WORK INSTRUCTION

1.0 Purpose:

The purpose of this document is to perform the installation and configuration of the AWS Greengrass Server.

2.0 Scope:

2.1 This work instruction applies to the sequence used for installation and configuration of the AWS Greengrass Server.

2.2 The requirements of this revision work instruction apply only to the activities performed and those documents created or revised through auditing on or after the release date for this revision work instruction. Documents, which are subject to this work instruction that were generated and issued prior to the release date, may, but need not, be wholly or partially revised to meet the requirements of this revision work instruction.

3.0 Responsibilities:

- Operator: Perform operations per this work instruction.

4.0 Instructions:

- Perform all assembly and Test Instructions in sequence as noted below.

4.1 Network Requirements

For the component to function correctly, the following ports must be open and domains must be resolvable from the server where Greengrass is deployed.

1. Open Ports (Outbound)

a. The server must be able to establish outbound connections to the following ports:

Port	Protocol
1883	TCP
8883	TCP
8443	TCP
52417	TCP
8080	TCP

2. **Domains to Allow List**

The following domains must be resolvable and accessible:

a. greengrass-ats.iot.us-east-1.amazonaws.com

b. a3914z80ml3ccp-ats.iot.us-east-1.amazonaws.com

c. logs.us-east-1.amazonaws.com

4.2 Deploying AWS Greengrass Core Server

4.2.1 Debian 12.0

1. Locate the **deploy-greengrass-server.sh** script.
    a. Running the command "ll" (Two lowercase L's) will list all the files in the current directory.
2. Make the script an executable by entering the following command: *chmod +x deploy-greengrass-server.sh*
3. When prompted, enter your **AWS Access Key, Secret Key,** and desired Greengrass server name.
4. Wait approximately 15 minutes for the server deployment to complete.
5. Note the output, which includes:
    a. Public IP address
    b. Port
    c. Root CA Certificate (Used for database entry)

4.2.2 Red Hat Enterprise Linux (RHEL) 10

1. Locate the **deploy-greengrass-server-rhel.sh** script.
    a. Running the command "ll" (Two lowercase L's) will list all the files in the current directory.
2. Make the script an executable by entering the following command: *chmod +x deploy-greengrass-server-rhel.sh*
3. When prompted, enter your **AWS Access Key, Secret Key,** and desired Greengrass server name.
4. Wait approximately 15 minutes for the server deployment to complete.
5. Note the output, which includes:

a. Public IP address

b. Port

c. Root CA Certificate (Used for database entry

4.2.3 (Optional) Clean Up Installed Greengrass Server

1. **Debian**

    a. Make the *cleanup-greengrass.sh* script executable by entering the following command:

    - *chmod +x cleanup-greengrass.sh*

    b. Run the script by entering the following command:

    - *./cleanup-greengrass.sh*

2. **RHEL 10**

    a. Make the *cleanup-greengrass.sh* script executable by entering the following command:

    - *chmod +x cleanup-greengrass-rhel.sh*

    b. Run the script by entering the following command:

    - *./cleanup-greengrass-rhel.sh*

4.2.4 (Optional) Install Fluent Bit For Log Forwarding

If you already have a Greengrass server installed, run script to write all logs to AWS CloudWatch for viewing of

Greengrass logs in a single location.

1. Make the **install-only-fluent-bit.sh** script executable by entering the following command:
   - *chmod +x install-only-fluent-bit.sh*
2. Run the script by entering the following command:
   - *./install-only-fluent-bit.sh*

4.3 Set up AWS Greengrass Server Device Using Docker

Note: This procedure works on any Linux distribution

1. Create a directory to hold the Greengrass server and navigate to it:
   - *mkdir -p /home/ec2-user/gcx*
   - *cd /home/ec2-user/gcx*
2. Clone the AWS Greengrass Docker Repository and navigate to it:
   - *git clone https://github.com/aws-greengrass/aws-greengrass-docker.git*
   - *cd aws-greengrass-docker*
3. Add the python3-pip package to the system:
   - *sed -i '/yum install -y tar unzip wget sudo procps which shadow-utils python3 java-11-amazon-corretto-headless/ s/python3/& python3-pip docker/' Dockerfile*
4. Build the Docker image

- *docker build -t "platform/aws-lot-greengrass:nucleus-version" ./*

5. Create the AWS Credentials File directory and navigate to it:
   - *mkdir /home/ec2-user/gcx/aws-greengrass-docker/greengrass-v2-credentials*
   - *cd /home/ec2-user/gcx/aws-greengrass-docker/greengrass-v2-credentials*
6. Create the AWS Credentials File by entering the following:

cat > credentials <<EOF

[default]

aws_access_key_id = <YourAccessKey>

aws_secret_access_key = <YourSecretKey>

EOF

Replace <YourAccessKey> and <YourSecretKey> with the credentials obtained earlier.

7. Go back to the aws-greengrass-docker directory (*cd ..*) and create the .env file with the following content:

cat > .env <<EOF

GGC_ROOT_PATH=/greengrass/v2

AWS_REGION=us-east-1

PROVISION=true

THING_NAME=<your-greengrass-thing-name>

THING_GROUP_NAME=gcx-<environment>-iot-thing-group-hospital

TES_ROLE_NAME=GreengrassV2TokenExchangeRole

TES_ROLE_ALIAS_NAME=GreengrassCoreTokenExchangeRoleAlias

COMPONENT_DEFAULT_USER=ggc_user:ggc_group

EOF

Replace the following placeholders:

- <your-greengrass-thing-name>: Use a consistent naming pattern (e.g. prod-healthcare-system-2-greengrass)
- <environment>: (e.g. dev, stage, or prod)

8. Run the Docker Container by entering the following commands:

```
docker run -d --init -it \
--name aws-greengrass \
-v "$(pwd)/greengrass-v2-credentials:/root/.aws/:ro" \
-v /var/www/html:/var/www/html \
-v /var/run/docker.sock:/var/run/docker.sock \
--env-file .env \
-p 1883:1883 \
-p 52417:8883 \
platform/aws-iot-greengrass:nucleus-version
```

9. Add the Greengrass server to the database by providing GCX with the following server parameters:

- **Public IP address** – Can be obtained by running *curl ifconfig.me*
- **Port:** By default, this is port 52417.
- **Root CA Certificate** – Can be obtained by entering the following commands:
  - *sudo docker exec -it aws-greengrass bash*
  - *cat /greengrass/v2/work/aws.greengrass.clientdevices.Auth/ca.pem*

5.0 Revision History

REV.	DESCRIPTION OF CHANGE	PREPARED BY:	APPROVED BY:	RELEASE DATE:
A	DCN# Initial Release – 25-0420	Tyler Rego		