will allow you to organize your patterns in sequences to make your song.

1	Click and drag a pattern from one bank into a song slot.
2	Select song slot and click "copy" button [C] to copy into SPARK clipboard.
3	Click on destination slot then click on paste [P]. If you have copied 3 slots, the 3 slots located at your paste location will be replaced.
4	If bars are copied into clipboard, click on a slot where you want to insert selection and click [Insert]
5	Once slots are selected you can click on [Delete] to delete them. This will shift back all the slots that were located after the last deleted bar.
6	Song slots are numbered from 1 to 64. Click to select.

5.4.7 The Song slots

The Song plays chained patterns from the first one to the 64th.

The song is organized in 64 slots; each slot can receive a pattern. But your song can be any number of patterns with a maximum of 64.

5.4.7.1 How to copy patterns to song slots.

To copy a pattern to a song slot, click on a pattern in the pattern wheel and drag it to a song slot.

5.4.7.2 How to move and paste/insert slots

You can select a slot or a group of slots and paste or insert them in another location.

To do so, once the slot (or group of slots) has been selected, drag the selection and drop it onto another slot: If your mouse pointer is on the first half of a bar this will insert the dragged pattern at the location. If your mouse pointer is in the last half of a bar, it will be pasted and will replace bars at location

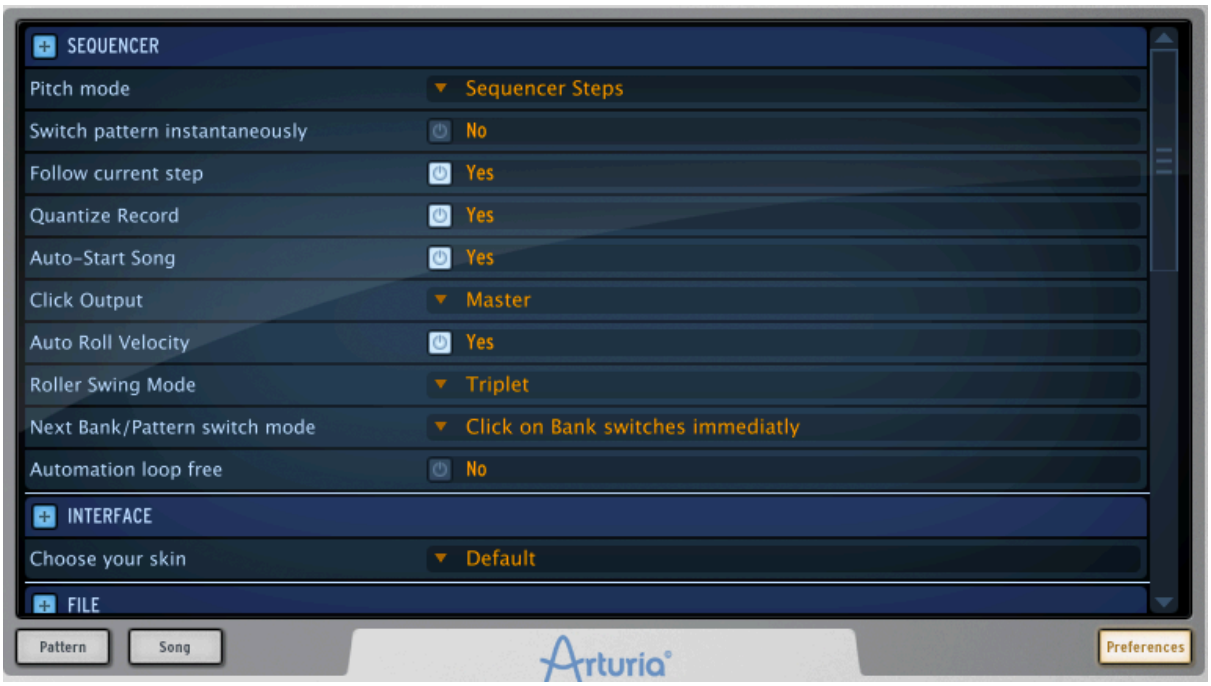
5.4.7.3 How to set song playing position

Double click on a slot to set the song playing position.

5.4.7.4 How to select several slots

To select several song slots, just click on a slot and drag your cursor over the neighboring slots.

5.4.8 Preferences Button



The preferences are divided into:

- Sequencer
- Interface
- File
- Jog dial
- MIDI Import/Export
- Controller

5.4.8.1 Sequencer and interface preferences

Pitch Mode: Choose Step sequencer pads or Instrument Pads to trigger notes on the current instrument when Pitch mode is active.

Switch pattern instantaneously: If set to "Yes", a new pattern will play instantaneously when it is selected. If set to "No", it will be played when the current pattern is finished playing.

Follow current step: When set to "Yes", and when on Sequencer panel, the step pads on the center panel will automatically display the step part that contains the current played step.

Quantize record: When set to "Yes", all pads playing as well as any recordings will be quantized.

Auto-start song: When on, clicking on the Song button in the center panel will open the song panel and start playing the song automatically.

Click Output: Selects output for metronome click.

Roller Swing Mode: Let you choose between swing notes or triplet notes when using Roller first raw note values.

Next Bank/Pattern switch mode: When set to immediately, clicking a different bank will directly play the same pattern number in the new bank. Otherwise, one must first select the new bank, then specify the pattern of this new bank, even if it's the same pattern number as the currently played pattern.

Automation Loop free: When on, the loop will be applied only on notes in the pattern, not on automations.

 Choose your skin: switch Spark backgrounds from default to vintage.

5.4.8.2 File preferences

Save a copy of Audio samples in Library: When importing .wav/.aiff files to Spark, the source file will be copied in the library. You have the choice between:

- Always: always copy files in the library
- Ask: ask the user
- Never: never copy files in the library

Library path: Changes the path to SPARK's library.

5.4.8.3 MIDI Import/Export preferences:

Pattern Drag&Drop export mode in library: When dragging a pattern in the library panel, the pattern will be exported as MIDI file or bounced to .wav file.

Wave export size: When saving a pattern as a .wav file, you can choose between exporting the pattern in its initial size, or doubling the size of the pattern. Doubling the size will avoid losing an effect playing beyond the end of the pattern (i.e. a reverb or a delay).

Choose Drum map model for MIDI pattern import: When importing a MIDI pattern, you have the choice to import it as a SPARK, General MIDI or ADDICTIVE Drum map.

Choose MIDI map model for Pads: You can choose an existing mapping for the pads being controlled by an external midi controller. Spark Option is the mapping used by Spark controller, General Midi is a standard midi mapping, and you can define your own mapping using "Custom" Option and assigning midi notes on pads using Cmd-Click on OSX or Ctrl on Windows on pads. This mapping is used for the MIDI bank and pattern export. A default CC assignment for the instrument automations is set. By default the 6 instrument parameters, Pan and Volume are assigned. You can then customize those assignments depending on the automations you've used. Automations are then exported in the midi file.

"Enable default Pad velocity" preference is used to trigger pads with a constant velocity defined with the "Default Pad Velocity" preference. Hit intensity is ignored when this preference is set to "Yes".

Use the Send Midi preferences to select which kind of midi data has to be sent from Spark to your host or from Spark to the selected Output Midi port:

Choose "Send Midi From Pads" for sending midi data from Spark pads, and pattern changes to your host

Choose "Send Midi From Sequencer " for sending midi data coming from Spark's sequencer to your host

Choose "Send Midi Clock out" for sending Spark Midi Clock to a Midi output and synchronize another device or application capable of receiving Midi Clock.

5.4.8.4 Controller Preferences 

Knobs speed sets the reactivity of the knobs in Spark, and can vary between slow, normal and fast.

Set 'Controller Detection' to off, if you want to disable the automatic detection of the hardware at startup, or on if you want to enable it.

