

Lab Assignment #1

Due Tuesday by 11:59pm **Points** 100 **Submitting** a file upload
Available Feb 28 at 12am - May 16 at 11:59pm 3 months

CS 524 Lab Assignment 1

Due: March 7, 2017

(Please read sections 4.1 and 4.2 of Chapter 2, while working on this.)

This is the first lab assignment, for the total of **100** points, which involves setting up a **free** Amazon EC2 *instance* (i.e., a virtual machine) and understanding some of its key networking properties. Although this is seemingly simple and straight-forward, there is **much to read and learn** here, so make sure you start working at once. The next lab assignment will build on what you will have achieved in this one.

The first part of the assignment is understanding the respective SLA, which Homework #2 had prepared you for. The second part is purely technical (and it will involve an independent learning as a follow-up to Lecture 4): After having created an EC2 instance, you will execute several systems commands, which will give you information on the networking set-up. In order to understand the results, you will need to learn the output resulted from invoking the commands.

Please make sure you have activated your Stevens *Linux* account, as you may need to work from there. [Note: You may actually be able to use your own PC; however, you will most likely need to install additional software (e.g., SSH), and the effect of some commands may be different. CAs will be able to help you with potential problems *only* if you use your *Linux* account.]

Now, you need to review the following documents:

<http://aws.amazon.com/ec2/> [\(http://aws.amazon.com/ec2/\)](http://aws.amazon.com/ec2/)

<http://docs.amazonwebservices.com/AWSEC2/2009-11-30/GettingStartedGuide/> [\(http://docs.amazonwebservices.com/AWSEC2/2009-11-30/GettingStartedGuide/\)](http://docs.amazonwebservices.com/AWSEC2/2009-11-30/GettingStartedGuide/)

Then visit <http://aws.amazon.com/ec2/> [\(http://aws.amazon.com/ec2/\)](http://aws.amazon.com/ec2/) and click “Sign Up Now” button to setup an account. **Again, make sure that you understand what you need to do to keep this experiment free of charge. When in doubt, ask a CA!**

At this point, please proceed to creating an EC2 instance with this *Amazon Machine Image (AMI)*: **Basic 64-bit Amazon Linux AMI**. Once it is running, log into it and execute the following five commands:

- `uname -a`

1. `whoami`
2. `df -h`
- 3.
4. `ifconfig -a`
5. `netstat`.

Now you need to understand what these commands do with the parameters chosen (by reading the respective part of the system manual—obtainable by executing `man <command name>`). To get the meaning of the output, you will use your knowledge of IP networking:

1. You have learned about both the class-based IP addressing scheme and the Classless Inter-Domain Routing (CIDR) [for the detail see RFC4632 (<http://tools.ietf.org/html/rfc4632> [_http://tools.ietf.org/html/rfc4632_](http://tools.ietf.org/html/rfc4632))];
2. To understand how the IP addresses are mapped into Layer 2 addresses, please read RFC 826 <http://tools.ietf.org/html/rfc826> (<http://tools.ietf.org/html/rfc826>); and
3. To understand the parameters related to the dynamic host configuration, please read <http://tools.ietf.org/html/rfc2131> (<http://tools.ietf.org/html/rfc2131>).
- 4.

You must submit a report documenting 1) all the steps that you have executed in setting up your account and 2) the results of the command execution along with the explanation of the parameters obtained in the process.

After you finish your assignment, make sure you shut down the instance you have created.