

NewsAnalyst App Overview

Introduction

In this lab we will explore a larger app that makes use of multiple services both internal and external to Bluemix. We will also learn how deploy applications to Bluemix using the command line tools.

Resources

Lab Code on GitHub

<https://github.com/WatsonDevCloud/NewsAnalyst>

Lab App

<http://newsanalyst.mybluemix.net/>

Lab App REST API

<http://newsanalyst.mybluemix.net/api/news>

<http://newsanalyst.mybluemix.net/api/news?lat=34.5794343&lng=-118.1164613>

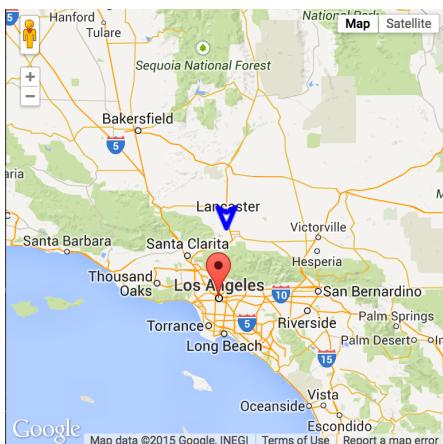
Exploring the NewsAnalyst App

The strength of Watson is when it is coupled with other services. The NewsAnalyst app uses the following services:

- Watson Relationship Extraction Service
- Memcached Service
- Google Geolocation Service
- Google Maps Service
- AP and Reuters RSS News Feeds

An instance of the app is running at <http://newsanalyst.mybluemix.net/>. Open the link in your browser.

A map of your current location and nearby news stories is displayed. The pins on the map represent the locations of the news item. If you hover over the pins the title of the article and any people or organizations, extracted from the summary description of the article, are displayed. The closest news article is displayed on the right hand side. Clicking on the different pins displays the article related to that location. Finally, a summary of all entities and relations, extracted from the summary description of the article, are displayed below the map.



Map data ©2015 Google, INEGI | Terms of Use | Report a map error

ENTITIES

LOS ANGELES	PLACE, PROPER NAME
Reuters	ORGANIZATION, PROPER NAME
U.S.	PLACE, PROPER NAME
West Coast	LOCATION
port	FACILITY
operations	EVENT_VIOLENCE
companies	ORGANIZATION
Monday	DATE
weekend	DATE
citing	EVENT_COMMUNICATION

RELATIONSHIPS

West Coast	locatedAt	U.S.
port	locatedAt	West Coast
operations	locatedAt	West Coast
operations	locatedAt	port
Monday	timeOf	operations

REUTERS EDITION: U.S. [S](#)

HOME BUSINESS MARKETS WORLD POLITICS TECH OPINION BREAKINGVIEW

West Coast port operations resume, more labor talks scheduled

BY STEVE GORMAN

LOS ANGELES | Mon Feb 9, 2015 2:44pm EST

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1 OF 2 Containers and ships sit idle at the Port of Long Beach, California in this aerial file photo taken February 6.

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Latest from My Wire

The screenshot shows a news article from Reuters titled "'American Sniper' Texas murder trial nears as jurors' screening completed". The article is by Jon Hershkovitz and was published on Monday, February 9, 2015, at 11:03am EST in Austin, Texas. The page features a map of the United States and Mexico with red pins indicating locations. A sidebar on the left lists entities and their types, such as 'AUSTIN' (PLACE, PROPER NAME) and 'Texas' (PLACE, PROPER NAME). Below this is a section for relationships. At the bottom right is a photo of a stone sign for 'ROUGH CREEK LODGE' with a wooden fence in front.

ENTITIES	
AUSTIN	PLACE, PROPER NAME
Texas	PLACE, PROPER NAME
court	ORGANIZATION
movie	TITLEWORK
American	PLACE
Sniper	PERSON
Monday	DATE
accused	EVENT_LEGAL
shooting	EVENT_CRIME
Reuters	ORGANIZATION, PROPER NAME
U.S.	PLACE, PROPER NAME
Navy	ORGANIZATION, PROPER NAME
SEAL	ORGANIZATION, PROPER NAME
Chris Kyle	PERSON, PROPER NAME
Final	EVENT_SPORTS
jury	ORGANIZATION
selection	EVENT_PERSONNEL

