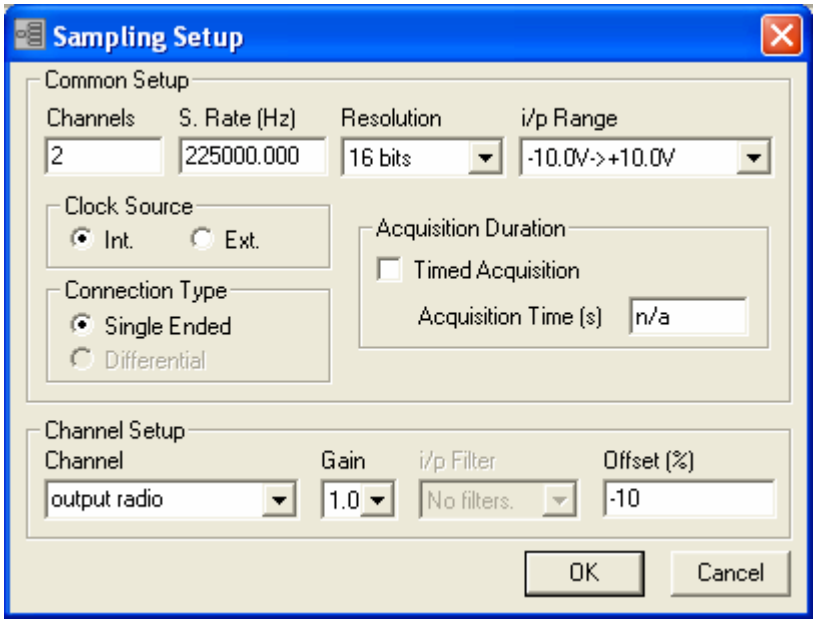
New Features in nVision 440C11 and the DTOL data acquisition driver and the associated display modules.
July 2006.

The Data Translation cards using USB offer a very economical way of gathering first class data at a very modest cost. The DT cards do not offer some of the features that a fully featured and consequently more expensive system offers e.g. the Sony EX. The list can seem depressingly long but it should be remembered that these features can be added in either hardware or software if they are really needed: -

1. anti-alias filters
2. IEPE power supply for transducers, charge amplifier, Strain Gauge etc.
3. Weighting filters A,B and C.
4. High and low pass filters.
5. Expansion to 100+ channels
6. Independent battery power
7. ……

For All OPEN LAYES DATA TRANSLATION CARDS.

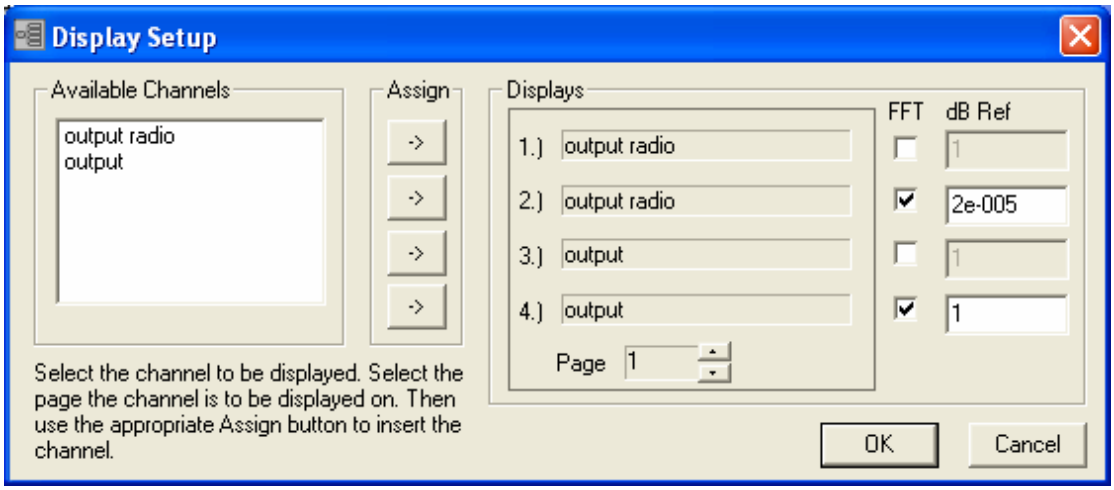
The new parallel sample and hold DT cards are supported as are the scanning cards. The set up is identical, the parallel sample and hold cards are the correct choice should you wish to compute cross channel phase data without any error. The scanned cards work in burst mode and so the phase errors for low frequency sampling are negligible.



