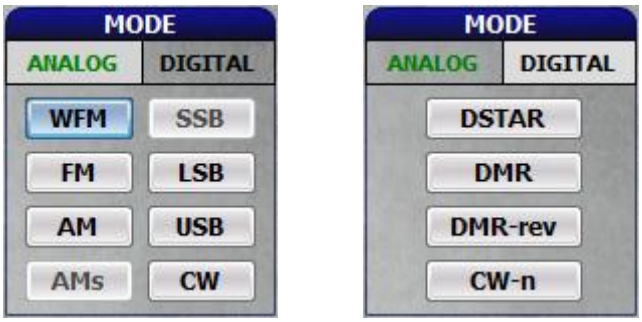
RadioMonitor Client: release notes

V1.2.4524 (may 21, 2012)

In the latest version, we have added many functions and, while we always try to give you a strightforward interface, some of these function may not be as intuitive as we wanted.
In the following notes, we try to explain you the correct usage and/or meanings of these functions.

Digital modes

We recently added the possibility to use digital demodulations. These modes can be customisable on the server by the administrator, wich now can configure the system to use external tools such as Perseus, Dstar and/or others and expand the capabilities of the physical radio wich supports only classic analog modes.
The client interface supports up to 4 digital modes and automatically adapts its buttons when it connect to a server that support at least one digital mode.
Since not every RadioMonitor Server instances support digital modes, we didn't want to waste space on the graphical user interface with unused controls, but we wanted to introduce a clear distinction distinction between analog and digital modes.
We splitted the mode area on the interface in two "panels". The analog panel show you the buttons to access analog modes, whereas the digital panel (if enabled) shows only the buttons to access digital modes.
Only one ot these panel is visible at any moment, and the user can switch from analog panel to digital panel pressing the corresponding label.



1 - Analog and digital modes panel

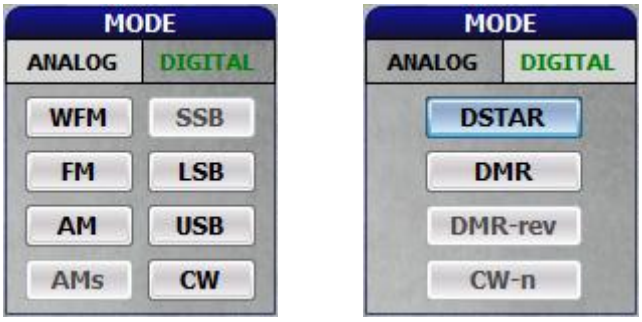
Pressing on either the "ANALOG" or "DIGITAL" label, only shows the corresponding buttons, but none of them is automatically activated. Therefore, there are some combination where one panel is currently visible, but none of the visible button is active. This is the case of the right figure above.

To help the user to better understand the current settings, the label containing an active mode button is always shown in green.

In the example shown above, a WFM analog mode is currrently set and, since the WFM mode is an analog demodulation, the analog label is green. In the left figure the analog panel is currently visible and the user can clearly see the active button, In the right figure the digital panel is visible but none

of the digital button is currently active: in this case the green “ANALOG” label indicate that the current mode is one ot those visible in the analog panel.

In figure 2, an opposite situation is represented: the current mode is Dstar and since it is a digital mode, the DIGITAL label is green. In the figure on the left, the analog panel is visible but the user is able to immediately see that a digital demodulation mode is currently being set because of the green DIGITAL label. Selecting the digital panel, the uset can see which of the digital mode is currently active.



2 - analog and digital modes panel. Example 2

Anyway, current mode is always visible in the bottom-left portion of the main display (below the frequency).

Audio Amplification in Digital Modes

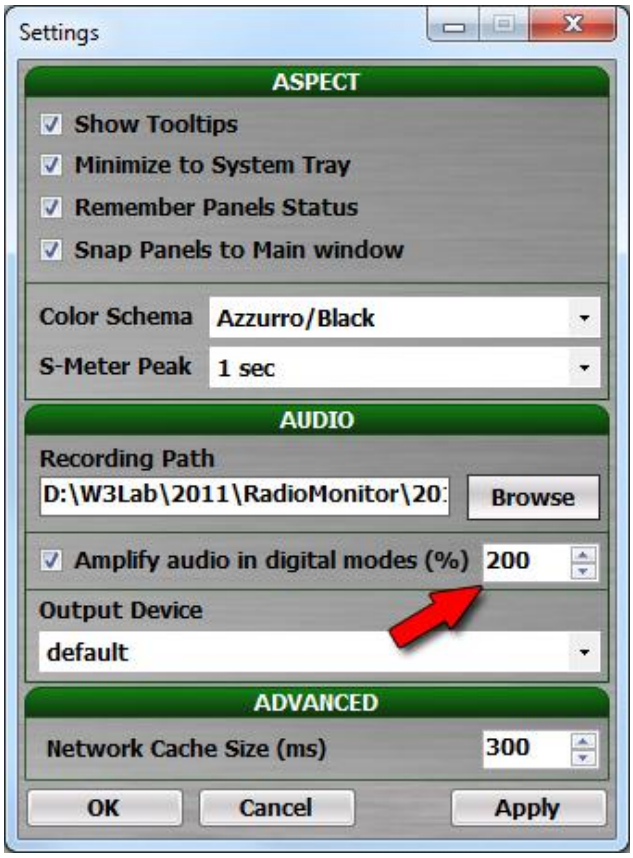
Many times, stations that use digital modulations, transmit using an audio volume lower than analog stations.