RELATIONSHIPS		
Monday	timeOf	Final
Sniper	partOfMany	American

Architecture

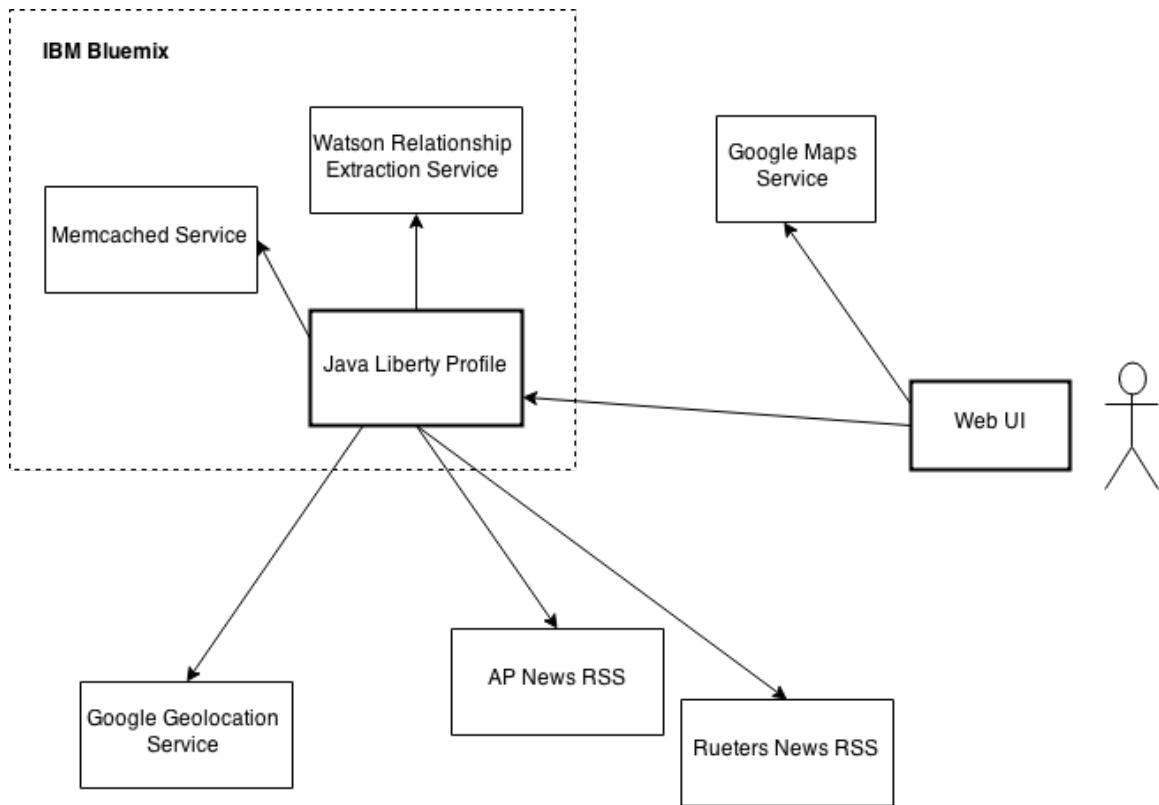
The general architecture is shown in the following diagram.

The app, running on Bluemix using the Liberty for Java runtime, reads the RSS feeds every 10 minutes.

The feeds are processed by Watson Relationship Extraction service. The extracted location for the news item is processed, by the Google Geolocation service, and the latitude and longitude determined. This processed information is then cached using the Bluemix Memcached service. Memcached is a simple key/value storage system.

When a user accesses the system, via a browser, a REST call is done to the app backend. The users latitude and longitude are sent as query parameters on the

REST GET call. The cache is read and the closet news item is determined. The results are then returned to the browser as JSON.



