



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

Project Log

Spring Semester

Week 3

MEng Information & Network Security

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06/01/17- 12/02/17

1 Log Entries

1.1 Entry 08/01/17

While still recovering from a flu, I managed to familiarize myself with the cloud foundry/ bluemix CLI. I made my goal to simply get a custom container image onto Bluemix. I ran into various problems such as logging into the american “ng” domain and not the “eu-gb” europe domain. Half of the delay was due to poor memory of how I did this last time. The other half being my state of mind (illness).

1.2 Entry 09/01/17

Today I managed to get a mosca broker running on my local Docker host. Using Mosquitto service to pub and sub.

1.3 Entry 10/01/17

Today I deployed a mosca broker on IBM containers. I carried out the same test I did locally.

1.4 Entry 11/01/17

Today I used Node-RED for the first time properly. I managed to get data flowing from an inject node to my broker running on IBM Container on Bluemix.

1.5 Entry 12/01/17


Today I managed to encode/decode base 64 using Node-RED. I also managed to get the decoded data into a cloudbant database. I ran into many problems this week, but time invested carried me through.


2 Tasks completed


- Mosca Broker working locally
- Mosca Broker on Bluemix
- Node-RED injects msgs
- Node-RED sends to broker on bluemix
- Node-RED encodes and decodes base 64
- Node-RED stores data in cloudant
- Security DevOps pipeline tutorial


