Clustering the Barracuda Load Balancer ADC Instances in Amazon Web Services

This article walks you through the steps to configure the Barracuda Load Balancer ADC for high availability in Amazon Web Services. It also describes how to configure the Barracuda Load Balancer ADC to manage AWS routes for the applications.

In the high availability setup, both primary and secondary instances must be configured with minimum of two elastic network interfaces (i.e. one default interface for management path traffic and the other for data path traffic). You can deploy the instances in the same availability zone or different availability zones.

- L2 networking is not exposed in AWS, so high availability pair makes use of AWS API's to failover services from the primary unit to the secondary unit in the event of a primary unit outage.

Pre-requisites

Before deploying the Barracuda Load Balancer ADC instances in Amazon Web Services, ensure that you have completed the following:

1. Create a Virtual Private Cloud (VPC) - Refer to **Step 1. Create the Amazon VPC Cloud** in the Amazon Web Services article.
2. Add a subnet to the VPC - Refer to **Step 2. Add a Subnet to the VPC** in the Amazon Web Services article. This step is required only when you want to use different networks for the interfaces you have created.
3. Create a Security Group - Refer to **Step 1. Create a Security Group** in the Barracuda Load Balancer ADC Deployment and Quick Start Guide for Amazon Web Services article. If the instances are in a cluster, add port 8002 (TCP) and port ALL for VRRP as inbound rule in the security group to synchronize the configuration between them.
4. Create a Network Interface - Refer to **Step 2. Create a Network Interface** in the Barracuda Load Balancer ADC Deployment and Quick Start Guide for Amazon Web Services article.
5. Disable Source/Dest. Check - Refer to **Step 3. Disable Source/Dest. Check** in the Barracuda Load Balancer ADC Deployment and Quick Start Guide for Amazon Web Services article.
6. Assign Multiple Private IP Address(es) to the Network Interface of the Instance - Refer to **Step 4. (Optional) Assign Multiple Private IP Address(es) to the Network Interface of the Instance** in the Barracuda Load Balancer ADC Deployment and Quick Start Guide for Amazon Web Services article.
7. Create an IAM Role.
8. (Optional) Get the Access Keys for Your AWS Account.

Create an IAM Role

AWS Identity and Access Management (IAM) is a web service on Amazon Web Services (AWS) that enables you to manage users and user permissions to AWS resources. Using IAM, you can create a policy with the permissions to AWS resources and associate the policy with a role. When the role is associated with the instance, applications running on that instance can use the role and make AWS API calls. You can select and associate the role with the instance when launching an EC2 instance. A role can be associated with multiple instances on Amazon Web Services.

To meet the needs of the Barracuda Load Balancer ADC HA functionality, create a policy/role with the following permissions for the same availability zone and different availability zones:

IAM Policy for the Same Availability Zone

1. Ability to attach an Elastic Network Interface with an instance

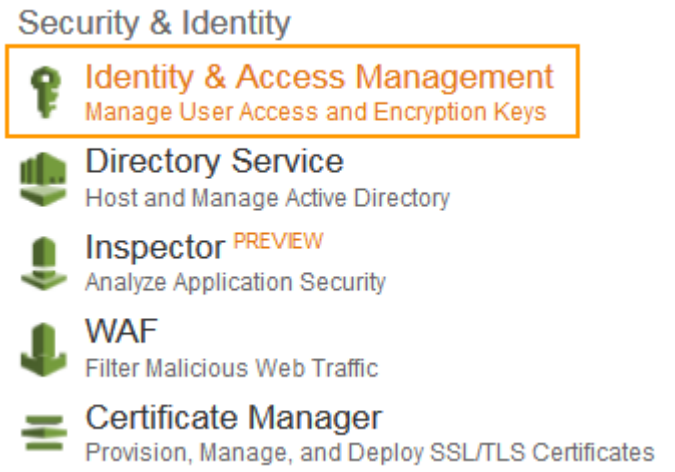
2. Ability to detach an Elastic Network Interface with an instance
3. Read-only permissions to run Amazon EC2 describe* commands
4. Ability to assign private IP addresses with an instance