A sample of the JSON is shown below. You can also see the API in actions at
<http://newsanalyst.mybluemix.net/api/news?lat=34.5794343&lng=-118.1164613>

```
{
  "status": "OK",
  "message": "",
  "newsDistance": 59,
  "lastUpdated": "Mon Feb 09 20:57:25 UTC 2015",
  "newsItems": [
    {
      "url": "http://hosted2.ap.org/APDEFAULT/cae69a7523db45408eeb2b3a98c0c9c5/Article_2015-02-09-EU--France-Morocco%20Ties
/id-744583c0827147239b352a7b51f9fef6",
      "headline": "France and Morocco vow to fight terrorism together",
      "description": "PARIS (AP) — France and Morocco vowed to fight terrorism together and to fully cooperate on security issues, putting an end to a year of diplomatic discord.",
      "locationName": "PARIS",
      "lat": "48.856614",
      "lng": "2.3522219",
      "isClosest": false,
      "distance": 9030,
      "personNames": [],
      "orgNames": [],
      "rels": [
        "France --- (agentOf) --- vowed",
        "Morocco --- (agentOf) --- vowed"
      ],
      "ents": [
        "PARIS (PLACE, PROPER NAME)",
        "AP (ORGANIZATION, PROPER NAME)",
        "France (PLACE, PROPER NAME)",
        "Morocco (PLACE, PROPER NAME)",
        "vowed (EVENT COMMUNICATION)",
        "a year (DURATION)"
      ]
    },
    {
      "url": "http://hosted2.ap.org/APDEFAULT/cae69a7523db45408eeb2b3a98c0c9c5/Article_2015-02-09-US--Obama-Israel
/id-63f2227a69794566a9e313174699d058",
      "headline": "Obama: \u00b7Real differences\u00b7 with Israel\u00b7Netanyahu on Iran",
      "description": "WASHINGTON (AP) — President Barack Obama says he has \"very real differences\" with Israeli Prime Minister Benjamin Netanyahu (neh-ten-YAH\u00b7) over Iran and the need for more sanctions.",
      "locationName": "WASHINGTON",
      "lat": "38.9071923",
      "lng": "-77.03687069999999",
      "isClosest": false,
      "distance": 3660,
      "personNames": [
        "Barack Obama",
        "Benjamin Netanyahu"
      ],
      "orgNames": [],
      "rels": [
        "Barack Obama --- (agentOf) --- says",
        "Benjamin Netanyahu --- (managerOf) --- Israeli"
      ],
      "ents": []
    }
  ]
}
```

The frontend part of the app uses this JSON, the Google Maps service, HTML, Javascript and CSS to render the page.

Brief Code Overview

The NewsAnalyst app is divided into 4 Java packages.

- *com.ibm.watson.newsanalyst*
- *com.ibm.watson.newsanalyst.cache*
- *com.ibm.watson.newsanalyst.rss*
- *com.ibm.watson.relexbind*

The HTML, Javascript, CSS, dependent jar's and web.xml are found in the *WebContent* directory.

The `com.ibm.watson.newsanalyst` package contains the majority of the application logic and is the integration layer for the services. `NewsResource.java` is the REST API endpoint for the app. `RelExAPI.java` is responsible for calling Watson Relationship Extraction service. `ApplicationContextListener.java` is responsible for setting up the timer that reads the RSS feeds and updates the cache.

The `com.ibm.watson.newsanalyst.cache` package contains the code for reading and writing to the Memcached service.

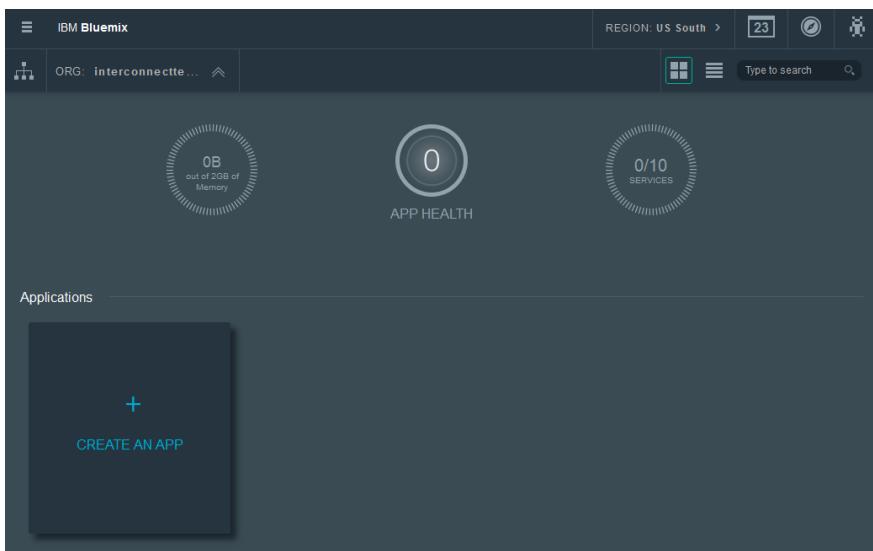
The `com.ibm.watson.newsanalyst.rss` package contains the code for reading and processing the RSS feeds.

