

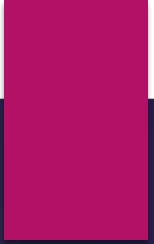


I Need a C2 Infrastructure Immediately... As in, Yesterday!

NIKOS VOURDAS

KYPRIANOS VASILOPOULOS

2025



The opinions expressed in this presentation are my own and do not represent my current employer or any organization.

\$WHOAMI

- ▶ Senior Offensive Security Consultant based in the USA
- ▶ Adversary Simulation/Emulation
- ▶ Tiber-EU/iCAST Experienced
- ▶ OSCE3, OSCP, OSWP, CRTL, CRYPTO && OASP Certified
- ▶ Author: Supernova, COM-Hunter && SkyFall-Pack
- ▶ @nickvourd



\$WHOAMI

- ▶ Chief Information Security Officer (CISO) based in Greece
- ▶ Co-Founder of @TheOffensiveX
- ▶ Adversary Simulation/Emulation
- ▶ OSCP, OSCE, PACES && CRTO
- ▶ Zyxel Networks CVE Hall of Fame
- ▶ @kavasilo

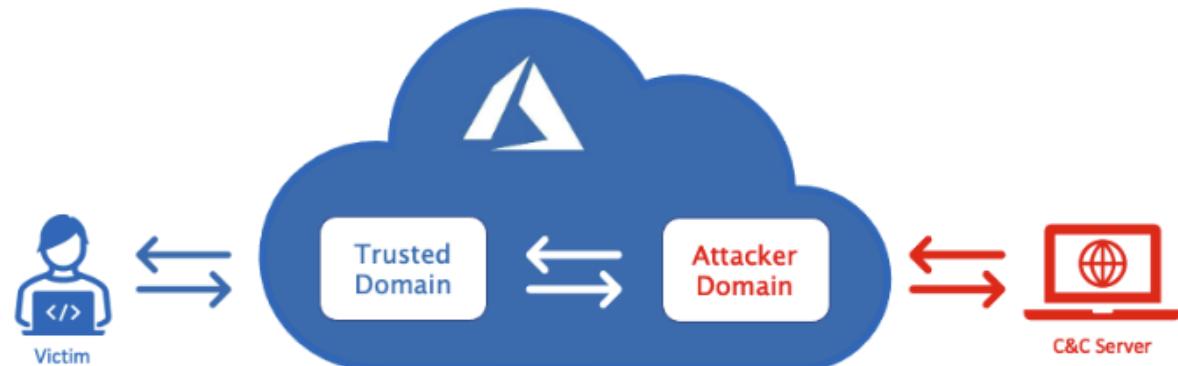


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RIP Domain Fronting

- ▶ Domain fronting is a networking technique that allows a backend server to hide its identity by using the secure connection of a trusted front-end domain.



RIP Domain Fronting

But One Day Unfortunately 😞

Azure CDN from Edgio will be retired on January 15, 2025. You must migrate your workload to Azure Front Door before this date to avoid service disruption. This article provides guidance on how to migrate your workloads from Azure CDN from Edgio to Azure Front Door using Azure Traffic Manager. The migration process in this article can also be used to migrate workloads from a legacy CDN to Azure Front Door.

RIP Domain Fronting



C2 Infrastructure Standards

The 4 Standards of a C2 Infrastructure:

- ▶ Low-cost or affordable pricing
- ▶ OPSEC, targeted to the client's environment
- ▶ Protected Team Server
- ▶ Set up time



**NORMAL
SERVER**

SERVERLESS

C2
Infrastructure
Standards



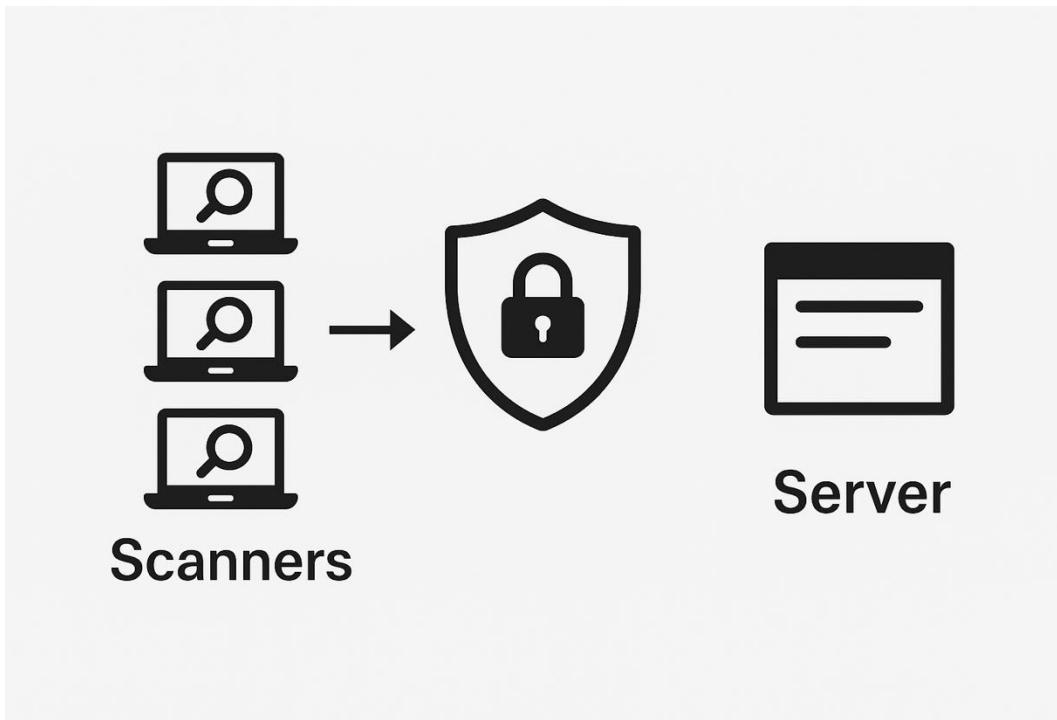
C2 Infrastructure Standards



C2 Infrastructure Standards



C2 Infrastructure Standards



C2 Infrastructure Standards

Time == Money



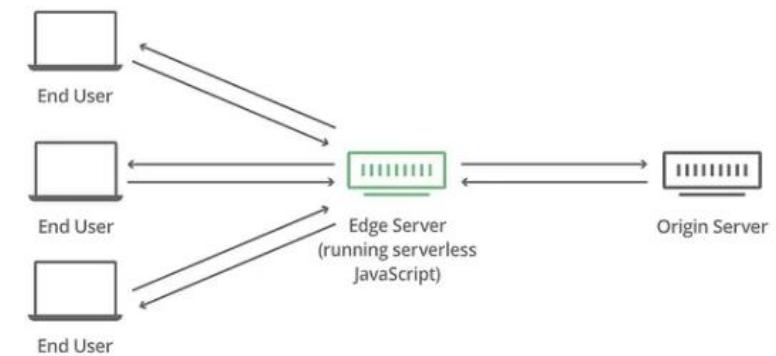
C2 Infrastructure Standards

Time == Money == Energy



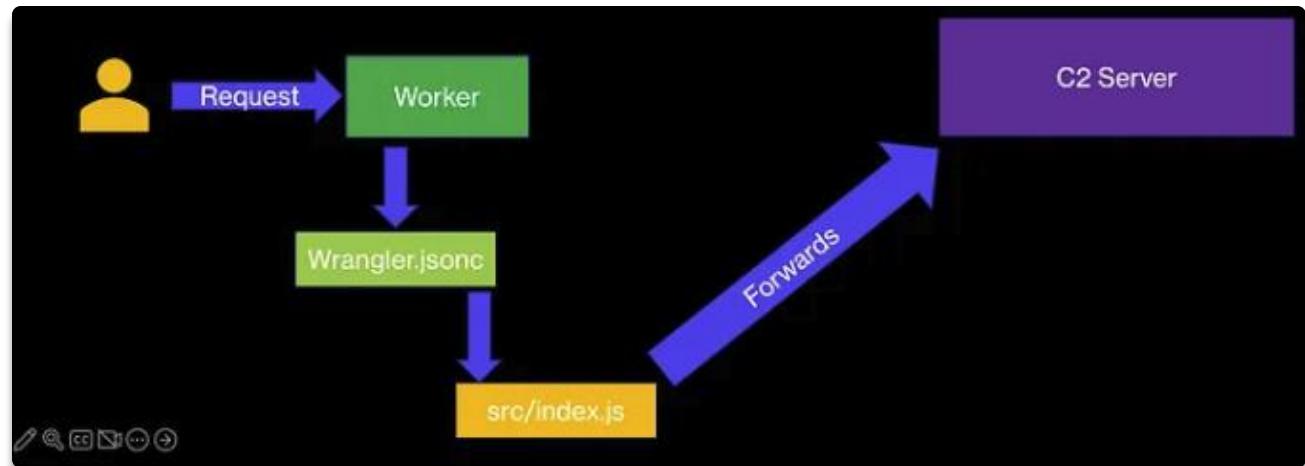
Cloudflare Workers

- ▶ A serverless computing platform provided by Cloudflare that allows developers to run JavaScript/TypeScript/Python code on their global network of data centers.
- ▶ Build and manage a Cloudflare Worker using the command-line tool named Wrangler or through Cloudflare's platform.



