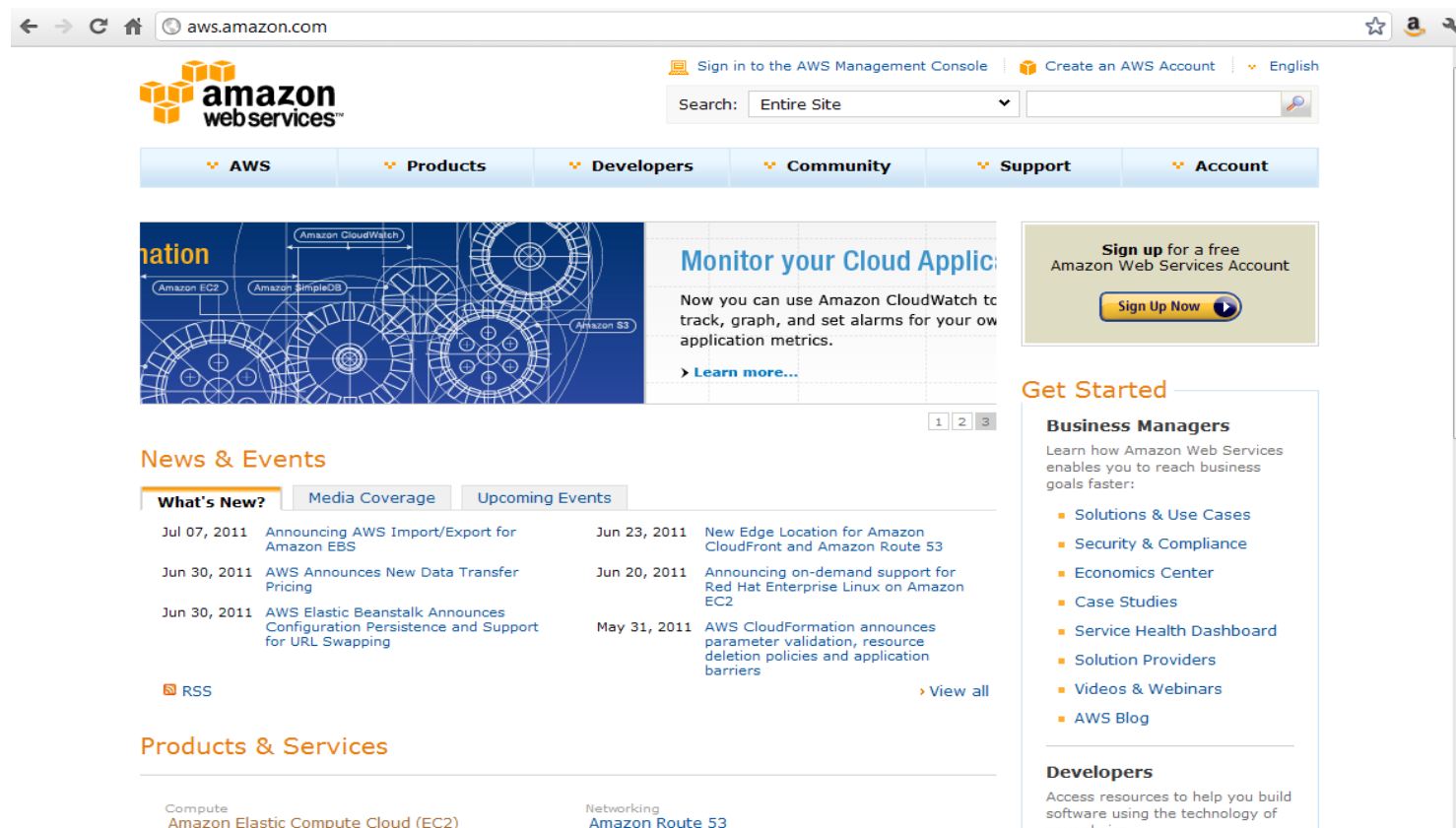
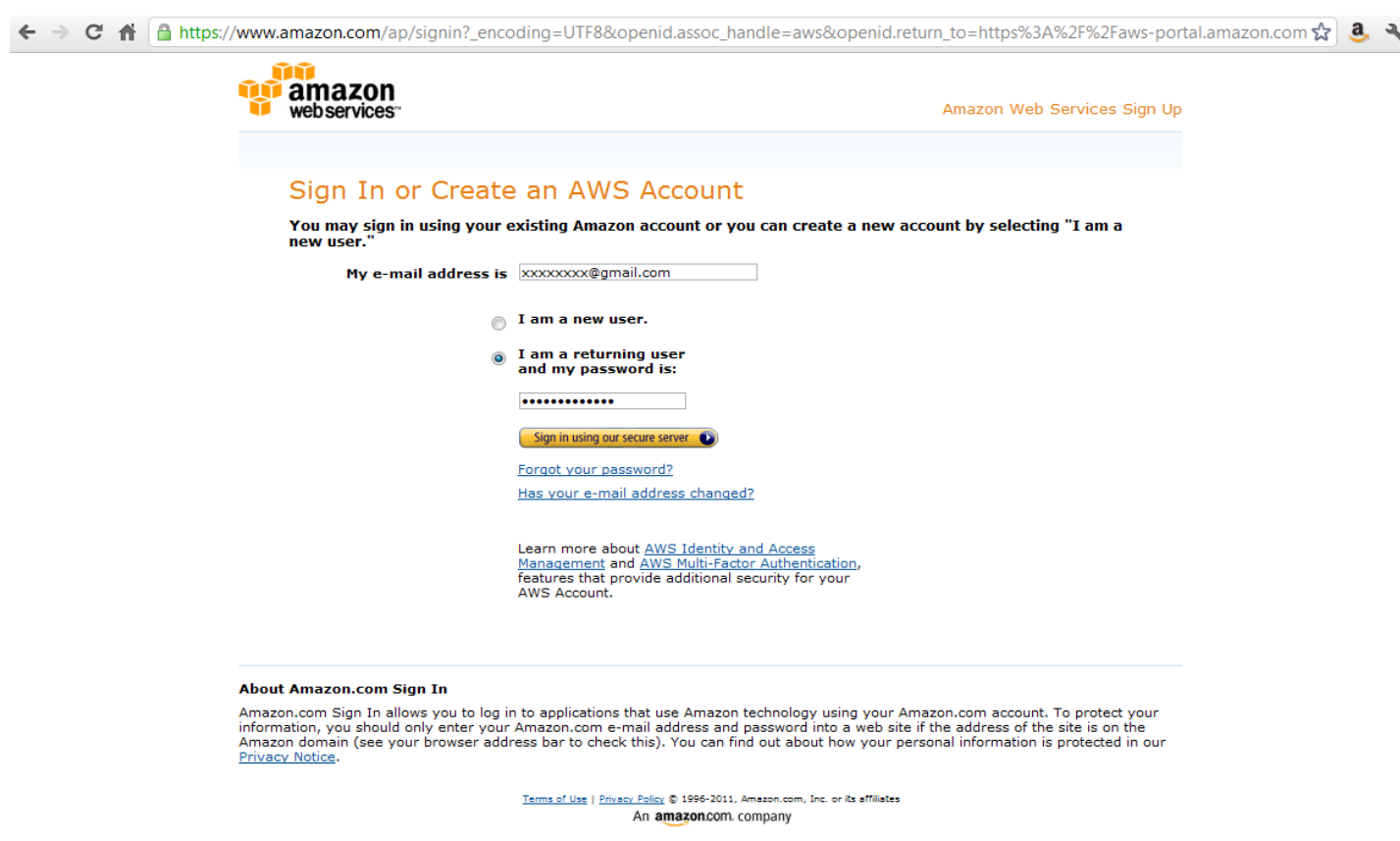


Using R on Amazon EC2 under the Free Usage Tier

1. Go to the homepage for Amazon Web Services, 'aws.amazon.com'. Sign up by clicking the 'Sign Up Now' button on the right.




