Deploy Dual Stack Windows Server 2012 R2 in AWS

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This assumes that you have created a dual stack VPS, with v4 and v6 CIDR blocks, v4 and v6 subnets, etc.

Bring up AWS console.

Click the *Launch Instance* button.

In the Choose AMI page, click AWS Marketplace.

Search for *Windows Server 2012 R2*

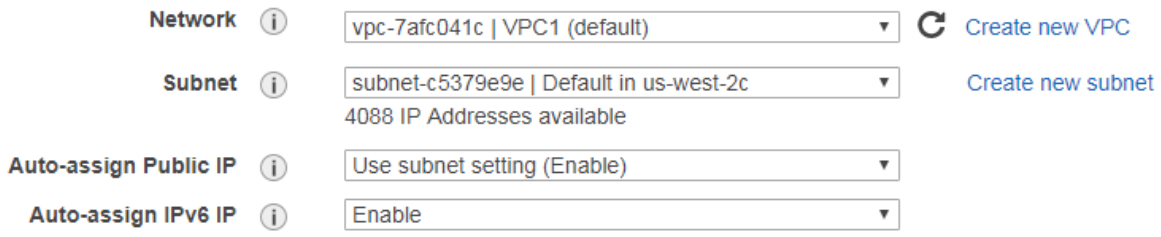
Click the *Select* button.

Choose t2.micro (1 GB RAM) or t2.small (2 GB RAM)

Click *Next: Configure Instance Details* at lower right

On the *Configure Instance Details* page:

- Select your configured dual stack VPC
- Select your preferred subnet
- For *Auto-assign Public IP* choose *Use subnet setting (Enable)*
- For *Auto-assign IPv6 IP,* choose *Enable*



Click *Next: Add Storage* button (lower right)

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-00276c7c1c520750e	30	General Purpose S	100 / 3000	N/A	☑	Not Encrypted

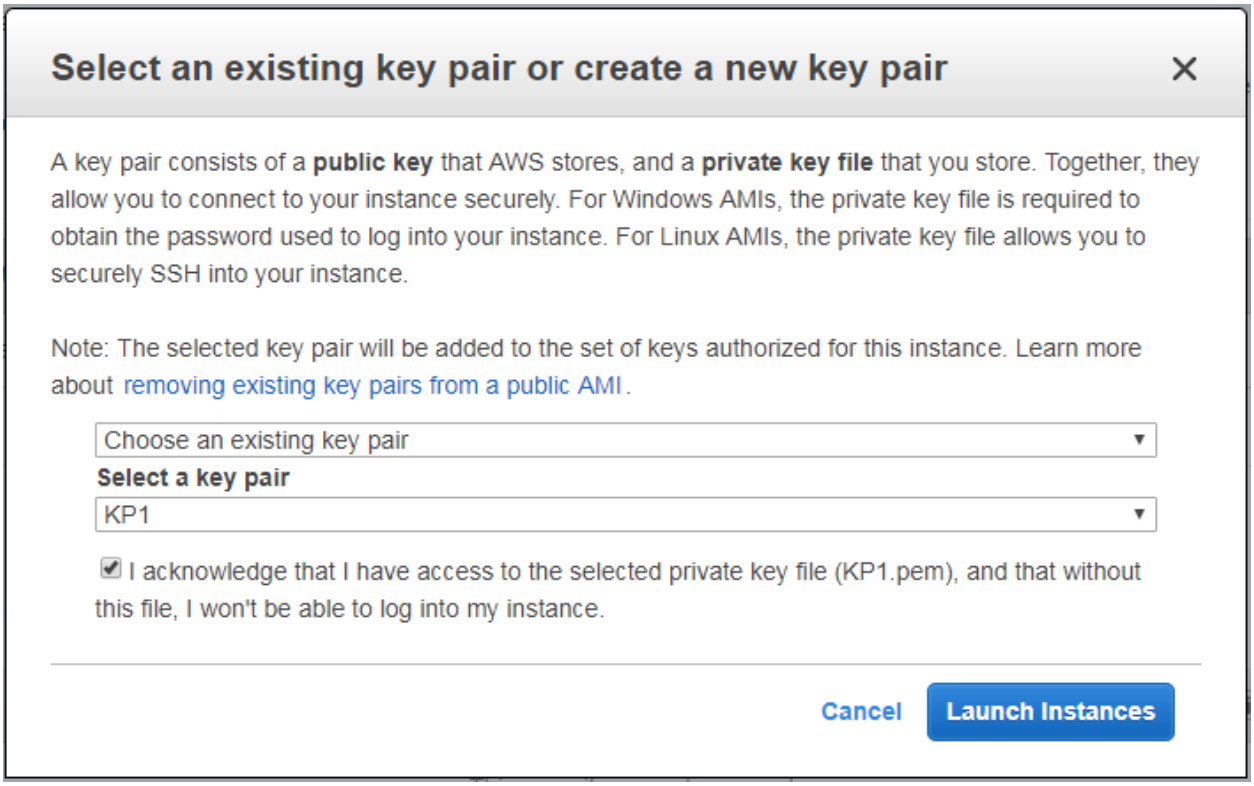
The defaults should be OK.

Click *Review and Launch* button (lower right)

On *Review Instance Launch* verify settings, then click *Launch* (lower right)

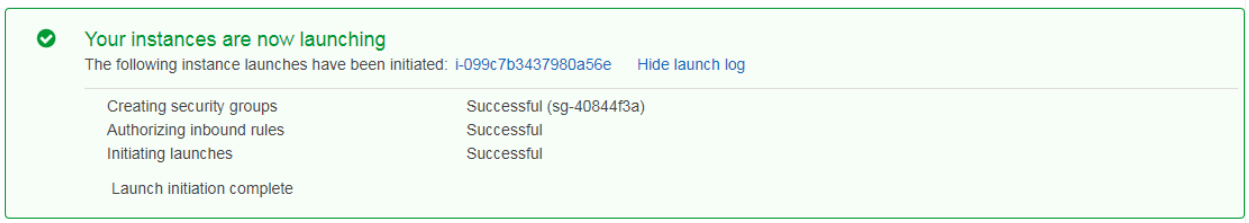
If you already have a KeyPair, select it. Otherwise create a new keypair and save it. Details for creating a new Keypair are in the Deploy FreeBSD 10.3 writeup.

Acknowledge that you have access to the private key file.