6 MODES OF OPERATIONS

6.1 STANDALONE (OVERVIEW)

6.1.1 Launching the standalone application

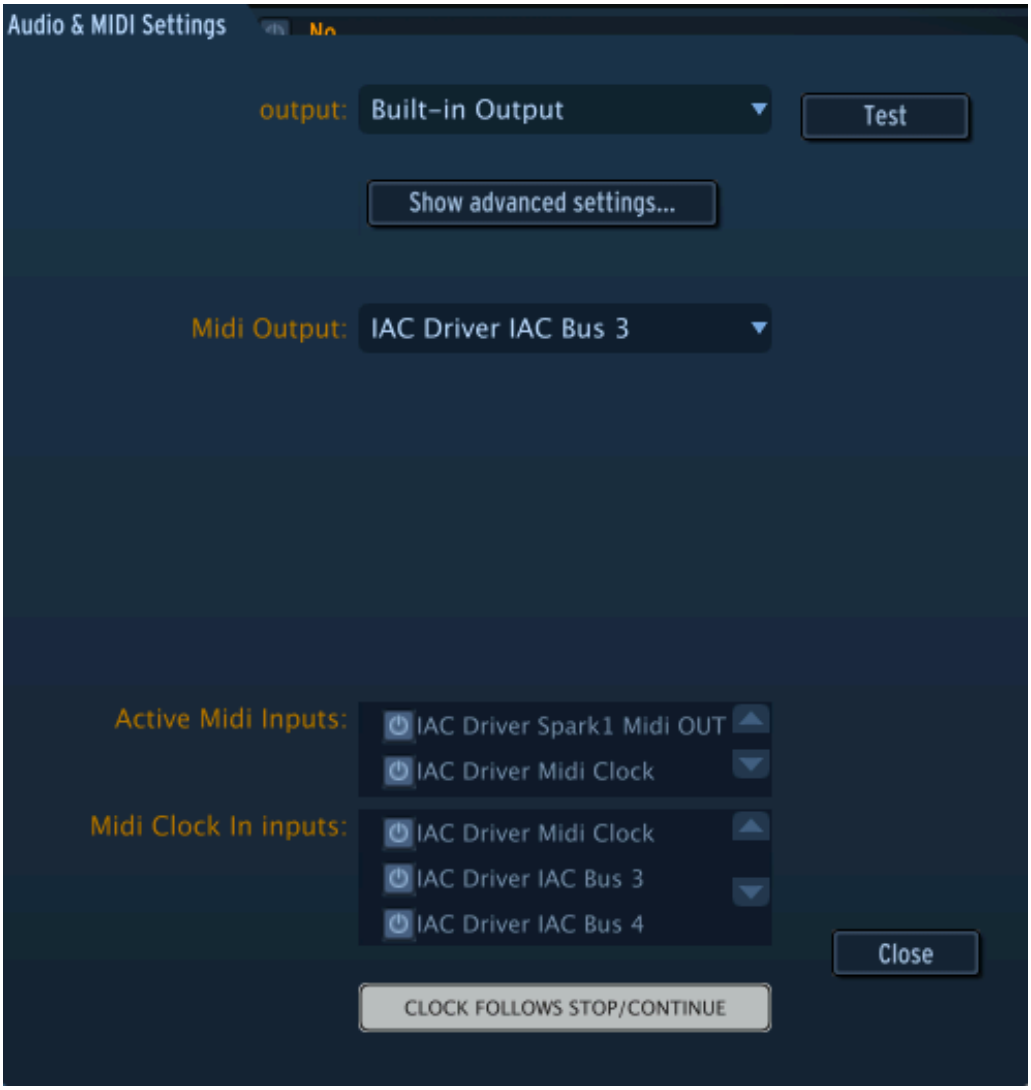
To launch the standalone application:

- On Windows: Start menu > Programs > Arturia > Spark… and choose Spark.
- On Mac OS X: Finder > Applications > Arturia > Spark… and double-click on the Spark application icon.

6.1.2 Preferences configuration – Audio & MIDI settings

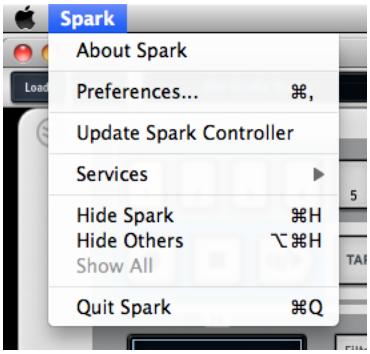
6.1.2.1 Windows

To access the preferences window click on the SPARK menu > Setup > Audio & MIDI Settings. This window allows you to configure the global preferences of SPARK. These are saved automatically.



6.1.2.2 Mac OS X

To access the preferences window click on the SPARK menu > Preferences. The Audio settings window will appear. This window allows you to set the global preferences of SPARK. These are saved automatically.



(Windows) AUDIO DEVICE TYPE	Selects the appropriate driver for your audio device.
(Mac_OS) OUTPUT *(Windows)* DEVICE	Chooses which audio output SPARK will send sound out of. Default is "Built-in Output" on the Mac; for Windows we highly suggest to use an adequate ASIO driver for your sound card.
TEST	Send out a short sine wave tone to help make sure sound is being sent out the correct device.
SAMPLE RATE	Choose the sample rate; default is 44,100 Hz. Increasing the sample rate increases the quality of sound, but adds a bigger load to CPU.
AUDIO BUFFER SIZE	Chooses the audio buffer size, displayed in samples and milliseconds. Default is 512 samples. Decreasing this number lowers latency, but adds more load to CPU. Increasing lessens load on CPU but augments latency (latency is the delay between a note played and actual sound output).
MIDI OUTPUT	Displays the available MIDI outputs that can be used to send Midi data out or Midi Clock out from Spark Sequencer and Pads in Standalone Mode.
MIDI CLOCK SAMPLE OFFSET	Set an offset on internal Spark Midi Clock to compensate audio driver latency errors.
ACTIVE MIDI INPUTS	Displays the available MIDI inputs that can be used to control SPARK.
MIDI CLOCK IN INPUTS	Displays the available MIDI Inputs for receiving Midi Clock to control Spark Sequencer. When a port is used as a Midi clock receiver, it can't be used as Midi Inputs for controlling Spark.
CLOCK FOLLOWS	Sequencer will start and stop playing according to the Start and stop Command received with the Midi clock signal when the

STOP/CONTINUE	preference is on.

6.1.3 Update Spark Controller

To access the Update Spark Controller Menu Item, click on SPARK menu > Update Spark Controller.

When you update Spark Software, your controller firmware may need to be updated as well. Spark will warn you when starting with Spark controller connected. Use this command to update your controller when Spark warns you.

6.2 PLUG-IN MODE

For specific use in VST, Audio Unit and RTAS please refer to 6.3, 6.4 and 6.5 sections.

In order for Spark controller to work correctly with Spark used in plug-in mode, it is necessary to turn off some MIDI connections in your sequencer software. Go to your sequencer's MIDI settings and turn off 'Spark Private In' and 'Spark Private Out'. Without this configuration:

- Spark controller will not connect to Spark on Windows.

- Spark controller will not behave correctly on OSX.

You can use Spark as plugin in stereo or Multi Output Mode. The host will show one stereo output from Spark when used in Stereo Mode. When used in Multi output mode the host will show 16 stereo channels available. You can modify the track output routing in Spark in the mixer panel. Default routing sends all tracks to the master stereo output, the first output. You can assign a track output to another stereo output of the 16 available outputs. See Chapter 5.3.2.1

6.2.1 Toolbar Extra Buttons

When using SPARK in Plug-in mode, the toolbar features 2 additional buttons:

1.	Host button When on, the current Spark pattern will start and stop along with the Host sequencer transport.

2.	Tempo button When on, the current Spark tempo will be set to the host tempo.

6.2.2 Saving project

When the project is saved, SPARK is saved in its last mode of operation, with all modifications intact. For instance, if you are working on a project in which you have modified parameters (without saving this as a separate preset in the plug-in itself), the next time you open the project SPARK will load the project and the modifications as well.

The drop-down menu with the VST sequencer, allowing you to save a new project, is of course usable with SPARK. However, it is highly advised to use the SPARK's internal menu: the presets saved in this way are usable in any other mode (standalone or with another sequencer), and can be exported and exchanged more easily, as well as remain compatible with future SPARK versions.

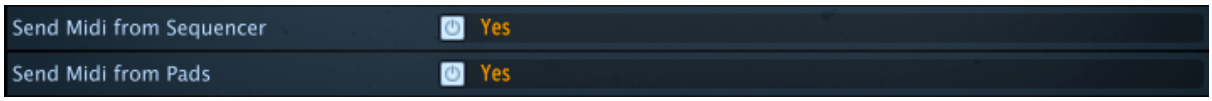
6.2.3 Recording Midi out From Spark Sequencer and Pads into your host

Midi Out from Spark Software sequencer, from pads and from pattern changes can be recorded in a host. All notes coming out from the Spark's patterns can be recorded, additionally to automations.

Use the preferences to select which kind of midi data has to be sent:

Choose "Send Midi From Pads" for sending midi data from Spark pads, and pattern changes to your host

Choose "Send Midi From Sequencer " for sending midi data coming from Spark's sequencer to your host.



6.3 VST

6.3.1 Installation

6.3.1.1 Windows

During installation, select the box "VST" among the proposed format choices of plug-ins. The installer will automatically detect the VST folder of the instruments shared by Cubase or any another compatible VST sequencer.