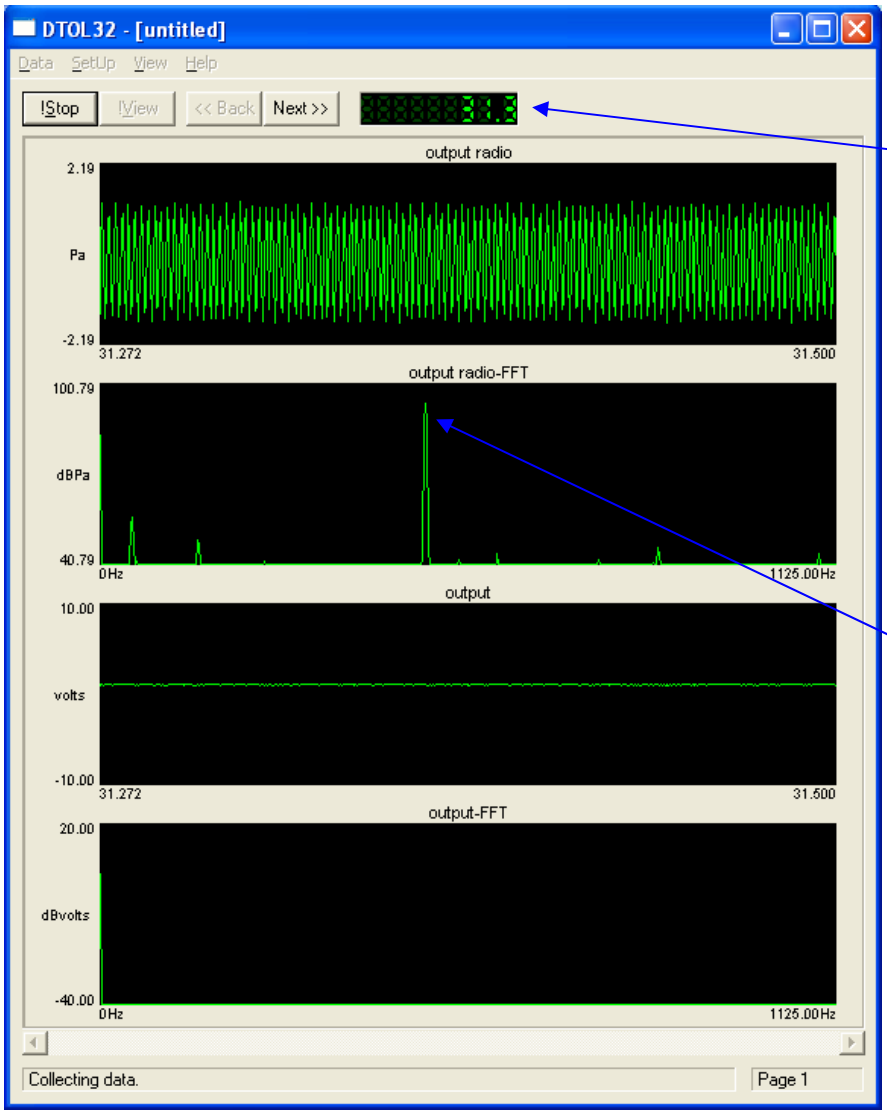
Channel offset.

Channel offset in % allows you to separate the recorded channels and so allow the display in SGRAPH to easily show each channel separated from its neighbour by a parallel strip. This is particularly useful if you are monitoring a lot of steady DC signals and then looking for correlated disturbances. If these were all superposed it might be difficult to see the significance of a particular channel.

dB reference value for each channel.



