Implementing AppFog

An effective, hands-on guide on deploying applications to the cloud using the AppFog service

Matthew Nohr   Isaac Rabinovitch

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Matthew Nohr is a software developer with over ten years of experience in creating large scale applications. He has worked on a range of projects from enterprise Java desktop applications to commercial Java server-based products to cloud-based Groovy/Grails services. Matthew is a certified Scrum Master and has a Masters degree in Software Engineering.

> I'd like to thank my wife Katie for supporting me though yet another one of my diversions.

Isaac Rabinovitch is a freelance technical writer in Portland, Oregon. He's worked with computers since the days they filled whole rooms and had hundreds of blinking lights. He's written documentation for programmers, system administrators, data center personnel, and ordinary people. His former employees include Sun, SGI, Borland, and Zilog. He's the co-author of the *Java Tutorial, 4th edition*. Read more about him at `picknit.com`.

> I want to thank many folks at Portland hackathons, meetups, and other venues for their help and support. Their spirit is something that makes PDX is a great place to work on technology.

About the Reviewers

Ngo The Hung is a passionate software developer who loves open source technologies and frameworks. He is not afraid to get his hands dirty and his feet wet, he is open to most technologies as long as they are useful and fun. He also has experience in mobile development and web technologies, he has worked with multiple mobile platforms (Android/iPhone/Windows 8), open source portals, frameworks, and content management systems. In his free time, he reads manga and watches movies.

If you love to work with him or just have a talk, visit him at `http://ngo-hung.com` or drop him a note at `thehung111@gmail.com`.

Abhilash Nanda has completed a Masters in CSE from IIT Hyderabad. He has two years experience in commercial development and a total of five years in programming. Currently he works as a software developer at TopTalent.in. He loves to learn new technologies and programming patterns that reduce human effort.

An enthusiastic programmer, writer, and thinker. When strolling alone, he thinks about the world or else about some architecture to be implemented. He loves to play cricket and has a heartfelt connection to novels and poetry.

> I would like to thank every single person who has come into and out of my life, for the way they have shaped me into who I am.

Tom O'Connor is an experienced systems architect and DevOps engineer, living in the West Midlands in the United Kingdom. Over the last eight years, he has worked in a wide variety of companies, from e-commerce, to video effects, and now owns his own company providing systems consultancy for wireless network design and installations.

Tom writes a technical blog on his website, providing both tutorial articles, and updates on what he's been working on. He has wide reaching skills and experience gathered over the last ten years, having worked on Windows, Linux, and Unix systems for most of that time, coupled with recent experience in designing and building high-performance computer systems.

He is also an active member of the UK DevOps community, as well as a Community Moderator on `ServerFault.com`, where he demonstrates his expertise and skills to a wide audience.

Tom also worked on reviewing *Learning AWS OpsWorks*, which was published in September 2013.

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Preface

AppFog is a cloud-based solution that allows users to quickly build and deploy applications without having to handle server configuration and setup. This book is intended to help you to quickly get started using AppFog and learn to create and deploy applications to the AppFog cloud.

What this book covers

Chapter 1, *Getting Started With AppFog*, creates an account with AppFog and gets your first application running.

Chapter 2, *Using the Command-line Tool*, installs and uses the command line tool to download an application from AppFog, then modifies and uploads it back to the cloud.

Chapter 3, *Using Databases*, uses AppFog's backend services to create a data store for your application.

Chapter 4, *Creating an Application From Scratch*, creates an application using only the command line tools and gets it running in the cloud.

Chapter 5, *Command-line Reference*, helps you learn about the many command line tools available.

Appendix, *Installing the AppFog Gem*, helps you install the Ruby Gem to be able to use the command line tools.

What you need for this book

The examples in the book are written in Ruby and HTML. To follow along you will need to have Ruby running on your computer. You will have to install the AppFog Ruby Gem, which is explained in the book.

Who this book is for

This book is aimed at anyone who wants to deploy applications to the cloud using AppFog. It is written mainly for developers who are writing their own applications to deploy.

Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.

A block of code is set as follows:

```
require 'sinatra'

get '/' do
  "Inside AppFog"
end
```

Any command-line input or output is written as follows:

```
$ af pull insideaf1
```

> Warnings or important notes appear in a box like this.

> Tips and tricks appear like this.

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Getting Started with AppFog

<div style="text-align: right; font-size: xx-large;">**1**</div>

You can create an AppFog account and have your first application up and running in minutes. This chapter shows you how to perform this, and also demonstrates some of the features of the application control panel.

