

Deploying Hydra with Ansible and AWS

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How this project started . . .

We had:



We wanted:



Why Ansible?

(There are lots of deployment /
configuration managers)

Lightweight

Low barrier-to-entry

Broad audience

Easy to share

Why AWS?

(Why the cloud, even?)

Local limitations

Ubiquitous

cost-effective

responsive to growth

easy to backup, upgrade, maintain

Result:

<https://github.com/acozone/sufia-ansible>



Get started in Ansible

- Clone the codebase
- Copy `group_vars/sample_all.yml` to `group_vars/all.yml`
- Gather your AWS credentials and information

What you need on AWS

- An AWS account
- Settings on 2 services
 - IAM for user management
 - EC2 for machine management

Create an IAM group w/EC2 perms

The screenshot shows the AWS IAM Management Console interface. The browser address bar displays `https://console.aws.amazon.com/iam/home?region=us-west-2#groups`. The navigation bar includes the AWS logo, 'Services', 'Edit', and user information for 'Alicia Cozine'. The main content area is titled 'Attach Policy' and includes the instruction: 'Select one or more policies to attach. Each group can have up to 10 policies attached.'

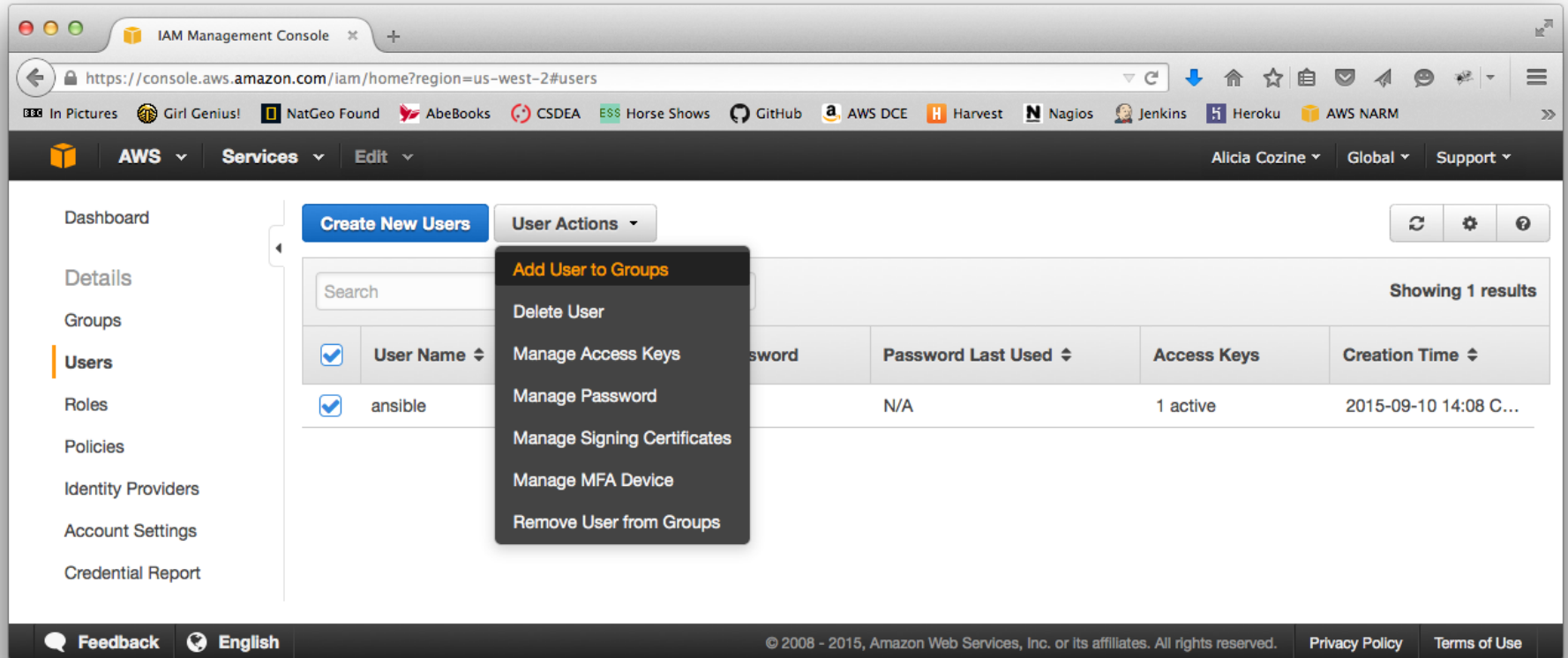
On the left, the 'Create New Group Wizard' sidebar shows three steps: 'Step 1: Group Name', 'Step 2: Attach Policy' (the current step), and 'Step 3: Review'.

The policy selection table is filtered by 'Policy Type' and shows 150 results. Two policies are visible:

| | Policy Name | Attached Entities | Creation Time | Edited Time |
|--------------------------|---------------------|-------------------|----------------------|----------------------|
| <input type="checkbox"/> | AmazonEC2FullAccess | 1 | 2015-02-06 12:40 CST | 2015-02-06 12:40 CST |
| <input type="checkbox"/> | AdministratorAccess | 0 | 2015-02-06 12:39 CST | 2015-02-06 12:39 CST |

At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Next Step'.

Create an IAM user with API creds



The screenshot displays the AWS IAM Management Console interface. The browser address bar shows the URL `https://console.aws.amazon.com/iam/home?region=us-west-2#users`. The navigation bar includes the AWS logo, 'Services', 'Edit', and user information for 'Alicia Cozine'. The left sidebar lists navigation options: Dashboard, Details, Groups, Users (selected), Roles, Policies, Identity Providers, Account Settings, and Credential Report. The main content area features a 'Create New Users' button and a 'User Actions' dropdown menu. The 'User Actions' menu is open, showing options: 'Add User to Groups', 'Delete User', 'Manage Access Keys', 'Manage Password', 'Manage Signing Certificates', 'Manage MFA Device', and 'Remove User from Groups'. Below the menu, a table lists users. One user, 'ansible', is selected with a checkbox. The table has columns for 'User Name', 'Password', 'Password Last Used', 'Access Keys', and 'Creation Time'. The 'ansible' user has 'N/A' for password, '1 active' for access keys, and a creation time of '2015-09-10 14:08 C...'. The bottom of the page contains a 'Feedback' button, 'English' language selection, and copyright information: '© 2008 - 2015, Amazon Web Services, Inc. or its affiliates. All rights reserved.' along with 'Privacy Policy' and 'Terms of Use' links.

Dashboard

Details

Groups

Users

Roles

Policies

Identity Providers

Account Settings

Credential Report

Create New Users

User Actions

Search

Showing 1 results

| <input checked="" type="checkbox"/> | User Name | Password | Password Last Used | Access Keys | Creation Time |
|-------------------------------------|-----------|----------|--------------------|-------------|-----------------------|
| <input checked="" type="checkbox"/> | ansible | N/A | N/A | 1 active | 2015-09-10 14:08 C... |

Feedback English

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Create an EC2 keypair

The screenshot shows the AWS Management Console interface. A dialog box titled "Opening alicia.pem" is open in the foreground. The dialog contains the following text:

You have chosen to open:
alicia.pem
which is: Text File
from: <https://us-west-2.console.aws.amazon.com>

What should Firefox do with this file?

Open with

Save File

Do this automatically for files like this from now on.

Buttons: Cancel, OK

The background shows the "Create Key Pair" page. The "Key Pairs" table is partially visible:

| Key pair name | Key pair type |
|---------------|------------------|
| alicia | OpenSSH key pair |
| ansit | OpenSSH key pair |

At the bottom of the console, there is a footer with "Feedback", "English", "© 2008 - 2015, Amazon Web Services, Inc. or its affiliates. All rights reserved.", "Privacy Policy", and "Terms of Use".

Create an EC2 Security Group

The screenshot shows the AWS Management Console interface for creating an EC2 Security Group. The browser address bar indicates the URL: `https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#SecurityGroups:sort=groupid`. The console header shows the user is logged in as Alicia Cozine in the Oregon region.

The left-hand navigation pane is expanded to 'Security Groups' under the 'NETWORK & SECURITY' category. The main content area shows the 'Create Security Group' page with a search filter and a table of existing security groups.

| <input type="checkbox"/> | Name | Group ID | Group Name | VPC ID | Description |
|-------------------------------------|------|-------------|------------|--------------|----------------------------|
| <input checked="" type="checkbox"/> | | sg-a5dc5ac1 | ansible | vpc-76c2b813 | hydra demo |
| <input type="checkbox"/> | | sg-d7de58b3 | default | vpc-76c2b813 | default VPC security group |

Below the table, the inbound rules for the selected security group are displayed:

| Type | Protocol | Port Range | Source |
|-------|----------|------------|-----------|
| HTTPS | TCP | 443 | 0.0.0.0/0 |
| HTTP | TCP | 80 | 0.0.0.0/0 |
| SSH | TCP | 22 | 0.0.0.0/0 |

The footer of the console includes a 'Feedback' button, the language 'English', and copyright information: © 2008 - 2015, Amazon Web Services, Inc. or its affiliates. All rights reserved. Links for 'Privacy Policy' and 'Terms of Use' are also present.

Find the right EC2 AMI ID

EC2 Management Console x Ubuntu Amazon EC2 AMI Finder x +

cloud-images.ubuntu.com/locator/ec2/

In Pictures Girl Genius! NatGeo Found AbeBooks CSDEA ESS Horse Shows GitHub AWS DCE Harvest Nagios Jenkins Heroku AWS NARM

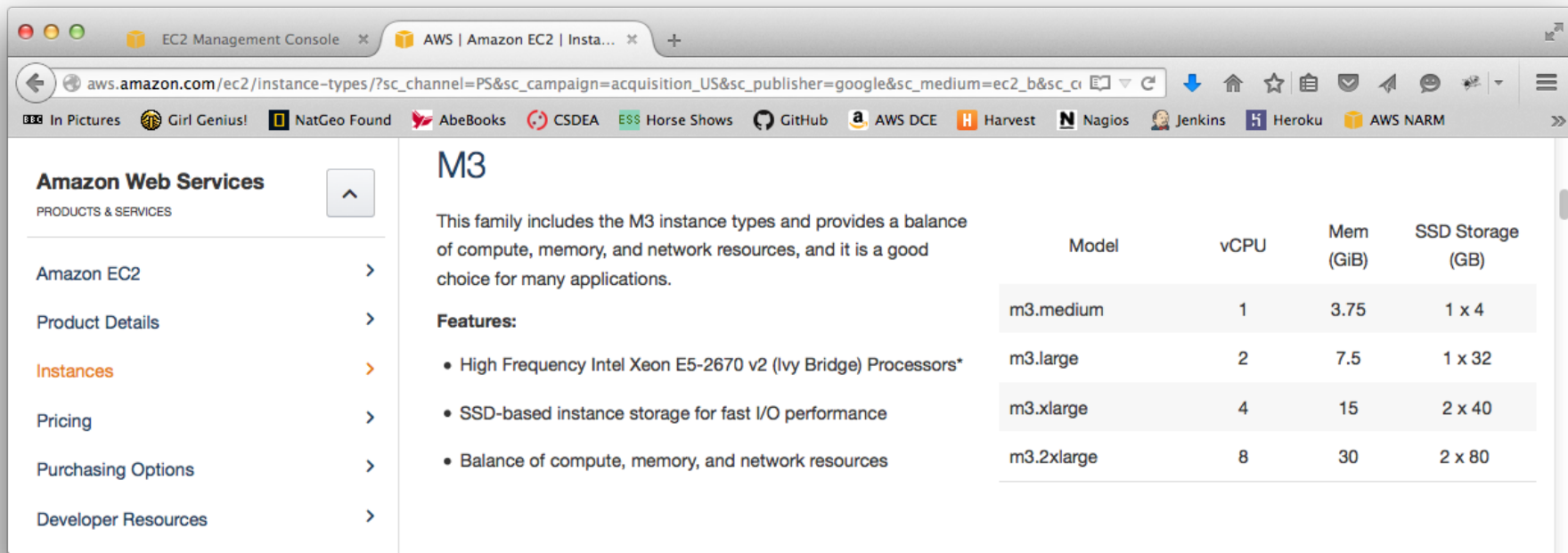
Show entries

Search:

| Zone | Name | Version | Arch | Instance Type | Release | AMI-ID | AKI-ID |
|-----------|--------|-----------|-------|---------------|----------|--------------|--------------|
| us-west-2 | trusty | 14.04 LTS | amd64 | hvm:ebs | 20150908 | ami-cf3c21ff | hvm |
| us-west-2 | trusty | 14.04 LTS | amd64 | hvm:ebs-io1 | 20150908 | ami-313f2201 | hvm |
| us-west-2 | trusty | 14.04 LTS | amd64 | hvm:ebs-ssd | 20150908 | ami-333f2203 | hvm |
| us-west-2 | trusty | 14.04 LTS | amd64 | ebs | 20150908 | ami-c53c21f5 | aki-fc8f11cc |
| us-west-2 | trusty | 14.04 LTS | amd64 | ebs-io1 | 20150908 | ami-c93c21f9 | aki-fc8f11cc |
| us-west-2 | trusty | 14.04 LTS | amd64 | ebs-ssd | 20150908 | ami-cd3c21fd | aki-fc8f11cc |

Showing 1 to 6 of 6 entries (filtered from 957 total entries)

Find the right EC2 instance type



Amazon Web Services
PRODUCTS & SERVICES

- Amazon EC2 >
- Product Details >
- Instances** >
- Pricing >
- Purchasing Options >
- Developer Resources >

M3

This family includes the M3 instance types and provides a balance of compute, memory, and network resources, and it is a good choice for many applications.

Features:

- High Frequency Intel Xeon E5-2670 v2 (Ivy Bridge) Processors*
- SSD-based instance storage for fast I/O performance
- Balance of compute, memory, and network resources

| Model | vCPU | Mem (GiB) | SSD Storage (GB) |
|------------|------|-----------|------------------|
| m3.medium | 1 | 3.75 | 1 x 4 |
| m3.large | 2 | 7.5 | 1 x 32 |
| m3.xlarge | 4 | 15 | 2 x 40 |
| m3.2xlarge | 8 | 30 | 2 x 80 |

Edit group_vars/ all

```
---
# used in ec2 role
backup_access_key: AKIAJ462HCFCPJSOS7MA
backup_secret_key: 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
backup_name: HydraConnectBackup
# used in launch_ec2 role
ec2_region: us-west-2
ec2_zone: us-west-2b
ec2_instance_type: t1.micro
ec2_image: ami-c53c21f5
ec2_key: ansible
ec2_access_key: AKIAJ462HCFCPJSOS7MA
ec2_secret_key: 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
ec2_security_group: sg-a5dc5ac1
# used in housekeeping role
keys_to_add:
- https://github.com/acozone.keys
```

Line: 17 Column: 34 Plain Text Tab Size: 4



And run the playbook

```
$ ansible-playbook -i hosts ec2.yml --  
private_key=/path/to/private/half/of/keypair --  
ask-vault-pass
```

Ansible with Vagrant

prod - identical, for
systems testing
dev - similar, easy to
use



Future Work

- Handle code deployment with Ansible
- Add tests to the Ansible playbook
- Use dynamic inventory