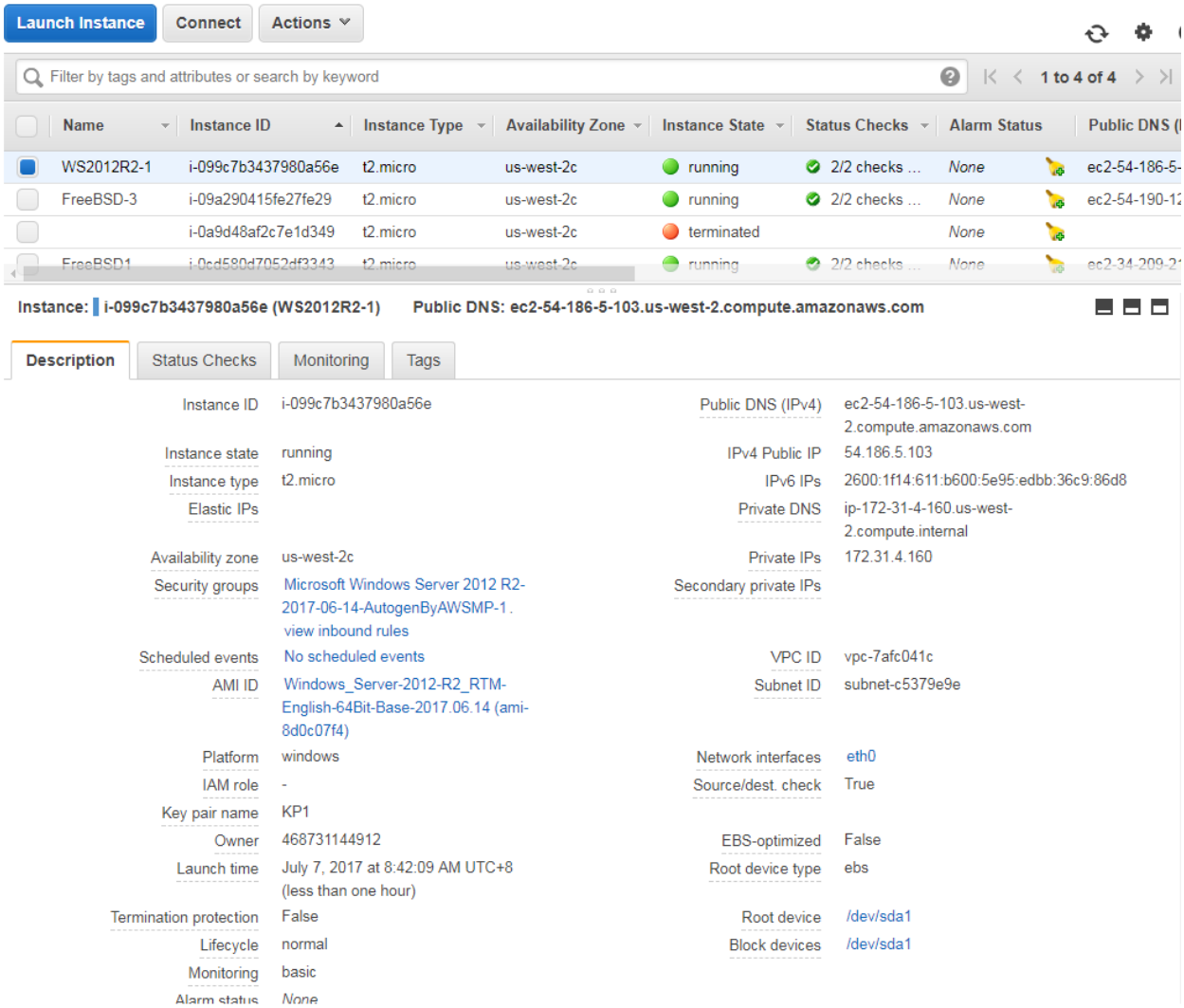
Click the *Launch Instances* button.

Within a few minutes, your instance will be launched (you can view the log):

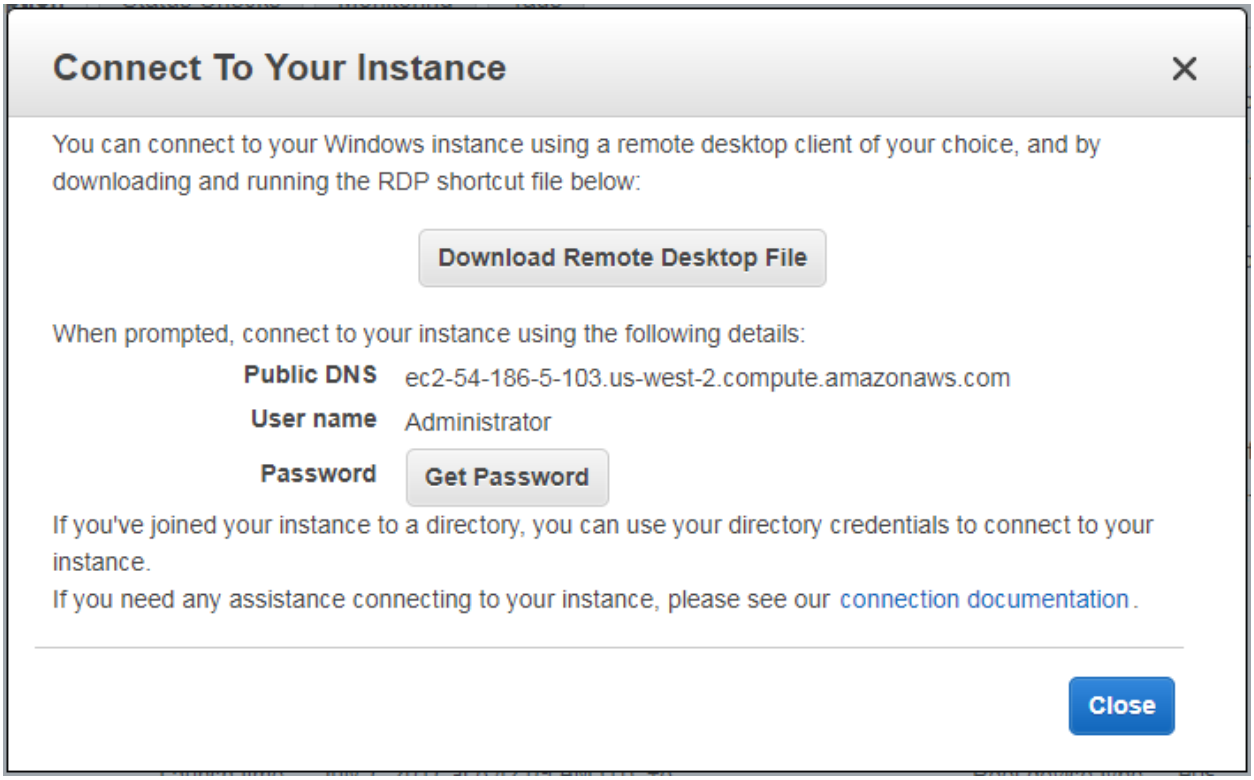


Click the *View Instances* button (at lower right)

Select your new instance. You can name if you like (e.g. WS2012R2-1). View the Description:

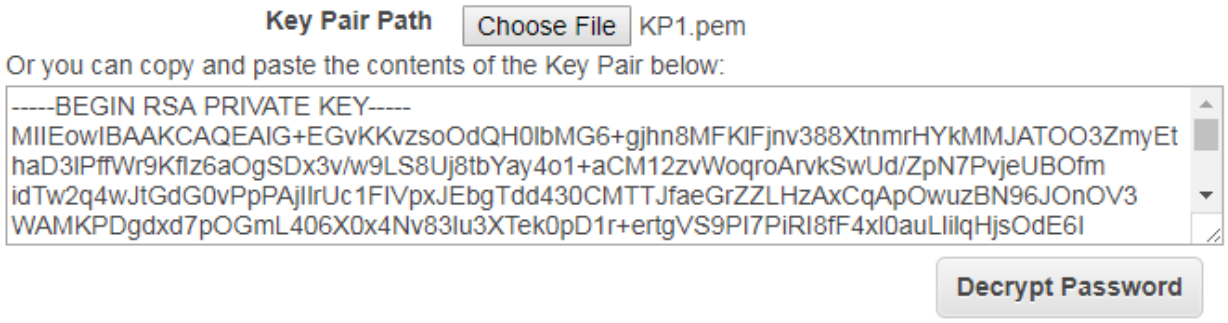


Now click the *Connect* button (second in top row).