> You can create and deploy several applications using AppFog's free service level, which allows you to use up to 2 GB of RAM. You can use the free service level without supplying a credit card number. Some advanced features, such as use of external domain names, SSL, and team access, are only available to the paid users.

About AppFog

AppFog is a platform that you can use to host and deploy your applications to the cloud. You can write applications in Java, Node.js, Ruby, Python, or PHP and it also has built-in support for MySQL, PostgreSQL, MongoDB, Redis, and RabbitMQ. Applications and their services can all be configured from a simple dashboard in a matter of minutes. AppFog also provides scalable architectures with load balancing so as your applications grow, you can easily increase the number of instances you have running.
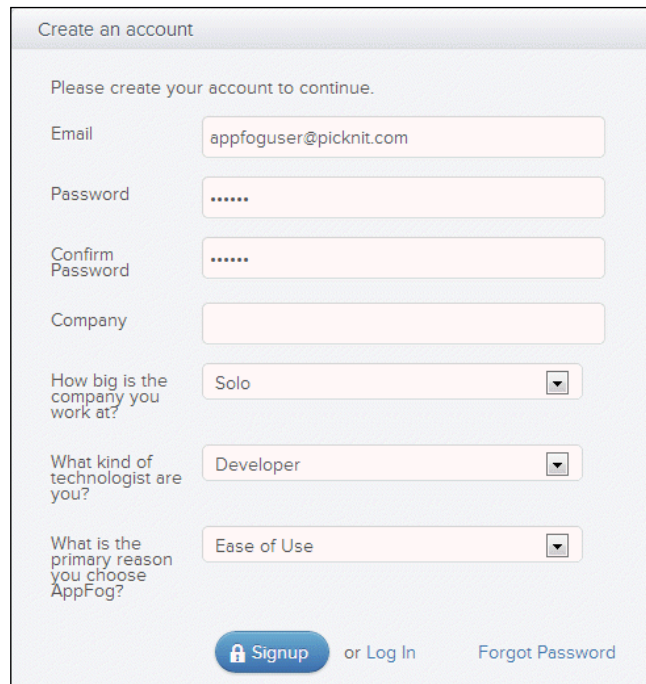
There are free and paid plans. The paid plans currently start at $20 and go up from there depending on how much memory, storage, and instances you need. There are also enterprise level plans for larger businesses.

One of the main benefits of using AppFog is that it reduces the amount of time you need to spend on configuring servers, installing and configuring firewalls and security, and managing load balancers.

Creating an account

Create an AppFog account using the following steps:

1. Go to `www.appfog.com` and click on **Sign Up**.

2. The **Create an account** form appears. Fill it in and click on **Signup**.

3. After clicking on **Signup**, you will need to verify your e-mail. Once activated, you will be taken to your profile page.

4. On your profile page, click on **Create App**. This will take you to the new apps page. We will cover this page in the next section.

Creating and deploying a preconfigured application

The new apps page helps you create and deploy a preconfigured application. Applications can be in one of several programming languages, including Ruby, Python, Java, PHP, and Node.js. These languages can be used with various application frameworks and backend services. In this chapter, you will create and deploy a basic "Hello World" application written in the Ruby programming language and utilizing the Sinatra application framework. No knowledge of Ruby or Sinatra is needed for this initial step.

1. Go to the New Apps page. If you've just created your account, you will go to the profile page and can then click on **New App**. Otherwise, go to `console.appfog.com` and click on **create app**.

2. Choose an application platform. The first section of the **New Apps** page is a list of platforms labeled **Step 1: Choose an application**. Your first application will run on Ruby and Sinatra, so click that icon.