To compensate this difference and to allow the user to “equalize” digitally demodulated audio, we added the possibility to amplify it.

This option can be found in the audio section of the *Settings* panel.

The value represent the amount of amplification that is applied to the volume set with the main volume knob, so that an amplification of 0% means no amplification on digital modes.

For example, if the volume knob in the main panel is set at 50%, setting a digital audio amplification of 200% as shown in figure 7, will result in an audio signal with a volume of 250% in digital modes, and 50% in analog modes.



3 - Digital Audio Amplification

Note: adding a large amplification (higher than 200%) will introduce some degree of distortion leading to a degradation of audio quality.

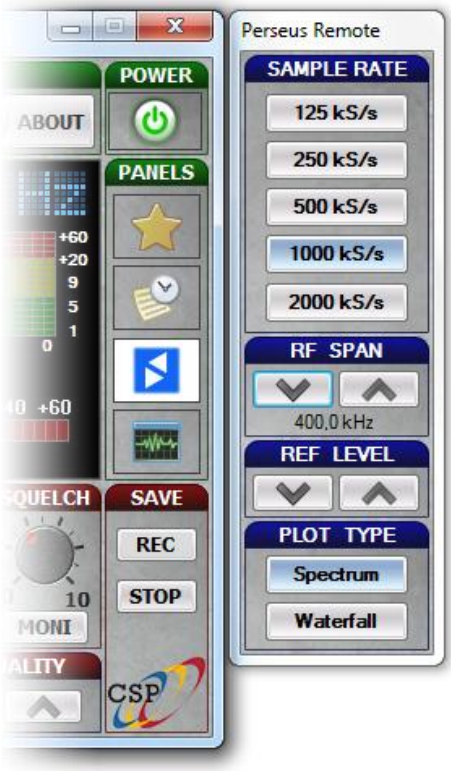
Perseus Remote Control

Some of the RadioMonitor server instances are composed by an analog radio, connected to a Perseus SDR radio. This allow to have some advanced features, unavailable using an analog radios such a wide spread RF spectrum plot.

Radio Monitor Client offers a new function that allow the user to remotely control some of the functions offered by the Perseus. This controls are available only if a Perseus is connected to the server and can be activated by pressing the third button on the right panel (figure 1). Clicking on it shows an additional panel with the following functions:

- **Sample Rate**: allows to set the current sampling rate on remote Perseus software.
- **RF Span**: allows to increase or decrease the RF Span of the plot, accordingly with the current Sample Rate.
- **Ref Level**: allow to increase or decrease the reference level of the remote Perseus software, shifting the spectrum plot up or down. This can be very useful in case of particularly hight or low base noise level.

- **Plot Type**: allow to switch between Spectrum plot or Waterfall plot.