2. Create a new Amazon account, or log in to an existing account.



3. You will need to provide credit card information, even if you only plan on using the Free Usage Tier.

← → ↻ 🏠 https://aws-portal.amazon.com/gp/aws/developer/registration/index.html?openid.assoc_handle=aws&aToken=4lfA5coJ5NxzzvZOIHkIkX%2F0 ☆ 🔑

Amazon Web Services Sign Up

✓

○

○

○

CREATE ACCOUNTPAYMENT METHODIDENTITY VERIFICATIONCONFIRMATION

Enter Your Payment Information Below

Your credit card will not be charged until you begin using AWS, and many of your applications and uses of AWS may be able to operate within the AWS free usage tier. If your monthly usage goes beyond the free tier, your AWS service charges will be billed to the credit card you provide below. [View detailed service pricing](#)

* required fields

Credit Card*:

Card Number*:

Cardholder's Name*:

Expiration Date*:

Enter Your Billing Address

Select the billing address associated with your credit card.

☒ Use my contact address as my billing address
(1556 Jones Dr Unit B, Ann Arbor, MI 48105, US, (612) 360-0774)


☐ Enter a new address

[Continue](#)

[Privacy Policy](#) | [Customer Agreement](#)

4. Provide a telephone number. You will be called and given a PIN number which will be used to verify your identity. When this step is finished, you have an account. Click 'Continue' to go back to aws.amazon.com homepage. Log in to AWS by clicking the 'Sign in to the AWS Management Console' link on the aws.amazon.com homepage.

← → ↻ 🏠 <https://aws-portal.amazon.com/gp/aws/developer/registration/index.html> ☆ 🔑

Amazon Web Services Sign Up

✓

✓

○

○

CREATE ACCOUNTPAYMENT METHODIDENTITY VERIFICATIONCONFIRMATION

In order to complete the sign up process, we will need to verify your identity.

Identity Verification by Telephone

After you provide a telephone number where you can be reached below, you will then be called immediately by an automated system and prompted to enter the PIN number over the phone. Once completed, you'll be able to proceed to review your account details. Please follow the 3 simple steps below.

✓ Provide a telephone number

✓ Call to 1 (612) 360-0774

3. Identity verification complete

Your identity has been verified successfully

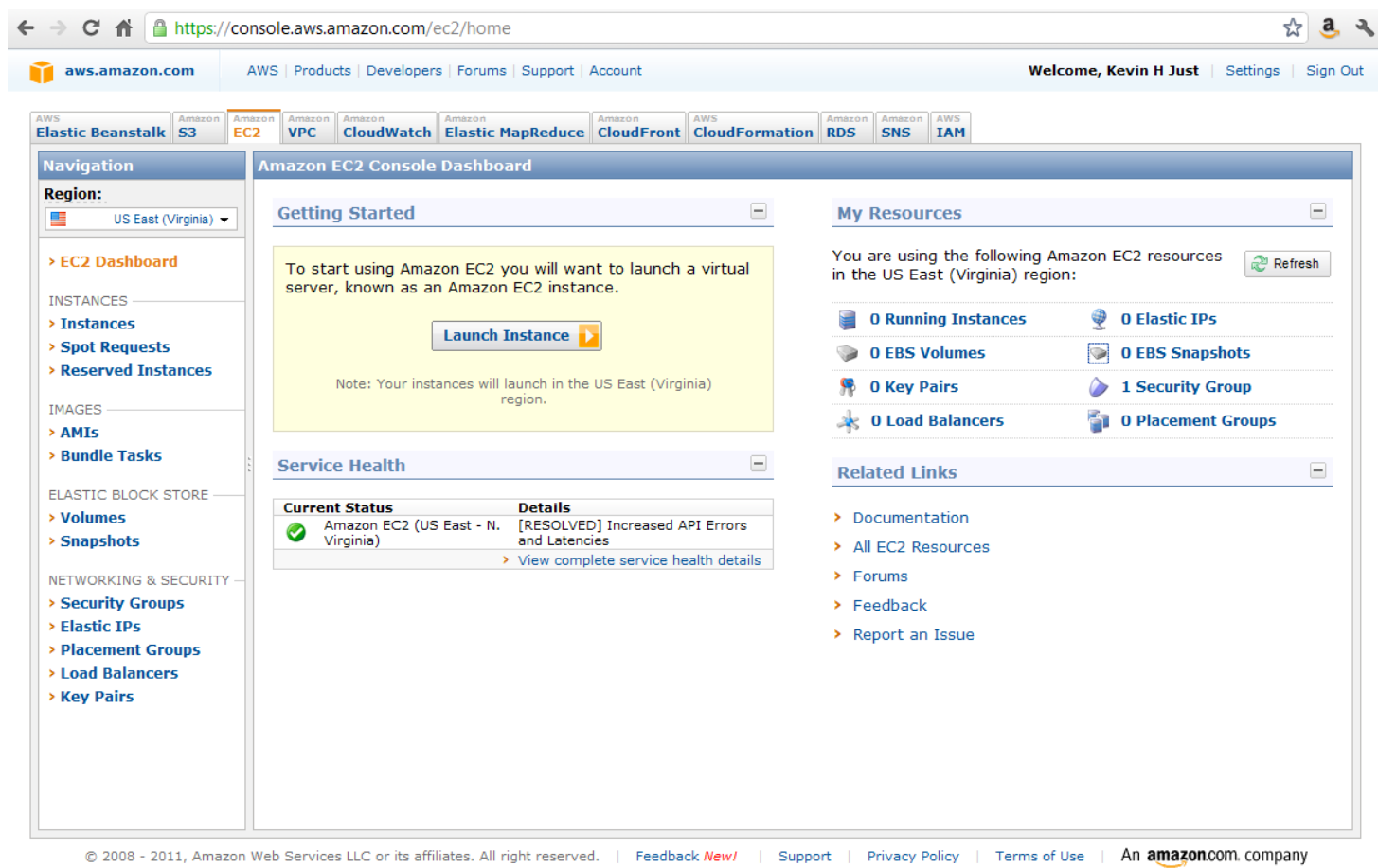
[Continue](#)

[Privacy Policy](#) | [Customer Agreement](#)

