

Application updates to the VME dds curve editor.

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Abstract

A brief overview of recent updates to the Booster dds curve editor application.

1 Introduction

The following will give detail to a few gui updates that should improve and or simplify the overall user experience for loading, editing, and sharing booster dds curves. Added functionality includes the ability to increase the number of points of a dds curve if appropriate. Inspection of CAMAC C473 ramp cards and devices such as ROF, RAG, etc. is also now possible. The usefulness of this editor with respect to C473 ramp cards is however limited. For example, editing and uploading the changes to the ramp card is not possible. **TL;DR** see [Section 3](#).

2 Recent application changes

2.1 UI

- communicate application *status* and *activity* via message and progress bars
- vme node selection defaults to the operational node *bllrf*
- the curve download process is initiated automatically following curve selection

2.2 Functionality

- *upsample* or increase the length of a curve, via interpolation
- inspection of Booster related CAMAC C473 device interrupt levels and ramps

Users can launch the editor directly from the [Java Controls](#) web launch service or from ACNET via index page **B30**. Upon start-up the program should display the following:

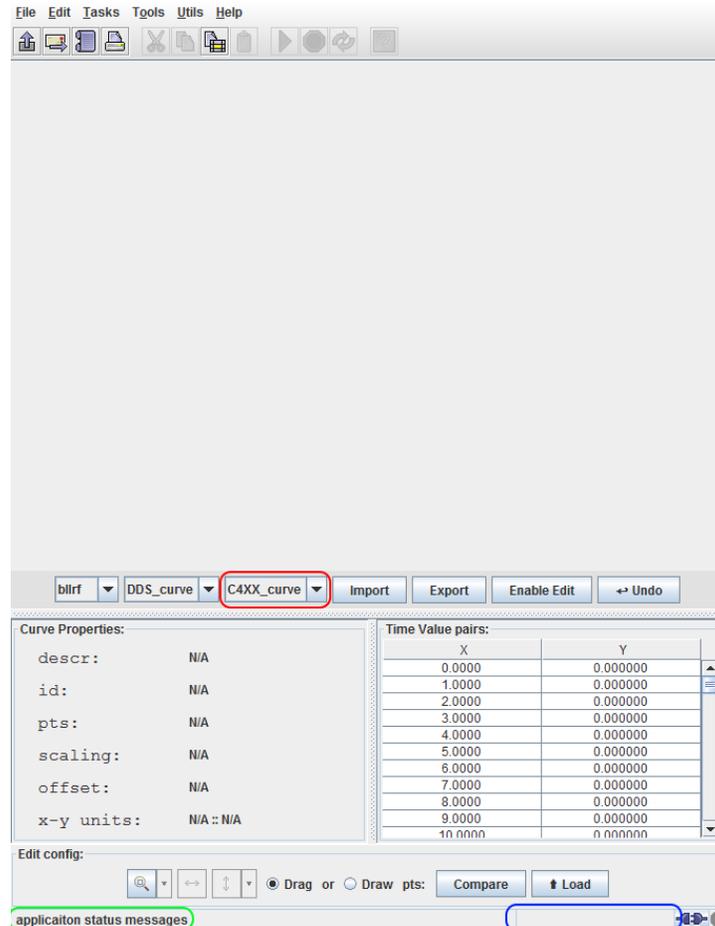


Figure 1: Start-up.

Additional gui components have been added to simplify the user interface. A status bar for messages, a progress bar to indicate activity, and a pull down menu to select a C473 device.

- *Application status message bar*
- *Application activity progress bar*
- *C473 ramp device selection*

The **GET** action button was removed as it is now unnecessary. Once a dds curve or C4XX device has been selected from the pull down menu the download process is automatically initiated.

3 Inspect DDS curve

To download a shared memory curve from a vme-dds board;

1. Select the appropriate FE node with the **VME** pull-down menu if not *bllrf*.
2. Select the desired dds curve with the **DDS_curve** pull-down menu.
3. The editor will now try and download the curve with activity indicated by the **progress bar**.
4. Upon successful download of the curve the chart area, properties panel, time-value pair table, and **message bar** should update appropriately.



Figure 2: Download a dds curve.

4 Inspect C473 interrupt levels and ramps

To download the list of interrupt levels and associated ramps in a booster related CAMAC C473 ramp card;

1. Select the desired device with the **C4XX_curve** pull-down menu.
2. The editor will now try and download the device with activity indicated by the **progress bar**.
3. Upon successful download of the device the chart area, properties panel, time-value pair table, and **message bar** should update appropriately.

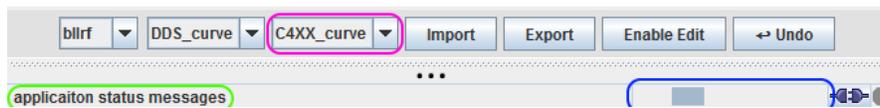


Figure 3: Download a C473 curve.

Following the successful download of a C473 device, the chart area and properties panel will update with some basic ramp card info and a table of interrupt levels for the associated Tclk events.

The ramp card information pane and interrupt table should be easy to find from the figures below. Basic info such as if the ramp is enabled or not, table number, scale factors, Tclk triggers, and card type is presented in familiar form.

As seen in the figure below. There is an additional step to inspect the time-value pairs for a specific interrupt level.

To view the ramp card time-value pairs *double-click* on the row for the interrupt level of interest.