Click the *Get Password* button.

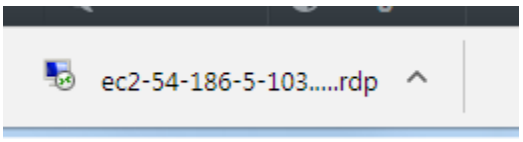
Choose the private key file (in PEM format)



Click the *Decrypt Password* button:

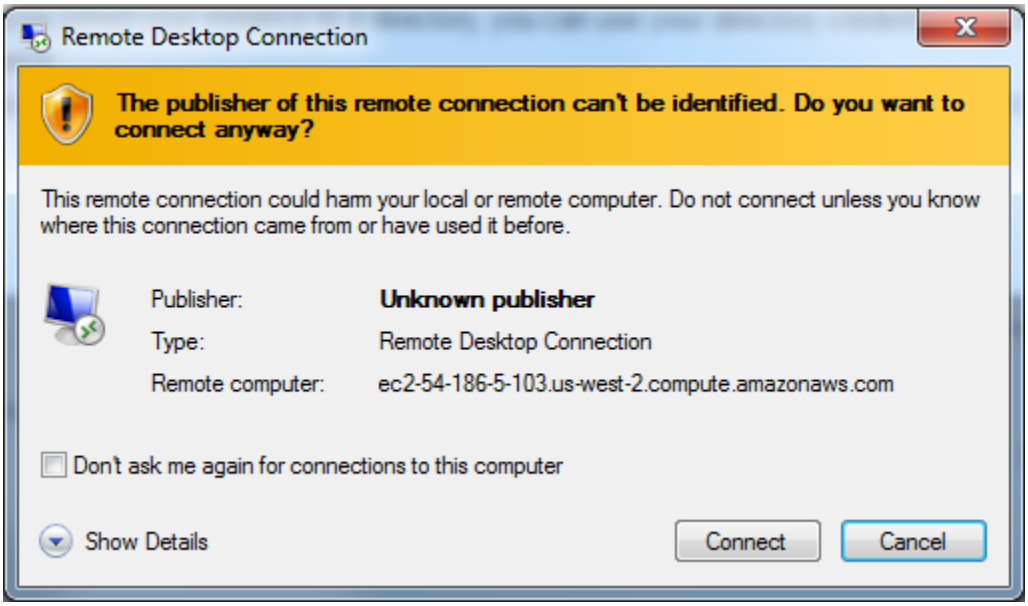
The decrypted password appears on the following screen (not shown here for security).

To connect to the new instance with Remote Desktop Connection, click the *Download Remote Desktop File* button. In Chrome, this will appear at the bottom left:

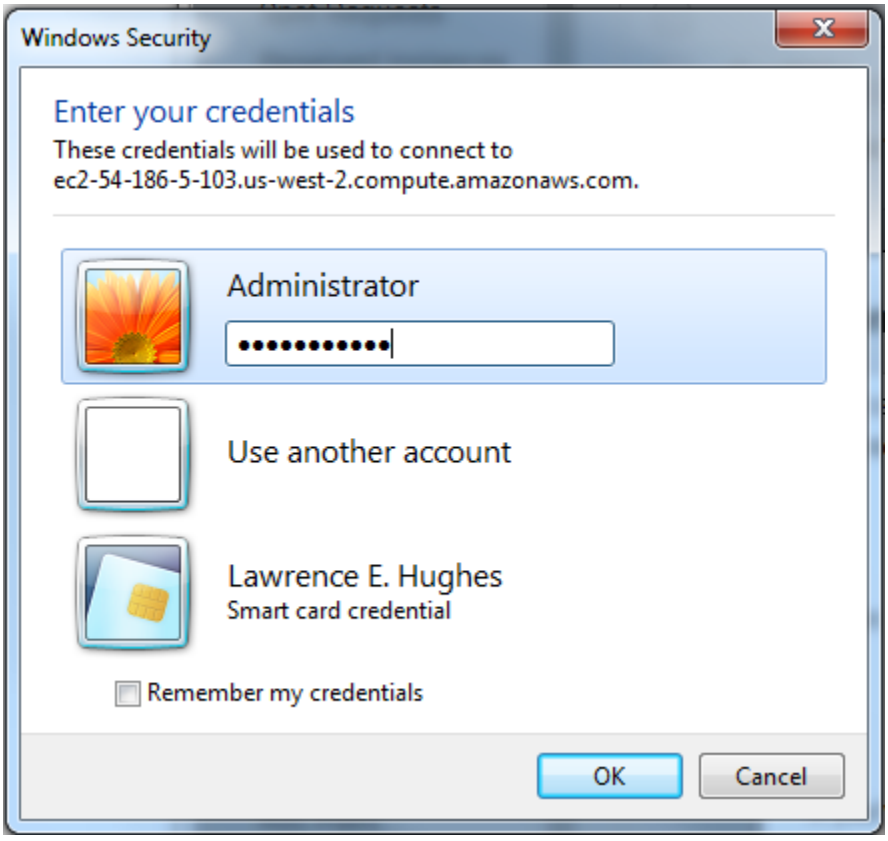


Copy the password string (highlight and Ctrl-C).

