Quantum Transfer (QT) AMI Deployment and Configuration Guide

This document provides a comprehensive guide on how to deploy, configure, and run the "Quantum Transfer Recipient" AMI from the AWS Marketplace.

Part 1: AWS AMI Deployment

Follow these steps to deploy the AMI and set up the necessary AWS permissions.

1. **Find the AMI:**
   - Navigate to the AWS Marketplace.
   - In the search bar, type "Quantum Transfer Recipient" and locate the official AMI listing.
2. **Deploy the Instance:**
   - Select the "Quantum Transfer Recipient" AMI from the search results.
   - Follow the on-screen instructions to launch and deploy the AMI. Choose an appropriate instance size and configure your network (VPC, security groups) as needed. Ensure your security group allows SSH access (port 22) from your IP address.
3. **Create an IAM Role:**
   - Go to the **IAM** service in your AWS console.
   - Navigate to **Roles** and click **Create role**.
   - Select **AWS service** as the trusted entity type, and choose **EC2** as the use case. Click **Next**.
   - Attach policies that grant the necessary permissions. At a minimum, you will need a policy that allows read access (e.g., s3:PutObject, s3:ListBucket) to your destination S3 bucket. You can create a new custom policy for this.

Example Policy (Read-Only Access to a Specific Bucket):

```JSON
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "s3:PutObject",
                "s3:PutObjectAcl",
                "s3:ListBucket"
            ],
            "Resource": [
                "arn:aws:s3:::YOUR-DESTINATION-BUCKET-NAME",
                "arn:aws:s3:::YOUR-DESTINATION-BUCKET-NAME/*"
            ]
        }
    ]
}
```


- Click **Next**, give the role a descriptive name (e.g., QT-Recipient-S3-Access-Role), and complete its creation.

4. **Attach the Role to the Instance:**
   - Go to the **EC2** service in your AWS console.
   - Select your newly deployed "Quantum Transfer Recipient" instance.
   - Click **Actions** > **Security** > **Modify IAM role**.
   - From the dropdown menu, select the QT-Recipient-S3-Access-Role you just created.
   - Click **Update IAM role**.

Part 1.5: Enabling SSH Access & Network Configuration

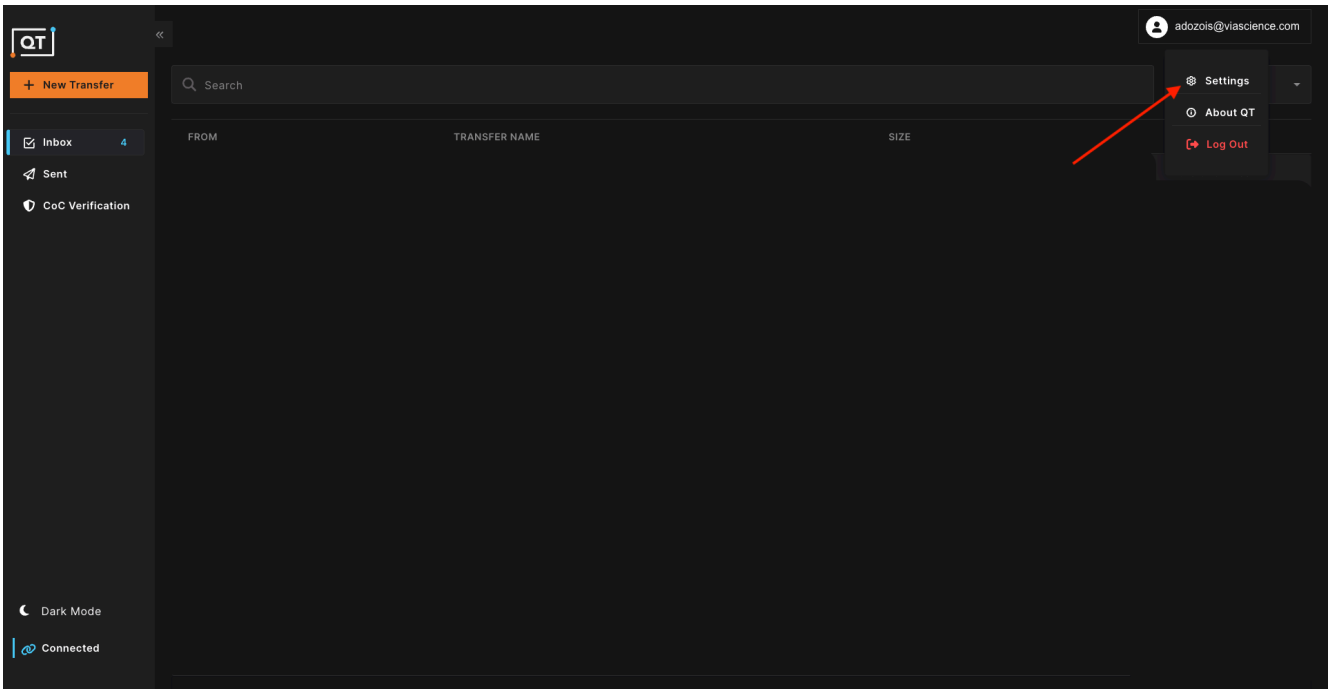
1. **Locate Your Instance:** Navigate to the **EC2 Dashboard** and select **Instances**. Find your running "Quantum Transfer Recipient" instance in the list and select it.
2. **Ensure Internet Connectivity (Optional):** If you deployed your instance into a VPC or Subnet that does not have an Internet Gateway attached, you will not be able to connect via SSH using a public IP. To fix this:
   - **Create & Attach Gateway:** Go to the **VPC Dashboard** > **Internet Gateways**, create a new gateway, and attach it to your VPC.
   - **Update Route Table:** In **VPC Dashboard** > **Route Tables**, find the table associated with your instance's subnet. Edit the routes to add `0.0.0.0/0` pointing to the Internet Gateway you just created.
3. **Access Security Settings:** With the instance selected in the EC2 Dashboard, look at the bottom pane (Instance details). Click on the **Security** tab.
4. **Open Security Group:** Under the **Security groups** section, click the link (ID or Name) of the security group attached to your instance.
5. **Edit Inbound Rules:** Select the Security Group from the list, then click on the **Inbound rules** tab in the bottom pane. Click the **Edit inbound rules** button.
6. **Add SSH Rule:** Click **Add rule** and configure the following:
   - **Type:** Select **SSH**.
   - **Protocol:** TCP (Automatically selected).
   - **Port Range:** 22 (Automatically selected).
   - **Source:** Select **Anywhere-IPv4** (`0.0.0.0/0`) to allow access from any IP, or select **My IP** / **Custom** to restrict access to a specific vetting IP range.
7. **Save Changes:** Click **Save rules** to apply the changes immediately.