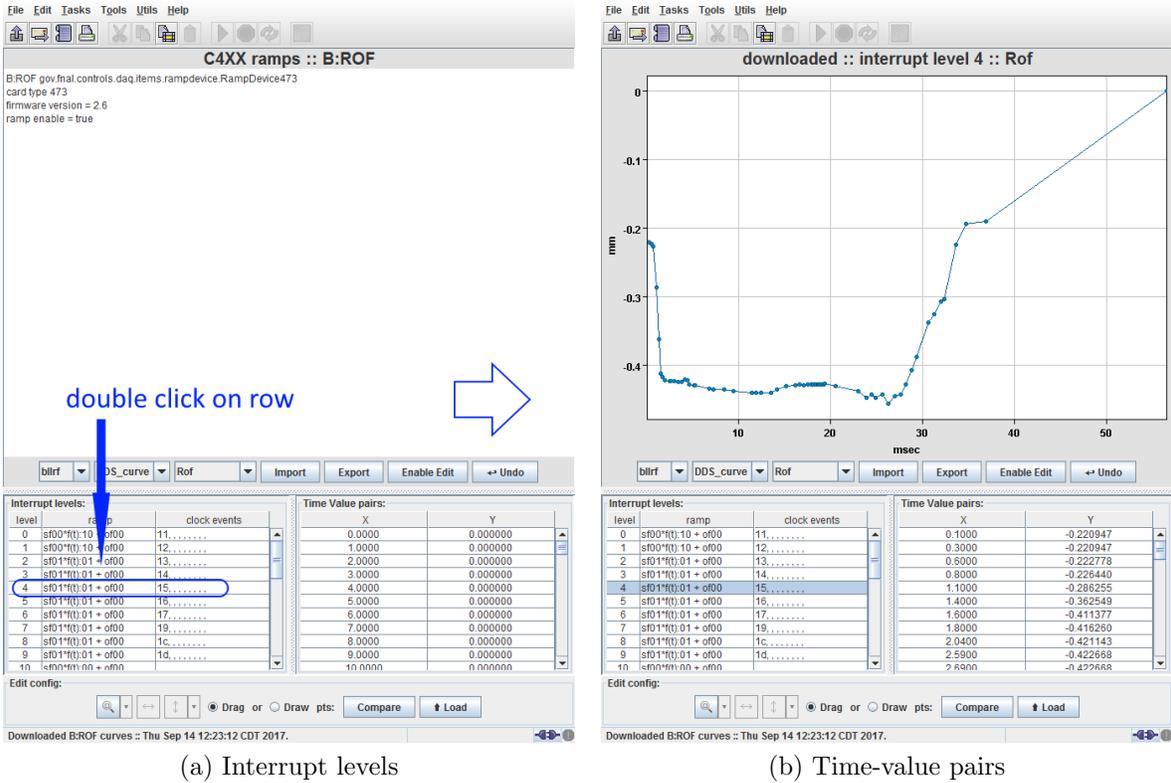


Figure 4: Download C473 ramp card.

The functionality of C473 ramp devices is limited to keep things simple. I do not plan on implementing functions to edit interrupt levels, change Tclk events, import, compare, or upload C473 ramp cards. You can however export them to a .csv file if you wish. The above was more a proof of principle.

5 Editing

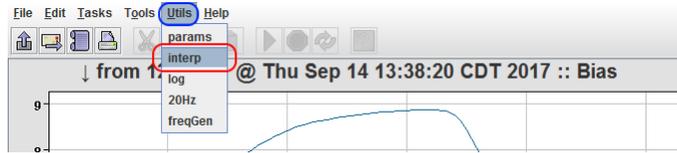
The process and functions for editing curves remain unchanged.

6 Upsample a dds curve

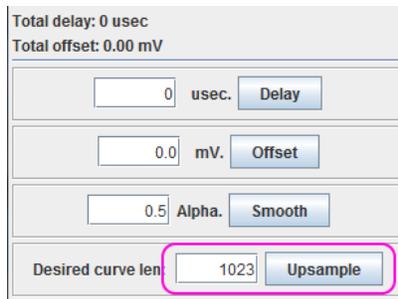
Increasing the length or number of points for a dds curve may be desired for a variety of reasons and has been accomplished via interpolation. Recall that the maximum length supported by the dds board is 1023. This function up-samples the curve to a much greater number of points then down samples to the desired number of points.

To upsample a dds curve from an existing curve:

1. Download or import an existing dds curve into the curve buffer.
2. Raise the **Interp** dialog window from the **Utils** file menu (a).
3. Enter the desired curve length in the Interp dialog.
4. The **Upsample** action button will increase the length of the curve. (b)



(a) Utils file menu



(b) Interp dialog window

Figure 5: Upsample dds curve.

If successful an *Upsampled Curve* window will appear. You have three options, close the window and do nothing, export the new values to a *.csv* file, or copy them to the application curve buffer for upload or further editing.

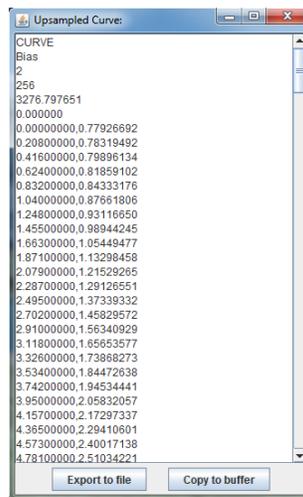


Figure 6: *Upsampled Curve* window.

7 Conclusion

I removed the action button to **GET** or download a curve, added a couple of components to communicate application *status* and *activity*, added a function to increase the length of a dds curve, and the editor will now display basic Booster C473 ramp card information.