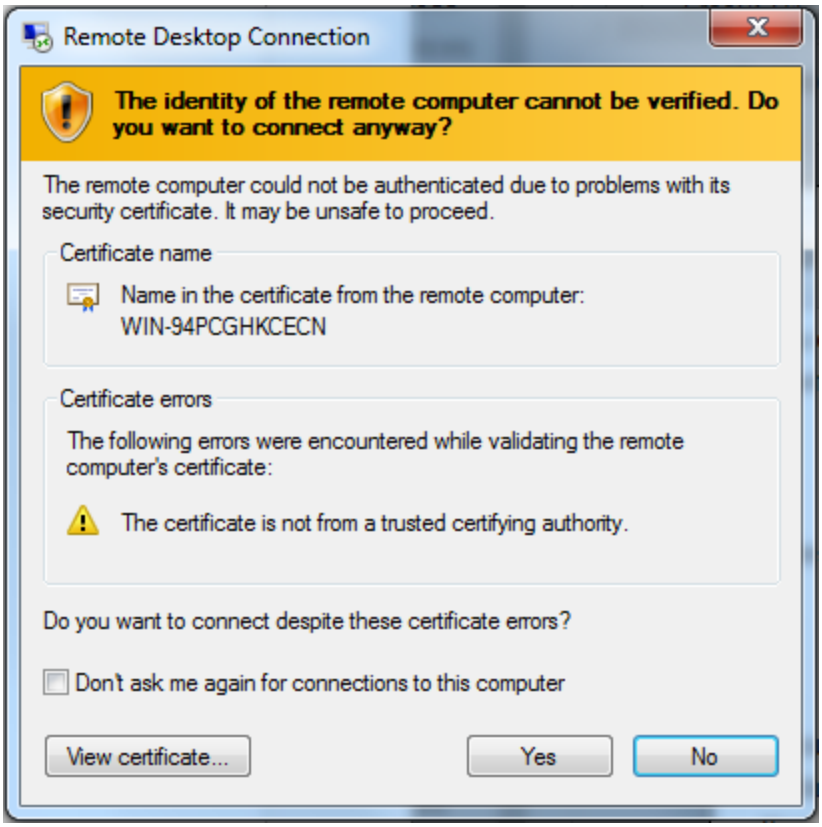
Invoke the downloaded RDP file by double clicking on it.



Click the *Connect* button.

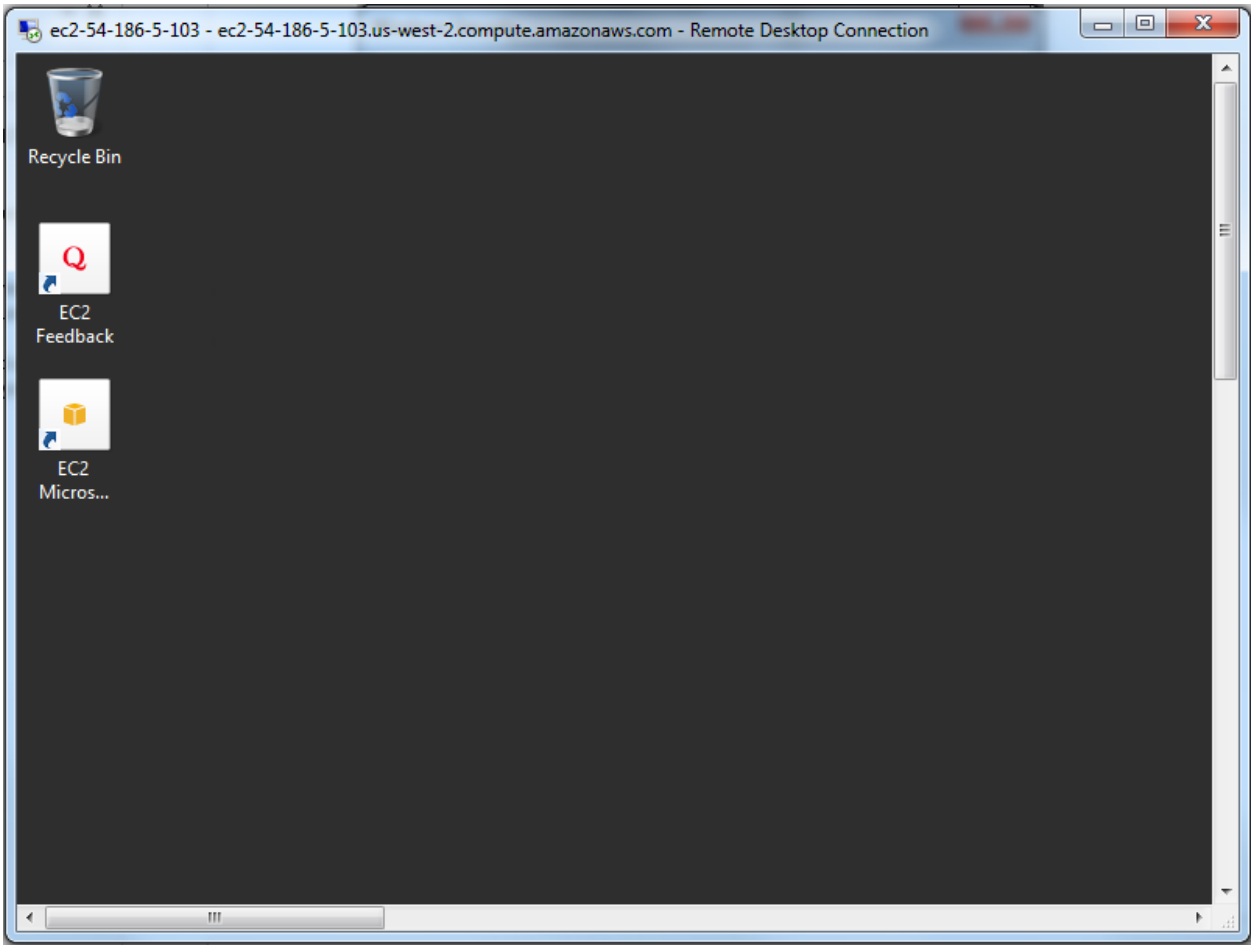


Paste the password in the password box (Ctrl-V). Click the *OK* button.