Cloudflare Workers

- ▶ wrangler.jsonc
- ▶ Index.js



**CLOUDFLARE
FREE VERSION**



**LIMITS YOU TO
100,000 REQUESTS**

* Per day

Cloudflare
Workers

Cloudflare Workers

`https://<worker_project_name>.<subdomain>.workers.dev/`

The screenshot shows the Cloudflare Workers & Pages dashboard. At the top, it displays the URL `https://<worker_project_name>.<subdomain>.workers.dev/`. The main interface includes a search bar for applications, a list of applications (with `aws-api-cloud` highlighted), and performance metrics for the last 24 hours (1.6k requests, 3 errors, 0.7 ms median CPU time, 65.5 ms median wall time). On the right, there's an account summary with metrics for requests and observability events, and sections for account ID, API tokens, and compute settings.

Compute

Workers & Pages

Build & deploy serverless functions, sites, and full-stack applications with Workers & Pages. Read the [Workers documentation](#) and [Pages documentation](#) to learn more.

Create

Search applications

Filter by: Show all Sort by: Last modified

Last 24 hrs

Requests	Errors	Median CPU Time	Median Wall Time
1.6k	3	0.7 ms	65.5 ms

Visit

Account details

12:00AM Tue (UTC) - 1:59AM Tue (UTC)

Requests today: 4 / 100,000

Observability events today: 1,100 / 200,000

Account ID: [REDACTED]

Manage API tokens

workers.dev Change

Compute setting: Global Change

Cloudflare Workers

► wrangler.jsonc

```
{  
  "$schema": "node_modules/wrangler/config-schema.json",  
  "name": "aws-api-cloud",  
  "main": "src/index.js",  
  "compatibility_date": "2025-03-13",  
  "workers_dev": true,  
  "observability": {  
    "enabled": true  
  },  
  "vars": {  
    "TEAMSERVER": "https://nickvourd.eastus2.cloudapp.azure.com/",  
    "REDIRECTOR": "https://aws-api-cloud.nickvourd.workers.dev/"  
  }  
}
```

▶ index.js

```
// Listen for incoming fetch events
addEventListener('fetch', event => {
  // Respond with the result of the handleRequest function
  event.respondWith(handleRequest(event))
})

async function handleRequest(event) {
  // Get the incoming request object
  const incomingRequest = event.request

  // Clone the incoming request to preserve the body for forwarding
  const clonedIncomingRequest = incomingRequest.clone()

  // Extract the path from the incoming request URL by removing the REDIRECTOR
  const requestPath = incomingRequest.url.replace(REDIRECTOR, "")

  // Construct the target URL by appending the path to the TEAMSERVER base URL
  const targetUrl = TEAMSERVER + requestPath

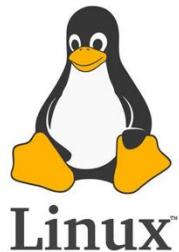
  try {
    // Check if the incoming request is a POST request
    if (incomingRequest.method === 'POST') {
      // Forward the POST request to the target URL with the same headers and body
      const forwardResponse = await fetch(targetUrl, {
        method: 'POST',
        headers: incomingRequest.headers,
        body: clonedIncomingRequest.body,
      })

      // Return the forwarded response
      return forwardResponse
    }
    // Check if the incoming request is a GET request
    else if (incomingRequest.method === 'GET') {
      // Forward the GET request to the target URL with the same headers
      const forwardResponse = await fetch(targetUrl, {
        method: 'GET',
        headers: incomingRequest.headers
      })

      // Return the forwarded response
      return forwardResponse
    }
    // Handle other HTTP methods that are not allowed (Forbidden)
    else {
      return new Response('Forbidden', { status: 403 })
    }
  } catch (error) {
    // If there is an error, return a 500 response with an error message
    return new Response('Error forwarding request', { status: 500 })
  }
}
```

Cloudflare Workers

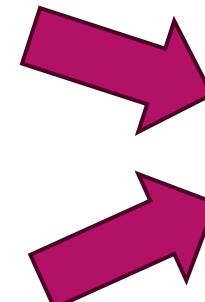
The Rise of the Redirector



```
sudo apt install npm -y
```

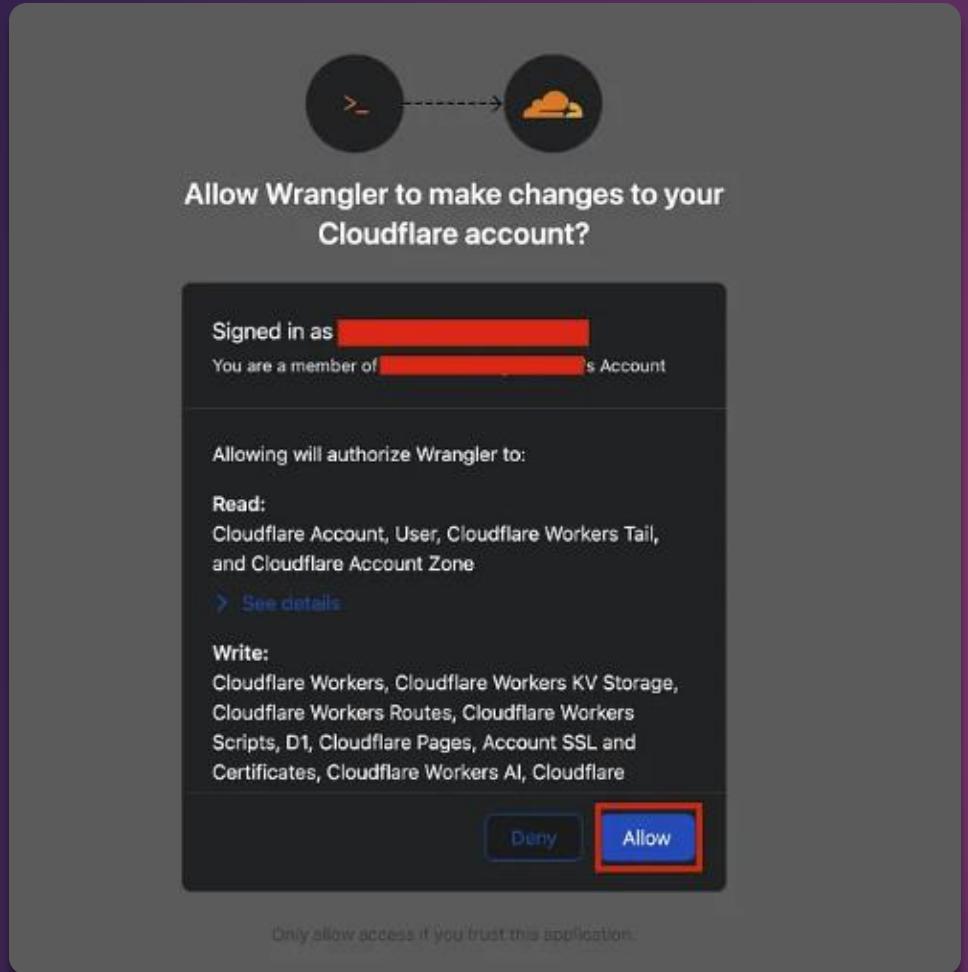


```
brew install node wrangler
```



```
npm exec wangler login
```

The Rise of the Redirector



The Rise of the Redirector

```
npm create cloudflare -y
```



```
Create an application with Cloudflare Step 1 of 3
In which directory do you want to create your application?
dir ./aws-api-cloud

What would you like to start with?
category Hello World example

Which template would you like to use?
type Hello World Workers

Which language do you want to use?
lang JavaScript

Copying template files
files copied to project directory

Updating name in 'package.json'
updated 'package.json'

Installing dependencies
installed via 'npm install'

Application created

Configuring your application for Cloudflare Step 2 of 3
Installing wrangler A command line tool for building Cloudflare Workers
installed via 'npm install wrangler --save-dev'

Retrieving current workerd compatibility date
compatibility date 2025-03-12

Do you want to use git for version control?
yes git

Initializing git repo
initialized git

Committing new files
git commit

Application configured

Deploy with Cloudflare Step 3 of 3
Do you want to deploy your application?
yes deploy via 'npm run deploy'

Logging into Cloudflare checking authentication status
logged in

Selecting Cloudflare account retrieving accounts
account [REDACTED] Account

> aws-api-cloud@0.0.0 deploy
> wrangler deploy
```