The `com.ibm.watson.relexbind` package contains the Java binding for the Relationship Extraction XML. It also has utilities for processing the extracted data. This is the same package we developed in the *HelloWorld* lab.

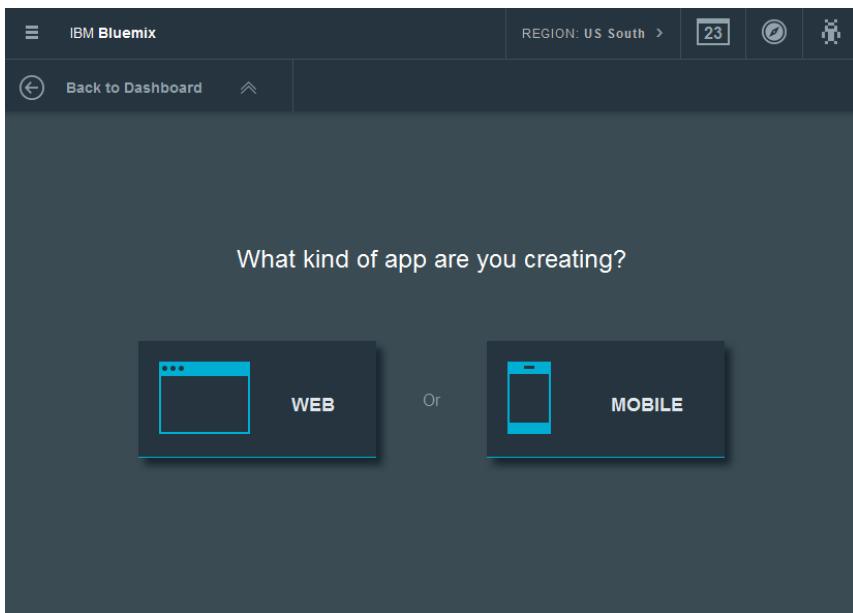
Deploying the App using the Command Line Tools

We already have all the app code so all we need to do now is configure it with the services we need and deploy it.

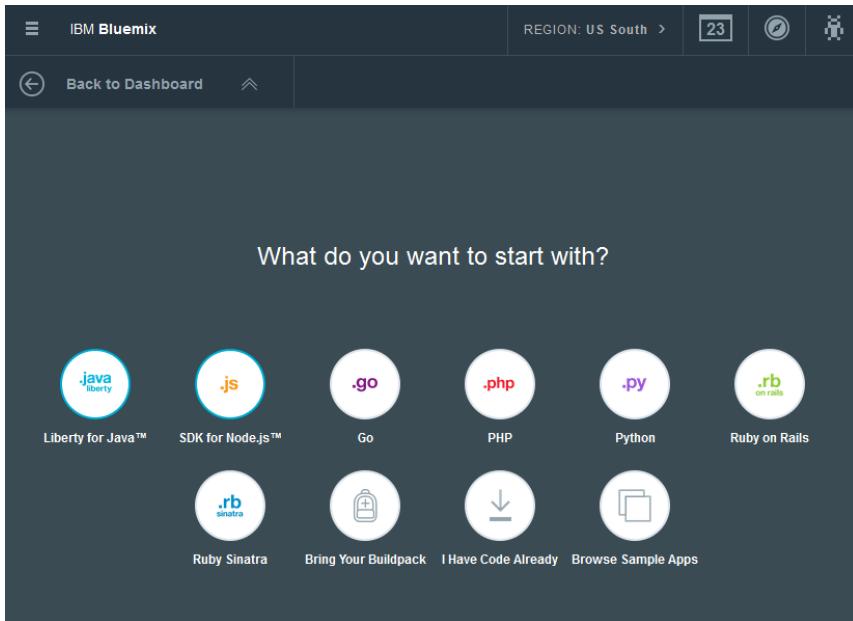
The easiest way to create the services we need is to assign them to an empty app and then deploy over it. Open up the Bluemix web console in your browser. Click on **Create An App**.