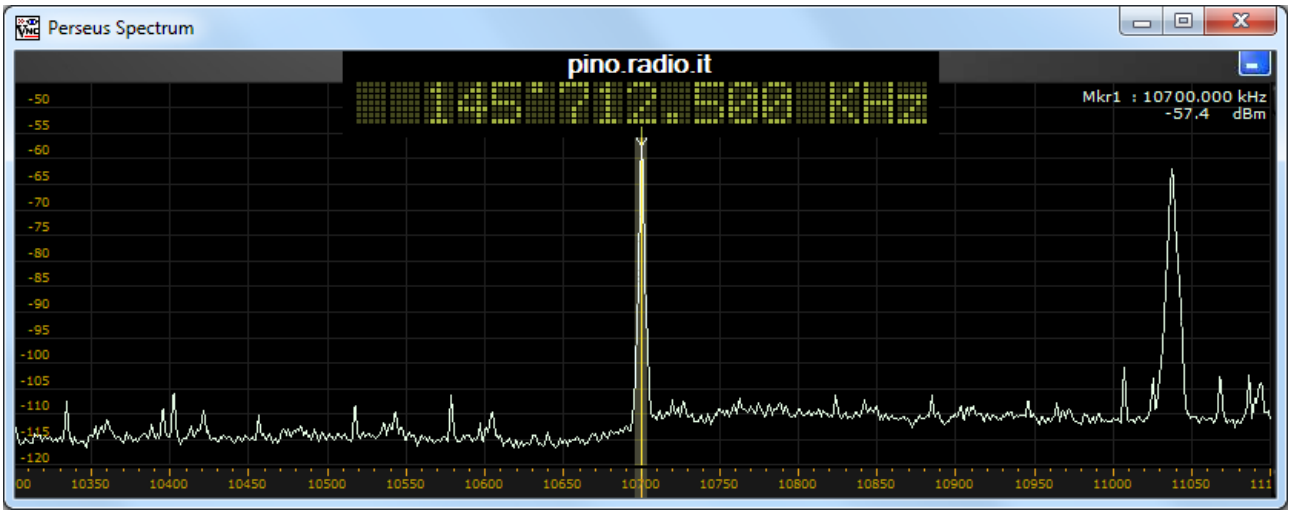


4 - Perseus Remote Control

Note: Perseus software has not been developed CSP (it has been developed by Microtelecom, and we have no relations with them) and therefore we have no control over the source code.
Perseus does not provide any explicit way to remotely control these parameters, so we had to use some little tricks, simulating a user that clicks on a button on the remote user interface (other parameters can be esaly remotized using a virtual RS232 port and CI-V protocol, but not these particular ones).
Most importantly, for the same reasons, it is very difficult to read current status of these settings. Therefore sometimes (and particularly right after the login) there may be an inconsistence between what the RadioMonitor Perseus Remote panel shows and the actual setting on the remote Perseus. In such cases, to be sure that the right parameter is set, is is sufficient to just re-apply the control.
For example, right after the login, none of the sample rate button is set and there is no way to know wich sample rate is currently set on the remote Perseus software. Just press one of the sample rate button to set the desired mode, and from there on, you have track of the current status.

Spectrum plot click-to-tune

One of the most useful features that we introduced with the latest version of RadioMonitor it the possibility to interact with the spectrum plot.



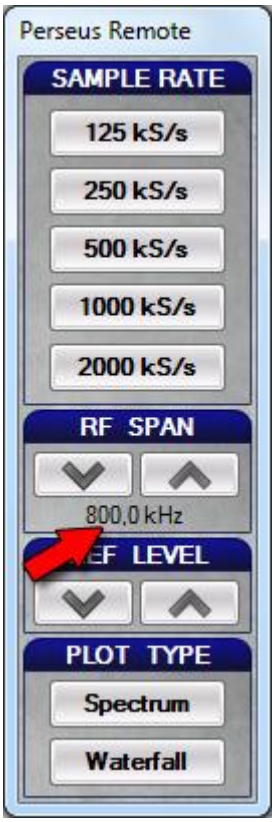
5 - Perseus Spectrum Plot

The following controls are available when the spectrum plot is visible:

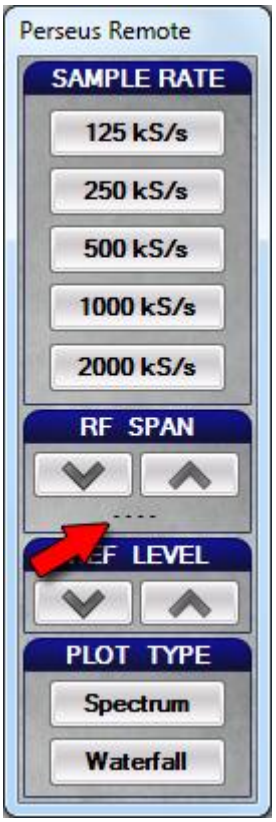
- **Click-to-Tune:** clicking on a specific portion of the spectrum plot, the user can now select a frequency where he can "see" a signal, allowing a much easier interaction with the remote receiver.
- **Zoom:** When the plot window has the focus (it is the active window), using the mouse wheel on the spectrum plot, the user can performs a zoom-in or zoom-out on the plot, actually changing the RF span on the remote Perseus software.
  Note that the plot window (the window titled "Perseus Spectrum") has to be the active window in order for this to work, otherwise the active window's mouse wheel function will be performed (if any).

Note: in order for the click-to-tune function to works, the client must know wich is the current RF Span set on the Perseus software. As described in previous chapter, we managed to detect (with another hack) the current value of RF Span, but this process is relatively slow and we have to periodically query the current setting. If the current value of RF Span is not correctly detected from the server the click-to-tune function is not available, or may not work properly.

To check if the RF span value set on the server is currently known to the client, you can look at the Remore Control Panel, in the RF Span section. If the label under the the up/down buttons report a valid number (as in figure 5), then the value is availabe, otherwise, if the label shows a series of dash (as in figure 6), then the client is not able to detect the current RF Span value and the click-to-tune function is disabled.



6 - RF Span detected



7 - RF Span Unknown