The Rise of the Redirector

```
Cloudflare collects anonymous telemetry about your usage of Wrangler. Learn more at https://github.com/cloudflare/workers-sdk/tree/main/packages/wrangler/telemetry.md

wrangler 3.114.1

Total Upload: 0.19 KiB / gzip: 0.16 KiB
No bindings found.
Unloaded aws-api-cloud (1.58 sec)
Deployed aws-api-cloud triggers (0.61 sec)
  https://aws-api-cloud.nickvourd.workers.dev
Current Version ID:
  - Waiting for DNS to propagate. This might take a few minutes.
    DNS propagation complete.
  - Waiting for deployment to become available
    timed out while waiting for https://aws-api-cloud.nickvourd.workers.dev - try accessing it in a few minutes.
Done

  SUCCESS Application deployed successfully!
  View Project
  Visit: https://aws-api-cloud.nickvourd.workers.dev
  Dash: https://dash.cloudflare.com/tlcm/account/workers/services/view/aws-api-cloud

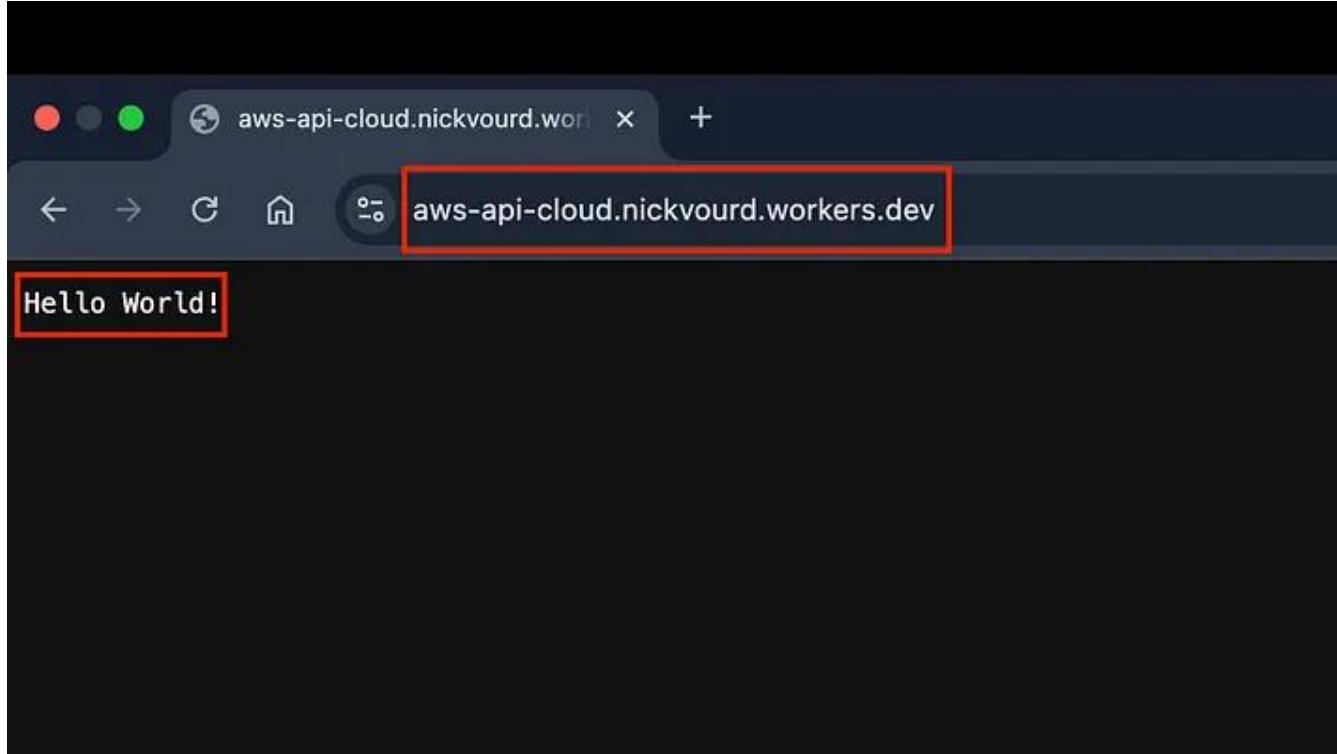
  Continue Developing
  Change directories: cd aws-api-cloud
  Start dev server: npm run start
  Deploy again: npm run deploy

  Explore Documentation
  https://developers.cloudflare.com/workers

  Report an Issue
  https://github.com/cloudflare/workers-sdk/issues/new/choose

  Join our Community
  https://discord.cloudflare.com
```

The Rise of the Redirector



The Rise of the Redirector

```
npm exec wrangler deploy
```



```
[nickvourd@Nikos-MacBook-Pro aws-api-cloud % vim wrangler.jsonc
[nickvourd@Nikos-MacBook-Pro aws-api-cloud % vim src/index.js
[nickvourd@Nikos-MacBook-Pro aws-api-cloud % npm exec wrangler deploy

  ⚡ wrangler 4.0.0
  -----
  Total Upload: 1.24 KiB / gzip: 0.51 KiB
  Your worker has access to the following bindins:
  - Vars:
    - TEAMSERVER: "https://nickvourd.eastus2.cloudapp.azure.net"
    - REDIRECTOR: "https://aws-api-cloud.nickvourd.workers.dev"
  Uploaded aws-api-cloud (1.39 sec)
  Deployed aws-api-cloud triggers (0.24 sec)
    https://aws-api-cloud.nickvourd.workers.dev
  Current version ID:
  nickvourd@Nikos-MacBook-Pro aws-api-cloud %
```

Team Server Configurations

teamserver-ip | Configuration

Public IP address:

IP Search Save Discard Refresh

Overview IP address assignment: Static

Activity log IP address: [REDACTED]

Access control (IAM) Idle timeout (minutes): 4

Tags

Settings Configuration

Properties

Locks

Monitoring

Automation

Help

DNS name label (optional): nickvound .eastus2.cloudapp.azure.com

You can use the IP address as your 'A' DNS record or DNS label as your 'CNAME' record. [Learn more about adding a custom domain to this IP address.](#)

Alias record sets Create an alias record in Azure DNS. [Learn more.](#)

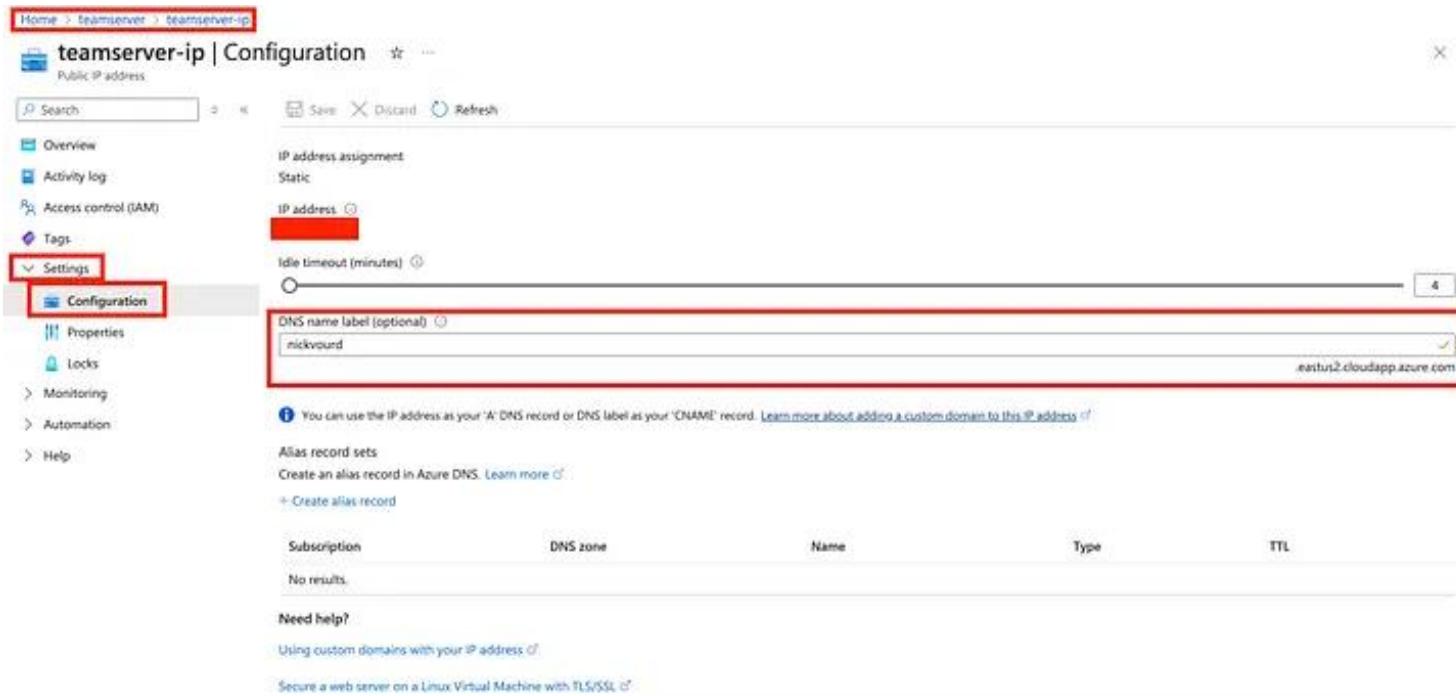
+ Create alias record

Subscription	DNS zone	Name	Type	TTL
No results.				

Need help?