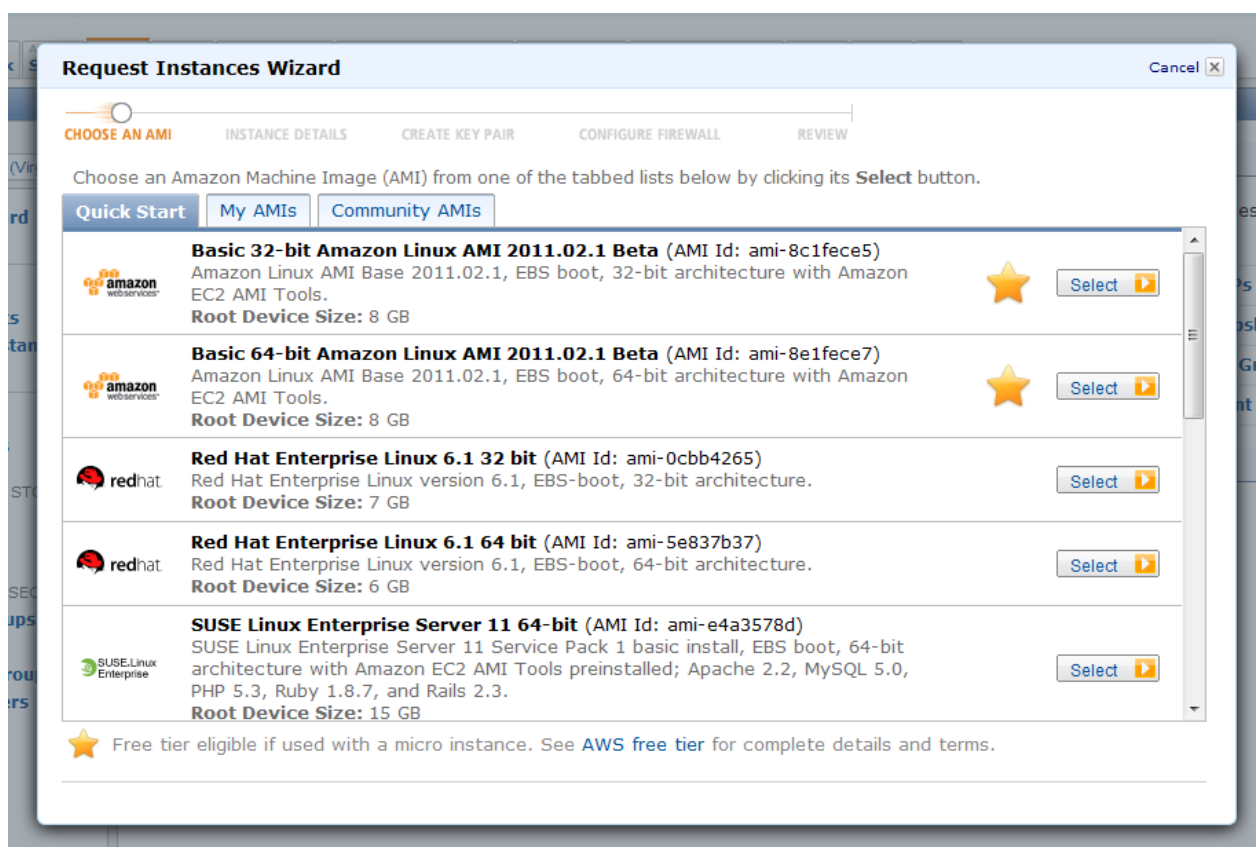
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An [amazon.com](#) company

5. You are now in the AWS Management Console. Under the 'EC2' (Electronic Cloud Computing) tab, click the 'Launch Instance' button.



- Choose an instance. Starred instances are free (part of the Free Usage Tier). Select the 'Basic 64-bit Amazon Linux AMI 2011.02.1 Beta'.



- Next, specify 'Instance Details'. Keep all defaults. (Note: the Free Usage Tier is for Micro Instances only.) Click 'Continue' at successive screens.

Request Instances Wizard

Cancel

CHOOSE AN AMI

INSTANCE DETAILS

CREATE KEY PAIR

CONFIGURE FIREWALL

REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: **Availability Zone:**

Instance Type:

☒ Launch Instances

☐ Request Spot Instances

☐ Launch Instances Into Your Virtual Private Cloud

EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

< Back

Continue >

Request Instances Wizard

Cancel

CHOOSE AN AMI

INSTANCE DETAILS

CREATE KEY PAIR

CONFIGURE FIREWALL

REVIEW

Number of Instances: 1

Availability Zone: No Preference

Advanced Instance Options

Here you can choose a specific kernel or RAM disk to use with your instances. You can also choose to enable CloudWatch Detailed Monitoring or enter data that will be available from your instances once they launch.

Kernel ID: **RAM Disk ID:**

Monitoring: ☐ Enable CloudWatch detailed monitoring for this instance (additional charges will apply)

User Data:

☒ as text

☐ as file

☐ base64 encoded

Termination Protection: ☐ Prevention against accidental termination.

Shutdown Behavior: Choose the behavior when the instance is shutdown from within the instance.

< Back

Continue >

Provide a descriptive name for this Instance (here, 'Micro Instance with R Self Build'). Click 'Continue'.

Request Instances Wizard

Cancel

CHOOSE AN AMI

INSTANCE DETAILS

CREATE KEY PAIR

CONFIGURE FIREWALL

REVIEW

Add tags to your instance to simplify the administration of your EC2 infrastructure. A form of metadata, tags consist of a case-sensitive key/value pair, are stored in the cloud and are private to your account. You can create user-friendly names that help you organize, search, and browse your resources. For example, you could define a tag with key = Name and value = Webserver. You can add up to 10 unique keys to each instance along with an optional value for each key. For more information, go to [Using Tags](#) in the *EC2 User Guide*.

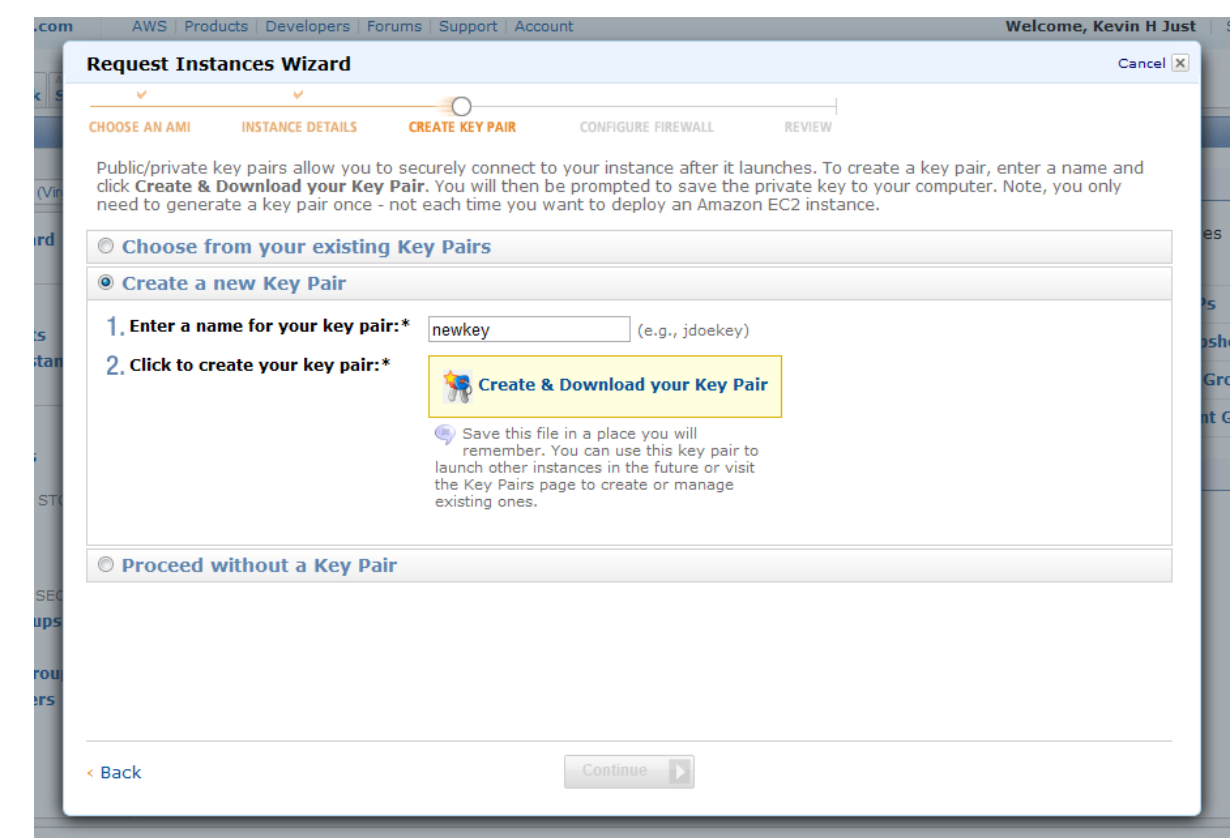
Key (127 characters maximum)	Value (255 characters maximum)	Remove
Name	Micro Instance with R Self Build	✖
		✖

