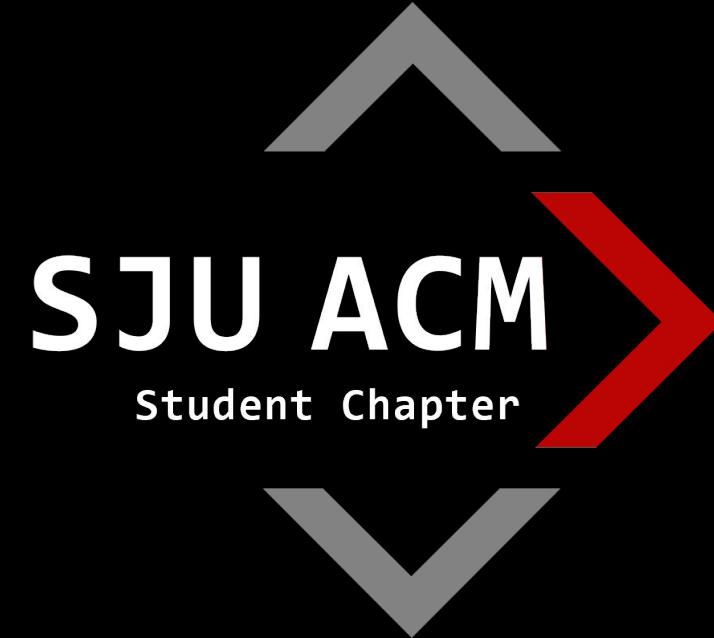




**HOST YOUR OWN HELP
DESK**

SJU ACM STUDENT CHAPTER



SIGN IN FORM:





HELP DESK BASICS



WHAT IS HELP DESK?

- THE HELP DESK IS THE FIRST POINT OF CONTACT FOR ANY ISSUES RELATED TO TECH, WHICH MAY COMMONLY INCLUDE:
 - TROUBLESHOOTING DEVICES (PRINTERS, LAPTOPS, PHONES, ETC.)
 - SECURITY-RELATED ISSUES (PASSWORD RESETS, MULTI-FACTOR AUTHENTICATION, SSO, OS HARDENING, ETC.)
 - ACCESS MANAGEMENT (PROVISIONING APPLICATIONS/LOGIN INFORMATION)
 - BUG FIXES (ISSUES WITH BROWSERS OR APPLICATIONS)
 - HARDWARE ISSUES/HARDWARE SETUPS (BATTERY REPLACEMENT, DESK SETUPS, ETC.)



WHAT ARE THE CORE FUNCTIONS OF HELP DESK?



- THE OVERARCHING FUNCTIONS SERVED BY THE HELP DESK FOR ANY ENTERPRISE INCLUDE THE FOLLOWING:
 - BEING THE SINGLE POINT OF CONTACT FOR TECH ISSUES FOR INTERNAL AND EXTERNAL USERS
 - ANSWERING QUESTIONS AND PROVIDING CUSTOMER SERVICE, SUCH AS STEP-BY-STEP SOLUTIONS
 - LIMITING DOWNTIME OF USERS BY PROVIDING QUICK AND EASY SOLUTIONS, ESPECIALLY FOR HIGH PRIORITY INCIDENTS
 - MEASURING CONSUMER SATISFACTION WITH SUPPORT PROVIDED IN SOLVING THEIR TECH ISSUES
 - CREATING A KNOWLEDGE BASE OF KNOWN/COMMON ISSUES FOR CONSUMERS/EMPLOYEES TO RESOLVE ISSUES EASILY
 - ESCALATING ADVANCED PROBLEMS TO OTHER TECH DEPARTMENTS/VENDORS
 - TICKET CREATION AND TICKET MANAGEMENT, MEANING HELP DESK AGENTS ARE THE FRONT LINES OF TECH ISSUES LEADING TO CRITICAL PROBLEM IDENTIFICATIONS FOR THE ORGANIZATION AND KNOWING WHICH TEAMS CAN BEST RESOLVE AN ISSUE





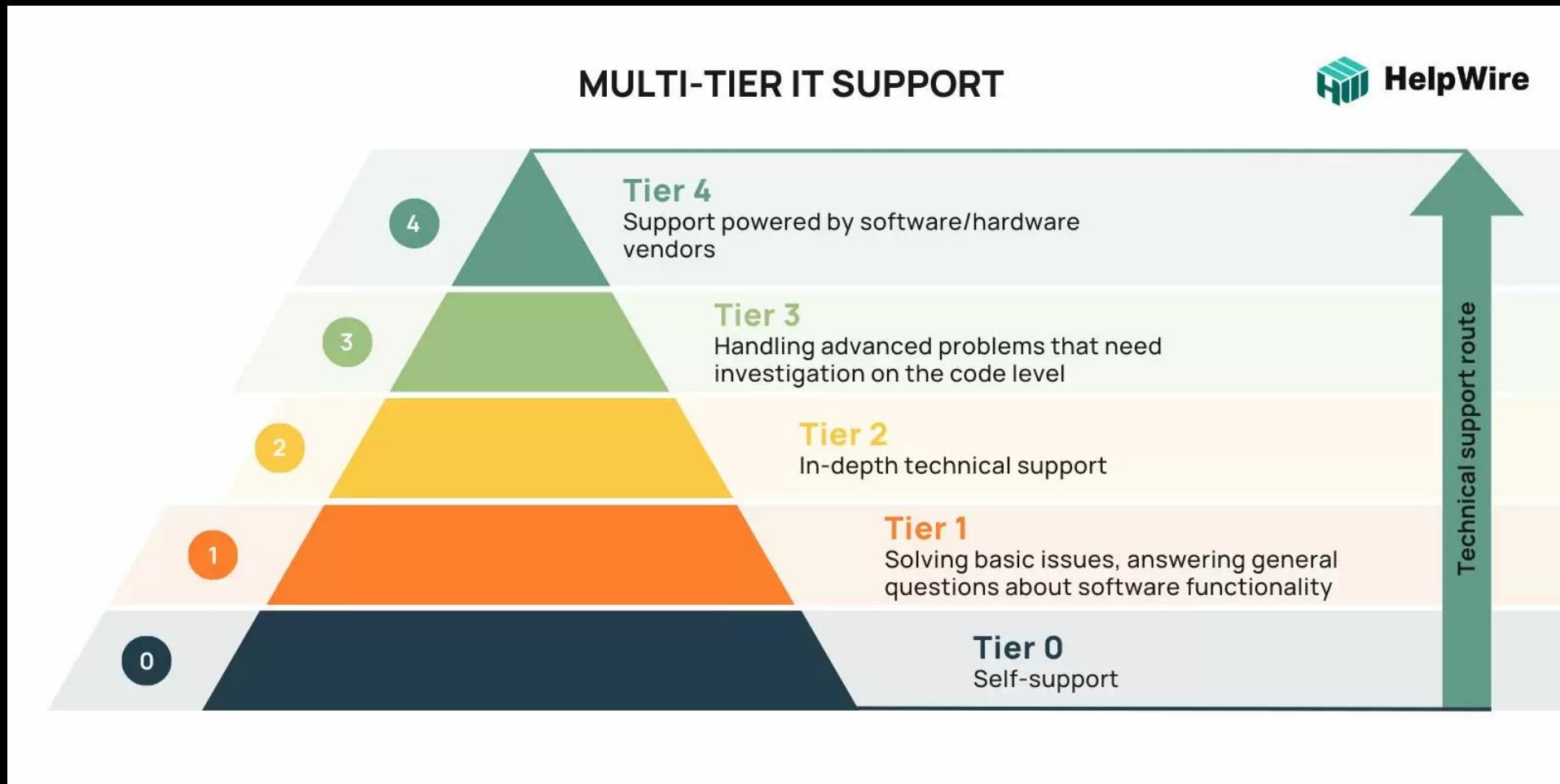
TYPES OF HELP DESKS + HELP DESK ROLES

- IT SUPPORT HELP DESK - DESIGNATED FOR INTERNAL TROUBLESHOOTING
 - CAN RANGE FROM SIMPLE PASSWORD RESETS TO NETWORK OUTAGES
- CUSTOMER SERVICE HELP DESK - DESIGNATED FOR EXTERNAL TROUBLESHOOTING
 - TROUBLESHOOTING FOR SERVICES/PRODUCTS OFFERED
- BUSINESS HELP DESK - NON-IT ROLES THAT UTILIZE HELP DESK WORKFLOWS TO MANAGE CORE BUSINESS FUNCTIONS (HR, LEGAL, FINANCE, ETC.)
- HELP DESK MANAGER - LEADS DAY-TO-DAY OPERATIONS, CONDUCTS HIRINGS AND TRAININGS, AND EVALUATES KPI'S AND CONSUMER RESPONSES
- HELP DESK AGENTS - RESPOND DIRECTLY TO SOFTWARE/HARDWARE TICKETS, BUILDS THE KNOWLEDGE BASE
- HELP DESK TEAM LEAD - TRAINS NEW AGENTS, ENSURES SLAS ARE MET, AND HANDLES MORE INTENSIVE TICKETS



HELP DESK SUPPORT TIERS

- SOME ORGANIZATIONS WILL EMPLOY A TIERED SYSTEM TO ESTABLISH THE ROUTE TAKEN OR TEAM THAT RESOLVES ISSUES





SERVICE DESK VERSUS HELP DESK

- SOME PEOPLE VIEW THE TERMS SERVICE DESK AND HELP DESK AS INTERCHANGEABLE
- THE SERVICE DESK IS MORE ENCOMPASSING AS IT FOCUSES ON BUSINESS NEEDS, TAKES PROACTIVE MEASURES TO UPHOLD IT INFRASTRUCTURE, VIEWS THE TECHNOLOGY OF THE ORGANIZATION HOLISTICALLY, AND DERIVES INTENSIVE PROCESSES ON HOW THEY WANT TO ACCOMPLISH THEIR GOALS
- THE HELP DESK CAN BE A PART OF THE SERVICE DESK

HELP DESK	SERVICE DESK
User-Centric: Help desks focus on the end user	Business-Centric: Service desks focus on the business
Reactive Service: Lets you reactively respond to users' issues	Proactive service: Lets you proactively develop solutions for the long term
Break-fix model: Support team fixes the issue when the user contacts them	The complete picture: Operates on a holistic approach that is aligned with business goals.
Task-oriented: Emphasis on providing the right solution to the user as needed	Process Oriented: Emphasis on improving the entire support process





DO YOU HAVE A TICKET?

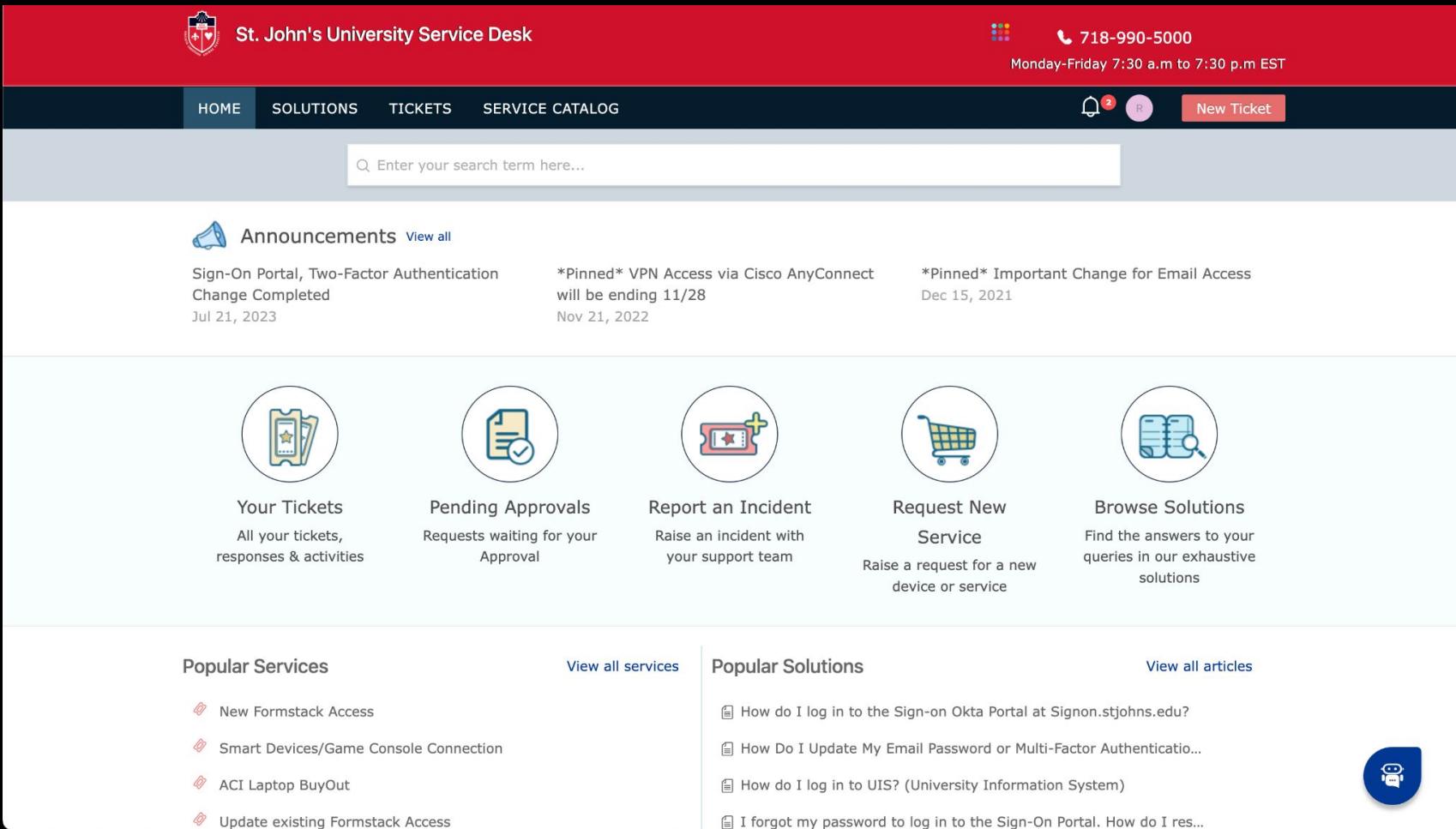
- A TICKET FOR A HELP DESK IS A RECORD THAT INFORMS THE AGENT OF THE INCIDENT, ALERT, REQUEST, OR SOME EVENT THAT REQUIRES THE ATTENTION OF THE HELP DESK AND SERVES AS DOCUMENTATION
- CAN BE MANUALLY GENERATED BY THE CLIENT OR AGENT OR AUTOMATICALLY GENERATED WHEN SOME EVENT TRIGGERS ITS CREATION (SUCH AS A DEVICE GOING DOWN ON A NETWORK)
- SUBMITTED THROUGH MANY METHODS: EMAIL, ONLINE PORTALS, LIVE AGENTS, ETC.
- PROVIDES AGENTS WITH A BASIS FOR THE INCIDENT/REQUEST, GIVING THEM THE ABILITY TO TROUBLESHOOT OR PROVIDE THE NECESSARY ACCESS ACCURATELY
- FURTHER USED TO LEAVE COMMENTS BETWEEN THE AGENT AND THE USER BEFORE BEING CLOSED OUT AS RESOLVED, COMPLETED, INCOMPLETE, ETC.

