**AWS Account Setup**

Getting started with Amazon Web Services (AWS) is quick and easy, but does require several key steps before you can launch and access your machine. Due to the ever-evolving nature of cloud computing, certain setup steps may change over time. Always refer to the most recent on-line support documents located at <https://aws.amazon.com/documentation/> to complete the configuration. An overview of the requirements and explanation of key steps is below.

1. To create your account, navigate to <https://aws.amazon.com/> and click the “Create a Free Account” button. The account creation wizard will walk you through the account setup process. A credit card is required to create your account, but you will not be charged until compute instances are provisioned and running.
2. Create new user – Two-factor authentication should be enabled to ensure proper access control. The Identity and Access Management (IAM) service within AWS allows for account maintenance. This account is solely for managing and administering your AWS cloud account.
3. Create a key pair – SSH connections to the biolinux machine is made with a secured key pair, this security feature prevents unauthorized users from access this machine should it be made available to larger audience than intended. A key pair should be created and stored in a secure location as keys cannot be regenerated.
4. Create VPC and Security Groups – a Virtual Private Cloud (VPC) is the network environment in which your instance will be placed. Several security considerations should be made when creating your VPC. Most notably is consideration of the IP addresses from which you will be using to connecting to your instance. Security groups should be configured to only allow access from trusted IP addresses, and global access is not recommended.

Additional reference information and detailed step-by-step instructions can be found at <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/get-set-up-for-amazon-ec2.html>

**AWS Instance Start-up**

Once your AWS account is setup and the networking and security groups are configured, you can provision your compute instance. The process consists of provisioning an EC2 instance from our public AMI and customizing as necessary.

1. Launch a new instance – within the EC2 service you can launch a new instance. The wizard will walk you through the process, please consider the following
   1. Selected a small instance type at first: instances are priced based on their compute size. During the installation and configuration, we recommend selecting a mico-instance to minimize costs, this can be easily changed later.
   2. Place your machine within the VPC and security groups created previously.
   3. Associate the previously created key pair with this machine.
2. Verify instance – the AWS console will display the status of your instance as it launches and completes health checks. This process may take a few minutes, and once the status changes to on-line, you can attempt to access your machine.
3. Public IP address – By default, AWS will provide a public IP address, but this address may change when the machine is stopped and started. You can optionally choose to provision an elastic IP address to have a permanent address to connect to your machine. There is no charge for elastic IP addresses in use, but minimal charges apply for reserved elastic IP addresses not associated with a running instance.

**Connect to AWS Instance**

The AWS console allows for administration of your cloud instances but does not provide a mechanism to connect to individual machine. Connections occurs via other mechanisms outside of the AWS console. For linux machines such as our biolinux AMI, we have found success utilizing PuTTY for Windows which leverages command line SSH along with terminal service applications such as the X2GO for a user friendly visual interface. To connect to your machine you will need to download and install these applications on the computer from which you wish to connect to your cloud instance. The Putty and X2GO are free and can be downloaded at:

<http://www.putty.org/>

<https://wiki.x2go.org/doku.php>

Additional reference information and detailed step-by-step instructions can be found at <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html>

**Cost Considerations**

AWS provides a cost calculator to help predict and understand costs based on machine configuration.

m4.large machine (2 vCPU 8 GiB RAM) running 50 hours a month: <https://calculator.s3.amazonaws.com/index.html#r=IAD&key=calc-6C44A26A-09E1-4DB3-AFD7-1E577879048E>

4x-Large machine (16 vCPU 64 GiB RAM) running 8 hours a day.

<https://calculator.s3.amazonaws.com/index.html#r=IAD&key=calc-5D68BC4B-31CD-442B-B907-73E26B50D07D>