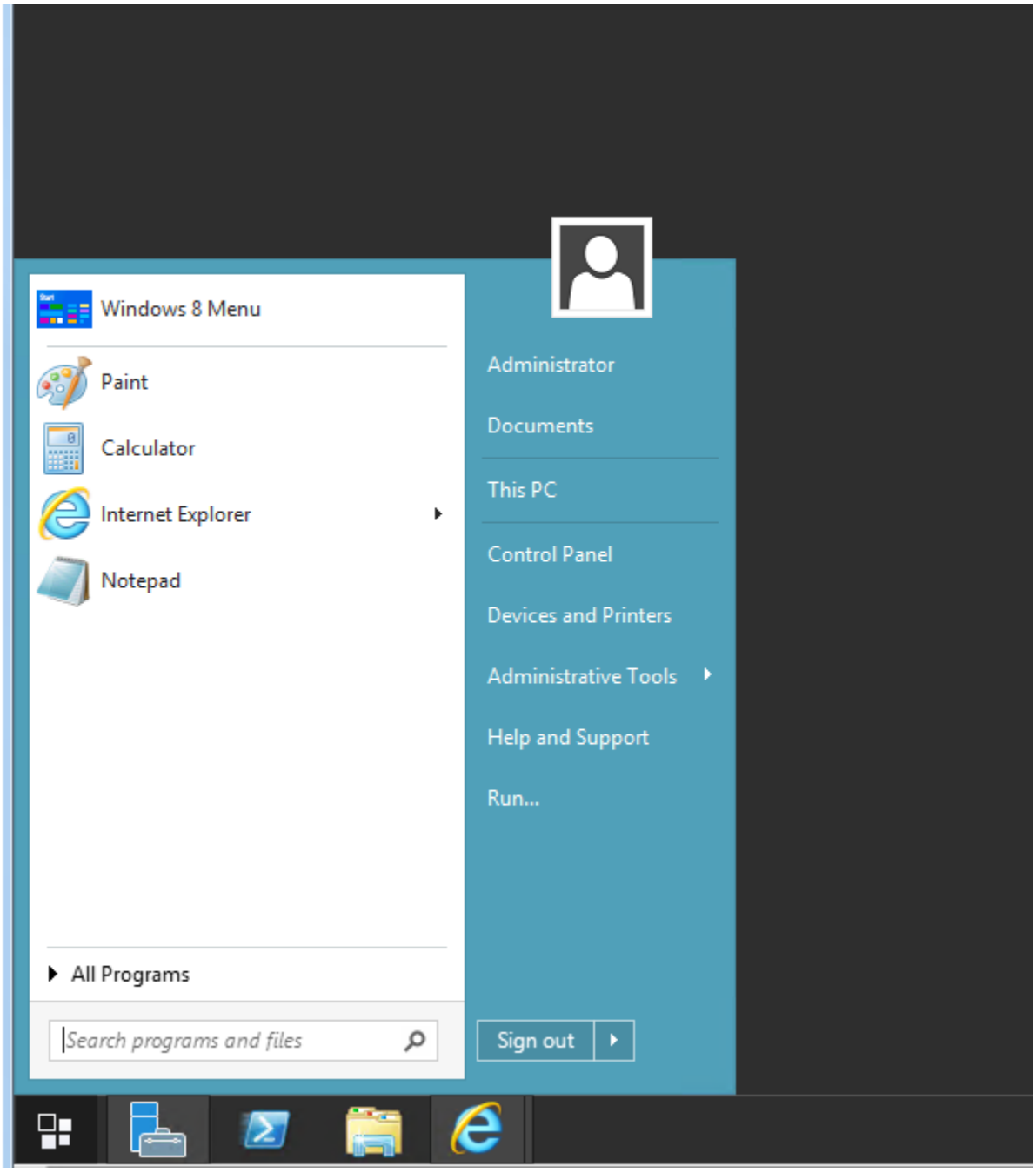


Confirm you want to connect by clicking the *Yes* button.

You are now connected to the new instance via RDP.



For Windows 8.x and Windows Serve 2012 R2, I like to install Start8 (from Stardock) to restore the *Start button* and *Menu*. If you are familiar with the WS2012R2 menus, feel free to use them instead.



Start Server Manager. Change the nodename and domain (e.g. to WS1.aws.sixscape.net).

Restart the server.

IP address management

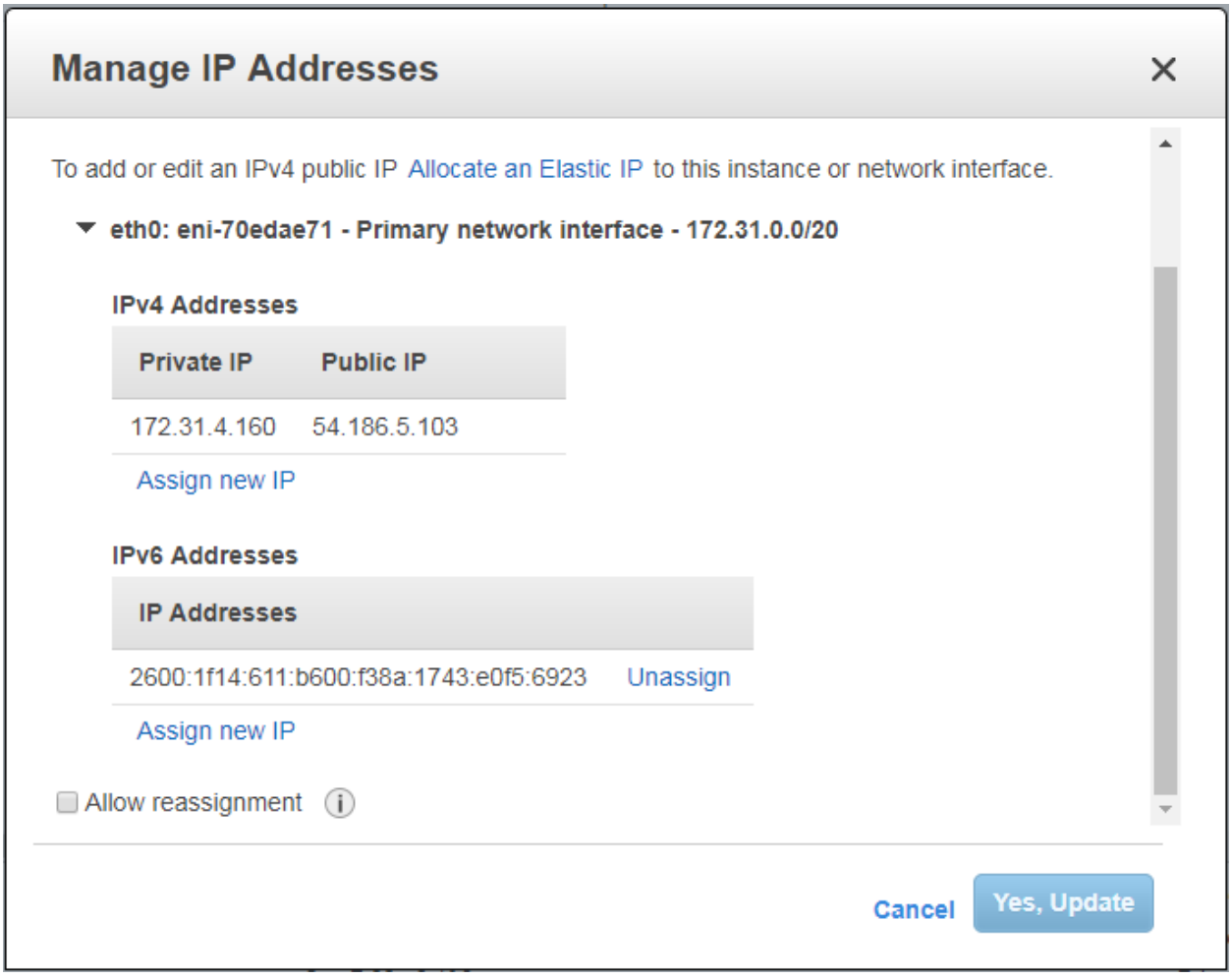
By default, a random IPv6 global address has been assigned to your node. For example:

Primary private IPv4 IP	172.31.4.160
IPv4 Public IP	54.186.5.103*
IPv6 IPs	2600:1f14:611:b600:f38a:1743:e0f5:6923

