

### Part A – Using Command Line to setup and Access EC2 Instance

#### Install aws-cli

**sudo -H pip install awscli --upgrade --ignore-installed six**

```
Tatsumoto:AWS_Setup eric$ sudo -H pip install awscli --upgrade --ignore-installed six
Collecting awscli
  Downloading awscli-1.10.1-py2.py3-none-any.whl (880kB)
    100% |#####| 884kB 503kB/s
Collecting six
  Downloading six-1.10.0-py2.py3-none-any.whl
Collecting botocore==1.3.23 (from awscli)
  Downloading botocore-1.3.23-py2.py3-none-any.whl (2.2MB)
    100% |#####| 2.2MB 210kB/s
Collecting rsa<=3.3.0,>=3.1.2 (from awscli)
  Downloading rsa-3.3.0-py2.py3-none-any.whl (44kB)
    100% |#####| 45kB 6.9MB/s
Collecting colorama<=0.3.3,>=0.2.5 (from awscli)
  Downloading colorama-0.3.3.tar.gz
Collecting docutils>=0.10 (from awscli)
  Downloading docutils-0.12.tar.gz (1.6MB)
    100% |#####| 1.6MB 272kB/s
Collecting jmespath<1.0.0,>=0.7.1 (from botocore==1.3.23->awscli)
  Downloading jmespath-0.9.0-py2.py3-none-any.whl
Collecting python-dateutil<3.0.0,>=2.1 (from botocore==1.3.23->awscli)
  Downloading python_dateutil-2.4.2-py2.py3-none-any.whl (188kB)
    100% |#####| 192kB 1.5MB/s
Collecting pyasn1>=0.1.3 (from rsa<=3.3.0,>=3.1.2->awscli)
  Downloading pyasn1-0.1.9-py2.py3-none-any.whl
Installing collected packages: jmespath, six, python-dateutil, docutils, botocore, pyasn1, rsa, colorama, awscli
Running setup.py install for docutils ... done
Running setup.py install for colorama ... done
Successfully installed awscli-1.10.1 botocore-1.3.23 colorama-0.3.3 docutils-0.12 jmespath-0.9.0 pyasn1-0.1.9 python-dateutil-1.5 rsa-3.3 six-1.4.1
Tatsumoto:AWS_Setup eric$
```

