



# UK Location Programme

Location Information Interoperability Board

Data Publisher – How To Guide

Setting up an Amazon Cloud Machine Image

## DOCUMENT CONTROL

### Change Summary

Version	Date	Author/Editor	Change Summary
1.0	22 Dec 2010	Philippe Brossier	Initial Version

### References

Ref.	Title/Version/Publication Date/Author
[1]	Reference Implementation / Version 3 / 20 <sup>th</sup> December 2010 / Andrew Radburn

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## 1 AMAZON MACHINE IMAGE BUILD INSTRUCTIONS

This document describes the building of an Amazon Machine Image ready to be used to implement an Inspire View Service using the Open Source software GeoServer and PostGIS. The AMI ID hereby produced is ami-bda491c9 and is publicly accessible in the eu-west-1 region.

## 2 SYSTEM REQUIREMENTS

These are the hardware and software specifications used to build the Amazon Machine Image.

### 2.1 Hardware

- An Amazon EC2 Machine Image running Ubuntu 10.04 LTS Server.  
Large Instance  
64-bit platform  
I/O Performance: High  
API name: m1.large
- Laptop / desktop computer
- Internet connection between the two

### 2.2 Software

- Ubuntu 10.04 LTS
- Sun Java Runtime Environment 64 bit server VM 1.6.0\_22
- Java Advanced Imaging 1.1.3
- JAI ImageIO Tools 1.1
- Tomcat Servlet Container 6.0.24
- Apache Web Server 2.2.14
- GeoServer 2.0.2
- PostgreSQL 8.4.5
- PostGIS 1.4.0-2
- GDAL 1.6.3
- Putty 0.60
- Web browser (Firefox 3.6.10)

### 3 SKILLS AND RESOURCES

The skills and knowledge required were

- Amazon Elastic Compute Cloud
- Ubuntu Linux administration
- Using a command line via SSH

## 4 STEPS TAKEN

### 4.1 Create a Ubuntu instance

#### Prerequisites:

- Obtain an Amazon EC2 account at <http://aws.amazon.com/ec2/> .
- Create an SSH Key Pair: instructions are available at <http://cdn.anvilon.com/20100220-scale/scale8x-steps.pdf>

Start by obtaining the AMI reference number for Ubuntu from the Alestic home page at <http://alestic.com/> . For the purpose of this document, the image selected was for the eu-west-1 region. And the release was Ubuntu 10.04 LTS Lucid EBS boot. The Publisher was Canonical. The User was ubuntu@ . The server chosen was 64-bit. At the time the AMI reference number was ami-f6340182, however this may be superceeded by a newer version when patches are applied (see the Alestic web site).

If you do not already have Mozilla Firefox, please install it now. Then, install the Elasticfox Firefox Extension for Amazon EC2 from [http://aws.amazon.com/developertools/609?\\_encoding=UTF8&jiveRedirect=1](http://aws.amazon.com/developertools/609?_encoding=UTF8&jiveRedirect=1). You can now open Firefox and under the Tools menu, select Elasticfox. You will be asked for your Amazon EC2 credentials: Amazon "account number", Amazon "Access Key ID" and Amazon "Secret Access Key".

Now, you can select the Region eu-west-1 and the Images tab. In the field box under 'Images', type in: ami-f6340182 and then click the 'Launch Instance(s)' button. In the popup window, use the default values except for:

- Instance Type: m1.large
- New Instance(s) Tag: give a description for your instance
- KeyPair: choose the keypair your created as part of the prerequisites
- Availabilty Zone: eu-west-1a (available)

Then click the 'Launch' button.

At the time, it created instance i-98fafeef with:

- public DNS name: ec2-79-125-95-215.eu-west-1.compute.amazonaws.com
- private DNS name is: ip-10-224-41-155.eu-west-1.compute.internal

Note on how to start/stop your instance:

- Open Mozilla Firefox, Tools menu and select Elasticfox
- Select the instances tab and in the box below 'Your instances' type in: i-98fafeef
- Right-click your instance line and you will see the options Start/Stop.

