Terminate SSL on AWS Amazon Load Balancers (ALB)

Configuration for Pyramid Administrators

Contents

Background

AWS ALB (and possibly other load balancers/reverse proxies) terminate SSL at the load balancer level and communicate with backend servers (Pyramid) over HTTP. The "X-Forwarded-Proto" header ensures that Pyramid correctly identifies requests as **HTTPS** and responds accordingly. **For most reverse proxies / load balancers this setting is NOT needed as they know how to handle the SSL termination correctly.**

Prerequisites

- This guide applies **only** to **Pyramid 2023.16.083 / 2024.01.013 and later** .
- Earlier versions **do not** support the "X-Forwarded-Proto" header.

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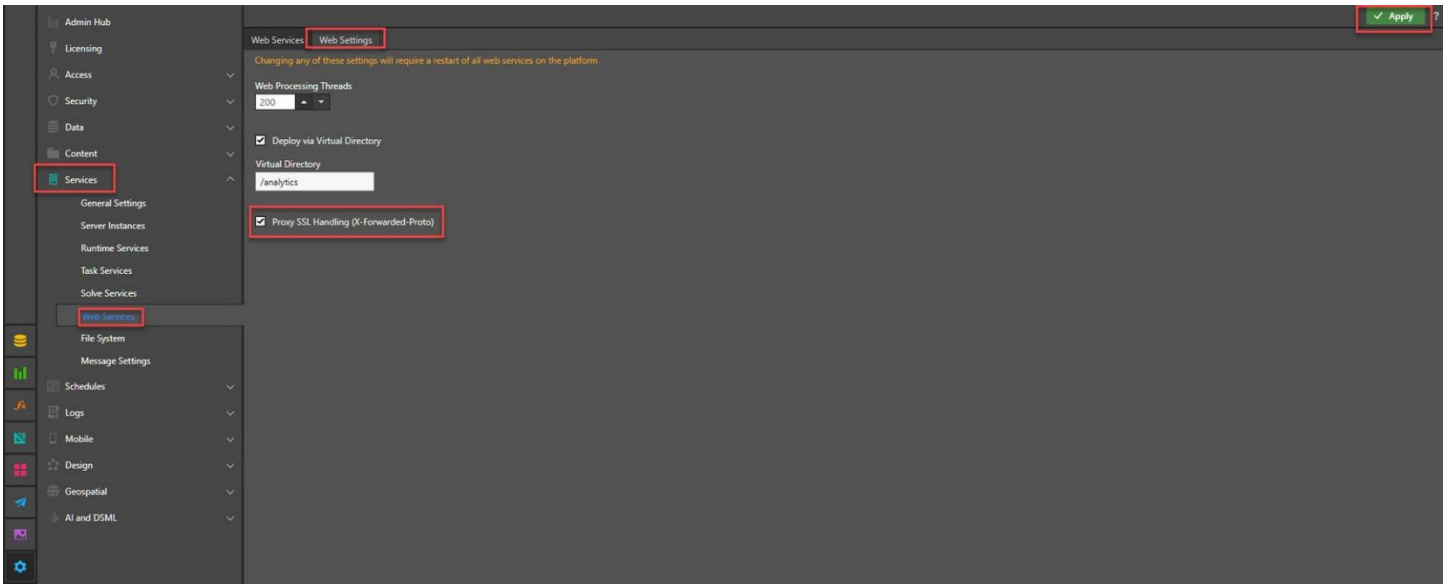
1. Enabling "X-Forwarded-Proto" in Pyramid

Pyramid must be configured to recognize HTTPS requests forwarded by the AWS Application Load Balancer (ALB). This is done using the "X-Forwarded-Proto" header.

Steps:

1. Log in to **Pyramid Admin**.
2. Navigate to:
   Services → Web Services → Web Settings.
3. Check the box for **"Proxy SSL Handling (X-Forwarded-Proto)"**.
4. Click **Apply**.
5. **Restart all Pyramid web servers** for the change to take effect.