IAM Policy for Different Availability Zones

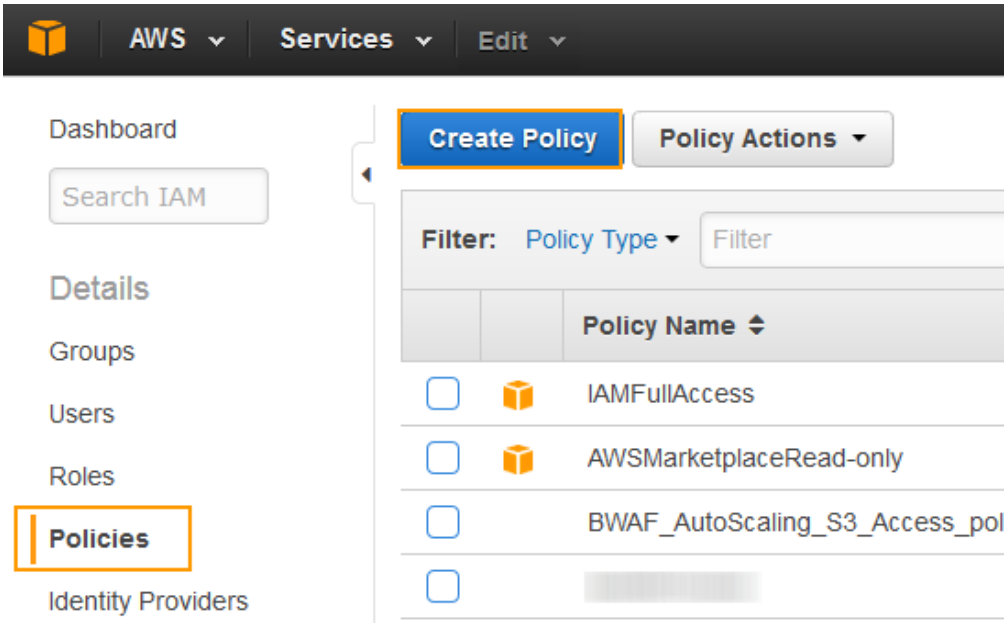
1. Ability to associate Elastic IP address
2. Ability to disassociate Elastic IP address
3. Ability to describe Elastic IP address
4. Read-only permissions to run Amazon EC2 describe* commands

Perform the following steps to create an IAM role:

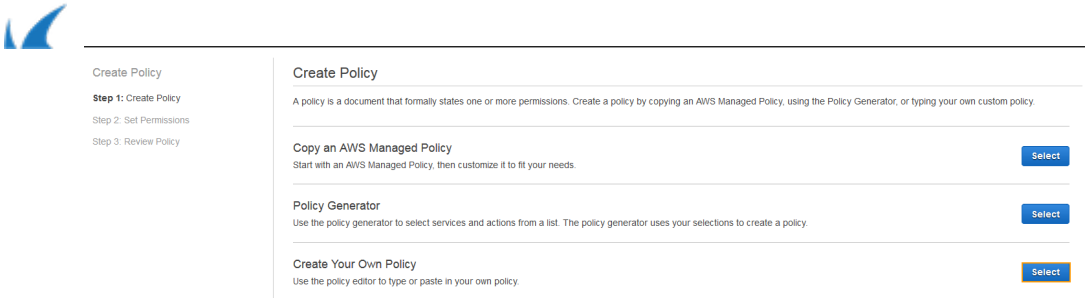
1. Go to the AWS Management Console.
2. Click **Identity & Access Management** under **Security & Identity**.