A reference value for each FFT display can now be added. This means that for acoustic measurements the dB can be displayed ref 2E-5 Pascals rather than ref 1Pascal.

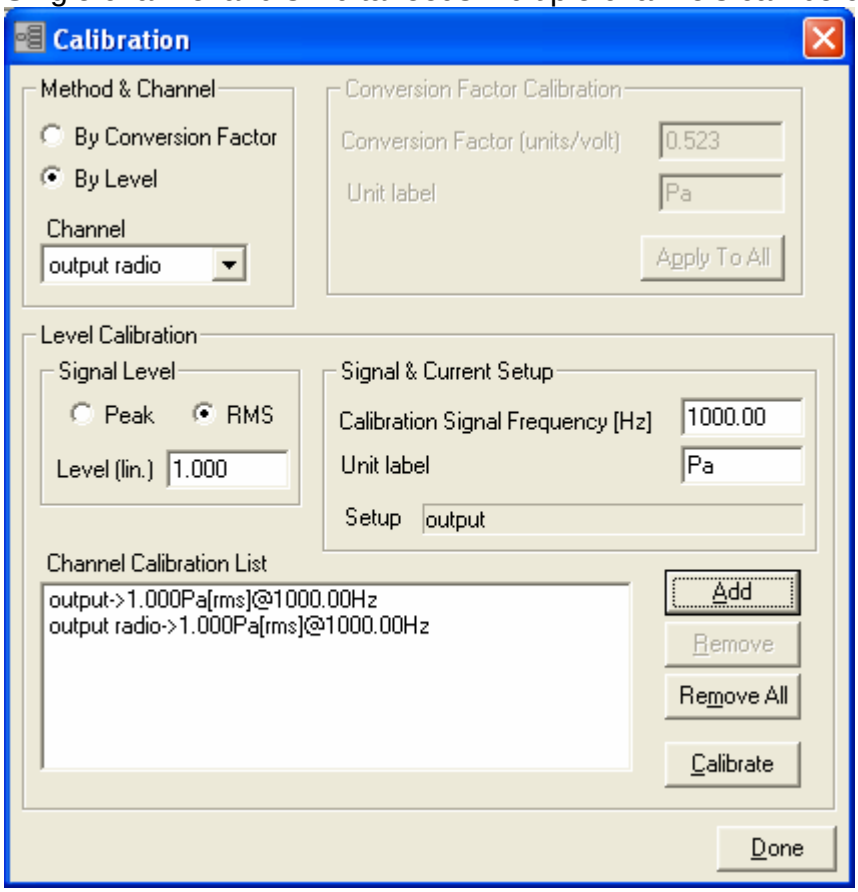


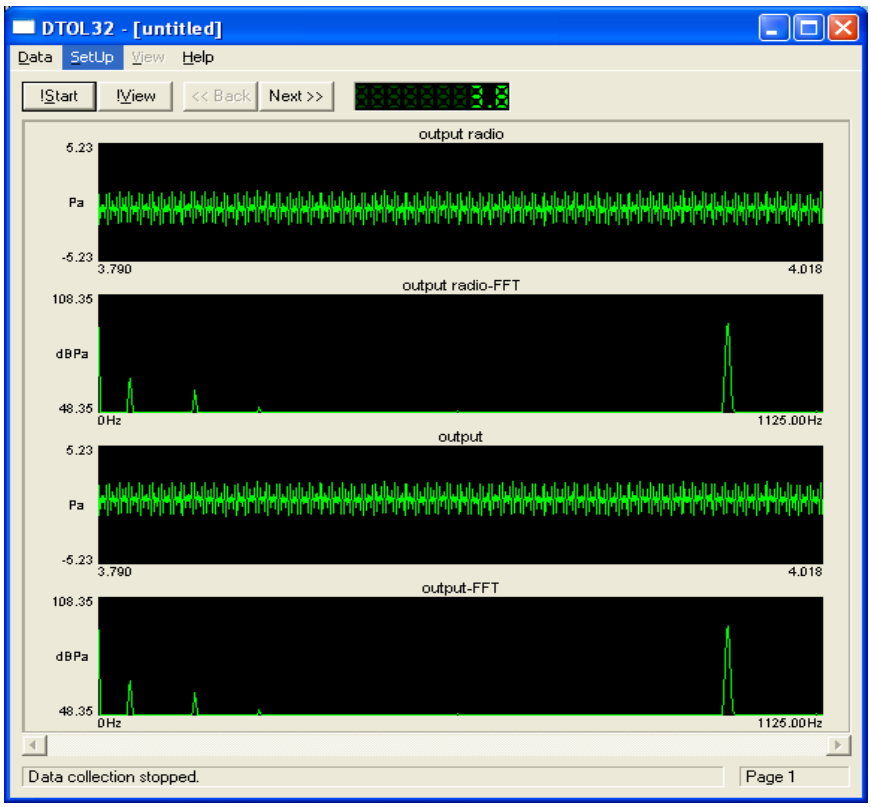
The time display now shows seconds and 1/10th of seconds rather than the 1/1000s that was of little use. This means that a weeks+ worth of seconds can be counted.

