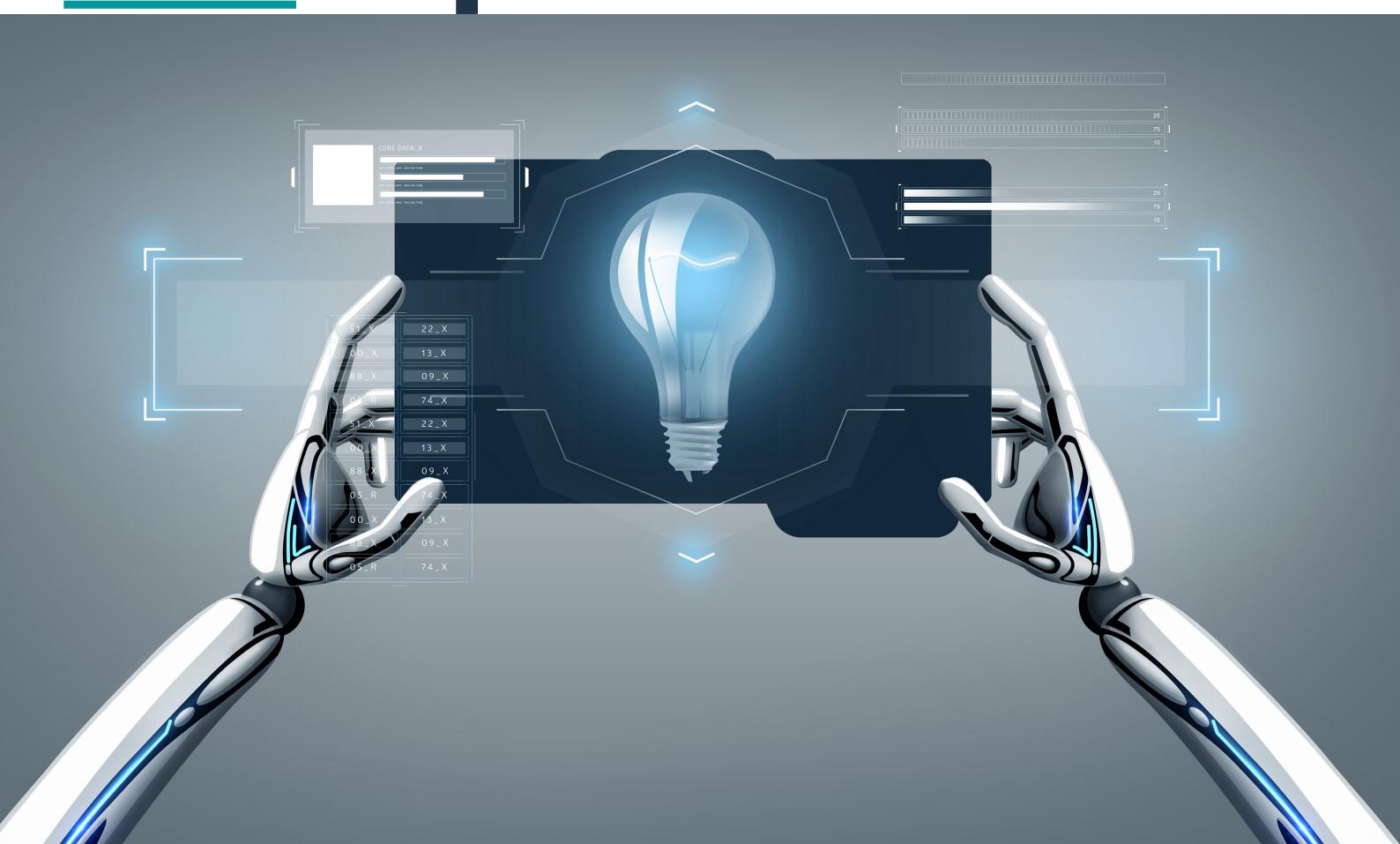




CYBER TRAINING BATTALION

CYBER INNOVATION CENTER

Fort Gordon, Georgia



Overview

WRITTEN BY JERIEL JUARBE

The Cyber Innovation Center (CIC) is a place for students to spend their time learning, collaborating, and challenging themselves. The CIC is the product of leaders that identified the requirement to empower servicemembers, assigned to the Cyber Training Battalion (CTB), to channel their creativity and discover possibilities.

