

Chicago R User Group Beginner Night AWS Info

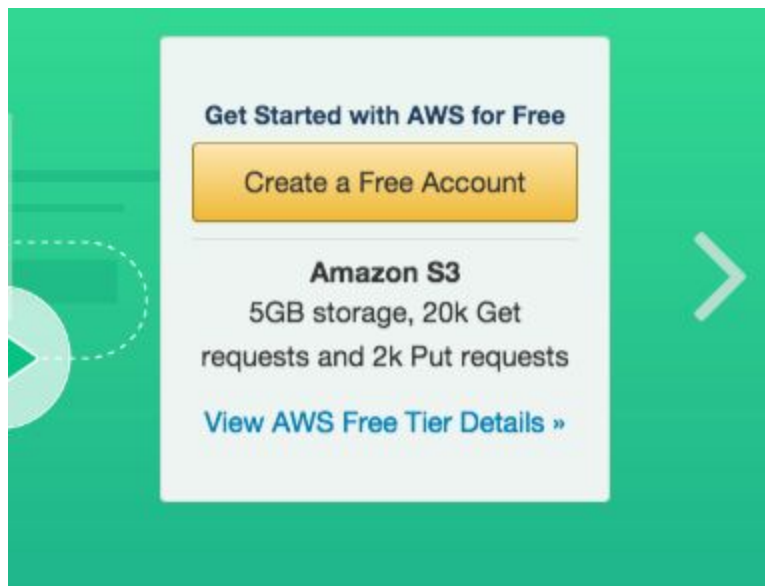
Keith Hultman

During the CRUG meeting, we will be demonstrating how to setup an AWS server with RStudio. If you are interested in creating such a server for your own use during the meeting, please register with AWS before the meeting. This will allow us to save some extra time for creating the virtual server, and keep the topic interesting for audience members not following along with the demonstration.

Sign up for AWS (Do before CRUG!)

Amazon offers a free 'trial' period for their web services. This free tier allows for an equivalent of one full year of constant usage of a small virtual server. Go to [Amazon Web Services](#) and click on "Create Free Account". Follow the directions to set up AWS. If you have a general Amazon account, you can use the same user id and password, but you will still need to register for the AWS service as this is distinct from the web store.

While we will only be using services that are eligible with the free tier, you will still be required to enter a valid credit card and billing address to AWS during registration. You might also need a mobile phone for verification.



Launch an RStudio AMI instance

We will be doing the following steps at the meeting, but I've included these steps if you would like to use them either before/during/after the meeting.

While it's possible to install R and RStudio from scratch, we will be using an AMI maintained by Louis Aslett which can be found [on his webpage](#) or by searching community AMI's on Amazon. It's faster and easier, but it also comes with some nice extras we'll talk about at the Meetup. Scroll down and select the [RStudio 0.99.903, R 3.3.1, Julia 0.4.6 release for the US East \(Virginia\) region](#).

After signing in to AWS, this link will direct you to setting up an instance on AWS Elastic Compute (EC) service.

Step 2: Choose an Instance Type

	General purpose	Instance type	VCpus	Memory (GiB)	Storage	Network	Price per hour (US East)
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate
<input type="checkbox"/>	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate
<input type="checkbox"/>	General purpose	m4.xlarge	4	16	EBS only	Yes	High

Cancel Previous **Review and Launch** Next: Configure Instance Details

Select the t2.micro instance and click Next: Configure Instance Details.

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances [Launch into Auto Scaling Group](#)

Purchasing option ☐ Request Spot instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)

Auto-assign Public IP

IAM role [Create new IAM role](#)

Shutdown behavior

Enable termination protection ☐ Protect against accidental termination

Monitoring ☐ Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy
Additional charges will apply for dedicated tenancy.

► Advanced Details

Cancel Previous **Review and Launch** Next: Add Storage

Click Next: Add Storage. Here you can increase the size of your storage. The AMI comes with a pretty streamlined 10GB of storage so if you suspect you will need more storage you can increase it here. It's also possible to increase this at a later time. You can use up to 30 GB in the free tier.

