

**Report Title:** Incident Details  
**Run Date and Time:** 2022-02-09 14:27:19 Pacific Standard Time  
**Run by:** Sebastian Meuren  
**Table name:** incident

**Incident**

Number:	INC0347316	Opened:	2022-01-11 14:21:45
Opened for:	Sebastian Meuren	Impact:	1 - High
Watch list:	Minh Van, smeuren@slac.stanford.edu		

## Short Description:

\* Static IP for Building 244 - Raspberry Pi to interface with motor controller.

## Additional comments:

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2022-01-24 09:46:20 - Minh Van (Additional comments)

Sounds good. I will resolve this ticket then. Feel free to reopen this within seven days if you still need help. Thanks.

Best,  
Minh

2022-01-21 16:31:44 - Sebastian Meuren (Additional comments)

Hi Minh,  
thank you for your comments. Here is the traceroute:  
[[physics@facet-srv01 ~]/smeuren ]\$ traceroute e320pi  
traceroute to e320pi (172.25.77.138), 30 hops max, 60 byte packets  
1 rtr-mcccore1-facetca.slac.stanford.edu (172.27.72.2) 0.454 ms 0.592 ms 0.819 ms

I think they keep the control computer screened as much as possible from anything else, but I can get to the pi via a hop onto mcclogin:

```
[[physics@facet-srv01 ~]/smeuren ]$ ssh smeuren@mcclogin
smeuren@mcclogin's password:
smeuren@mcclogin $ ssh e320@e320pi
e320@e320pi's password:
e320@e320pi:~$
```

(I removed the intermediate output lines from the servers). Thus, I can set up a tunnel to the control computer via ssh, maybe that is the most efficient way to do this. However, it would be nice to have a port routed through without someone having to setup a manual tunnel. I will talk to the FACET control team, maybe they can propose a solution.

Cheers,  
Sebastian

2022-01-21 15:57:25 - Minh Van (Additional comments)

I think you posed the question with Andy in INC0348035. I think Networking and FACET IT team might be best to assist.

In general, I would do a traceroute from facet-srv01 to e320pi. Watch the hops and see if it'd tell you where it stops routing. Perhaps a firewall rule is blocking or a router that doesn't know how to route from there.

Are you supposed to be able to connect to anything from facet-srv01? i.e., are you able to SSH into other hosts from there? I'm not familiar with this server and couldn't ssh into to test (I couldn't even get a ping reply from it).

Could you ping something internal like win.slac.stanford.edu and get replies from facet-srv01?

Best,  
Minh

2022-01-21 13:07:04 - Sebastian Meuren (Additional comments)

Hi Minh,  
thank you very much, that sounds great. The only question that is left is access to the pi from the FACET control server. This might be a question for the FACET IT team though. Our control software will be running on:  
[[physics@facet-srv01 ~]/smeuren ]\$  
Do you know with whom I should discuss this question?  
Cheers, Sebastian

2022-01-21 12:38:40 - Minh Van (Additional comments)

No worries. Thanks Sebastian. Your Pi should be all set. Unix-Admin setup the proxy setting to allow your pi to grab updates; I think you'd be all set. Let me

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know if there's anything else you need regarding this request.

Best,  
Minh

2022-01-21 12:26:13 - Sebastian Meuren (Additional comments)

Hi Minh,  
sorry for the delay, I needed to catch up on some sleep after the access. Here is the output:

```
e320@e320pi:~$ sudo /usr/bin/knife-node-show knife status
[sudo] password for e320:
{
  "name": "e320pi.slac.stanford.edu",
  "chef_environment": "testing_cc13",
  "run_list": [
    "recipe[slac_dns]",
    "recipe[slac_ntp]",
    "recipe[slac_motd]",
    "recipe[slac_mailgateway]",
    "recipe[slac_root]",
    "recipe[slac_ssh]",
    "recipe[slac_scanner]",
    "recipe[slac_shells]",
    "recipe[slac_chef_client]",
    "recipe[slac_chef_client_updater]"
  ]
,
  "normal": {
    "tags": [
    ]
  }
}
e320@e320pi:~$
```

I went to "<https://www.slac.stanford.edu/comp/unix/auth/superuser-req.shtml> " and submitted the request (I said that I already have sudo rights on the machine).

Thank you for your help,  
Sebastian

2022-01-20 14:14:45 - Minh Van (Additional comments)

Hi Sebastian -- It appears the chef script was ran when the hostname was Ubuntu? It appears to be fine from the back end. Could you try running and posting the output of:

```
/usr/bin/knife-node-show knife status
```

Could you still submit the sudo form for tracking purposes?

Still getting a confirmation from Unix-Admin on whether cheffed host could run effectively on a private network.