#### Access AWS instanced from MiniHW1 using CL

*aws configure (input key-pair details)*

**aws ec2 describe-instances**

```
.aws -- -bash -- 168x47
09T00:20:19.000Z ip-172-31-8-51.us-west-2.compute.internal 172.31.8.51 /dev/xvda ebs True User initiated (2016-02-09 00:53:59 GMTs
ubnet-00588159 hvm vpc-f5bf3390
BLOCKDEVICESMAPPINGS /dev/xvda
EBS 2016-02-09T00:20:22.000Z True attached vol-2ff0efb9
MONITORING disabled
NETWORKINTERFACES 0a:c2:27:6c:da:d7 eni-4cbe8816 418674720115 ip-172-31-8-51.us-west-2.compute.internal 172.31.8.51 True in-use s
ubnet-00588159 vpc-f5bf3390
ATTACHMENT 2016-02-09T00:20:19.000Z eni-attach-e7c190e8 True 0 attached
GROUPS sg-00469267 programatic-Java-Sec-Group
PRIVATEIPADDRESSES True ip-172-31-8-51.us-west-2.compute.internal 172.31.8.51
PLACEMENT us-west-2c default
SECURITYGROUPS sg-00469267 programatic-Java-Sec-Group
STATE 80 stopped
STATEREASON Client.UserInitiatedShutdown Client.UserInitiatedShutdown: User initiated shutdown
RESERVATIONS 418674720115 r-5752339f
INSTANCES 0 x86_64 False xen ami-f0091d91 i-e07a113a t2.small miniHW2A_2016 2016-02-08T14:42:56.000Z ip-172-31-8-210.
us-west-2.compute.internal 172.31.0.210 /dev/xvda ebs True User initiated (2016-02-09 00:53:48 GMT) subnet-00588159 hvm vpc-f5bf
3390
BLOCKDEVICESMAPPINGS /dev/xvda
EBS 2016-02-08T14:43:00.000Z True attached vol-b5d4c813
MONITORING disabled
NETWORKINTERFACES 0a:e1:17:15:78:2f eni-6b162131 418674720115 ip-172-31-0-210.us-west-2.compute.internal 172.31.0.210 True in-use s
ubnet-00588159 vpc-f5bf3390
ATTACHMENT 2016-02-08T14:42:56.000Z eni-attach-8ad98f85 True 0 attached
GROUPS sg-8913dbee launch-wizard-1
PRIVATEIPADDRESSES True ip-172-31-0-210.us-west-2.compute.internal 172.31.0.210
PLACEMENT us-west-2c default
SECURITYGROUPS sg-8913dbee launch-wizard-1
STATE 80 stopped
STATEREASON Client.UserInitiatedShutdown Client.UserInitiatedShutdown: User initiated shutdown
RESERVATIONS 418674720115 r-348feefc
INSTANCES 0 x86_64 7cf50227-e732-4d4d-b78e-b3767c343e1c False xen ami-f0091d91 i-2780ebfd t2.small 2016-02-08T19:20:56.000Z i
p-172-31-2-254.us-west-2.compute.internal 172.31.2.254 /dev/xvda ebs True User initiated (2016-02-09 00:53:37 GMT) subnet-00588159h
vm vpc-f5bf3390
BLOCKDEVICESMAPPINGS /dev/xvda
EBS 2016-02-08T19:20:59.000Z True attached vol-d44d5272
MONITORING disabled
NETWORKINTERFACES 0a:db:52:04:3b:bd eni-48724412 418674720115 ip-172-31-2-254.us-west-2.compute.internal 172.31.2.254 True in-use s
ubnet-00588159 vpc-f5bf3390
ATTACHMENT 2016-02-08T19:20:56.000Z eni-attach-a65405a9 True 0 attached
GROUPS sg-ce544fab default
PRIVATEIPADDRESSES True ip-172-31-2-254.us-west-2.compute.internal 172.31.2.254
PLACEMENT us-west-2c default
SECURITYGROUPS sg-ce544fab default
STATE 80 stopped
STATEREASON Client.UserInitiatedShutdown Client.UserInitiatedShutdown: User initiated shutdown
Tatsumoto:aws eric$
```