Part 2: Quantum Transfer Recipient Credential Creation

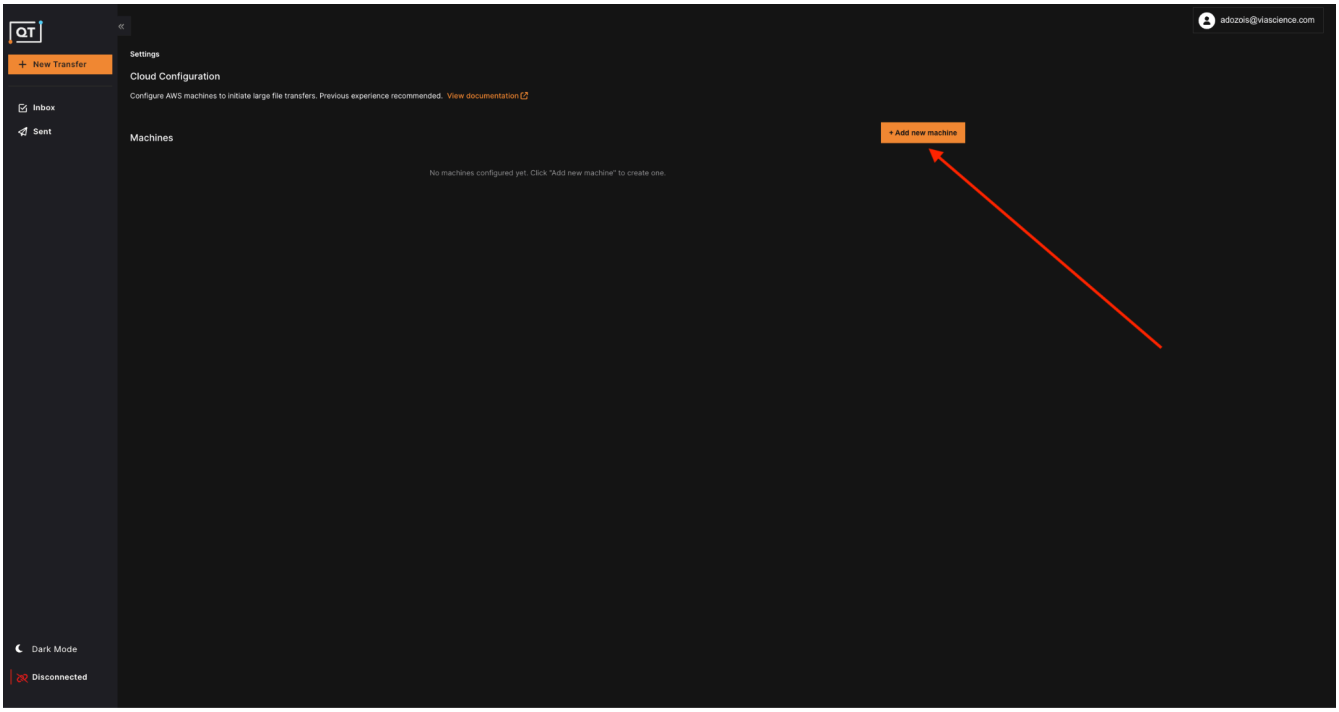
Next, you need to generate API credentials from within the Quantum Transfer Recipient application.