[Add another Tag.](#) (Maximum of 10)

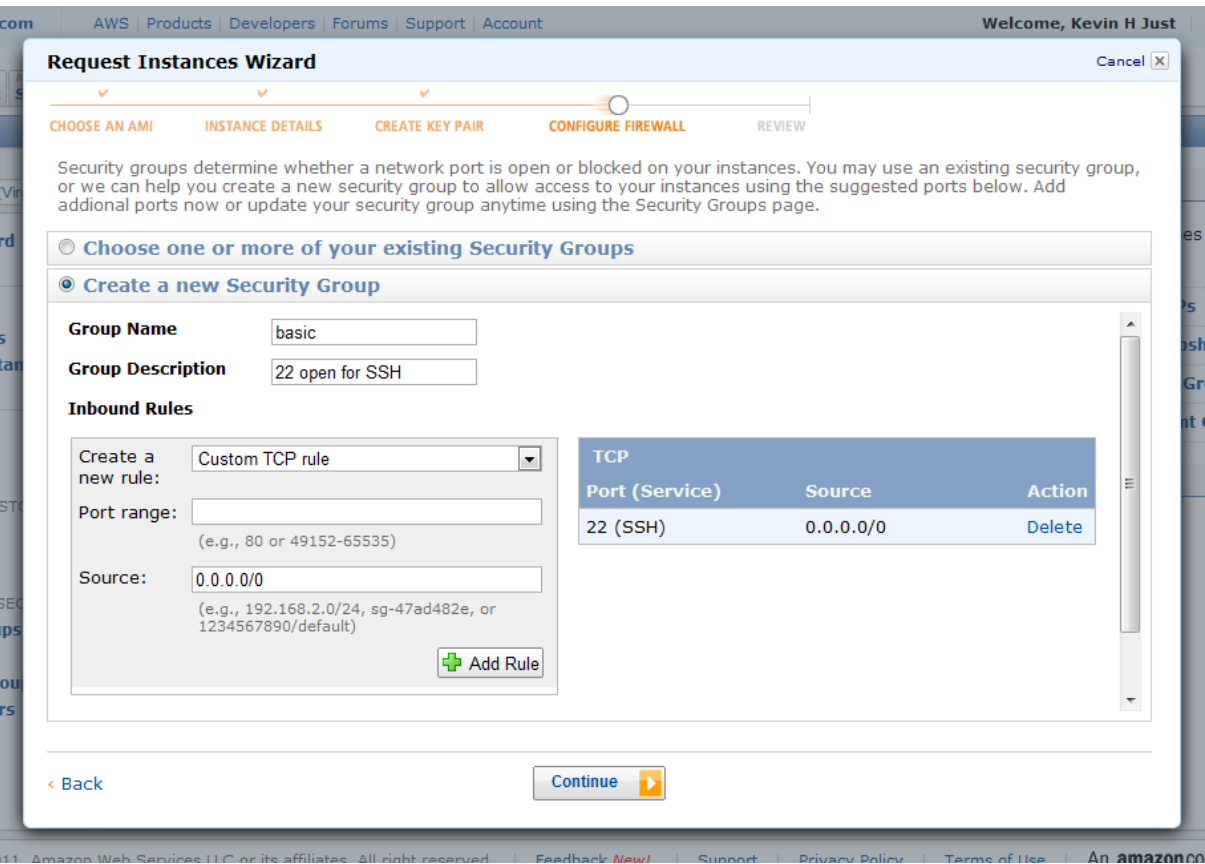
< Back

Continue >

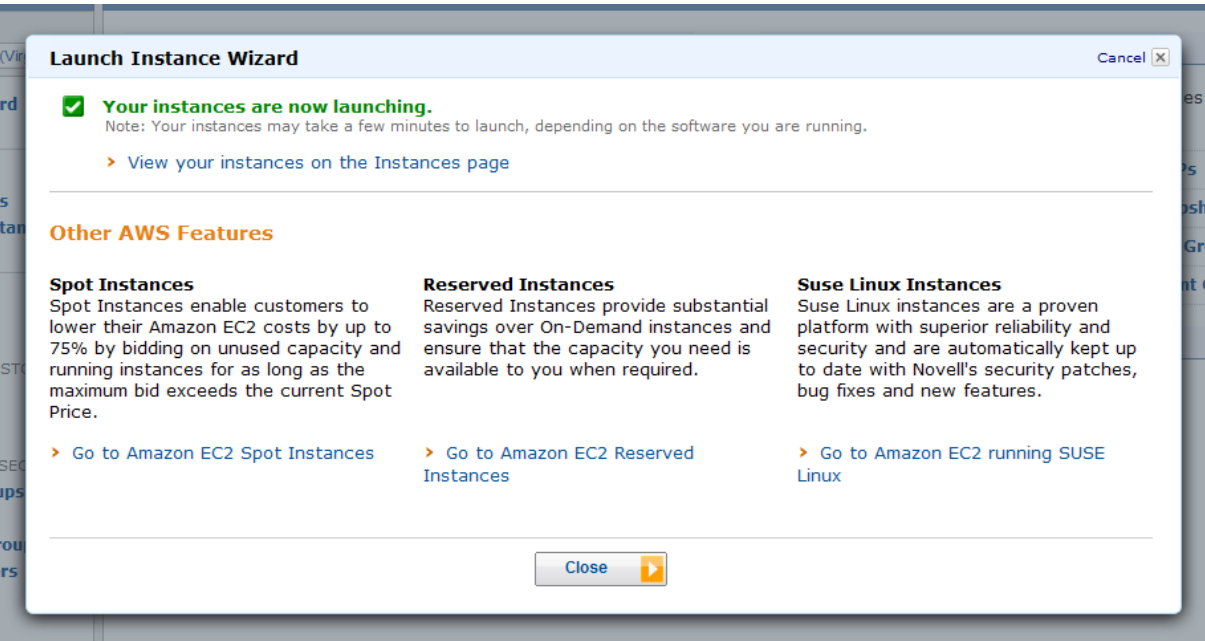
8. Create a new Key Pair. Provide a name for the new key pair (here, 'newkey'). Click 'Create & Download your Key Pair'.



