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[Skip to content](#)

Search...	Search
Advanced search	

[ Moderator Control Panel ]

## Setting up feedback for the Coarse Delay block

Post a reply

Search this topic...	Search
----------------------	--------

14 posts • Page **1** of **1**

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2784)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2784)
- [Report this post](#) (./report.php?f=32&p=2784)
- [Warn user](#) (./mcp.php?i=warn&mode=warn\_post&f=32&p=2784&sid=befaf904784df501ab581b011c284453)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2784&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2784)

### Setting up feedback for the Coarse Delay block (#p2784)

by **culturejam** » Sun Jul 31, 2016 5:01 am

I did a search for "delay feedback", but the search engine said both terms were too common to search on. 😊

So with the Coarse/Servo delay block, how does one set up a feedback loop for the classic "multiple repeats fading out" sound?

I tried a couple things, but I must be off-base because my ideas were to have multiple connections to the same control nodes, and the software only allows one per node.

The Loop block seems like a logical starting point, but I don't see a way to add a pot to control the feedback amount/level.

Clearly, I haven't jumped the initial learning curve hurdle. But I feel like I'm getting close to that first "ah-ha!" moment. Very cool software. 🍷

Top

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2785)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2785)
- [Report this post](#) (./report.php?f=32&p=2785)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2785&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2785)

### Re: Setting up feedback for the Coarse Delay block (#p2785)

by **Digital Larry** » Sun Jul 31, 2016 5:31 am

Put a 2:1 mixer before the delay block. Input goes to mixer input 1. Feedback (from loop) goes to mixer input 2. Now you can connect a pot to input 2 control. Mixer output goes to delay input.

Top

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2794)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2794)
- [Report this post](#) (./report.php?f=32&p=2794)
- [Warn user](#) (./mcp.php?i=warn&mode=warn\_post&f=32&p=2794&sid=befaf904784df501ab581b011c284453)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2794&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2794)

## **Re: Setting up feedback for the Coarse Delay block (#p2794)**

by **culturejam** » Sun Jul 31, 2016 9:15 am

Holy shmoley, it works!! 🎉

Thanks, Larry.

Attachments

(./download/file.php?id=159&mode=view)

Top

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2796)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2796)
- [Report this post](#) (./report.php?f=32&p=2796)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2796&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2796)

## **Re: Setting up feedback for the Coarse Delay block (#p2796)**

by **Digital Larry** » Sun Jul 31, 2016 10:30 am

It's preferable to use a feedback loop (Loop...Add) when you are taking a downstream node back to a point prior to its origin, as you have done. It worked this time for you, but it may not work in the future.

Also, for fun, put a Control Smoother (from Control Menu) between your delay time control pot and the delay block Time control input pin. Beeeeooowwww....

Top

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2797)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2797)
- [Report this post](#) (./report.php?f=32&p=2797)
- [Warn user](#) (./mcp.php?i=warn&mode=warn\_post&f=32&p=2797&sid=befaf904784df501ab581b011c284453)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2797&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2797)

## **Re: Setting up feedback for the Coarse Delay block (#p2797)**

by **culturejam** » Sun Jul 31, 2016 10:46 am

I'll give that a try.

But first, I can't figure out how to delete a connection (black line) without deleting the block the line is connected to. Surely there is a way. Probably another obvious thing I'm overlooking.

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2798\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2798\)](#)
- [Report this post \(./report.php?f=32&p=2798\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2798&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2798\)](#)

### **Re: Setting up feedback for the Coarse Delay block (#p2798)**

by **Digital Larry** » Sun Jul 31, 2016 11:00 am

Right click on the connection destination pin to delete a connection.

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2799\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2799\)](#)
- [Report this post \(./report.php?f=32&p=2799\)](#)
- [Warn user \(./mcp.php?i=warn&mode=warn\\_post&f=32&p=2799&sid=befaf904784df501ab581b011c284453\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2799&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2799\)](#)

### **Re: Setting up feedback for the Coarse Delay block (#p2799)**

by **culturejam** » Sun Jul 31, 2016 11:44 am

Ahhhh. I was right-clicking on the line, not the pin. And I did try a pin earlier, but it must not have been the destination. Thanks for the clarification.

So I got the Smoother in there. Definitely better. What does the Frequency slider control the frequency of?

What does the Fine parameter on the Delay block control? Is it the stepping on the delay time?

Thanks for all the help, btw. Glad to finally get going with FV-1. This software definitely makes it a lot easier.

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2800\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2800\)](#)
- [Report this post \(./report.php?f=32&p=2800\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2800&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2800\)](#)

### **Re: Setting up feedback for the Coarse Delay block (#p2800)**

by **Digital Larry** » Sun Jul 31, 2016 1:16 pm

You have to click on the destination pin because there can only be one connection to an input, whereas an output can go to multiple places.

The frequency slider on the smoother sets the corner frequency of the low pass filter (which is what a smoother is). As it stands, that is non intuitive and should be replaced by the rise time,

which gives you an idea of how quickly it responds to changes. With the frequency at its lowest setting, it takes a second or more for the delay time to stabilize if you move the pot really fast. As the frequency gets higher, the response tracks more quickly.

The "fine" control on the delay block, as I remember, just adds to the total delay time. There's a bit of a problem with the sliders, in that unless I make the slider 1000 pixels wide, it could be hard to get millisecond accuracy on the delay time. As it turns out, you can also move the slider with the left and right arrow buttons. Some control panels have spinners (up/down arrows with a number) that let you enter a delay time that way, or you could type the value in directly. The program blocks are a little inconsistent in that regard. The older the block is, the less consistent it is.

