Troubleshooting Guide for Ad-Flow Application

This guide is intended to help diagnose and resolve common issues encountered when running the Ad-Flow application, a Docker container deployed on EC2 that captures and re-streams video with SCTE-35 ad markers.

Please deploy using the provided CloudFormation templates.

General Issues

1. Can't Connect to Grafana

Symptoms:

- Unable to access Grafana dashboard remotely.

Possible Causes:

1. Security Group does not allow HTTPS traffic.
2. Incorrect configuration of inbound rules in EC2.

Solutions:

1. Ensure HTTPS traffic is allowed in the CloudFormation template:
    - Make sure there is an **Inbound Rule** with:
        - **Type:** HTTPS
        - **Protocol:** TCP
        - **Port Range:** 443
        - **Source:** `0.0.0.0/0` (or restrict to specific IPs for security).
2. Access Grafana:
    - Use the **Public IPv4 DNS** of the EC2 instance in your browser (e.g. `https://<Public_IPv4_DNS>:3000`).
    - Accept the security risk from the self-signed certificate.
3. Verify logs for Grafana:
   Logs can be seen through CloudWatch logs.

2. Ad-Flow Container Not Running

Symptoms:

- `ECS shows no task running`

Possible Causes:

1. Missing IAM role permissions for CloudWatch logs or ECR access. If you modified the ECS CloudFormation template, double-check for differences from original template.

Solutions:

1. Ensure the EC2 instance has an attached IAM role with the following permissions:
    - **CloudWatch Logs:** Policy name `CloudWatchAgentServerPolicy`.
    - **ECR Access:** Permissions to pull the Docker image. Policy name `AmazonEC2ContainerRegistryReadOnly`
2. Check CloudWatch logs for any errors.

RTP Troubleshooting

1. Cannot Send RTP to Ad-Flow Container

Symptoms:

- No incoming RTP stream detected in Grafana.
- Receiving rate is `0` on the dashboard.

Possible Causes:

1. Security Group missing inbound rules for the RTP port.
2. Incorrect configuration of IP, ports, or protocol in the ad-flow or delay-flow container configuration
3. Issues with the RTP sender setup.

Solutions:

1. Double-check the ECS CloudFormation Template. Needs to include input rule:
    - **Type:** Custom UDP
    - **Port Range:** `<INPUT_PORT>` (e.g., 5004)
    - **Source:** `0.0.0.0/0` (or restrict to specific IPs).
2. Verify ad-flow or delay-flow container settings:
    - **INPUT_IP:** Should be set to `127.0.0.1`.
    - **INPUT_PORT:** Matches the port used by the RTP sender.
3. Confirm RTP sender setup:
    - Ensure the sender is streaming to the **Elastic IP** of the EC2 instance on the correct port.
    - Check sender logs for any errors.
4. `Check CloudWatch logs for errors`

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2. Cannot Receive RTP from Ad-Flow Container

Symptoms:

- No outgoing RTP stream detected by the receiver.
- Sending rate is `0` on the dashboard.

Possible Causes:

1. Incorrect output IP or port configuration.
2. Firewall or network issues blocking outgoing traffic.

Solutions:

1. Verify ad-flow or delay-flow container configuration:
    - **OUTPUT_IP:** Set to the public IP of the RTP receiver.
    - **OUTPUT_PORT:** Matches the input port of the RTP receiver.
2. Ensure the RTP receiver is correctly configured to accept the stream from the EC2 instance.
3. `Check CloudWatch logs for errors.`

SRT Troubleshooting

1. Cannot Send SRT to Ad-Flow Container

Symptoms:

- No incoming SRT stream detected in Grafana.
- Receiving rate is `0` on the dashboard.

Possible Causes:

1. Incorrect sender or container configuration.
2. Firewall issues.

Solutions:

1. Verify sender configuration:
    - Sender must be in **Listener Mode**.
    - Stream to `0.0.0.0:<INPUT_PORT>`.
2. Verify ad-flow or delay-flow container configuration:
    - **INPUT_IP:** Set to the IP of the sender.
    - **STREAM_PROTOCOL:** Set to `srt`.
    - **INPUT_PORT:** Matches the port used by the sender.
3. Check sender logs for connection errors.

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2. Cannot Receive SRT from Ad-Flow Container

Symptoms:

- No outgoing SRT stream detected by the receiver.
- Sending rate is `0` on the dashboard.

Possible Causes:

1. Incorrect receiver or container configuration.
2. Firewall or network issues.

Solutions:

1. Verify receiver configuration:
    - Receiver must be in **Sender Mode**.
    - Stream from `<OUTPUT_IP>:<OUTPUT_PORT>`.
2. Verify container configuration:
    - **OUTPUT_IP:** Set to `0.0.0.0`.
    - **OUTPUT_PORT:** Matches the receiver's input port.
3. Check receiver logs for connection errors.

Example Configurations

RTP Example

Component	Configuration
RTP Source	Stream to `31.32.33.34:5004`.
Ad-Flow Input	`127.0.0.1:5004`.
Ad-Flow Output	`51.52.53.54:5005`.
RTP Target	Receive from `127.0.0.1:5005`.

SRT Example

Component	Configuration
SRT Source	Stream to `0.0.0.0:5004`. Use **Listener Mode**.
Ad-Flow Input	`11.12.13.14:5004`.
Ad-Flow Output	`0.0.0.0:5005`.
SRT Target	Receive from `31.32.33.34:5005`. Use **Sender Mode**.

Additional Information

About the Inbound Rules

For RTP:
RTP uses UDP to send video streams, but UDP doesn’t establish connections. An inbound rule is needed to allow the EC2 instance to receive packets on the specified port; otherwise, the stream will be blocked.

For SRT:
SRT requires inbound rules to accept connections for video streams. The rule lets the EC2 instance receive data from the sender or communicate with the receiver, depending on the configuration.