1. Log into your Quantum Transfer Recipient application.

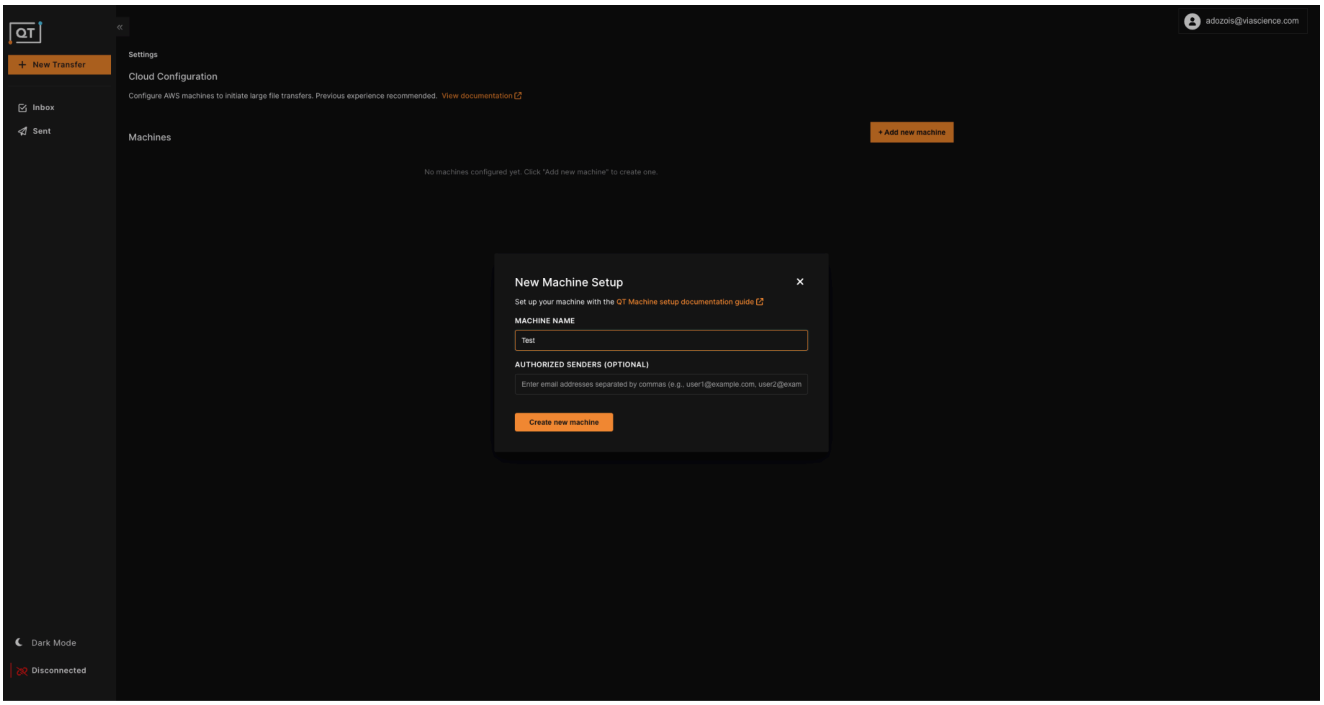
2. In the drop-down menu under your user, click on **Settings**.



