



Avcom GUI User Guide Supplement

Supplement for Avcom GUI v4.0 – Document Version 0.1



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Introduction

Avcom GUI version 4.0 brings new functionality and enhancements – many related to the new product SBS2-2150C.

The SBS2-2150C operates much like previous Avcom products with a few differences. Additional features of the SBS2-2150C:

1. Adjustable Video Bandwidth (VBW)
2. The user can specify a variable number of sweep sample points
3. There is a second band (9MHZ to 11MHZ) for monitoring 10MHZ reference signals
4. Improved dynamic range
5. A new API enabling reliable, higher quality integration
6. Improved automatic device discovery (USB and Ethernet) in the Avcom GUI
7. Adjustable vertical scaling independent of the selected RBW.

The SBS2-2150C does not have a 9-pin RS-232 serial port connector.

The SBS2-2150C ships configured for DHCP. The device name is set to SBS2-XX-YY where XX-YY are the last two octets of the MAC address. If your network has DHCP and registers DHCP client names in DNS you should be able to access the unit on the network by its name.

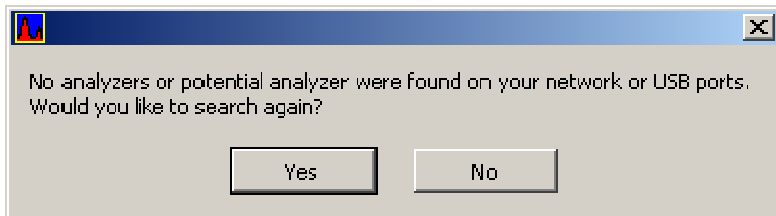
Additional GUI functionality in version 4 is covered in this document. All of the existing GUI functionality including advanced features such as multi-window support, alarms, and data acquisition are supported in version 4 for the SBS2-2150C analyzer.

Updated Device Discovery

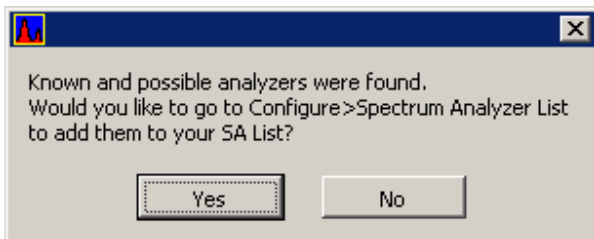
Each time it starts, the Avcom GUI attempts to find Avcom analyzers on the network. It does this in the background. The user will be prompted once this discovery is complete with one of two messages:

No analyzers found. Manual configuration may be required. If you get this message you can:

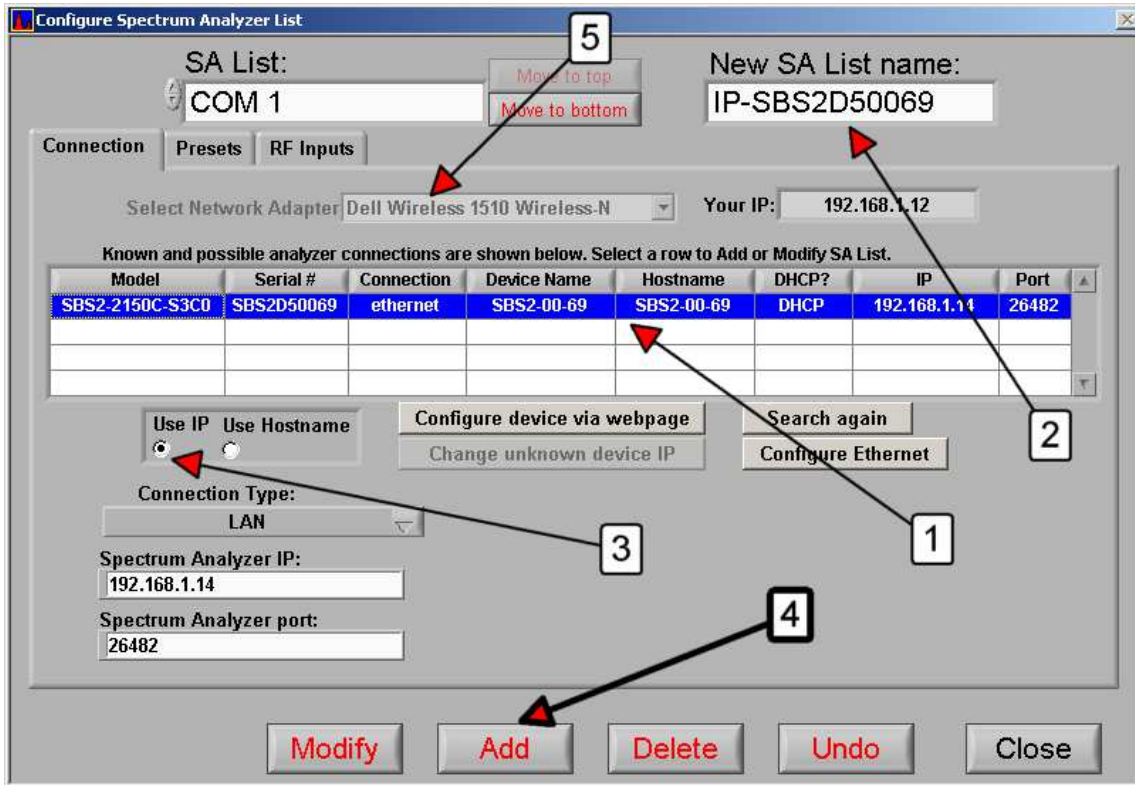
- 1) Search Again. Make sure your analyzer and PC are on the same subnet
- 2) Connect the analyzer via USB and search again
- 3) Contact Avcom Engineering for further assistance.