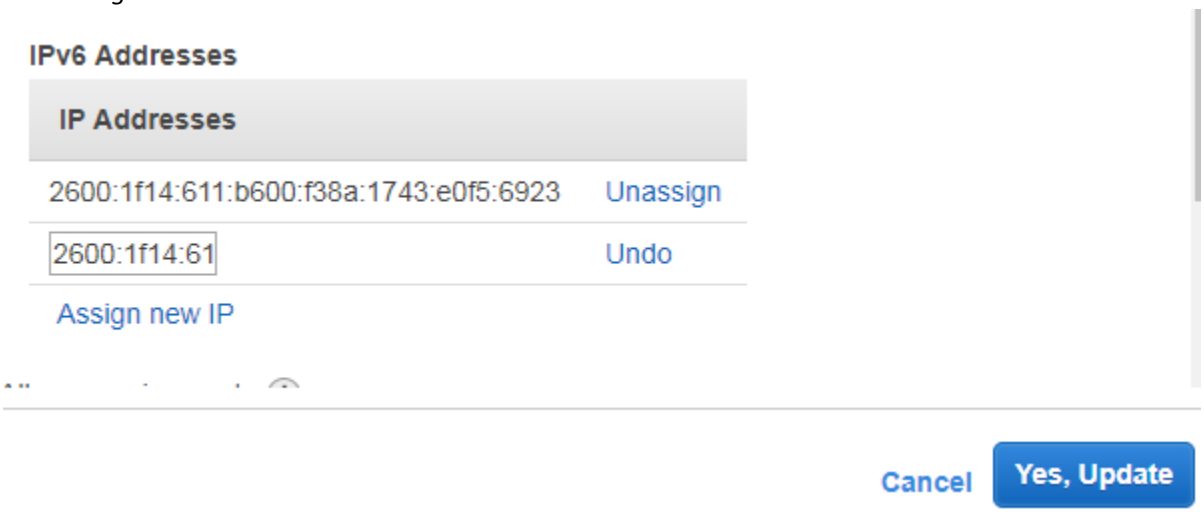
The private IPv4 address is mapped to the public IPv4 address by AWS. You should not try to change it.

This is a static address (it won't change), but if you like you can change this to a manually assigned value.

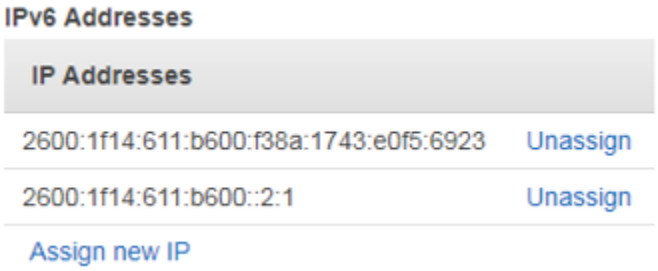
To change the IPv6 address, go to *Network Interfaces* (on the EC2 dashboard), select the Windows Server 2012R2 primary network interface, then choose *Actions*, *Manage IP Addresses*.



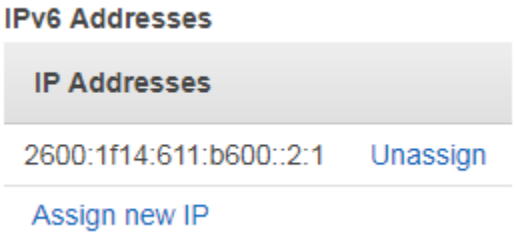
Click *Assign new IP*.



Where it says “Auto-assign” enter the new static address. The 64 bit prefix must be the same as before. For example, 2600:1f14:611:b600::2:1. Click *Yes, Update*.



The new manually assigned address has been added. You can get rid of the old randomly assigned address by clicking *Unassign*, then *Yes, Update*.



Now, this is your official IPv6 global address:

View Network Configuration with ipconfig

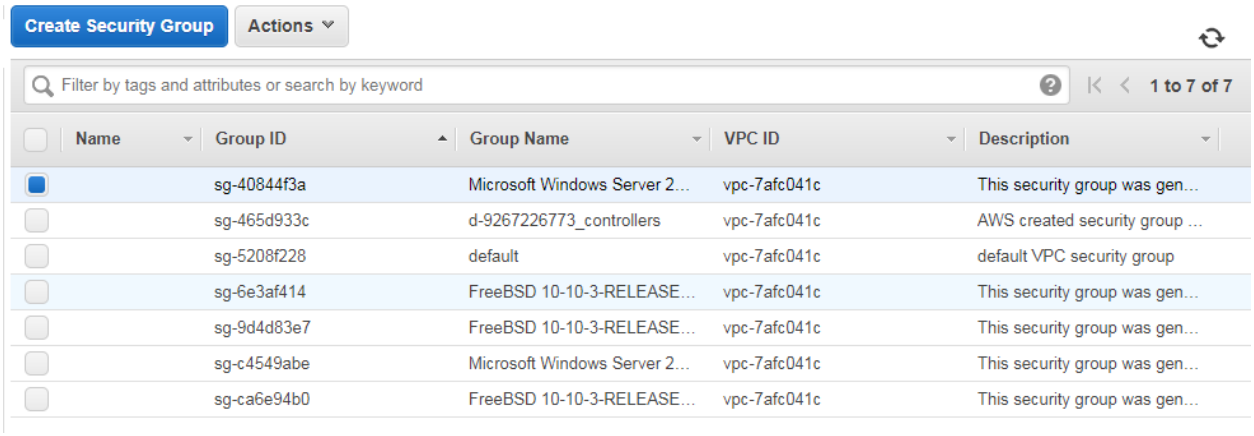
```
C:\Users\Administrator>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : WS1
   Primary Dns Suffix  . . . . . . . : aws.sixscape.net
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : us-west-2.ec2-utilities.amazonaws.com
                                       us-east-1.ec2-utilities.amazonaws.com
                                       ec2-utilities.amazonaws.com
                                       ec2.internal
                                       compute-1.internal
                                       us-west-2.compute.internal
                                       aws.sixscape.net
                                       sixscape.net

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : us-west-2.compute.internal
   Description . . . . . . . . . . . : AWS PV Network Device
   Physical Address. . . . . . . . . : 0A-A7-88-E8-1F-8C
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv6 Address. . . . . . . . . . . : 2600:1f14:611:b600::2:1(Preferred)
   Lease Obtained. . . . . . . . . . : Friday, July 7, 2017 1:42:06 AM
   Lease Expires . . . . . . . . . . : Friday, July 7, 2017 2:44:36 AM
   Link-local IPv6 Address . . . . . : fe80::f8de:efbf:a3fe:4e2d%12(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.31.4.160(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Lease Obtained. . . . . . . . . . : Friday, July 7, 2017 1:15:10 AM
   Lease Expires . . . . . . . . . . : Friday, July 7, 2017 3:15:10 AM
   Default Gateway . . . . . . . . . : fe80::8b1:a0ff:fe86:78a6%12
                                       172.31.0.1
   DHCP Server . . . . . . . . . . . : 172.31.0.1
   DHCPv6 IAID . . . . . . . . . . . : 203554827
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-20-F0-91-74-0A-A7-88-E8-1F-8C

   DNS Servers . . . . . . . . . . . : 172.31.0.2
   NetBIOS over Tcpip. . . . . . . . : EnabledNow try pinging your new node:
```