3 GIT Repositories


3.1 INS-Thesis-Documentation


 16117743 / **INS-Thesis-Documentation**


 Watch ▾ 0


 Star 0


 Fork 0


 Code


 Issues 0


 Pull requests 0

 Projects 0


 Wiki


 Pulse

 Graphs


 Settings


Branch: **master** ▾

 Commits on Feb 6, 2017

 **week 2 log**

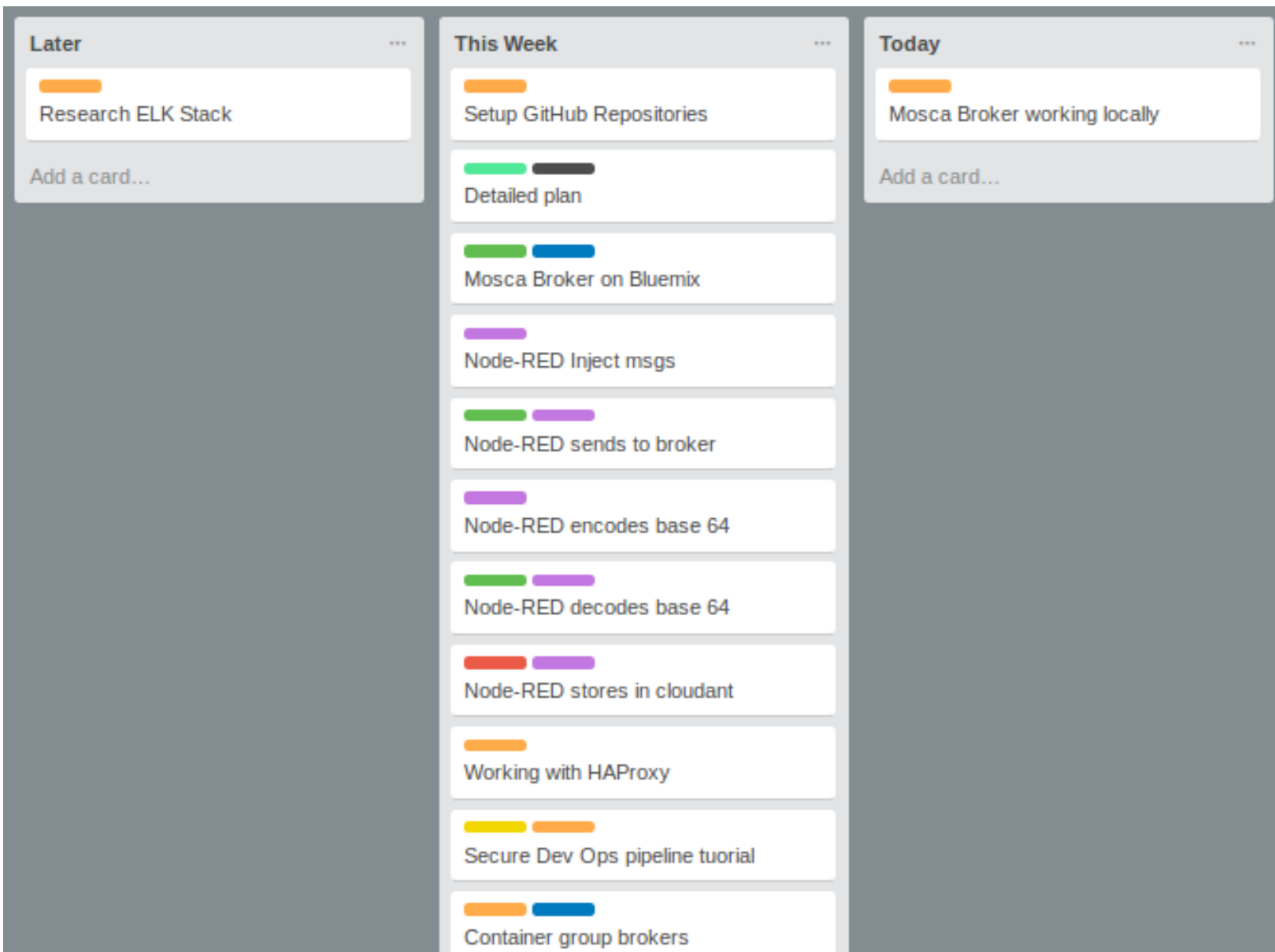
16117743 committed 6 days ago

 a21fc4a



4 Trello boards

4.1 Board at the start of the week



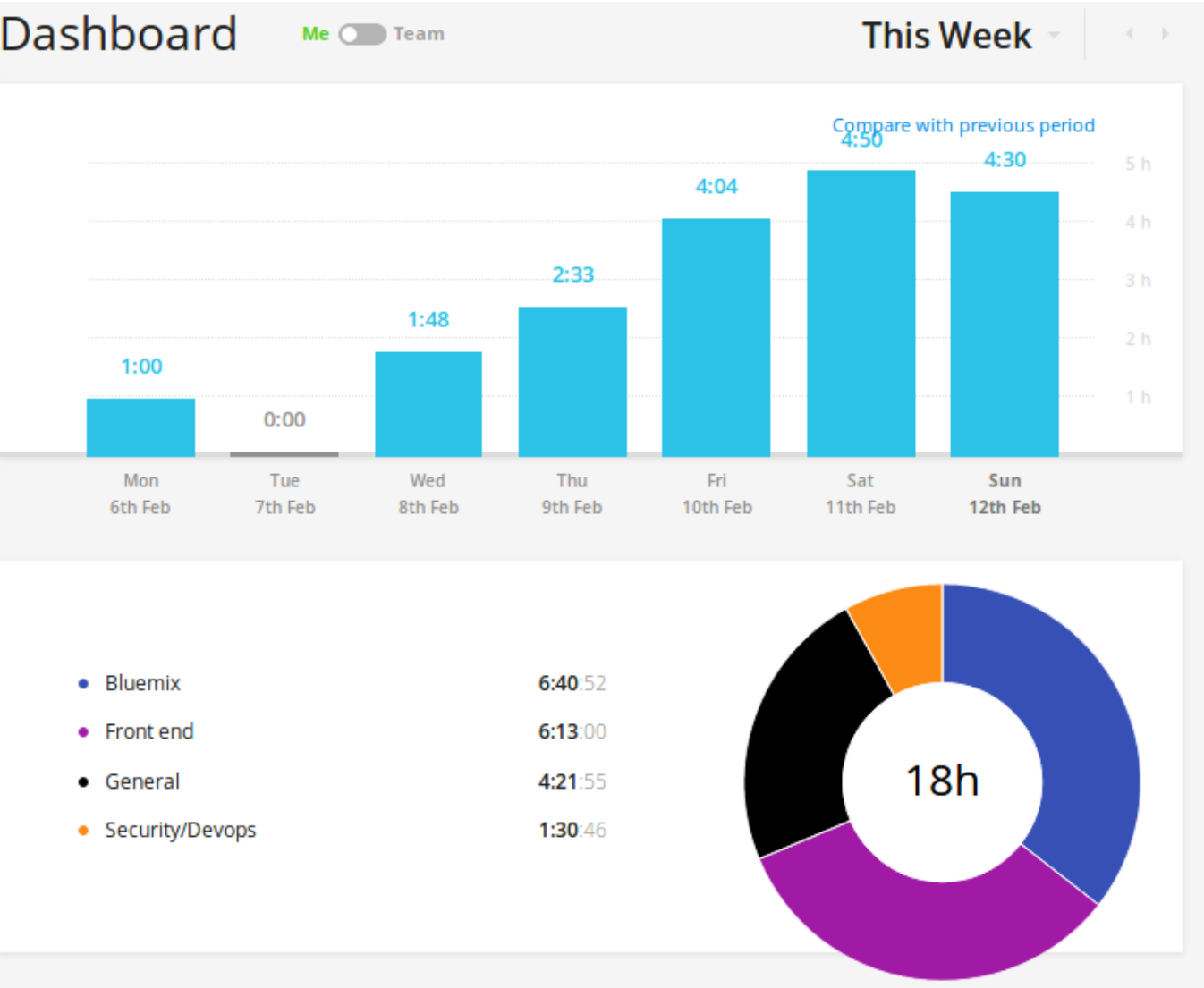
4.2 Board at the end of the week

The image shows a Kanban board with four columns: "This Week", "Today", "next action", and "Done". Each column has a header with a title and a menu icon (three dots). The "This Week" column contains four cards: "Container group brokers", "Setup GitHub Repositories", "Detailed plan", and "Working with HAProxy". The "Today" and "next action" columns are currently empty, each with an "Add a card..." button. The "Done" column contains seven cards: "Secure Dev Ops pipeline tutorial", "Node-RED stores in cloudant", "Node-RED decodes base 64", "Node-RED encodes base 64", "Node-RED sends to broker", "Node-RED Inject msgs", and "Mosca Broker on Bluemix". The last card, "Mosca Broker working locally", is partially visible at the bottom. Each card has a progress bar at the top with colored segments representing task completion.

This Week	Today	next action	Done
Container group brokers			Secure Dev Ops pipeline tutorial
Setup GitHub Repositories			Node-RED stores in cloudant
Detailed plan			Node-RED decodes base 64
Working with HAProxy			Node-RED encodes base 64
			Node-RED sends to broker
			Node-RED Inject msgs
			Mosca Broker on Bluemix
			Mosca Broker working locally

5 Toggl Time Logs

5.1 Weekly time Log bar chart



5.2 Weekly time log

Today			4:30:00
log book	● General		6:53 PM - 8:53 PM 2:00:00
node-red	● Front end		1:52 PM - 4:22 PM 2:30:00
Yesterday			4:50:04
node-red	● Front end	2	12:04 PM - 9:34 PM 3:43:00
DevOps secure pipeline	● Security/Devops		5:11 PM - 6:18 PM 1:07:04
Fri, 10 Feb			4:04:09
doodling	● General		10:12 PM - 11:34 PM 1:21:55
mosca broker	● Bluemix	2	3:54 PM - 5:36 PM 2:42:14
Thu, 9 Feb			2:33:22
mosca broker	● Bluemix		4:43 PM - 6:52 PM 2:09:40
Amalgam8 research	● Security/Devops		1:46 PM - 2:10 PM 0:23:42
Wed, 8 Feb			1:48:58
mosca broker	● Bluemix		5:52 PM - 7:40 PM 1:48:58
Mon, 6 Feb			1:00:00
meeting with supervisor	● General		👤 \$ 11:00 AM - 12:00 PM 1:00:00

6 Pictures

6.1 Logging into ibm containers

```
tom@tom-pc:~/BM/mosca/mosca$ cf ic built -t
FAILED
The IBM Containers CLI must be initialized. Enter "cf ic init" to initialize it.

tom@tom-pc:~/BM/mosca/mosca$ cf ic init
You are using version 0.8.951 of the IBM Containers plug-in.
Version 0.8.964 of the plug-in is available for you to install.
Run the "cf ic update" command to update your plug-in to the current version.
You can review the documentation to see the changes that are included in the new version.
https://www.ng.bluemix.net/docs/containers/container\_cli\_reference\_cfic\_versions.html
Deleting old configuration file...
Generating client certificates for IBM Containers...
{
  "code": "T658765"
```

6.2 Logging into ibm containers

```
tom@tom-pc:~/BM/mosca/mosca$ cf ic namespace set tomspace2
tomspace2
tom@tom-pc:~/BM/mosca/mosca$ cf ic init
Deleting old configuration file...
Generating client certificates for IBM Containers...
Storing client certificates in /home/tom/.ice/certs/...

Storing client certificates in /home/tom/.ice/certs/containers-api.ng.bluemix.net/f3
OK
The client certificates were retrieved.

Checking local Docker configuration...
OK

Authenticating with the IBM Containers registry host registry.ng.bluemix.net...
OK
You are authenticated with the IBM Containers registry.
Your organization's private Bluemix registry: registry.ng.bluemix.net/tomspace2
```


6.3 cloning mosca broker repository

```
tom@tom-pc:~/BM/mosca$ git clone https://github.com/mcollina/mosca.git
Cloning into 'mosca'...
remote: Counting objects: 4681, done.
```