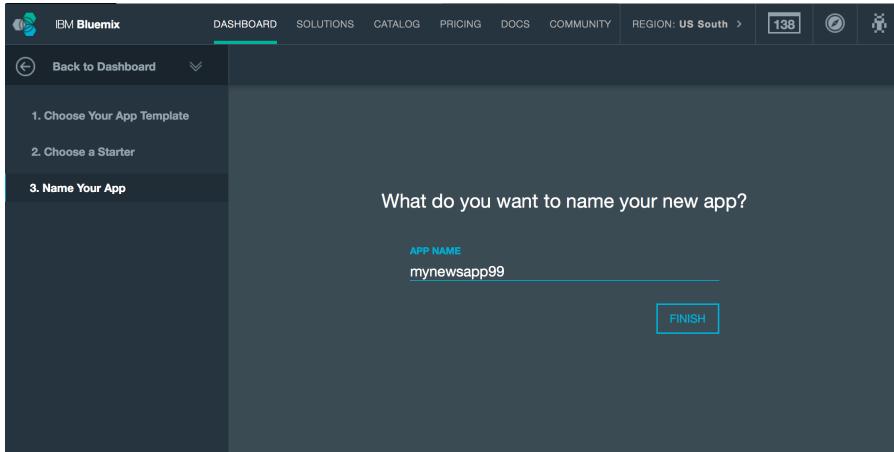
Click on **Web**.



Select ***Liberty for Java***.



Give the new app a unique name and click ***Finish***. DO NOT use the name shown in the image. Create your own name.



Now we need to add some services to our app. Since we already have a Watson Relationship Extraction service assigned to an app we created in a previous lab we can reuse it here. We do that by binding it to our new app. Click on ***Bind A Service***.

The screenshot shows the IBM Bluemix dashboard for the application 'mynewsapp99'. The left sidebar includes links for Overview, Liberty for Java™, Files and Logs, Environment Variables, and Start Coding. Under SERVICES, there are options to ADD A SERVICE and BIND A SERVICE. The main panel displays the app's icon, name ('mynewsapp99'), routes ('mynewsapp99.mybluemix.net'), and configuration for 'LIBERTY FOR JAVA™'. It shows 1 instance, a memory quota of 512 MB per instance, and available memory of 0B. A 'SAVE' button is present. To the right, the APP HEALTH section indicates the app is not running, with 'RESTART' and 'STOP' buttons. The ACTIVITY LOG shows three entries from 2/11/15 at 4:07 PM: starting, updating, and creating the app. A link to 'Estimate the cost of this app' is also shown.

Select **Relationship Expansion**, from the list, and click **Add**.

The screenshot shows a modal dialog titled 'Add Service to 'mynewsapp99' Application'. It lists previously used service instances: 'memcached-news' (memcachedcloud), 'Message Resonance...' (message_resonance), and 'Relationship Extracti...' (relationship_extraction). The 'Relationship Extracti...' entry is selected. At the bottom of the dialog are 'ADD' and 'CANCEL' buttons.

Since we are not finished adding services to our app, we don't need to restage the app at this point. To skip, click **Cancel**.

Now we are going to add a new Bluemix service. Click on **Add A Service**.

Scroll down to the **Web and Application** section and click on **Memcached Cloud**. As you may remember we use Memcached to cache our news API data.

Category

- Watson
- Mobile
- DevOps
- Web and Application
- Integration
- Data Management
- Big Data
- Security
- Business Analytics
- Internet of Things

Support

- IBM
- Third Party
- Community
- Experimental
- Beta

Type here to begin

Add a service to app: mynewsapp99

At this point you can keep the default **Service Name** or give it a new name. In this example it was renamed to *news-memcached*. You can use that name if you would like. Click on **Create**.

Memcached Cloud
Third Party

PUBLISH DATE
2/10/2015

TYPE
Service

VIEW DOCS

Add Service

App: mynewsapp99 mynewsapp99.m...

