

From: Matt Read Matt.Read@sintela.com 
Subject: Re: Xilinx Programmer and adapter PCB
Date: August 1, 2025 at 8:03 AM
To: Alana Sherman alana@mbari.org, Steve Jacobs steve.jacobs@sintela.com
Cc: Denis Klimov klimov@mbari.org, Andrew Lewis andrew.lewis@sintela.com, Rebecca Englert renglert@mbari.org, Richard Henthorn henthorn@mbari.org, Aaron Micallef amicallef@mbari.org

Hi Alana,

Apologies for the delayed response, and thanks for the detailed summary.

A few points to address your questions:

1. **RAID Drives:**

Both disks should be configured as part of a RAID 1 array (md0). If the RAID is in a degraded state, then redundancy is lost, and the data will only be on one disk. This can happen if there is a disk hardware fault, the disk has been hot swapped, or the system boots with only one disk attached.

To check the state of the RAID please boot with both disks attached. Our GUI software doesn't natively RAID support so the following will need to be done via running commands over ssh.

First check that both disks are enumerating in Linux:

lsblk | grep "sd"

```
sintela@ONYX-NANO-MATT-R:~$ lsblk | grep "sd"
sda      8:0    0    1.7T  0 disk
sdb      8:16   0    1.7T  0 disk
sintela@ONYX-NANO-MATT-R:~$
```

If you **can't** see both disks, please get back to us as we will need to investigate this separately. If both disks appear you can then check the status of the RAID md0:

sudo mdadm --detail /dev/md0 && cat /proc/mdstat

```
sintela@ONYX-NANO-MATT-R: ~
sintela@ONYX-NANO-MATT-R:~$ sudo mdadm --detail /dev/md0 && cat /proc/mdstat
dev/md0:
   Version : 1.2
  Creation Time : Tue Jul 22 10:58:40 2025
   Raid Level : raid1
   Array Size : 1875242304 (1788.37 GiB 1920.25 GB)
  Used Dev Size : 1875242304 (1788.37 GiB 1920.25 GB)
   Raid Devices : 2
  Total Devices : 2
 Persistence : Superblock is persistent

   Intent Bitmap : Internal

   Update Time : Mon Jul 28 12:22:14 2025
     State : clean
   Active Devices : 2
 Working Devices : 2
  Failed Devices : 0
   Spare Devices : 0


consistency Policy : bitmap

   Name : ONYX-NANO-MATT-R:0 (local to host ONYX-NANO-MATT-R)
  UUID : 3e396ecd:d327742f:603df618:15e5cff5
  Events : 10888

   Number   Major   Minor   RaidDevice State
    0         8        16         0     active sync  /dev/sdb
    1         8         0         1     active sync  /dev/sda

Personalities : [raid1]
md0 : active raid1 sda[1] sdb[0]
      1875242304 blocks super 1.2 [2/2] [UU]
   bitmap: 0/14 pages [0KB], 65536KB chunk

unused devices: <none>
sintela@ONYX-NANO-MATT-R:~$
```

The image above shows the RAID configured correctly. If you instead see the following:

Failure state:

```
Personalities : [raid1]
md0 : active raid1 sda[1](F) sdb[0]
      1875242304 blocks super 1.2 [2/1] [U_]
   bitmap: 0/14 pages [0KB], 65536KB chunk

unused devices: <none>
```

Missing drive state:

```
onalities : [raid1]
: active raid1 sdb[0]
```

```
18/5242304 blocks super 1.2 [2/1] [0_]
bitmap: 3/14 pages [12KB], 65536KB chunk
ed devices: <none>
```

If you see a failure state or a missing drive from the RAID you can run the following command to re-add the missing or failed disk to the RAID 1 array:

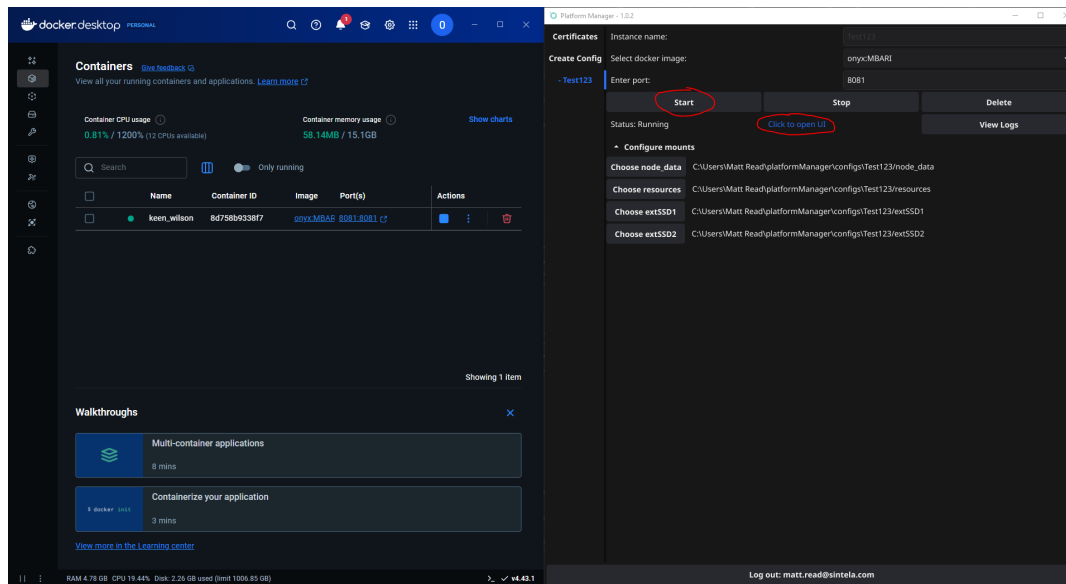
```
sudo mdadm --re-add /dev/md0 /dev/sda
```

It should be noted that this command was for my example with the issue with sda, if you find that your issue is with sdb please update the command accordingly. After running this command re check the raid with the command:

```
cat /proc/mdstat
```

2. Docker Functionality:

The Docker image **onyx:MBARI** is the correct image to use. The Docker image should register a 7-day licence with the portal. You can start the image and open the UI from within the platform manager:

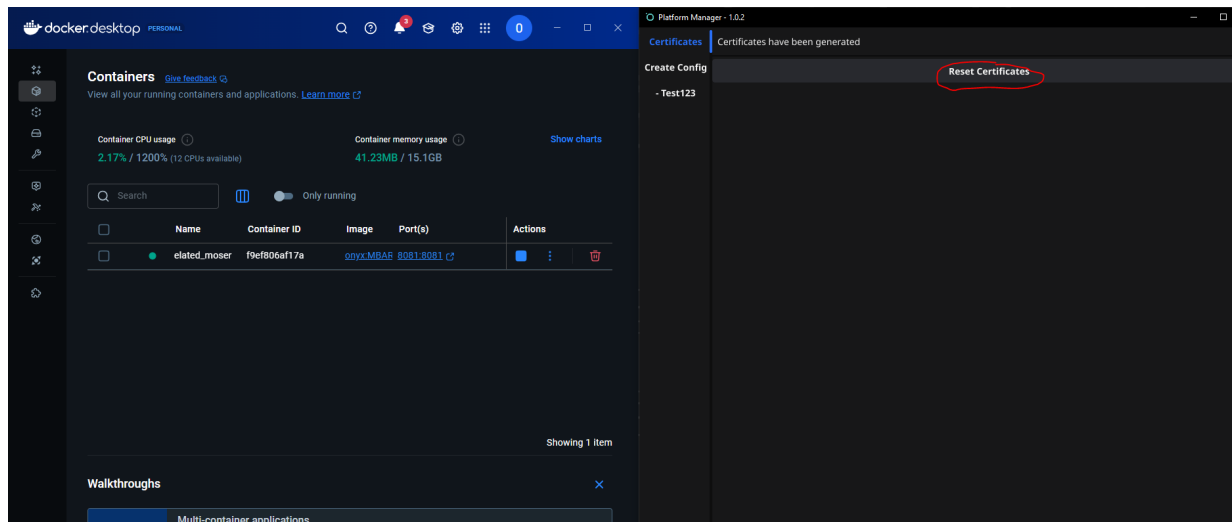


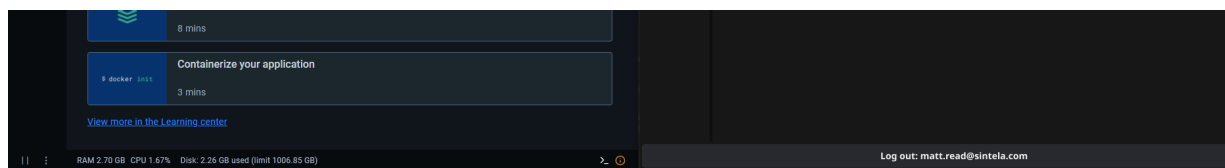
This should open our software in your browser, and it should take you to the login page. The credentials for this image are:

```
user name: Sintela
password: WelcomeDocker123
```