We will keep most of the default settings, so click through until you get to the Configure Security Group tab. Here you want to add a new rule to the security group, click Add Rule. From the dropdown menu select "HTTP" for type. Protocol should be TCP and Port Range should be 80. You can also select a set of known IP addresses if you would like to protect your server to only being available from your computer. One option is to restrict the ssh type to "My IP" but leave the http type open to the world. I leave this set to 0.0.0.0/0 which allows me to login from everywhere, but is less secure. If you are going to store / analyze sensitive data, this is how you can increase security. Optional: Rename the security group to something human readable like RStudio.

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 ⓘ	
SSH ▾	TCP	22	Custom ▾ 0.0.0.0/0	✕
HTTP ▾	TCP	80	Custom ▾ 0.0.0.0/0	✕

 **Warning**
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Review your selections. Note under the AMI details here is where the username / password are for this once it is activated: username rstudio and password rstudio. You will want to change these asap once you start your server.

Services

Resource Groups

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N. Virginia

Support

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

Improve your instances' security. Your security group, launch-wizard-1, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details

Edit AMI

RStudio-0.99.903_R-3.3.1_julia-0.4.6_ubuntu-16.04-LTS-64bit - ami-8fe18f98
Ready to run RStudio + (experimental) Julia server for statistical computation (www.louisaslett.com). Connect to instance public DNS in web browser (standard port 80, [username rstudio and password rstudio](#))
Root Device Type: ebs Virtualization type: hvm

Instance Type

Edit instance type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups

Edit security groups

Security group name: launch-wizard-1
Description: launch-wizard-1 created 2016-12-23T22:28:55.902-06:00

Type	Protocol	Port Range	Source
SSH	TCP	22	0.0.0.0/0
HTTP	TCP	80	0.0.0.0/0

Instance Details

Edit instance details

Storage

Edit storage

Tags

Edit tags

Cancel

Previous

Launch

Feedback

English

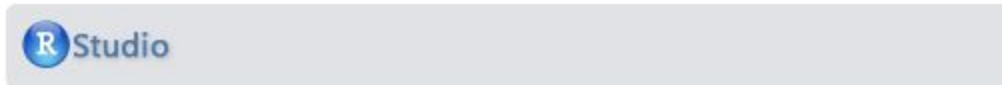
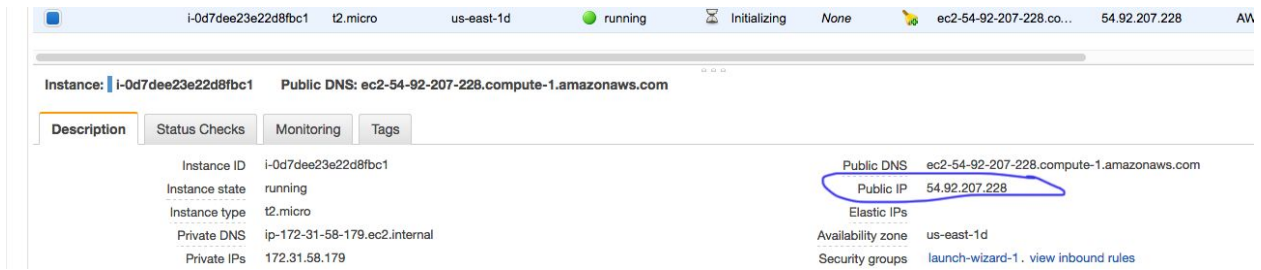
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Launch Server

After clicking Launch you will be prompted to select or create a key pair. This is used for ssh connections with the server and will download a text file that will be stored on your computer to act as a password. Select create a new key pair and then enter a descriptive name for this key pair. "AWS-RStudio" would be appropriate.

After the key pair .pem file is downloaded to your computer, you can launch your instance. Click on View Instances to open up the AWS console to view all of your running instances (just one right now).

Once the Instance state says 'running' you can connect to your server by entering the public IP address in your web browser. Log in using the rstudio/rstudio username/password.



Sign in to RStudio

Username:



Password:



☐ Stay signed in

Sign In

Change password

Instructions on changing the password should be in the Welcome.R script message that should be open when you first log in to RStudio. In the console type:

```
> library("RStudioAMI")
> passwd()
```

That's it!

For our purposes we are all set up to start working in R. You might want to make additional changes to the server, like setting up git for your projects or linking to Dropbox, or upgrading to the more recent R/RStudio versions.