The imagination of today's modern Soldier has no boundaries. At the CIC, Soldiers spend their time working on learning a new programming language, orchestrating infrastructure as code, hacking firmware, and building electronics. Read this guide to get started or to familiarize yourself with the CIC's current capabilities.

Capabilities

VIRTUALIZATION
DEVOPS
CI/CD
COLLABORATION
CAPTURE THE FLAG
ELECTRONICS
WORKSTATION
COMPUTER NETWORKING
SELF-LEARNING
LIBRARY OF KNOWLEDGE

"The first step is to establish that something is possible; then probability will occur."

-Elon Musk

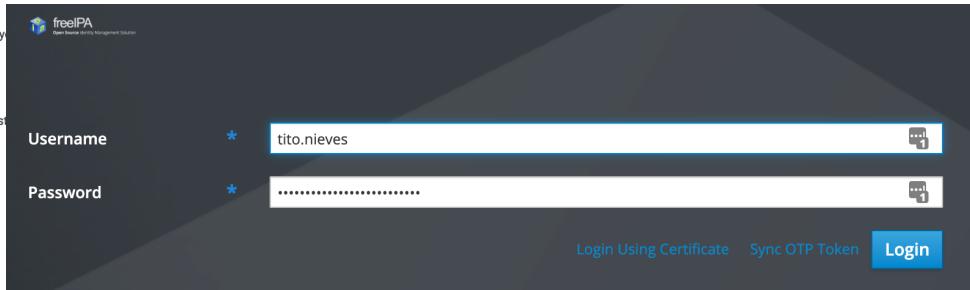
First Things First

Getting Started

If you have never logged in to the [Cyber School GitLab](#) or used a named account on the VTA, your request will automatically be approved. Other requests are handled on a case-by-case basis.

By registering for an account, you get:

- Permanent access to the USACYS Gitlab as an external user (you must explicitly request this)
- Permanent access to your own VTA project with:
 - 20 Cores
 - 10 Instances
 - 50G RAM



Create a CSTN Account

[HTTPS://COMMON.CYBBH.IO/CONTRIBUTING/CONTRIBUTING/LATEST/GETTING-STARTED.HTML#REGISTRATION](https://common.cybbh.io/contributing/contributing/latest/getting-started.html#registration)

Registration requires CAC authentication. Ensure to utilize a CAC reader with a browser that works well with the reader (e.g., Chrome, Firefox, Internet Explorer).

- (1) Navigate to the URL above
- (2) Click on the registration URL link
<https://register.cybbh.space>
- (3) Select your email certificate and enter your PIN
- (4) READ and Accept the AUP.
Select "Create Account"
- (5) Take note of your username and temporary password. Read the information displayed.
- (6) Set a new password for your account on the IPA server located at
<https://ipa.cybbh.space/ipa/ui/>
Note: Select "Cancel" if prompted for CAC Auth
- (7) Enter your username and temporary password
- (8) The password reset window appears. Enter the data in the fields as required.
Note: Leave OTP field blank

CSTN Websites

VTA, IPA, GIT, AND GUIDE

(1) VTA - To access OpenStack platform
<https://vta.cybbh.space>

(2) IPA - To access user account settings
<https://ipa.cybbh.space/ipa/ui/>

(3) GIT - Cyber School GitLab front end
<https://git.cybbh.space>

(4) Guide - Contributing Guide
<https://common.cybbh.io/contributing/contributing/latest/index.html>

Recommendation: Use Chrome or Firefox

Read the Docs!