Service name: news-memcached

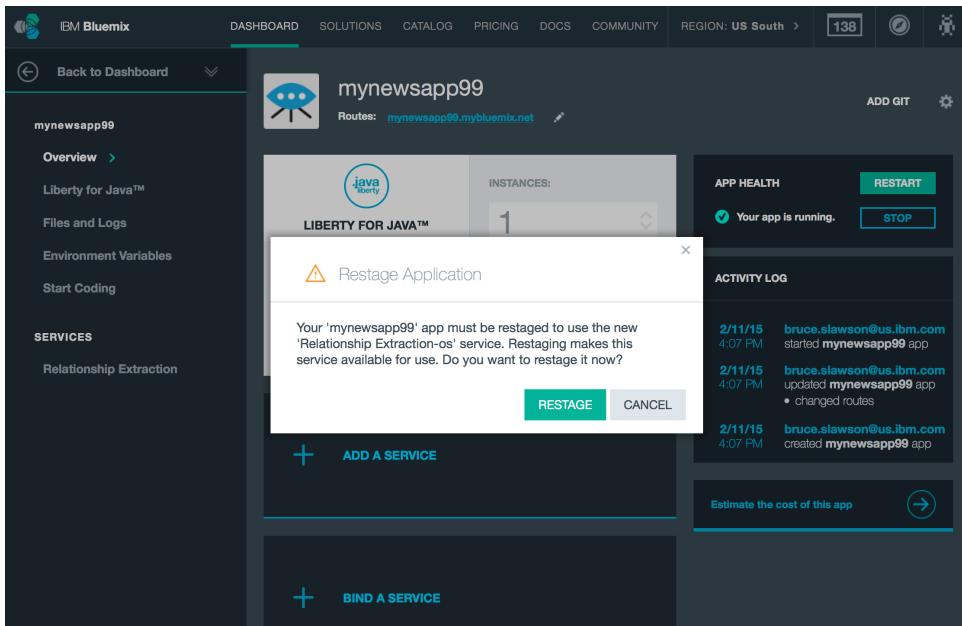
Selected Plan:

25MB

Lifetime Free Tier

CREATE

To skip restaging the app again, click **Cancel**.



Now we need to configure our app deployment descriptor. The descriptor for Bluemix is in the *manifest.yml*. You will find *manifest.yml* in the root of the NewsAnalyst project in Eclipse.

Open Eclipse and **open** the *manifest.yml* file for editing.

There are a few things in here that we need to change.

First, **change the names** of the two services listed immediately after the **- services:** line. These must match the names of the two services we bound to our app in the Bluemix console.

Second, **change the value** of **host** to match the name we gave our app in the Bluemix console.

Third, **change the value** of **name** to match the name we gave our app in the Bluemix console.

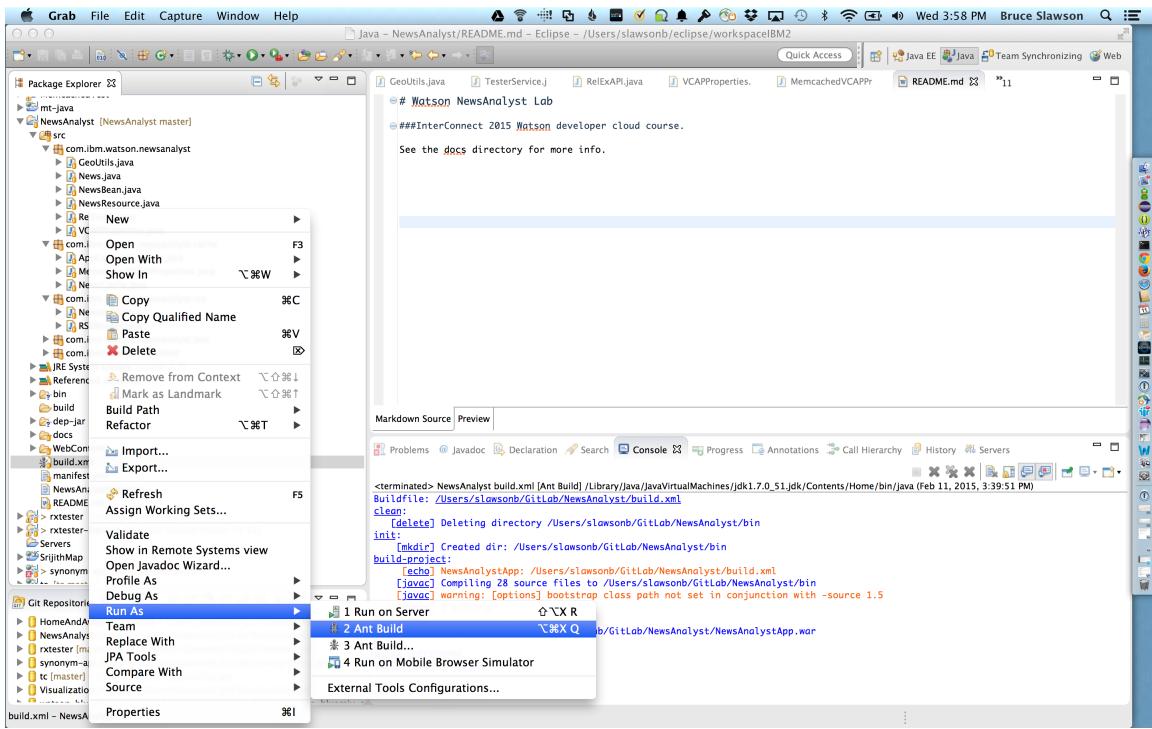
Our app is now configured for deployment.

```

1 applications:
2 - services:
3   - Relationship Extraction-os
4   - news-memcached
5 disk_quota: 1024M
6 host: mynewsapp99
7 name: mynewsapp99
8 path: NewsAnalystApp.war
9 domain: mybluemix.net
10 instances: 1
11 memory: 512M
12