6.3.1.2 Mac OS X

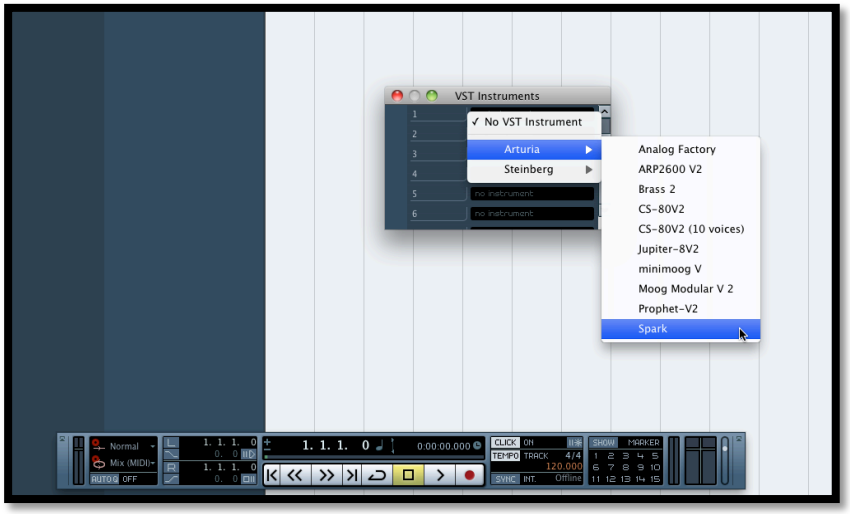
The VST plug-in is automatically installed in the folder of the system corresponding to the VST instruments: **`/Library/Audio/Plug-Ins/VST/`**

The VST plug-in will be usable by all your VST host applications.

6.3.2 Instrument use in VST mode

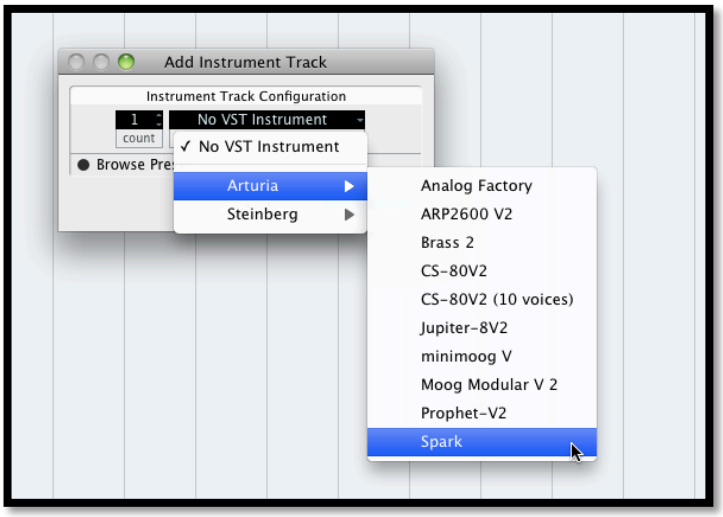
The opening of VST SPARK plug-ins is the same as opening all other VST plug-ins. Please consult the instruction manual of your favorite host sequencer for more specific information.

For instance, under Cubase, open the menu “VST Instruments”, and choose Spark in the rack.



6.3.3 Connection to an instrument track

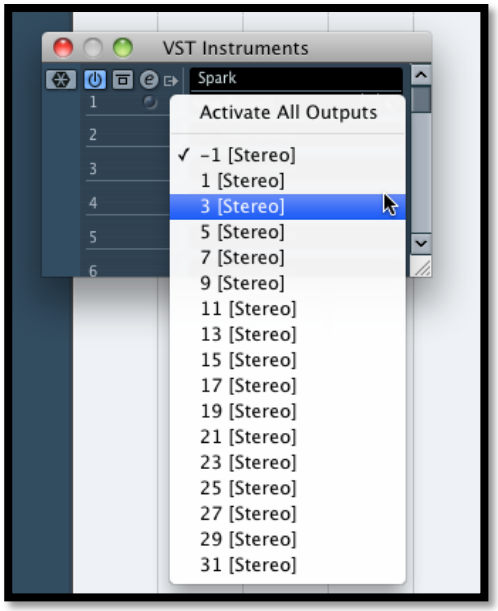
In order for SPARK to play information coming from an Instrument track, you have to choose an Instrument track and select Spark as the output of this track. See the picture below for more detail on how this is accomplished.



The events played on a MIDI keyboard are recorded by your host sequencer, and you can now use the MIDI editing possibilities of the sequencer to control any parameter in SPARK.

6.3.4 Multi Output Mode

Create an instrument using the VST Instrument Menu then click on Spark; then select the output you want to enable by clicking on the button just on the left of the instrument name in this menu.



6.3.5 Recording Midi out from Spark into your VST host

Here's an example of a VST Host configuration for recording Midi out from Spark using LIVE.

- Add Spark VST plugin on a Live track.

- Add a Midi track for recording Midi from Spark

- Configure the new Midi Track (left track on the image):

. Set 'Midi From' to 'Spark' and change 'Pre FX' to 'Spark' in the following combo

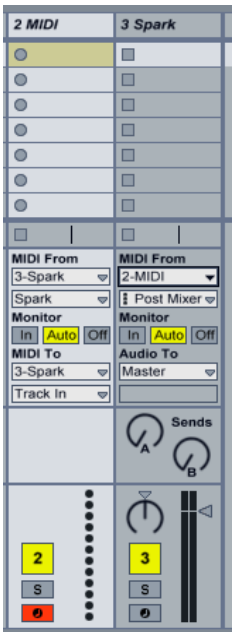
. Set Monitor to 'Auto'

. Arm the session recording

- Configure the Spark Track (right track on the image):

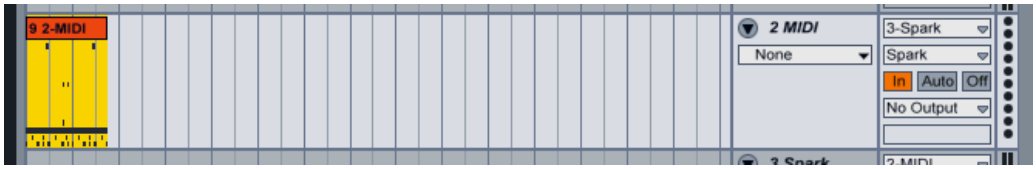
. Set 'Midi From' to the new Midi Track (2 Midi in this example)

. Set Monitor to 'Auto'



Press Record button in Live. Note that Host and Tempo button must be on in Spark software.

Display the Arrangement view (press Tab) in Live and check that you've recorded some midi notes.



Set Monitor to 'in' on the Spark track

Set Spark Host button to off (Pressing Play button in Live will not start Spark sequencer anymore)

Press play in Live from the beginning of your arrangement. You should hear Spark playing notes previously recorded from Spark and now sent by Live.

Note: For Cubase users: use Menu > Devices > VST Instrument to load Spark in order to be able to select Spark as Midi source. Creating a vst instrument Track will not display Spark as Midi source.

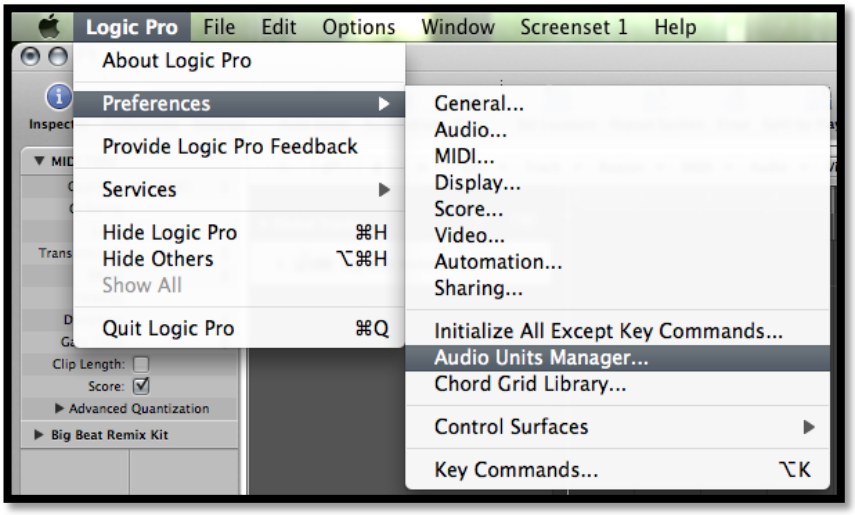
6.4 AUDIO UNIT (MAC OS X ONLY)

6.4.1 Installation

The Audio Unit plug-in is automatically installed and by default in the following folder: **/Library/Audio/Plug-Ins/Components/**

6.4.2 Use in Logic Pro

From version 7 and on, Logic Pro features an Audio Unit plug-in manager. To launch the Audio Unit plug-in manager, click on the menu Preferences > Audio Units Manager.