6.4 Build a docker image

```
tom@tom-pc:~/BM/mosca/mosca$ docker build -t mosca .
Sending build context to Docker daemon 7.669 MB
Step 1 : FROM mhart/alpine-node:4
4: Pulling from mhart/alpine-node
b7f33cc0b48e: Already exists
4bc072c81e10: Pull complete
Digest: sha256:cffff98dedd985fbb045ac0dd8edc680589575a58fd2df782df1ca15c39448401
Status: Downloaded newer image for mhart/alpine-node:4
---> df03fb3149e5
Step 2 : MAINTAINER Matteo Collina <hello@matteocollina.com>
---> Running in 6549039043e4
```

6.5 Send image to ibm containers

```
tom@tom-pc:~/BM/mosca/mosca$ cf ic build -t mosca-image .
Sending build context to Docker daemon 7.669 MB
Step 1 : FROM mhart/alpine-node:4
4: Pulling from mhart/alpine-node
```

6.6 Problem: Mosquitto service blocking Docker's exclusive access to port 1883

```
tom@tom-pc:~/BM/haproxy/haproxy-mqtt$ docker run -d -p 1883:1883 -v haproxy-mqtt:/haproxy-override haproxy
5e1b2df7198d2c42863f3b574db65d3bd0a1cb06073fb62388d32852e1251d3b
docker: Error response from daemon: driver failed programming external connectivity on endpoint jovial_lalande (1c04f8688f94131dfed04ce65bb1dc78d25fde7f671c6b1a8f418ec169bc0fb8): Error starting userland proxy: listen tcp 0.0.0.0:1883: bind: address already in use.
tom@tom-pc:~/BM/haproxy/haproxy-mqtt$ sudo service mosquitto stop
tom@tom-pc:~/BM/haproxy/haproxy-mqtt$ docker run -d -p 1883:1883 -v haproxy-mqtt:/haproxy-override haproxy
a64ea39b085d79255a55dc2b4eda952b0dfc824eed90dd377b6f89266c8f485b
tom@tom-pc:~/BM/haproxy/haproxy-mqtt$
```

6.7 Test: Local deployment test

```
tom@tom-pc: ~/BM/mosca/mosca
{"pid":1,"hostname":"f73f997c49e8","name":"mosca","level":30,
"time":1486671977666,"msg":"client connected","client":"mosqpub/10763-tom-pc","v":1}
{"pid":1,"hostname":"f73f997c49e8","name":"mosca","level":30,
"time":1486671977668,"msg":"closed","client":"mosqpub/10763-tom-pc","v":1}
{"pid":1,"hostname":"f73f997c49e8","name":"mosca","level":30,
"time":1486671999190,"msg":"client connected","client":"mosqpub/10764-tom-pc","v":1}
{"pid":1,"hostname":"f73f997c49e8","name":"mosca","level":30,
"time":1486671999192,"msg":"closed","client":"mosqpub/10764-tom-pc","v":1}
{"pid":1,"hostname":"f73f997c49e8","name":"mosca","level":30,
"time":1486672012638,"msg":"client connected","client":"mosqpub/10770-tom-pc","v":1}
{"pid":1,"hostname":"f73f997c49e8","name":"mosca","level":30,
"time":1486672012639,"msg":"closed","client":"mosqpub/10770-tom-pc","v":1}
```

```
tom@tom-pc: ~/BM/mosca/mosca
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -t mobile-iotp -m "compressed GeoJSON from mobile user"
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -t car-iotp -m "compressed GeoJSON from car tag"
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -t mobile-iotp -m "compressed GeoJSON2 from mobile user"
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -t car-iotp -m "compressed GeoJSON2 from car tag"
tom@tom-pc:~/BM/mosca/mosca$
```

```
tom@tom-pc: ~/BM/mosca/mosca
tom@tom-pc:~/BM/mosca/mosca$ clear
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_sub -t car-iotp
compressed GeoJSON from car tag
compressed GeoJSON2 from car tag
```

```
tom@tom-pc: ~/BM/mosca/mosca
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_sub -t mobile-iotp
compressed GeoJSON from mobile user
compressed GeoJSON2 from mobile user
```

Top Left:

Mosca (Node.js) Broker running locally on a Docker container.

Top Right:

Using Mosquitto service to publish to the Docker container.

Topics:

- Mobile-iotp
- Car-iotp

Bottom:

Mosquitto terminals subscribed to above topics.

6.8 Bluemix: Mosca Image now on Bluemix

173 Trial Days Remaining ▼

University of Limerick | United Kingdom : tom1 : tomspace2

[Catalog](#) [Support](#)

🔍 Search

Get started by selecting a Docker image or upload your own:



Upload an Image

Upload an image for your container or scalable group.



ibm-backup-restore

IBM



ibm-integration-bus

IBM



ibm-node-strong-pm

IBM



ibm_wa_agent

IBM



ibmliberty

IBM



ibmnode

IBM



mosace-image

My Org

Now that a basic test can be implemented, I reproduce it on Bluemix, instead of local deployment.

6.9 Build: building container from image in Bluemix repository

```
tom@tom-pc:~/BM/mosca/mosca$ cf ic build -t mosca-image .  
Sending build context to Docker daemon 7.669 MB  
Step 1 : FROM mhart/alpine-node:4  
4: Pulling from mhart/alpine-node
```

6.10 Test: test on Bluemix passed



name1

Status: ● Running



Resources

SIZE	Micro
MEMORY	256 MB
QUOTA USAGE	62.5%
768 MB still available	

Container details

Created	2/10/17, 4:27 PM
Ports	1883 80
Public IP	134.168.32.195
Private IP	172.30.0.16

```
tom@tom-pc: ~/BM/mosca/mosca  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t mobile-iotp -m  
"hello from mobile user"  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t mobile-iotp -m  
"hello from car tag"  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t car-iotp -m "h  
ello from car tag"  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t car-iotp -m "h  
ello from car tag"  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t car-iotp -m "h  
ello from car tag"  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t mobile-iotp -m  
"hello from mobile user"  
tom@tom-pc:~/BM/mosca/mosca$ mosquitto_pub -h 134.168.32.195 -t mobile-iotp -m  
"hello from mobile user"  
tom@tom-pc:~/BM/mosca/mosca$
```

```
tom@tom-pc: ~  
tom@tom-pc:~$ mosquitto_sub -h 134.168.32.195 -t mobile-iotp  
hello from mobile user  
hello from car tag  
hello from mobile user  
hello from mobile user  
tom@tom-pc: ~  
tom@tom-pc:~$ mosquitto_sub -h 134.168.32.195 -t car-iotp  
hello from car tag  
hello from car tag  
hello from car tag
```

Description:

Mosca broker running on an IBM container.

