

Configuration Manual

Academic Internship MSc in Cyber security

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MSc Project Submission Sheet



School of Computing

Student Name:	Manohar Babu					
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Programme:	MSc Cyber Security	Year:	2023 - 2024			
Module:	Academic Internship	Academic Internship				
Supervisor:	Apurva Vangujar					
Due Date:	31/01/2024					
Project Title:	Enhancing cloud security: Implementing and evaluating the Zero Trust Architecture with Firebase Services and advanced encryption algorithms					
Word	,, 5					
Count: 676	Page Count	:3				

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Configuration Manual

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1 Integrating web application with Firebase

In modern web application development, leveraging cloud services like Amazon Web Services (AWS) and platforms like Google Firebase has become crucial for scalable infrastructure and efficient management of various app functionalities. This walkthrough aims to guide users through the process of setting up an AWS EC2 instance, deploying an HTTP server, and integrating a web application with Google Firebase services.

- 1. Create an AWS and Google Firebase account.
- 2. Create an EC2 Instance and launch instance.
- 3. Connect to the Instance and launch Amazon Linux CLI console.

=	EC2 > Instances > i-0d29c99f5983c3d49 > Connect to instance					
	Connect to instance Info Connect to your instance I-0d29c99f5983c3d49 (multiauthcrud.com) using any of these options					
	EC2 Instance Connect Session Manager SSH client EC2 serial console					
	Instance ID D I-0d29c99f5983c3d49 (multiauthcrud.com) Connection Type					
	Connect using EC2 Instance Connect Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.					
	Public IP address D 16.170.242.193 User name Enter the user name defined in the AMI used to launch the instance. If you didn't define a custom user name, use the default user name, ec2-user.					
	ec2-user					

- 4. Host the http server on this instance by executing the below commands.
 - sudo su
 - yum update -y
 - yum install httpd -y
 - curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.39.5/install.sh | bash
 - . ~/.nvm/nvm.sh
 - nvm install --lts
 - node -e "console.log('Running Node.js ' + process.version)"
 - service httpd start
 - service httpd status

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i-0d2	9c99f5983c3	d49 (multiauthcrud.com)							×
Public	Ps: 16.170.242.19	93 PrivatelPs: 172.31.42.216							

5. Copy the HTML, CSS and Javascript files required to host the web application to below path.

/var/www/html

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6. In the Google Firebase account, select the project. Create a project app and copy the cdn or javascript mdk script module code and paste it into our app codebase, after that select the project app, in our case select Authentication app and after that it will open the dashboard.

2 Integrating Hybrid algorithms

This manual guides users through executing a Python script in a Jupyter Notebook for performing double encryption using AES and Blowfish algorithms. The encrypted data is then uploaded to an AWS S3 bucket.

Prerequisites

- 1. Install the latest version of the python.
- 2. Install the necessary libraries using pip command:
 - o cryptography
 - o pycryptodome
 - o boto3
- 3. Log into the AWS Management Console.
- 4. Go to the S3 service from the AWS Console.
- 5. Click "Create bucket", enter a unique bucket name and choose the region.

- 6. Generate an IAM user with permissions to upload objects to the specified S3 bucket, obtain the aws_access_key_id and aws_secret_access_key for the IAM user.
- 7. Ensure this user has the necessary permissions to upload objects to the bucket.

Steps to Execute: Set the necessary input parameters:

- file_path: Path to the file to be encrypted.
- password: Input prompt for encryption password.
- bucket_name: Name of the AWS S3 bucket for storing the encrypted data.
- object_key: Key to identify the encrypted data in the S3 bucket.

Software Version Summary Table

Softwar	e Name	Version	Download URL			
Visual	Studio	1.85	https://code.visualstudio.com/download			
Code						
Python		3.11.5	https://www.python.org/ftp/python/3.11.5/python-			
			3.11.5-amd64.exe			
Jupyter		1.0.0	https://jupyter.org/install			