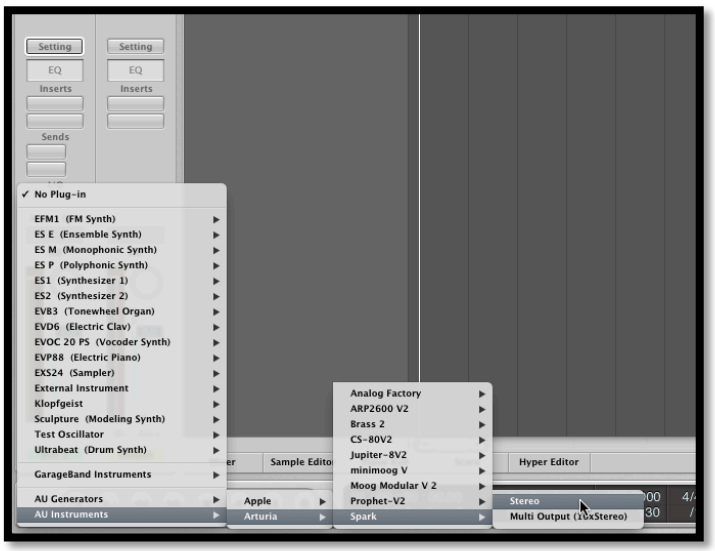


This Manager will show you the list of available plug-ins, test their compatibility with Logic, and then allow you to activate or de-activate them.

If an Arturia plug-in poses problem in Logic, start by checking that this plug-in has passed the compatibility test, and that it is actually selected.

6.4.2.1 Stereo Mode

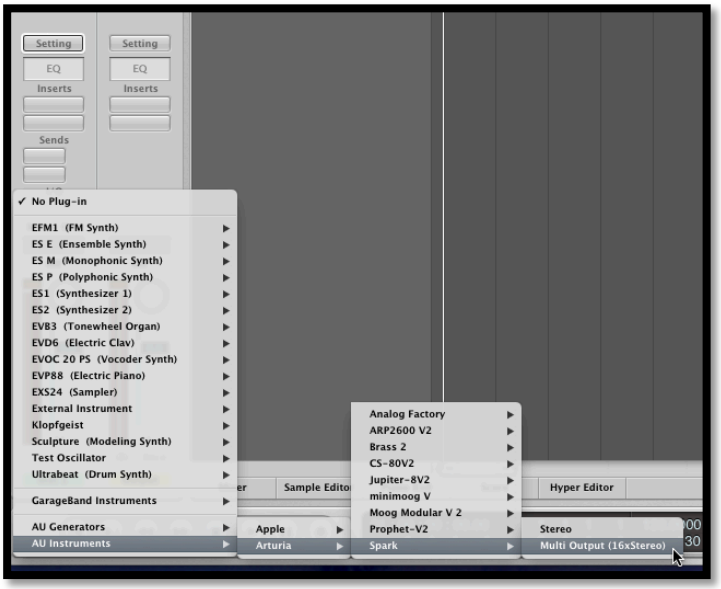
Select an Instrument track. On the mixer portion of the corresponding track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > Spark > Stereo.



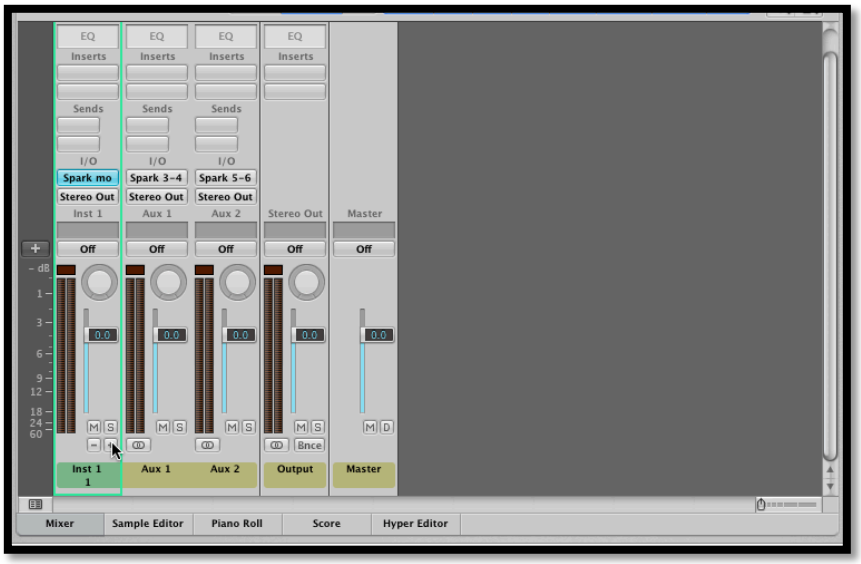
6.4.2.2 Multi Output Mode

To use the separate outputs:

Select an Instrument track. On the portion of the mixer corresponding to the selected track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > Spark > Multi Output (16xStereo).



Then go to the mixer view and click on the "+" button at the bottom of the instrument track to add Aux tracks.



You can choose the output number of each instrument in Spark in the Mixer View. (see chapter 5.3.2.1.

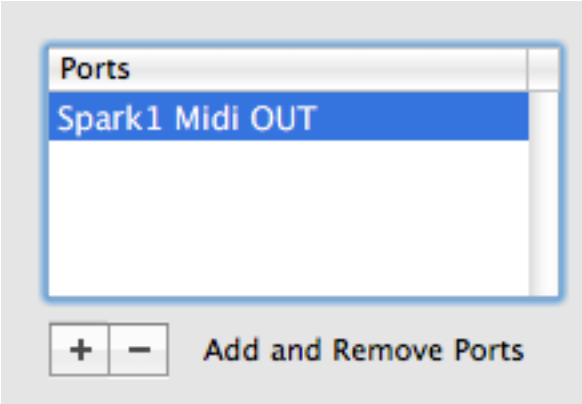
6.4.3 Recording Midi out from Spark into your VST host

For better precision, it's not recommended to use the 2 options concurrently: First record midi from pads turning on the "Send Midi From Pads to Host" option and off the "Send Midi From Sequencer to Host", then record midi from sequencer turning off the "Send Midi From Pads to Host" option and on the "Send Midi From Sequencer to Host".

- Launch 'Audio Midi Setup Application' to configure the IAC Driver that will be used for sending Midi data to the AU host. Double clic on the IAC Driver Icon in the Midi Studio view

- Check 'Device is online'

- Rename firt port to '**Spark1 MIDI OUT**'



- Launch Logic

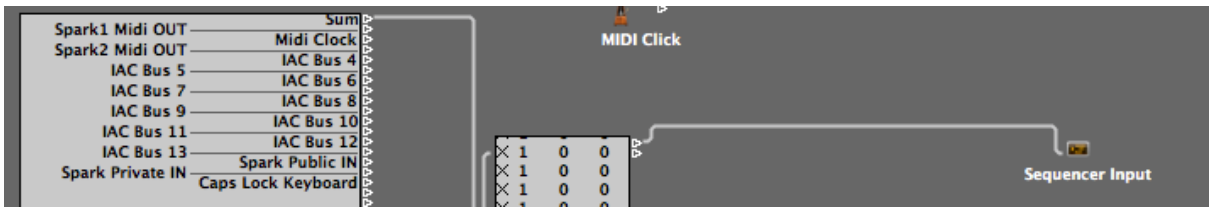
- Create an instrument track and Add Spark AU plugin

- Set Host and Tempo button on into Spark Software

- Open Window > Environment

- Select in the upper left combo 'Click & Ports'

- In the Physical Input box , create a connection from Spark1 MIDI OUT' to Sequencer Input



- Select Spark Track

- Set 'Record' OFF on the Spark track 

- Press record into Logic

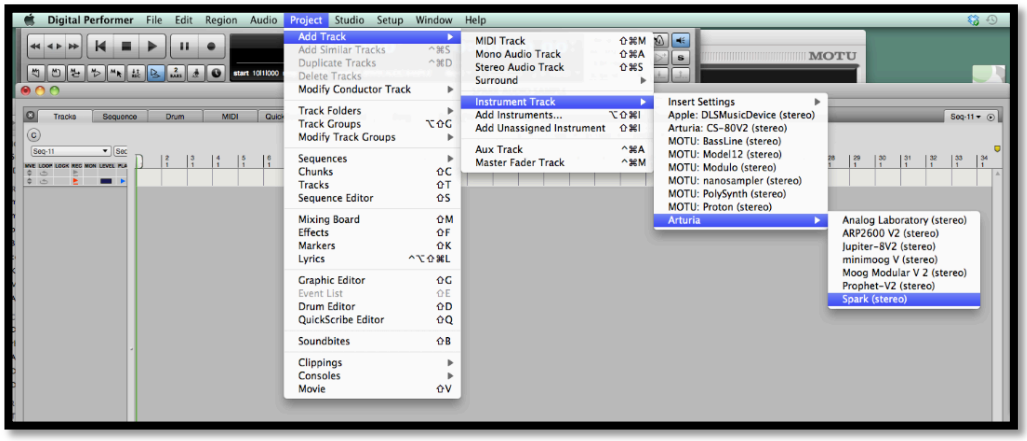
- Set Host button to off into Spark Software