*Bonus: Create key-pair value using console*

**aws ec2 create-key-pair --key-name miniHW2A\_2016**

```
.aws — ec2-user@ip-172-31-24-218:~ — -bash — 122x32
Tatsumoto:~$ aws ec2 create-key-pair --key-name miniHW2A-2016
67:de:59:20:49:5e:6d:ce:5a:52:4a:0d:11:fa:d8:0b:6d:5e:39:20 -----BEGIN RSA PRIVATE KEY-----
MIIEpAIBAAKCAQEA0kVqXd04tUjM9lu4Q8A0ittNs9BPgCvjKAAniuxa1qHC2/6uK52TzwyLA
bMt/o7j7GLy40KksXdvPZetx5Qwu7rMG3sYvZkzu/g3LZnfjFxfT0frfRcvMYNuIemy14I35STG9
WccVS7EAWAEVAAAG4BRthGgnZEoU74I/LDn0HpSztbIVIgY9yz03BdnnXspW3DFTxAo308VnnvjC6
rF9bWfgBHIfeZF0w8gZEGnMCWrnaIui6PbnFqS8brvZDahVb9eXpYAnV0vFPCLzUmw0EneDI0zk
JSXcScHtHXK4VjBH4k49mHg7FnLXjCfI5BkR6f9wo5ZYrLb1juAmTQIDAQABAOIBAFI+9FzeN0/W
Mef75htgr6qhQYa1aJ1FFN9CJCdj0HU3wmihZouWiFyEgJVQHutGssyiazgmmV8vKaSZNKAxGqNI
PVed0pVYLzqxhptjW/Wq4nJmDTm6205jbSIhSjxYuuCo8zsEqH1PpmYz+ySagVH6fA001RhmDae
YLASPHVSIaVJg0E+LgtsjLw9fbPL+PUTwL/S6+Dr9+c378ZCLyv0ij54a0Iu0VoqJh9+aijPoTLj
k3BbpPIRoEBdSaTAJ6uhzrfBpMyJLzfLg9v4PXVTKLouNPsbbrkwnXsvEDJwADmw99LMx0EUNPC
ZVOAX8v64Nabas4EnP5oybPTiq0CgYEA4vytHvdJdLlHuwjB5jzVM1fXbyfUfspVx89oEEqv3y5q
wLUpV/HCVKeqzPedI9aRNz0BFxk5kVouUeztyss3k43eAnav5xw/5/X14hnu0WxmoYQzk8amwCvx
hmVwx+ikR8NZf6gSaQLfQK8Re/bPzUdS9UVx8ADDu29HxMYPPIMCgYEAqp9Z9Vat4/nDrIjGzcXB
jLbXJQsVe5yauNUjqQ/bRQ8XL0/S2grdxfg76mLUza0YmXi0SYVxSj30fY4zvLSGvNAnGFFxux+
E90911bbq5TfGveUJiHSNVdQ2QCnL/VtFRS0pue7s6VjMPBKuVick8m0exaUUXgyhYk160D0008C
gYBfZgLU8MHPURYsz+PweErCwXBx7z0H9LIHIEyETF+OVVvYkktGA3BxpYqfwc0QMHXjXQf2SIw
zM4a8JEGYjiBc2aTcn6Li3vwaZdL57APwleAGqfyu9LpgY6JBZ5rdoNVBe1fkavrJqHd9bZLe3fq
tsd0/ljcnfWlmsd4tCVDQMKBgQCoXtFG4uJ2NeKCP/bu2FdHJKbqRyXL9Z45Bwhuk1eVrm6SoZLQ
2ChBTWrCx26H/wgSxbKn8o1JikPVTsSAC94h+imoJ9VTl8xSjeCYv33GtAH1+pqXhoiJVHBr879f
tDEQvFIJG+R+Qpa/lGAowH6y2DjhvkZent48KEqqpCzcwQKbGQczZDCnEEIkCYWSNW9LjIgwHoG
RWXqnMC27PNM3x9mc36fLV3x8/yGL4Xj0WNJRKSk+m404/KFe0YzwniIN/NUjujsdwLCabz2Spn
lwp9i6iHwLoPAK1/Ans4cbRh6/qz+GwAaSL0CtZa3B73JEe5kLegoTD66iIi77vxiIk+6g==
-----END RSA PRIVATE KEY----- miniHW2A-2016
Tatsumoto:~$
```