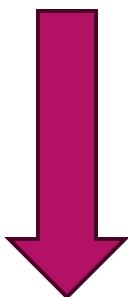
Using custom domains with your IP address. [Learn more.](#)

Secure a web server on a Linux Virtual Machine with TLS/SSL. [Learn more.](#)



Team Server Configurations

```
snap install certbot --classic
```



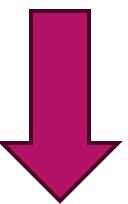
```
certbot certonly -d <fqdn> --standalone --non-interactive --register-unsafely-without-email --agree-tos
```

Team Server Configurations

```
teamserver: /opt/cobaltstrike/server - ssh nickvourd@nickvourd.eastus2.cloudapp.azure.com -i teamserver_key.pem  
root@teamserver:/opt/cobaltstrike/server# snap install certbot --classic  
certbot 3.3.0 from Certbot Project (certbot-eff-) installed  
root@teamserver:/opt/cobaltstrike/server# certbot certonly -d nickvourd.eastus2.cloudapp.azure.com --standalone --non-interactive --register-unsafely-without-email --agree-tos  
Saving debug log to /var/log/letsencrypt/letsencrypt.log  
Account registered.  
Requesting a certificate for nickvourd.eastus2.cloudapp.azure.com  
  
Successfully received certificate.  
Certificate is saved at: /etc/letsencrypt/live/nickvourd.eastus2.cloudapp.azure.com/fullchain.pem  
Key is saved at: /etc/letsencrypt/live/nickvourd.eastus2.cloudapp.azure.com/privkey.pem  
This certificate expires on 2025-06-13.  
These files will be updated when the certificate renews.  
Certbot has set up a scheduled task to automatically renew this certificate in the background.  
  
-----  
If you like Certbot, please consider supporting our work by:  
* Donating to ISRG / Let's Encrypt: https://letsencrypt.org/donate  
* Donating to EFF: https://eff.org/donate-le  
-----  
root@teamserver:/opt/cobaltstrike/server#
```

Team Server Configurations

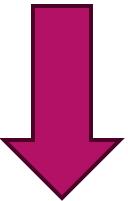
```
openssl pkcs12 -inkey privkey.pem -in fullchain.pem -export -out <filename>.pkcs12
```



```
[teamserver: /opt/cobaltstrike/server] — ssh nickvourd@nickvourd.eastus2.cloudapp.azure.com -i teamserver_key.pem  
[root@teamserver: /opt/cobaltstrike/server] # cp /etc/letsencrypt/live/nickvourd.eastus2.cloudapp.azure.com/privkey.pem .  
[root@teamserver: /opt/cobaltstrike/server] # cp /etc/letsencrypt/live/nickvourd.eastus2.cloudapp.azure.com/fullchain.pem .  
[root@teamserver: /opt/cobaltstrike/server] # openssl pkcs12 -inkey privkey.pem -in fullchain.pem -export -out nickvourd.pkcs12  
[Enter Export Password:  
Verifying - Enter Export Password:  
[root@teamserver: /opt/cobaltstrike/server] # ls -la nickvourd.pkcs12  
-rw----- 1 root root 2800 Mar 15 17:30 nickvourd.pkcs12  
[root@teamserver: /opt/cobaltstrike/server] #
```

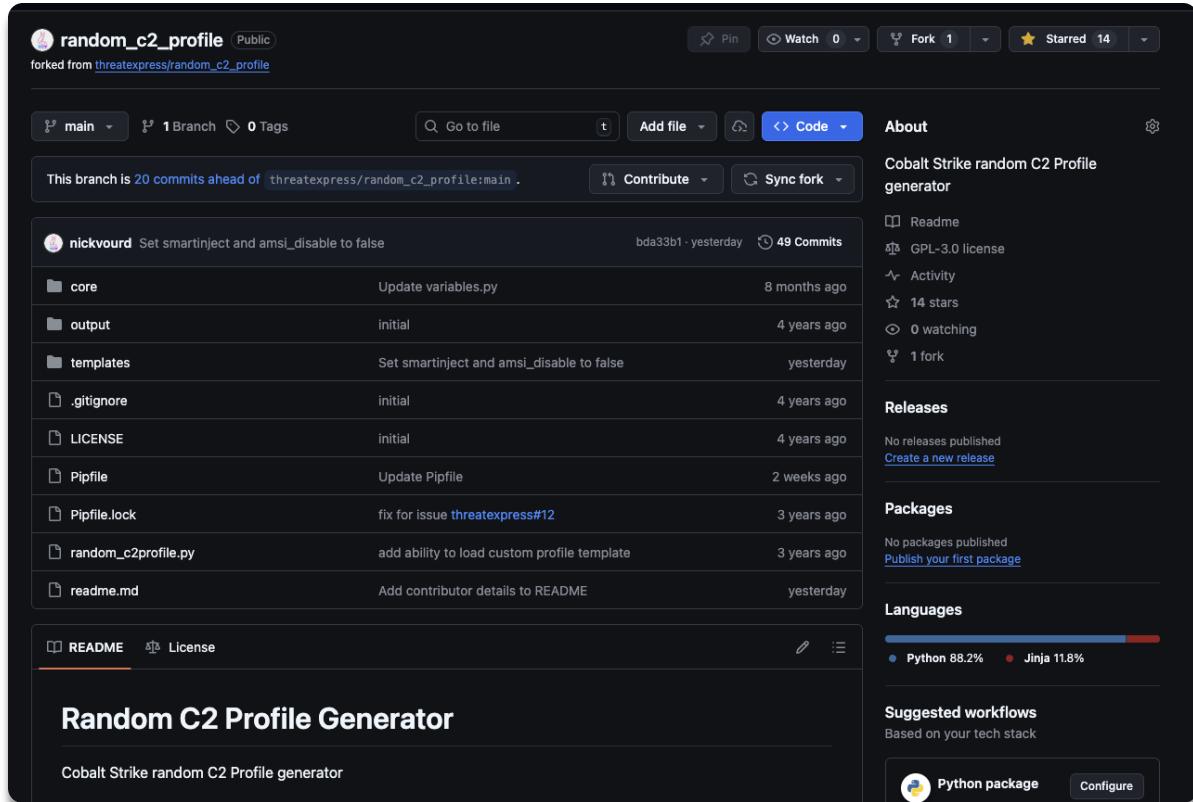
Team Server Configurations

```
keytool -importkeystore -srckeystore <filename_of_pkcs12>.pkcs12 -srcstoretype pkcs12 -destkeystore <filename_keystore>.store
```



```
[teamserver: /opt/cobaltstrike/server] — ssh nickvourd@nickvourd.eastus2.cloudapp.azure.com -i teamserver_key.pem [root@teamserver:/opt/cobaltstrike/server]# keytool -importkeystore -srckeystore nickvourd.pkcs12 -srcstoretype pkcs12 -destkeystore nickvourd.store  
Importing keystore nickvourd.pkcs12 to nickvourd.store...  
Enter destination keystore password:  
Re-enter new password:  
Enter source keystore password:  
Entry for alias 1 successfully imported.  
Import command completed: 1 entries successfully imported, 0 entries failed or cancelled  
[root@teamserver:/opt/cobaltstrike/server]#
```

Team Server Configurations



- ▶ Project: [random_c2_profile](https://github.com/nickvourd/random_c2_profile)
- ▶ Original Author: Joe vest (@joevest)
- ▶ Original Repo:
https://github.com/threatexpress/random_c2_profile
- ▶ Modified Repo:
https://github.com/nickvourd/random_c2_profile

Team Server Configurations

```
root@teamserver:/opt# git clone https://github.com/nickvouz/random_c2_profile.git
Cloning into 'random_c2_profile'...
remote: Enumerating objects: 149, done.
remote: Counting objects: 100% (52/52), done.
remote: Compressing objects: 100% (39/39), done.
remote: Total 149 (delta 24), reused 14 (delta 13), pack-reused 97 (from 1)
Receiving objects: 100% (149/149), 182.78 KiB | 7.91 MiB/s, done.
Resolving deltas: 100% (82/82), done.
root@teamserver:/opt# cd random_c2_profile/
root@teamserver:/opt/random_c2_profile# pipenv --python 3.12
Creating a virtualenv for this project...
Pipfile: /opt/random_c2_profile/Pipfile
Using /usr/bin/python (3.12.3) to create virtualenv...
Creating virtual environment... created virtual environment CPython3.12.3.final.0-64 in 263ms
creator: CPython3Posix(dest=/root/.local/share/virtualenvs/random_c2_profile-jqm50Q2Y, clear=False, no_vcs_ignore=False, global=False)
seed: FromAppData(download=False, pip=bundle, via=copy, app_data_dir=/root/.local/share/virtualenv)
added seed packages: pip==24.0
activators: BashActivator,CShellActivator,FishActivator,NushellActivator,PowerShellActivator,PythonActivator
✓ Successfully created virtual environment!
Virtualenv location: /root/.local/share/virtualenvs/random_c2_profile-jqm50Q2Y
root@teamserver:/opt/random_c2_profile# pipenv install
Pipfile.lock (81081e) out of date, updating to (a84f58)...
Locking [packages] dependencies...
Building requirements...
Resolving dependencies...
✓ Success!
Locking [dev-packages] dependencies...
Updated Pipfile.lock (eeff6c3c45c4728888ec8dd52c94835b1cc32cff0ba4e8292eb5264f3da94f58)!
```

```
Installing dependencies from Pipfile.lock (a84f58)...
To activate this project's virtualenv, run pipenv shell.
Alternatively, run a command inside the virtualenv with pipenv run.
root@teamserver:/opt/random_c2_profile# pipenv shell
Launching subshell in virtual environment...
root@teamserver:/opt/random_c2_profiles .: /root/.local/share/virtualenvs/random_c2_profile-jqm50Q2Y/bin/activate
(random_c2_profile) root@teamserver:/opt/random_c2_profiles python python3 python3-config python3.12 python3.12-config pythoncalls-bpfcc pythonflow-bpfcc pythongc-bpfcc pythonstat-bpfcc
(random_c2_profile) root@teamserver:/opt/random_c2_profile# python3 random_c2profile.py
/opt/random_c2_profile/random_c2profile.py:11: SyntaxWarning: invalid escape sequence '\'
    banner = ''
/opt/random_c2_profile/core/html_content.py:98: SyntaxWarning: invalid escape sequence '\['
...
/opt/random_c2_profile/core/html_content.py:149: SyntaxWarning: invalid escape sequence '\'
...
/opt/random_c2_profile/core/html_content.py:168: SyntaxWarning: invalid escape sequence '\'
...
/opt/random_c2_profile/core/html_content.py:172: SyntaxWarning: invalid escape sequence '\'
...
/opt/random_c2_profile/core/html_content.py:277: SyntaxWarning: invalid escape sequence '\.
...