- Play your recorded pattern

6.4.4 Use in Digital Performer

6.4.4.1 Stereo Mode

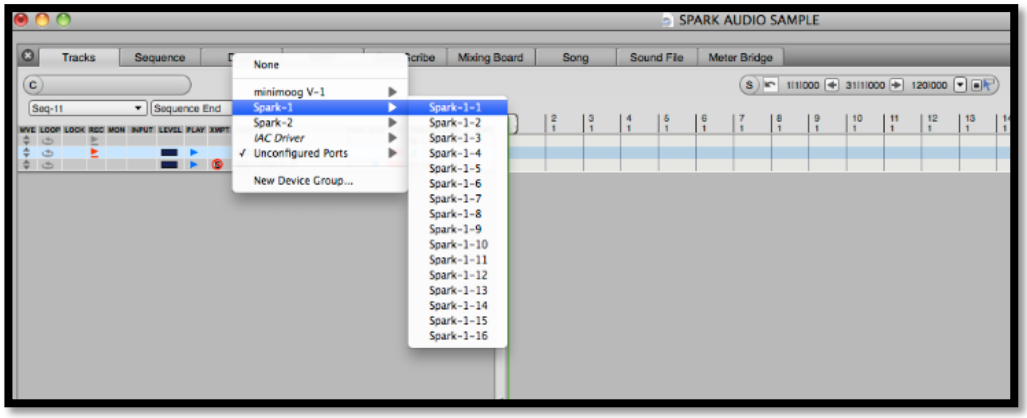
To add an instrument, choose the menu Project > Add Track > Instrument Track > Arturia > Spark (stereo)



Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure you activate the track before starting to play or record.

6.4.4.2 Multi Ouput Mode

To use the separate outputs, create the number of new Audio tracks you want, and then choose the correct OUT of the Spark plugin.



6.4.4.3 Assign Midi Track

Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure you activate the track before starting to play or record.

6.4.5 Stereo Mode and Multi Output Mode

6.4.5.1 Stereo Mode

To add an instrument, choose the menu Project > Add Track > Instrument Track > Arturia > SPARK.

Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure you activate the track before starting to play or record.

6.4.5.2 Multi Output Mode

To use separate outputs: select an Instrument track. Then on the portion of the mixer corresponding to the selected track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > SPARK > Multi Output (16xStereo).

6.5 PRO TOOLS

6.5.1 Installation

In Mac OS X, the plug-in is directly installed in the folder reserved for the ProTools plug-ins in:

`/Library/Application Support/Digidesign/Plug-Ins`

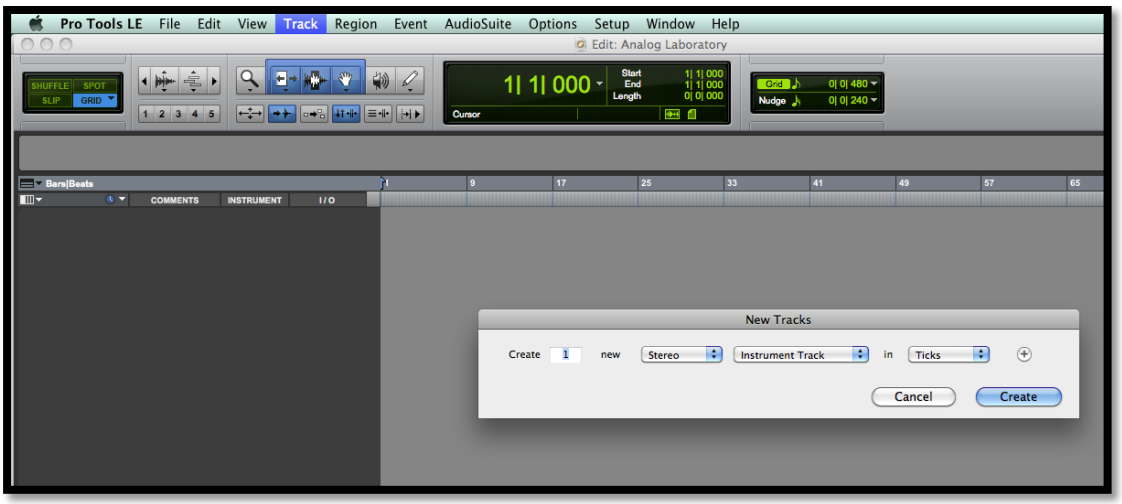
In Windows, at the time of the installation procedure, select the RTAS plug-in among the proposed choices of plug-ins. Then, when the system asks, indicate the folder in which the other RTAS plug-ins are located.

Usually, this path is:

`C:\Program Files\CommonFiles\Digidesign\DAE\Plug-Ins\`

6.5.2 Utilization and opening of the Plug-in

Access to the SPARK plug-in is like all other plug-ins; simply create a stereo Instrument track:



In order for SPARK to play the information coming from the Instrument track, you have to associate it to an Insert channel via the appropriate menu.

More information on plug-in connections can be found in the *Pro Tools* User's Manual.

6.5.3 Saving the project

When the session is saved, the status of SPARK is saved as it is, even if its programming does not correspond to the preset. For example, you are working on a project in which you have modified the parameters (without saving them in the plug-in itself), the next time you open the session SPARK will load the project plus the modifications.

The Librarian Menu of Pro Tools can be used with SPARK as with any other plug-in. Nevertheless, it is highly recommended to use the internal SPARK menu: with the presets saved this way, they are usable no matter which mode is used (standalone or other sequencer), and they can be exported and exchanged more easily. They will stay compatible with the future versions of SPARK.

6.5.4 Automations under Pro Tools

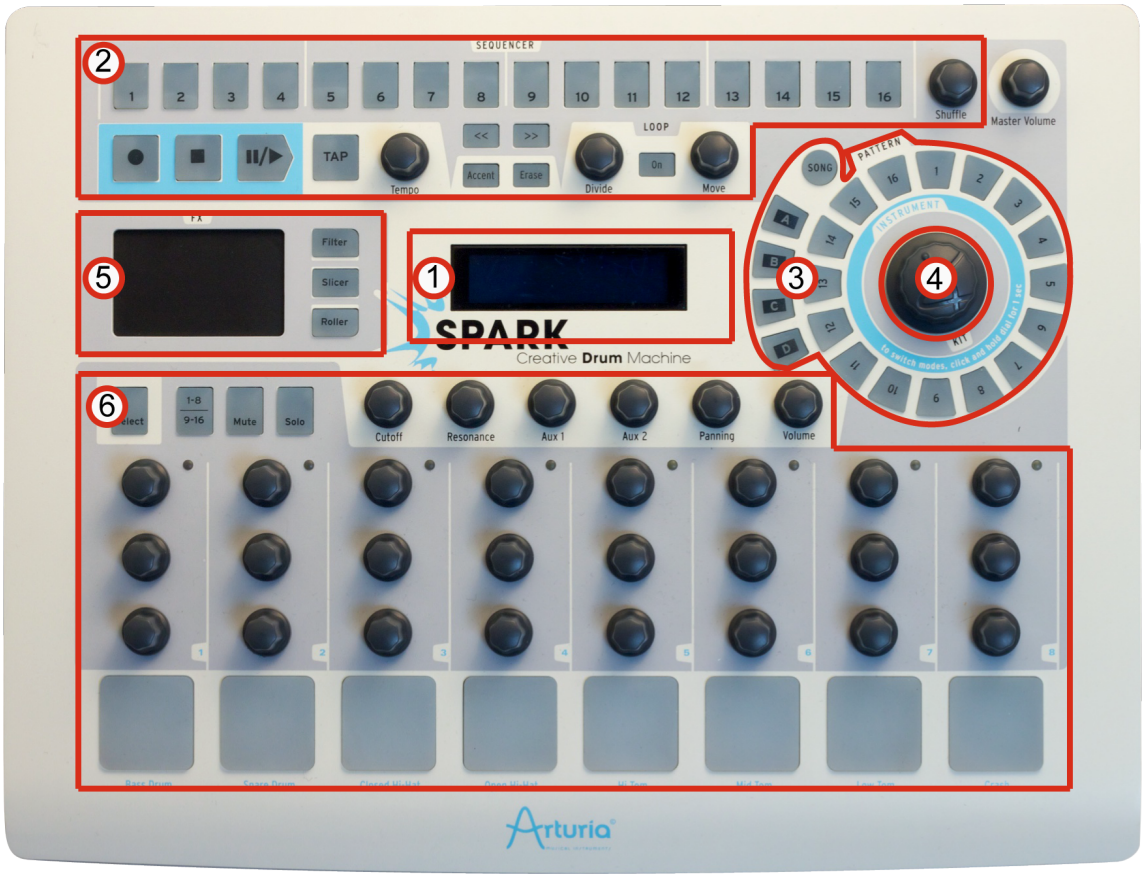
The automation in SPARK works as with all RTAS/HTDM plug-ins.