Save key-pair in key-pair.pem file and chmod to 400 so it is not visible

**vi miniHW2A\_2016.pem (paste contents of RSA Key)**

```
-----BEGIN RSA PRIVATE KEY-----
MIIEpAIBAAKCAQEA0kVqXd04tUjM9lu4Q8A0ittNs9BPgCvjKAAniuxa1qHC2/6uK52TzwyLA
bMt/o7j7GLy40KksXdvPZetx5Qwu7rMG3sYvZkzu/g3LZnfjFxfT0frfRcvMYNuIemy14I35STG9
WccVS7EAWAEVAAAG4BRthGgnZEoU74I/LDn0HpSztbIVIgY9yz03BdnnXspW3DFTxAo308VnnvjC6
rF9bWfgBHIfeZF0w8gZEGnMCWrnaIui6PbnFqS8brvZDahVb9eXpYAnV0vFPCLzUmw0EneDI0zk
JSXcScHtHXK4VjBH4k49mHg7FnLXjCfI5BkR6f9wo5ZYrLb1juAmTQIDAQABAOIBAFI+9FzeN0/W
Mef75htgr6qhQYa1aJ1FFN9CJCdj0HU3wmihZouWiFyEgJVQHutGssyiazgmmV8vKaSZNKAxGqNI
PVed0pVYLzqxhptjW/Wq4nJmDTm6205jbSIhSjxYuuCo8zsEqH1PpmYz+ySagVH6fA001RhmDae
YLASPHVSIaVJg0E+LgtsjLw9fbPL+PUTwL/S6+Dr9+c378ZCLyv0ij54a0Iu0VoqJh9+aijPoTLj
k3BbpPIRoEBdSaTAJ6uhzrfBpMyJLzfLg9v4PXVTKLouNPsbbrkwnXsvEDJwADmw99LMx0EUNPC
ZVOAX8v64Nabas4EnP5oybPTiq0CgYEA4vytHvdJdLlHuwjB5jzVM1fXbyfUfspVx89oEEqv3y5q
wLUpV/HCVKeqzPedI9aRNz0BFxk5kVouUeztyss3k43eAnav5xw/5/X14hnu0WxmoYQzk8amwCvx
hmVwx+ikR8NZf6gSaQLfQK8Re/bPzUdS9UVx8ADDu29HxMYPPIMCgYEAqp9Z9Vat4/nDrIjGzcXB
jLbXJQsVe5yauNUjqQ/bRQ8XL0/S2grdxfg76mLUza0YmXi0SYVxSj30fY4zvLSGvNAnGFFxux+
E90911bbq5TfGveUJiHSNVdQ2QCnL/VtFRS0pue7s6VjMPBKuVick8m0exaUUXgyhYk160D0008C
gYBfZgLU8MHPURYsz+PweErCwXBx7z0H9LIHIEyETF+OVVvYkktGA3BxpYqfwc0QMHXjXQf2SIw
zM4a8JEGYjiBc2aTcn6Li3vwaZdL57APwleAGqfyu9LpgY6JBZ5rdoNVBe1fkavrJqHd9bZLe3fq
tsd0/ljcnfWlmsd4tCVDQMKBgQCoXtFG4uJ2NeKCP/bu2FdHJKbqRyXL9Z45Bwhuk1eVrm6SoZLQ
2ChBTWrCx26H/wgSxbKn8o1JikPVTsSAC94h+imoJ9VTl8xSjeCYv33GtAH1+pqXhoiJVHBr879f
tDEQvFIJG+R+Qpa/lGAowH6y2DjhvkZent48KEqqpCzcwQKbGQczZDCnEEIkCYWSNW9LjIgwHoG
RWXqnMC27PNM3x9mc36fLV3x8/yGL4Xj0WNJRKSk+m404/KFe0YzwniIN/NUjujsdwLCabz2Spn
lwp9i6iHwLoPAK1/Ans4cbRh6/qz+GwAaSL0CtZa3B73JEe5kLegoTD66iIi77vxiIk+6g==
-----END RSA PRIVATE KEY----- miniHW2A_2016
```

**chmod 400 miniHW2A\_2016.pem**

*Bonus: Create security group using AWS Console*

**aws ec2 create-security-group --group-name GettingStartedGroup3 --description "Getting Started"**

**aws ec2 authorize-security-group-ingress --group-name GettingStartedGroup3 --protocol tcp --port 22 --cidr 172.0.0.0/10**