```

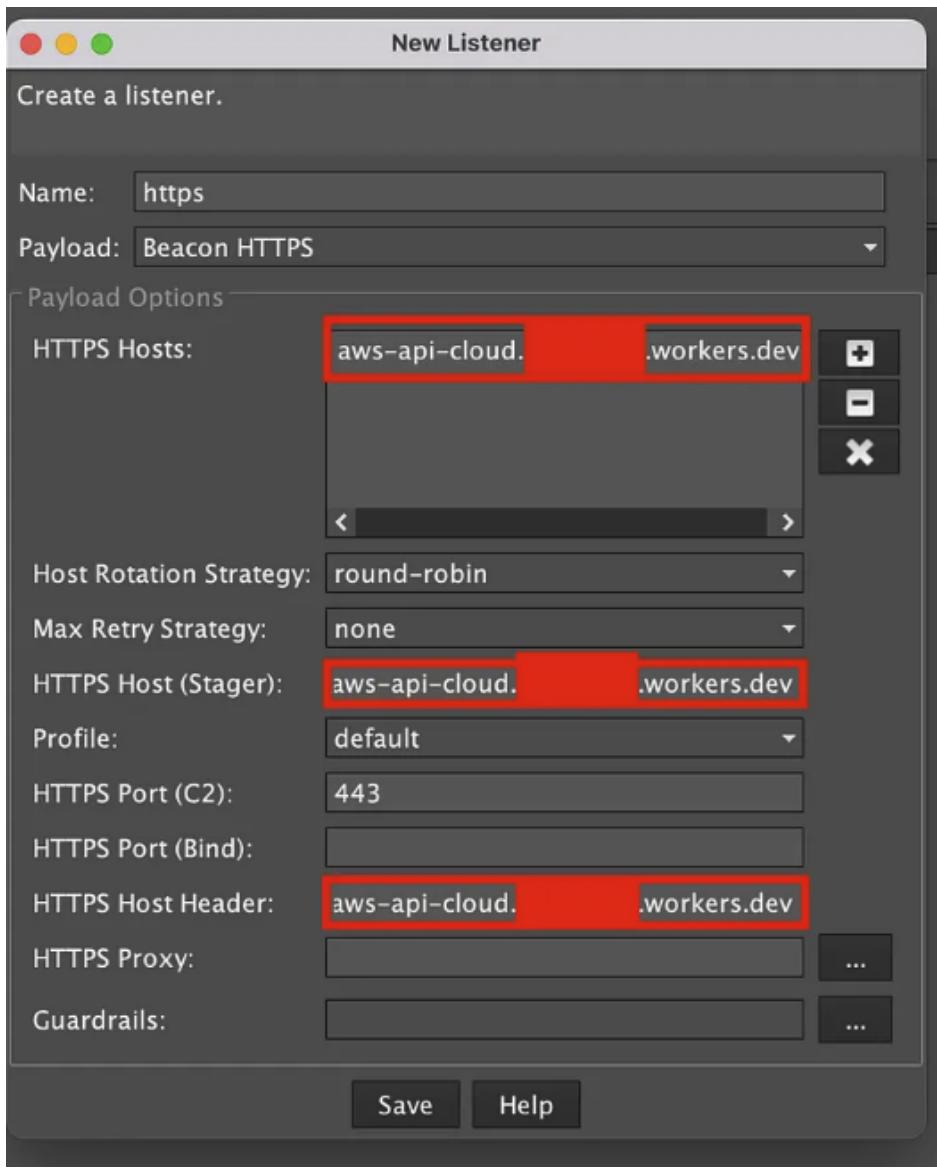
Random C2 Profile
Cobalt Strike random C2 Profile generator
Joe Vest (@joevest) - 2021

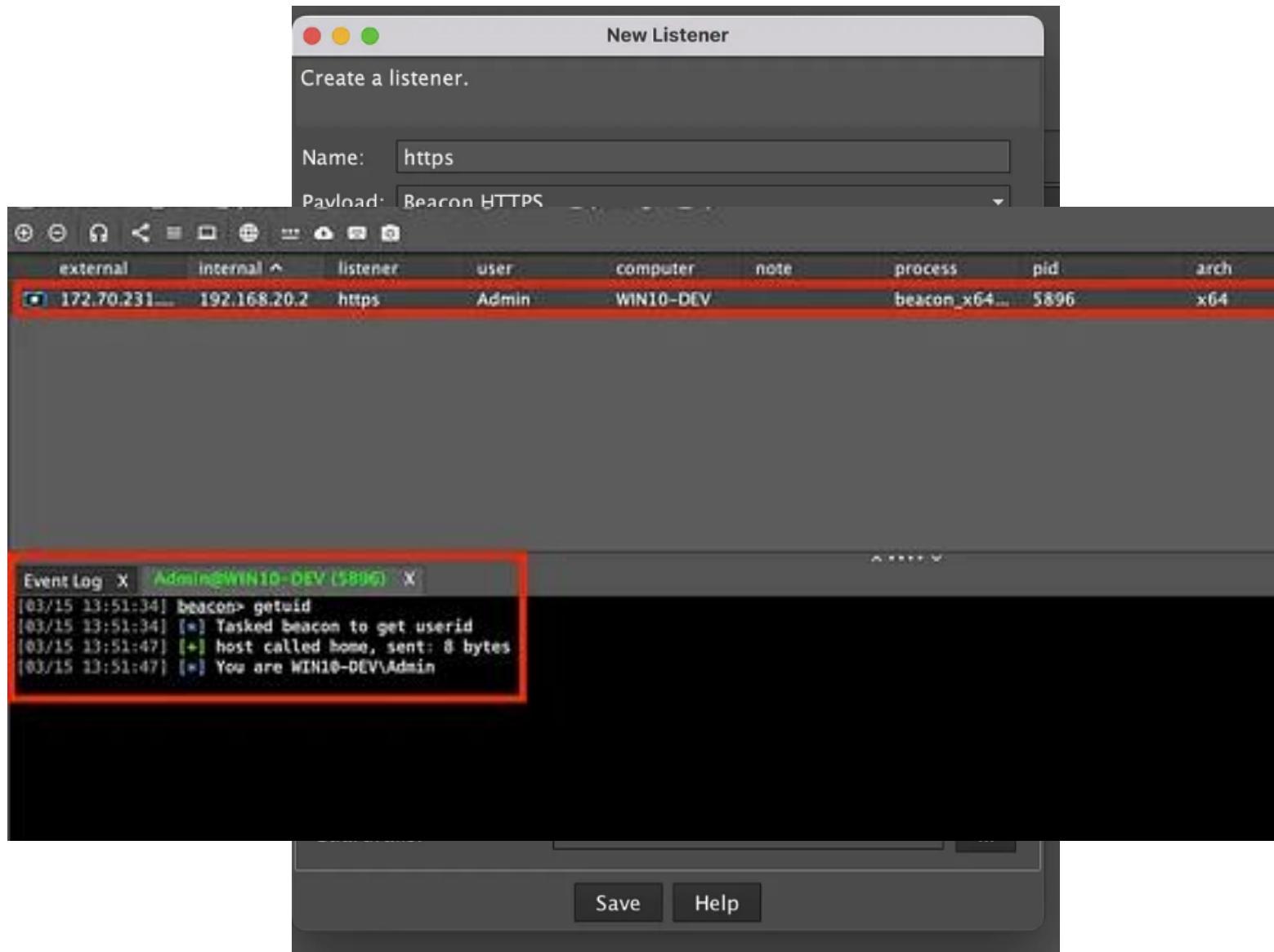
```
[+] Generating Cobalt Strike Malleable C2 Profile
  Version : 4.7
  template: templates/default_c2profile.template.jinja
[+] Done.. Don't forget to validate with c2lint!
[+] Profile saved to output/VMAAFLR.profile
(random_c2_profile) root@teamserver:/opt/random_c2_profile#
```