Please refer to the Pro Tools documentation for more details on automation plug-ins.

7 THE SPARK MIDI CONTROLLER

7.1 FRONT PANEL (OVERVIEW)

The SPARK's Hardware Controller has the same interface as the Main Panel in the SPARK software version. In this overview, we will focus on the features specific to the Hardware controller.



1.	Digital Display
2.	Sequencer zone
3.	Song/Pattern zone
4.	Jog dial
5.	FX live Pad
6.	Instrument control zone

7.1.1 Device ports

The Spark controller is listed by a host as being made up of 2 MIDI ports:

The first one:

- On Windows Vista and 7: "MIDIIN2(Spark Controller)"
- On Windows XP: "Spark Controller [2]"
- On Mac: “Spark Private IN” and “Spark Private OUT”

is used for internal communication between SPARK and the Controller. This MIDI port SHOULD NEVER BE USED by the user; doing so would impair the efficiency of the controller.

The second one:

- On Windows Vista, 7 and XP: "**Spark Controller"**
- On Mac: “Spark Public IN” and “Spark Public OUT”

is the public port to be used by the user.All messages sent to this port will be sent out the controller's MIDI OUT. All messages sent to the MIDI IN port by a third party machine will be transmitted to the host on the public port. When using Spark's Hardware as a MIDI controller, the data flow from the controller will be sent on the USB public port to the host, as well as on the MIDI OUT port, adding itself to any other existing MIDI information.

7.1.2 Choose between Kit or Instrument mode

To change from Kit/Project (depending on the option you’ve selected in the Preferences Panel of the Spark software) to Instrument mode on SPARK's Hardware controller, press and hold for 1 second the Jog Dial to change from Kit to Instrument mode.

7.1.3 Set Move Knob Mode

Move Knob is a clickable knob used to switch from “Shift by one step” mode to “Shift by one loop size mode”.

7.1.4 Set Sequencer Follow Mode On / Off

To set Sequencer Follow mode on or off, press << and >> buttons together.

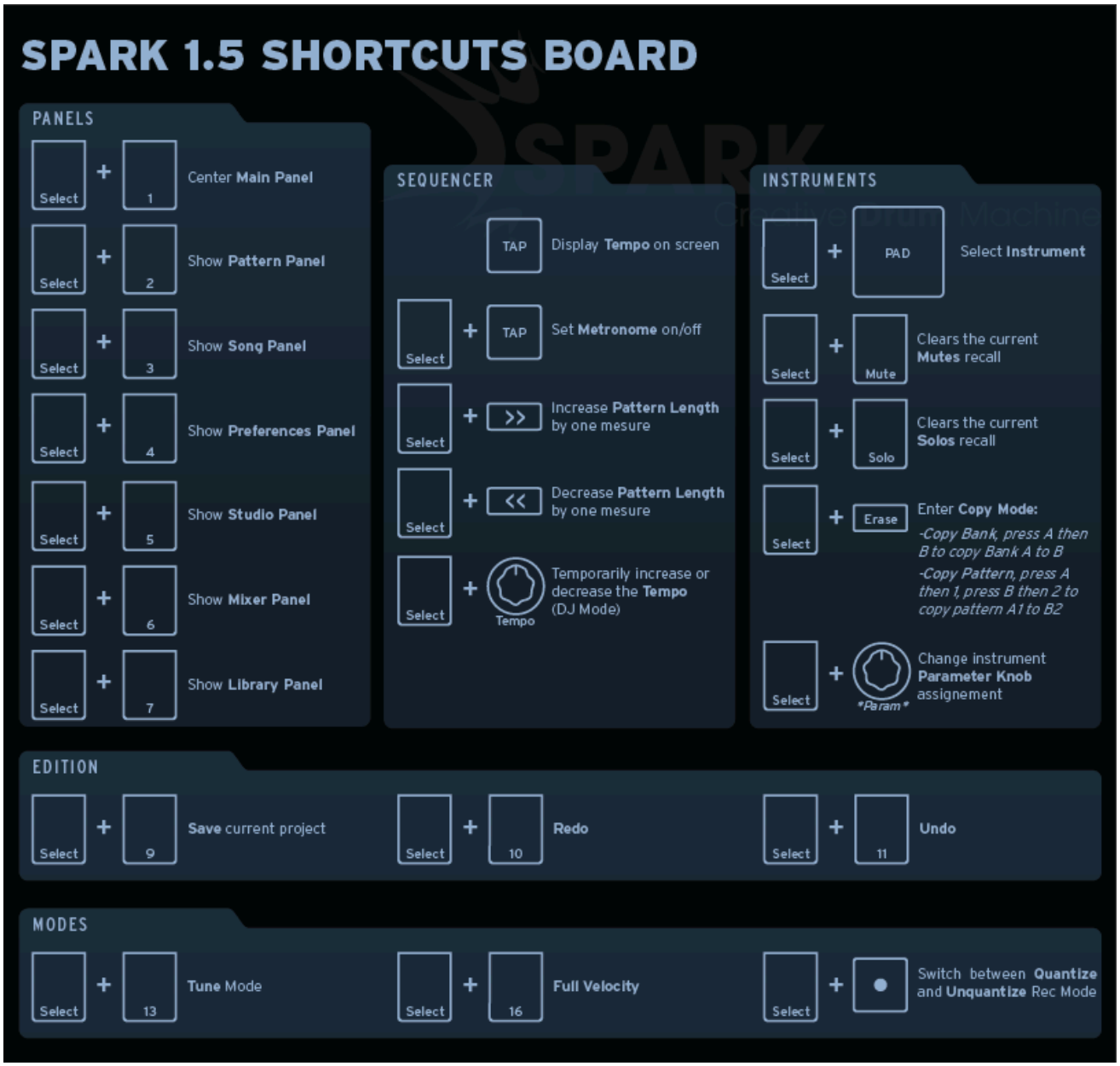
7.1.5 Roller Fx

When using the Roller effect in the software version of SPARK, the Roll effect can be applied only to one instrument at a time, for the obvious reason that you are using your mouse to play the instrument.

When using the Hardware controller, you are free to apply the Roll effect to any number of instruments, simultaneously. You can also start a roll on one instrument and press another instrument pad while maintaining your initial Roll. Enjoy!

The Roll velocity is triggered on the software version by clicking on a pad and while maintaining your click, moving the cursor up and down on the pad. This can be done on the Hardware controller thanks to its Sensitive pads sending Aftertouch information: the instrument pad being "pressure sensitive" you can modulate the velocity applied to the Roll effect in real time.

7.1.6 Controller Shortcuts



7.1.7 Overlay cheat sheet mode Software interface

A help mode is available for displaying all controller shortcuts. Click on the ? in the upper left corner in order to switch Spark interface to show all the shortcuts the names of the instruments that are loaded and to display all the Filter and Slicer modes. Any text that is in Blue above a button shows that by pressing and holding SELECT+ the button, you will select this secondary function.

Alternatively you can double-click on the SELECT button to show or hide the help mode.

7.1.8 Use as Spark Controller

To use your SPARK hardware controller as a SPARK controller, launch Spark Software (then press the Connect button on SPARK's toolbar if needed).

If you were in MIDI Controller mode Press the [Filter]+[Slicer]+[Roller] buttons.

7.1.9 Use as MIDI Controller

To use your SPARK Controller as MIDI controller, Press [Filter] + [Slicer] +[Roller] (then open public MIDI port or connect a MIDI cable to MIDI Out).

7.1.10 Use as USB/MIDI interface

To use your SPARK Controller as USB/MIDI interface, open the public MIDI port in your host program and connect the MIDI cable(s) to your Spark Hardware controller.

7.1.11 Power Supply

Connect to USB 2.0 host. Avoid using a non-powered USB-Hub. The device is self-powered by USB.