```

We now need to compile and package our code into a .war file. **Right-click** on the Ant script ***build.xml*** and select ***Run As... > Ant Build***.



The Console displays the results of the build process.

```

<terminated> NewsAnalyst build.xml [Ant Build] C:\Program Files\IBM\Java71\bin\javaw.exe (Feb 11, 2015, 7:48:55 PM)
Buildfile: C:\git\NewsAnalyst\build.xml
clean:
[delete] Deleting: C:\git\NewsAnalyst\NewsAnalystApp.war
init:
[mkdir] Created dir: C:\git\NewsAnalyst\bin
build-project:
[echo] NewsAnalystApp: C:\git\NewsAnalyst\build.xml
[javac] Compiling 28 source files to C:\git\NewsAnalyst\bin
[javac] warning: [options] bootstrap class path not set in conjunction with -source 1.5
[javac] 1 warning
build-war:
[war] Building war: C:\git\NewsAnalyst\NewsAnalystApp.war
build:
BUILD SUCCESSFUL
Total time: 12 seconds

```

Now we need to push the .war file to *Bluemix*. Bluemix helps with this by giving you the step-by-step directions that are specific app. In the Bluemix web console, **click** on **Start Coding** on the left side of the window.

There are 6 steps listed on the page. We have an existing app so we don't need to download the Starter Code as described in step 1. We will start with step 2.

mynewsapp99

Overview

Liberty for Java™

Files and Logs

Environment Variables

Start Coding >

SERVICES

Memcached Cloud

Relationship Extraction

DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY REGION: US South > 138

- 1 Download and extract your starter code to set up your development environment.
Download Starter Code
- 2 Change to your new directory.
`$ cd directory_name`
- 3 Connect to Bluemix™.
`$ cf api https://api.ng.bluemix.net`
- 4 Log in to Bluemix.
`$ cf login -u bruce.slawson@us.ibm.com
$ cf target -o bruce.slawson@us.ibm.com -s dev`
- 5 Deploy your app to Bluemix.
`$ cf push mynewsapp99`
- 6 Access your app. See your changes here:
`mynewsapp99.mybluemix.net`

Open up the **Windows cmd shell**. A short cut is provided in the task bar.

Enter the following for steps 2-5. In some cases, you can just cut and paste from the Bluemix console since the text is specific for you and your app.

Step 2:

Enter the following on the command line.

```
cd C:\git\NewsAnalyst
```

Step 3:

Enter the following on the command line.

```
cf api https://api.ng.bluemix.net
```

Step 4:

Modify the following with your email and enter it on the command line.

```
cf login -u myemail@mail.com
```

When prompted, enter your password. Modify the following with your email and enter it on the command line.

```
cf target -o myemail@mail.com -s dev
```

```
C:\Users\IBM>cd C:\git\NewsAnalyst
C:\git\NewsAnalyst>cf login -u bruce.slawson@us.ibm.com
API endpoint: https://api.ng.bluemix.net

Password>
Authenticating...
OK

Targeted org bruce.slawson@us.ibm.com
Targeted space dev

API endpoint: https://api.ng.bluemix.net <API version: 2.19.0>
User: bruce.slawson@us.ibm.com
Org: bruce.slawson@us.ibm.com
Space: dev

C:\git\NewsAnalyst>cf target -o bruce.slawson@us.ibm.com -s dev
API endpoint: https://api.ng.bluemix.net <API version: 2.19.0>
User: bruce.slawson@us.ibm.com
Org: bruce.slawson@us.ibm.com
Space: dev

C:\git\NewsAnalyst>
```