Peaks in dB can be scaled to the correct reference level to give a more “normal” read out.

Calibration.

Single channel and simultaneous multiple channels can be calibrated.





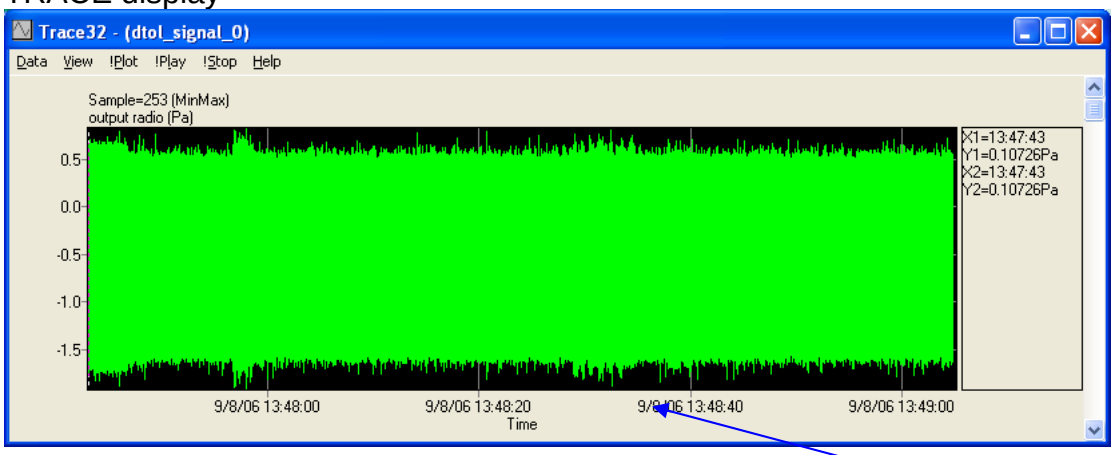
Triggering

Easy to set up external trigger, e.g. a battery connected to the ADC trigger BNC, or a channel trigger.

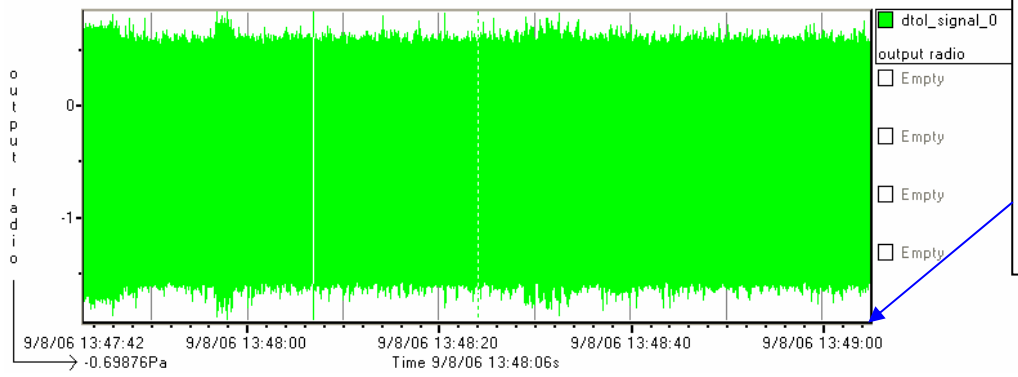
Display of Results in nVision

The revisions to SGRAPH and TRACE mean that the start of acquisition is recorded in the file i.e. the trigger point fully recorded.

