#Create key value pair

```
C:\Users\x>aws ec2 create-key-pair --key-name IvanProject01
```

#Create key Security Group

```
C:\Users\x>aws ec2 create-security-group --group-name network-meter-sg --
description "Network Meterer SG"
{
    "GroupId": "sg-0c6332558a7fffdb0"
}

C:\Users\x>aws ec2 describe-security-groups --group-ids sg-
0c6332558a7fffdb0
{
    "SecurityGroups": [
        {
            "Description": "Network Meterer SG",
            "GroupName": "network-meter-sg",
            "IpPermissions": [],
            "OwnerId": "438590637068",
            "GroupId": "sg-0c6332558a7fffdb0",
            "IpPermissionsEgress": [
                {
                    "IpProtocol": "-1",
                    "IpRanges": [
                        {
                            "CidrIp": "0.0.0.0/0"
                        }
                    ],
                    "Ipv6Ranges": [],
                    "PrefixListIds": [],
                    "UserIdGroupPairs": []
                }
            ],
            "VpcId": "vpc-6e850f14"
        }
    ]
}
```

#Authorize security group for any IP and for 22 port (SSH) and for 3332 port (File SERVER)

```
C:\Users\x>aws ec2 authorize-security-group-ingress --group-id sg-
0c6332558a7fffdb0
db0 --protocol tcp --port 3332 --cidr 0.0.0.0/0

C:\Users\x>aws ec2 authorize-security-group-ingress --group-id sg-
0c6332558a7fffdb0
db0 --protocol tcp --port 22 --cidr 0.0.0.0/0
```

#**Launch ec2 instance with that key value pair and security group**

```
C:\Users\x>aws ec2 run-instances --image-id ami-0c6b1d09930fac512 --count 1
--instance-type t2.micro  --key-name IvanProject01 --security-group-ids sg-
0c6332558a7fffdb0
{
    "Groups": [],
    "Instances": [
        {
```

```
            "AmiLaunchIndex": 0,
            "ImageId": "ami-0c6b1d09930fac512",
            "InstanceId": "i-0b412799acbdb419d",
            "InstanceType": "t2.micro",
            "KeyName": "IvanProject01",
            "LaunchTime": "2019-06-16T16:08:43.000Z",
            "Monitoring": {
                "State": "disabled"
            },
            "Placement": {
                "AvailabilityZone": "us-east-1a",
                "GroupName": "",
                "Tenancy": "default"
            },
            "PrivateDnsName": "ip-172-31-90-85.ec2.internal",
            "PrivateIpAddress": "172.31.90.85",
            "ProductCodes": [],
            "PublicDnsName": "",
            "State": {
                "Code": 0,
                "Name": "pending"
            },
            "StateTransitionReason": "",
            "SubnetId": "subnet-ecb5f0c2",
            "VpcId": "vpc-6e850f14",
            "Architecture": "x86_64",
            "BlockDeviceMappings": [],
            "ClientToken": "",
            "EbsOptimized": false,
            "Hypervisor": "xen",
            "NetworkInterfaces": [
                {
                    "Attachment": {
                        "AttachTime": "2019-06-16T16:08:43.000Z",
                        "AttachmentId": "eni-attach-09a9fa5d46e3705f2",
                        "DeleteOnTermination": true,
                        "DeviceIndex": 0,
                        "Status": "attaching"
                    },
                    "Description": "",
                    "Groups": [
                        {
                            "GroupName": "network-meter-sg",
                            "GroupId": "sg-0c6332558a7fffdb0"
                        }
                    ],
                    "Ipv6Addresses": [],
                    "MacAddress": "12:f2:20:9b:1f:6c",
                    "NetworkInterfaceId": "eni-0e04f9dfb3f497af2",
                    "OwnerId": "438590637068",
                    "PrivateDnsName": "ip-172-31-90-85.ec2.internal",
                    "PrivateIpAddress": "172.31.90.85",
                    "PrivateIpAddresses": [
                        {
                            "Primary": true,
                            "PrivateDnsName": "ip-172-31-90-
85.ec2.internal",
                            "PrivateIpAddress": "172.31.90.85"
                        }
                    ],
                    "SourceDestCheck": true,
```

```
                    "Status": "in-use",
                    "SubnetId": "subnet-ecb5f0c2",
                    "VpcId": "vpc-6e850f14"
                }
            ],
            "RootDeviceName": "/dev/xvda",
            "RootDeviceType": "ebs",
            "SecurityGroups": [
                {
                    "GroupName": "network-meter-sg",
                    "GroupId": "sg-0c6332558a7fffdb0"
                }
            ],
            "SourceDestCheck": true,
            "StateReason": {
                "Code": "pending",
                "Message": "pending"
            },
            "VirtualizationType": "hvm",
            "CpuOptions": {
                "CoreCount": 1,
                "ThreadsPerCore": 1
            },
            "CapacityReservationSpecification": {
                "CapacityReservationPreference": "open"
            }
        }
    ],
    "OwnerId": "438590637068",
    "ReservationId": "r-05e9a3435fc87e1ad"
}
```


