FFT_Plugin

Release 1.4 for evaluation only !
Please send us suggestions or bug reports !!

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FFT_Plugin Applies to RealBasic 2.1 or more recent running on Mac 68k, Mac PPC, Mac OSX and Win platforms

FFT_Plugin allow calculation of FFT (Fast Fourier Transforme), SDE (Spectral Density of Energy) and TFF (Inverse FFT).

FFT_Plugin include six Windowing function :

- Rectangular
- Hamming
- Hanning
- Triangular
- Blackman
- Welch

FFT_Plugin allow calculation of 8bit or 16 bits data_blocks from 8 to 16384 samples.

FFT_Plugin Property :

Name	type	Description
DataSize	integer	the Size in samples of FFT (must be a power of two from 8 to 16384)
TruncType	integer	theWindowTruncType 1 Rectangular 2 Hamming 3 Hanning 4 Triangular 5 Blackman 6 Welch
SampleRate	integer	(actually not used)
SampleSize	integer	theSize (in byte) of the Sample 1 8 bit sample 2 16 bit sample
dseMax	double	the dse Max value
RawDataPtr	integer	Address of the RawData memory block

FFT_Plugin Method :

Name	Parameters	Description
FFT		FFT Calculation input : RawData array output : reel, imag and dse arrays
TFF		TFF (Inverse FFT) Calculation input : reel, imag arrays output : RawData array
reel	index as integer	the Complex part. Index must be in the range 0 to DataSize-1
imag	index as integer	the Imag part. Index must be in the range 0 to DataSize-1
dse	index as integer	the Energy. Index must be in the range 0 to DataSize-1
RawData	index as integer	Get or Set the RaData with the size defined by the SampleSize property

Sample :

```
dim myFFT as FFTClass
dim i as integer
dim  dse(128) as double

myFFT = new FFTClass
myFFT.DataSize = 256            // 256 samples
myFFT.SampleSize = 1            // 8 bit sample
myFFT.TruncType = 1             // Rectangular


// Now build a test sample
for i = 0 to myFFT.DataSize - 1
        myFFT.RawData(i) = 128*(sin(i*6.28/255))
next

//      Calculation of the FFT
myFFT.FFT()

//      Get result : e.g. DSE
for i=0 to (myFFT.DataSize/2) - 1
        dse(i) = myFFT.dse(i)
next

 MsgBox "The plugin seems to be working fine."
```

History

16 Nov 2000 : 1.4

Rebuild with the latest REALbasic Plugins SDK 2.1.1a5

7 Sep 2000 : 1.3

OSX features available (Not tested)

3 Sep 2000 : 1.2

68k features available
reel and imag setup method available

17 Aug 2000 : 1.1

Three new windowTrunc functions : Triangular, Welch and Blackman
improvment in calculation of TFF

11 Aug 2000 : 1.0

First release

8 Aug 2000 : 1.0a7

Allow calculation of the Inverse FFT. New Method TFF.

8 Aug 2000 : 1.0a6

Improvement in calculation of the FFT

7 Aug 2000 : 1.0a5

Correct a mis-initialisation who cause a crash in windows application.

7 Aug 2000 : 1.0a4

Assume RawDataBuffer as a FFT_plugin property, no long use MemoryBlock.

New Method : RawData(index as integer) as integer, data is set or get as defined by theSampleSize property (8 or 16 signed bits)

New Property : RawDataPtr as integer, read only, return the address of the RawData buffe

5 Aug 2000 : 1.0a3

Assume Signed data as parameter to FFT method
Bug correction in the inversion matrix
r2.1 Demo application