Best,  
Minh

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2022-01-20 11:36:27 - Sebastian Meuren (Additional comments)

Hi Minh,

I have sudo rights on the pi, is that fine? I think the problems with the script were caused by the fact that the pi wasn't able to connect to the internet and pull updates from ubuntu.com. As soon as you give it access to the internet (or just the ubuntu repositories), this issue should be resolved. Do you have a SLAC-hosted ubuntu repository for feeding security updates to all the computers which are not able to access the internet directly?

Cheers,  
Sebastian

2022-01-20 11:17:12 - Minh Van (Additional comments)

Hi Sebastian -- Glad to hear that. I see Andy from Networking is helping you getting it online in B244 in INC0348035.

Let me check on the error and get back to you.

```
sudo: unable to resolve host ubuntu
node_name not found in /etc/shef/client.rb
```

Here's the sudo form request if you need it for this host  
<https://www.slac.stanford.edu/comp/unix/auth/superuser-req.shtml>

Best,  
Minh

2022-01-20 10:44:05 - Sebastian Meuren (Additional comments)

Hi Minh,  
we have installed the pi in the FACET tunnel (I attached a picture). It can be patched to the switch labeled: "SWH-B244" in the FACET trailer (building 244). We can connect it to port 7. Could you activate this port for the MAC address of the pi? I have tested the connection, it seems to work fine (pi is configured such that it asks for an IP address via DHCP, in my office your network provided the IP in this way).

Thank you very much for your help and for expediting this request!

Cheers,  
Sebastian

2022-01-19 20:14:27 - Sebastian Meuren (Additional comments)

Hi Minh,  
just an update, the pi seems to be working fine, I can ssh onto it from my computer if I am vped to the SLAC network. Let me know if the issues reported in my previous post are a concern or how to fix these.

Cheers,  
Sebastian

2022-01-19 19:17:32 - Sebastian Meuren (Additional comments)

Hi Minh,  
thank you very much. I connected the pi to this port and dhclient set up the IP correctly. I run the command that was posted earlier here:

```
curl -s yum.slac.stanford.edu/go-chef | sudo /bin/sh
```

It couldn't connect to ubuntu, I assume the network is completely private. The script exited with the messages:

```
sudo: unable to resolve host ubuntu
node_name not found in /etc/shef/client.rb
```

Is that fine?

Thanks for your help,

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Sebastian

2022-01-19 17:20:52 - Minh Van (Additional comments)

You're welcome! e320pi should have private IP 172.25.67.74 soon. I've set the IP and location to B040A-R210 for the time being. Before it's moved to the eventual location, we'll need to update its IP and location.

Best,  
Minh

2022-01-19 16:59:47 - Sebastian Meuren (Additional comments)

Hi Minh,  
thank you very much! I set the hostname to "e320pi"  
Does that work for you?  
Sebastian

2022-01-19 16:55:56 - Minh Van (Additional comments)

Hi Sebastian -- Networking has configured the port. I will create the NetDB now. What is the hostname of this device?

Best,  
Minh

2022-01-19 16:17:41 - Minh Van (Additional comments)

No problem. Not much else is required. CrowdStrike Falcon should be our main AV and it's very light weight; it should be also part of the chef script.

Best,  
Minh

2022-01-19 14:03:28 - Sebastian Meuren (Additional comments)

Hi Minh,  
thank you very much, I appreciate your help! Is there anything else I can do in the mean time? Any software packages you require? I am going to install clamav, anything else?  
Cheers,  
Sebastian

2022-01-19 13:23:08 - Minh Van (Additional comments)

I've created INC0348035 to our NetOps team and put in a work notes that you'd like to expedite this. Stay tuned!

Best,  
Minh

2022-01-19 13:15:11 - Sebastian Meuren (Additional comments)

Awesome, thank you very much. Will they be able to do this today? We only have access until tomorrow early morning, so it would be great to finish the setup in time.  
Cheers, Sebastian

2022-01-19 13:05:31 - Minh Van (Additional comments)

Sure I will submit a request with NetOps team to activate/config port 210 A1 in Building 40A. We'll put this on the private subnet (meaning it won't be able to reach the internet). I will then register the device's mac.

Best,  
Minh

2022-01-19 12:45:54 - Sebastian Meuren (Additional comments)

Hi Minh,

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the easiest for me would be if you activated port 210 A1 in Building 40A for the pi. Would that work? The device MAC is:  
DC:A6:32:8D:ED:52

```
eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000  
link/ether dc:a6:32:8d:ed:52 brd ff:ff:ff:ff:ff:ff
```

Is that feasible?

Thank you for your help,  
Sebastian

2022-01-19 12:41:32 - Minh Van (Additional comments)

Hi Sebastian -- We can put in a request to activate/configure a private network port with NetOps for you to chef it. You mentioned SWH-B244 port 7 (do you have the exact label on the wallplate?)

