# Scanalogic-2 workspace

## SCANASTUDIO

- ❯ Download (https://www.ikalogic.com/scanastudio_v2/)
- ❯ Community (https://www.ikalogic.com/answers/categories/scanastudio-software/)
- ❯ Release history (https://www.ikalogic.com/scanastudio_v2/release-history/)
- ❯ Supported decoders (https://www.ikalogic.com/scanastudio_v2/protocols-decoders-library/)

## SCANASTUDIO HELP

- ❓ Getting started (https://www.ikalogic.com/scanastudio_v2/getting-started-with-scanastudio/)
- ❓ ScanaPLUS workspace (https://www.ikalogic.com/scanastudio_v2/scanaplus-workspace/)
- ❓ Scanalogic-2 workspace (https://www.ikalogic.com/scanastudio_v2/scanalogic-2-workspace/)
- ❓ ScanaQuad workspace (https://www.ikalogic.com/scanastudio_v2/scanaquad-workspace/)
- ❓ Custom Protocol Script (https://www.ikalogic.com/scanastudio_v2/custom-decoder/)
- High level decoding (https://www.ikalogic.com/scanastudio_v2/high-level-decoding-with-scanastudio/)
- ❓ Signal builder script (https://www.ikalogic.com/scanastudio_v2/signal-builder-script/)

ℹ️ **NOTE:** This page is being re-written to better reflect the latest graphical user interface of ScanaStudio

ℹ️ **NOTE:** The information on this page applies to ScanaStudio v2.303 and above

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# Introduction

Scanalogic-2 is the first commercial logic analyzer created by IKALOGIC in 2010. It has gained wide popularity due to its low cost, adequate channels count, and it's generation capabilities. ScanaStudio  (https://www.ikalogic.com/ikalogic-products/scanastudio-2/)(v2.303 and above) supports this logic analyzer device. In order to use Scanalogic-2 under the ScanaStudio software, you need to create a new workspace by clicking on this icon then chose "scanalogic-2":
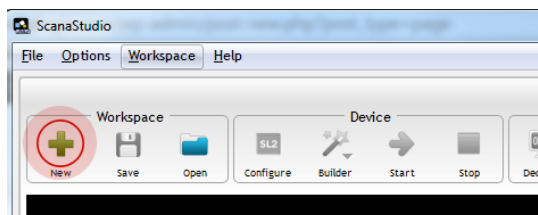


You can also create a new workspace by clicking on "File > New", then select "Scanalogic-2" as the type of device for that workspace.

Then open the device configuration panel by clicking on the Scanalogic-2 icon as in the image below:
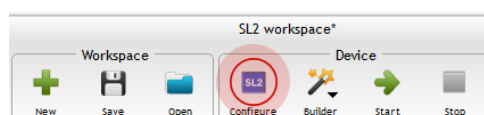


This will display the Scanalogic-2 configuration panel as in the image below. This panel allow you to:

- Configure the inputs of your Scanalogic-2 device.
- Select the trigger channel and the trigger type
- Select the number of samples to capture and the sampling rate (and hence the total sampling time)
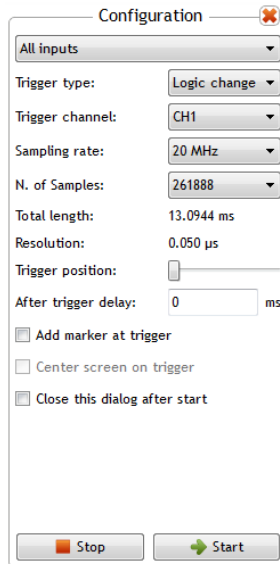


We'll get into the specifics of each and every one of those options later in this online manual.

# General principle of operation

Scanalogic-2 device relies on an internal memory to capture and store logic signals before sending them the computer for later display and analysis. This same internal memory is also used to store samples sent from the computer before being generated.
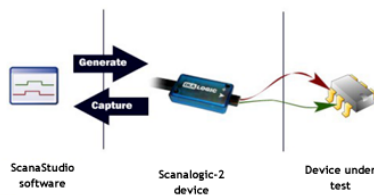


Scanalogic-2 logic analyzer can function in three distinct modes:

1. All inputs: In that mode, all 4 channels are configured as inputs. In this mode, the device simple works as a regular logic analyzer.

2. All outputs: In this mode, all 4 channels are configured as output. In this mode, the device will continuously output predefined signals on the probes of the device. Signal generation will continue until the user aborts via software.

3. Mixed mode: In this last mode, 2 channels are configured as inputs and the two others are configured as outputs. In this mode, the device will continuously generate the predefined signals, **until** a trigger condition is met, then generation will stop and captured samples will be sent back to the host computer. Note that this "mixed" mode is intended for looking at the response of a signal with respect to some generated stimulus signal. The captured signals that are sent back to the host computer will include the generated signal: This is very important if you want to accurately measure the response time of a device under test.

One very important advantage of this mode of operation is the fact that the device is not affected – in any way – by the limitations of the host computer, whether it's low bandwidth USB ports or slow processor.

# Starting a new capture

After you have added a new Scanalogic-2 workspace, to start capturing logic signals, you need to click on the "Start" button shown in the image below:
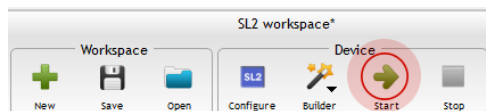


Alternatively, you can find the same button at the bottom of the device configuration panel.