3. Choose an infrastructure. This is the cloud hosting provider that will run your application. For this simple application, you can choose any infrastructure that supports Ruby. You will see a red exclamation mark on any infrastructures that do not support your selected application. Have look at the following screenshot for reference:
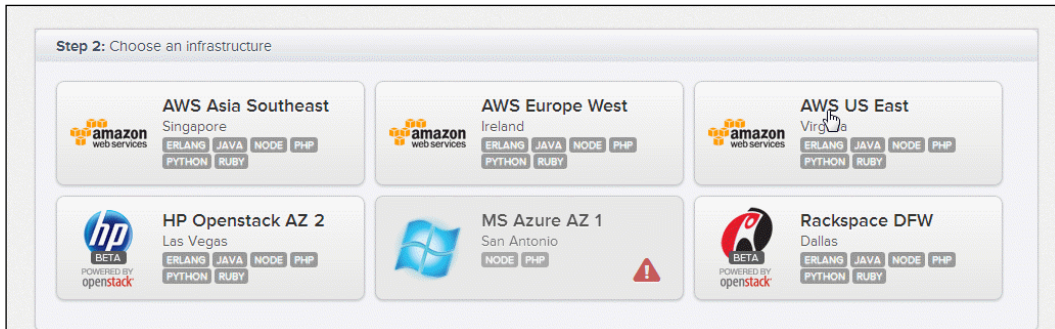
Buttons for infrastructures that support Ruby have **RUBY** in a white-on-gray rectangle. Infrastructures that do not support Ruby will have a red exclamation mark.
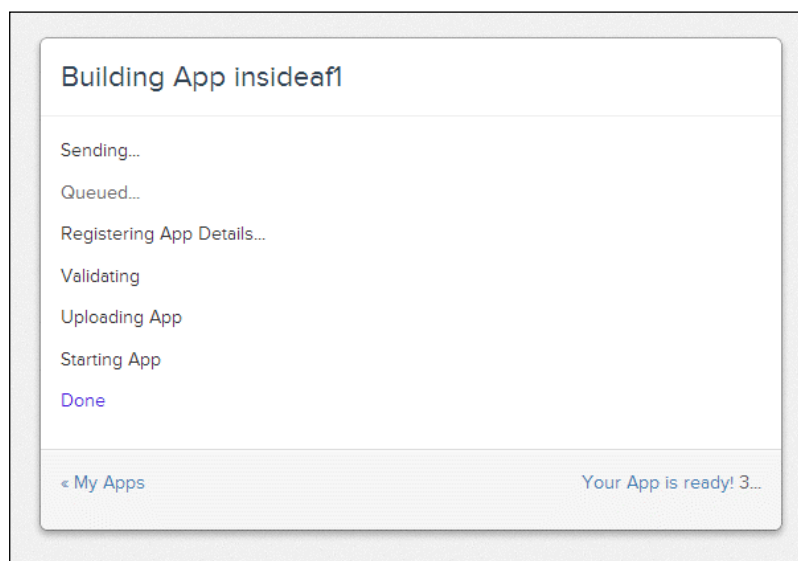
4. Choose an application name. This name will form part of a URL you can use to access your application in a Web browser. Click on **Create App**, as in the following screenshot:
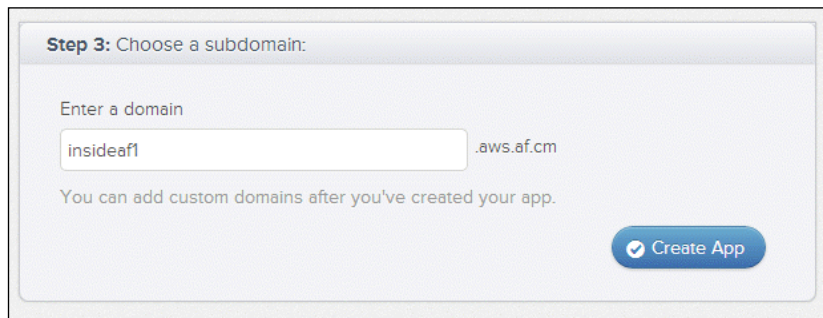
- The web form refers to the application name as a "domain" or a "subdomain" because it's part of a web site URL. You'll mainly use this name to identity the application to the command-line tool, so this book calls it the "application name".
- You can assign additional domain names to the application after you deploy it.

5. After you click on **Create App**, you go to a page that describes the progress of the application towards creation, staging, and running. Once it is running, you can click on the **Your App is ready** link to see it:

Building App insideaf1

Sending...

Queued...

Registering App Details...