TRACE display



SGRAPH display.



The day, month and year.

Hour minute and seconds.

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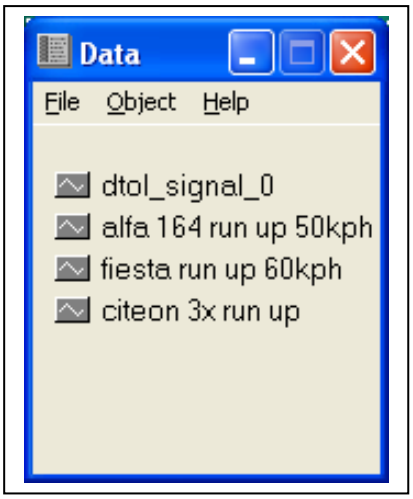
New nVision Features.

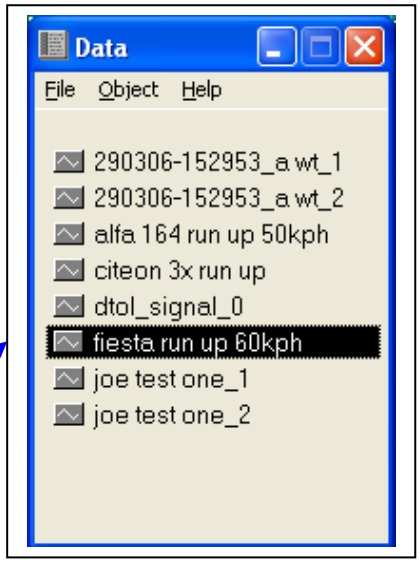
Ordering of the data in the data window.

In the previous release the data objects appear in the list.



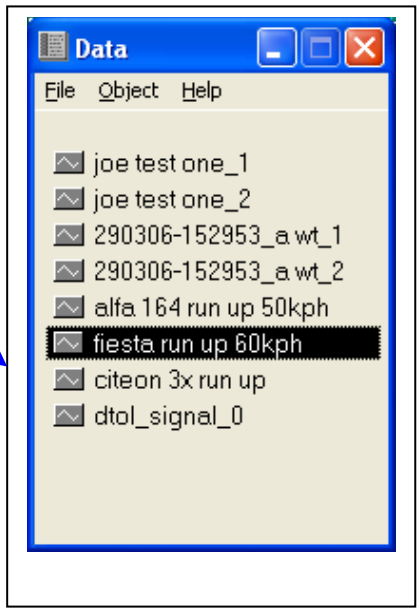
Under the Object pull down menu is now the choice to order the objects by:-

1. None
2. Name
3. date of creation



Ordered by name in numeric followed by alphabetic order.

Ordered by date and then time of creation.



Conclusions.

While there were no bugs in nVision 440c10 there are now some worthwhile changes that enhance the value of nVision. The changes to the Data Window ordering simplifies finding an object. Adding date to the SGRAPH and TRACE display makes the viewing of very long data sets, perhaps sampled slowly, practical.

The Data Translation parallel sample and hold USB connected cards are now a cheap and practical solution for NVH work where portability or budget constraints are important. The quality of the data gathered by these cards is excellent. The 4096 spectral line FFT magnitude graph shown below was acquired using the 10v range the level of the input signal was 1.25V rms. This signal was used to calibrate all channels at 94dB. Channel 1 shows the calibration signal; channel 2 was terminated with 50 ohms. The peaks in Ch2 do not correspond with the signal generator harmonics and hence cross talk is very low < -100dB. The noise floor is at least 100dB down on full scale for this 3Hz band width, typically this is as good as most products on the market today.