You can click on the "Stop" button next the "Start" button to abort any device operation.

# Configuring Sample rate and capture time

Before starting a new capture, it is important to carefully configure the sample rate and total number of samples to capture.

The sample rate should be 5 to 10 times higher than the frequency of the signal you are measuring. For example, if you want to capture some serial UART transmission having a BAUD rate of 115200, a minimum sampling frequency of 1MHz is recommended.

On the other hand, increasing the sampling frequency will cause the internal memory to fill up more rapidly, reducing the overall capture time.

Thankfully, by choosing adequate trigger options and sampling rate, a broad range of captures and measurements can be made.
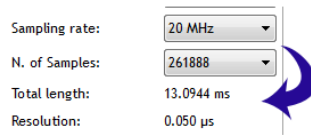
The image above shows how the effect of the Sampling rate and the number of samples is directly seen: The sampling rate, the number of samples, the total sampling time (length) and the resolution are all mathematically related.

# Configuring trigger

The first step to configure scanalogic-2 trigger is to choose a trigger type from:

- Falling edge
- Rising edge
- Logic change

[icon type="icon-info-sign" color="black"] Alternatively, if you don't wish to use any trigger, choose "No trigger"; The device will then start capturing signals as soon as you press the start button.

Then choose a trigger channel. This is the channel that will be scanned for a falling edge, rising edge or a logic change (depending your choice).

It is very often very useful to adjust the trigger position to allow the device to catch some pre-trigger signals. The slider next to the "trigger position" label in the image allows you to set the position of the trigger relatively to the total length of the capture. That is, if you adjust it approximately to the middle, the will be equal number of samples before and after the trigger position. It is totally up to you – the user – to decide what is the best trigger position for your specific application.

Note: The trigger position slider don't have any marking, and it's intentional, because one usually sets a trigger position to approximately 1/2 or 1/4 (for example) of the total capture length.

Finally, you may want to specify some "after trigger delay": As the name implies, this will simply make the device wait for some milliseconds after a trigger occurred before effectively starting to capture the signals. This can be useful if the important signals to be captured happens a long time after the trigger condition is met.
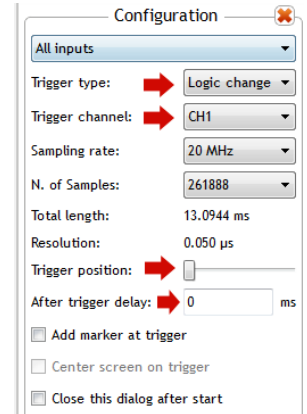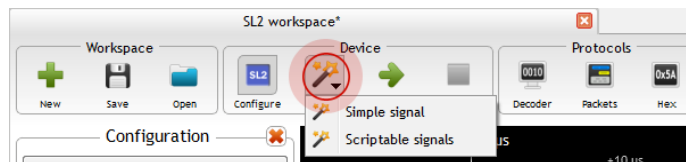
# Generating signals

Signal generation happen in two main steps:

- First you have to "build" the signals that you want to generate
- Then, you have to send those built signal to the device for actual generation

## Building new signals

In order to generate signal, you first have to have an open workspace, and then click on the "builder" icon:



You will then have a choice between two modes:

- The simple signal builder, which will be explained in this section
- The script sign builder, which has a [label type="success" url="https://www.ikalogic.com/ikalogic-products/scanastudio-2/scanastudio-help-signal-generator-scripting/"]dedicated tutorial here[/label].

## Simple signal builder

The simple signal builder allows – as the name implies – to generate rather simplistic signal. It has the benefit of being very easy and very quick to use. Once you click on the simple signal button, you should see a dialog like this one:
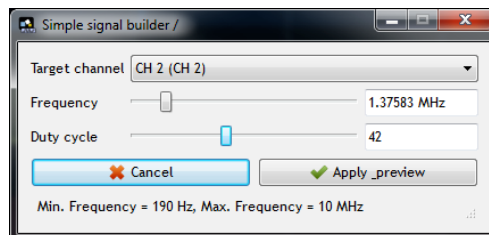


This dialog allows you to select a frequency, a duty cycle and more importantly, a target channel!

You can either use the sliders or manually type the value of the frequency or the duty cycle in the text boxes next to each slider. Note that you can use the following suffixes: Hz, Khz, MHz. If no suffix is used, the value is considered to be in Hz.

Once you have set up the frequency, the duty cycle and the target channel, clicking on "Apply & preview" will overwrite the target channel and draw a preview of the newly created signal in dotted lines, as in the example image below:
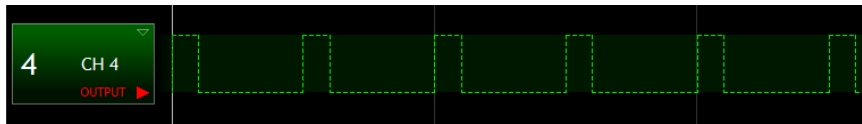
You will notice that the target channels will automatically be set to output. Be careful, since Scanalogic-2 can't individually set a channel to output, you may end-up with both CH1 and CH2 set to output mode (or CH3 and CH4).

At this point, you just have to hit the "start" button, and the samples will be sent to the device and will be physically generated (as electrical signal) on the probes.

# Getting further help

If you need more assistance with ScanaStudio usage or with your logic analyzer device, please don't hesitate to contact us (https://www.ikalogic.com/contact/) or leave a comment below.

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