Or, do you want a port in your workspace to test this first? If you already have an active port in your space, and it's tied up to a wi-fi capable device then perhaps you can unplug that temporarily to use to chef the pi. Let me know what you'd prefer and I'll register the pi's Mac address to allow it online.

Yes it should work with 20.04 LTS. You don't need the server edition; desktop edition is fine.

The command to chef is:

```
curl -s yum.slac.stanford.edu/go-chef | sudo /bin/sh
```

Best,  
Minh

2022-01-19 11:31:09 - Sebastian Meuren (Additional comments)

Hi Jarred,

```
Linux ubuntu 5.4.0-1042-raspi $46-Ubuntu SMP PREEMPT Fri Jul 30 00:35:40 UTC 2021 aarch64 aarch64 GNU/Linux
```

I will now try to run your script. However, I am having problems getting the pi into the SLAC network. I am using my own computer (VPNed to SLAC) as a gateway in a local network that I have set up. Is there a principle issue with that?

Cheers,  
Sebastian

2022-01-19 11:25:53 - Jarred Wickham (Additional comments)

Hello Sebastian,

Can you give me the output of the following command.

```
uname -a
```

Best regards,  
Jarred Wickham

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SLAC IT Service Desk  
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2022-01-19 00:40:59 - Sebastian Meuren (Additional comments)

Hi Minh,

I am sorry for the delay, here are the hardware information:

Raspberry Pi 4 Model B Rev 1.2

4 GB of RAM.

I just installed Ubuntu 20.04 LTS server to be compatible. I also looked at your script. The comment says:

"# Chef bootstrap script. Supports RHEL 7, CentOS 7, Ubuntu 16.04 and 18.04", I hope the comment is just outdated and it works with 20.04 as well.

Cheers,

Sebastian

2022-01-14 10:27:30 - Minh Van (Additional comments)

No rush Sebastian; take your time. I'm actually waiting to hear back from Unix-Admin for their opinion as well.

Best,

Minh

2022-01-14 10:22:25 - Sebastian Meuren (Additional comments)

Hi Leo, Hi Minh,

thank you for pushing this forward. I haven't had a chance to determine the exact specs yet, I think it is a RP version 4. So it has quite some resources for a RP. I will try your script over the weekend, we had an intense day yesterday and today is also going to be difficult.

I will try to have more information for you shortly. My apologies, we have to take care of a few things in parallel...

Cheers,

Sebastian

2022-01-14 08:52:46 - Leo Tapiador (Additional comments)

Hi Sebastian Meuren,

I wanted to follow up and confirm you received Minh's email communication yesterday:

You can take a look at the script here:

<http://yum.slac.stanford.edu/go-chef>

Btw, which Raspberry model is this and do you have the specs handy? I'm also consulting Unix-Admin team to see if this is reasonable.

Please let us know if you need further assistance.

If you prefer to chat by phone or have us make the appointment for you, please feel free to contact us at the SLAC IT Service Desk at 650-926-4357. We are available Monday - Friday from 7AM - 6PM PST. Please make sure to provide your Ticket Number INC0347316.

Best regards,

Leo Tapiador

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For IT help, please go to <https://ithelp.slac.stanford.edu/>

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2022-01-13 12:22:27 - Minh Van (Additional comments)

Hi Sebastian,

You can take a look at the script here:

<http://yum.slac.stanford.edu/go-chef>

Btw, which Raspberry model is this and do you have the specs handy? I'm also consulting Unix-Admin team to see if this is reasonable.

Best,

Minh

2022-01-12 18:13:41 - Sebastian Meuren (Additional comments)

Hi Minh,

we can certainly try this. The main issue is that the resources are really low, so I hope your script isn't pulling too much additional software (or this can be disabled). Could you share the script somehow? It would be good if you could give me access to the SLAC network for the device, e.g., via a port in my office in B40. Is that feasible? Then I can try from there.

Cheers,

Sebastian

2022-01-12 17:06:38 - Minh Van (Additional comments)

Not an inconvenience.

Seeing that you've put Ubuntu on it (we recommend Ubuntu 20.04 LTS), would you be open to trying to join this controller to our management system (Chef)? This should make the system compliance and therefore we don't have to go through Cyber exception process. This involves pulling a script down from our server and it will execute the needed configurations.

Some examples of what it'll do:

DNS (sets the correct, current SLAC DNS servers)

Message of the day (/etc/motd)

Mail client (configures the correct mail servers to use at SLAC to send outgoing mail)

Manages the root password

Configures the ssh client and server for optimal use at SLAC

Installs zsh and tcsh shells if they are not already installed

This is more typical of a setup for a full fledged computer (Dell laptop/desktop); don't believe we've tried this with a low powered device like Raspberry Pi.