#Check public address for the already created ec2 instance

```
C:\Users\x>aws ec2 describe-instances --query
"Reservations[*].Instances[*].PublicDnsName" --output=text
ec2-3-85-164-207.compute-1.amazonaws.com
```

#SSH into the created ec2 instance

```
ssh -i "IvanProject01.pem" ec2-user@ec2-3-85-164-207.compute-
1.amazonaws.com
```

#Install needed environment to the ec2 instance JRE and NetwrorkMeter.jar

```
sudo yum install java-1.8.0
......

wget
https://raw.githubusercontent.com/ivanplkolev/NetworkMeter/master/NetworkMe
ter.jar

exit
```

#Create image from the already created instance with set enviroment

```
C:\Users\x>aws ec2 create-image --instance-id i-0b412799acbdb419d --name
"Networ
kMonitor" --description "Java & My Network Monitor Installed"
{
    "ImageId": "ami-006fe5dbe23f41140"
```

```
}
```

#Create second ec2 instance from the image

```
C:\Users\x>aws ec2 run-instances --image-id ami-006fe5dbe23f41140 --count 1
--instance-type t2.micro  --key-name IvanProject01 --security-group-ids sg-
0c6332558a7fffdb0
{
    "Groups": [],
    "Instances": [
        {
            "AmiLaunchIndex": 0,
            "ImageId": "ami-006fe5dbe23f41140",
            "InstanceId": "i-0e87c1940152b1da1",
            "InstanceType": "t2.micro",
            "KeyName": "IvanProject01",
            "LaunchTime": "2019-06-16T16:31:14.000Z",
            "Monitoring": {
                "State": "disabled"
            },
            "Placement": {
                "AvailabilityZone": "us-east-1a",
                "GroupName": "",
                "Tenancy": "default"
            },
            "PrivateDnsName": "ip-172-31-86-80.ec2.internal",
            "PrivateIpAddress": "172.31.86.80",
            "ProductCodes": [],
            "PublicDnsName": "",
            "State": {
                "Code": 0,
                "Name": "pending"
            },
            "StateTransitionReason": "",
            "SubnetId": "subnet-ecb5f0c2",
            "VpcId": "vpc-6e850f14",
            "Architecture": "x86_64",
            "BlockDeviceMappings": [],
            "ClientToken": "",
            "EbsOptimized": false,
            "Hypervisor": "xen",
            "NetworkInterfaces": [
                {
                    "Attachment": {
                        "AttachTime": "2019-06-16T16:31:14.000Z",
                        "AttachmentId": "eni-attach-0ab0643dd05d9000c",
                        "DeleteOnTermination": true,
                        "DeviceIndex": 0,
                        "Status": "attaching"
                    },
                    "Description": "",
                    "Groups": [
                        {
                            "GroupName": "network-meter-sg",
                            "GroupId": "sg-0c6332558a7fffdb0"
                        }
                    ],
                    "Ipv6Addresses": [],
                    "MacAddress": "12:5b:0d:4c:98:c2",
                    "NetworkInterfaceId": "eni-0e3dd78199a45a7ca",
                    "OwnerId": "438590637068",
```

```
                    "PrivateDnsName": "ip-172-31-86-80.ec2.internal",
                    "PrivateIpAddress": "172.31.86.80",
                    "PrivateIpAddresses": [
                        {
                            "Primary": true,
                            "PrivateDnsName": "ip-172-31-86-
80.ec2.internal",
                            "PrivateIpAddress": "172.31.86.80"
                        }
                    ],
                    "SourceDestCheck": true,
                    "Status": "in-use",
                    "SubnetId": "subnet-ecb5f0c2",
                    "VpcId": "vpc-6e850f14"
                }
            ],
            "RootDeviceName": "/dev/xvda",
            "RootDeviceType": "ebs",
            "SecurityGroups": [
                {
                    "GroupName": "network-meter-sg",
                    "GroupId": "sg-0c6332558a7fffdb0"
                }
            ],
            "SourceDestCheck": true,
            "StateReason": {
                "Code": "pending",
                "Message": "pending"
            },
            "VirtualizationType": "hvm",
            "CpuOptions": {
                "CoreCount": 1,
                "ThreadsPerCore": 1
            },
            "CapacityReservationSpecification": {
                "CapacityReservationPreference": "open"
            }
        }
    ],
    "OwnerId": "438590637068",
    "ReservationId": "r-0d1df57dab59f7f91"
}
```


#**Check public addresses for the both ec2 instances**

```
C:\Users\x>aws ec2 describe-instances --query
"Reservations[*].Instances[*].Publ
icDnsName" --output=text
ec2-3-85-164-207.compute-1.amazonaws.com
ec2-3-95-161-231.compute-1.amazonaws.com
```