6.11 Problem: Took a long time to figure out why default image would not run

```
tom@tom-pc:~/BM/mosca/mosca$ cf ic logs sad_wilson
+++..+++; ,+++ ++; '+++ +++
++..+++..++ ++..++ ++, '+ '+',++ ++,++
+` ,+ +: .+ .+ +; +; ' + ' +` +`
+` +. +: ,+ + ++ +; ' + ;+ + +.
+` +. +: ,+ + +' ' + + +.
+` +. +: ,+ + :+. ' + +++++.
+` +. +: ,+ + ++ ' + +++++.
+` +. +: ,+ + ++ ' + + +.
+` +. +: ,+ + +: +: ' + ;+ + +.
+` +. +: .+ .+ +; +; ' + ' + + +.
+` +. +: ++; ++ ++' ++ ++' + ' + +.
+` +. +: +++ +++ ,++' + +.

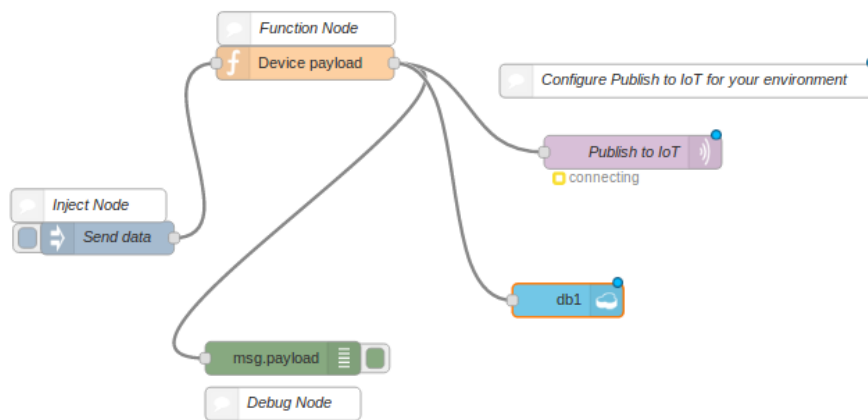
/usr/src/app/lib/server.js:109
  throw new Error(errMessage);
    ^

Error: is not of a type(s) integer
    at EventEmitter.Server (/usr/src/app/lib/server.js:109:13)
```

6.12 Solution:

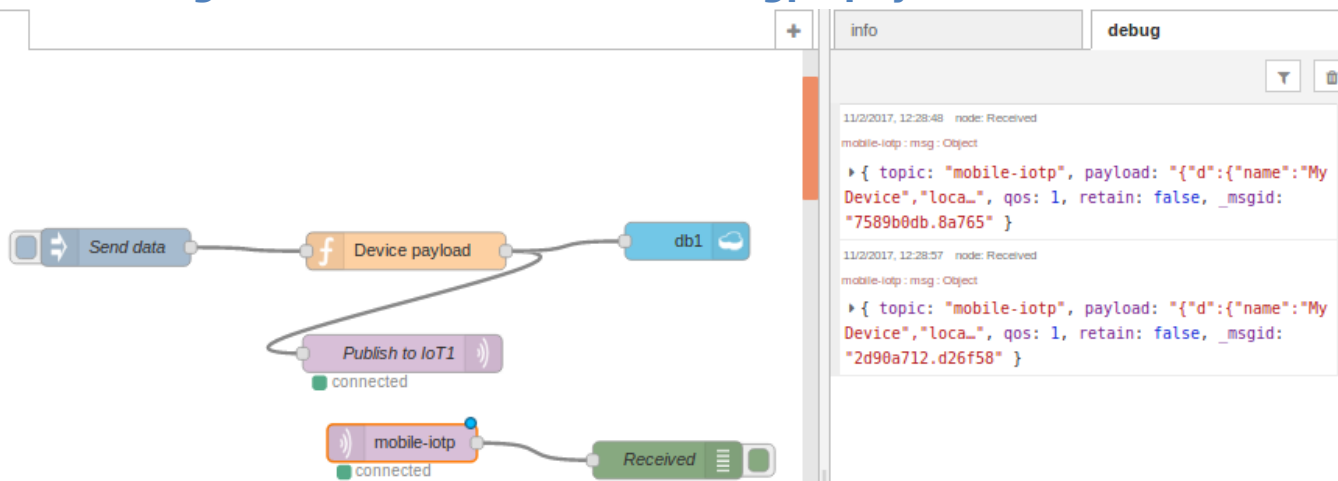
```
100 function Server(opts, callback) {
101     var modernOpts = options.modernize(opts);
102     var validationResult = options.validate(modernOpts);
103
104     if (validationResult.errors.length > 0) {
105         var errMessage = validationResult.errors[0].message;
106         if (callback) {
107             callback(new Error(errMessage));
108         } else {
109             throw new Error(errMessage);
110         }
111     }
112 }
```

6.13 Starting Point: Nothing configured




```
11/2/2017, 11:53:50 node: 2ad8abd549c86
msg.payload: string[101]
{"d":{"name":"My
Device","location":{"longitude":-
97.74,"latitude":30.26},"velocity":1,"t
```

6.14 Configured broker IP address and gps payload







6.15 Mosca broker running on Bluemix

 **name1** Status: ● Running


Resources		Container details
SIZE	Micro	Created 2/10/17, 4:27 PM
MEMORY	256 MB	Ports 1883 80
		Public IP 134.168.32.195


6.16 Node publishing to broker on Bluemix


  Send data


 Publish to IoT1 


connected


 Server



 Topic

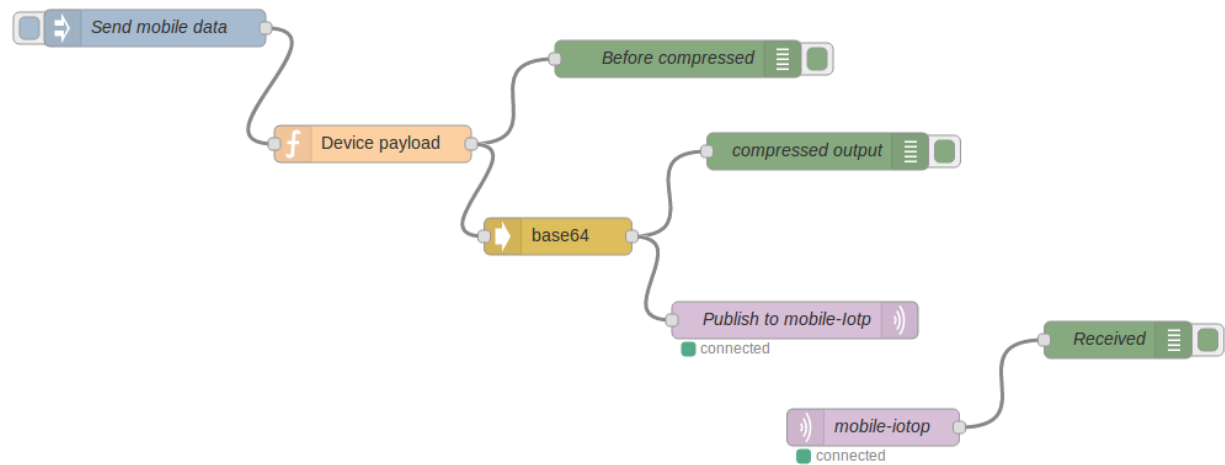
 QoS

 Retain

 Name

Tip: Leave topic, qos or retain blank if you want to set them via msg properties.