If you don't need or want to power your Spark Hardware controller via USB, use the DC jack input with the following power supply unit:

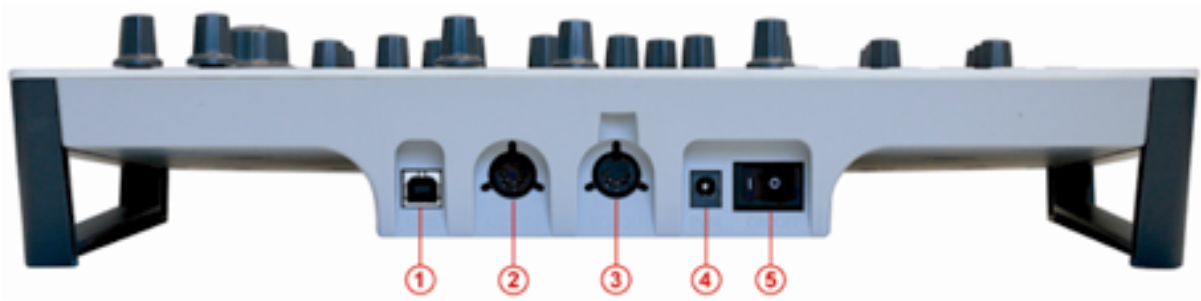
Voltage: 9 Vdc

Current: 800 mA

Polarity: center positive

7.2 REAR PANEL (OVERVIEW)

7.2.1 Rear panel Connectors and power supply



1.	USB connector
2.	MIDI IN port
3.	MIDI OUT port

4.	Power supply
5.	Power on/off switch

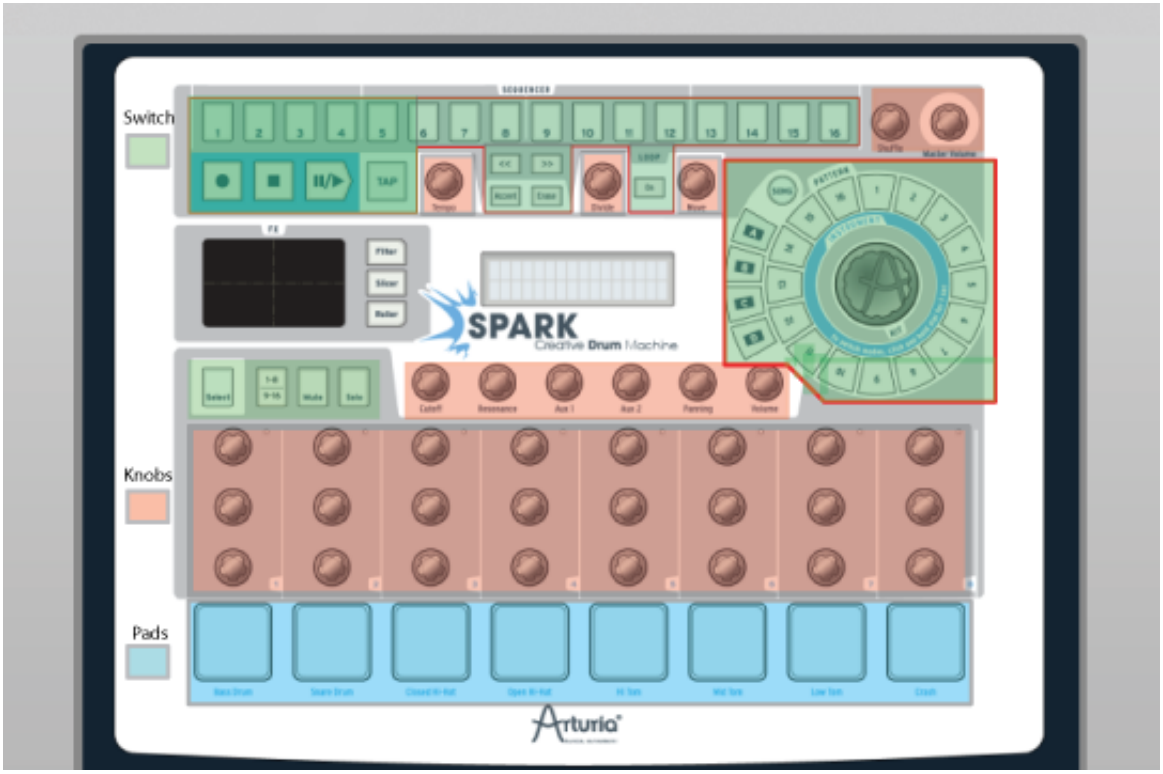
7.3 SPARK MIDI CONTROLLER SOFTWARE

With the SPARK MIDI controller software you can customize the functions of the Pads, Knobs and Buttons according to your needs.

When connected, you can use the Hardware controller itself instead of the Controller software interface to select the buttons, switches or knobs you want to work on.

Spark Midi Controller Software needs Spark Controller to be in Midi Controller mode to be able to connect to. Press [Filter] + [Slicer] +[Roller] to use Spark as Midi Controller. If Spark Controller is set to Midi Controller mode before opening Spark Midi Controller Software, Spark Midi Controller Software will connect to it automatically at launch. If Spark Midi Controller Software is started before setting Spark Controller to Midi Controller Mode, you will need to explicitly connect to Spark controller using Connect to Spark Controller command in the Action Menu.

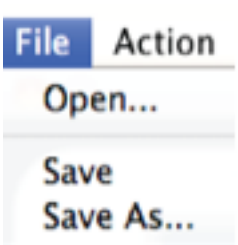
7.3.1 Overview

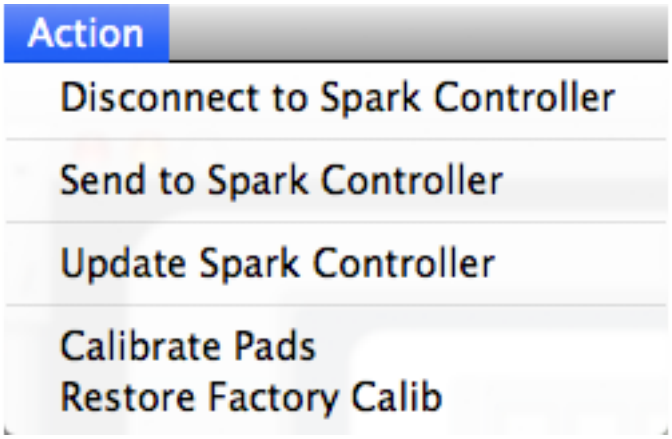


The SPARK MIDI controller software interface is rigorously the same as the SPARK Hardware interface or SPARK software main panel.

All the buttons, pads and knobs can be reprogrammed to suit your needs.

7.3.2 The Menu





1. File > Open…: Open and Load a Template
2. File > Save: Save A Template on the Computer

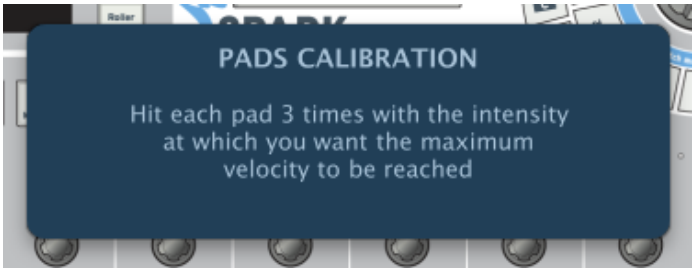
3. File > Save As…: Save As A Template on the Computer
4. Action > Connect to Spark Controller: Disconnect Or Connect to Spark Controller
5. Action > Send To Spark Controller: Send Template to Spark Controller
6. Action > Update Spark Controller: Update Spark Controller Firmware
7. Action > Calibrate Pads: Calibrate the velocity sensitivity of the Pads
8. Action > Restore Factory Calib: Restore Factory Calibration of the Pads

7.3.2.1 Midi Templates

Midi Templates: Each control (Pad, Knob or Button) sends a Midi message to the USB output. Default midi mapping is used for controlling Spark Software. You can customize this mapping, editing Midi messages sent from any of the controls. New mappings can be saved as Template Files using the File > Save command. In order for a template to be active on Spark controller you need to send your template to Spark controller with 'Action > Send to Spark Controller' command. Only one template can be active on Spark controller at a time.

7.3.2.2 Pads Calibration

You can calibrate the hit intensity at which the maximum velocity will be reached on the Pads of your Spark controller. Use 'Action>Calibrate Pads' command to start the calibration process. You will be asked to hit each pad 3 times.



Led indicators show you the progress of the calibration:

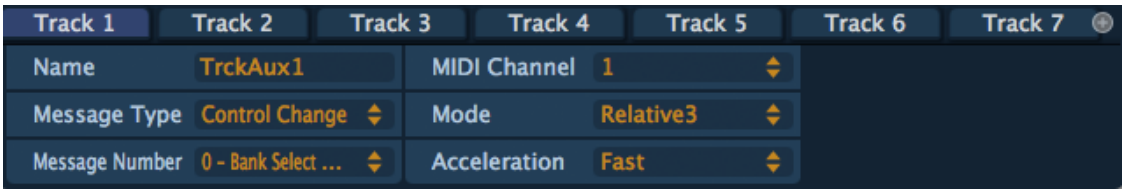
You can restore the Factory calibration using Action>Restore Factory Calib" command.