*Launch EC2 instance from CL*

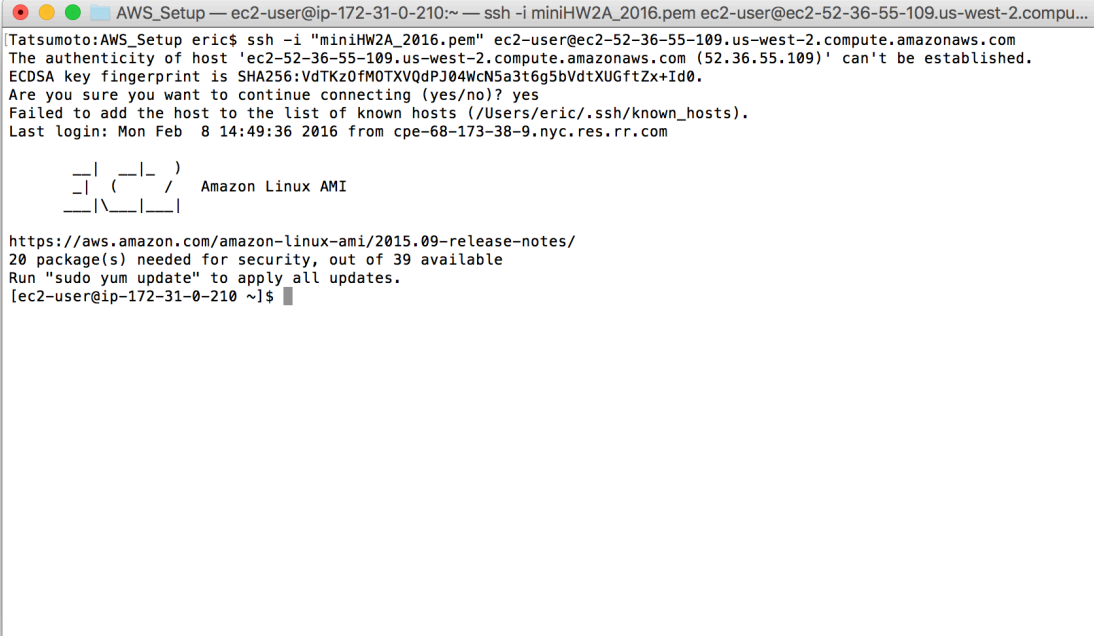
**aws ec2 run-instances --image-id ami-f0091d91 --instance-type t2.small --key miniHW2A\_2016 --group sg-1cdc087b**

```

Tatsumoto:AWS_Setup eric$ aws ec2 run-instances --image-id ami-f0091d91 --instance-type t2.small --key miniHW2A_2016
418674720115 r-5752339f
INSTANCES 0 x86_64 False xen ami-f0091d91 i-e07a113a t2.small miniHW2A_2016 2016-02
-08T14:42:56.000Z ip-172-31-0-210.us-west-2.compute.internal 172.31.0.210 /dev/xvda ebs True
subnet-00588159 hvm vpc-f5bf3390
MONITORING disabled
NETWORKINTERFACES 0a:e1:17:15:78:2f eni-6b162131 418674720115 ip-172-31-0-210.us-west-2.compute.inter
nal 172.31.0.210 True in-use subnet-00588159 vpc-f5bf3390
ATTACHMENT 2016-02-08T14:42:56.000Z eni-attach-8ad98f85 True 0 attaching
GROUPS sg-ce544fab default
PRIVATEIPADDRESSES True ip-172-31-0-210.us-west-2.compute.internal 172.31.0.210
PLACEMENT us-west-2c default
SECURITYGROUPS sg-ce544fab default
STATE 0 pending
STATEREASON pending pending
Tatsumoto:AWS_Setup eric$
```

SSH into instance created in CL

**ssh -i "miniHW2A\_2016.pem" ec2-user@ec2-52-36-55-109.us-west-2.compute.amazonaws.com**



```
AWS_Setup — ec2-user@ip-172-31-0-210:~ — ssh -i miniHW2A_2016.pem ec2-user@ec2-52-36-55-109.us-west-2.compu...
[Tatsumoto:AWS_Setup eric$ ssh -i "miniHW2A_2016.pem" ec2-user@ec2-52-36-55-109.us-west-2.compute.amazonaws.com
The authenticity of host 'ec2-52-36-55-109.us-west-2.compute.amazonaws.com (52.36.55.109)' can't be established.
ECDSA key fingerprint is SHA256:VdTKz0fMOTXVQdPJ04WcN5a3t6g5bVdtXUGftZx+Id0.
Are you sure you want to continue connecting (yes/no)? yes
Failed to add the host to the list of known hosts (/Users/eric/.ssh/known_hosts).
Last login: Mon Feb  8 14:49:36 2016 from cpe-68-173-38-9.nyc.res.rr.com

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  _ | ( _ /   Amazon Linux AMI
  _ | \ _ | _ |

https://aws.amazon.com/amazon-linux-ami/2015.09-release-notes/
20 package(s) needed for security, out of 39 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-0-210 ~]$
```