6.17 Encoding

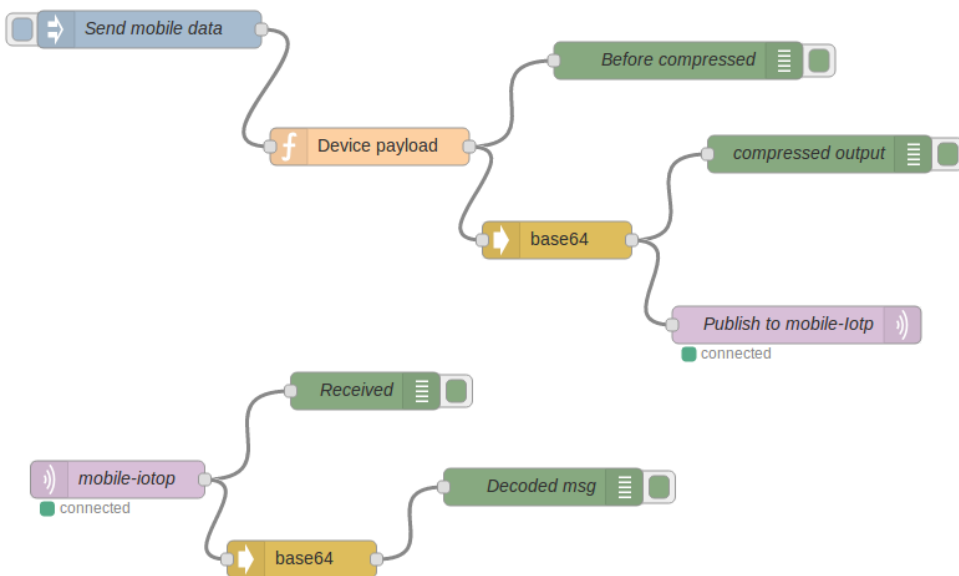


```
11/2/2017, 18:05:40 node: Before compressed
msg : Object
  > { payload: "{ \"d\": { \"name\": \"My Device\", \"loca...\", _msgid: \"94926311.6b6da\" } }

11/2/2017, 18:05:40 node: compressed output
msg : Object
  > { payload: \"eyJkIjp7Im5hbWUiOiJNeSBEZXZpY2...\", _msgid: \"94926311.6b6da\" }

11/2/2017, 18:05:40 node: Received
mobile-iotp : msg : Object
  > { topic: \"mobile-iotp\", payload: \"eyJkIjp7Im5hbWUiOiJNeSBEZXZpY2...\", qos: 1, retain: false, _msgid: \"fbd2bb83.042d48\" }
```

6.18 Decoding



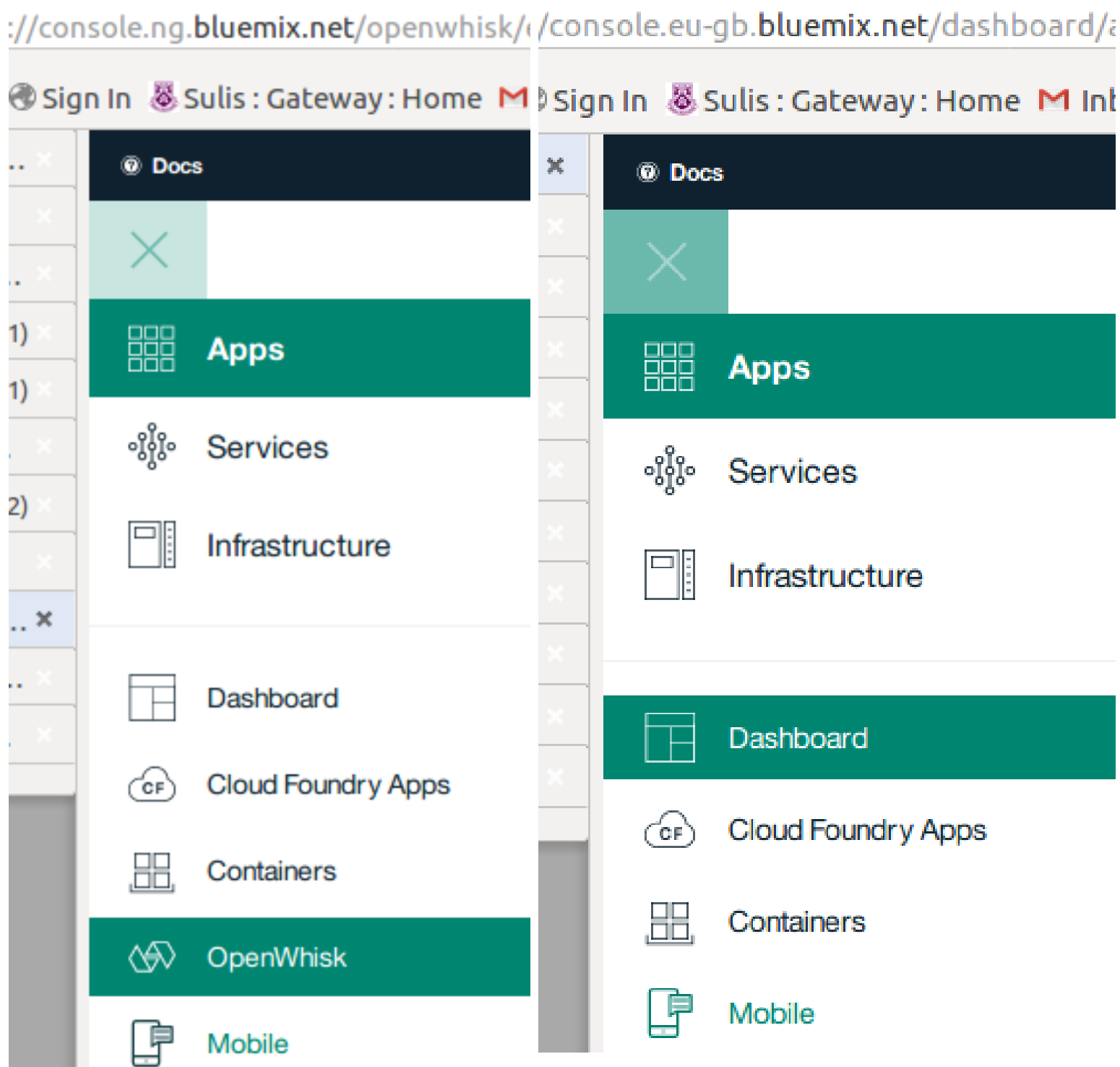
```
11/2/2017, 18:10:19 node: Before compressed
msg : Object
  > { payload: \"{ \"d\": { \"name\": \"My Device\", \"loca...\", _msgid: \"43dcc5a9.bc233c\" } }

11/2/2017, 18:10:19 node: compressed output
msg : Object
  > { payload: \"eyJkIjp7Im5hbWUiOiJNeSBEZXZpY2...\", _msgid: \"43dcc5a9.bc233c\" }

11/2/2017, 18:10:19 node: Received
mobile-iotp : msg : Object
  > { topic: \"mobile-iotp\", payload: \"eyJkIjp7Im5hbWUiOiJNeSBEZXZpY2...\", qos: 1, retain: false, _msgid: \"8f4a3ae4.70b5c8\" }

11/2/2017, 18:10:19 node: Decoded msg
mobile-iotp : msg.payload : buffer[101]
  > [ 123, 34, 100, 34, 58, 123, 34, 110, 97, 109 ... ]
```