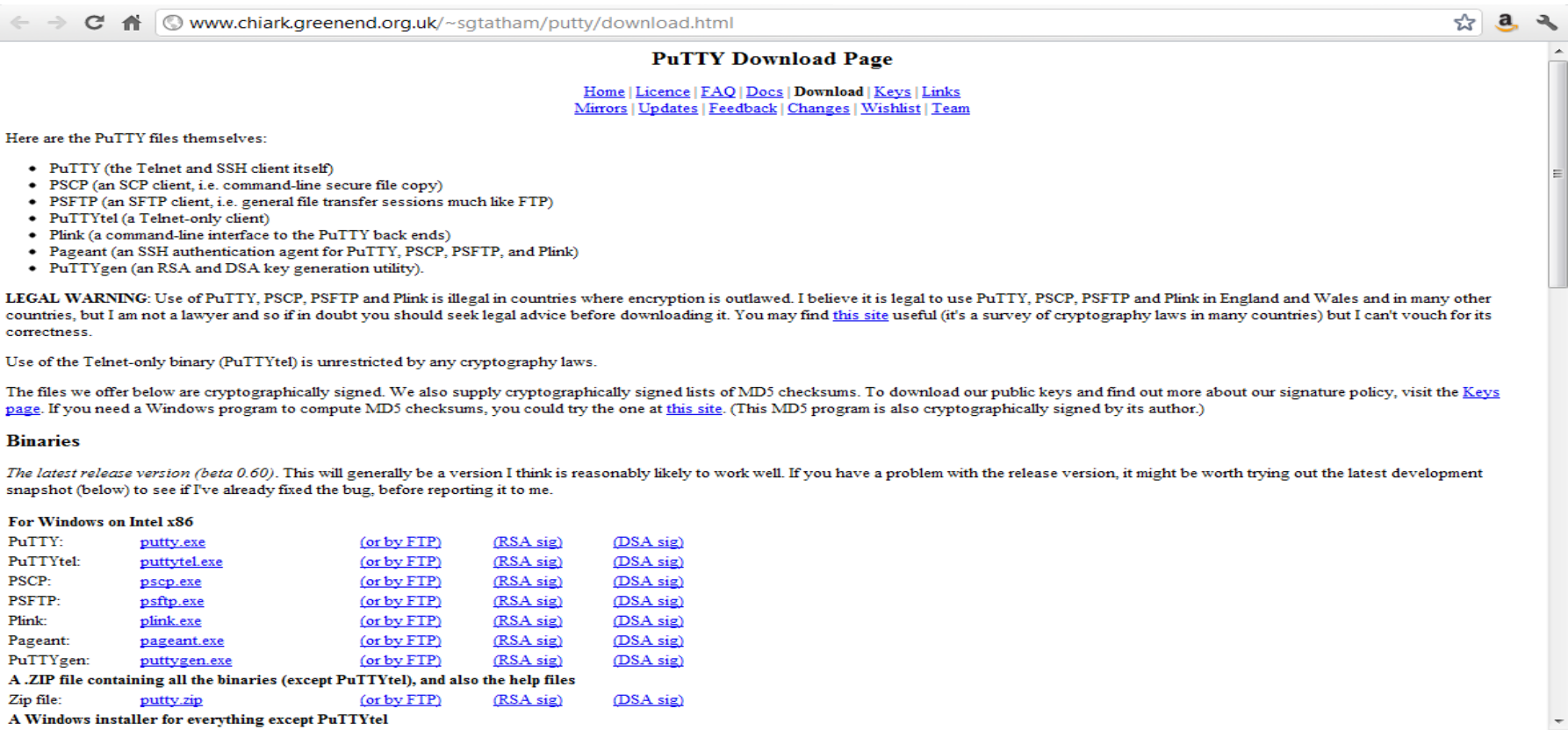
9. Create a new Security group. Port 22 should already be selected. Add a Group Name (here, 'basic') and Group Description (here, '22 open for SSH'). Click 'Continue'.



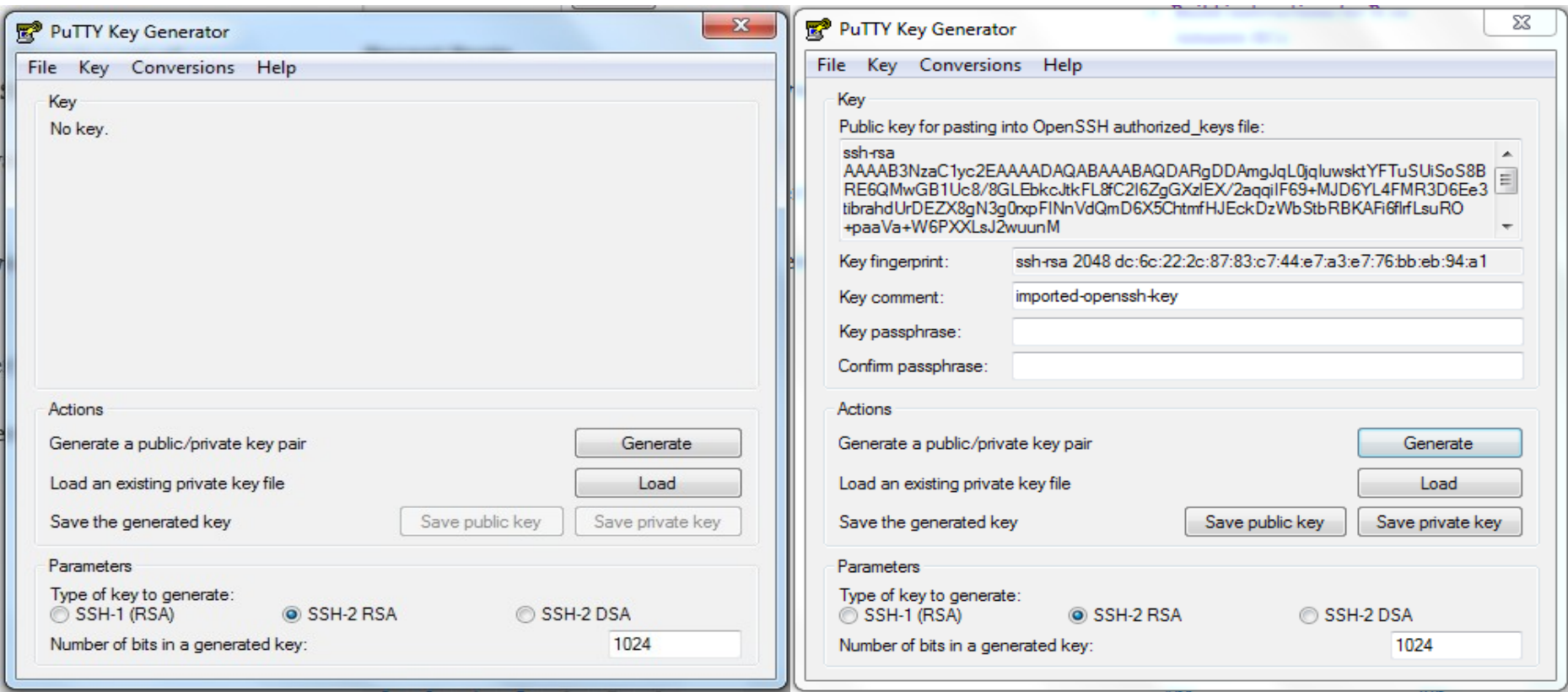
10. The Instance is now launching. Click 'View your instances on the Instances page'.