## Install Eclipse Java and the Amazon AWS SDK

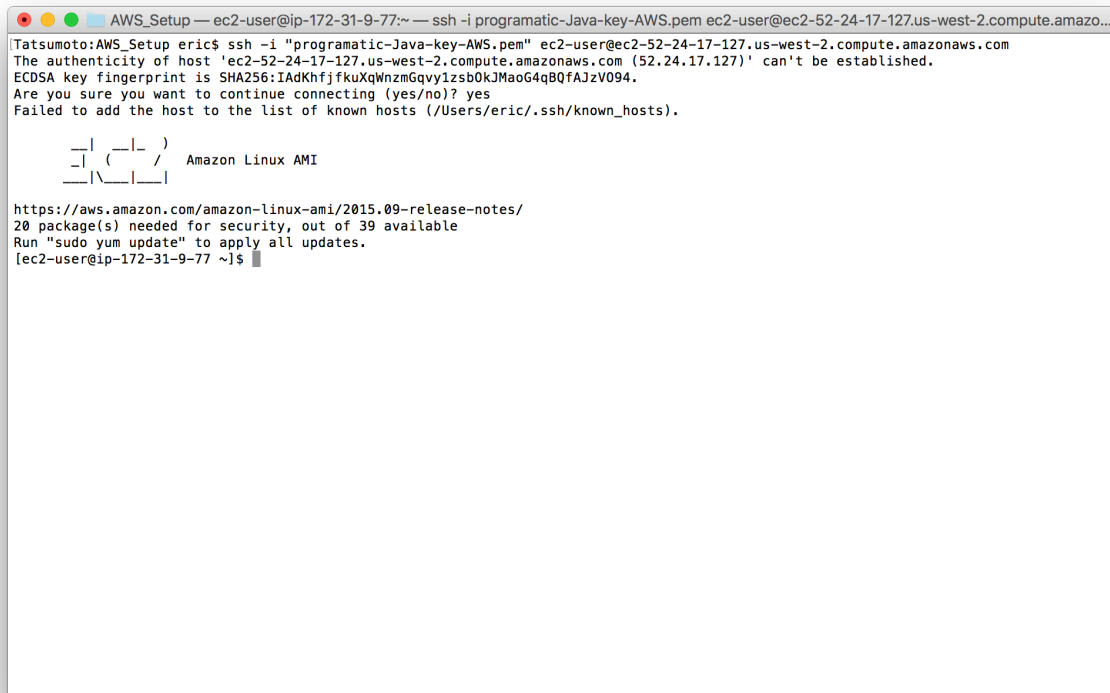
Running this once will create the Security Group and GroupID, restricting it to the IP of my network. I append the remainder of the code needed to create a key-pair, launch an EC2 instance with the key-pair and security group and then SSH into the instance to validate its existence.

[illegible]

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', 'Edit', and user information 'Eric Johnson', 'Oregon', and 'Support'. The left sidebar lists various AWS services, with 'Instances' under the 'EC2' section being the active selection. The main content area displays a table of EC2 instances. The first instance is highlighted with a red box. The table has columns for Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS, Public IP, and Key Name. The instance is in the 'us-west-2c' availability zone, has a 'running' state, and is 'Initializing'. The public IP is '52.24.17.127' and the public DNS is 'ec2-52-24-17-127.us-west-2.amazonaws.com'. The key name is 'pragmatic-Java-key-AWS'.

Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS	Public IP	Key Name
us-west-2c	running	Initializing	None	ec2-52-24-17-127.us-west-2.amazonaws.com	52.24.17.127	pragmatic-Java-key-AWS
us-west-2a	stopped		None			eric_MBP_2016
us-west-2c	stopped		None			
us-west-2c	stopped		None			pragmatic-Java-key2
us-west-2c	stopped		None			pragmatic-Java-key2
us-west-2c	stopped		None			miniHW2A_2016
us-west-2c	stopped		None			

**ssh -i "programatic-Java-key-AWS.pem" ec2-user@ec2-52-24-17-127.us-west-2.compute.amazonaws.com**



```
AWS_Setup — ec2-user@ip-172-31-9-77:~ — ssh -i programatic-Java-key-AWS.pem ec2-user@ec2-52-24-17-127.us-west-2.compute.amazo...
Tatsumoto:AWS_Setup eric$ ssh -i "programatic-Java-key-AWS.pem" ec2-user@ec2-52-24-17-127.us-west-2.compute.amazonaws.com
The authenticity of host 'ec2-52-24-17-127.us-west-2.compute.amazonaws.com (52.24.17.127)' can't be established.
ECDSA key fingerprint is SHA256:IAAdKhfjfkUxQWnzmGqvy1zsb0kJMaoG4qBQfAJzV094.
Are you sure you want to continue connecting (yes/no)? yes
Failed to add the host to the list of known hosts (/Users/eric/.ssh/known_hosts).

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Amazon Linux AMI

https://aws.amazon.com/amazon-linux-ami/2015.09-release-notes/
20 package(s) needed for security, out of 39 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-9-77 ~]$
```