[HTTPS://COMMON.CYBBH.IO/CONTRIBUTING/CONTRIBUTING/LATEST/INDEX.HTML](https://common.cybbh.io/contributing/contributing/latest/index.html)

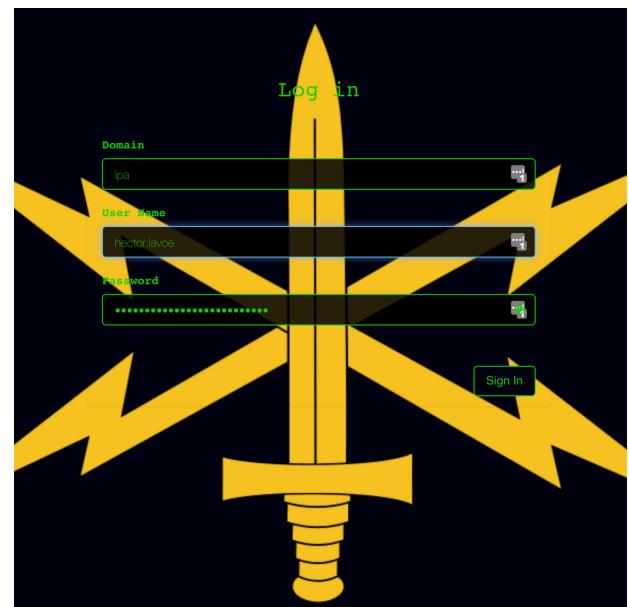
United States Army Cyber School Contribution Guide is located at the URL above. Reading this documentation familiarizes the user with the agile development strategy. The documentation outlines the version control system methodology used on the CSTN.

Local Access

[HTTPS://VTA.CYBBH.SPACE](https://vta.cybbh.space)

To access the Cyber School Training Network (CSTN), login using a desktop located in the Cyber Innovation Center (CIC). The credentials for the desktop are located in the binder assigned to each desktop.

- (1) Using a web browser, navigate to <https://vta.cybbh.space>
- (2) Enter the domain "ipa"
- (3) Enter your username
- (4) Enter your password
- (5) Select the "Sign-In" button



VPN Access

REQUIRED TO ACCESS VIRTUAL MACHINES

VPN Access requires an OpenVPN client configuration file. Request VPN access through the CSTN system administrators. The VPN configuration file is at

<https://git.cybbh.space/common/vpn>

Install OpenVPN on your laptop or desktop. Once connected, access to the VMs is done via RDP, SSH, HTTPS, or user designated protocols.

Instructions

Linux

For Linux Distros other than Ubuntu, visit <https://openvpn.net/download-open-vpn>

- (1) Download openVPN from a terminal

`sudo apt-get install openvpn -y`

- (2) Run openVPN from a terminal using the client configuration

`sudo openvpn --config </location/config.ovpn>`

- (3) Enter your CSTN account credentials when prompted

Windows

- (1) Download and install openVPN

<https://openvpn.net/client-connect-vpn-for-windows>

- (2) Save the client config file in the program configuration location

`c:/Program Files/OpenVPN/config/config.ovpn`

- (3) Run the program as the administrator as required.

- (4) Enter your CSTN account credentials when prompted

Mac OS

- (1) Install Tunnelblick and Microsoft Remote Desktop (MRD) for MAC.

(a) <https://www.ovpn.com/en/guides/mac-tunnelblick>

(b) MRD is downloaded from the Apple App Store

- (2) Install the client config on tunnelblick

Double-Click on the client config file that is provided to you by administrators. Enter your local computer administrators username and password to allow tunnelblick to configure.

- (3) From the tunnelblick menu, select the loaded config file to connect. Authenticate using your CSTN account credentials.

- (4) Utilize MRD as required to RDP into VMs. Alternatively, SSH into your VMs.