We have discovered an issue with the Platform Manage and we are working on a fix. Sometime at the login page you may see an an invalid licence and a serial number miss match and you won't be able to download or drop a valid licence into the Docker image. As a temporary workaround you can

stop the image, reset the certificate and then restart the docker image and the invalid licence issue should go away:

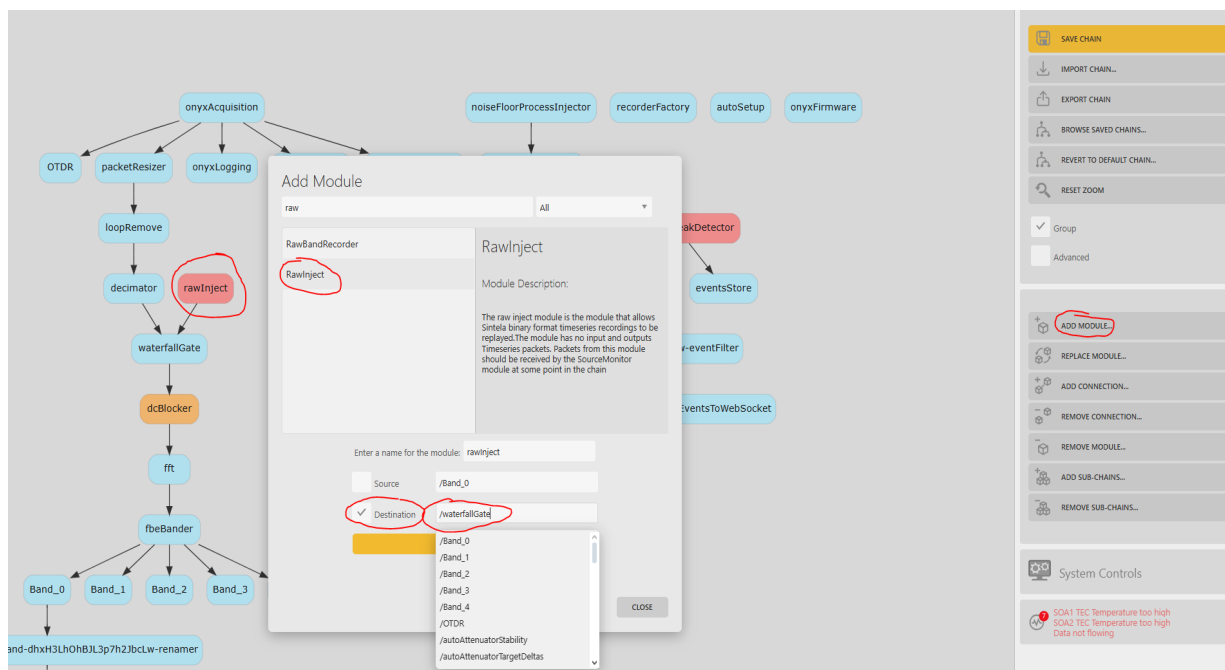




3. Replay Functionality:

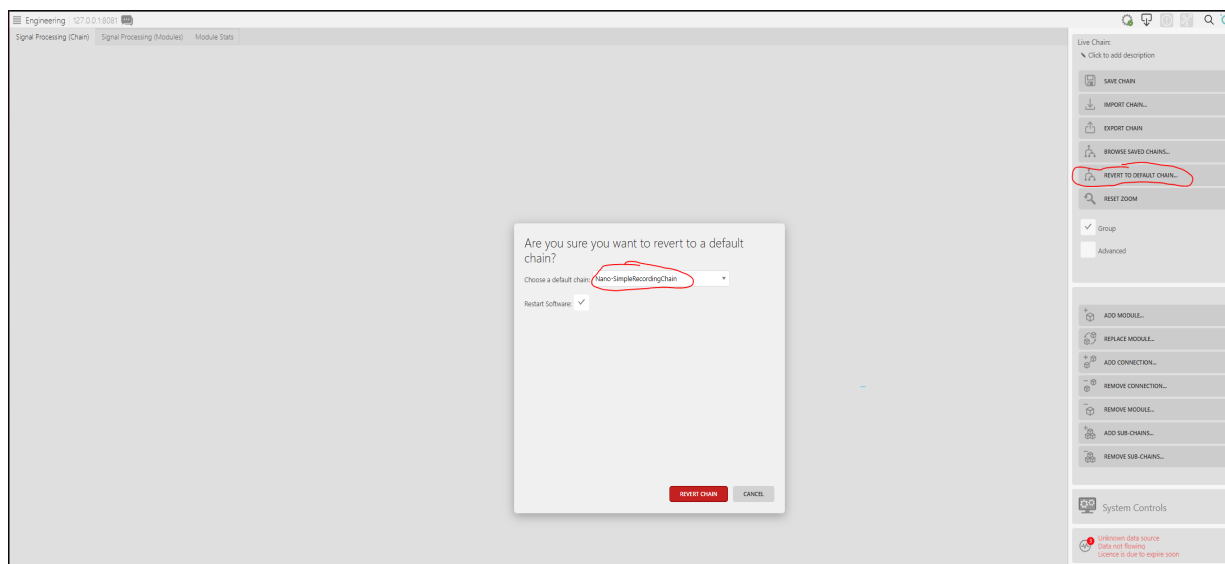
If the replay button is missing from the UI its likely because the rawInject module is missing from the chain. If this is the case, you can navigate to the Engineering page that shows your chain configuration, from there you will be able to add a new raw inject module. Its up to you if you would like to inject before or after your decimator.

In my example below I'm going after my decimator. Remember to save your chain after you make these changes:



After adding this module, the replay button should be visible on the Analysis and also the Dashboard page. If you need to ever reset your chain to the ONYX NANO default configuration

you can reset it on the Engineering page:



Thanks again for your patience, please let us know if you need help with any of the above or with any other questions

Many thanks

Matt Read | Embedded Software Engineer



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From: Alana Sherman <alana@mbari.org>

Sent: 11 July 2025 00:23

To: Steve Jacobs <steve.jacobs@sintela.com>

Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>; Rebecca Englert <renglert@mbari.org>; Richard Henthorn <henthorn@mbari.org>; Aaron Micallef <amicallef@mbari.org>

Subject: Re: Xilinx Programmer and adapter PCB

Hi all,

We spent this afternoon trying to offload the data from the raid drives on the onyx and then replay the recorded data, and finally convert it to HDF5. We ran into a few issues which I hope you can help us resolve.

1. Only one of the two RAID drives could be mounted on the Linux laptop. Luckily it had the data we recorded this morning, the one which plugs in right next to the JTAG connect. Our questions are:
 - a. Is the other raid not configured the same way?
 - b. Are we only storing our data on one of the raids?
2. We experienced a lot of trouble trying to open and login to the UI from the Platform Manager. In particular, most of our attempts would up with a UI that did not have a "Replay Recorded Data". At one point I actually was able to get the UI with the replay but my attempts to replicate that have not been successful.
 - a. What should the selected docker image be? onyx:MBARI?
 - b. I tried using lots of different logins and the license file. It never accepted the license file that I downloaded from the portal. I suspect that the different UIs have something to do with login credentials but I can't figure out what I am doing right or wrong.
 - c. I have attached screenshots of the UI with and without the replay, as well as the config that seems to work.

We were able to convert the files with no issues. Any help would be greatly appreciated!