## 4.2 Configure your Ubuntu instance

Follow the document Reference Implementation written by Andrew Radburn and more specifically the section STEPS TAKEN.

## 4.3 Make an AMI

Now that your instance i-98fafeef is fully configured, you can make an Amazon Machine Image out of it. Open Mozilla Firefox and select Elasticfox under the Tools menu. Select the instances tab and in the box below 'Your instances' type in: i-98fafeef. Right-click your instance line and select the option Create Image (EBS AMI). Give it a relevant AMI name, an AMI description and leave the tickbox 'Snapshot without rebooting instance' unticked and click on OK. A popup window will appear saying: A new EBS-backed AMI is being created and will be available in a moment. The AMI ID is: ami-bda491c9.

After a while, click the Images tab in Elasticfox and in the box below 'Instances' type in: ami-bda491c9. You should see your AMI with a state of available.

## 4.4 Testing your AMI

**Start by creating an instance of it.**

In Elasticfox, select the AMI created at 4.3 then click the 'Launch Instance(s)' button.

In the popup window, use the default values except for

- Instance Type: m1.large
- New Instance(s) Tag: your own description
- KeyPair: choose the keypair created at 4.1
- Availability Zone: eu-west-1a (available)

Then click the 'Launch' button.

At the time, it reused my instance i-98fafeef as this instance had been used to build the AMI and had been untouched since.

**Now, you can load data** into your GeoServer's instance. For the purpose of this document, we used some vector data which comes with the GeoServer initial install, ie tiger\_roads shape file found under /var/lib/tomcat6/webapps/geoserver/data/data/nyc.

The first step is to create a new data directory. You can follow instructions at <http://docs.geoserver.org/stable/en/user/datadirectory/data-dir-creating.html> . In our implementation, we used Putty to connect to our instance of the AMI and issued the following commands:

```
cd /home/ubuntu
```



```
mkdir geoserverdata
```

```
cp -r /var/lib/tomcat6/webapps/geoserver/data/* /home/ubuntu/geoserverdata
```

The second step is to set the Data Directory. You can follow instructions at <http://docs.geoserver.org/stable/en/user/datadirectory/data-dir-setting.html#data-dir-setting>. In our implementation, we issued the following commands:

```
cd into /var/lib/tomcat6/webapps/geoserver/WEB-INF
```

```
sudo vi web.xml and set GEOSERVER_DATA_DIR to /home/ubuntu/geoserverdata
```

The third step is to create a new workspace. Log into the GeoServer web interface (<http://ec2-79-125-95-215.eu-west-1.compute.amazonaws.com/geoserver/web/>) and Workspaces under Data. Click on the link Add new workspace. In our implementation, we used Name = testinspire and Namespace URI = <http://opengeo.org/testinspire> and pressed submit.

The fourth step is to create a new store. Under Data, select Stores and then Add new Store. As you want to load a shapefile, select Shapefile - ESRI(tm) Shapefiles (\*.shp) in the Vector Data Sources section. Choose testinspire for the Workspace. Type in NYC Vector for both Data Source Name and Description. Keep the enabled checkbox ticked. Type in /home/ubuntu/geoserverdata/data/nyc for URL. Keep the rest of the page as default and click on Save. On the next screen, click on the Publish link for tiger\_roads.

The final step is to configure the resource and publishing information for the current layer. Keep everything as default except:

- set Declared SRS as EPSG:4258
- click on the Compute from data link
- click on the Compute from native bounds link
- now click on the Publishing tab and on the Save button

At this stage, you are able to preview the added layer by going to the Layer Preview section and clicking the OpenLayers link for the layer testinspire:tiger\_roads. A road network image will appear and confirm that the tiger\_roads shape file was added correctly to your GeoServer.

## **4.5 Multi machine behind a load balancer**

If your system requires multi machines behind a load balancer, please follow instructions provided at <http://aws.amazon.com/elasticloadbalancing/> .

## **4.6 Advice on security issues for Amazon Machine Images**

To gain an overview of Amazon Web Services Security, a good starting point is the page available at <http://aws.amazon.com/security/> .