Project overview

Details

Activity

Releases

Repository

Issues

0

Merge Requests

0

GitLab

[HTTPS://GIT.CYBBH.SPACE](https://git.cybbh.space)

GitLab is a complete DevOps platform, delivered as a single application. With GitLab, you get a full CI/CD toolchain in a single application. One interface, one conversation, and one permission model. Thousands of features. The Cyber School uses GitLab to host repositories for course material, team collaboration, and code. Users have the right to create new repositories. The code stored serves as a means to automate infrastructure through OpenStack orchestration tools.

(1) To access the CTSN GitLab, navigate to <https://git.cybbh.space>

(2) Login with CTSN credentials

Centralized IPA v2

Centralized IPA v2 Username

hector.lavoe

Password

.....

Remember me

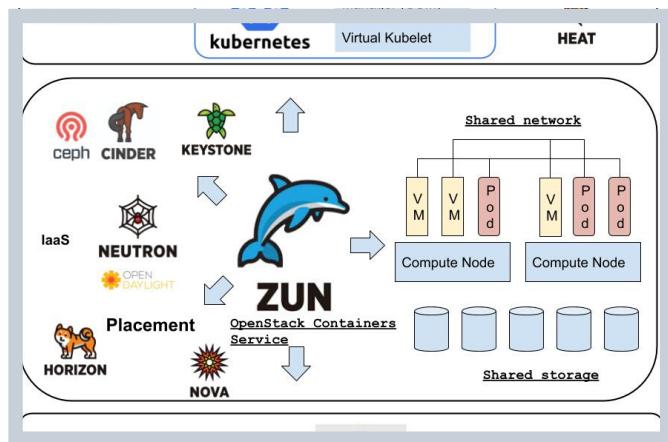
Sign in

Zun

[HTTPS://DOCS.OPENSTACK.ORG/ZUN/LATEST](https://docs.openstack.org/zun/latest)

Have you ever heard of Docker? Zun is Docker for OpenStack. Zun is excellent if you are interested in exploring automated builds or running applications on containers.

Zun is an OpenStack container service. It aims to provide an API service for running application containers without the need to manage servers or clusters.

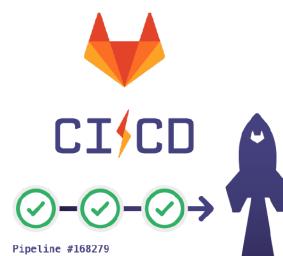


DevOps CI/CD

[HTTPS://DEVOPS.COM/OPTIMIZING-EFFECTIVE-CICD-PIPELINE](https://devops.com/optimizing-effective-cicd-pipeline)

Continuous integration and continuous delivery (CI/CD) are often cited as pillars of successful DevOps. To establish and optimize the CI/CD development model and reap the benefits, companies need to build an effective pipeline to automate their build, integration and testing processes. This requires architecting CI/CD with five key ingredients which, when combined effectively, operate as a successful cornerstone of DevOps and provide myriad bottom-line benefits.

- MILES BLATSTEIN



Deploy a Windows VM

USING OPENSTACK (HEAT TEMPLATES)

OpenStack Heat is used to orchestrate infrastructure as code. Read more here
<https://docs.openstack.org/heat/latest>

WINDOWS OP STATION

(1) Login to the CSTN
<https://vta.cybbh.space>

(2) Select "Orchestration > Stacks"

(3) Select "+" Launch Stack"

(4) Set "Template Source" to "URL"

(5) Enter the following in the URL field:

[https://git.cybbh.space/jeriel.juarbe/newusersinfocenter/-/raw/master/HEAT_templates/01-WindowsOpStation.yaml](https://git.cybbh.space/jeriel.juarbe/newusersinfolcenter/-/raw/master/HEAT_templates/01-WindowsOpStation.yaml)

(6) Select "Next"

(7) Enter "WindowsOpStation" in the "Stack Name" field

(8) In the "password for user <your.user>" field, enter your CSTN login password

Note: The password and username fields are pre populated from the yaml configuration pulled in from the URL in the previous window.