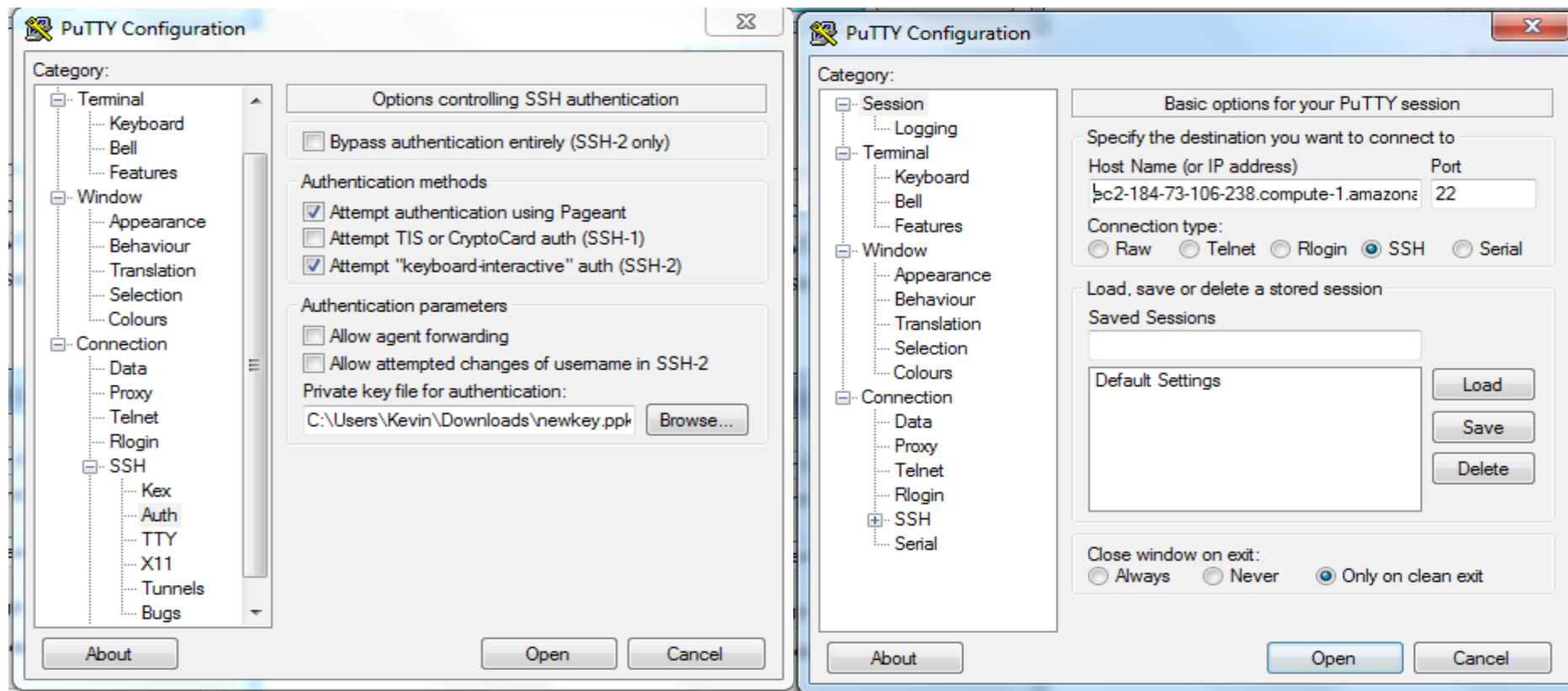
11. If using a Windows machine, you will need to SSH (secure shell) to your Amazon EC2 instance using a free tool called ‘PuTTY’. Go to the PuTTY homepage at www.chiark.greenend.org.uk/~sgtatham/putty/download.html. Click ‘putty.exe’ and ‘puttygen.exe’ to download the necessary binaries.



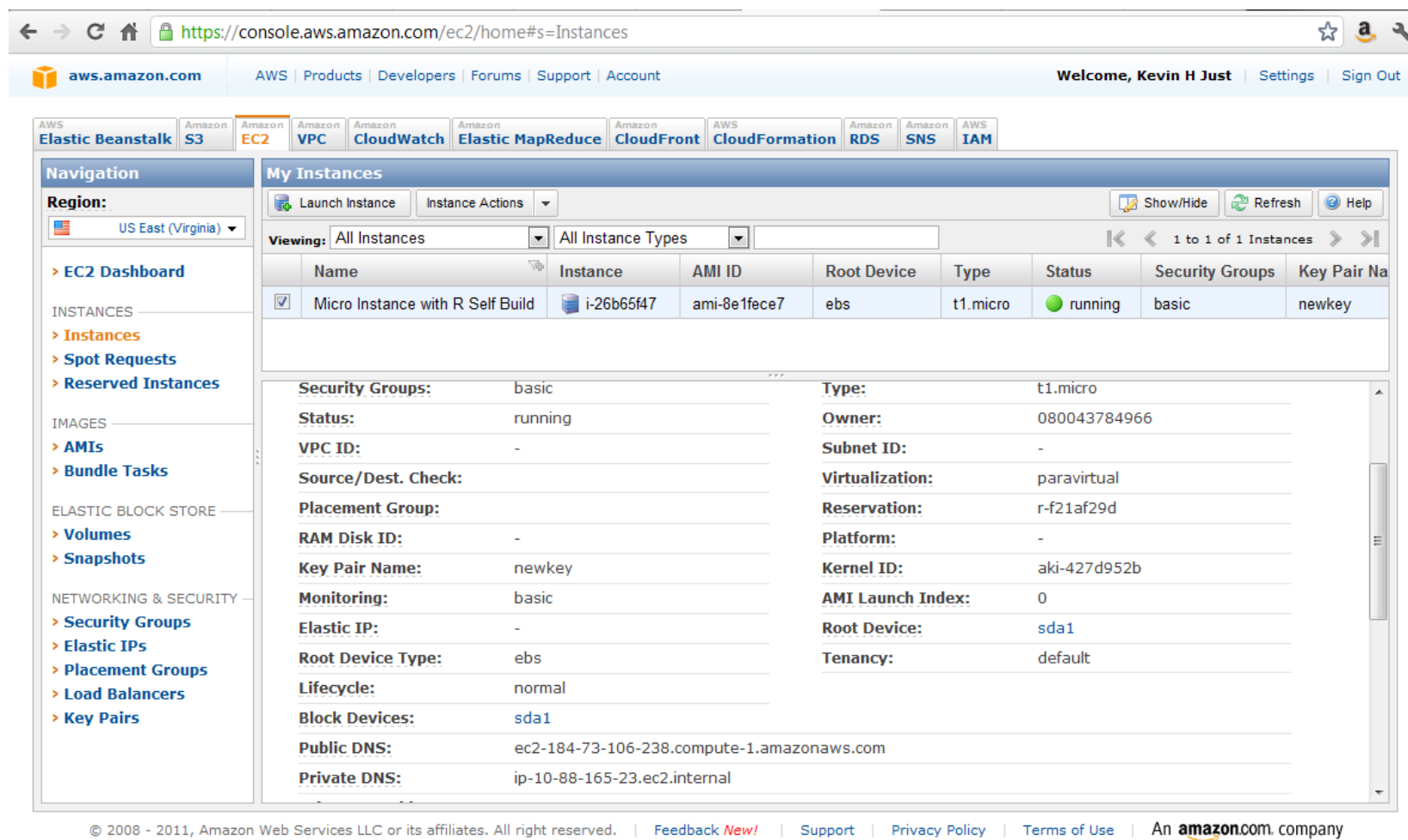
12. Open ‘puttygen.exe’. Go to the ‘Conversions’ tab and select ‘Import Key’. Search for and select the key pair created in step 9 (named ‘newkey.pem’). Click ‘Save private key’ (here, this is saved as ‘newkey.ppk’). You will be prompted to add a passphrase; it is not mandatory to add a passphrase.