Team Server Configurations

```
root@teamserver:/opt# git clone https://github.com/nickvourd/random_c2_profile.git
Cloning into 'random_c2_profile'...
remote: Enumerating objects: 149, done.
remote: Counting objects: 100% (52/52), done.
remote: Compressing objects: 100% (39/39), done.
remote: Total 149 (delta 24), reused 14 (delta 13), pack-reused 97 (from 1)
Receiving objects: 100% (149/149), 182.78 KiB | 7.91 MiB/s, done.
Resolving deltas: 100% (82/82), done.
root@teamserver:/opt# cd random_c2_profile/
root@teamserver:/opt/random_c2_profile# pipenv --python 3.12
Creating a virtualenv for this project...
Pipfile: /opt/random_c2_profile/Pipfile
Using /usr/bin/python (3.12.3) to create virtualenv...
Creating virtual environment...created virtual environment CPython3.12.3.final.0-64 in 263ms
creator CPython3Posix(dest=/root/.local/share/virtualenvs/random_c2_profile-jqm5DQ2Y, clear=False, no_vcs_ignore=False, global=False)
seeder FromAppData(download=False, pip=b
  added seed packages: pip==24.0
activators HashActivator,CShellActivator
✓ Successfully created virtual environment
Virtualenv location: /root/.local/share/vi
root@teamserver:/opt/random_c2_profile# pi
Pipfile.lock (01081e) out of date, updating
Locking [packages] dependencies...
Building requirements...
Resolving dependencies...
✓ Success!
Locking [dev-packages] dependencies...
Updated Pipfile.lock (eeff6c3c45c4728888e6d
Installing dependencies from Pipfile.lock
To activate this project's virtualenv, run
Alternatively, run a command inside the vi
root@teamserver:/opt/random_c2_profile# pi
Launching subshell in virtual environment:
root@teamserver:/opt/random_c2_profiles .(
random_c2_profile) root@teamserver:/opt/r
python python3 pyth
(random_c2_profile) root@teamserver:/opt/r
/opt/random_c2_profile/random_c2profile.py
banner = ''
/opt/random_c2_profile/core/html_content.p
...
/opt/random_c2_profile/core/html_content.p
...
/opt/random_c2_profile/core/html_content.p
...
/opt/random_c2_profile/core/html_content.p
...
=====
[!] Cobalt Strike Random C2 Profile generator
Cobalt Strike random C2 Profile generator
Joe Vest (@jovest) - 2021
=====
[*] Generating Cobalt Strike Malleable C2
Version : 4.7
template: Templates/default_c2profile
[*] Don't forget to validate with c2
[*] Profile saved to output/VMAAVLR.profile
(random_c2_profile) root@teamserver:/opt/r
root@teamserver:/opt# 31
32 ######
33 ## SSL CERTIFICATE
34 #####
35 #https-certificate { # Simple self signed certificate data
36
37 #      set C      "ML";
38 #      set CN     "v1.87.com";
39 #      set O       "bios";
40 #      set OU    "computing sales";
41 #      set validity "365";
42 #
43
44 #####
45 ## Alternative SSL CERTIFICATE (Keystores)
46 #####
47 https-certificate {
48     set keystore "nickvourd.store";
49     set password "██████████";
50 }
51
```

Team Server Configurations





Team Server Configurations

**4 C2 INFRA
STANDARDS...**



Kyle
Saved
My Team
Server

Kyle Saved My Team Server

Shout out to Kyle Avery (@kyleavery_) for all the guidance



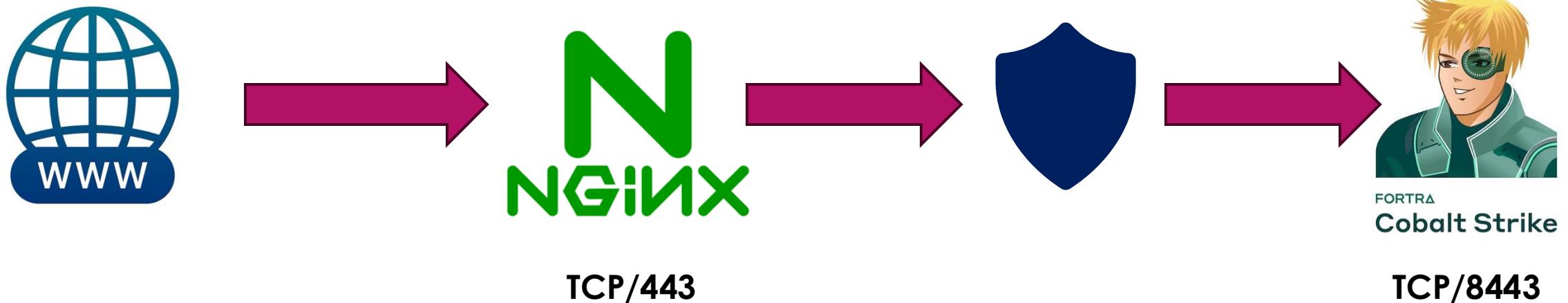
Kyle Avery [Outflank] 4:26 PM

I don't, but I usually will have the worker add some special header that my Teamserver expects. For example, it could add something generic like "REDIRECTOR: supersecurevalue" and then you could use nginx/apache on the same server as CS to check the header before forwarding to localhost

Kyle Saved My Team Server



Kyle Saved My Team Server



Kyle Saved My Team Server

► wrangler.jsonc

```
{  
  "$schema": "node_modules/wrangler/config-schema.json",  
  "name": "aws-api-cloud",  
  "main": "src/index.js",  
  "compatibility_date": "2025-03-13",  
  "workers_dev": true,  
  "observability": {  
    "enabled": true  
  },  
  "vars": {  
    "HEADERVALUE": "SuperSecretValue",  
    "TEAMSERVER": "https://nickvourd.eastus2.cloudapp.azure.com/",  
    "REDIRECTOR": "https://aws-api-cloud.nickvourd.workers.dev/"  
  }  
}
```

Kyle Saved My Team Server

► wrangler.jsonc

```
{  
  "$schema": "node_modules/wrangler/config-schema.json",  
  "name": "aws-api-cloud",  
  "main": "src/index.js",  
  "compatibility_date": "2025-03-13",  
  "workers_dev": true,  
  "observability": {  
    "enabled": true  
  },  
  "vars": {  
    "HEADERVALUE": "SuperSecretValue",  
    "TEAMSERVER": "https://nickvourd.eastus2.cloudapp.azure.com/",  
    "REDIRECTOR": "https://aws-api-cloud.nickvourd.workers.dev/"  
  }  
}
```

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► Index.js

```
const PRESHARED_AUTH_HEADER_KEY = "X-Custom-Header"

addEventListener('fetch', event => {
  event.respondWith(handleRequest(event))
})

async function handleRequest(event) {
  const request = event.request

  // Check if the method is GET or POST
  if (request.method !== 'GET' && request.method !== 'POST') {
    return new Response(JSON.stringify(
      {
        "Error": "Method not allowed."
      }, null, 2),
      {
        status: 405,
        headers: {
          "content-type": "application/json;charset=UTF-8",
          "Allow": "GET, POST"
        }
      }
    )
  }

  const clonedRequest = request.clone()
```

```
if (psk === HEADERVALUE) {
  try {
    if (request.method === 'POST') {
      const response = await fetch(destUrl, {
        method: 'POST',
        headers: request.headers,
        body: clonedRequest.body,
      })
    }

    return response
  }
  else if (request.method === 'GET') {
    const response = await fetch(destUrl, {
      method: 'GET',
      headers: request.headers
    })
    return response
  }
} catch (error) {
  return new Response('Error forwarding request', { status: 500 })
}
else {
  return new Response(JSON.stringify(
    {
      "Error" : "Authentication Failure."
    }, null, 2),
    {
      status: 401,
      headers: {
        "content-type": "application/json;charset=UTF-8"
      }
    }
  )
}
```

Kyle Saved My Team Server

```
certbot certonly -d <fqdn> --nginx --non-interactive --register-unsafely-without-email --agree-tos
```

```
# HTTP server block returning 403 Forbidden
server {
    listen 80;
    listen [::]:80;
    server_name nickvourd.eastus2.cloudapp.azure.com;

    # Return 403 Forbidden for all HTTP requests
    return 403;
}

# HTTPS server block with custom header authorization and proxy setup
server {
    listen 443 ssl;
    server_name nickvourd.eastus2.cloudapp.azure.com;
    ssl_certificate /etc/letsencrypt/live/nickvourd.eastus2.cloudapp.azure.com/fullchain.pem;
    ssl_certificate_key /etc/letsencrypt/live/nickvourd.eastus2.cloudapp.azure.com/privkey.pem;
    ssl_protocols TLSv1.3;

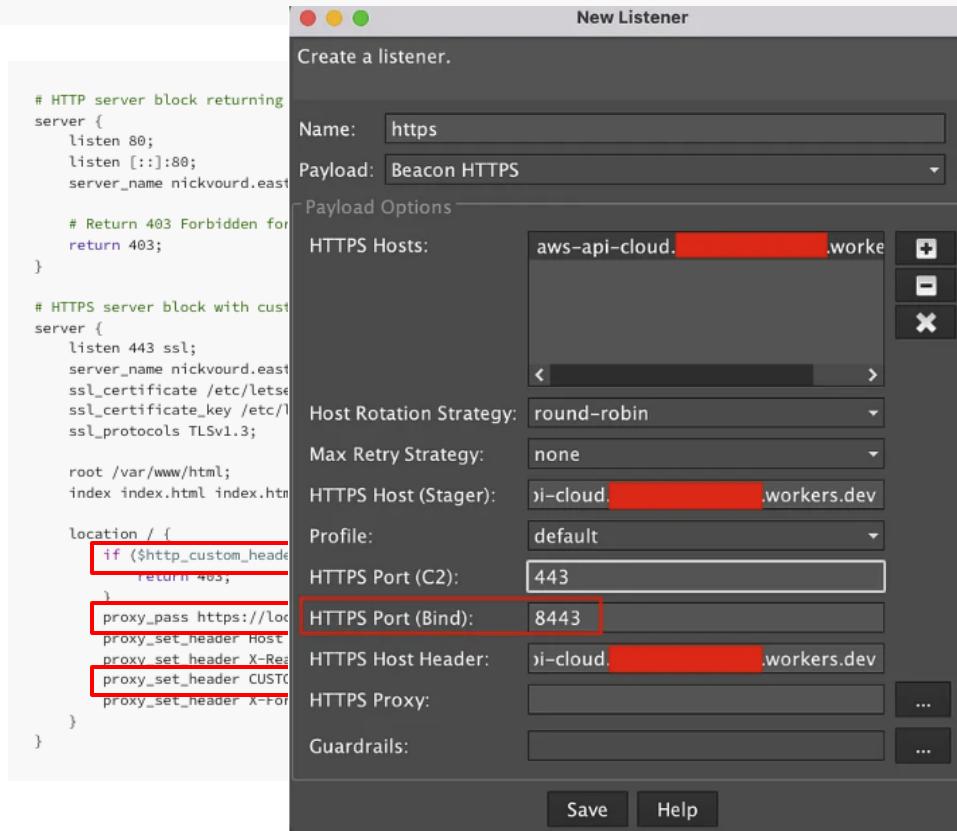
    root /var/www/html;
    index index.html index.htm;

    location / {
        if ($http_custom_header != "SuperSecretValue") {
            return 403;
        }
        proxy_pass https://localhost:8443;
        proxy_set_header Host $host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header CUSTOM-HEADER $http_custom_header;
        proxy_set_header X-Forwarded-Proto $scheme;
    }
}
```