User: logs ticket
Admin: See ticket, starts work on it.
User: Walks up to IT and asks "How long will this take because it's really urgent and you should stop all other work and do this now."
Admin:



ST. JOHN'S SERVICE DESK - CREATING A TICKET AND KNOWLEDGE BASE

- ST. JOHN'S UNIVERSITY SERVICE DESK IS ACCESSIBLE THROUGH SIGNON BY CLICKING THE 'IT SUPPORT' APP



The screenshot shows the St. John's University Service Desk website. At the top, there is a red header bar with the university's logo and the text "St. John's University Service Desk". To the right of the logo, there are icons for a grid, a phone, and a mail icon, followed by the phone number "718-990-5000" and the operating hours "Monday-Friday 7:30 a.m to 7:30 p.m EST". Below the header, a dark blue navigation bar contains links for "HOME", "SOLUTIONS", "TICKETS", and "SERVICE CATALOG". On the far right of the navigation bar are a bell icon with a "2" notification, a user profile icon, and a "New Ticket" button. A search bar with the placeholder "Enter your search term here..." is positioned below the navigation bar. The main content area features an "Announcements" section with three pinned items: "Sign-On Portal, Two-Factor Authentication Change Completed" (Jul 21, 2023), "*Pinned* VPN Access via Cisco AnyConnect will be ending 11/28" (Nov 21, 2022), and "*Pinned* Important Change for Email Access" (Dec 15, 2021). Below the announcements, there are five circular icons with labels: "Your Tickets" (All your tickets, responses & activities), "Pending Approvals" (Requests waiting for your Approval), "Report an Incident" (Raise an incident with your support team), "Request New Service" (Raise a request for a new device or service), and "Browse Solutions" (Find the answers to your queries in our exhaustive solutions). At the bottom, there are two sections: "Popular Services" (with links to New Formstack Access, Smart Devices/Game Console Connection, ACI Laptop BuyOut, and Update existing Formstack Access) and "Popular Solutions" (with links to How do I log in to the Sign-on Okta Portal at Signon.stjohns.edu?, How Do I Update My Email Password or Multi-Factor Authentication..., How do I log in to UIS? (University Information System), and I forgot my password to log in to the Sign-On Portal. How do I res...). A blue circular icon with a white robot head is located in the bottom right corner.

St. John's University Service Desk

718-990-5000
Monday-Friday 7:30 a.m to 7:30 p.m EST

HOME SOLUTIONS TICKETS SERVICE CATALOG

New Ticket

Announcements [View all](#)

Sign-On Portal, Two-Factor Authentication Change Completed
Jul 21, 2023

Pinned VPN Access via Cisco AnyConnect will be ending 11/28
Nov 21, 2022

Pinned Important Change for Email Access
Dec 15, 2021

Your Tickets
All your tickets, responses & activities

Pending Approvals
Requests waiting for your Approval

Report an Incident
Raise an incident with your support team

Request New Service
Raise a request for a new device or service

Browse Solutions
Find the answers to your queries in our exhaustive solutions

Popular Services

[View all services](#)

- [New Formstack Access](#)
- [Smart Devices/Game Console Connection](#)
- [ACI Laptop BuyOut](#)
- [Update existing Formstack Access](#)

Popular Solutions

[View all articles](#)

- [How do I log in to the Sign-on Okta Portal at Signon.stjohns.edu?](#)
- [How Do I Update My Email Password or Multi-Factor Authentication...](#)
- [How do I log in to UIS? \(University Information System\)](#)
- [I forgot my password to log in to the Sign-On Portal. How do I res...](#)

ST. JOHN'S SERVICE DESK - CREATING A TICKET AND KNOWLEDGE BASE

- WHEN REPORTING AN INCIDENT, YOU INCLUDE YOUR NAME, ANY ALTERNATE EMAILS, THE SUBJECT/ISSUE TITLE, IMPACT LEVELS, DESCRIPTION, CATEGORY (INCLUDING SUBCATEGORY AND ITEM TYPE), CAMPUS LOCATION (BUILDING, ROOM, ROOM TYPE)
 - THE REQUEST CATALOG IS A LITTLE LESS THAN ONE MIGHT EXPECT

Submit a ticket

Please Type Your Name: *

Email Address:
@stjohns.edu or
@my.stjohns.edu *

[Add cc](#)

Alternate Email address

Subject *

Impact Levels

Low = One or multiple user(s)

Medium = One or multiple Department(s)

High = Impacts All users - University-Wide

Description: If this is in regards to your email account, please include an alternate email address where you can be reached. *

A standard rich text editor toolbar with icons for bold (B), italic (I), underline (U), alignment (left, center, right, justify), font size (smaller, larger), and other document-related functions like insert, delete, and preview.

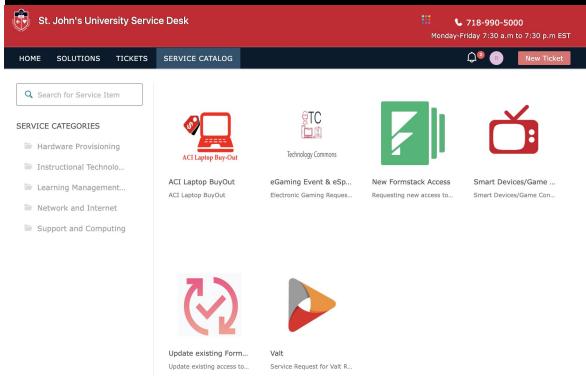
[Attach a file](#)

Category

Campus

[Submit](#)

[Cancel](#)





ST. JOHN'S SERVICE DESK - CREATING A TICKET AND KNOWLEDGE BASE

- REPORTING AN INCIDENT WILL FORMULATE INTO A TICKET, WHERE AN AGENT CAN PROVIDE SUPPORT AND EVENTUALLY CLOSE THE TICKET
- THE USER CAN PROCEED TO PROVIDE FEEDBACK AND SEE THE CLOSED RECORD/DOCUMENTATION OF THE INCIDENT

The screenshot shows a ticket detail page for ticket #INC-101686, which has been closed. The ticket details are as follows:

Ticket Details:
Subject: UIS Account Locked
Reported by: Raymond Ramdat (6 months ago)
Description: Raymond Ramdat reported that he tried logging into UIS via the direct website and was hit with the following error: "Your Web access has been disabled. New students please call 718 990 2000 to have your account unlocked. Continuing students and employees contact the Service Desk at 718 990 5000 to have your account unlocked." He also mentioned trying to access UIS via the Okta portal.
Comment from Jeffrey Melnik: "Dear Raymond, Thank you for contacting St. John's University's Information Technology department. We are responding to the following request: <https://ithelp.stjohns.edu/helpdesk/tickets/101686> I understand that you need assistance with UIS. Your UIS web access has been enabled and your pin reset to SJ03594123. Please login to <https://signon.stjohns.edu> and click UIS again. If prompted for pin enter the new pin. If you need further assistance, please contact the St. John's University Service Desk at 718-990-5000 Monday - Friday 7:30 am to 7:30 pm. EST Regards, St. John's Information Technology"

Feedback Survey:
A survey asks for user satisfaction with support experience, with options: Not Good, Just Okay, Awesome.

Status:
This ticket has been Closed.

Category:
Accounts and Access
Sub-Category: Account Management
Item: UIS Account

Campus:
[dropdown menu]

Buttons:
Update



ST. JOHN'S SERVICE DESK - CREATING A TICKET AND KNOWLEDGE BASE

- THE ST. JOHN SERVICE DESK OFFERS A KNOWLEDGE BASE ON A VARIETY OF TOPICS, WHICH SERVES AS A SELF-SERVE GUIDE ON ACCESSING CERTAIN APPLICATIONS, UTILIZING FEATURES IN AN APPLICATION, OR WHERE TO TURN TO FOR INCIDENTS
- KNOWLEDGE BASE ARTICLES ARE TYPICALLY WRITTEN AS STEP-BY-STEP GUIDES DESIGNED TO BE USER-FRIENDLY

How do I connect to SJUMobile (WIFI)

Modified on: Wed, Aug 30, 2023 3:13 PM



St. John's University provides wireless internet access to all active Students, Faculty, and Employees. This guide provides instructions on how to connect to campus WI-FI. The secured wireless network is called **SJUMobile** and the following information will be required to connect:

NEW ChromeBook Devices require specific configurations in order to properly connect, due to the OS's security settings.

Please see these instructions: [How do I connect my ChromeBook to SJUMobile?](#)

If you are a visitor and **NOT** an SJU Student, Faculty, or Employee, or if you are using **OLDER ChromeBooks**:

Please see: [How do I connect to SJUGuest - St. John's Guest WiFi?](#)

SJUMobile Campus Wi-Fi ([Please update your device to the latest OS before connecting to SJUMobile](#))

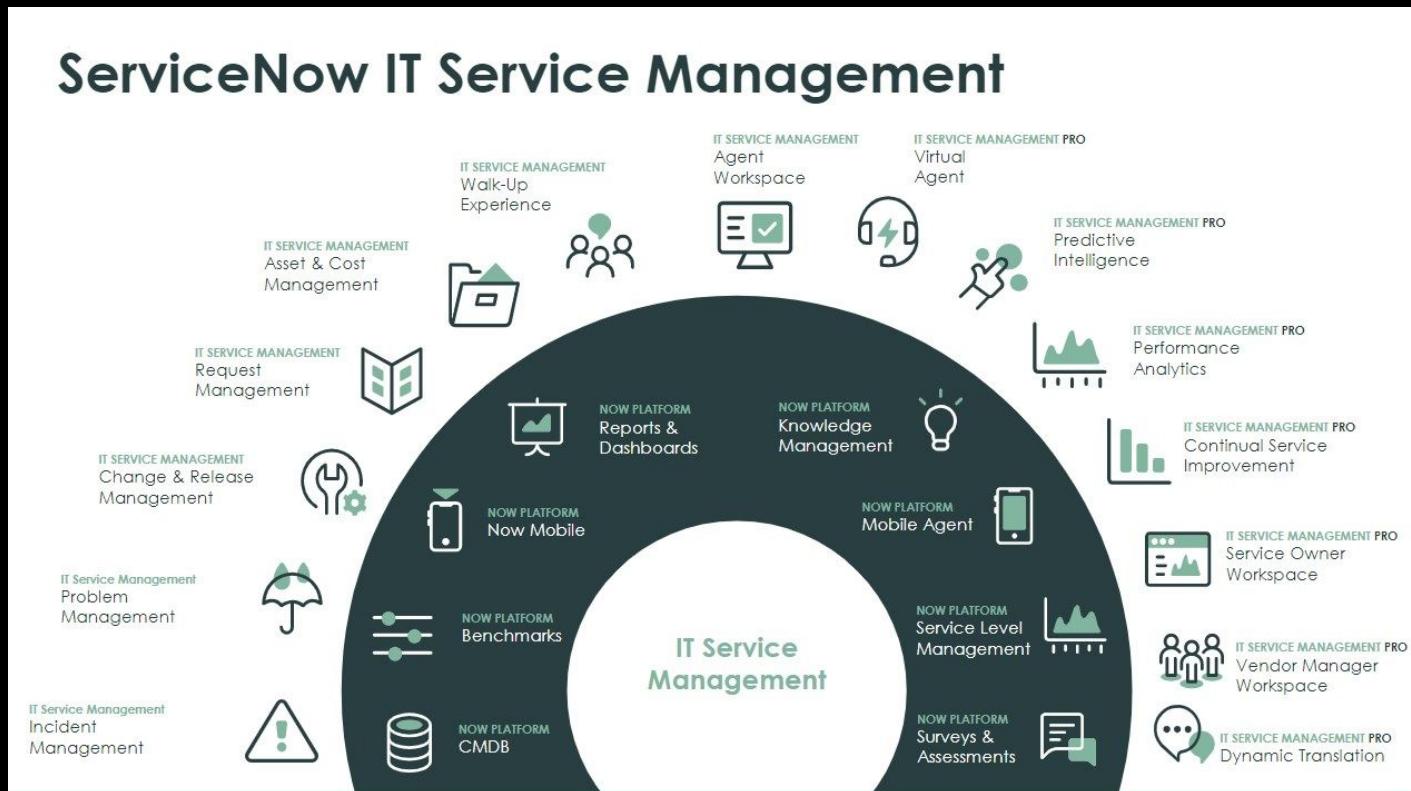
To set up a connection, please follow the instructions below for your device.

- Same credentials used to login at <https://signon.stjohns.edu>
(If you do not know how to log in to the Sign-on Portal, please see: [How do I log in to Signon.stjohns.edu?](#))



WHAT CURRENTLY MAKES A GOOD TICKET SOFTWARE?

- GOES WAY BEYOND TICKET CREATION
- HELP DESK AND SERVICE DESK GIVES WAY TO A BIGGER DOMAIN OF INFORMATION TECHNOLOGY SERVICE MANAGEMENT (ITSM)
- LEADING ITSM VENDORS INCLUDE: SERVICENOW, SOLARWINDS, MANAGEENGINE, ATLASSIAN, FRESHWORKS, AND SYSAID



SETTING UP PEPPERMINT VIA LINODE



CREATING YOUR LINODE SERVER

1) AFTER CREATING YOUR LINODE ACCOUNT (CREDIT CARD REQUIRED), YOU WILL SELECT THE OPTION TO **CREATE LINODE**

The screenshot shows the Linode Control Panel interface. At the top, there's a navigation bar with a 'Create' button, a search bar, and user account information. The main area features a large green hexagonal icon and the word 'Linodes' with a subtitle 'Cloud-based virtual machines'. Below this, a description reads 'Host your websites, applications, or any other Cloud-based workloads on a scalable and reliable platform.' A prominent blue 'Create Linode' button is centered. At the bottom, there are three sections: 'Getting Started Guides' (with links to Compute Instance, Linode Compute Instances, Billing and Payment, and Website/Application hosting), 'Deploy an App' (with links to Wordpress, cPanel, Prometheus & Grafana, Harbor, Postgres Cluster, and Kali), and 'Video Playlist' (with links to Linode Getting Started Guide, Common Linux Commands, Copying Files to a Compute Instance, and How to use SSH). Navigation links at the very bottom include 'Check out all our Docs', 'See all Marketplace apps', and 'View our YouTube channel'.





LINODE'S MARKETPLACE

2) SELECT THE MARKETPLACE OPTION

The screenshot shows the Linode Marketplace interface. At the top, there is a navigation bar with tabs: Distributions, Marketplace (which is highlighted in blue), StackScripts, Images, Backups, and Clone Linode. To the right of the tabs is a "Getting Started" link. Below the navigation bar, the main content area is titled "Select an App". It features a search bar with the placeholder "Search for app name" and a dropdown menu labeled "Select category".