(9) Select "Launch"

(10) Select "Compute > Instances" from the main menu options on the left side of the screen

(11) Copy the IP Address associated with your VM. The 10.50.0.0/16 network is the routable network.

(12) Using remote desktop protocol software on your computer (e.g., RD, MRD, Remina), remote into the Windows VM.



Select Template

Template Source *

URL

Template URL ?

`https://git.cybbh.space/jeriel.juarbe/newusersinfocenter/-/raw/master/HEAT_templates/01-WindowsOpStation.yaml`

Launch Stack

Stack Name * ?

WindowsOpStation

Creation Timeout (minutes) * ?

60

Rollback On Failure ?

Password for user "jeriel.juarbe" * ?

.....

Password ?

.....

User Name ?

student

Instance Name	Image Name	IP Address
windows_opstation_DbVB	Windows 1809	192.168.65.10, 10.50.28.27

Issues with RDP? The initial provisioning of the VM will take some time. To view the status of the VM during the boot process, navigate to "Compute > Instances > [instance-name] > Console"

Deploy a Linux VM

USING OPENSTACK (HEAT TEMPLATES)

OpenStack Heat is used to orchestrate infrastructure as code. Read more here
<https://docs.openstack.org/heat/latest/>

LINUX OP STATION

(1) Login to the CSTN
<https://vta.cybbh.space>

(2) Select "Orchestration > Stacks"

(3) Select "+ Launch Stack"

(4) Set "Template Source" to "URL"

(5) Enter the following in the URL field:

https://git.cybbh.space/jeriel.juarbe/newusersinfocenter/-/raw/master/HEAT_templates/00-LinuxOpsStation.yaml

(6) Select "Next"

(7) Enter "LinuxOpStation" in the "Stack Name" field

(8) In the "password for user <your.user>" field, enter your CSTN login password

Note: The password and username fields are pre-populated from the yaml configuration pulled in from the URL in the previous window.

(9) Select "Launch"

(10) Select "Compute > Instances" from the main menu options on the left side of the screen

(11) Copy the IP Address associated with your VM. The 10.50.0.0/16 network is the routable network.

(12) Using a terminal or command prompt SSH into the Virtual Machine

ssh -X student@10.50.x.x

Note: The "-X" allows for X11 Forwarding. To view the status of the VM during the boot process, navigate to "Compute > Instances > [instance-name] > Console"



Select Template

Template Source *

URL

Template URL ?

enter/-/raw/master/HEAT_templates/00-LinuxOpsStation.yaml

A screenshot of the 'Select Template' step in the OpenStack Orchestration interface. It shows a form with a dropdown for 'Template Source' set to 'URL', and a text input field containing the URL 'enter/-/raw/master/HEAT_templates/00-LinuxOpsStation.yaml'.

Stack Name * ?

LinuxOpStation

Creation Timeout (minutes) * ?

60

Rollback On Failure ?

Password for user "jeriel.juarbe" * ?

.....

Password ?

.....

User Name ?

student

A screenshot of the 'Create New Stack' step in the OpenStack Orchestration interface. It shows a form with fields for 'Stack Name' (set to 'LinuxOpStation'), 'Creation Timeout' (set to '60'), and several password fields for a user named 'jeriel.juarbe'. The 'User Name' field is also populated with 'student'.

linux_opstation_v9Ud Debian LXDE 192.168.65.20, 10.50.22.10

```
student@10.50.22.10's password:  
Linux linux-opstation-v9ud 4.9.0-5-amd64 #1 SMP Debian 4.9.65-3+deb9u2 (2018-01-04) x86_64  
The programs included with the Debian GNU/Linux system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/*copyright.  
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.  
student@linux-opstation-v9ud:~$
```



Capture the Flag

[HTTPS://CTFD.IO/FEATURES](https://ctfd.io/features)

CTFd is a Capture The Flag (CTF) framework designed for ease of use for both administrators and users. CTFd full-featured is open source and written in the simple Flask framework, and easy to modify. Check out the GitLab repository for sample code for building your own CTFd:

<https://git.cybbh.space/bitskrieg/ctfd-demo/-/blob/master>



Visualize your Teams

With all the visualization in CTFd you'll know what's going on with just a glance.