Icon for FFT_Plugin Icon for TestFFT application

4 Aug 2000 : 1.0a2

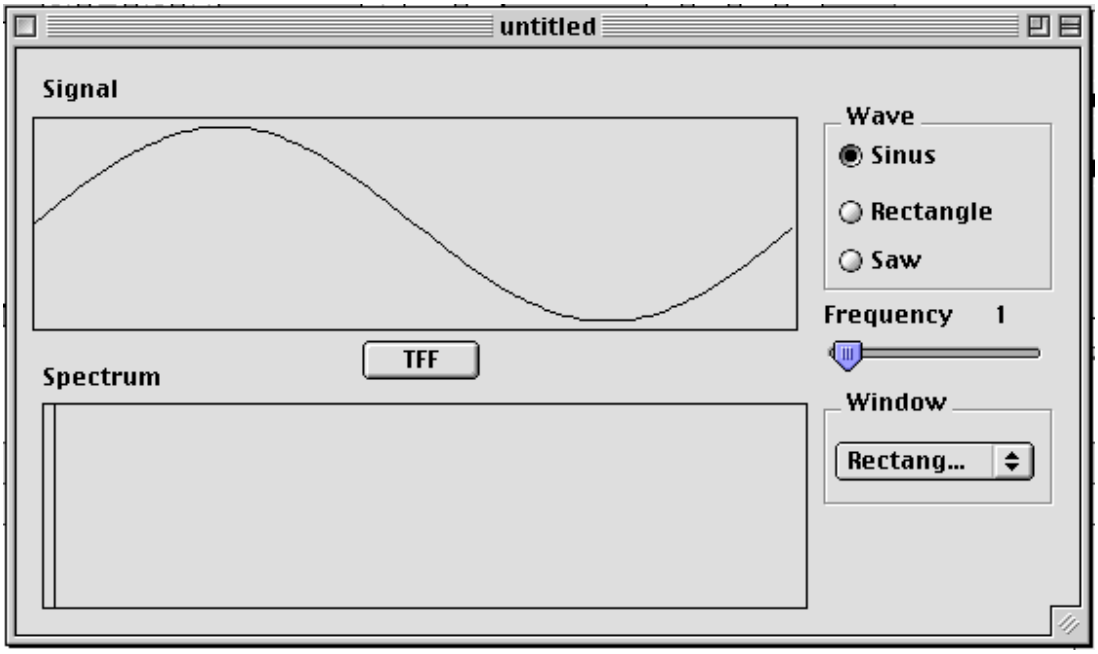
Add the dseMax property to the FFT_Plugin class
r2.0 Demo application

4 Aug 2000 : 1.0a1

First pre-release

TestFFT-2.5.rbp

TestFFT is a test application for FFT_plugin. TestFFT source is free.



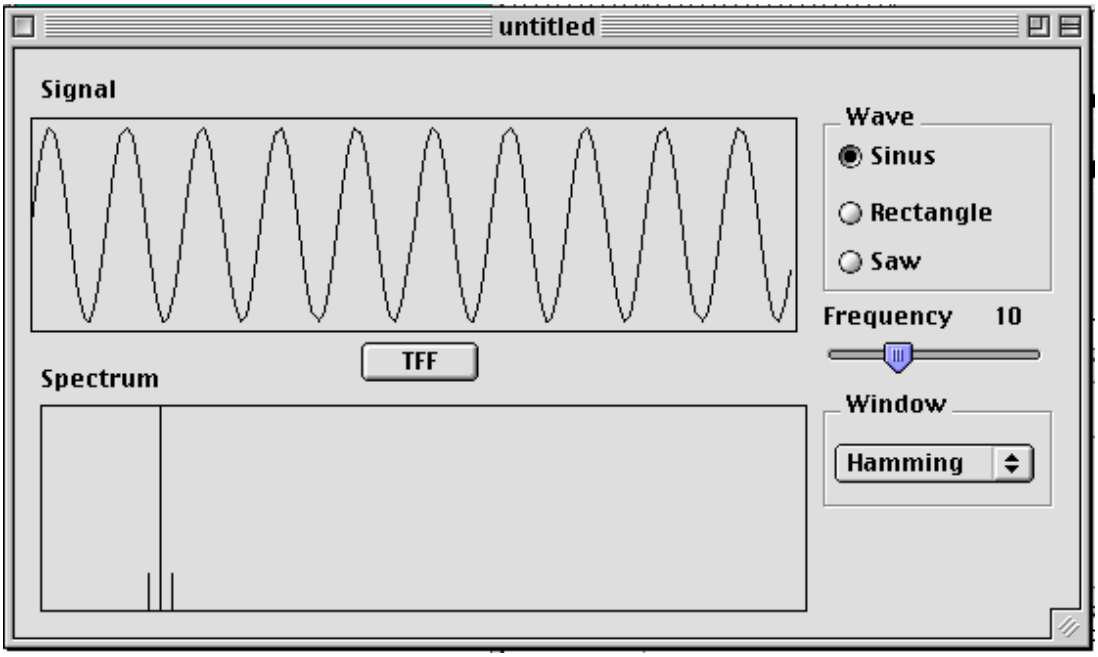
Test FFT main window is segmented into two parts :