The interface is divided into sections: "New apps" and "Popular apps".

New apps:

- HashiCorp Nomad (Cluster)
- MainConcept FFmpeg Plugins
- MainConcept Live Encoder
- MainConcept P2 AVC Ultra Transcoder
- MainConcept XAVC Transcoder
- MainConcept XDCAM Transcoder
- SimpleX Chat

Popular apps:

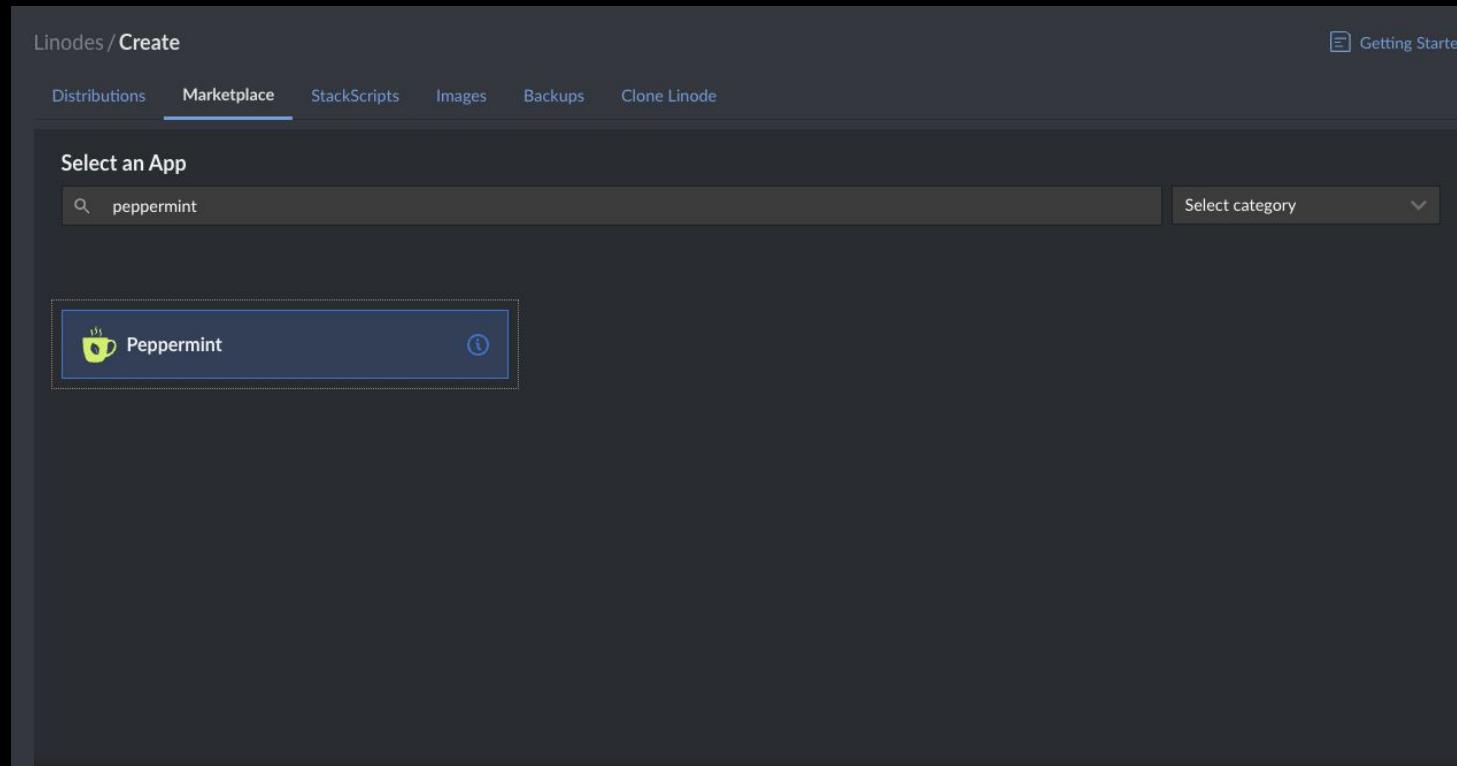
- WordPress
- Nextcloud
- Kali Linux
- Plesk
- cPanel
- Cloudron
- Secure Your Server
- Pritunl





SEARCHING FOR PEPPERMINT

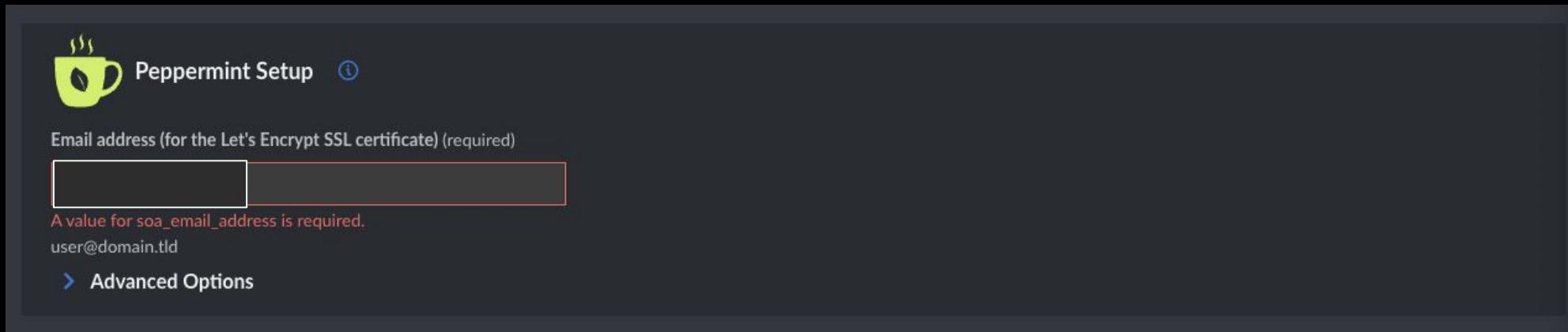
3) IN THE SEARCH BAR LOOK FOR ‘PEPPERMINT’ AND SELECT THAT OPTION





NECESSARY CONFIGURATIONS

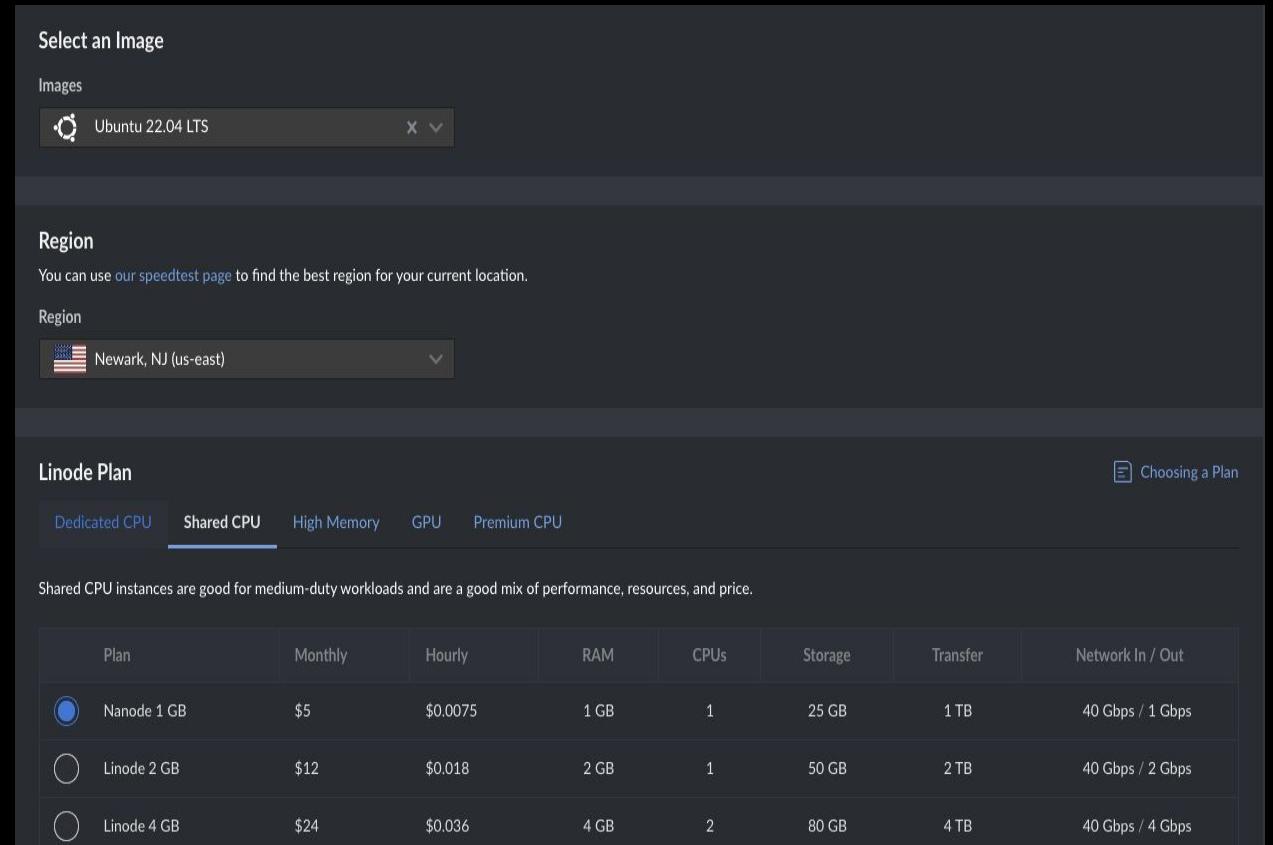
4) ENTER YOUR **EMAIL ADDRESS** IN THIS FIELD - YOU CAN IGNORE ADVANCED OPTIONS



● NECESSARY CONFIGURATIONS (CONTINUED)

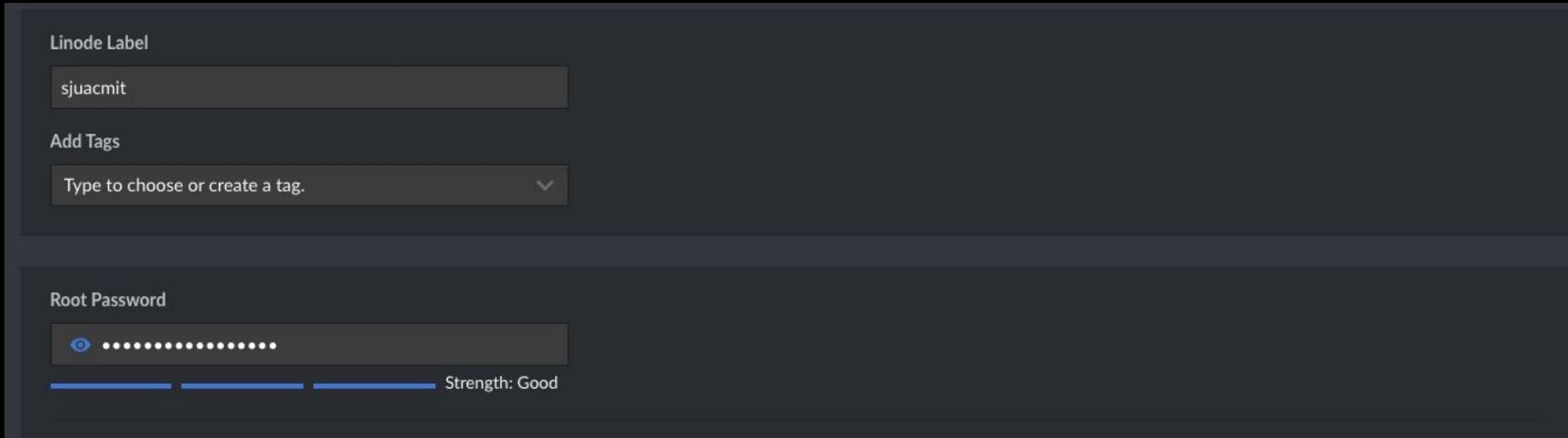
5) SELECT THE FOLLOWING OPTIONS:

- SELECT AN IMAGE AS **UBUNTU 22.04 LTS**
- REGION AS **NEWARK, NJ (US-EAST)**
- LINODE PLAN AS **SHARED CPU, WITH NANODE 1 GB (THE CHEAPEST OPTION)**



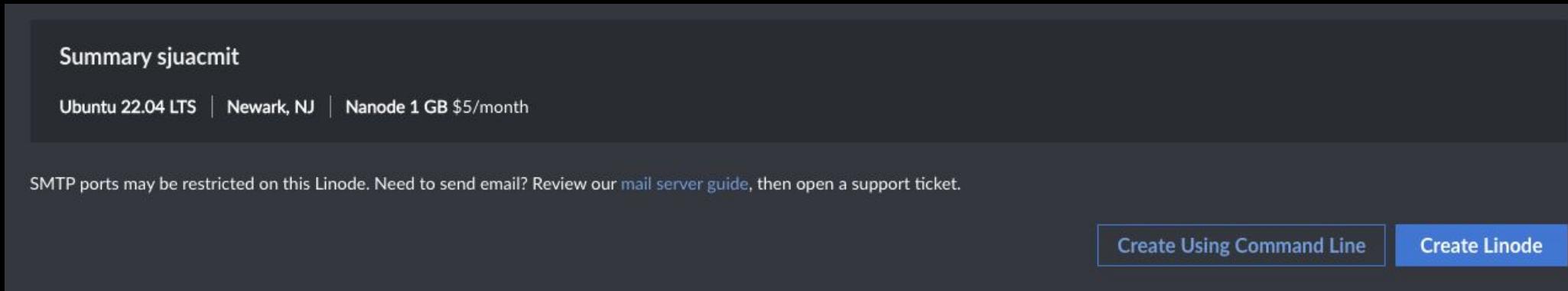
● NECESSARY CONFIGURATIONS (CONTINUED)

6) PROVIDE A LINODE LABEL (**SJUACMIT**) AND SET A **ROOT PASSWORD**



● NECESSARY CONFIGURATIONS (CONTINUED)

7) FINALIZE CONFIGURATIONS BY SELECTING **CREATE LINODE** ON THE BOTTOM OF THE PAGE





LAUNCHING THE WEB CONSOLE

8) TO ACCESS YOUR SERVER, SELECT THE **LAUNCH LISH CONSOLE** OPTION IN THE TOP CORNER

The screenshot shows a Linode server details page. At the top left, there's a green circle with a white dot, indicating the server is running. The server name is 'sjuacmit'. On the right, there are buttons for 'Power Off', 'Reboot', 'Launch LISH Console', and more options. Below this, there's a summary table with CPU (1 CPU Core), Storage (25 GB Storage), RAM (1 GB RAM), and Volumes (0 Volumes). To the right, under 'IP Addresses', two IP addresses are listed: 45.79.191.175 and 2600:3c03::f03c:93ff:fe26:67b2. Under 'Access', there are two entries: 'SSH Access' with the command ssh root@45.79.191.175 and 'LISH Console via SSH' with the command ssh -t rramdat45@lish-us-east.linode.com. At the bottom, it shows the plan (Nanode 1 GB), region (Newark, NJ), Linode ID (51475838), and creation date (2023-10-31 18:55). A 'Add a tag +' button is also present.