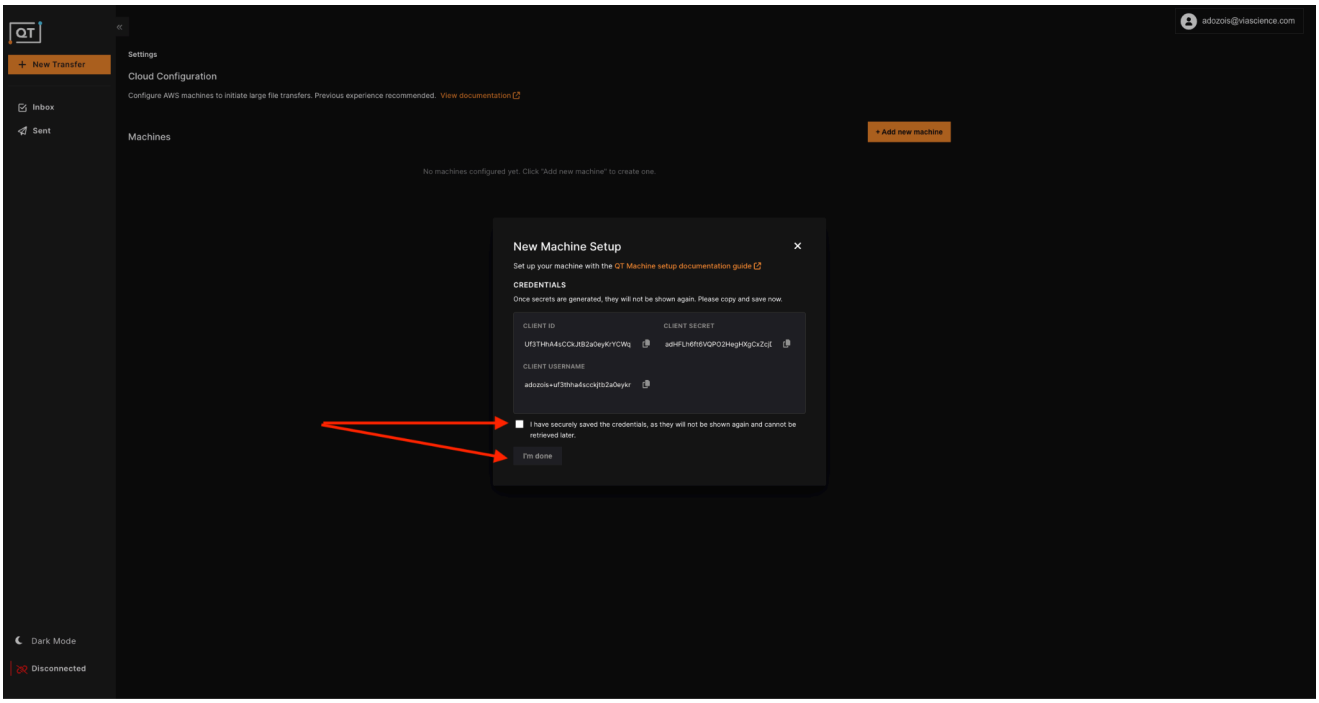
3. In the **Cloud Configuration** section, click **+ Add new machine**.



4. Enter a descriptive name to identify the credentials (e.g., AWS-AMI-Recipient) and click **Generate credentials**



5. Copy the **Client ID**, **Client Secret** and **Client Username** to a secure location.



6. Check the box "I have securely saved the credentials..."
7. Click **I'm Done**.

Part 3: Configure the Deployed Instance

Now, connect to your instance via SSH to set the required environment variables.

1. **Connect to your instance:**
   - Use your EC2 key pair to SSH into the instance.
   - ssh -i /path/to/your-key.pem ec2-user@YOUR-INSTANCE-PUBLIC-IP
2. **Set Environment Variables:**
   - Set the following environment variables. You can add these to your ~/.bash_profile or ~/.bashrc file to make them persistent across reboots.

```
# Set the email address for notifications
export RECIPIENT_USERNAME="email-from-credentials@email.com"

# Set the name of the S3 bucket to copy from
export DESTINATION_BUCKET="YOUR-SOURCE-BUCKET-NAME"

# Set the credentials you generated in Part 2
export KEYCLOAK_CLIENT_ID="YOUR-GENERATED-CLIENT-ID"
export KEYCLOAK_CLIENT_SECRET="YOUR-GENERATED-CLIENT-SECRET"

# Boolean to send or not to the cloud
export SEND_TO_CLOUD="true"

# If you want or not to store the decrypted file on the file system. Set to true to store the file.
export LOCAL_SAVE="false"

# The location where you want to store the file. The folder needs to exist with read and write permission. Will default to /tmp.
export LOCAL_STORAGE_PATH="/tmp"
```

3. **Load the new variables:**
   - If you added the variables to ~/.bash_profile, run:
     source ~/.bash_profile

Part 4: Run the Script

Once the instance is configured, you can execute the main script.

1. While logged in via SSH, run the following command:
   - cd /opt/dcac
   - ./run_job.sh

The script will now execute using the environment variables you configured.