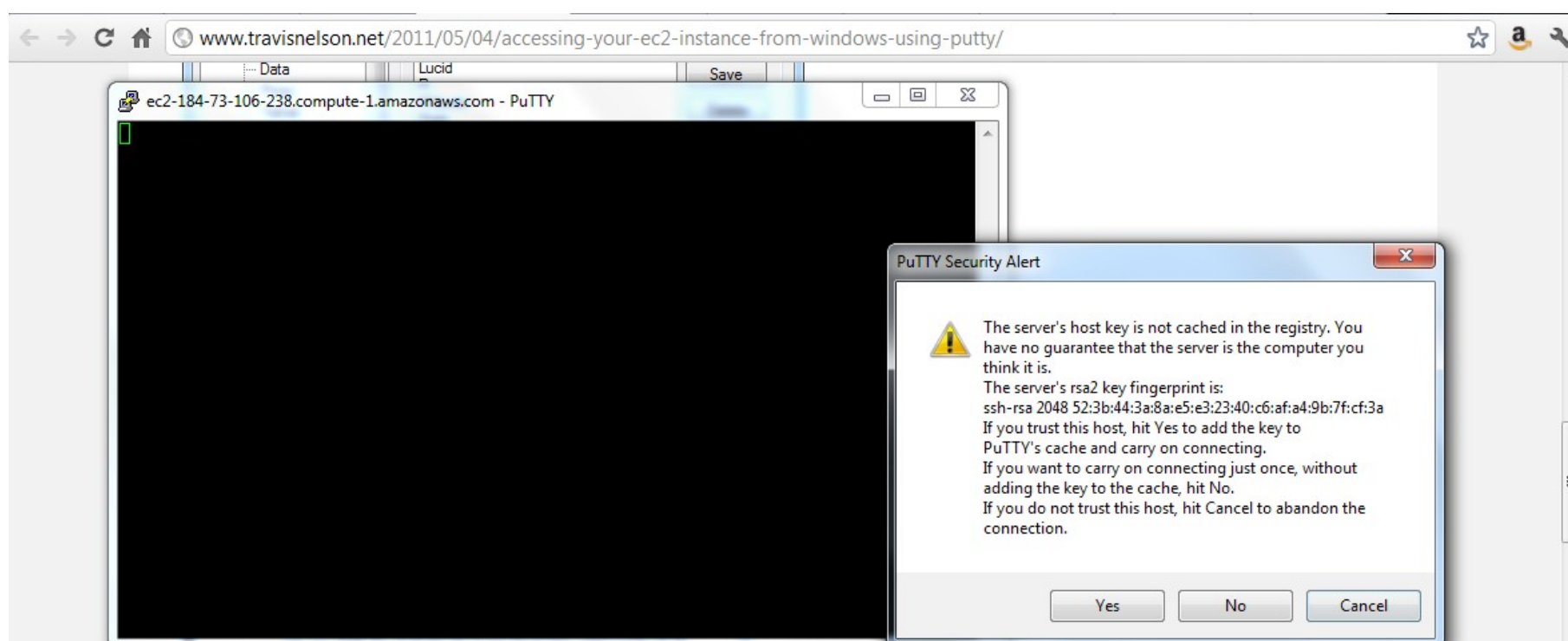
13. Open ‘putty.exe’. On the left, navigate to ‘Connections/SSH/Auth’. In the ‘Private key file for authentication’ field, browse to the location of the saved key (here, ‘newkey.ppk’) from the last step. Next, on the left, navigate to ‘Session’. In the ‘Host Name for IP address’ field, enter the Public DNS (Domain Name System) from your AWS management console (see detailed instructions below on how to find the Public DNS). Click ‘Open’.



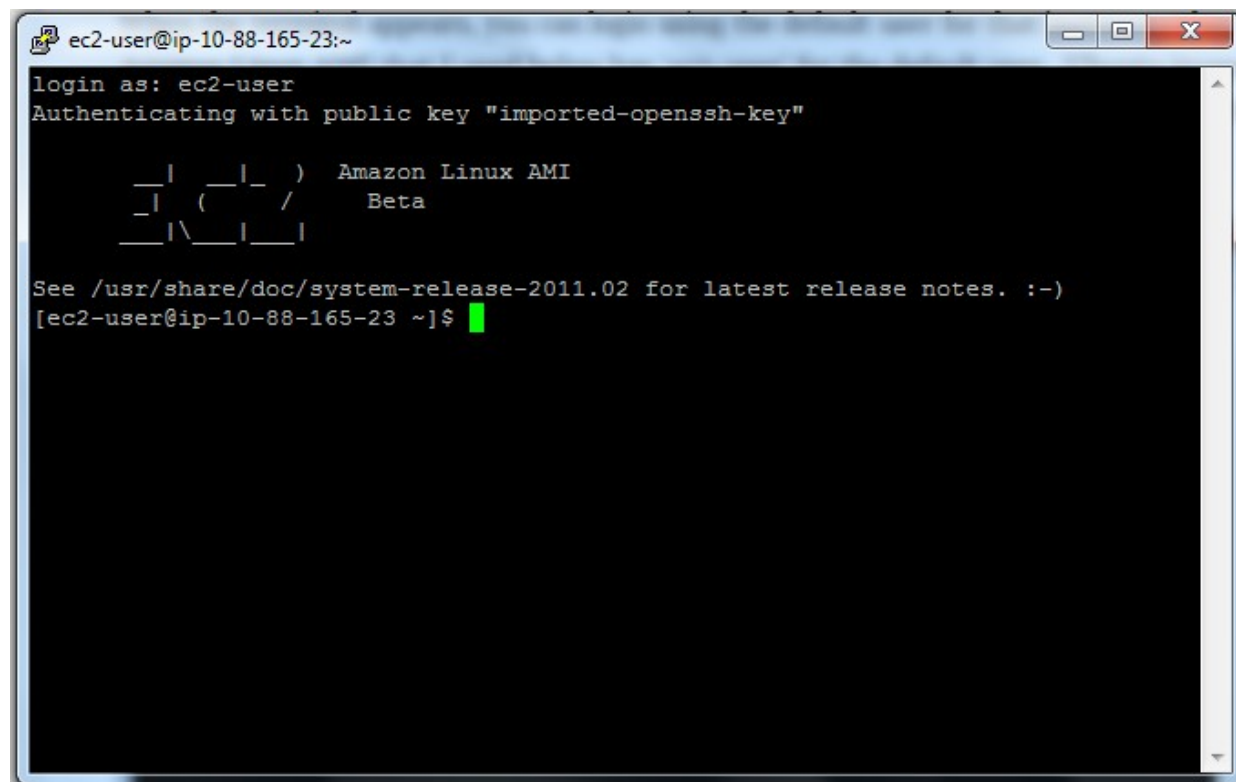
To find the Public DNS, go to your AWS management console as shown below. Check the box to the left of the newly created instance (here, named 'Micro Instance with R Self Build' in Step 7). Details, including the Public DNS, will display. Copy this to the 'Host Name for IP address' field shown above, right.