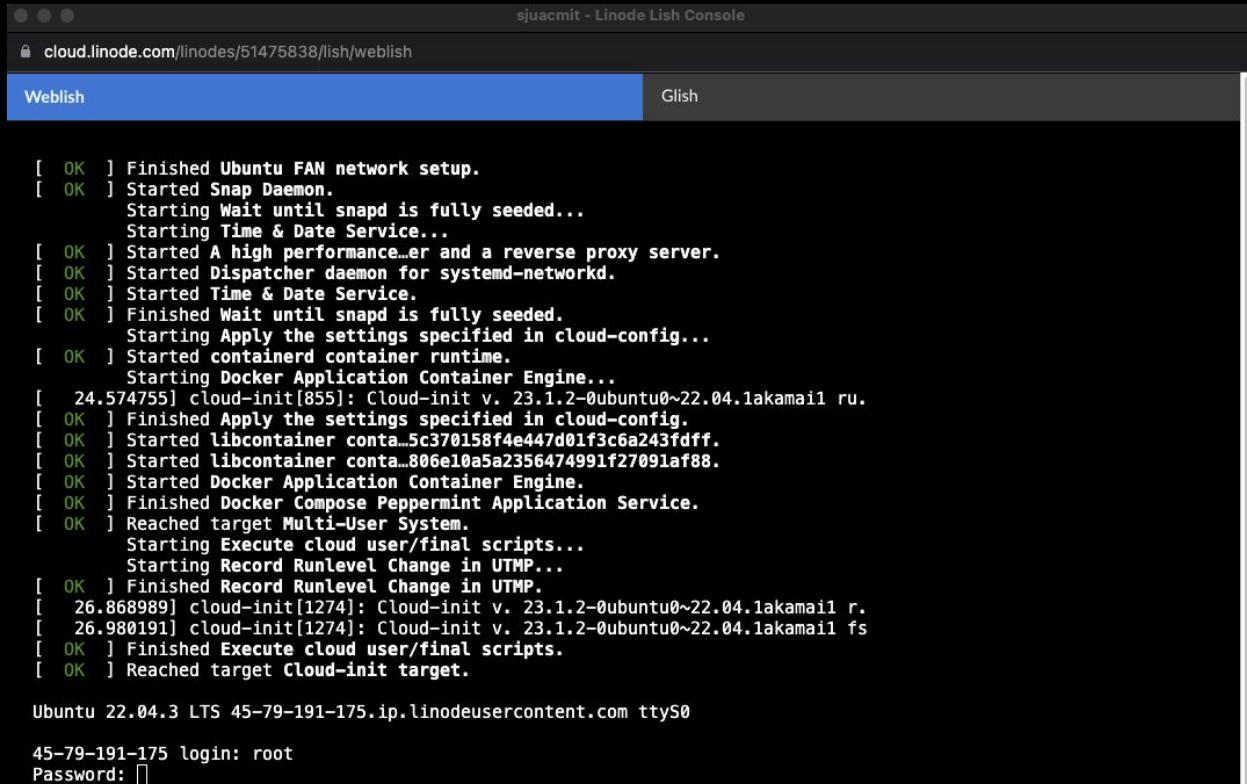
NOTE: ON THE FIRST BOOT IT WILL GO THROUGH A SERIES OF CONFIGURATIONS, AND THE SERVER ITSELF WILL NOT BE ACCESSIBLE UNTIL YOU SEE THE **GREEN RUNNING SYMBOL** IN THE TOP LEFT CORNER





ENTERING CREDENTIALS

9) LOG INTO THE SERVER AS **ROOT**, AND
ENTER THE **ROOT PASSWORD** YOU SET
DURING CONFIGURATION



```
sjuacmit - Linode Lish Console
cloud.linode.com/linodes/51475838/lish/weblish
Weblish Glish

[ OK ] Finished Ubuntu FAN network setup.
[ OK ] Started Snap Daemon.
      Starting Wait until snapd is fully seeded...
      Starting Time & Date Service...
[ OK ] Started A high performance.er and a reverse proxy server.
[ OK ] Started Dispatcher daemon for systemd-networkd.
[ OK ] Started Time & Date Service.
[ OK ] Finished Wait until snapd is fully seeded.
      Starting Apply the settings specified in cloud-config...
[ OK ] Started containerd container runtime.
      Starting Docker Application Container Engine...
[ 24.574755] cloud-init[855]: Cloud-init v. 23.1.2-0ubuntu0~22.04.1akamail ru.
[ OK ] Finished Apply the settings specified in cloud-config.
[ OK ] Started libcontainer conta..5c370158f4e447d01f3c6a243fdff.
[ OK ] Started libcontainer conta..806e10a5a2356474991f27091af88.
[ OK ] Started Docker Application Container Engine.
[ OK ] Finished Docker Compose Peppermint Application Service.
[ OK ] Reached target Multi-User System.
      Starting Execute cloud user/final scripts...
      Starting Record Runlevel Change in UTMP...
[ OK ] Finished Record Runlevel Change in UTMP.
[ 26.868989] cloud-init[1274]: Cloud-init v. 23.1.2-0ubuntu0~22.04.1akamail r.
[ 26.980191] cloud-init[1274]: Cloud-init v. 23.1.2-0ubuntu0~22.04.1akamail fs
[ OK ] Finished Execute cloud user/final scripts.
[ OK ] Reached target Cloud-init target.

Ubuntu 22.04.3 LTS 45-79-191-175.ip.linodeusercontent.com ttyS0
45-79-191-175 login: root
Password: 
```





ENTERING CREDENTIALS

10) EXECUTE THE **DOCKER PS** COMMAND TO FIND WHICH PORT OUR HELP DESK SYSTEM IN RUNNING ON

HERE, WE SEE THAT OUR PEPPERMINT HELP DESK SYSTEM IS RUNNING ON **PORT 5000**

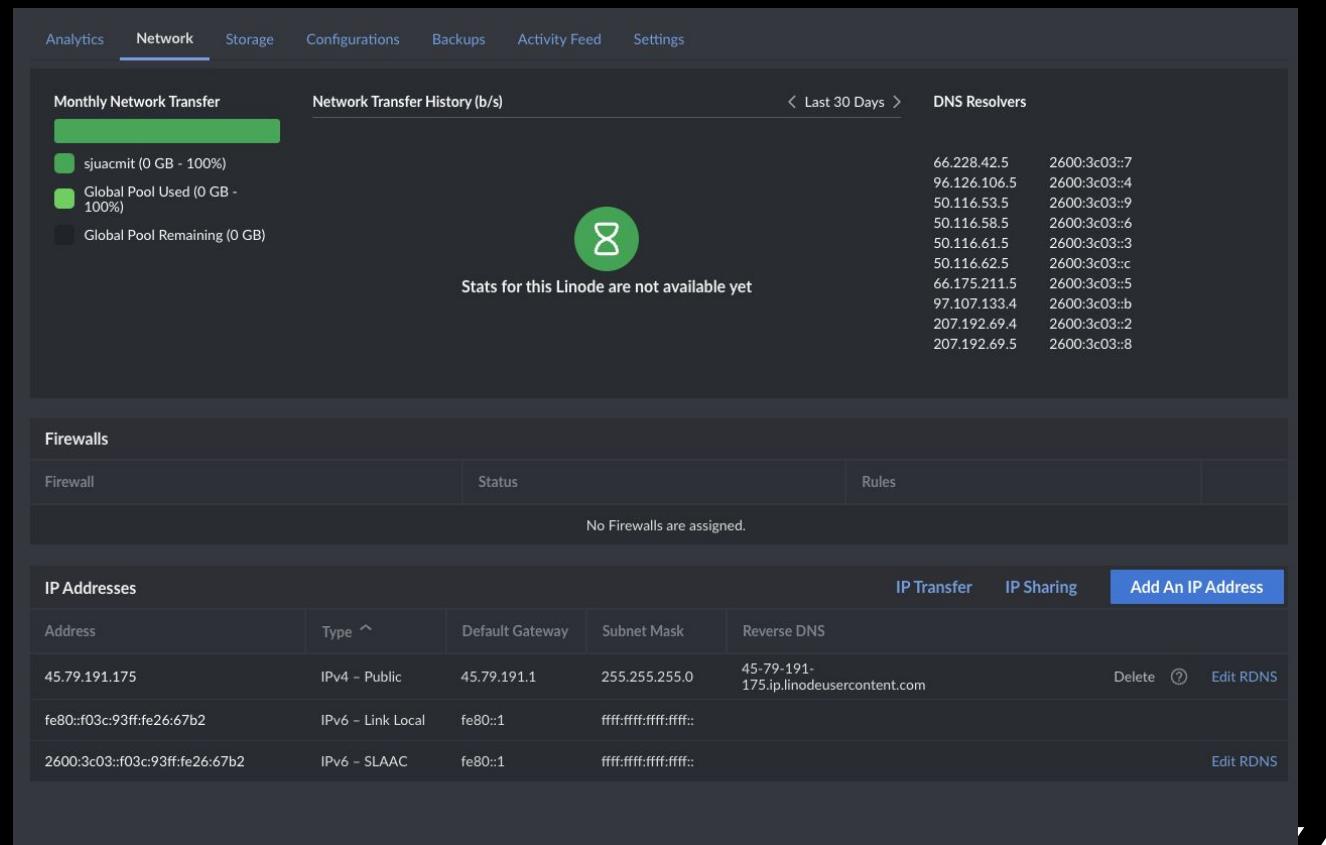
```
To delete this message of the day: rm /etc/motd
Last login: Tue Oct 31 19:08:36 UTC 2023 on ttys0
root@45-79-191-175:~# docker ps
CONTAINER ID   IMAGE           COMMAND          CREATED        STATUS         PORTS
NAMES
e3431fd00435   pepperlabs/peppermint:latest "docker-entrypoint.s..."  10 minutes ago  Up About a minute  0.0.0.0:5000
->5000/tcp, ::::5000->5000/tcp, 5001/tcp   peppermint
da61a67b4c52   postgres:latest      "docker-entrypoint.s..."  10 minutes ago  Up About a minute  5432/tcp
                           postgres
root@45-79-191-175:~# 
```



● ACCESSING HELP DESK VIA A WEB BROWSER

11) NAVIGATE BACK TO YOUR LINODE CONSOLE FOR YOUR SERVER AND SELECT THE NETWORK TAB. FIND THE INFORMATION UNDER REVERSE DNS AND COPY AND PASTE THAT INTO A NEW TAB, FOLLOWED BY A SEMICOLON AND YOUR PORT NUMBER

EXAMPLE:
45-79-191-175.ip.linodeusercontent.com:5000



The screenshot shows the Linode Network tab interface. At the top, there are tabs for Analytics, Network (which is selected), Storage, Configurations, Backups, Activity Feed, and Settings. Below the tabs, there's a 'Monthly Network Transfer' section with a green progress bar and three items: 'sjuacmit (0 GB - 100%)', 'Global Pool Used (0 GB - 100%)', and 'Global Pool Remaining (0 GB)'. To the right of this is a 'Network Transfer History (b/s)' section with a button to 'Last 30 Days' and a table of DNS Resolvers. The table lists IP addresses and their corresponding reverse DNS names. Below these sections is a 'Firewalls' section with tabs for Firewall, Status, and Rules, and a note that 'No Firewalls are assigned.' At the bottom is an 'IP Addresses' section with a table. The table has columns for Address, Type, Default Gateway, Subnet Mask, and Reverse DNS. It lists three entries: a Public IPv4 address (45.79.191.175) with reverse DNS 45-79-191-175.ip.linodeusercontent.com, a Link Local IPv6 address (fe80::f03c:93ff:fe26:67b2) with reverse DNS fe80::f03c:93ff:fe26:67b2, and an SLAAC IPv6 address (2600:3c03:f03c:93ff:fe26:67b2) with reverse DNS 2600:3c03:f03c:93ff:fe26:67b2. There are buttons for 'IP Transfer', 'IP Sharing', and 'Add An IP Address'.

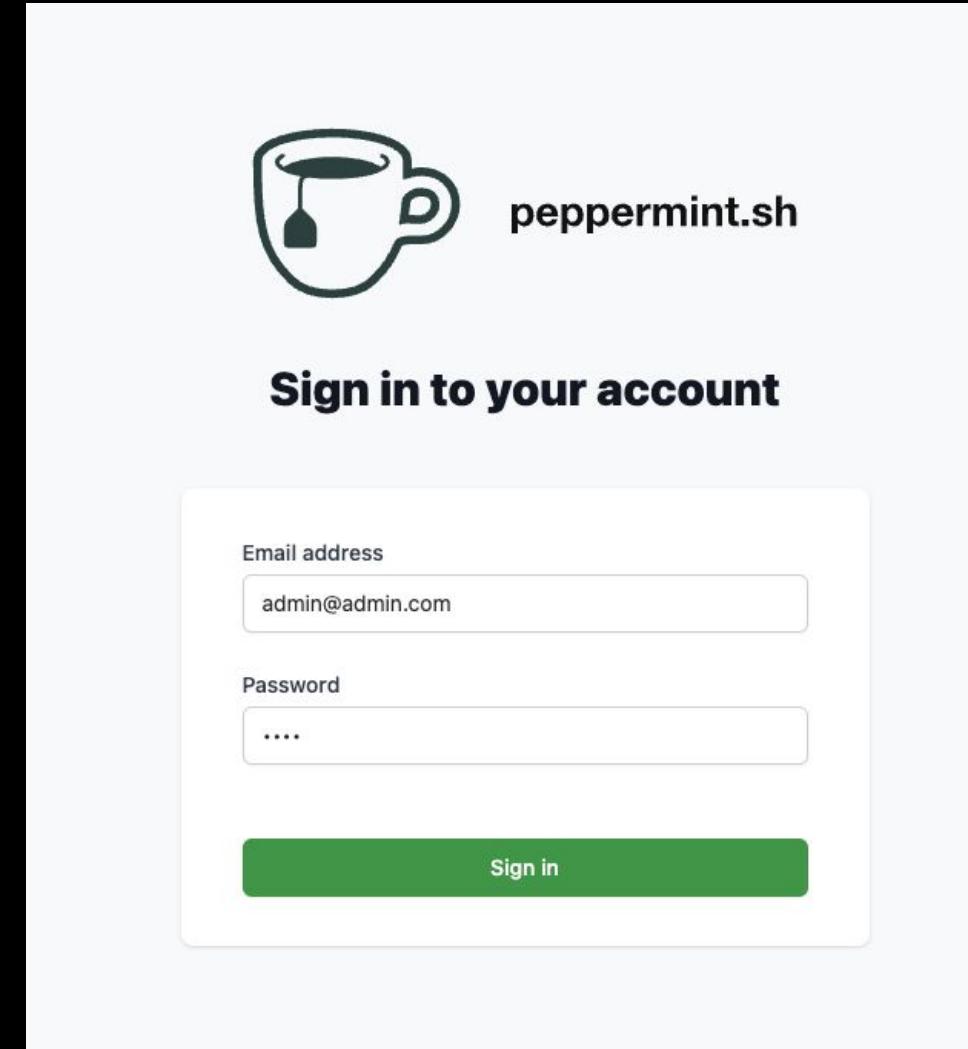
Address	Type	Default Gateway	Subnet Mask	Reverse DNS	Actions
45.79.191.175	IPv4 – Public	45.79.191.1	255.255.255.0	45-79-191-175.ip.linodeusercontent.com	Delete Edit RDNS
fe80::f03c:93ff:fe26:67b2	IPv6 – Link Local	fe80::1	ffff:ffff:ffff:ffff::		Edit RDNS
2600:3c03:f03c:93ff:fe26:67b2	IPv6 – SLAAC	fe80::1	ffff:ffff:ffff:ffff::		Edit RDNS



LOGGING INTO THE ADMIN ACCOUNT FOR PEPPERMINT

12) ONCE AT THE LOGIN PAGE FOR PEPPERMINT, ENTER THE ADMIN CREDENTIALS:

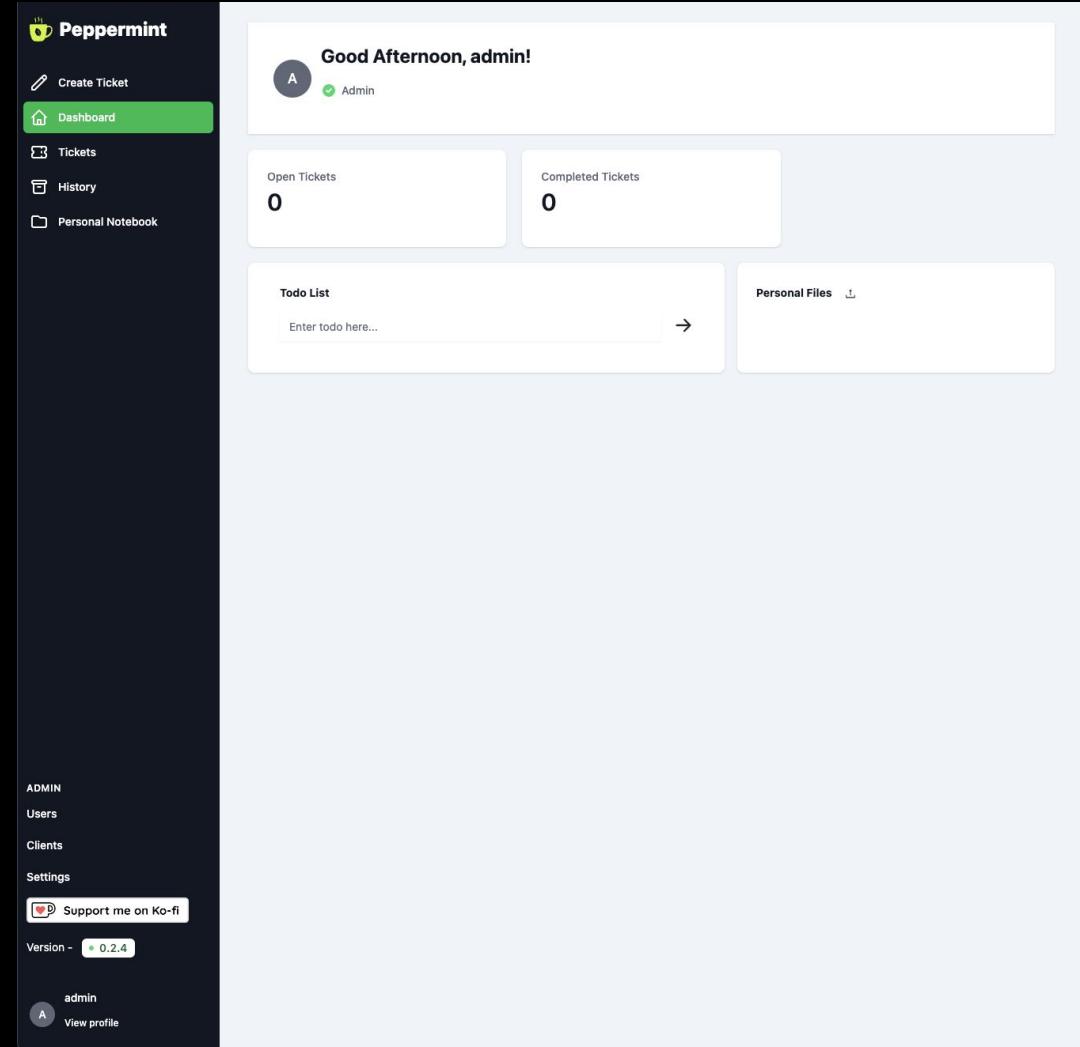
EMAIL ADDRESS: ADMIN@ADMIN.COM
PASSWORD: 1234





WELCOME TO PEPPERMINT

13) ONCE YOU REACH THIS PAGE, YOU HAVE **FULL ACCESS** TO THE HELP DESK SOFTWARE, WHERE YOU CAN CREATE TICKETS, CREATE USERS, MANAGE CLIENTS, CHECK YOUR ACTIVE AND CLOSED TICKETS, AND CREATE PERSONAL NOTES FOR YOURSELF

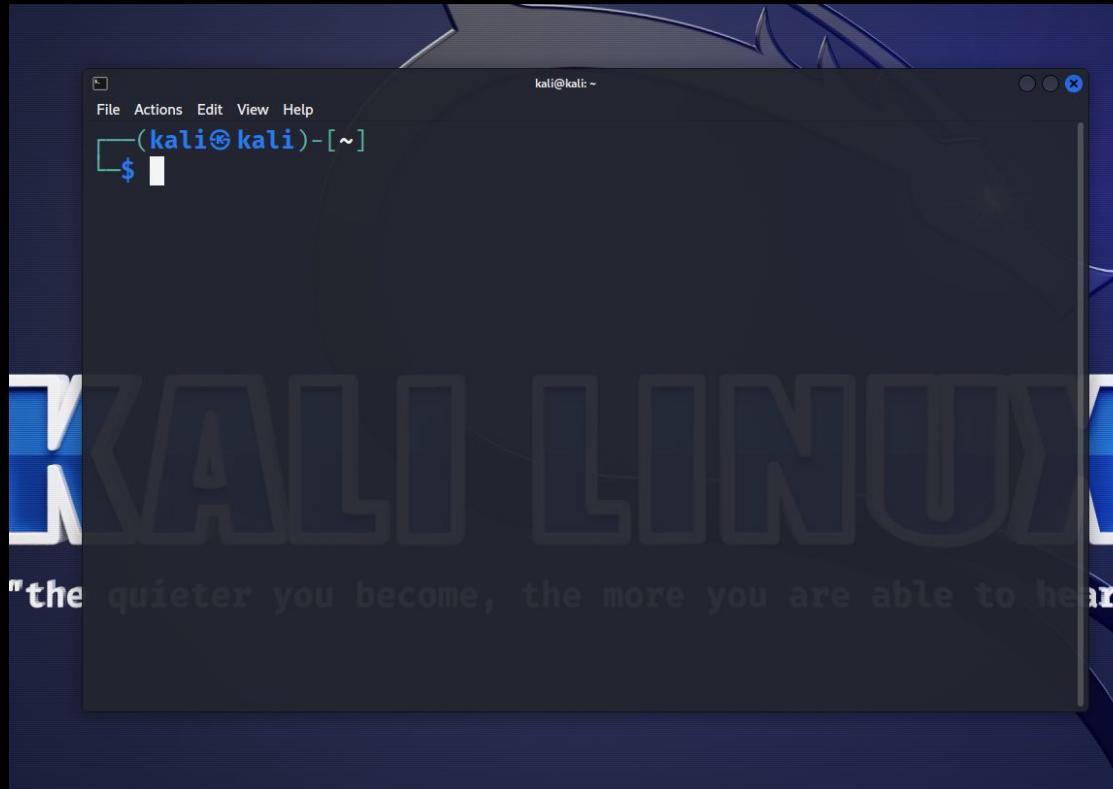


SELF-HOSTING PEPPERMINT THROUGH KALI LINUX (LOCAL MACHINE)



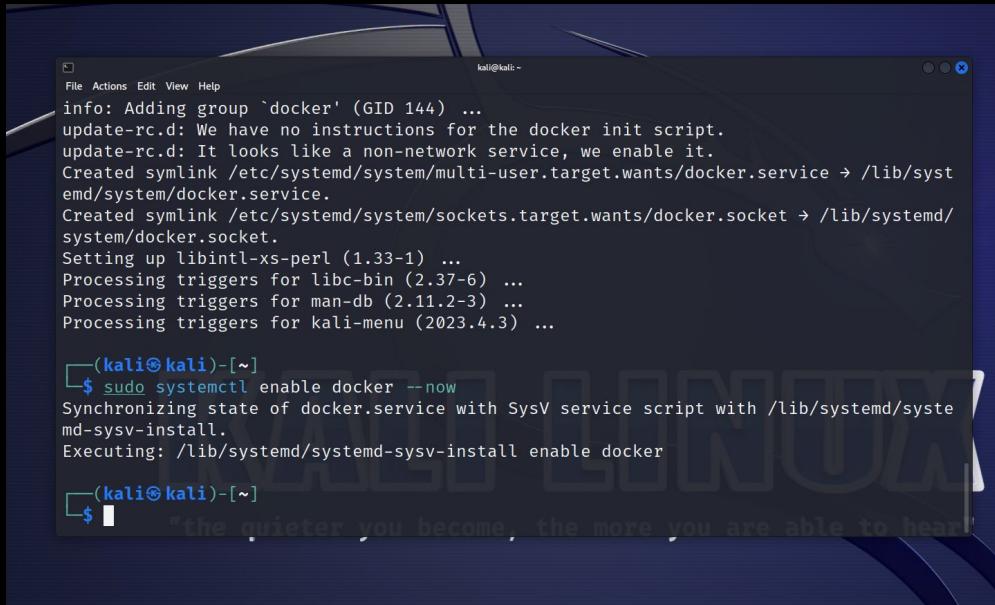
LOGGING INTO KALI

1) AT THE LOGIN SCREEN USE THE CREDENTIALS KALI/KALI TO LOGIN, AND LAUNCH A TERMINAL



● RUNNING COMMANDS AT THE ROOT USER

2) ENTER THE COMMAND **SUDO SU** AND ENTER THE PASSWORD **KALI** AT THE PROMPT



```
kali@kali: ~
info: Adding group `docker' (GID 144) ...
update-rc.d: We have no instructions for the docker init script.
update-rc.d: It looks like a non-network service, we enable it.
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Setting up libintl-xs-perl (1.33-1) ...
Processing triggers for libc-bin (2.37-6) ...
Processing triggers for man-db (2.11.2-3) ...
Processing triggers for kali-menu (2023.4.3) ...

[(kali㉿kali)-~]
$ sudo systemctl enable docker --now
Synchronizing state of docker.service with SysV service script with /lib/systemd/system-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable docker

[(kali㉿kali)-~]
$
```



BEFORE INSTALLING DOCKER

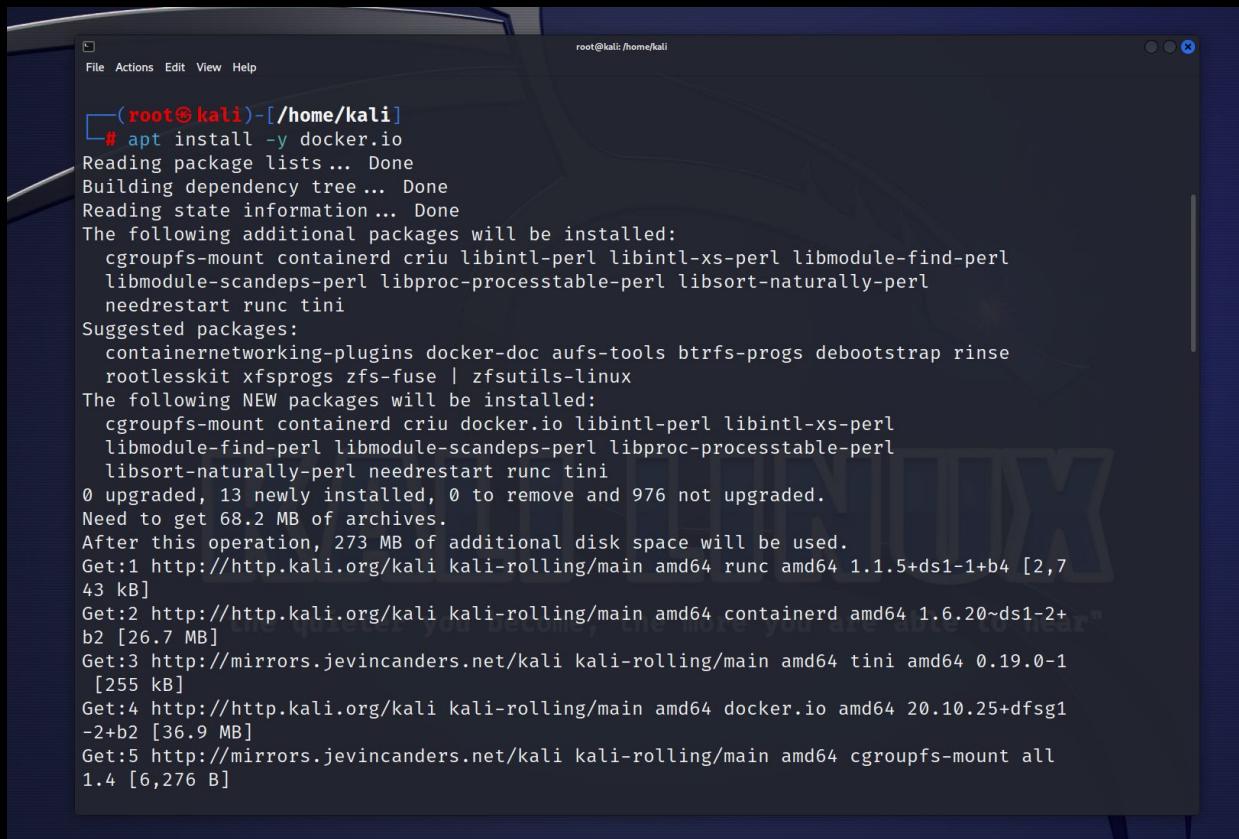
3) RUN THE COMMAND **APT UPDATE** TO UPDATE INFORMATION ABOUT AVAILABLE PACKAGES AND THEIR VERSIONS

```
(root㉿kali)-[~/home/kali]
# apt update
Get:1 http://mirrors.jevincanders.net/kali kali-rolling InRelease [41.2 kB]
Get:2 http://mirrors.jevincanders.net/kali kali-rolling/main amd64
 Packages [19.5 MB]
Get:3 http://mirrors.jevincanders.net/kali kali-rolling/main amd64
 Contents (deb) [45.9 MB]
Get:4 http://mirrors.jevincanders.net/kali kali-rolling/contrib amd
64 Packages [122 kB]
Get:5 http://mirrors.jevincanders.net/kali kali-rolling/contrib amd
64 Contents (deb) [283 kB]
Get:6 http://mirrors.jevincanders.net/kali kali-rolling/non-free am
d64 Packages [226 kB]
Get:7 http://mirrors.jevincanders.net/kali kali-rolling/non-free am
d64 Contents (deb) [913 kB]
Fetched 67.0 MB in 8s (8,037 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
976 packages can be upgraded. Run 'apt list --upgradable' to see them.
#
```



INSTALLING DOCKER

4) RUN THE COMMAND **APT INSTALL -Y DOCKER.IO TO INSTALL DOCKER**



The screenshot shows a terminal window titled "root@kali: /home/kali". The command "# apt install -y docker.io" is being run. The output shows the package list, dependencies, and download progress. The terminal is running on a Kali Linux desktop environment.

```
(root@kali)-[~/home/kali]
# apt install -y docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  cgroupfs-mount containerd criu libintl-perl libintl-xs-perl libmodule-find-perl
  libmodule-scandeps-perl libproc-processtable-perl libsort-naturally-perl
  needrestart runc tini
Suggested packages:
  containerNetworking-plugins docker-doc aufs-tools btrfs-progs debootstrap rinse
  rootlesskit xfsprogs zfs-fuse | zfsutils-linux
The following NEW packages will be installed:
  cgroupfs-mount containerd criu docker.io libintl-perl libintl-xs-perl
  libmodule-find-perl libmodule-scandeps-perl libproc-processtable-perl
  libsort-naturally-perl needrestart runc tini
0 upgraded, 13 newly installed, 0 to remove and 976 not upgraded.
Need to get 68.2 MB of archives.
After this operation, 273 MB of additional disk space will be used.
Get:1 http://http.kali.org/kali kali-rolling/main amd64 runc amd64 1.1.5+ds1-1+b4 [2,7
43 kB]
Get:2 http://http.kali.org/kali kali-rolling/main amd64 containerd amd64 1.6.20~ds1-2+
b2 [26.7 MB]
Get:3 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 tini amd64 0.19.0-1
[255 kB]
Get:4 http://http.kali.org/kali kali-rolling/main amd64 docker.io amd64 20.10.25+dfsg1
-2+b2 [36.9 MB]
Get:5 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 cgroupfs-mount all
1.4 [6,276 B]
```



INSTALLING DOCKER

5) RUN THE COMMAND **APT INSTALL DOCKER-COMPOSE** TO FURTHER COMPLETE THE INSTALL AND TYPE IN **Y** AT THE PROMPT

The screenshot shows a terminal window with a dark background and light-colored text. The title bar indicates the session is root at kali. The command entered is '# apt install docker-compose'. The output shows the package being installed, including dependencies like python3-compose and python3-docker, and new packages like docker-compose. It also shows the download progress and the user's confirmation 'Do you want to continue? [Y/n] Y'.

```
(root㉿kali)-[~/home/kali]
# apt install docker-compose
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-compose python3-docker python3-dockerpty python3-texttable
The following NEW packages will be installed:
  docker-compose python3-compose python3-docker python3-dockerpty python3-texttable
0 upgraded, 5 newly installed, 0 to remove and 976 not upgraded.
Need to get 270 kB of archives.
After this operation, 1,232 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 python3-docker all 5.0.3-1 [9
0.2 kB]
Get:2 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 python3-dockerpty all 0.4.1-4
[11.4 kB]
Get:3 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 python3-texttable all 1.6.7-1
[11.9 kB]
Get:4 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 python3-compose all 1.29.2-6
[113 kB]
Get:5 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 docker-compose all 1.29.2-6 [44.2 kB]
Fetched 270 kB in 1s (288 kB/s)
Selecting previously unselected package python3-docker.
(Reading database... 399477 files and directories currently installed.)
Preparing to unpack .../python3-docker_5.0.3-1_all.deb ...
Unpacking python3-docker (5.0.3-1) ...
Selecting previously unselected package python3-dockerpty.
```





CREATING PEPPERMINT DIRECTORY

3) ENTER THE COMMAND **MKDIR PEPPERMINT** FOLLOWED BY **CD PEPPERMINT** TO CREATE AND NAVIGATE TO A DIRECTORY NAMED PEPPERMINT

```
Running kernel seems to be up-to-date.  
No services need to be restarted.  
No containers need to be restarted.  
No user sessions are running outdated binaries.  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
└─(root㉿kali)-[~/home/kali]  
  # mkdir peppermint  
└─(root㉿kali)-[~/home/kali]  
  # cd peppermint  
└─(root㉿kali)-[~/home/kali/peppermint]  
  #
```



● CREATING THE DOCKER-COMPOSE FILE

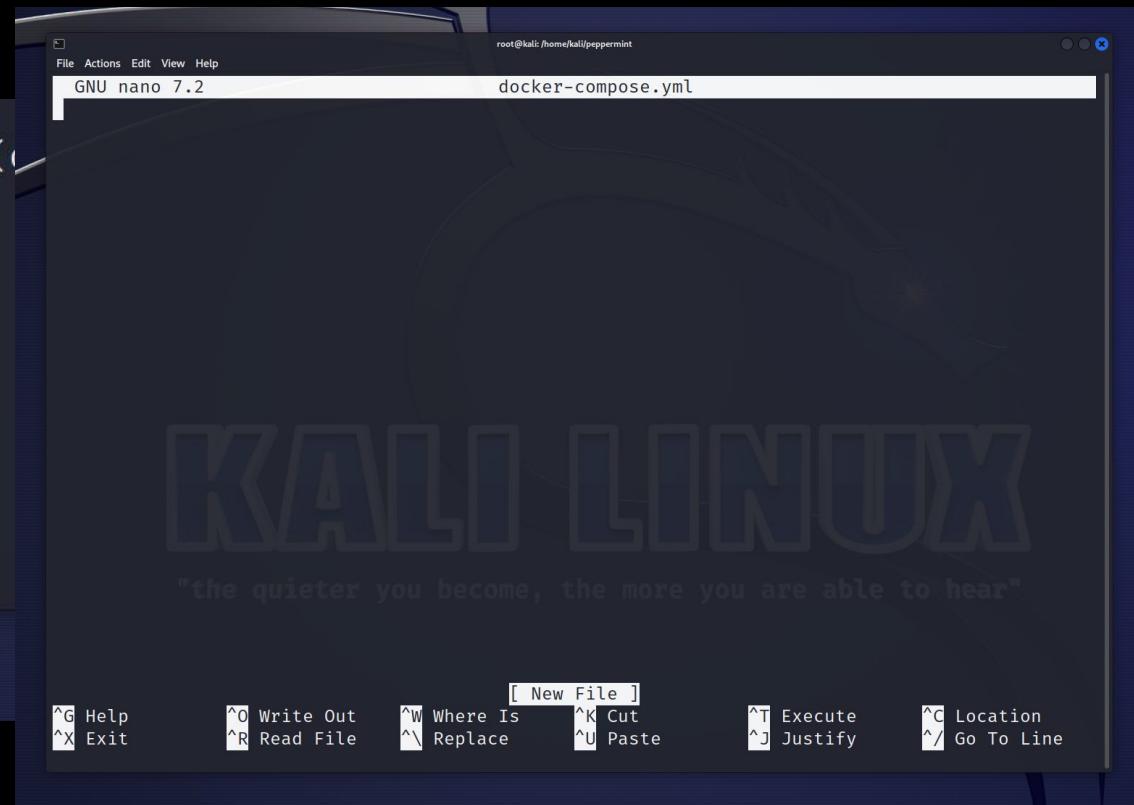
4) ENTER THE COMMAND **NANO DOCKER-COMPOSE.YML**, WHICH WILL BRING YOU TO A TEXT EDITOR SCREEN

```
No VM guests are running outdated hypervisor (0)

└─(root㉿kali)-[~/home/kali]
└─# mkdir peppermint

└─(root㉿kali)-[~/home/kali]
└─# cd peppermint

└─(root㉿kali)-[~/home/kali/peppermint]
└─# nano docker-compose.yml
```





COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

5) USING THE FIREFOX BROWSER WITHIN KALI LINUX, VISIT [HTTPS://GITHUB.COM/PEPPERMINT-LAB/PEPPERMINT](https://github.com/peppermint-lab/peppermint), OR TYPE IN ‘GITHUB PEPPERMINT’ AND SELECT THE LINK THAT SAYS ‘PEPPERMINT TICKET MANAGEMENT’

The screenshot shows the GitHub README page for the Peppermint Ticket Management project. The page includes a 'Buy Me a Coffee' button, version 0.2, 1k stars, and 88k docker pulls. It features a green coffee cup icon and a DigitalOcean logo. The introduction section states it's a self-hosted alternative to popular services like Zendesk. The 'Features' section lists ticket creation, client history, Markdown-based notebooks, responsiveness, multi-deployment, and simplicity. The 'Installation with docker' section provides a Dockerfile snippet:

```
version: "3.1"

services:
  postgres:
    container_name: postgres
    image: postgres:latest
    restart: always
    volumes:
      /docker_data/db:/data/db
```



COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

6) SCROLL DOWN UNTIL YOU
SEE 'INSTALLATION WITH
DOCKER' AND COPY THE CODE

 Installation with docker ↗

Check out the getting started guide if this is the first time you've used Peppermint:

```
version: "3.1"

services:
  postgres:
    container_name: postgres
    image: postgres:latest
    restart: always
    volumes:
      - ./docker-data/db:/data/db
    environment:
      POSTGRES_USER: peppermint
      POSTGRES_PASSWORD: 1234
      POSTGRES_DB: peppermint

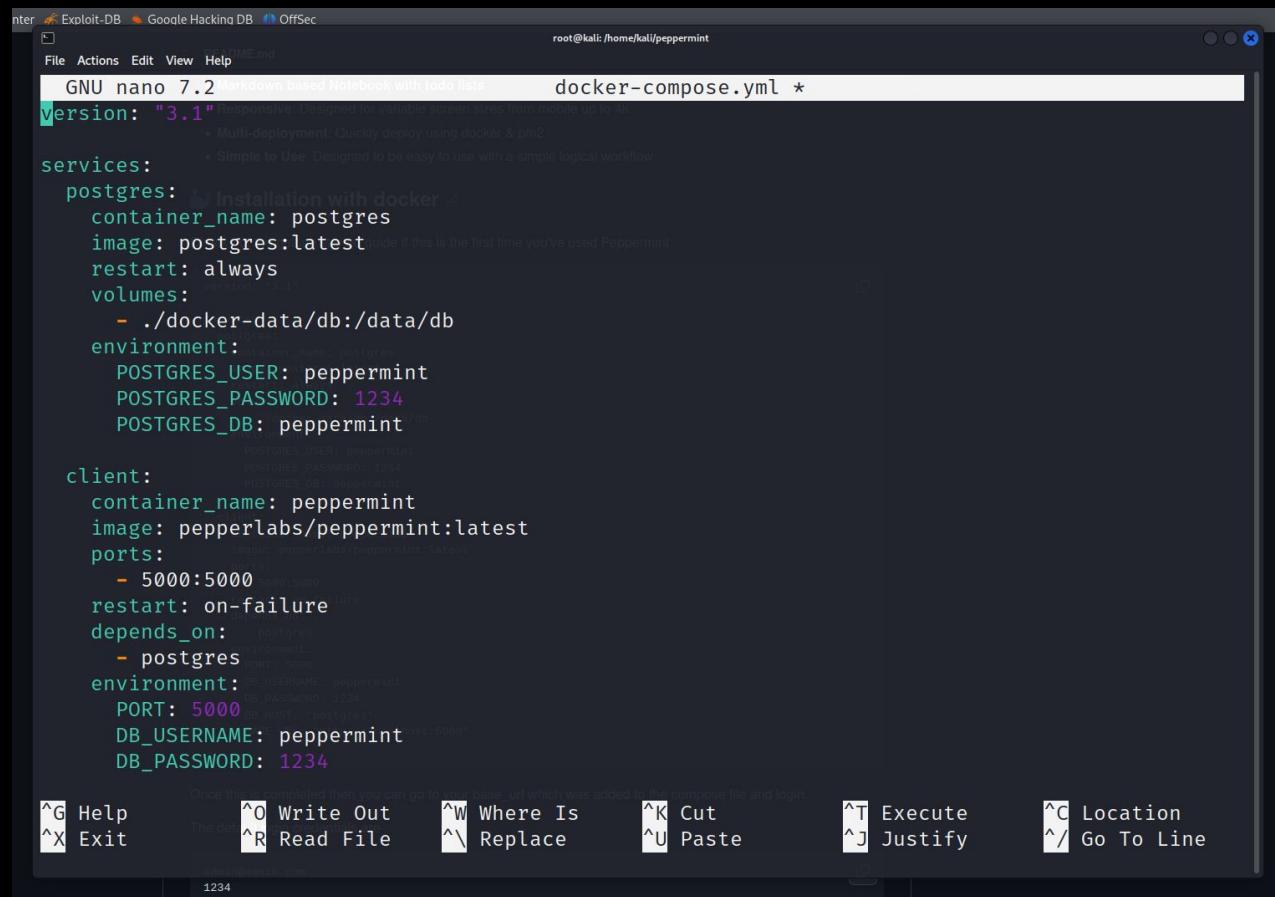
  client:
    container_name: peppermint
    image: pepperlabs/peppermint:latest
    ports:
      - 5000:5000
    restart: on-failure
    depends_on:
      - postgres
    environment:
      PORT: 5000
      DB_USERNAME: peppermint
      DB_PASSWORD: 1234
      DB_HOST: 'postgres'
      BASE_URL: "http://localhost:5000"
```

Once this is completed then you can go to your base .url which was added to the compose file and login



COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

7) HEAD BACK TO YOUR TERMINAL AND PASTE THE CODE INTO YOUR TEXT EDITOR USING **CTRL + SHIFT + V**, OR **RIGHT-CLICK AND SELECT PASTE CLIPBOARD**. TO SAVE CHANGES TO YOUR FILE DO **CTRL+X, Y, ENTER KEY**.



```
root@kali:/home/kali/peppermint# nano docker-compose.yml
version: "3.1" responsive. Designed for variable screen sizes from mobile up to 1000px
services:
  postgres:
    container_name: postgres
    image: postgres:latest
    restart: always
    volumes:
      - ./docker-data/db:/data/db
    environment:
      POSTGRES_USER: peppermint
      POSTGRES_PASSWORD: 1234
      POSTGRES_DB: peppermint
  client:
    container_name: peppermint
    image: pepperlabs/peppermint:latest
    ports:
      - 5000:5000
    restart: on-failure
    depends_on:
      - postgres
    environment:
      PORT: 5000
      DB_USERNAME: peppermint
      DB_PASSWORD: 1234
Once this is completed then you can go to your http://0.0.0.0:5000 which was added to the compose file and login.
```





COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

8) AFTER GETTING BACK TO THE TERMINAL, ENTER THE COMMAND **DOCKER-COMPOSE UP -D**, AND LET IT RUN COMPLETELY.

```
[root@kali)-[/home/kali/peppermint]
# docker-compose up -d
Creating network "peppermint_default" with the default driver
Pulling postgres (postgres:latest) ...
latest: Pulling from library/postgres
a378f10b3218: Pull complete
2ebc5690e391: Pull complete
8fe57f734687: Extracting [=====]
a2ddbb09cd9a: Download complete
5a2499e87ab8: Download complete
a45f5c4adf1b: Download complete
178017fd978e: Download complete
428dff1cb77d: Download complete
4667364adfc4: Download complete
4eea1f5281a9: Download complete
369467411787: Download complete
51184495a2bc: Download complete
d3e246f01410: Download complete
```

```
02d3e91a25e6: Pull complete
429669329d9e: Pull complete
cb460a955b31: Pull complete
93596fbaf859: Pull complete
54301116aa89: Pull complete
b43ba4a0f1d6: Pull complete
97405c46980d: Pull complete
f72ed5a3f06b: Pull complete
21695796731f: Pull complete
Digest: sha256:d377fa1de15a9a86dd59dc0f6a2a2a6481c48c49b0a16ac84e15406f0a3bc804
Status: Downloaded newer image for pepperlabs/peppermint:latest
Creating postgres ... done
Creating peppermint ... done
```

Once this is completed then you can go to your base_url which was added to the compose file and login.

```
[root@kali)-[/home/kali/peppermint]
#
```





COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

9) RUN THE COMMAND **DOCKER PS**, AND IF YOU DO NOT SEE A CONTAINER ID FOR PEPPERLABS/PEPPERMINT, RUN THE COMMAND **DOCKER-COMPOSE UP -D AGAIN**. RUN **DOCKER PS** AGAIN, AND CHECK THE PORT USED FOR PEPPERMINT.

```
root@kali: /home/kali/peppermint
└─# docker-compose up -d
    postgres is up-to-date
    Starting peppermint ... done

root@kali: /home/kali/peppermint
└─# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
NAMES
83ec587bd14d      pepperlabs/peppermint:latest   "docker-entrypoint.s..."   2 minutes ago     Up 4 seconds       0.0.0.0:5000→5000/tcp,
                                                               :::5000→5000/tcp, 5001/tcp
7a3e7c27947c      postgres:latest                 "docker-entrypoint.s..."   2 minutes ago     Up About a minute  5432/tcp

root@kali: /home/kali/peppermint
└─#
```



COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

10) RUN THE COMMAND **IFCONFIG**, AND IDENTIFY THE IP ADDRESS FOR YOUR DOCKER0 INTERFACE

```
File Actions Edit View Help
└# ifconfig
root@kali: /home/kali/peppermint

br-8ca536fed898: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.18.0.1 netmask 255.255.0.0 broadcast 172.18.255.255
        inet6 fe80::42:ff:fe0f:20f5 prefixlen 64 scopeid 0x20<link>
            ether 02:42:00:ef:20:f5 txqueuelen 0 (Ethernet)
                RX packets 2560 bytes 112004 (109.3 KiB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 2871 bytes 29820122 (28.4 MiB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 172.17.255.255
        ether 02:42:fc:fc:60:f8 txqueuelen 0 (Ethernet)
            RX packets 0 bytes 0 (0.0 B)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 0 bytes 0 (0.0 B)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
        inet6 fe80::af0e:a5c3:99a0:ec40 prefixlen 64 scopeid 0x20<link>
            ether 08:00:27:cb:7e:f5 txqueuelen 1000 (Ethernet)
                RX packets 412464 bytes 610514346 (582.2 MiB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 35269 bytes 3289790 (3.1 MiB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

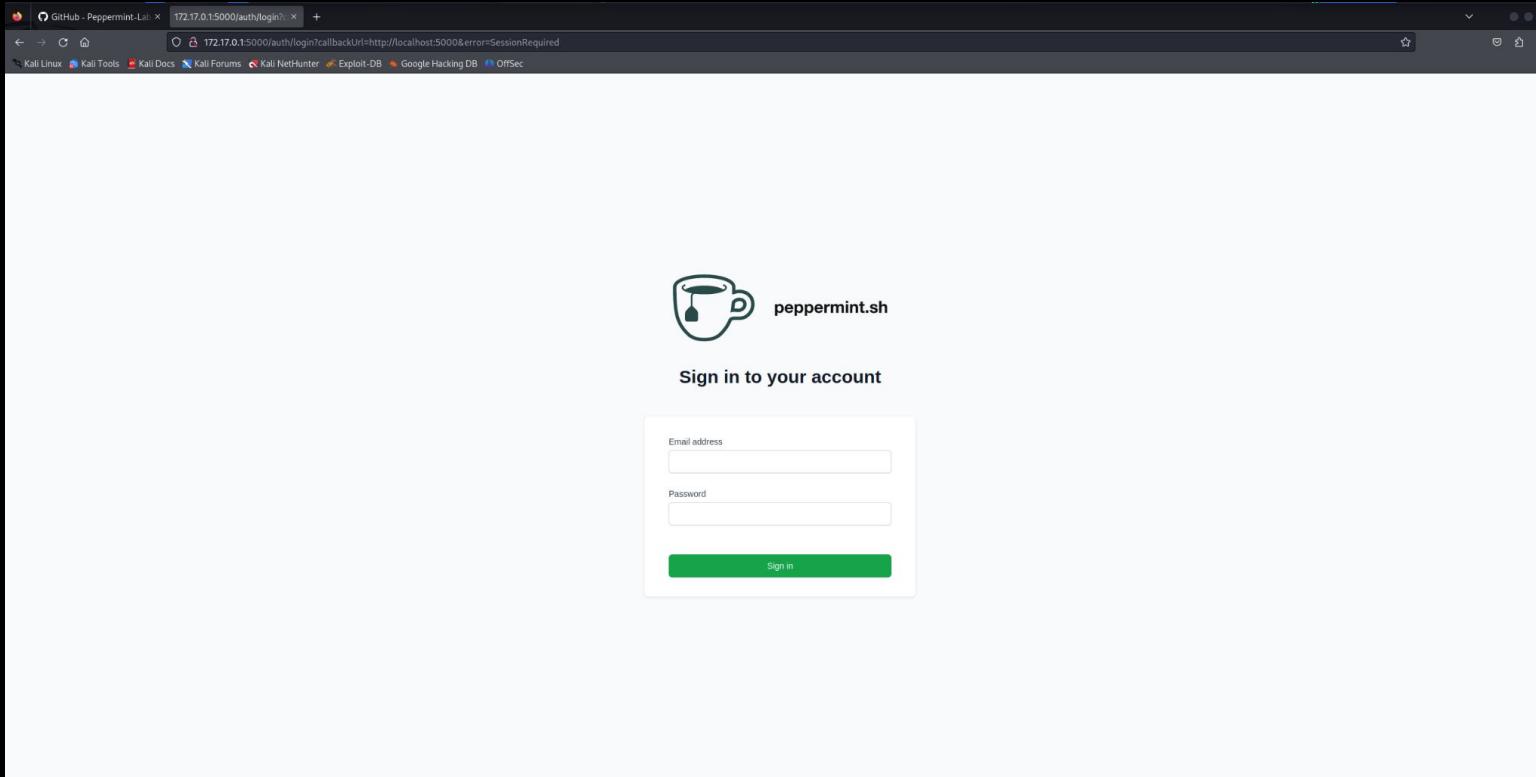
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
```





COPY AND PASTE THE CONFIGS FROM THE PEPPERMINT GITHUB

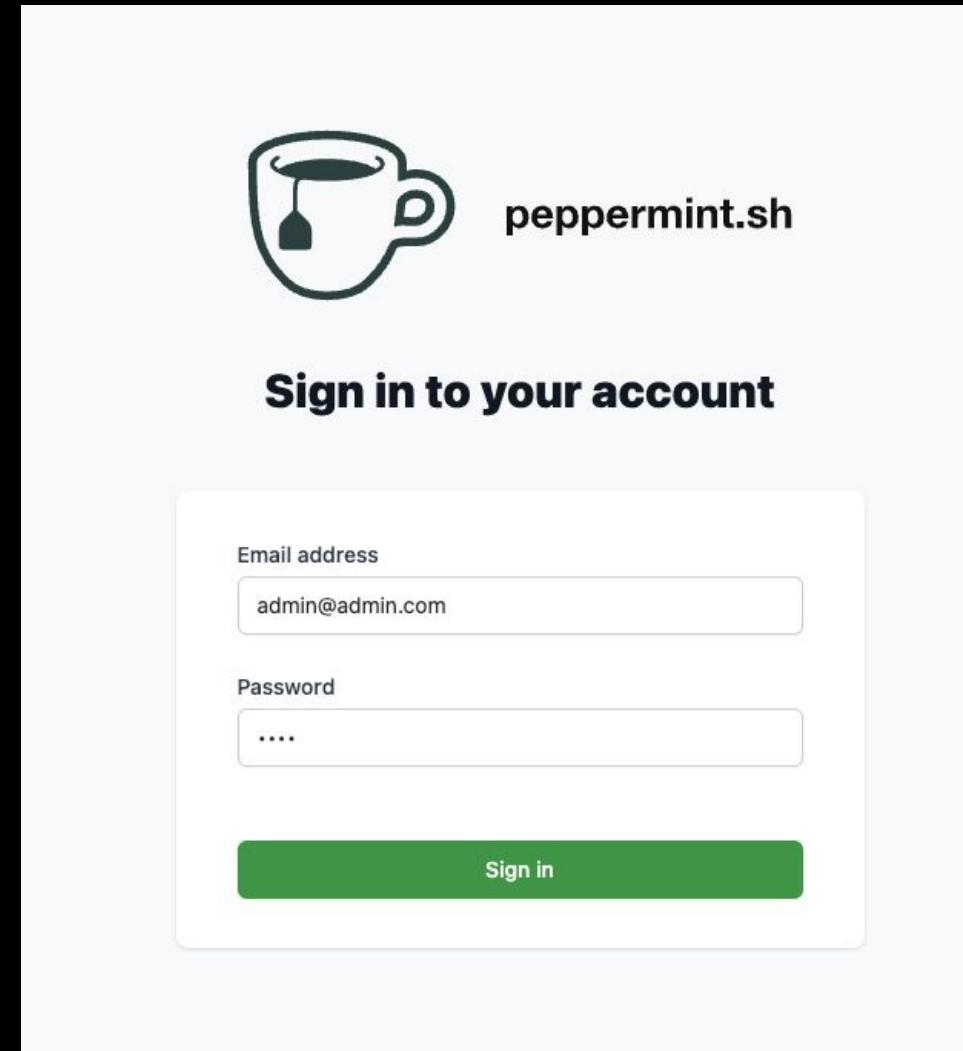
11] USING YOUR IP ADDRESS AND THE PORT, ENTER INTO A NEW TAB IN YOUR FIREFOX BROWSER **IPADDRESS:PORT** [EXAMPLE: 172.17.0.1:5000]



● LOGGING INTO THE ADMIN ACCOUNT FOR PEPPERMINT

12) ONCE AT THE LOGIN PAGE FOR PEPPERMINT, ENTER THE ADMIN CREDENTIALS:

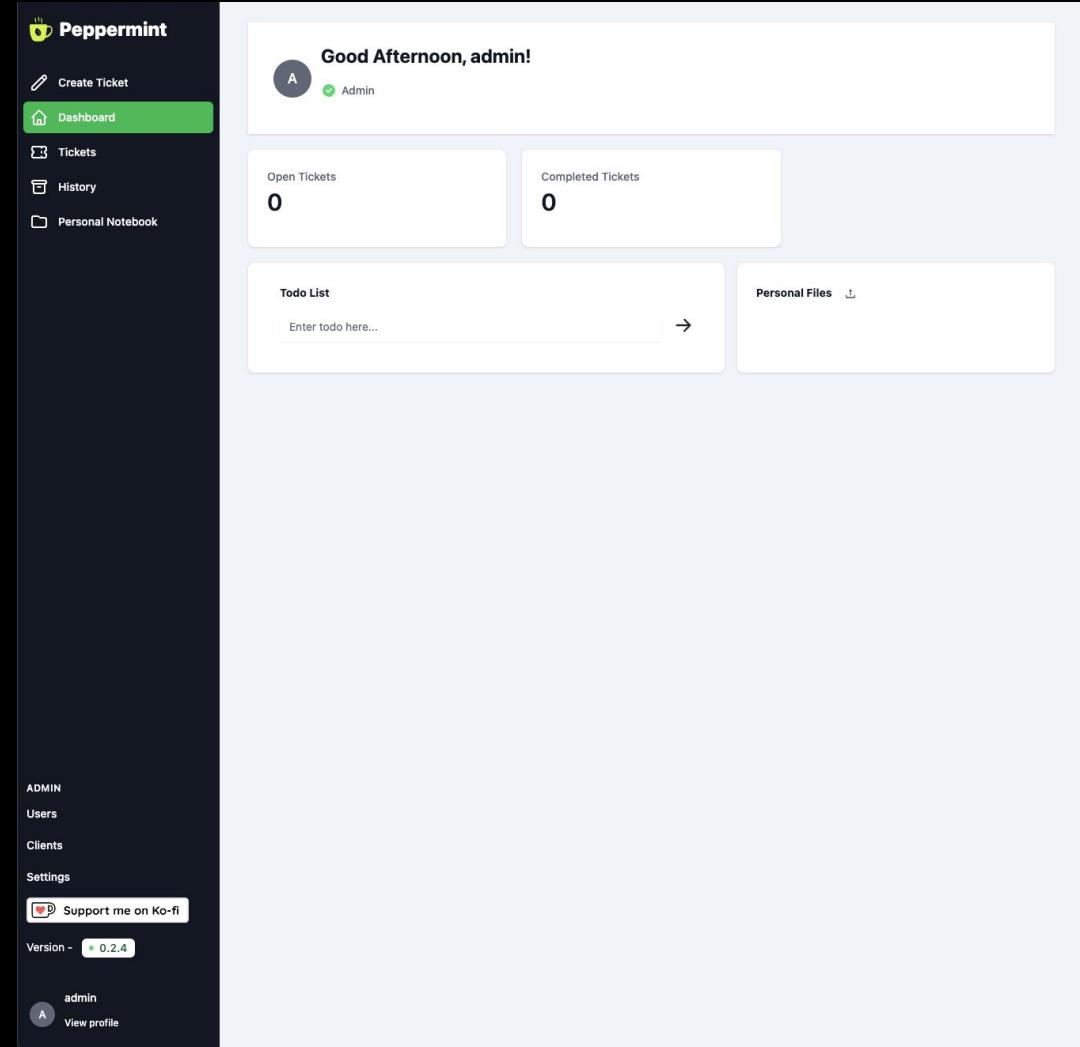
EMAIL ADDRESS: ADMIN@ADMIN.COM
PASSWORD: 1234

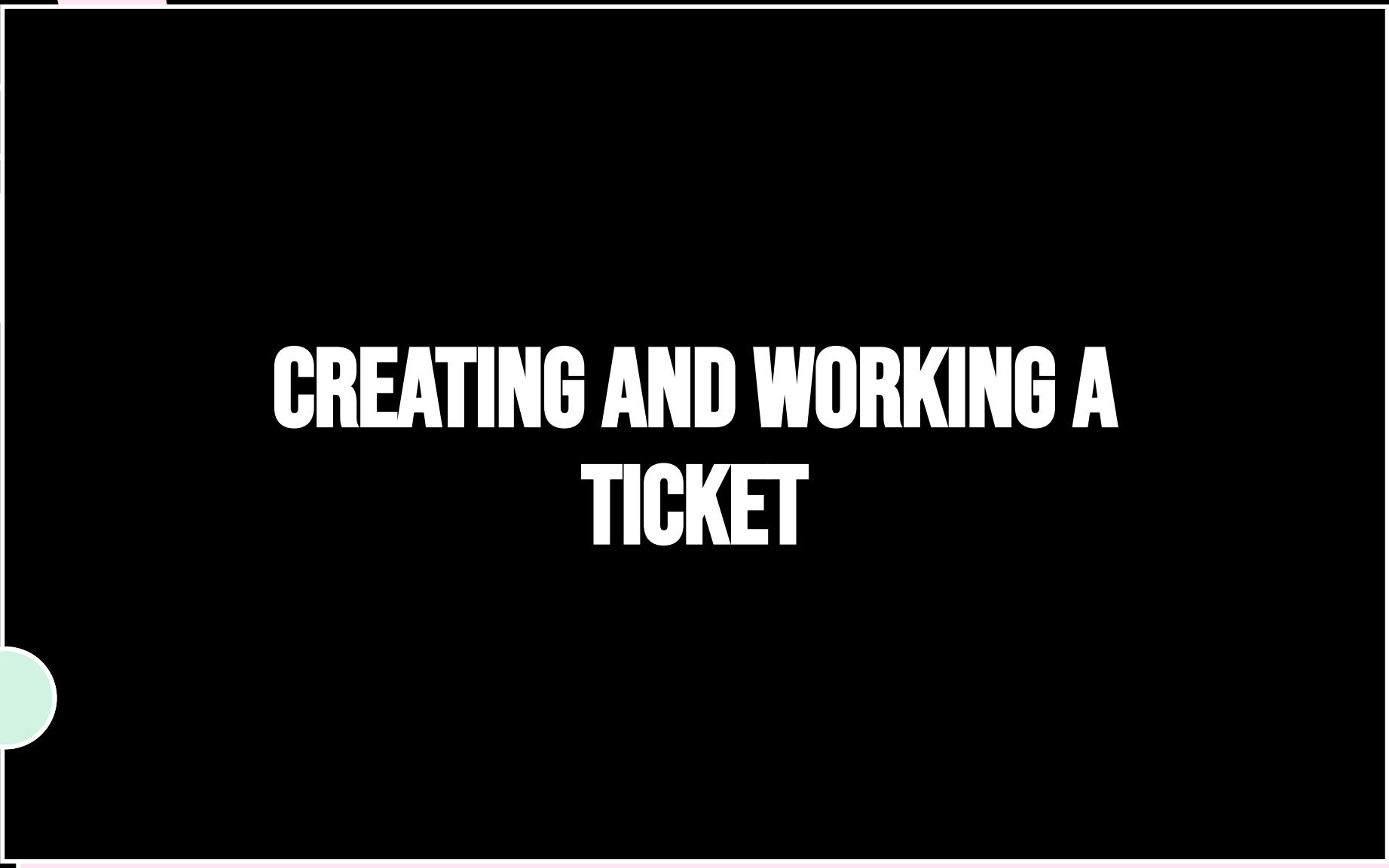




WELCOME TO PEPPERMINT

13) ONCE YOU REACH THIS PAGE, YOU HAVE **FULL ACCESS** TO THE HELP DESK SOFTWARE, WHERE YOU CAN CREATE TICKETS, CREATE USERS, MANAGE CLIENTS, CHECK YOUR ACTIVE AND CLOSED TICKETS, AND CREATE PERSONAL NOTES FOR YOURSELF





CREATING AND WORKING A TICKET

● WELCOME TO THE SJU ACM HELP DESK!

YOU ARE A NEW HIRE ON OUR HELP DESK, AND YOU ARE READY FOR YOUR FIRST TICKET. COMPLETE THE FOLLOWING TO SHOW YOUR READINESS FOR ANY TICKET THAT COMES YOUR WAY:

- 1) CREATE A TICKET FOR A USER WITH THE NAME JBOND WITH THE EMAIL JBOND@007.com
- 2) TITLE THE TICKET: HELP WITH WEBEX BACKGROUNDS
- 3) SELECT THE CLIENT AS INTERNAL, AND SELECT THE ENGINEER AS ADMIN
- 4) DESCRIPTION: I AM GETTING READY TO JOIN AN IMPORTANT CALL WITH MI6 BUT I DO NOT WANT THEM TO KNOW I AM CURRENT VACATIONING IN BALI. HOW DO I ADD A VIRTUAL BACKGROUND ON WEBEX TO ACT LIKE I AM IN AN OFFICE?
- 5) ASSIGN THE APPROPRIATE SEVERITY LEVEL FOR THE TICKET, AND SELECT CREATE TICKET
- 6) VISIT YOUR DASHBOARD TO PROVIDE MR. BOND THE APPROPRIATE DIRECTIONS TO ALTER HIS WEBEX BACKGROUND. ONCE DONE, MARK THE TICKET AS COMPLETE.



WELCOME TO THE SJU ACM HELP DESK!

Help with WebEx Backgrounds

opened by user: jbond from client: internal

Issue

I am getting ready to join an important call with MI6 but I do not want them to know I am current vacationing in Bali. How do I add a virtual background on WebEx to act like I am in an office?

I am getting ready to join an important call with MI6 but I do not want them to know I am current vacationing in Bali. How do I add a virtual background on WebEx to act like I am in an office?

Activity

Step 1: Tap the Video icon.
Step 2: Tap the Change Virtual Background button.
Step 3: From the menu, you can select blur, a standard Webex background, or an image you've already uploaded.
Step 4: Click Apply.

Step 1: Tap the Video icon.
Step 2: Tap the Change Virtual Background button.
Step 3: From the menu, you can select blur, a standard Webex background, or an image you've already uploaded.
Step 4: Click Apply.

Issued
 Low

Created on 01/11/2023
Last updated 01/11/2023

Assignees
 admin

Help with WebEx Backgrounds

opened by user: jbond from client: internal

Ticket Files

No files attached to the job ...

Contact Details
Name - jbond
Email - jbond@007.com
Number - 123456789

Issued
 Low

Created on 01/11/2023
Last updated 01/11/2023

Assignees
 admin

Help with WebEx Backgrounds

opened by user: jbond from client: internal

Ticket Files

No files attached to the job ...

Contact Details
Name - jbond
Email - jbond@007.com
Number - 123456789





BUILDING YOUR CAREER IN IT

SKILLS NEEDED FOR HELP DESK

- HELP DESK SERVES AS A GOOD ENTRY-LEVEL ROLE FOR THOSE LOOKING TO GET INTO IT AND GAIN THEIR FIRST EXPERIENCE
- TECH SKILLS:
 - KNOWLEDGE OF TICKETING SYSTEMS
 - CYBERSECURITY KNOWLEDGE
 - PROFICIENCIES WITH VARIOUS SOFTWARE AND HARDWARE
 - SCRIPTING EXPERIENCE
 - PREVIOUS USE OF REMOTE ACCESS/TROUBLESHOOTING TOOLS
- INTERPERSONAL SKILLS:
 - FOCUS + MULTI-TASKING ABILITIES
 - ACTIVE LISTENING
 - TEAMWORK
 - PATIENCE + COACHING ABILITY
 - CONFLICT RESOLUTION



What Skills Will You Learn?

- | | | |
|---|--|---|
| Hardware
Identifying, using and connecting hardware components and devices, including the broad knowledge about different devices that is now necessary to support the remote workforce | Operating Systems
Install and support Windows OS including command line and client support, system configuration imaging and troubleshooting for Mac OS, Chrome OS, Android and Linux OS | Software Troubleshooting
Troubleshoot PC and mobile device issues including common OS, malware and security issues |
| Networking
Explain types of networks and connections including TCP/IP, WIFI and SOHO | Troubleshooting
Troubleshoot real-world device and network issues quickly and efficiently | Security
Identify and protect against security vulnerabilities for devices and their network connections |
| Mobile Devices
Install and configure laptops and other mobile devices and support applications to ensure connectivity for end users | Virtualization and Cloud Computing
Compare and contrast cloud computing concepts and set up client-side virtualization | Operational Procedures
Follow best practices for safety, environmental impacts, and communication and professionalism |



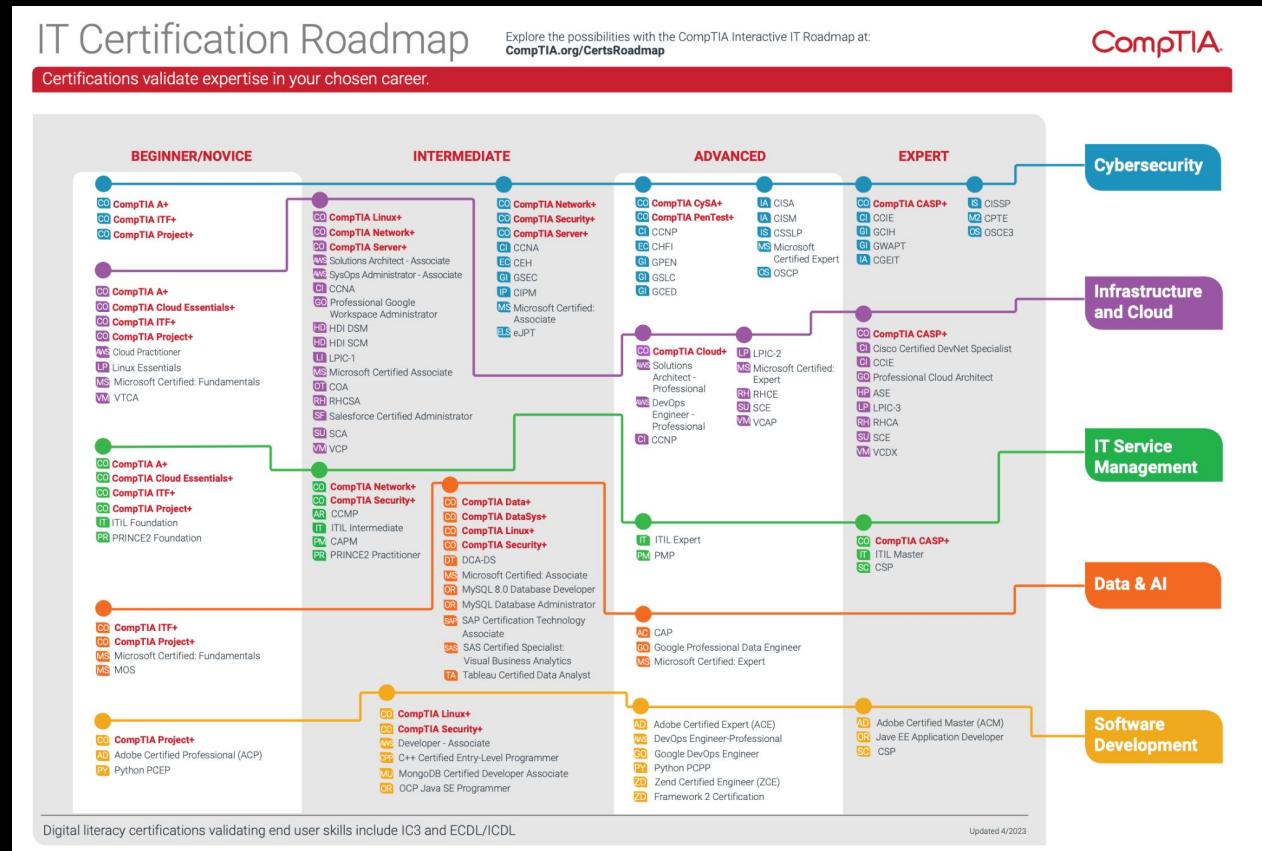
PIVOTING INTO OTHER FIELDS

- CLOUD AND SYSTEM ADMINISTRATORS - TO UPKEEP AN IT INFRASTRUCTURE, A LOT OF HELP/SERVICE DESK PROFESSIONALS WILL LEARN THE SKILLS NECESSARY TO PIVOT INTO THESE ROLES
- NETWORK OPERATIONS/SECURITY ANALYST - WORKING ON THE FRONT LINES OF THE HELP DESK INTRODUCES YOU TO A LOT OF THE PROBLEMS THAT NEED TO GET ROUTED TO NETWORK ENGINEERS AND SECURITY ANALYSTS
 - ALLOWS YOU FAMILIARIZE YOURSELF WITH THE ISSUES YOU COULD POTENTIALLY WORK WITH IN THE FUTURE
 - MEET AND NETWORK WITH THE MEMBERS OF THESE DEPARTMENTS FOR FUTURE CAREER PROGRESSION
- DEVOPS - THE SCRIPTING AND NETWORKING SKILLS PICKED UP ON THE JOB COULD ALLOW YOU TO APPLY THEM TO A FUTURE ROLE IN DEVELOPING APPLICATIONS
- IT MANAGER - YOU CAN STAY WITHIN THE IT FIELD AND WORK UP TO CTO, CIO, ETC.
 - MANAGE THE EFFICIENCY, EXECUTION, AND VALUE OF THE ENTIRE TECH OPERATION OF AN ORGANIZATION



KEEP IN MIND THE IT CERTIFICATION ROADMAP

- WHILE IT IS NOT THE END ALL BE ALL, AND YOU DO NOT NEED EVERY CERTIFICATION ON THE GRAPH BY ANY MEANS, THIS ROADMAP PROVIDES A DECENT UNDERSTANDING OF WHAT ROUTES YOU CAN TAKE AS YOU PROGRESS IN YOUR CAREER





THANK YOU!