Control Everything

All you need to use to run your very own Capture The Flag is a web browser. Just use the built in administration panel and say goodbye to database queries.



And save your CTF too

With the Import/Export feature, you can save your CTF and reuse all your hard work.



Edit Everything

With its HTML editor, you can create entire pages in CTFd. Need to share lots of links? Make an FAQ? A page? No problem.



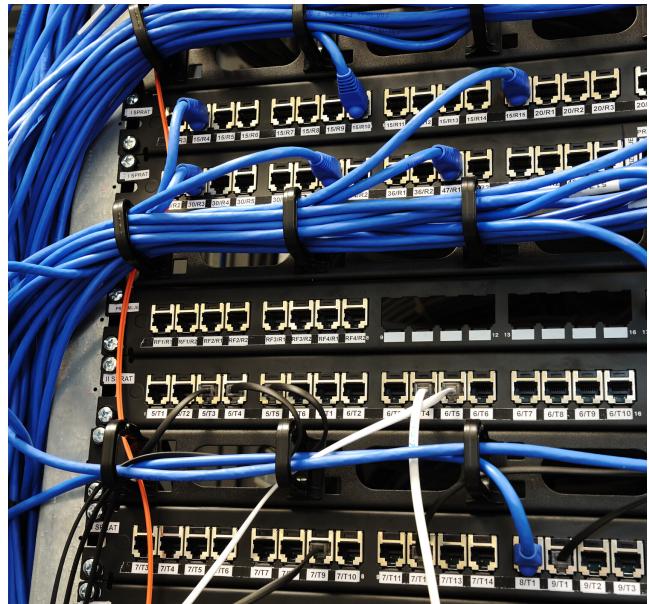
Add Hints for those hard times

Hacking is hard work. If your users are stuck you can add hints for them to get unstuck.



Clean but Customizable

No clutter makes the default theme of CTFd a beautiful experience for everyone being opinionated.



Physical Hardware

ROUTERS, SWITCHES, AND SERVERS

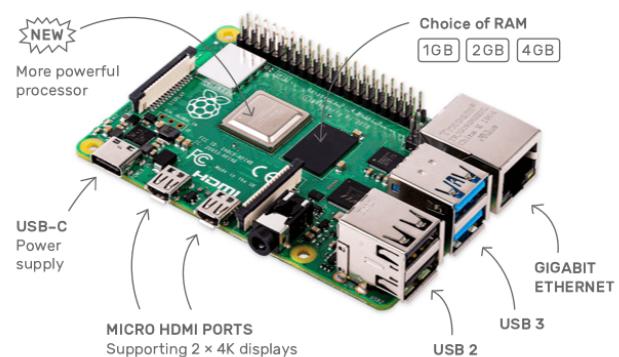
Students gain access to networking devices and servers. From Cisco to Dell, students take apart devices to discover the internals of computing devices.

COMING SOON!

Electronic Warfare

WORKBENCHES, TOOLS, RASPBERRY PI & MORE

Students that prefer hands-on electronics development have access to workbenches, tools, and devices to develop and test capabilities.



CYBER INNOVATION CENTER



Summary

The Cyber Innovation Center is at its infancy (2020). The future capabilities are limited only to the restrictions and boundaries we place on it. The CTB continues to refine and develop opportunities for servicemembers to stay engaged, motivated, and provided with the tools to leap into the future.



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