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2802\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2802\)](#)
- [Report this post \(./report.php?f=32&p=2802\)](#)
- [Warn user \(./mcp.php?i=warn&mode=warn\\_post&f=32&p=2802&sid=befaf904784df501ab581b011c284453\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2802&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2802\)](#)

## **Re: Setting up feedback for the Coarse Delay block (#p2802)**

by **culturejam** » Sun Jul 31, 2016 3:46 pm

**Digital Larry wrote:**

The frequency slider on the smoother sets the corner frequency of the low pass filter (which is what a smoother is).

Got it. Thanks.

**Digital Larry wrote:**

The "fine" control on the delay block, as I remember, just adds to the total delay time.

Ah, right. So if you wanted a 512ms max delay time, dial in 500ms with the Coarse slider and the other 12 with the Fine. Makes sense.

Okay, so how do I crank the max delay time past 750ms? I recall reading some time ago that the FV-1 can push beyond 750ms by lowering the clock frequency or the sample rate or something like that. Can that be done inside SpinCAD? Or is that something that must be done in the ASM code?

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2803\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2803\)](#)
- [Report this post \(./report.php?f=32&p=2803\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2803&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2803\)](#)

## Re: Setting up feedback for the Coarse Delay block (#p2803)

by **Digital Larry** » Sun Jul 31, 2016 4:47 pm

If you're running at 44.1 kHz then you get maximum 32768/44100 seconds of delay. I don't have a block that goes any further than that. Search for "8 second delay" at the Spin forum and there's some code that accomplishes delay time extension by sub sampling. I've never tried it.

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2804\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2804\)](#)
- [Report this post \(./report.php?f=32&p=2804\)](#)
- [Warn user \(./mcp.php?i=warn&mode=warn\\_post&f=32&p=2804&sid=befaf904784df501ab581b011c284453\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2804&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2804\)](#)

## Re: Setting up feedback for the Coarse Delay block (#p2804)

by **culturejam** » Sun Jul 31, 2016 4:52 pm

Found it!

On this page:

[http://www.spinsemi.com/knowledge\\_base/demo\\_board.html](http://www.spinsemi.com/knowledge_base/demo_board.html) ([http://www.spinsemi.com/knowledge\\_base/demo\\_board.html](http://www.spinsemi.com/knowledge_base/demo_board.html))

The FV-1 demo board comes assembled with a 46.6084KHz crystal (cylindrical), which allows audio response to 20KHz, while limiting the total delay of the FV-1 internal RAM to 703mS. Use of a cheap 32768 watch crystal (widely available), will preserve signal bandwidth to 15KHz, and extend the internal delay memory to 1 second. The vast majority of effects applications do not suffer from a reduction in signal bandwidth, but are often improved by the extended available delay time.

So I guess this is a hardware-hack of sorts.

BTW, I'm going to write up a post for "Total Noobs Who are Too Dense to See Stuff that's Right in Front of Them" on setting up the simple delay I did.

Top

- [Edit post \(./posting.php?mode=edit&f=32&p=2805\)](#)
- [Delete post \(./posting.php?mode=delete&f=32&p=2805\)](#)
- [Report this post \(./report.php?f=32&p=2805\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=32&p=2805&sid=befaf904784df501ab581b011c284453\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=32&p=2805\)](#)

## Re: Setting up feedback for the Coarse Delay block (#p2805)

by **Digital Larry** » Sun Jul 31, 2016 4:58 pm

***culturejam wrote:***

Found it!

BTW, I'm going to write up a post for "Total Noobs Who are Too Dense to See Stuff that's Right in Front of Them" on setting up the simple delay I did.

See also:

[viewtopic.php?f=32&t=1367](http://holycityaudio.com/forum/viewtopic.php?f=32&t=1367) (<http://holycityaudio.com/forum/viewtopic.php?f=32&t=1367>)

[viewtopic.php?f=32&t=1495](http://holycityaudio.com/forum/viewtopic.php?f=32&t=1495) (<http://holycityaudio.com/forum/viewtopic.php?f=32&t=1495>)

[viewtopic.php?f=32&t=1481](http://holycityaudio.com/forum/viewtopic.php?f=32&t=1481) (<http://holycityaudio.com/forum/viewtopic.php?f=32&t=1481>)

[viewtopic.php?f=32&t=1491](http://holycityaudio.com/forum/viewtopic.php?f=32&t=1491) (<http://holycityaudio.com/forum/viewtopic.php?f=32&t=1491>)

Top

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2806)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2806)
- [Report this post](#) (./report.php?f=32&p=2806)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2806&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2806)

## **Re: Setting up feedback for the Coarse Delay block (#p2806)**

by **Digital Larry** » Sun Jul 31, 2016 5:02 pm

Here is a sw approach to extending delays.

[http://www.spinsemi.com/forum/viewtopic ... cond+delay](http://www.spinsemi.com/forum/viewtopic...cond+delay) (<http://www.spinsemi.com/forum/viewtopic.php?t=129&highlight=second+delay>)

Top

- [Edit post](#) (./posting.php?mode=edit&f=32&p=2807)
- [Delete post](#) (./posting.php?mode=delete&f=32&p=2807)
- [Report this post](#) (./report.php?f=32&p=2807)
- [Warn user](#) (./mcp.php?i=warn&mode=warn\_post&f=32&p=2807&sid=befaf904784df501ab581b011c284453)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=32&p=2807&sid=befaf904784df501ab581b011c284453)
- [Reply with quote](#) (./posting.php?mode=quote&f=32&p=2807)

## **Re: Setting up feedback for the Coarse Delay block (#p2807)**

by **culturejam** » Sun Jul 31, 2016 5:04 pm

Thanks for the tips. 😊

Top

Display posts from previous:  All posts  Sort by  Post time  Ascending  Go

Post a reply

14 posts • Page **1** of **1**

Return to Installing and Using SpinCAD Designer

Jump to:

Quick-mod tools:

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