Alana

0.2

stance name: platformtest

lect docker image: onyx:MBARI

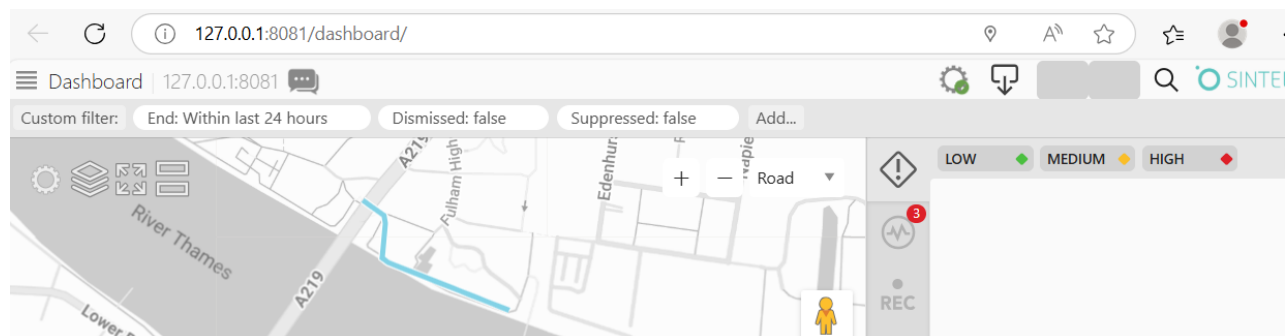
ter port: 8081

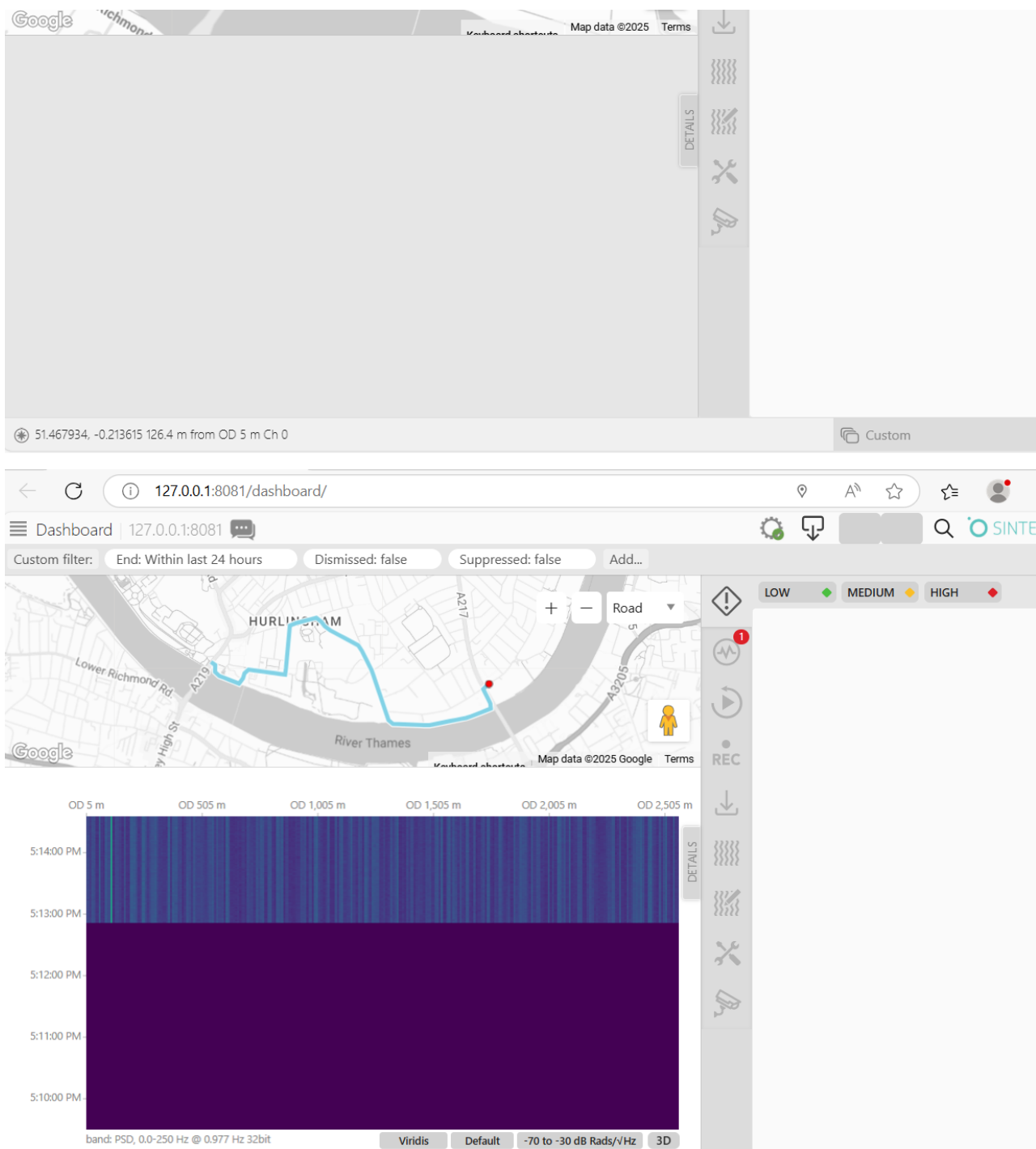
Start Stop Delete

atus: Running Click to open UI View Logs

Configure mounts

Log out: alana.sherman@gmail.com





From: Alana Sherman <alana@mbari.org>
Sent: Wednesday, July 9, 2025 4:59 PM
To: Steve Jacobs <steve.jacobs@sintela.com>
Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>
Subject: Re: Xilinx Programmer and adapter PCB

Hi Steve
 I have the software installed on two laptops. So we should be prepared tomorrow.

