Tips and Troubleshooting

This page contains reference information that might be useful as you work through the workshop.

Troubleshooting

Errors with configuration

If you are getting a `NullPointerException` (Java), or a `KeyError` (Python), or similar errors when interacting with the TOML files (config and state), try running the state generation step again to make sure the file is generated and well formed.

```
# Check the contents of your state file
cat ~/.busy_engineers_state.toml

# Regenerate your state file, if needed
cd ~/environment/workshop/cdk/
make state
```

Now try your work again.

Automated code checks

These commands will check your code for missing imports, syntax issues, and other minor issues that might trip you up.

Java JavaScript Node.JS TypeScript Node.JS Python

```
mvn verify
```

Missing CloudFormation resources

Make sure you take the defaults for which region to launch in (us-east-2). If you've changed the region for any part of the workshop, tear your stack down and start fresh.

More disk space on Cloud9

Working through the workshop, you might find that you are out of disk. If this happens, use the following script to expand your EBS volume. (Script source [https://docs.aws.amazon.com/cloud9/latest/user-guide/move-environment.html#move-environment-resize])

Note that this is adapted from the script source because the Busy Engineer's Cloud9 instances run on EC2 Nitro, which has different block device identifiers.

Step by step:

1. Save the script below to `resize.sh`
2. `chmod +x resize.sh`
3. `./resize.sh`
4. By default, this will increase your volume to 20GB, but you may supply a different number if you prefer.

```
#!/bin/bash

# Specify the desired volume size in GiB as a command-line
argument. If not specified, default to 20 GiB.
SIZE=${1:-20}

# Install the jq command-line JSON processor.
sudo yum -y install jq

# Get the ID of the envrionment host Amazon EC2 instance.
INSTANCEID=$(curl http://169.254.169.254/latest/meta-
data//instance-id)

```

```
# Get the ID of the Amazon EBS volume associated with the
instance.
VOLUMEID=$(aws ec2 describe-instances --instance-id $INSTANCEID |
jq -r
.Reservations[0].Instances[0].BlockDeviceMappings[0].Ebs.VolumeId)


# Resize the EBS volume.
aws ec2 modify-volume --volume-id $VOLUMEID --size $SIZE

# Wait for the resize to finish.
while [ "$(aws ec2 describe-volumes-modifications --volume-id
$VOLUMEID --filters Name=modification-
state,Values="optimizing","completed" | jq '.VolumesModifications
| length')" != "1" ]; do
  sleep 1
  done

# Rewrite the partition table so that the partition takes up all
the space that it can.
sudo growpart /dev/nvme0n1p1 1

# Expand the size of the file system.
sudo resize2fs /dev/nvme0n1p1
```

Tips

API Documentation

Python and Java have API documentation available for each exercise. You can view the documentation as you work in Cloud9.

Java Python

```
make javadoc
```

Now select "Preview -> Preview Running Application" from the Cloud9 menu bar.

Cloud9 will open a new pane in your IDE with a web browser rendering your API documentation.

Cloud9

Cloud9 has lots of IDE features for you to leverage. Here's some links to help you make the most of your Cloud9 experience. (Links all open in a new window.)

- Cloud9 Code Navigation [https://docs.c9.io/docs/navigate]
- Cloud9 Keybindings Reference [https://docs.c9.io/docs/keybindings]
- Cloud9 Tutorial [https://docs.aws.amazon.com/cloud9/latest/user-guide/tutorial.html]

Cryptographic Details

The Busy Engineer's Document Bucket only scratches the surface of the features offered by AWS KMS. To dive deep on how KMS can be useful to your application, check out the AWS Key Management Service Cryptographic Details whitepaper [https://d0.awsstatic.com/whitepapers/KMS-Cryptographic-Details.pdf], for more information on the details of encryption, decryption, random number generation procedures, and more within KMS.