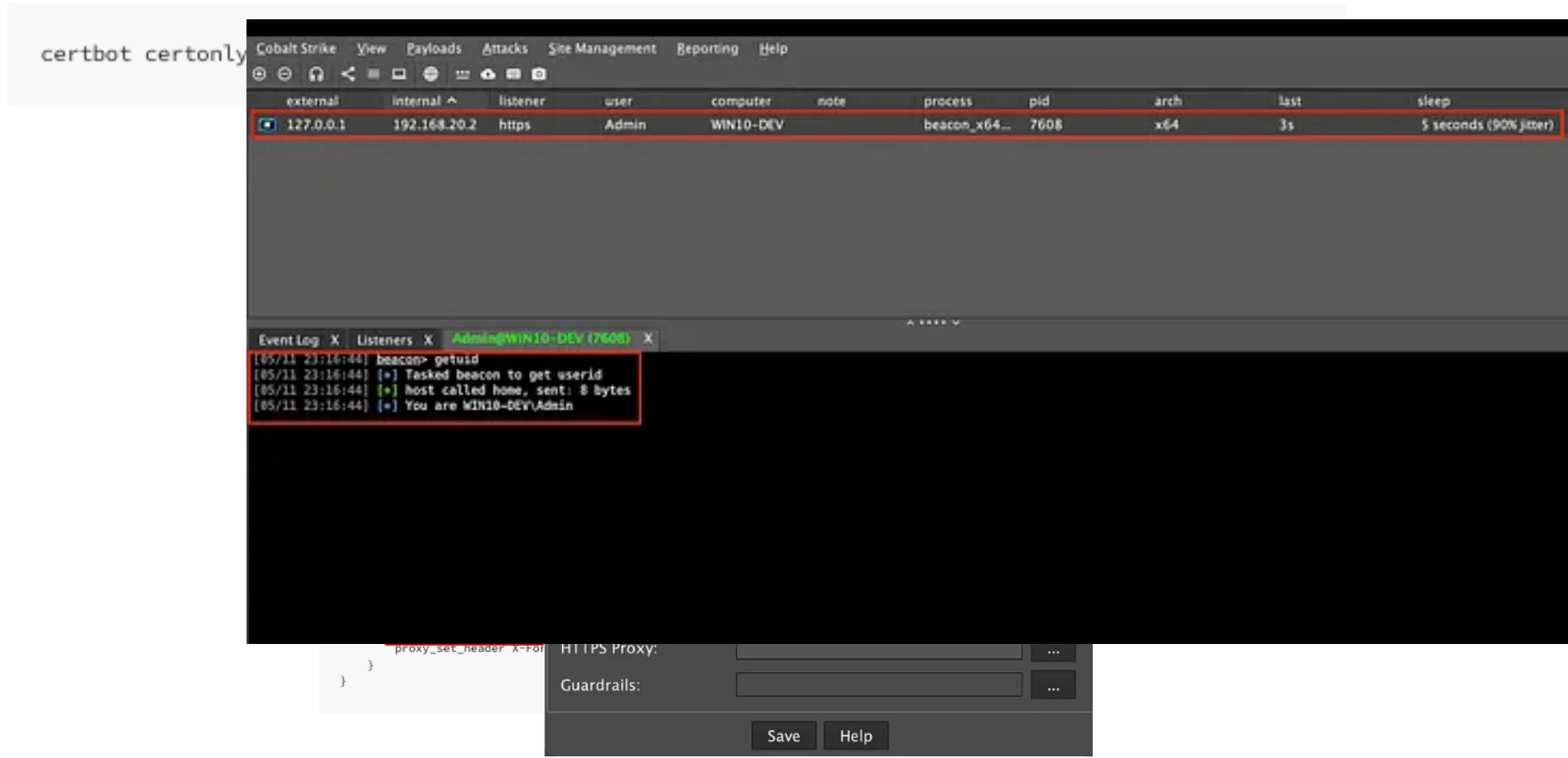


Kyle Saved My Team Server

```
certbot certonly -d <fqdn> --nginx --non-interactive --register-unsafely-without-email --agree-tos
```



Kyle Saved My Team Server



SkyFall-Pack Automation

- ▶ Version: 1.2
- ▶ Written: Golang, Terraform, Ansible && Bash Scripting
- ▶ Authors: @nickvourd, @kavasilo
- ▶ Integrated with Cobalt Stike/Outflank Stage 1 C2

Screenshot of the GitHub repository for SkyFall-Pack.

Repository Details:

- Public repository
- 1 Branch
- 2 Tags
- 230 Commits
- Created by nickvourd
- Last commit: 1de0786 · yesterday

Commits:

File / Commit Message	Date	
Update malleable.yml	yesterday	
Ansible-Pack	Update malleable.yml	yesterday
Pictures	Add Pictures/logo2.png and Update README.md	8 months ago
Scripts-Pack	Update setup.sh	5 months ago
Terraform-Pack	Update compute.tf	8 months ago
Workers-Pack	Update v1.1	5 months ago
.gitignore	Update v1.1	5 months ago
LICENSE	Initial commit	9 months ago
README.md	Update version badge in README to 1.2	yesterday

About: Your Skyfall Infrastructure Pack

- Infrastructure
- golang
- ansible
- automation
- terraform
- redirector
- cloudflare
- wrangler
- cobalt-strike
- c2
- redteaming
- redteam
- cloudflare-workers
- redteam-infrastructure
- redteam-tools
- infra-terraform

Readme:

Releases: 2

- v1.2 (Latest) · yesterday
- + 1 release

Packages: No packages published

Contributors: 4

Starred: 78

Forks: 18

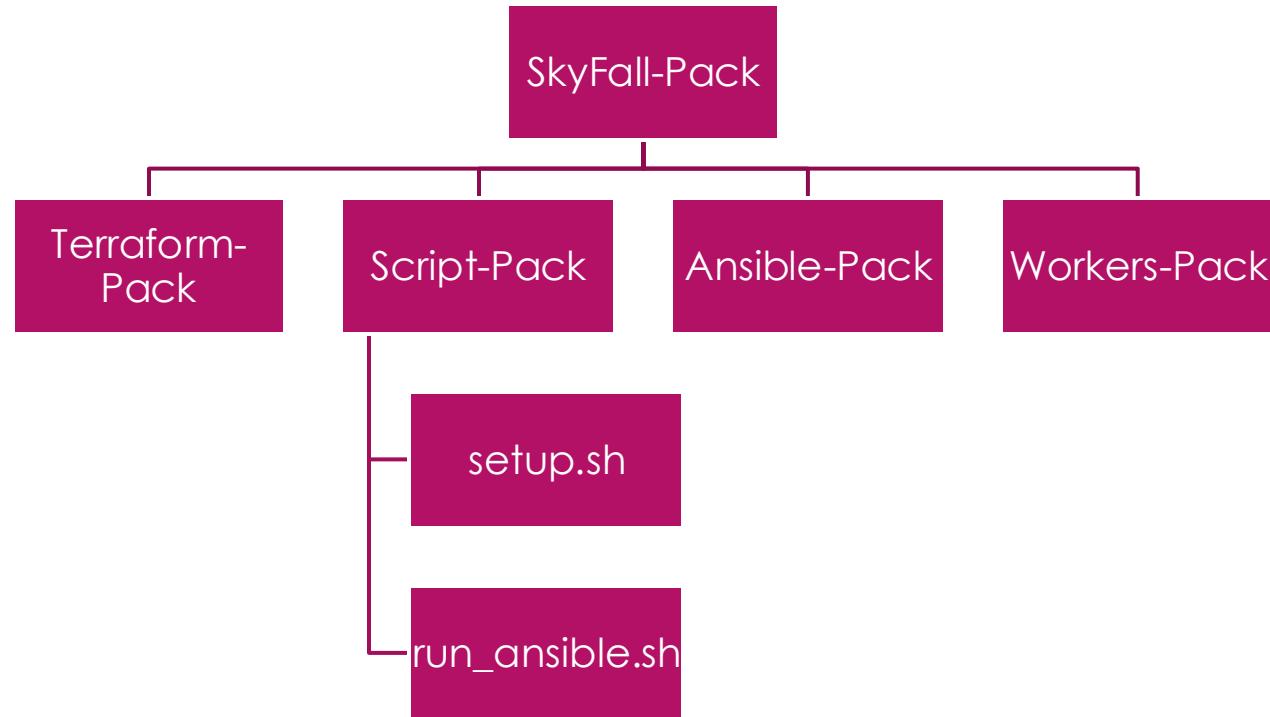
Watching: 1

Activity: 78 stars

Badges: MIT license

Image: A futuristic digital interface showing a 3D map of a city with various nodes and connections, likely representing the infrastructure or network managed by the SkyFall-Pack.