3. On the **IAM Management Console** page, click **Policies** on the left panel.
4. Click **Create Policy**.



5. On the **Step 1: Create Policy** page, click **Select** next to **Create Your Own Policy**.



6. On the **Step 3: Review Policy** page, do the following:
   1. **Policy Name**: Enter a name for the policy.
   2. **Description**: (Optional) Provide description for the policy.
   3. **Policy Document**: Define the set of permissions for the policy in the JSON format.

Policy for the Same Availability Zone

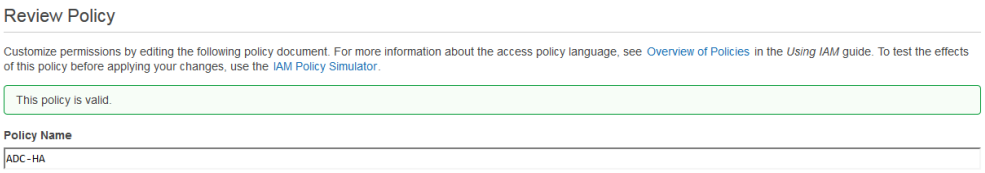
```
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "Stmt1453446578000",
         "Effect": "Allow",
         "Action": [
            "ec2:AssignPrivateIpAddresses",
            "ec2:DescribeInstances",
            "ec2:DetachNetworkInterface",
            "ec2:AttachNetworkInterface"
         ],
         "Resource": [
            "*"
         ]
      }
   ]
}
```

Policy for Different Availability Zones

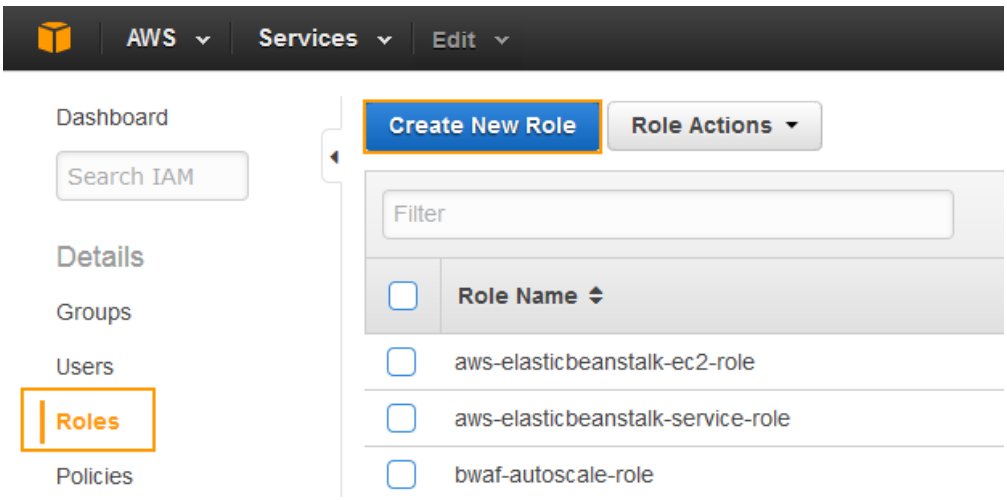
```
{
```

```
"Version": "2012-10-17",
"Statement": [
  {
    "Action": [
      "ec2:DescribeInstances",
      "ec2:DescribeAddresses",
      "ec2:AssociateAddress",
      "ec2:DisassociateAddress",
      "ec2:DescribeNetworkInterfaces",
      "ec2:DescribeNetworkInterfaceAttributes"
    ],
    "Resource": [
      "*"
    ],
    "Effect": "Allow"
  }
]
}
```