Notes:

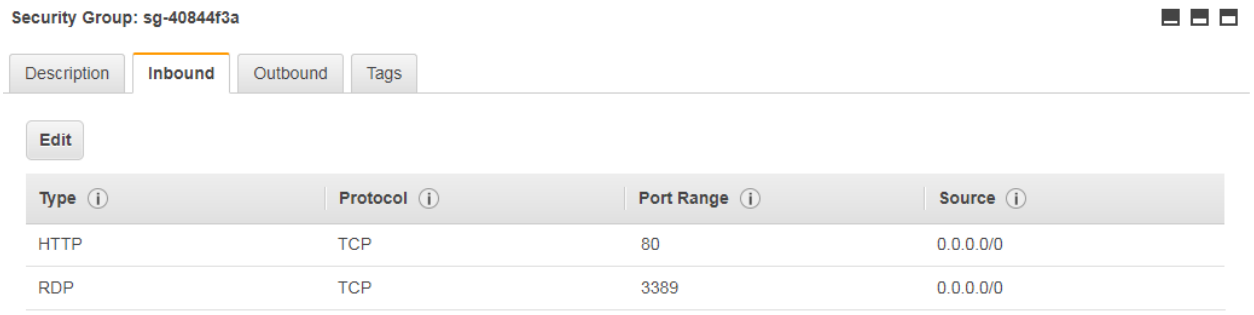
- MAC address is 0a-a7-88-E8-1F-8C
- IPv4 private address is 172.31.4.160 (assigned by AWS via DHCPv4, it will be static)
- IPv4 netmask is 255.255.240.0 (/20)
- IPv4 default gateway is 172.31.0.1 (also address of DHCPv4 server)
- IPv4 address of DNS is 172.31.0.2
- IPv6 address is 2600:1f14:611:b600::2:1 (manually configured, but obtained via DHCPv6))
- IPv6 default gateway is fe80::8b1:a0ff:fe86:78a6 (discovered via ND)
- There are currently no IPv6 addresses for DNS (to be fixed)

Firewall Rules

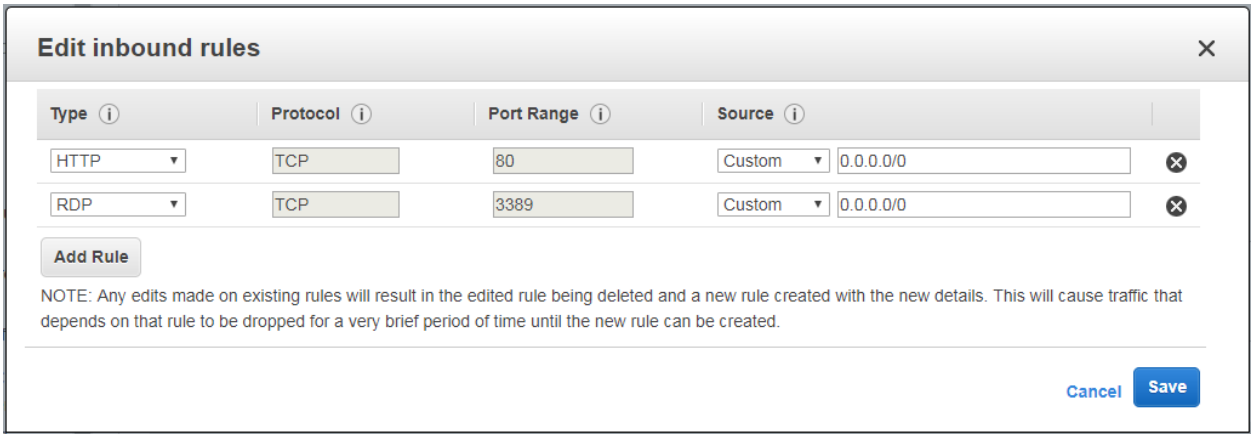
By default, a new security group (set of network access rules) has been created for you. You can think of this as a host-based firewall. Be aware that there is also a network level set of firewall rules that may also be affecting traffic to you. To view and change it, select *Security Groups*, then select only the one for the new Windows Server instance:



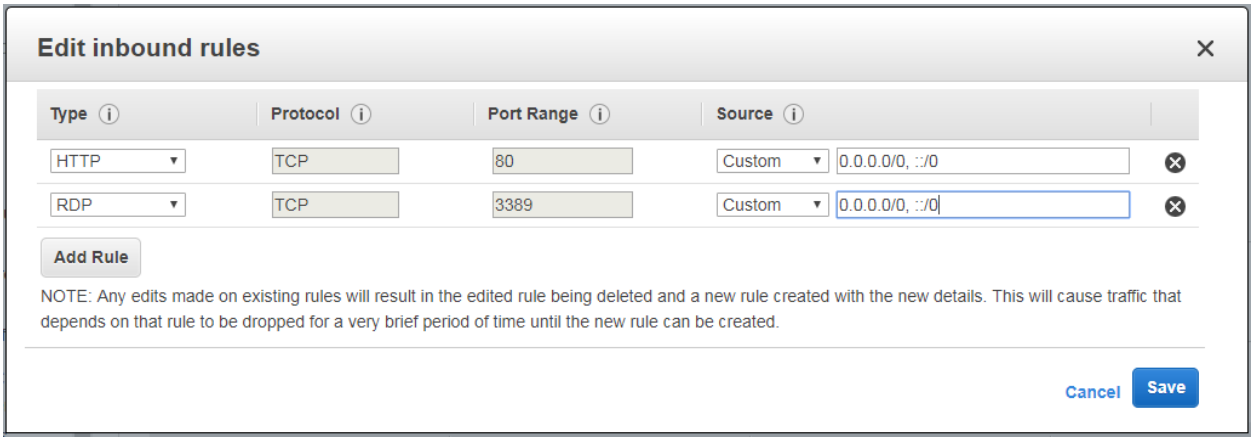
At the bottom, select *Inbound* to view the current rules:



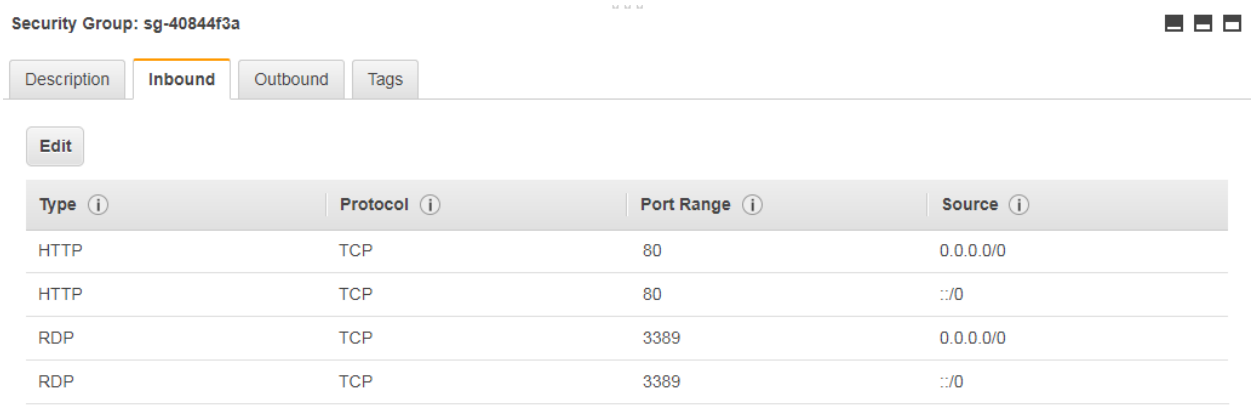
Currently it will accept HTTP on port 80 and RDP on port 3389, over IPv4. All other incoming traffic is blocked. Click *Edit*:



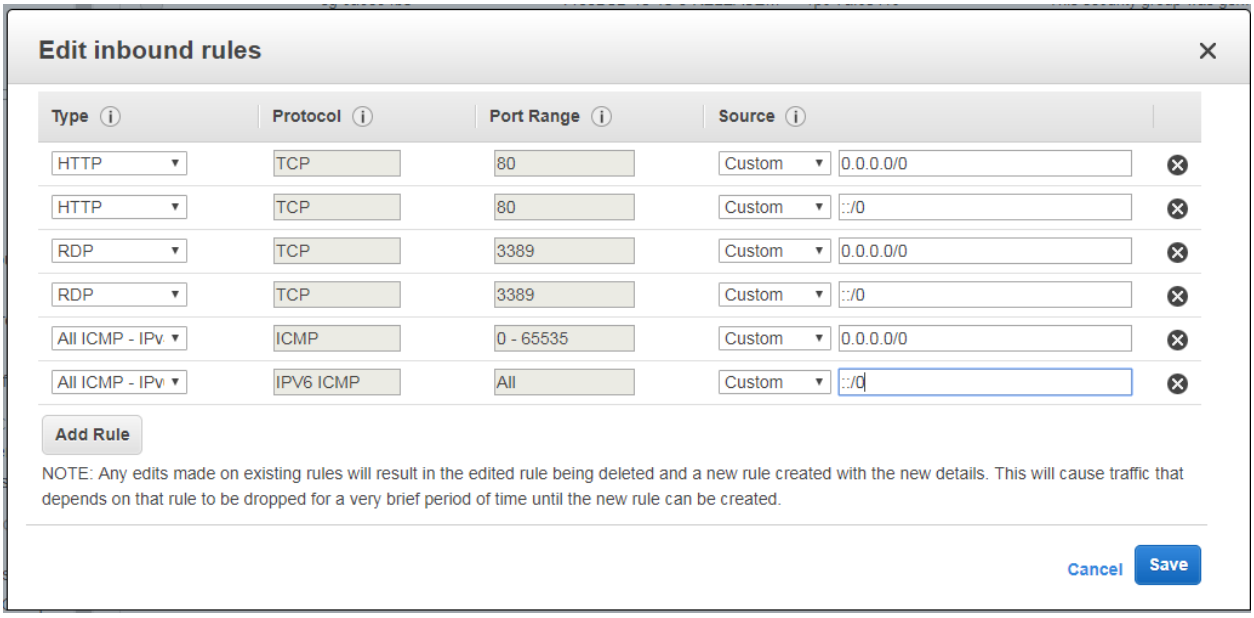
Allow HTTP and RDP on both IPv4 and IPv6. Click the box with 0.0.0.0/0 and add “, ::/0”.. Do the same for RDP:



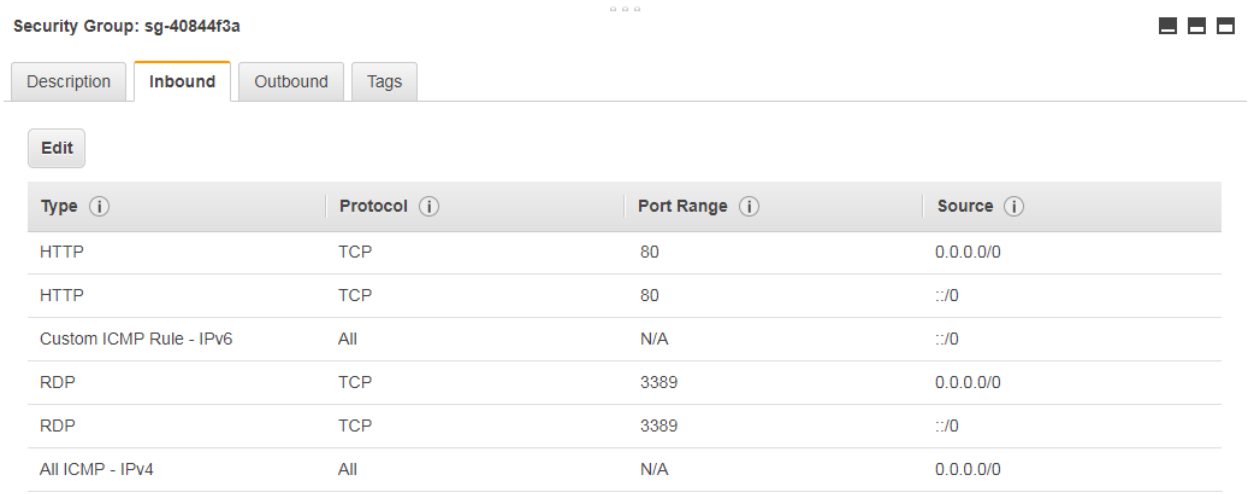
Click *Save*. The new rules appear:



Allow ICMPv4 and ICMPv6 from anywhere (this will allow your new instance to receive pings). Click *Edit*. Click *Add Rule*.



Add All ICMP-IPv4 to 0.0.0.0/0 and all ICMP-IPv6 to ::/0.Click *Save*.



Now, trying pinging the IPv4 and IPv6 global addresses from any outside node:

```
C:\Windows\system32>ping 54.186.5.103

Pinging 54.186.5.103 with 32 bytes of data:
Reply from 54.186.5.103: bytes=32 time=195ms TTL=112
Reply from 54.186.5.103: bytes=32 time=194ms TTL=112
Reply from 54.186.5.103: bytes=32 time=194ms TTL=112
Reply from 54.186.5.103: bytes=32 time=195ms TTL=112

Ping statistics for 54.186.5.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 194ms, Maximum = 195ms, Average = 194ms

C:\Windows\system32>ping 2600:1f14:611:b600::2:1

Pinging 2600:1f14:611:b600::2:1 with 32 bytes of data:
Reply from 2600:1f14:611:b600::2:1: time=226ms
Reply from 2600:1f14:611:b600::2:1: time=226ms
Reply from 2600:1f14:611:b600::2:1: time=226ms
Reply from 2600:1f14:611:b600::2:1: time=226ms

Ping statistics for 2600:1f14:611:b600::2:1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 226ms, Maximum = 226ms, Average = 226ms
```