SkyFall-Pack Automation



SkyFall-Pack Automation

```
nickvourd@Nikoss-Mac-mini Scripts-Pack % ./setup.sh -l eastus -u nickvourd -n example -s teamserver -d skyfall -v standard_b1ms
[+] terraform.tfvars in SkyFall-Pack/Terraform-Pack has been updated with:

VM-Location: eastus
Username: nickvourd
Resource Prefix: example
SSH Key Name: teamserver
DNS Name: skyfall
VM Size: standard_b1ms

[*] Initializing Terraform...

Initializing the backend...

Initializing provider plugins...
- Finding hashicorp/azurerm versions matching "~> 3.0"...
- Finding hashicorp/random versions matching "~> 3.0"...
- Finding hashicorp/tls versions matching "~> 4.0"...
- Finding latest version of hashicorp/local...
- Finding azure/azapi versions matching "~> 1.5"...
- Installing hashicorp/tls v4.1.0...
- Installed hashicorp/tls v4.1.0 (signed by HashiCorp)
- Installing hashicorp/local v2.5.3...
- Installed hashicorp/local v2.5.3 (signed by HashiCorp)
- Installing azure/azapi v1.15.0...
- Installed azure/azapi v1.15.0 (signed by a HashiCorp partner, key ID 6F0B91BDE98478CF)
- Installing hashicorp/azurerm v3.17.1...
- Installed hashicorp/azurerm v3.17.1 (signed by HashiCorp)
- Installing hashicorp/random v3.7.2...
- Installed hashicorp/random v3.7.2 (signed by HashiCorp)

Partner and community providers are signed by their developers.
If you'd like to know more about provider signing, you can read about it here:
https://www.terraform.io/docs/cli/plugins/signing.html

Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
```

SkyFall-Pack Automation

```
nickvourd@Nikoss-Mac-mini Scripts-Pack % ./setup.sh -l eastus -u nickvourd -n example -s teamserver -d skyfall -v standard_b1ms
[+] terraform.tfvars in SkyFall-Pack/Terraform-Pack has been updated with:

VM-Location: eastus
Username: nickvourd
Resource Prefix: example
SSH Key Name: teamserver
DNS Name: skyfall
VM Size: standard_b1ms

[*] Initializing Terraform...

Initializing the backend...
Initializing provider plugins...
- Finding hashicorp/azurerm versions matching "~> 3.0"...
- Finding hashicorp/random versions matching "~> 3.0"...
- Finding hashicorp/tls versions matching "~> 4.0"...
- Finding latest version of hashicorp/local...
- Finding azure/azapi versions matching "~> 1.5"...
- Installing hashicorp/tls v4.1.0...
- Installed hashicorp/tls v4.1.0 (signed by HashiCorp)
- Installing hashicorp/local v2.5.3...
- Installed hashicorp/local v2.5.3 (signed by HashiCorp)
- Installing azure/azapi v1.15.0...
- Installed azure/azapi v1.15.0 (signed by a HashiCorp partner, key ID 6F0B91BDE98478CF)
- Installing hashicorp/azurerm v3.117.1...
- Installed hashicorp/azurerm v3.117.1 (signed by HashiCorp)
- Installing hashicorp/random v3.7.2...
- Installed hashicorp/random v3.7.2 (signed by HashiCorp)

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so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands

Apply complete! Resources: 11 added, 0 changed, 0 destroyed.

Outputs:

connection_string = "ssh -i teamserver.pem nickvourd@skyfall-h95dbuo9.eastus.cloudapp.azure.com"
fqdn = "skyfall-h95dbuo9.eastus.cloudapp.azure.com"
public_ip = "52.191.116.184"
resource_group_name = "rg-example-h95dbuo9"
ssh_privkey = <sensitive>
username = "nickvourd"

[*] Getting connection information...

[*] Connection String:
"ssh -i teamserver.pem nickvourd@skyfall-h95dbuo9.eastus.cloudapp.azure.com"

[*] FQDN:
"skyfall-h95dbuo9.eastus.cloudapp.azure.com"

[*] Public IP:
"52.191.116.184"

[*] Username:
"nickvourd"

nickvourd@Nikoss-Mac-mini Scripts-Pack %
```

SkyFall-Pack Automation

```
[nickvourd@Nikoss-Mac-mini Scripts-Pack % ./run_ansible.sh -f nickvourd -p 'Asa31904#!' -c 'X-CSRF-Token' -s 'SuperSecret1234!'

[+] Running Ansible playbook with:
VM IP: 52.191.116.184
Username: nickvourd
SSH Key: /Users/nickvourd/Documents/GitHub/SkyFall-Pack/Terraform-Pack/teamserver.pem
VM FQDN: skyfall-h95dbuo9.eastus.cloudapp.azure.com
Keystore Filename: nickvourd
Keystore Password: Asa31904#!

Teamserver Port: 8443
Custom Header: X-CSRF-Token
Custom Header Lower: x_csrf_token
Custom Secret: SuperSecret1234!
Protocol: https

ansible-playbook [core 2.19.3]
  config file = /Users/nickvourd/Documents/GitHub/SkyFall-Pack/Ansible-Pack/ansible.cfg
  configured module search path = ['/Users/nickvourd/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /opt/homebrew/Cellar/ansible/12.1.0/libexec/lib/python3.13/site-packages/ansible
  ansible collection location = /Users/nickvourd/.ansible/collections:/usr/share/ansible/collections
  executable location = /opt/homebrew/bin/ansible-playbook
  python version = 3.13.9 (main, Oct 14 2025, 13:52:31) [Clang 17.0.0 (clang-1700.3.19.1)] (/opt/homebrew/Cellar/ansible/12.1.0/libexec/bin/python)
  jinja version = 3.1.6
  pyyaml version = 6.0.3 (with libyaml v0.2.5)
Using /Users/nickvourd/Documents/GitHub/SkyFall-Pack/Ansible-Pack/ansible.cfg as config file
Skipping callback 'minimal', as we already have a stdout callback.
Skipping callback 'oneline', as we already have a stdout callback.

PLAYBOOK: setup.yml ****
1 plays in setup.yml

PLAY [Configure Azure VM] ****
TASK [Gathering Facts] ****
task path: /Users/nickvourd/Documents/GitHub/SkyFall-Pack/Ansible-Pack/setup.yml:2
```

SkyFall-Pack Automation

```
nickvourd@Nikos-MacBook-Pro Workers-Pack % ./WorkerMan build -t skyfall-example-06p3t781.westus2.cloudapp.azure.com -w https://aws-api-cloud.██████████ workers.d  
ev -c 'X-Custom-Header' -s 'SuperSecretValue'  
  
WORKERMAN  
  
WorkerMan v1.1 - Parser for your Cloudflare Workers.  
WorkerMan is an open source tool licensed under MIT.  
Written with <3 by @nickvourd & @kavasilo...  
Please visit https://github.com/nickvourd/Skyfall-Pack for more...  
  
[*] Building the configuration files...  
  
[+] wrangler.jsonc file saved to: /Users/nickvourd/Documents/GitHub/SkyFall-Pack/Workers-Pack/wrangler.jsonc  
[+] index.js file saved to: /Users/nickvourd/Documents/GitHub/SkyFall-Pack/Workers-Pack/index.js  
  
[*] Build completed in: 951.583µs  
  
nickvourd@Nikos-MacBook-Pro Workers-Pack % █
```

Detections

- ▶ **Check URI Patterns:** Repeated use of simple paths such as /get, /cmd, /update and others.
- ▶ **Detect Beacons:** Look for consistent intervals and low-volume HTTPS traffic.
- ▶ **Baseline Behavior:** Alert on first-time or uncommon access to workers.dev per host.
- ▶ **Analyze Logs:** Identify connections to workers.dev initiated by non-browser processes.

Refences

- ▶ <https://ajpc500.github.io/c2/Using-CloudFlare-Workers-as-Redirectors/>
- ▶ <https://byt3bl33d3r.substack.com/p/revisiting-cloudflare-workers-for>
- ▶ <https://labs.jumpsec.com/putting-the-c2-in-c2loudflare/>



Questions