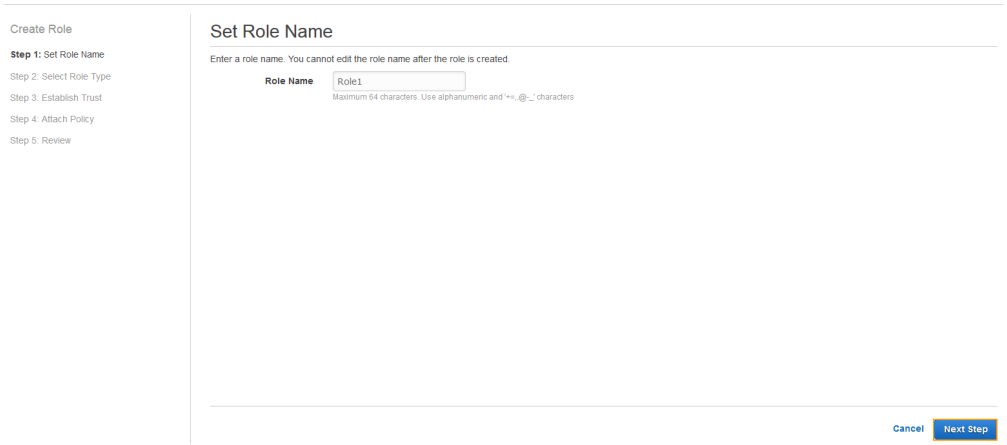
4. Click **Validate Policy** to verify that the policy is valid.
5. After the policy is validated, a status message: "**This policy is valid**" gets displayed on the screen.



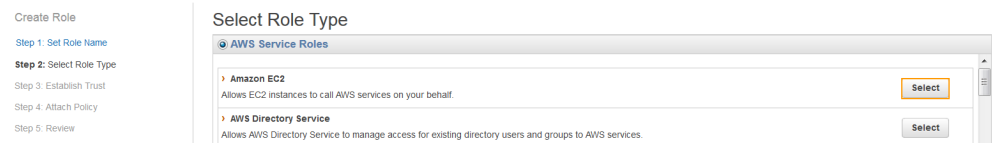
6. Click **Create Policy**.
7. The created policy appears in the policies table.
8. On the **IAM Management Console** page, click **Roles** on the left panel.
9. Click **Create New Role**.



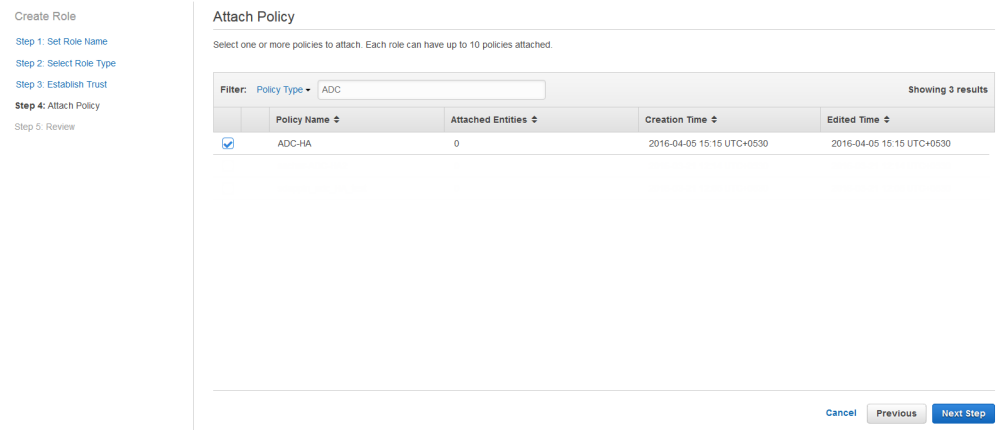
10. On the **Step 1: Set Role Name** page, specify a name for the role in the **Role Name** field and click **Next Step**.



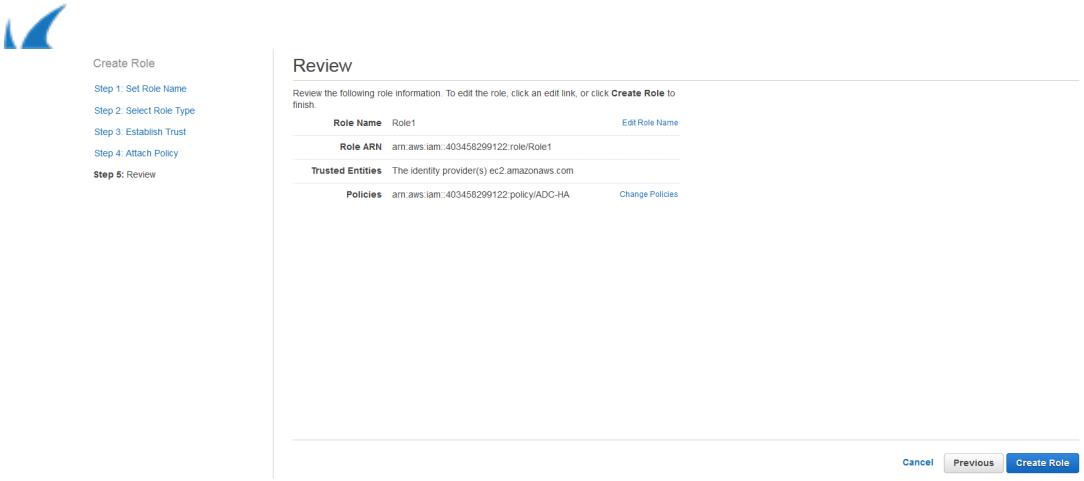
11. On the **Step 2: Select Role Type** page, click **Select** next to **Amazon EC2**.



12. On the **Step 4: Attach Policy** page, select the policy created in step **5** and **6** above and click **Next Step**.



13. On the **Step 5: Review** page, review the role information and click **Create Role**.



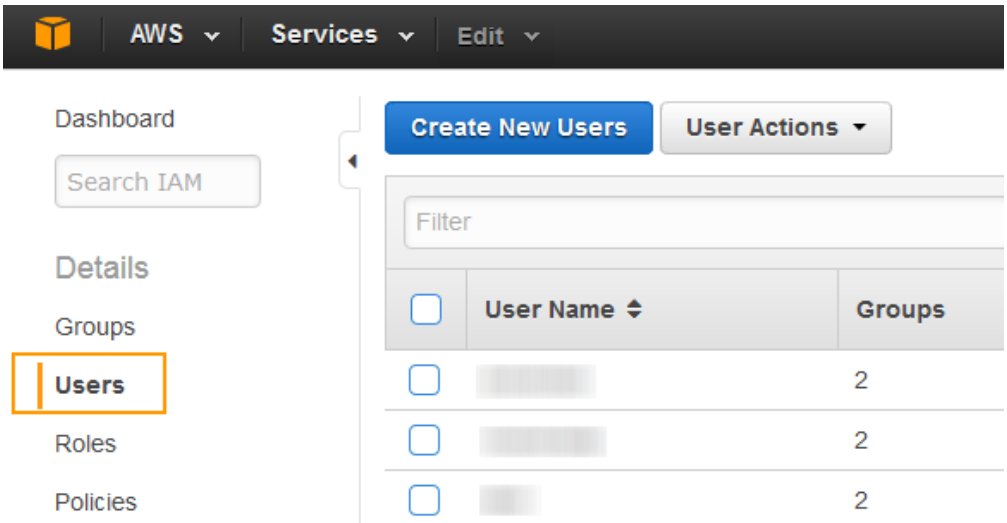
This completes the creation of an IAM role. You can associate the role when you are launching an EC2 instance on AWS.

(Optional) Get the Access Keys for Your AWS Account

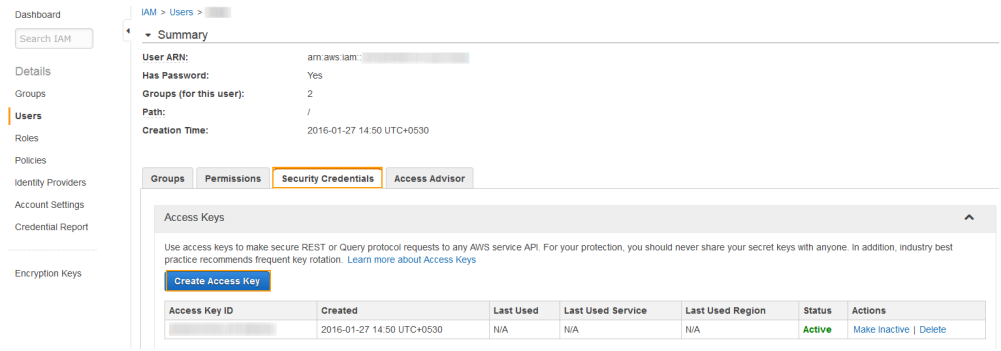
Access keys (Access Key ID and Secret Access Key) are required to perform AWS API calls. Proceed with this step if an IAM role is not defined as mentioned in Step 1: Create an IAM Role. For more information on access keys, refer to the Getting Your Access Key ID and Secret Access Key article in Amazon Web Services documentation.

Perform the following steps to get your access key ID and secret access key:

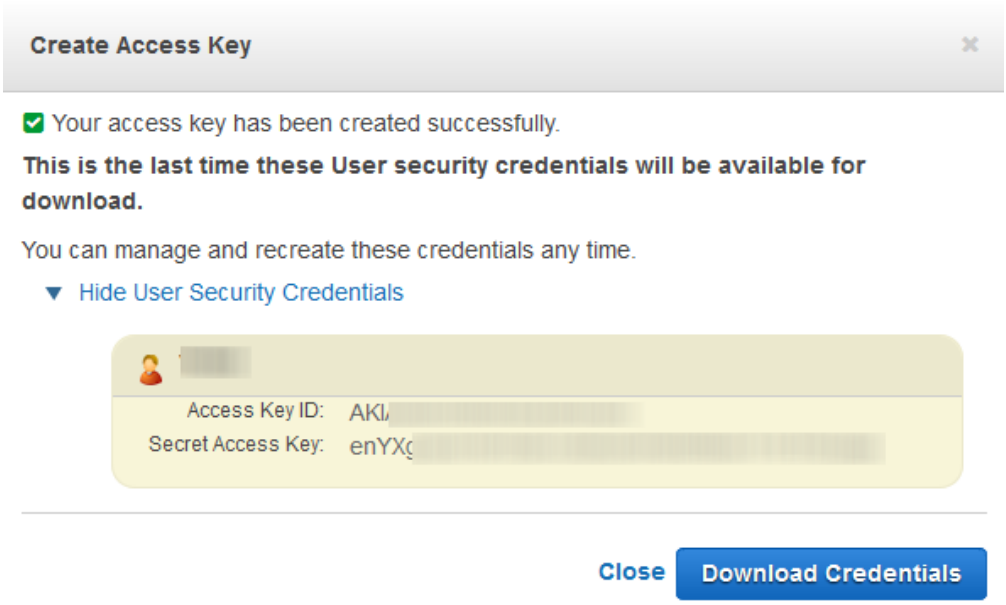
1. Go to the AWS Management Console.
2. Click **Identity & Access Management** under **Security & Identity**.
3. On the **IAM Management Console** page, click **Users** on the left panel.



4. Click on the IAM user name to which you want to get an access key ID and secret access key.
5. Select **Security Credentials** under user summary, and click **Create Access Key**.



6. The **Create Access Key** window appears with the security credentials. Click **Show User Security Credentials** to see the Access Key ID and Secret Access Key associated with the user.



7. Click **Download Credentials** and save the keys to a secure location.

The secret key will no longer be available through the AWS Management Console. Ensure that you secure your access keys to protect your account from unauthorized users. Do not email your access keys to anyone, and do not share it outside your organization even if an inquiry appears to come from AWS or Amazon.com. No one who legitimately represents Amazon will ever ask you for your secret key.

Next Step

Continue with Configuring Auto Scale Group as Back-end Servers.

Figures