Validating

Uploading App

Starting App

Done

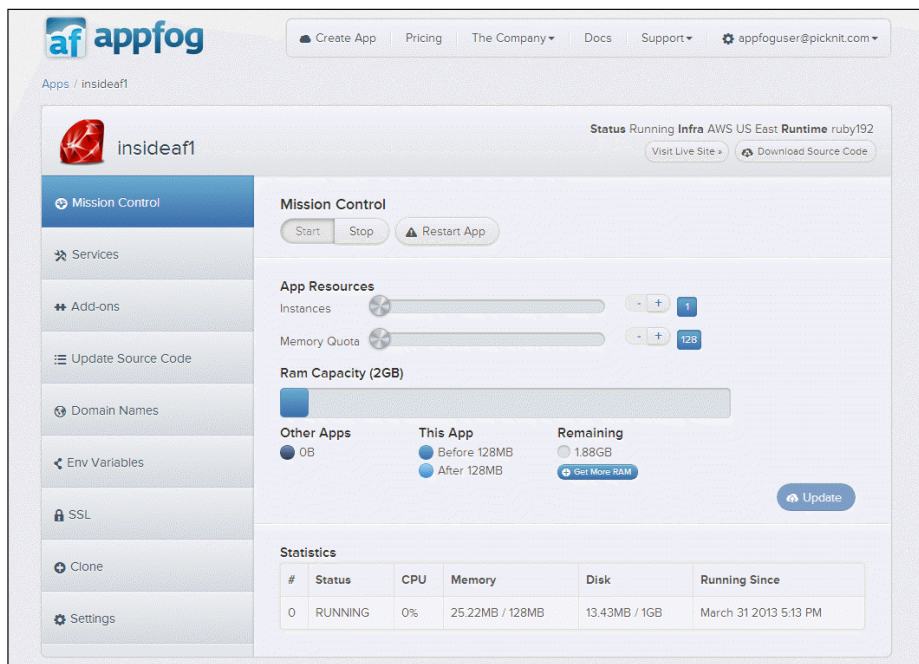« My Apps   Your App is ready! 3...

Using the application control panel

After you create an application, its control panel appears automatically. To access it otherwise perform the following steps:

1. Go to `console.appfog.com`. A list of applications appears:
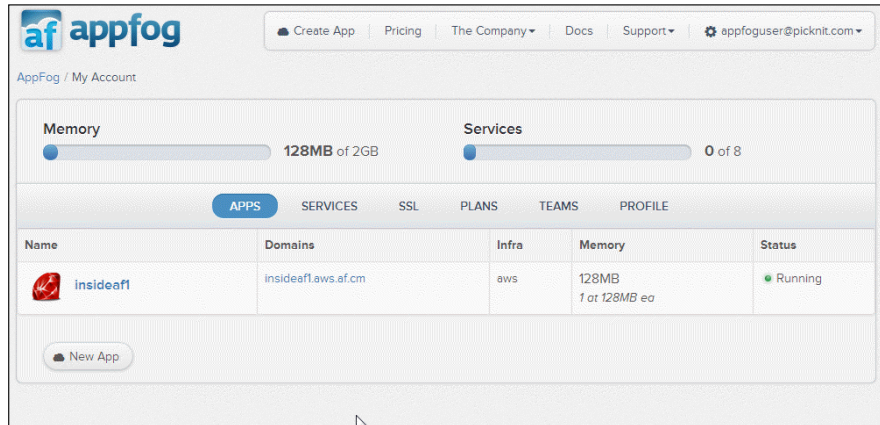
2. Click on the application name in the left column. The application control panel appears:

This console has many features, which we will explore in later chapters. For now, let's focus on just two features, which are listed in the following bullet list:

- If you click on the **Visit Live Site** button (upper-right), you go to your application, which is already running.
- If you click on **Domain Names** (left-side) you can assign additional domain names for application access. To support external domain names (such as mysite.com), you must upgrade your AppFog account to a paid level. The domain name itself is managed by a registrar, which is separate from AppFog.

> To create a domain name, visit the website for a domain name registrar. You will need the A Record and CNAME Record data for the infrastructure you are using. This data is available on AppFog domain names screen. You can read AppFog help guide on custom domain names for more details.

Summary

In this chapter we learned how to:

- Create an AppFog account
- Create a preconfigured AppFog application
- Deploy the application and see it running
- Use AppFog control panel

In *Chapter 2*, *Using the Command-line Tool*, we are going to use AppFog command-line tool to download the application we created here, update it, and then redeploy it to AppFog.

2
Using the Command-line Tool

In this chapter, we'll learn how to install and use the AppFog command-line tool. We'll use this tool to download the application we created in first chapter. We'll run this application locally, modify it, test it, and send it back to the cloud infrastructure.

When you complete this chapter, you'll understand the complete AppFog application lifecycle.

Installing the AppFog Gem

The AppFog command-line tool is packaged as a Ruby software package, known as a "Gem". If you are already using Ruby, simply install the Gem named `af`.

If you're not familiar with Ruby, refer to *Appendix A*, which contains instructions for installing Ruby and the AppFog Gem on common platforms.

To verify that the Gem is installed, enter the following command:

```
$ af version
af 0.3.16.5
```

You will see `af` followed by your version number. See *Chapter 5*, *Command-line Reference* for details on all the command-line options.

Logging in

Before you can access cloud resources, you have to log in by entering the following command:

```
$ af login
```

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