If discovery finds analyzers you can select 'Yes' to be taken to the next screen where you can add the analyzer to the "SA List" (list of saved analyzers) in the GUI. You can also change the network settings if needed.



Once you press “Yes” you should see a screen like the following (except your screen will not have numbered arrows).



Description of the arrows:

- 1) If the analyzer you want is in the list then click on it to highlight it
- 2) If you want to change the name of the analyzer you can. You can also change this later
- 3) If you do not plan to use DHCP the GUI should use IP Address to communicate with the analyzer.
- 4) Press ‘ADD’ to add the analyzer to the “SA List”
- 5) Note on network adapter. If you have more than one make sure the proper one is selected so the GUI can communicate with the analyzers on their network. This is most important on initial configuration.

Other functions on this page:

Configure Ethernet: Do not use this yet.

Configure Device via webpage: You can use this to change the IP settings of the selected analyzer.

Change unknown device IP: This assumes the device is an older Avcom product and attempts to change settings via that protocol.

Setting Data Points (# Pts)

This is only available on the SBS2-2150C generation of analyzers. This can be set on the front page of the Avcom GUI once the GUI has connected to the analyzer.

The analyzer uses 301 sweep data points by default which is fine for many uses. The analyzer divides the frequency span by the number of data points to determine the frequency step size of the sweep. At each point along the sweep is where the analyzer samples the power level. Keep in mind that the sample at any point is actually sampling a small slice of frequency spectrum as defined by the current RBW (Resolution Bandwidth).

Example:

Center Frequency:	1000 MHZ
Span:	3 MHZ
# Pts:	3
RBW:	1 MHZ

In this impractical but educational example the analyzer will sweep from 999 MHZ to 1001 MHZ using three sweep points (999 MHZ, 1000 MHZ, 1001 MHZ) and a step size of 1 MHZ (Span/# Pts). Because the RBW filter is 1 MHZ wide each sample (data point) will be based on the RF peak power detected at the sweep point +/- 0.5 MHZ (1/2 of the RBW). So data point 1 at 999 MHZ will be based on the peak power detected in the 1 MHZ slice of 998.5 MHZ to 999.5 MHZ.

Be aware than the analyzer will allow under-sampling. In cases where $\text{Span} > (\text{RBW} * \# \text{ Pts})$ the sweep will jump in steps that exceed the size of the RBW “slice” leaving gaps in the sampled spectrum. If under-sampling is mild the signal may appear reduced in power level. In severe under-sampling narrowband signals can be skipped over and not appear in the trace. If the monitored signal is frequency modulated and the analyzer is under-sampling, the signal can appear more erratic due to aliasing and the fact that the timing of the frequency modulation is not likely to be synchronized with the timing of the sweep samples.

Higher resolution can be achieved with a narrower RBW but requires more data points or a reduced span. Sweep time is largely defined by the number of data points as each data point requires time for retuning, settling, sampling, and processing.

Setting Video Bandwidth (VBW)

This is only available on the SBS2-2150C generation of analyzers. This can be set on the front page of the Avcom GUI once the GUI has connected to the analyzer.

VBW is simply a smoothing (low-pass) feature that reduces dramatic changes in the sweep from data point to data point. It is very helpful to clarify noisy signals or provide a more averaged view of certain modulation types. In most cases 3kHz is a good balance.

Band Selection

This is only available on the SBS2-2150C generation of analyzers. This can be set on the front page of the Avcom GUI once the GUI has connected to the analyzer.

This is used to switch between L-Band and 10 MHZ monitoring. 10 MHZ monitoring was designed for checking 10 MHZ reference signals and can cover 9 MHZ to 11 MHZ. The reference level is fixed in the 10 MHZ band.

Vertical Scaling

This is only available on the SBS2-2150C generation of analyzers. This can be set on the front page of the Avcom GUI once the GUI has connected to the analyzer.

Changing the vertical scale is done through vertical slider controls on the GUI front page as shown below.