6.19 Confusion about Openwhisk eu-gb and ng domain



6.20 OpenWhisk microservice for decoding payload

 IBM Bluemix OpenWhisk

Getting StartedManageDevelopMonitor

MY ACTIONS

Hello WorldHello World With Paramstest1

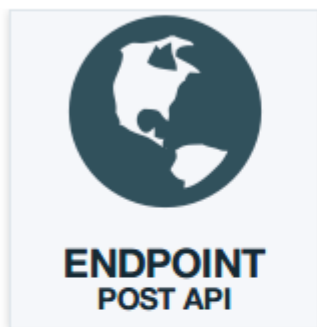
Create an ActionRun this Action

test1

```
function main(params) {  
  var b64string = params.name;  
  var buf = Buffer.from(b64string, 'base64').toString("ascii");  
  
  return {payload: buf };  
}
```

REST Endpoint Properties

Every OpenWhisk entity can be invoked directly by using a REST API call



Action Name

test1

To invoke this action from outside of OpenWhisk, perform

Fully Qualified Name You can invoke your action using the Fully Qualified Name. [Learn more](#)

/tom1_space-us/test1

Endpoint URL Make sure to invoke this by using a POST call, as in the provided cURL

```
https://openwhisk.ng.bluemix.net/api/v1/namespaces/tom1_space-us/actions/test1
```

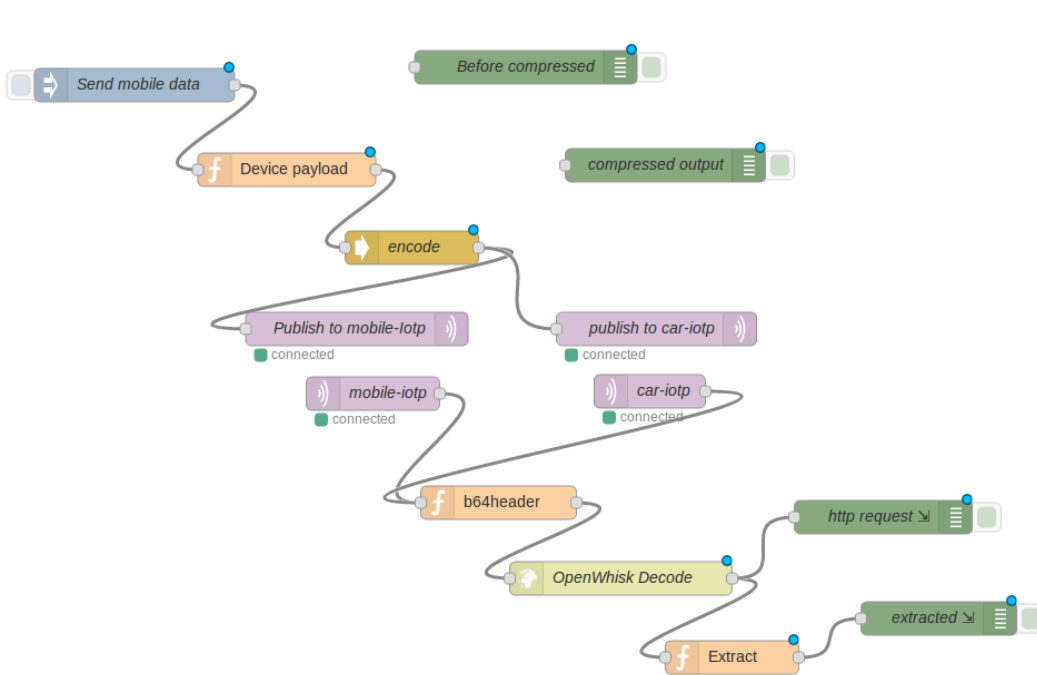
6.21 Configuring http request node in order to call OpenWhisk microservice through REST (couldn't get OpenWhisk node to work)

The screenshot shows the Node-RED web interface. On the left, a flow is visible with a 'device payload' message node connected to a 'base64' utility node, which then connects to an 'http request' node. The 'http request' node is currently in a 'requesting' state. On the right, the 'Edit http request node' dialog is open. It contains the following configuration:

- Method:** POST
- URL:** mix.net/api/v1/namespaces/tom1_space-us/test1
- ☐ Enable secure (SSL/TLS) connection
- ☐ Use basic authentication
- Return:** a UTF-8 string
- Name:** Name

Buttons for 'Delete', 'Cancel', and 'OK' are located at the top of the dialog.