 # Run the EC2 instances in differente terminals

```
ssh -i "IvanProject01.pem" ec2-user@ec2-3-85-164-207.compute-
1.amazonaws.com
ssh -i "IvanProject01.pem" ec2-user@ec2-3-95-161-231.compute-
1.amazonaws.com
```

 # Run the NetworkMeter.jar java -jar NetworkMeter.jar

```
 [ec2-user@ip-172-31-86-80 ~]$ java -jar NetworkMeter.jar
 Hello, what do you want to do:
 1) Check network speed
```

```
 2) Check open ports on ip
 3) Find Ips in local network
 4) Find my IP
 5) Check network speed to specific IP
 6) Check network speed to S3 Bucket
 9) Exit
 5
 Please enter IP
 ec2-3-85-164-207.compute-1.amazonaws.com
 MainThread : MainClass : main : Created file MB_1.txt
 MainThread : MainClass : main : Created file MB_10.txt
 MainThread : MainClass : main : Skipped file outZipFile.zip
 Time for transfer 1MB= 0.159s which means 6.2893085MB/s.
 Time for transfer 10MB= 0.924 which means 1.0822511MB/s.
 MainThread : MainClass : main : Skipped file outZipFile.zip
 Time for transfer zipped 0.002s +  0.153s time for zipping
 Total Time for unzipped 11MB= 1.0830001s time for zipping and
sending0.155s.
```

 # Repeat the same procedure from local machine

```
 Hello, what do you want to do:
 1) Check network speed
 2) Check open ports on ip
 3) Find Ips in local network
 4) Find my IP
 5) Check network speed to specific IP
 6) Check network speed to S3 Bucket
 9) Exit
 5
 Please enter IP
 ec2-3-85-164-207.compute-1.amazonaws.com
 Time for transfer 1MB= 16.994s which means 0.058844298MB/s.
 Time for transfer 10MB= 168.223 which means 0.0594449MB/s.
 MainThread : MainClass : main : Skipped file outZipFile.zip
 Time for transfer zipped 0.571s +  0.186s time for zipping
 Total Time for unzipped 11MB= 185.21701s time for zipping and
sending0.75699997s.
```

 # Check the speed for s3 bucket upload from local machine

```
Hello, what do you want to do:
1) Check network speed
2) Check open ports on ip
3) Find Ips in local network
4) Find my IP
5) Check network speed to specific IP
6) Check network speed to S3 Bucket
9) Exit
6
Please enter Bucket Name, or press Enter to create automatically.

MainThread : MainClass : main : Bucket fminetworkmeter662 successfully
cretaed
Time for transfer 1MB = 8.602s which means 0.116252035 MB/s.
Time for transfer 10MB = 77.211s which means 0.12951523 MB/s.
MainThread : MainClass : main : Skipped file outZipFile.zip
Time for transfer zipped 1.091s +  0.177s time for zipping
Total Time for unzipped 11MB = 85.812996s time for zipping and
sending1.268s.
MainThread : MainClass : main : Removing objects from bucket
```

```
MainThread : MainClass : main : Bucket fminetworkmeter662 successfully
deleted
```

#set the aws credentials to one of the ec2 instances and repeat s3 bucket metering

```
$ scp -i "IvanProject01.pem" C:/Users/x/.aws/credentials ec2-user@ec2-3-95-
161-231.compute-1.amazonaws.com:/.aws
```

```
[ec2-user@ip-172-31-90-85 ~]$ java -jar NetworkMeter.jar
Hello, what do you want to do:
1) Check network speed
2) Check open ports on ip
3) Find Ips in local network
4) Find my IP
5) Check network speed to specific IP
6) Check network speed to S3 Bucket
9) Exit
6
Please enter Bucket Name, or press Enter to create automatically

MainThread : MainClass : main : Bucket fminetworkmeter437 successfully
cretaed
MainThread : MainClass : main : Created file MB_1.txt
MainThread : MainClass : main : Created file MB_10.txt
MainThread : MainClass : main : Skipped file outZipFile.zip
Time for transfer 1MB = 0.34s which means 2.9411764 MB/s.
Time for transfer 10MB = 0.393s which means 25.445292 MB/s.
MainThread : MainClass : main : Skipped file outZipFile.zip
Time for transfer zipped 0.126s +  0.104s time for zipping
Total Time for unzipped 11MB = 0.73300004s time for zipping and
sending0.23s.
MainThread : MainClass : main : Removing objects from bucket
MainThread : MainClass : main : Bucket fminetworkmeter437 successfully
deleted
[ec2-user@ip-172-31-90-85 ~]$
```

Обобщение (Summary)

	Скорост за 1MB файл (MB/s)	Скорост за 10MB файл (MB/s)
Local – EC2	0.06	0.06
EC2(us-east-1a)-EC2(us-east-1a)	6.29	10.82
EC2(us-east-1a)-EC2(us-east-1c)	7.35	10.49
Local-S3	0.12	0.13
EC2-S3	2.94	25.44