If you think this is too much overhead and there's a strong reason to self manage this controller then we'll proceed with the Cyber exception process.

Best,

Minh

2022-01-12 16:23:42 - Sebastian Meuren (Additional comments)

Hi Minh Van,

I installed Ubuntu on the Raspberry Pi, but Raspberry Pi OS would be a good option too. It doesn't matter too much, I only need to ssh on the device, run a python3 script and have access to a USB port which is used as a terminal to talk to the actual Thorlabs motor controller. We will have a telnet port open, similar to the Newport picomotor controller.

No sensitive information will be stored on the device. As there are no sensitive information on the controller, encryption is not needed (and would be impractical, we want to keep recovery simple in case something goes wrong).

We would like to keep access to the device limited to within the SLAC network, therefore this device will not cause a security concern.



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The device has limited computational power (very limited). We can install the recommended Linux antivirus scan (clamav) if you think that is needed.

If this is not approved, our experiment will have no way to move these motors, i.e., this will be a severe limitation.

Is this helpful? I apologize for the inconvenience this is causing to you.

Sebastian

2022-01-12 16:12:16 - Minh Van (Additional comments)

I certainly hope it'll be as smooth as possible. The motor controller, does it run an OS at all? (Raspberry Pi OS?)

I'm going to try to field a few questions ahead.

-What kind of information would be stored the controller, if at all? (business or science info, the sensitivity nature of the info?)

-Background and reason for exception including what steps have you taken before submitting this request? i.e., what steps would you try to comply with SLAC minimum security requirements, as they are written?

You can review the Min Sec here:

[https://slac.sharepoint.com/sites/pub/Publications/701-I02-001-00\\_Min\\_Sec\\_Req\\_for\\_Comp.pdf](https://slac.sharepoint.com/sites/pub/Publications/701-I02-001-00_Min_Sec_Req_for_Comp.pdf)

Some example of questions:

-Will an antivirus be applicable to this controller? We may be able to supply CrowdStrike Falcon Sensor depends on the OS.

-Will you manage its patches and OS updates, if applicable?

-Will you encrypt the storage? backup plan, etc.

What is the risk to the lab if this exception is not approved? Please goes into the potential productivity loss or any significant hardships your team would run into without this setup.

Once we get the needed info. I will submit a separate request for the Cyber team to review.

Best,

Minh

2022-01-12 14:44:30 - Sebastian Meuren (Additional comments)

Hi Minh Van,

thank you very much, sorry for having two tickets on this one. Here is Christine's port number:

SWH-B244 has many ports free. Let's go with lucky number 7!

Is this all you need for now from my side? I hope we can get a cyber exception for this one without much trouble.

Cheers,

Sebastian

2022-01-12 13:20:45 - Minh Van (Additional comments)

Hi Sebastian -- I've merged INC0347443 into the work notes and will be closing that one soon. Likely we'll need to go through Cyber Exception process before we can put that online. We'll be in touch soon for next steps.

Best,

Minh

2022-01-12 12:59:45 - Sebastian Meuren (Additional comments)

Hi Minh Van,

thank you for the fast reply. I talked to the IT helpline ~30 minutes ago, and they opened this ticket: INC0347443 could you merge the two?

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Now related to your question: this is a self-built motor controller, the ethernet interface is based on a Raspberry PI, currently running Ubuntu.

Access to the device can be limited to within the SLAC network. We only need to be able to talk to this device from the SLAC main campus (Building 40, Accelerator control room in building 52, ground floor).

The MAC address is:

DC:A6:32:8D:ED:52

We will provide the port number as soon as Christine Clarke has provided it.

I hope this helps, I am happy to talk to you in person or via zoom,  
Sebastian

2022-01-12 12:23:46 - Minh Van (Additional comments)

Hi Sebastian,

What kind of device is this? Typically, if it's a computer it will need to be SLAC managed before it could get on the network. Otherwise, we'll need to follow Cyber exception process if there's a business need.

Some preliminary questions:

What is OS the device will be running (is this a traditional computer)?

Where is it and what network port it needs to be hooked up to?

What is the mac address?

Could you provide the exact location of the accelerator control room (Bldg-Rm)?

Best,

Minh Van

2022-01-12 12:12:35 - Sebastian Meuren (Additional comments)

Hi SLAC IT,

we need this IP quite urgently. I hope you can help us or redirect to the right people to talk to.

Thank you very much in advance,

Sebastian

2022-01-11 14:21:46 - Sebastian Meuren (Additional comments)

Hi SLAC IT help,

happy new year. We, the E-320 experiment at FACET-II, needs a static IP for a device located in B244. This IP doesn't have to be accessible from outside of SLAC, but, if possible, we would like to get access to it from the accelerator control room. If it helps, I am happy to meet in person or via zoom.

Cheers,

Sebastian