7.3.3 Edit Instrument Pad window

When clicking on a pad, a window appears with several tabs and drop-down menus to let you change the parameters assigned to pads.

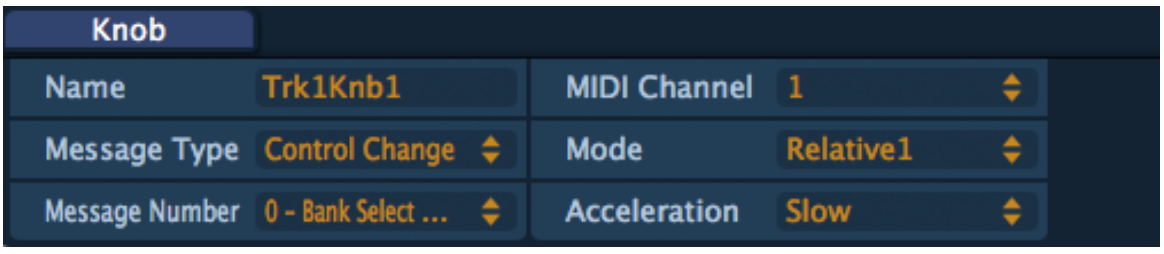
1.	Edit Pads Trig MIDI Message
2.	Edit Pads Press MIDI Message
3.	Edit Pads Mute MIDI Message
4.	Edit Pads Solo MIDI Message
5.	Edit Pads Select MIDI Message
6.	Choose Switch (and Pad) MIDI Message Type (Choice between CC, Note, Start, Stop, Continue, Program Change, Channel Pressure, Aftertouch and Off).
7.	Choose Switch MIDI Message Number (Not available for Start, Stop, Continue)
8.	Choose Switch MIDI Message Channel (Not available for Start, Stop, Continue)
9.	Choose Switch MIDI Message Mode. Choice between Gate and Toggle. (Not available for Start, Stop, Continue)
10.	Choose Switch MIDI Message Minimum Value (Not available for Start, Stop, Continue)
11.	Choose Switch MIDI Message Maximum Value (Not available for Start, Stop, Continue)
12.	Choose Switch MIDI Message Action On. Choice between Push or Release *(Not available in Gate Mode)*

7.3.4 Edit Instrument knob window



1.	Edit Instrument 1 to 8 Knob MIDI Message
2.	Choose Knob MIDI Message Type (Choice between CC and Off)
3.	Choose Knob MIDI Message Number (0 to 127)
4.	Choose Knob MIDI Message Channel (1 to 16)
5.	Choose Knob MIDI Message Mode (Choice between Absolute, Relative1, Relative2, Relative3)
6.	Choose Knob MIDI Message Min Value (0 to 127 (should be < max val))
7.	Choose Knob MIDI Message Max Value (0 to 127 (should be > min val))
8.	Choose Knob MIDI Message Acceleration (Choice between None, Slow and Fast - not available for encoder with detent: Encoders with detent are Move, Jog Dial, Loop)

7.3.5 Edit Instrument parameter knob window



1.	Edit Instrument parameter knob 1 to 8 MIDI Message
2.	Choose Knob MIDI Message Type

	(Choice between CC and Off)
3.	Choose Knob MIDI Message Number (0 to 127)
4.	Choose Knob MIDI Message Channel (1 to 16)
5.	Choose Knob MIDI Message Mode (Choice between Absolute, Relative1, Relative2, Relative3)
6.	Choose Knob MIDI Message Min Value. *0 - 127* (should be < max value)
7.	Choose Knob MIDI Message Max Value. *0 - 127* (should be > min value)
8.	Choose Knob MIDI Message Acceleration (Choice between None, Slow and Fast - not available for encoder with detent: Encoders with detent are Move, Jog Dial, Loop)

7.3.6 Edit Clickable knob window 

You will find only 2 clickable buttons on SPARK's Hardware:

7.3.6.1 The Jog Dial (Wheel)

1.	Choose MIDI Message Type (Choice between CC, Note, Start, Stop, Continue, Program Change, Channel Pressure, Aftertouch and Off).
2.	Choose Action on MIDI Message (Choice between Push/release)

7.3.6.2 The Move button (Loop Move)

1.	Choose MIDI Message Type (Choice between CC, Note, Start, Stop, Continue, Program Change, Channel Pressure, Aftertouch and Off).
2.	Choose Switch MIDI Message Number (0 to 127)

3.	Choose Switch MIDI Message Channel (1 to 16)
4.	Choose Switch MIDI Message Mode. (Choice between Toggle, Trigger, Gate, Inc, Gate and Toggle).
5.	Choose Knob MIDI Message Min Value. 0-127 (should be < max value)
6.	Choose Knob MIDI Message Max Value. 0-127 (should be > min value)
7.	Choose Switch MIDI Message Action On. Choice between Push or Release *(Not available in Gate Mode)*
8.	Choose Action on. (Choice between Push/Release)

7.3.7 Edit Touch pad window

1.	Choose Touch Pad MIDI Message Type (Choice between CC and Off)
2.	Choose Touch Pad MIDI Message Number (0 to 127)
3.	Choose Touch Pad MIDI Message Channel
4.	Choose Touch Pad MIDI Message X or Y Minimum Value 0 to 127 (should be < maximum value)
5.	Choose Touch Pad MIDI Message X or Y Maximum Value 0 to 127 (should be > minimum value)

7.4 CONTROLLING SPARK WITH AN EXTERNAL MIDI CONTROLLER

7.4.1 Assign a MIDI note to pads

Click holding [Cmd] on Mac / [Ctrl] on Windows on [Pads] #115 to #122 and press button or key on your MIDI controller.

7.4.2 Assign a MIDI note to bank buttons

Same as previous on corresponding button/pad.

7.4.3 Assign a MIDI note to pattern buttons

Same as previous on corresponding button/pad.

7.4.4 Assign a MIDI note to loop on button

Same as previous on corresponding button/pad.

7.4.5 Assign a MIDI CC to Loop divide knob

Click holding [Cmd] on Mac / [Ctrl] Win on [Loop] #49 and move knob or fader on your MIDI controller.

7.4.6 Assign a MIDI CC to Loop Move knob

Same as previous on corresponding knob.

7.4.7 Assign a MIDI CC to shuffle knob

Same as previous on corresponding knob.

7.4.8 Assign a MIDI CC to master Volume knob

Same as previous on corresponding knob.

7.4.9 Assign a MIDI CC to cutoff/res/Pan/Aux1/Aux2/Volume knobs

Same as previous on corresponding knob.

7.4.10 Assign a MIDI CC to instrument parameters knobs

Same as previous on corresponding knob.

7.4.11 Assign a MIDI CC to tempo knob

Same as previous on corresponding knob.

7.4.12 Assign a MIDI CC to stop and play functions using Cmd+Click

Same as previous on play and stop buttons.

8 SPARK CREATIVE DRUM MACHINE LEGAL INFORMATION

8.1 SOFTWARE LICENSE AGREEMENT

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8.2 FCC INFORMATION (USA)

Important notice: DO NOT MODIFY THE UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirement. Modifications not expressly approved by Arturia may void your authority, granted by the FCC, to use the product.

IMPORTANT: When connecting this product to accessories and/or another product, use only high quality shielded cables. Cable (s) supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FFC authorization to use this product in the USA.

NOTE: This product has been tested and found to comply with the limit for a Class B Digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide a reasonable protection against harmful interference in a residential environment. This equipment generate, use and radiate radio frequency energy and, if not installed and used according to the instructions found in the user's manual, may cause interferences harmful to the operation to other electronic devices. Compliance with FCC regulations does not guarantee that interferences will not occur in all the installations. If this product

is found to be the source of interferences, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

- Relocate either this product or the device that is affected by the interference.
- Use power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter(s).
- In the case of radio or TV interferences, relocate/ reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial cable.
- If these corrective measures do not bring any satisfied results, please the local retailer authorized to distribute this type of product. If you cannot locate the appropriate retailer, please contact Arturia.

The above statements apply ONLY to those products distributed in the USA.

8.3 CANADA

NOTICE: This class B digital apparatus meets all the of the Canadian Interference-Causing Equipment Regulation.

AVIS: Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

8.4 EUROPE

CE This product complies with the requirements of European Directive89/336/EEC.

This product may not work correctly by the influence of electro-static discharge; if it happens, simply restart the product.

9 NOTES: