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How to Make a Free Minecraft Server using AWS

INTRODUCTION:

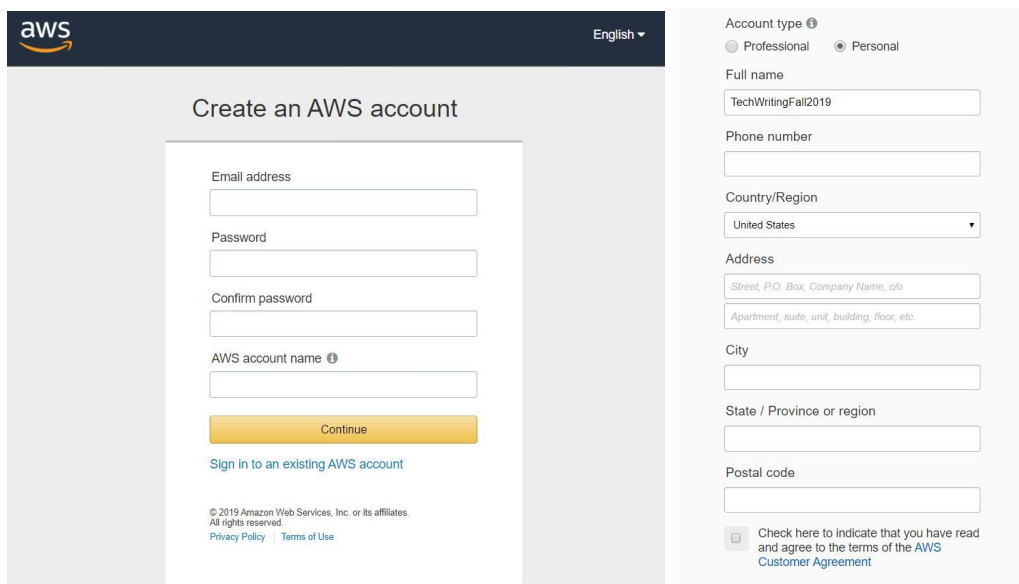
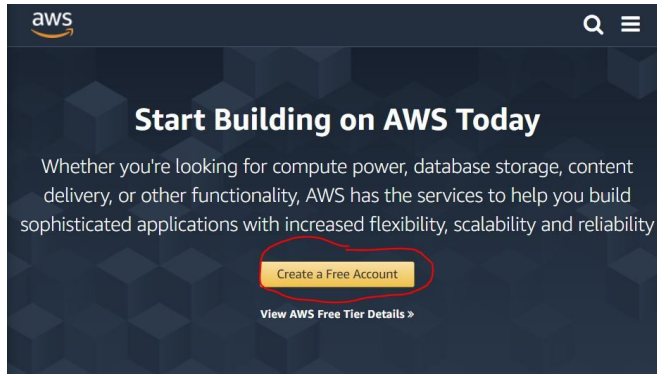
Minecraft is one of the most popular video games today. Using these instructions, you will be able to create a free Java Minecraft Server using Amazon Web Services. This server is easy to set up and can be used to play multiplayer Minecraft with friends!

Materials:

- 1 Computer with an internet connection and SSH capable
- 1 credit card accepted by Amazon

INSTRUCTIONS:

1. Make an AWS account (go to <https://portal.aws.amazon.com/gp/aws/developer/registration/index.html>)
 - a. Click “Create a Free Account” and fill out required fields

This screenshot shows the "Create an AWS account" form. The form is divided into two main sections. The left section contains fields for "Email address", "Password", "Confirm password", and "AWS account name", followed by a yellow "Continue" button and a link to "Sign in to an existing AWS account". The right section is titled "Account type" with radio buttons for "Professional" and "Personal" (selected). It includes fields for "Full name", "Phone number", "Country/Region" (a dropdown menu showing "United States"), "Address" (two lines for street and apartment/suite), "City", "State / Province or region", and "Postal code". At the bottom of the right section is a checkbox for agreeing to the "AWS Customer Agreement".

Pictures 1-3: Creation of AWS account.

- b. It will ask for a credit card. It will charge you \$1.00 and refund you later to verify the card. However, you will not be charged for a single server to run.

Payment Information

We use your payment information to verify your identity and only for usage in excess of the [AWS Free Tier Limits](#). We will not charge you for usage below the AWS Free Tier Limits. For more information, see the [frequently asked questions](#).

When you submit your payment information, we will charge \$1 USD/EUR to your credit card as a verification charge to ensure your card is valid. The amount may show as pending in your credit card statement for 3-5 days until the verification is completed, at which time the charge will be removed. You may be redirected to your bank website to authorize the verification charge.

Credit/Debit card number

Expiration date
10 2019

Cardholder's name

Billing address
☒ Use my contact address
Contact Address
☐ Use a new address

[Verify and Add](#)


Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

How should we send you the verification code?
☒ Text message (SMS) ☐ Voice call

Country or region code
United States (+1)

Cell Phone Number

Security check





[Send SMS](#)

Pictures 4-5: Further creation of AWS account.

- c. For “Select a Support Plan,” choose the Basic Plan for free access.

Select a Support Plan

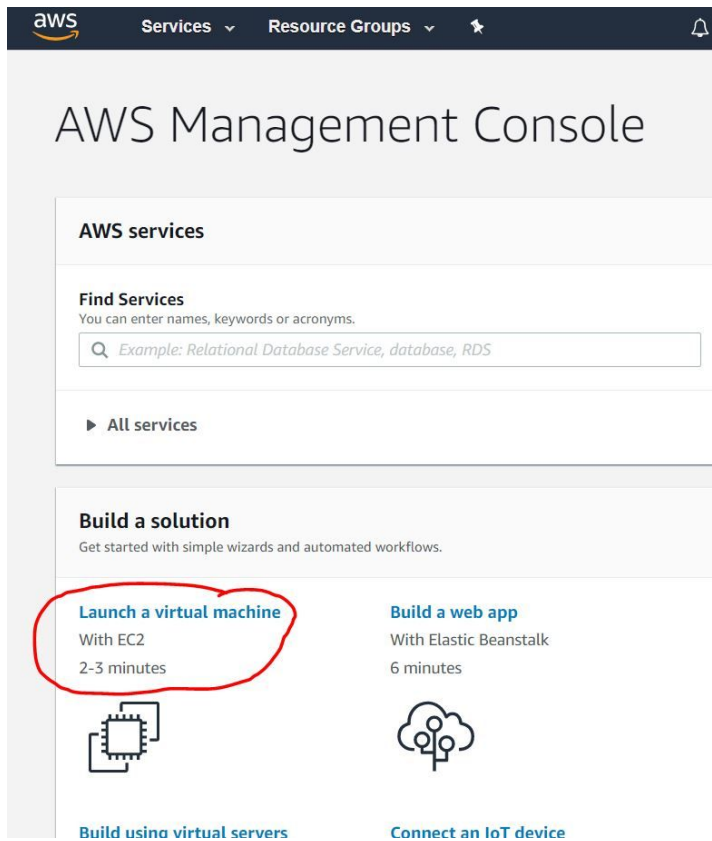
AWS offers a selection of support plans to meet your needs. Choose the support plan that best aligns with your AWS usage. [Learn more](#)

 Basic Plan	 Developer Plan	 Business Plan
Free	From \$29/month	From \$100/month
<ul style="list-style-type: none">Included with all accounts24x7 self-service access to AWS resourcesFor account and billing issues onlyAccess to Personal Health Dashboard & Trusted Advisor	<ul style="list-style-type: none">For early adoption, testing and developmentEmail access to AWS Support during business hours1 primary contact can open an unlimited number of support cases12-hour response time for nonproduction systems	<ul style="list-style-type: none">For production workloads & business-critical dependencies24/7 chat, phone, and email access to AWS SupportUnlimited contacts can open an unlimited number of support cases1-hour response time for production systems

Need Enterprise level support?
Contact your account manager for additional information on running business and mission critical-workloads on AWS (starting at \$15,000/month). [Learn more](#)

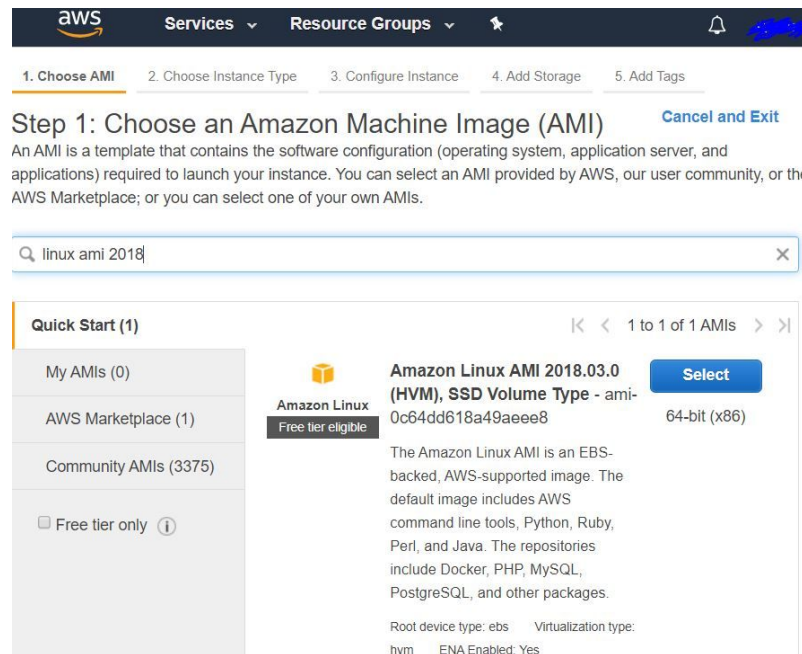
Picture 6: Support plan selection.

2. Go to the AWS management console main page.
3. Launch a virtual machine EC2 instance



Picture 7: Launch EC2 Machine.

- a. For Step 1, type “linux ami 2018” into the search bar and click the “Select” button next to “Amazon Linux AMI.”



Picture 8: Selection of Linux AMI Virtual Machine.

- b. For Steps 2-5, click “Next” to advance through the sections with the defaults
- c. For Step 6, click “Configure Security Group.” Click the “Add Rule” button and insert the following settings into the newly made line (Do Not modify the line with Type: SSH that is already present):
 - i. Type: Custom TCP Rule
 - ii. Port Range: 25565
 - iii. Source: Anywhere
 - iv. Description: Minecraft Port

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more about Amazon EC2 security groups.](#)

Assign a security group: ☒ Create a new security group ☐ Select an existing security group

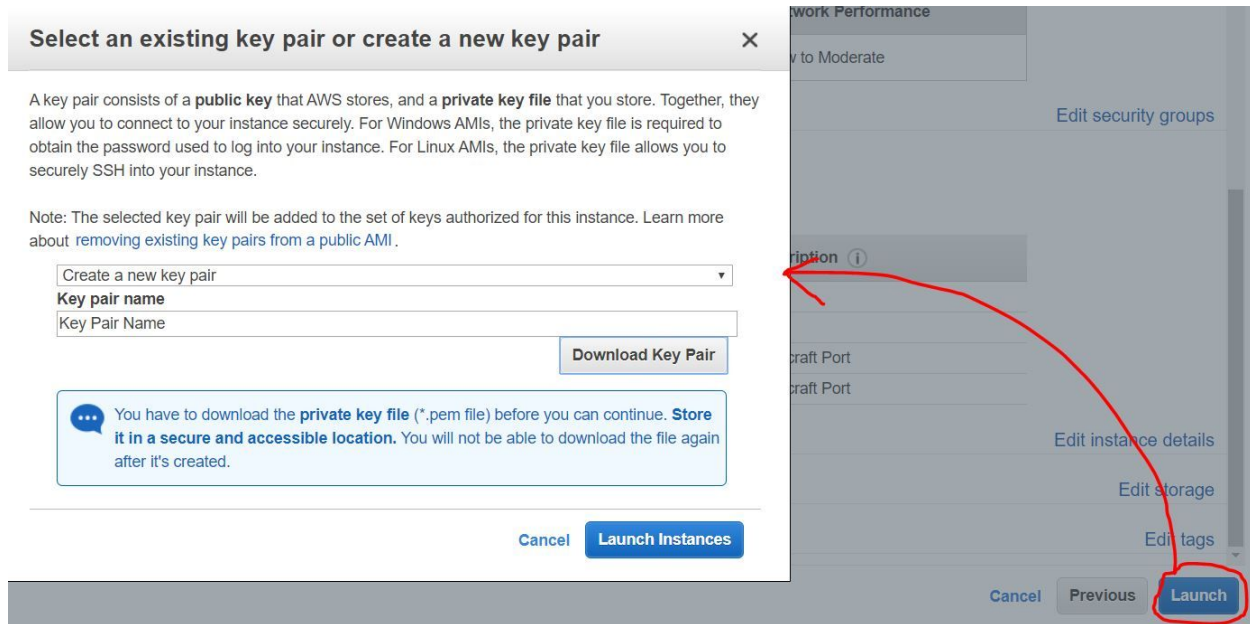
Security group name:

Description:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Anywhere 0.0.0.0/0, :::0	SSH
Custom TCP	TCP	25565	Anywhere 0.0.0.0/0, :::0	Minecraft Port

Picture 9: Configuration of port numbers.

- d. Select “Review” then “Launch” to confirm settings.
 - i. A menu will appear to select a key pair. Choose “Create a new key pair” from the dropdown menu and give the key pair a name in the “Key Pair Name” box. Be sure to “Download Key Pair” because it cannot be recovered if you delete it.
 - ii. Select “Launch Instances” to finalize the key pair and launch the machine.
 1. Note: launching the machine may take around 5 minutes.



Picture 10: Key value pair creation.

4. Connect to your EC2 instance

- a. Open powershell
 - i. Click the Windows search bar (at the bottom of your screen), search “powershell,” and click “Windows PowerShell” to launch it.
- b. Change directory into where you kept the key pair (replace ‘[file path]’ with the route to where you downloaded the file. e.g. ‘cd Documents\English303\MinecraftServer’):
 - i. ‘cd [file path]’
- c. Get into the Virtual Machine EC2 Instance by running the following command (replace ‘[Public IP Address]’ with the value under “IPv4 Public IP” from the AWS EC2 page):
 - i. ‘ssh -i key.pem ec2-user@[Public IP Address]’

The screenshot displays the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information. The left sidebar lists various AWS services, with 'EC2 Dashboard' selected. The main content area shows a table of EC2 instances. One instance is highlighted, and its details are shown below the table. A red circle highlights the 'IPv4 Public IP' address, '3.16.160.236'. Below the console, a terminal window shows a Windows PowerShell session. The user navigates to the directory 'C:\Users\ryant\Documents\TECH Senior\ENGL 303\Instructions\' and runs the command 'ssh -i KeyPairName.pem ec2-user@3.16.160.236'. The terminal output shows the SSH connection process, including the warning about the host's fingerprint and the successful connection to the Amazon Linux AMI.

EC2 Dashboard

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6 IPs
	i-0dc0bec8a1099cbab	t2.micro	us-east-2c	running	2/2 checks ...	None	ec2-3-16-160-236.us-east-2.compute.amazonaws.com	3.16.160.236	

Instance: i-0dc0bec8a1099cbab Public DNS: ec2-3-16-160-236.us-east-2.compute.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID: i-0dc0bec8a1099cbab
Instance state: running
Instance type: t2.micro
Elastic IPs: -

Public DNS (IPv4): ec2-3-16-160-236.us-east-2.compute.amazonaws.com
IPv4 Public IP: 3.16.160.236
IPv6 IPs: -
Private DNS: ip-172-31-46-226.us-east-2.compute.internal

ec2-user@ip-172-31-46-226:~

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\ryant> cd '.\Documents\TECH Senior\ENGL 303\Instructions\'
PS C:\Users\ryant\Documents\TECH Senior\ENGL 303\Instructions> ssh -i KeyPairName.pem ec2-user@3.16.160.236
The authenticity of host '3.16.160.236 (3.16.160.236)' can't be established.
ECDSA key fingerprint is SHA256:H5C02/khTysit+UsuT9r621+8zY5Z8Ft/okDftRf9A.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '3.16.160.236' (ECDSA) to the list of known hosts.

  _ _ _ _ _
 _| ( _| _|
 _| ( _| _|  Amazon Linux AMI
 _| ( _| _|

https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/
4 package(s) needed for security, out of 10 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-46-226 ~]$
```

Picture 11-12: Confirmation of correct port configuration and Launching of Powershell.

5. Connect to the server within the EC2 instance
 - a. Type the following commands, one line at a time (click Enter after each line is typed) to make a folder for the server and open the folder:
 - i. ``mkdir server``
 - ii. ``cd server``
 - b. Run the following command to download the server (If you want a different version, go to mcversions.net and find a different link) (this command should all be typed on one line with a single space after “wget”)
 - i. ``wget https://launcher.mojang.com/v1/objects/a96617ffdf5dabbb718ab11a9a68e50545fc5a9a68e50545fc5bee/server.jar``

```
[ec2-user@ip-172-31-46-226 ~]$ mkdir server
[ec2-user@ip-172-31-46-226 ~]$ cd server
[ec2-user@ip-172-31-46-226 server]$ wget https://launcher.mojang.com/v1/objects/a96617ffdf5dabbb718ab11a9a68e50545fc5bee/server.jar
--2019-10-18 18:03:24-- https://launcher.mojang.com/v1/objects/a96617ffdf5dabbb718ab11a9a68e50545fc5bee/server.jar
Resolving launcher.mojang.com (launcher.mojang.com)... 13.224.35.130
Connecting to launcher.mojang.com (launcher.mojang.com)|13.224.35.130|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9459395 (9.0M) [application/java-archive]
Saving to: 'server.jar'

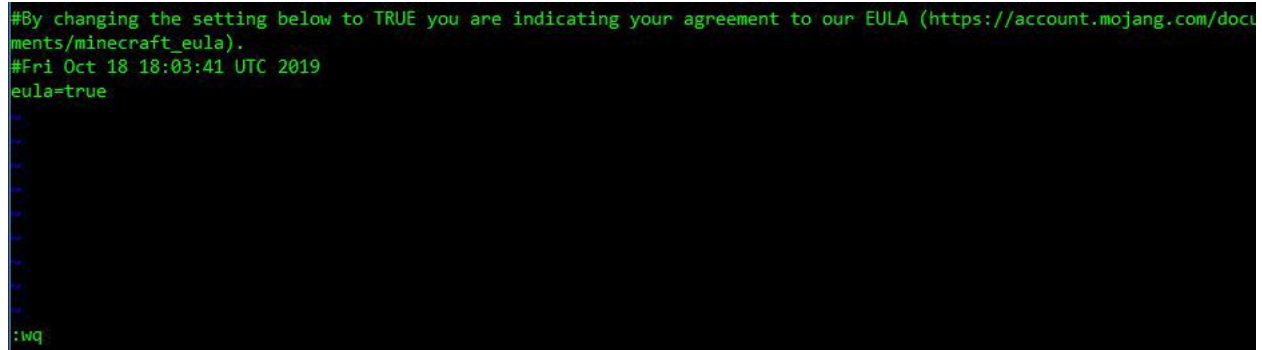
server.jar          100%[=====>]   9.02M  24.7MB/s   in 0.4s

2019-10-18 18:03:24 (24.7 MB/s) - 'server.jar' saved [9459395/9459395]

[ec2-user@ip-172-31-46-226 server]$ java -jar server.jar
[18:03:41] [Server thread/INFO]: Starting minecraft server version 1.10
[18:03:41] [Server thread/WARN]: To start the server with more ram, launch it as "java -Xmx1024M -Xms1024M -jar minec
raft_server.jar"
[18:03:41] [Server thread/INFO]: Loading properties
[18:03:41] [Server thread/WARN]: server.properties does not exist
[18:03:41] [Server thread/INFO]: Generating new properties file
[18:03:41] [Server thread/WARN]: Failed to load eula.txt
[18:03:41] [Server thread/INFO]: You need to agree to the EULA in order to run the server. Go to eula.txt for more in
fo.
[18:03:41] [Server thread/INFO]: Stopping server
[ec2-user@ip-172-31-46-226 server]$
```

Picture 13: Powershell creation of server.

- c. Run the server
 - i. ``java -jar server.jar``
- d. Accept the EULA (End User License Agreement)
 - i. Enter ``vim eula.txt`` to start up a text editor
 - ii. Press ``i`` to edit the document
 - iii. Delete ``false`` from the document and write ``true`` in its place
 - iv. Click ``esc`` to stop editing the document
 - v. Enter ``:wq`` to save the file and exit the text editor



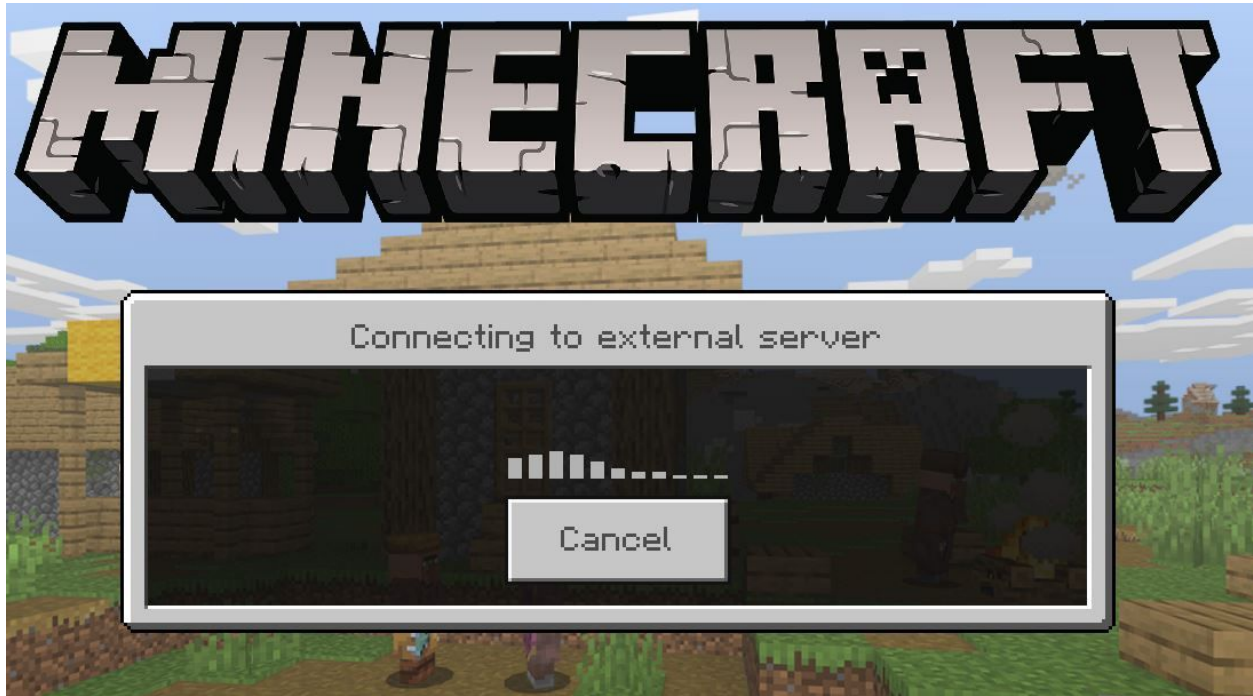
```
#By changing the setting below to TRUE you are indicating your agreement to our EULA (https://account.mojang.com/documents/minecraft_eula).
#Fri Oct 18 18:03:41 UTC 2019
eula=true

:wq
```

Picture 14: VIM quit command with appropriate 'eula=true'.

- e. Run the following commands to open up a new screen for the server, then open up Minecraft: Java Edition
 - i. ``screen -S mcserver``
 - ii. ``java -Xmx500M -Xms500M -XX:MaxPermSize=128M -jar server.jar``
- f. Press `ctrl+a+d`
- g. ``screen -r mcserver``
 - i. This command gets you back in
 - ii. `Ctrl+a+d` to leave

h. When you want to exit, click “CTRL+D” to log out



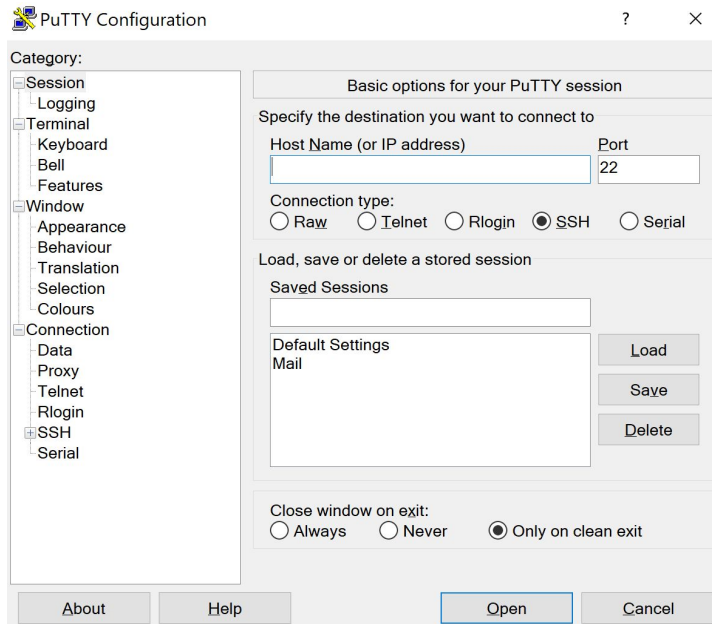
Picture 15: Connection to the server.

TROUBLESHOOTING:

Connecting to your server:

If the connect button does not work and you do not have a terminal like on mac or windows 10, download putty from:

<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>



Picture 16: PuTTY Configuration.

Using a different minecraft server.jar file:

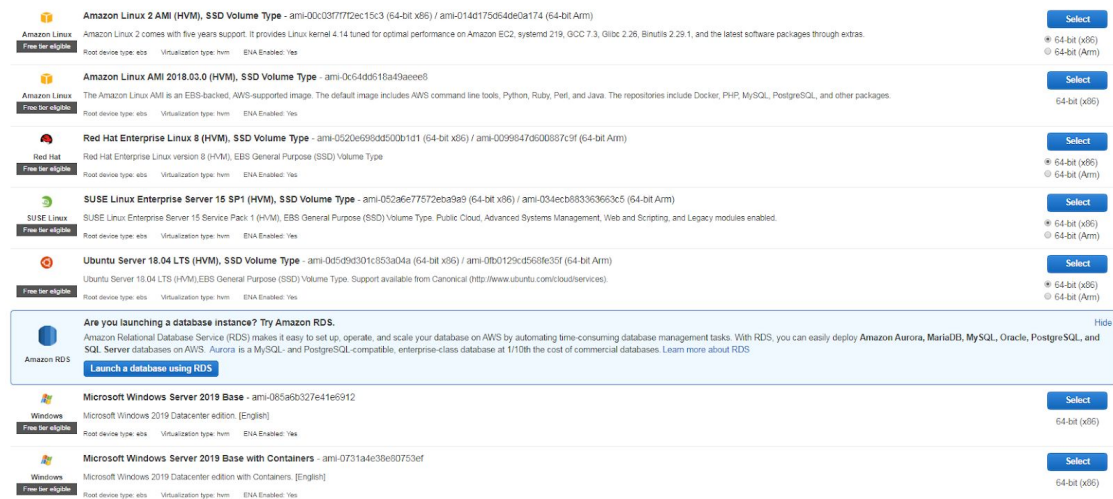
If you do not want version 1.10, you can always browse the mojang repository at

<https://mcversions.net/>

Different AWS options:

If you do not want to use a linux command line, there are other options like windows rpc

As seen below, there are many different options for VM, we used the Amazon Linux version type, but any machine could be used. This VM type was free and easy to set up.



The screenshot displays the AWS Marketplace interface for selecting a virtual machine (VM) type. It lists several operating systems and their corresponding AMIs, each with a 'Select' button. The options include:

- Amazon Linux 2 AMI (HVM), SSD Volume Type** - ami-00c37772ec15c3 (64-bit x86) / ami-014d1750640e0a174 (64-bit Arm)
- Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type** - ami-0c4dd316a49aee08
- Red Hat Enterprise Linux 8 (HVM), SSD Volume Type** - ami-0520e695dd500b1d1 (64-bit x86) / ami-0099647d500857c9f (64-bit Arm)
- SUSE Linux Enterprise Server 15 SP1 (HVM), SSD Volume Type** - ami-052a6e77572eb9a98 (64-bit x86) / ami-034ecb83363663c5 (64-bit Arm)
- Ubuntu Server 18.04 LTS (HVM), SSD Volume Type** - ami-0d5d9d301c853a04a (64-bit x86) / ami-0fb0129cd5688c35f (64-bit Arm)

Below these options is a promotional banner for Amazon RDS, titled "Are you launching a database instance? Try Amazon RDS." It encourages users to launch a database using RDS, highlighting its ease of setup and scalability. The banner includes a "Launch a database using RDS" button and a "Hide" link.

At the bottom, there are two more options for Microsoft Windows Server 2019 Base, both with "Select" buttons.

Picture 17: VM Types.

Copy Paste in Terminal:

If ctrl v or ctrl shift v does not work then try right click

MEMORANDUM

TO: Kirby Colvin
Professor

FROM: Andrew Schoonmaker, Matt Reed, Andrew Maurice, Ryan Parker
Students

SUBJECT: Soldering Wires

DATE: 21 October 2019

This set of instructions on soldering wires is informative and effectively explains how a reader would solder a wire. However, a few issues with the manual leave room for improvement.

The introduction of the instruction manual needs to start off strong. Recommendations were made to change sentence structure and improve clarity on why the instructions needed to exist.

The instruction manual includes many colloquialisms that can be unclear to certain readers. These terms should be changed into proper diction to ensure clarity for the reader. The degree symbol for the temperature of the iron should be added for clarity on the temperature. Along with edits to temperature formatting, replacing shortened colloquial versions of words like “temp” to “temperature” would increase clarity.

The instructions manual fails to maintain a mirrored sentence structure. Instructions flip between sentences and statements, some have periods, others do not. The readability of the instructions is not affected, but the look of the manual is slightly damaged. Proper formatting is advised. Commas and contractions were also suggested to be replaced as needed.