14. Click 'Yes' when the following box displays as this will be the first time logging into this server.



15. Log in using the default user for the instance, 'ec2-user'. You are now in the Cloud.



16. To install R inside the Cloud, type the following lines of code.

```
cd /opt
sudo mkdir R
cd R
sudo wget http://cran.at.r-project.org/src/base/R-2/R-2.13.0.tar.gz
sudo tar -xvf R-2.13.0.tar.gz
sudo rm -f R-2.13.0.tar.gz
```

Whenever prompted with 'Is this ok [y/N]', enter 'y'.

```
sudo yum install gcc
sudo yum install gcc-c++
sudo yum install gcc-gfortran
sudo yum install readline-devel
sudo yum install make
cd R-2.13.0/
```

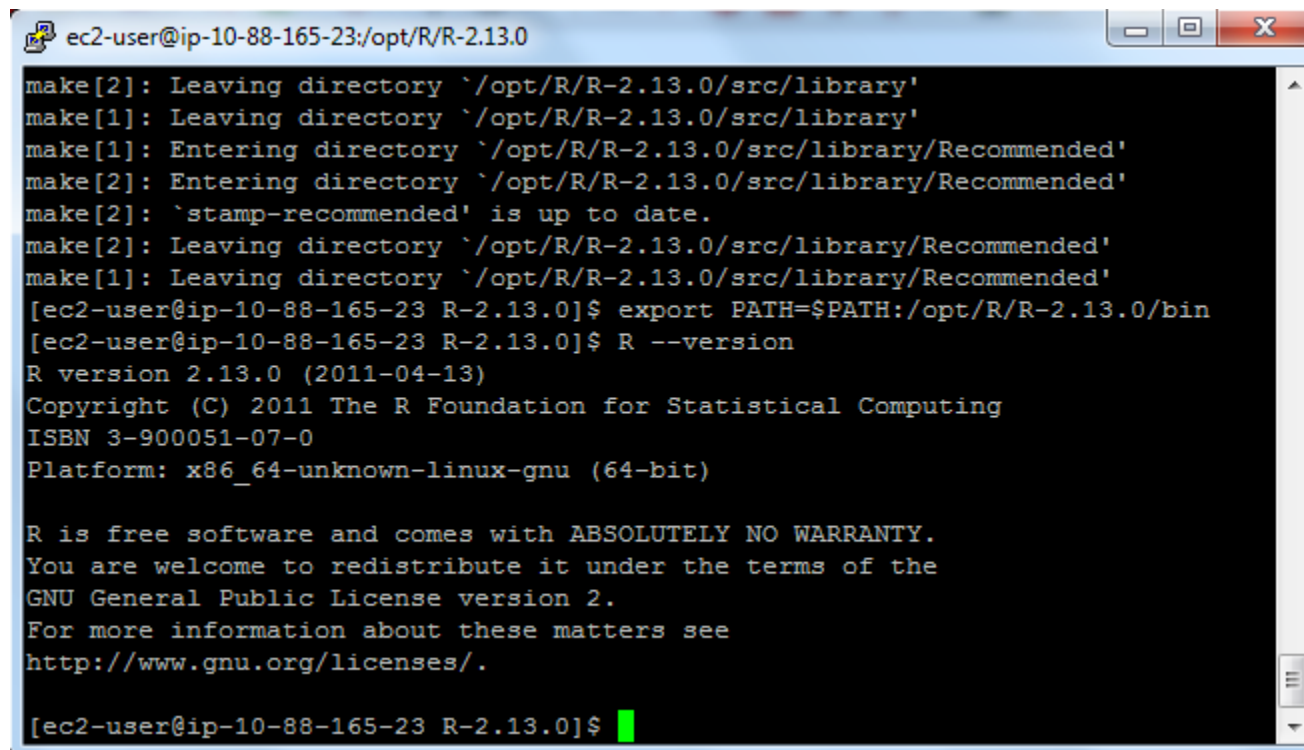
```
sudo ./configure --with-x=no
sudo make
```

The line 'sudo make' will take about 30 minutes to run.

```
export PATH=$PATH:/opt/R/R-2.13.0/bin
```

The next line let's you see if everything worked correctly.

```
R --version
```


A terminal window titled 'ec2-user@ip-10-88-165-23:/opt/R/R-2.13.0'. The window shows the output of a 'make' command, which includes messages about leaving and entering directories and checking the 'stamp-recommended' file. The user then runs 'export PATH=\$PATH:/opt/R/R-2.13.0/bin' and 'R --version'. The output of 'R --version' shows 'R version 2.13.0 (2011-04-13)', copyright information for 2011, and the platform 'x86_64-unknown-linux-gnu (64-bit)'. It also includes a disclaimer about warranty and a link to the GNU license. The prompt '[ec2-user@ip-10-88-165-23 R-2.13.0]\$' is visible at the bottom with a green cursor.

```
ec2-user@ip-10-88-165-23:/opt/R/R-2.13.0
make[2]: Leaving directory `/opt/R/R-2.13.0/src/library'
make[1]: Leaving directory `/opt/R/R-2.13.0/src/library'
make[1]: Entering directory `/opt/R/R-2.13.0/src/library/Recommended'
make[2]: Entering directory `/opt/R/R-2.13.0/src/library/Recommended'
make[2]: `stamp-recommended' is up to date.
make[2]: Leaving directory `/opt/R/R-2.13.0/src/library/Recommended'
make[1]: Leaving directory `/opt/R/R-2.13.0/src/library/Recommended'
[ec2-user@ip-10-88-165-23 R-2.13.0]$ export PATH=$PATH:/opt/R/R-2.13.0/bin
[ec2-user@ip-10-88-165-23 R-2.13.0]$ R --version
R version 2.13.0 (2011-04-13)
Copyright (C) 2011 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: x86_64-unknown-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under the terms of the
GNU General Public License version 2.
For more information about these matters see
http://www.gnu.org/licenses/.

[ec2-user@ip-10-88-165-23 R-2.13.0]$
```

Open R by typing 'R', and you are ready to use R in the Cloud.

Sources

<http://www.r-bloggers.com/ec2-micro-instance-of-rstudio/>

<http://www.travisnelson.net/2011/05/04/build-instructions-for-r-on-amazon-ec2/>

<http://www.travisnelson.net/2011/05/04/accessing-your-ec2-instance-from-windows-using-putty/>