6.22 Test: Original payload received from http request to OpenWhisk

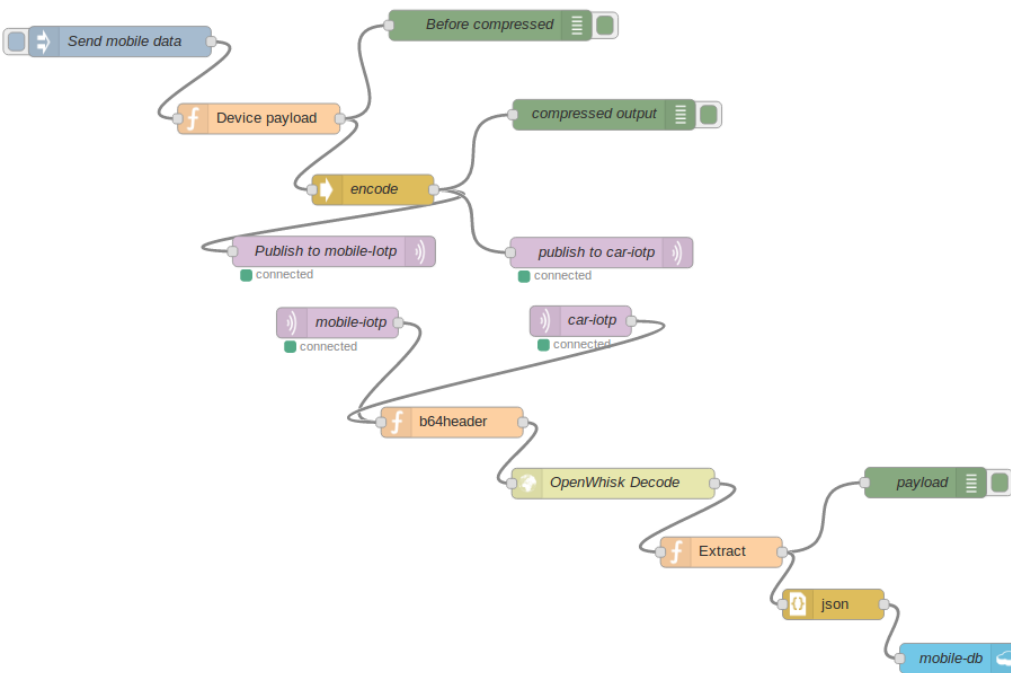


```
12/2/2017, 15:21:53 node: extracted
mobile-iotp : msg.payload.test2 : undefined
undefined

12/2/2017, 15:21:53 node: http request
mobile-iotp : msg.payload.response.result.payload : string[100]
{"d":{"name":"My Device","location":{"longitude":-94.2,"latitude":36.37},"velocity":2,"type":"GPS"}}

12/2/2017, 15:21:53 node: b150614d.6981c
mobile-iotp : msg : Object
▼ object
  topic: "mobile-iotp"
▼ payload: object
  duration: 2
  name: "test1"
  subject: "tflynn@protonmail.com"
  activationId: "00007b8390f1439db1a566c1c881ff2c"
  publish: false
▶ annotations: array[2]
  version: "0.0.7"
▼ response: object
  ▼ result: object
    payload: {"d":{"name":"My Device","location":{"longitude":-94.2,"latitude":36.37},"velocity":2,"type":"GPS"}}
    success: true
    status: "success"
```

6.23 Test: Data sent to cloudant in json



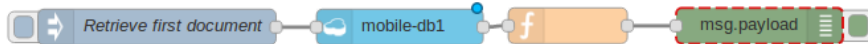
```
12/2/2017, 16:37:45 node: compressed output
msg: Object
  payload: "eyJkIjp7Im5hbWUiOiJNeSBEZXpYZ-", _msgid: "9dd6c8f1.622938" }

12/2/2017, 16:37:45 node: Before compressed
msg: Object
  object
    payload: [{"d":{"name":"My Device","location":{"longitude":-94.57,"latitude":39.09},"velocity":3,"type":"GPS"}}]
    _msgid: "9dd6c8f1.622938"

12/2/2017, 16:37:46 node: payload
mobile-iotp: msg.payload: string[101]
  [{"d":{"name":"My Device","location":{"longitude":-94.57,"latitude":39.09},"velocity":3,"type":"GPS"}}]

12/2/2017, 16:37:46 node: http request
mobile-iotp: msg.payload.response.result.payload: string[101]
  [{"d":{"name":"My Device","location":{"longitude":-94.57,"latitude":39.09},"velocity":3,"type":"GPS"}}]
```

6.24 Reading data stored in json



```
12/2/2017, 16:40:41 node: 5d5dc425.504b5c
msg.payload: array[1]
  array[1]
    0: object
      _id: "065dcc9b8510a664beaadcd3f48d1a20"
      _rev: "1-a9978433f27854654d629cfe6abef6cb"
      d: object
        name: "My Device"
        location: object
          longitude: -87.62
          latitude: 41.87
        velocity: 4
        type: "GPS"
```

6.25 DevOps: cloned tutorial repository

The screenshot displays the IBM Bluemix DevOps web interface. At the top, the header includes the IBM logo and the text "IBM Bluemix DevOps". Below the header, a navigation bar contains a back arrow, menu items "File", "Edit", "View", and "Tools", a status bar showing "hello-containers-sec... (running: normal)" with a green dot, and icons for play, stop, share, list, and refresh. To the right of the status bar is a "Live Edit" toggle switch and a refresh icon.

The main interface is divided into two panels. The left panel, titled "hello-containers-secure-container-toolchain-1486831351875", shows a file explorer view with a "launchConfigurations" folder expanded. It lists several files: "hello-containers-secure-container-toolchain-1486831351875.launch", ".cfnignore", ".gitignore", "app.js", "Dockerfile", "License.txt", "package.json", and "README.md". The right panel, also titled "hello-containers-secure-container-toolchain-1486831351875", shows the content of the selected "README.md" file. The content includes a section titled "▼ README.md" with the text "Sample application packaged as a container" and a section titled "▼ hello-containers-secure-container-toolchain-1486831351875" which lists the same file structure as the left panel.

6.26 Overview of tool chain

DevOps

secure-container-toolchain-1486831351875

THINK



Issues

hello-containers-secur...

✓ Configured

CODE



GitHub

hello-containers-secur...

✓ Configured

DELIVER



Delivery Pipeline

hello-world-secure-co...


✓ Configured



Eclipse Orion Web IDE




✓ Configured

6.27 Toolchains


 Search

Toolchains


1/50 Used


NAME	TOOL INTEGRATIONS
secure-container-toolchain-1486831351875	  


6.28 Repository on github


 This repository


[Pull requests](#) [Issues](#) [Gist](#)


 [16117743](#) / **hello-containers-secure-container-toolchain-1486831351875**


 **Code**

 **Issues** **0**

 **Pull requests** **0**


 **Projects** **0**


 **Wiki**


 **Pulse**

No description, website, or topics provided.


New [Add topics](#)

 **29** commits

 **2** branches

 **0** releases


Your recently pushed branches:


 **patch-1** (6 minutes ago)

Branch: **master** ▼


New pull request

Create new branch

 **skaegi** committed on **GitHub** Update app.js

 [Dockerfile](#)

Address VA failures

 [License.txt](#)

updating example to be a helloworld node application

6.29 Pipeline: building

Toolchain

hello-world-secure-container-toolchain-1486831351875 | Delivery Pipeline

BUILD

STAGE RUNNING...

LAST INPUT

Git URL

Last commit by Simon Kaegi 74d ago
[Update app.js](#)

JOBSDivContainer buildRunning

View logs and history

LAST EXECUTION RESULT

Container build 1

>

VALIDATE

STAGE NOT RUN

LAST INPUT

Stage: BUILD / Job: Contain...

Not yet run

JOBSDivVulnerability Advi... Not yet run

View logs and history

LAST EXECUTION RESULT

No results

>

DEPLOY

STAGE NOT RUN

LAST INPUT

Stage: BUILD / Job: Contain...