Alana

From: Steve Jacobs <steve.jacobs@sintela.com>
Sent: Wednesday, July 9, 2025 2:00 PM
To: Alana Sherman <alana@mbari.org>
Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>
Subject: RE: Xilinx Programmer and adapter PCB

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Hi Alana,

Good news!

Please see attached instructions from Matt for preparing a Windows machine with Vivado Design suite in preparation for re-flashing the FPGA.

If possible to have this installed in advance of the call tomorrow, that would be great. Let us know if you have any issues.

Regards,

Steve

From: Alana Sherman <alana@mbari.org>
Sent: 09 July 2025 19:19
To: Steve Jacobs <steve.jacobs@sintela.com>
Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>
Subject: Re: Xilinx Programmer and adapter PCB

Hi Steve

I have resolved the networking issues and have the instrument connected to the building network, so you can remotely access it. I am sending a Teams invite for tomorrow morning.

Alana

From: Steve Jacobs <steve.jacobs@sintela.com>
Sent: Tuesday, July 8, 2025 1:56 AM
To: Alana Sherman <alana@mbari.org>
Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>
Subject: Re: Xilinx Programmer and adapter PCB

Hi Alana,

Just a Windows machine will suffice, we will do a dry run here today from a 'virgin' laptop to ensure what needs to be installed, it should just be one tool for programming the FPGA (which we may not require, but it will save time having it available if needed).

Regards,

Steve

From: Alana Sherman <alana@mbari.org>
Sent: Monday, July 7, 2025 20:40
To: Steve Jacobs <steve.jacobs@sintela.com>
Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>
Subject: Re: Xilinx Programmer and adapter PCB

Hi all,

Will you need me to set up a Linux machine, as we did in January, or will network access to the instrument be sufficient?

Thanks

Alana

On Jul 7, 2025, at 6:06 AM, Steve Jacobs <steve.jacobs@sintela.com> wrote:

Hi Alana,

Thanks a lot.

Thursday at 4pm our time would be great.

I'll send a meeting invite out once you confirm you have custody of the programmer.

Regards,

Steve

From: Alana Sherman <alana@mbari.org>
Sent: Friday, July 4, 2025 16:36
To: Steve Jacobs <steve.jacobs@sintela.com>
Cc: Denis Klimov <klimov@mbari.org>; Andrew Lewis <andrew.lewis@sintela.com>; Matt Read <Matt.Read@sintela.com>
Subject: Re: Xilinx Programmer and adapter PCB

Hi Steve,
I feel very confident we have the Xilinx programmer and PCB you sent us, I last saw it when we were moving lab spaces. I am out of the office until Monday but I will send a confirmation email Monday morning.
If we could do it Thursday or Friday next week that would be great. We could be ready by 8am our time 4 pm yours, or earlier if needed.
We can do earlier in the week if that is better. I would like to get the system back on our network and make sure you can access it prior to Thursday as well.

Thanks

Alana

On Jul 4, 2025, at 4:59 AM, Steve Jacobs <steve.jacobs@sintela.com> wrote:

Hi Alana,

I just wanted to co-ordinate with you regarding the planned software update next week.

You will see in the below email I sent to Denis I enquired of the whereabouts of the Xilinx programmer tool and PCB we sent you with your first unit.

We plan to add a step to the upgrade session next week, to ensure your FPGA is on the latest version, which we would want this tool for.

Can you confirm you have this tool and it will be available next week? What day and time would suit you guys? I would allow at least an hour for the process to be safe (we will send ahead requirements of software to download to save time during the session).

Regards

regards,

Steve

From: Steve Jacobs <steve.jacobs@sintela.com>
Sent: Tuesday, June 24, 2025 17:54
To: Denis Klimov <klimov@mbari.org>
Subject: Xilinx Programmer and adapter PCB

Dear Denis,

I hope you are well.

We shipped you a Xilinx programmer tool and adapter PCB with the first Nano unit – can you please confirm you still have it? (It was not contained in the return shipment of the deployed equipment).

We need this equipment to get to one of our Engineers in the US, if you can confirm you have it, I can organise for it to be collected from you. Could you please put it in a small box and supply dimensions and weight?

Thanks a lot,

Steve