- the signal part
- the spectrum part

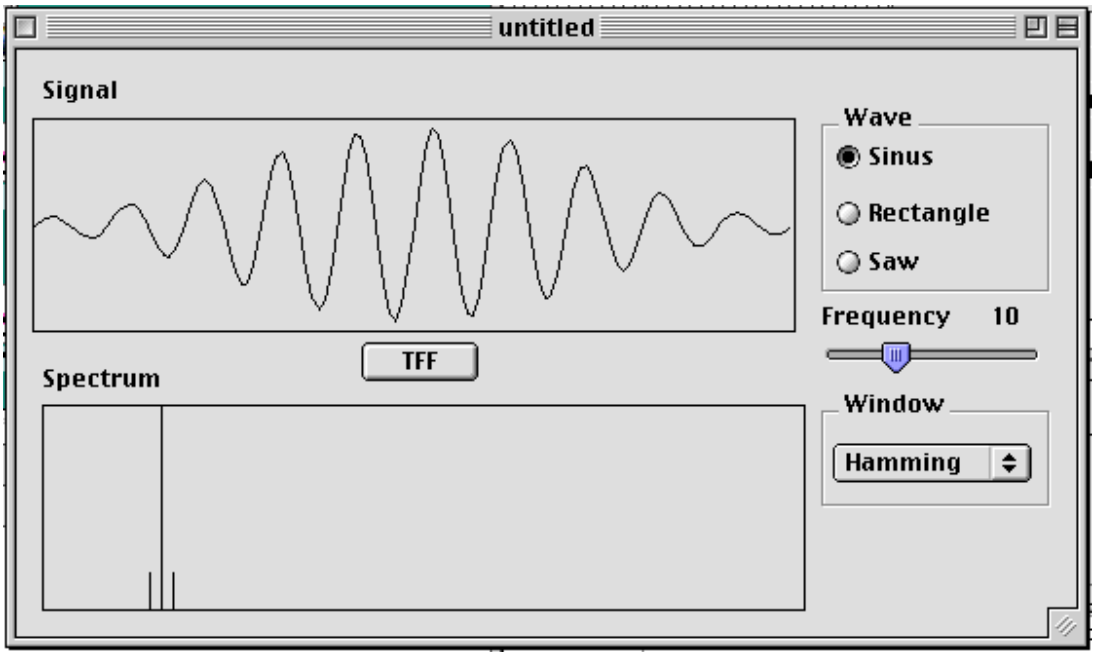
The signal part show the signal defined by the Wave Radio button and the frequency slider.

The spectrum part show the result of the signal part FFT. It is possible to select three types of trunc window : Rectangular, Hammin and Hanning.

the Reverse FFT is done by the mean of the **TFF button**. the result is displayed in the Signal window.



FFT of a sine wave with frequency 10 thru an Hamming window.



Rverse FFT (TFF) of the previous spectrum

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