Not yet run

JOBSDivGroup deploy Not yet run

View logs and history

LAST EXECUTION RESULT

No results

6.30 Pipeline: validating containers

Toolchain

hello-world-secure-container-toolchain-1486831351875 | Delivery Pipeline

BUILD

STAGE PASSED

LAST INPUT

Git URL

Last commit by Simon Kaegi 74d ago
Update app.js

JOBSDivContainer build Passed nowView logs and history

LAST EXECUTION RESULT

Container build 1

>

VALIDATE

STAGE RUNNING...

LAST INPUT

Stage: BUILD / Job: Contain...

Container build 1

JOBSDivVulnerability Advi... RunningView logs and history

LAST EXECUTION RESULT

No results

>

DEPLOY

STAGE NOT RUN

LAST INPUT

Stage: BUILD / Job: Contain...

Not yet run

JOBSDivGroup deploy Not yet runView logs and history

LAST EXECUTION RESULT

No results

6.31 Pipeline: failed validation

BUILD

STAGE PASSED

LAST INPUT

Git URL

Last commit by Simon Kaegi 74d ago
[Update app.js](#)

JOBS

View logs and history

Container build Passed now

LAST EXECUTION RESULT

Container build 1

VALIDATE

STAGE FAILED

LAST INPUT

Stage: BUILD / Job: Contain...

Container build 1

JOBS

View logs and history

Vulnerability Advi... Failed now

LAST EXECUTION RESULT

No results

DEPLOY

STAGE NOT RUN

LAST INPUT

Stage: BUILD / Job: Contain...

Not yet run

JOBS

View logs and history

Group deploy Not yet run

LAST EXECUTION RESULT


No results

6.32 Pipeline: failed validation

```
image registry.ng.bluemix.net/tomspace2/hello-containers-secure-container-tool
376 packages scanned
1 vulnerable packages
openssl : current: 1.0.1t-1+deb8u5 fixed: 1.0.1t-1+deb8u6
*****
2017-02-11 16:56:20,426 - pipeline - INFO - For a more in-depth review of these
a256:de0f77fe258e969ad3665d52a8e1731739bd1bfff9d6ea57d0737ad30976b66225&spaceGu1
Script completed in 34.4133069515 seconds
2017-02-11 16:56:20 UTC : Archive directory is /tmp/extension_archive - copying
2017-02-11 16:56:20 UTC : Issues found in or while getting compliance results.
To send notifications, set SLACK_WEBHOOK_PATH or HIP_CHAT_TOKEN in the environ
2017-02-11 16:56:20 UTC : Script runtime of 0m 36s

Finished: FAILED
```

6.33 Pipeline: failed validation

Policy Status:  Warn

Time Scanned : 11/2/2017 16:55:22

[Manage Policies](#)

Organizational Policies

1 of 3

Risk Analysis

None




Vulnerable Packages

0 of 0

Container Settings

0 of 27

These policies specify security requirements to deploy this image in Bluemix. Policies are configured by the organization manager.

Status	Policy
 Failed	Image has installed packages with known vulnerabilities
 Passed	Image has remote logins enabled
 Passed	Image has remote logins enabled and some users have easily guessed passwords

6.34 Vulnerability Advisor

Vulnerability Advisor

Test Configuration

Tester Type

IBM Vulnerability Adviser

To leverage this extension, it must be set up with a valid API key. Once configured, a vulnerability check will be run, and the results displayed. If a vulnerability is found, the results will be displayed.

For information and a quick-start guide view [this link](#).

Target

US South - <https://api.ng.bluemix.net>

Organization

tom1

Space

space-us

Minutes to wait for analysis to complete

5

Run Conditions

☒ Stop running this stage if this job fails

6.35 Editing “validation stage”

Run Conditions

☐ Stop running this stage if this job fails

6.36 Pipeline: validation

BUILD

STAGE PASSED

LAST INPUT

Git URL

Last commit by Simon Kaegi 74d ago
[Update app.js](#)

JOBSDivView logs and history

Container build Passed 6m ago

LAST EXECUTION RESULT

Container build 1

>

VALIDATE

STAGE RUNNING...

LAST INPUT

Stage: BUILD / Job: Contain...

Container build 1

JOBSDivView logs and history

Vulnerability Advi... Running

LAST EXECUTION RESULT

No results

>

DEPLOY

STAGE NOT RUN

LAST INPUT

Stage: BUILD / Job: Contain...

Not yet run

JOBSDivView logs and history

Group deploy Not yet run

LAST EXECUTION RESULT

No results

6.37 Pipeline: failed validation

The screenshot displays a CI/CD pipeline with three stages: BUILD, VALIDATE, and DEPLOY. The BUILD stage is green and marked 'STAGE PASSED'. The VALIDATE stage is orange and marked 'STAGE PASSED', but it contains a failed job 'Vulnerability Advi...' with a red warning icon and the status 'Failed now'. The DEPLOY stage is blue and marked 'STAGE RUNNING...'. Each stage shows its last input, jobs, and last execution result.

STAGE	STATUS	LAST INPUT	JOBS	LAST EXECUTION RESULT
BUILD	STAGE PASSED	Last commit by Simon Kaegi 74d ago Update app.js	Container build Passed 7m ago	Container build 1
VALIDATE	STAGE PASSED	Stage: BUILD / Job: Contain...	Vulnerability Advi... Failed now	No results
DEPLOY	STAGE RUNNING...	Stage: BUILD / Job: Contain...	Group deploy Running	No results

6.38 Pipeline: stage is passed anyway

The screenshot shows the same CI/CD pipeline, but the VALIDATE stage is now orange and marked 'STAGE PASSED'. The failed job 'Vulnerability Advi...' is still present but marked 'Failed 6m ago'. The DEPLOY stage is green and marked 'STAGE PASSED', with the job 'Group deploy Passed now'. This indicates that the pipeline continued past the failed validation stage.

STAGE	STATUS	LAST INPUT	JOBS	LAST EXECUTION RESULT
BUILD	STAGE PASSED	Last commit by Simon Kaegi 74d ago Update app.js	Container build Passed 13m ago	Container build 1
VALIDATE	STAGE PASSED	Stage: BUILD / Job: Contain...	Vulnerability Advi... Failed 6m ago	No results
DEPLOY	STAGE PASSED	Stage: BUILD / Job: Contain...	Group deploy Passed now	Error

6.39 Helloworld example running

https://hello-containers-secure-container-toolchain-1486831351875.mybluemix.net

ello | Sign In | Sulis : Gateway : Home | M Inbox - thomasflynn1... | /r/Videos | to learn v | 2017 v |
· (2) | Welcome to Bluemix DevOps with Docker. Lets go use the Continuous Delivery Service