Step 5:

We are now ready to push our app to Bluemix. Modify the following with your app name and enter it on the command line.

```
cf push mynewsapp99
```

The progress of the deployment is show in the command window.

```

C:\git\NewsAnalyst>cf push mynewsapp99
Using manifest file C:\git\NewsAnalyst\manifest.yml
Updating app mynewsapp99 in org bruce.slawson@us.ibm.com / space dev as bruce.slawson@us.ibm.com...
OK

Using route mynewsapp99.mybluemix.net
Uploading mynewsapp99...
Uploading app files from: C:\git\NewsAnalyst\NewsAnalystApp.war
Uploading 327.3K, 60 files
Done uploading
OK
Binding service Relationship Extraction-os to app mynewsapp99 in org bruce.slawson@us.ibm.com / space dev as bruce.slawson@us.ibm.com...
OK
Binding service news-memcached to app mynewsapp99 in org bruce.slawson@us.ibm.com / space dev as bruce.slawson@us.ibm.com...
OK

Stopping app mynewsapp99 in org bruce.slawson@us.ibm.com / space dev as bruce.slawson@us.ibm.com...
OK

Starting app mynewsapp99 in org bruce.slawson@us.ibm.com / space dev as bruce.slawson@us.ibm.com...
----> Downloaded app package <2.3M>
----> Downloaded app buildpack cache <4.0K>
      ----> Liberty Buildpack Version: v1.13-20150209-1122
----> Retrieving IBM 1.7.1_sr2fp1ifx-20141220 JRE <ibm-java-jre-7.1-2.1-pxa6470_27sr2fp1ifx-20141220_02-sfj.tgz> ... <0.0s>
      Expanding JRE to .java ... <0.8s>
----> Retrieving App Management Agent 2015.02.04_102631 <com.ibm.ws.cloudbe.app-mgmt-proxy-agent.zip> ... <0.0s>
      Expanding App Management to .app-management <0.0s>
----> Retrieving com.ibm.ws.liberty-2015.2.0.0-201502091122.tar.gz ... <0.0s>
      Installing archive ... <0.7s>
----> Liberty buildpack is done creating the droplet

----> Uploading droplet <112M>

0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
1 of 1 instances running

App started

OK

App mynewsapp99 was started using this command `liberty/initial_startup.rh`

Showing health and status for app mynewsapp99 in org bruce.slawson@us.ibm.com / space dev as bruce.slawson@us.ibm.com...
OK

requested state: started
instances: 1/1
usage: 512M x 1 instances
urls: newsanalyst.mybluemix.net, mynewsapp99.mybluemix.net
last uploaded: Thu Feb 12 00:55:42 +0000 2015

#0  state     since                      cpu    memory          disk
#0  running   2015-02-11 07:56:53 PM   0.0%   141.2M of 512M  175.3M of 1G

```

Step 6:

Once the deployment finishes, we can open up a browser and access our app at the address listed in step 6

Bluemix NewsAnalyst mynewsapp99.mybluemix.net About AP

ENTITIES

PREScott	PLACE, PROPER NAME
Ariz.	PLACE, PROPER NAME
AP	ORGANIZATION, PROPER NAME
Islamic State	ORGANIZATION, PROPER NAME
Kayla Mueller	PERSON, PROPER NAME
extremists	PEOPLE
family	PEOPLE
friends	PEOPLE
say	EVENT_COMMUNICATION

RELATIONSHIPS

Kayla Mueller	employedBy	extremists
friends	agentOf	say

About AP

AP

Essential News from The Associated Press

Feb. 11, 2015 12:14 PM ET

AA A- +

Family, friends mourn American aid worker held by militants

By FELICIA FONSECA, Associated Press

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PREScott, Ariz. (AP) — Even while being held hostage by Islamic State extremists, Kayla Mueller tried to find the good in everything, her family and friends say.

A portrait of the 26-year-old

A memorial is seen in honor of Kayla Mueller, Tuesday, Feb. 10, 2015, in Prescott,