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2. Configuring an AWS Application Load Balancer (ALB)

Note: AWS configurations may change over time. Always refer to the latest AWS documentation for updates.

Step 1: Create an Application Load Balancer

1. Open the **AWS Console**.
2. Go to **EC2** → **Load Balancers**.
3. Click **"Create Load Balancer"** and select **Application Load Balancer**.

Basic Configuration:

Setting	Value
Load Balancer Name	Choose a name (e.g., Pyramid-ALB)
Scheme	Internet-facing (or Internal if needed)
IP Address Type	IPv4 (or Dualstack for IPv6 support)

Network Mapping:

Setting	Value
VPC	Select the VPC where Pyramid is running
Availability Zones & Subnets	Choose based on your infrastructure

Security Groups:

- Select or create a security group that allows inbound **HTTPS (443)** traffic.

Step 2: Configure Listeners & Routing

Setting	Value
Protocol	HTTPS
Port	443
Default Action	Forward requests to a **target group** (if none exists, create one in the next step).

Step 3: Create a Target Group

1. Click **"Create Target Group"**.
2. Select **"Instances"** as the **Target Type**.
3. Configure the settings:

Setting	Value
Target Group Name	Pyramid
Protocol	HTTP
Port	8181 (default Pyramid web port)
IP Address Type	Choose based on your setup
VPC	Select the Pyramid VPC

Health Check Configuration:

Setting	Value
Health Check Path	/login/login.html

Protocol	HTTP
Port	Traffic port (or 8181)
Healthy Threshold	Default recommended
Unhealthy Threshold	Default recommended
Timeout	Default recommended
Interval	Default recommended

4. Click **Next** and **register targets**:
    - Select the EC2 instances running Pyramid.
    - Ensure the port is set to **8181**.
    - Click **"Include as pending below"**, then **"Create Target Group"**.

Step 4: Assign the Target Group to the Load Balancer

1. Return to the **"Listeners & Routing"** section of the ALB setup.
2. Under **Default Action**, select **"Forward to Target Group"**.
3. Choose the **Pyramid target group** created earlier.

Step 5: Configure SSL/TLS Certificate

1. Under **Secure Listener Settings**, select **"Default SSL/TLS Certificate"**.
2. Upload or select an existing **SSL certificate**.
3. *(Optional)* Configure additional security settings based on your company's policies.

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3. Final Configuration & Testing

Modify ALB Listener Rules (Optional)

If needed, edit the listener rules:

1. Go to **EC2** → **Load Balancers**.
2. Select the **ALB** and navigate to **Listeners** → **HTTPS:443** → **Edit Default Rule**.
3. Ensure the action is **"Forward to Target Groups"** and the correct **Pyramid target group** is selected.

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1. Increase ALB Idle Timeout

Setting	Value
Default	60 seconds
Recommended	600 seconds

Steps:

1. Go to **EC2 Dashboard → Load Balancers**.
2. Select your **Application Load Balancer (ALB)**.
3. Go to the **Attributes** tab.
4. Click **Edit**.
5. Set **Idle Timeout** to **600 seconds**.
6. Click **Save**.

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2. Adjust Target Group Health Check Settings

Increase timeout & interval to prevent premature failures.

Setting	Recommended Value
Timeout	10 seconds
Interval	30 seconds
Unhealthy Threshold	5
Healthy Threshold	3

Steps:

1. Go to **EC2 Dashboard → Target Groups**.
2. Select your **Target Group**.
3. Go to the **Health Checks** tab → Click **Edit**.
4. Apply the recommended values above.
5. Click **Save**.

Update Security & DNS Settings

- **Security Group:** Ensure inbound port **443** is open to allow user connections.
- **DNS Configuration:** Update external **DNS records** to point to the ALB DNS name.

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4. Summary

- **Pyramid is now configured** to recognize HTTPS requests using "X-Forwarded-Proto".
- The **AWS Load Balancer terminates SSL** and forwards requests to Pyramid over HTTP.
- Users can securely access Pyramid at **https://your-domain.com** via the ALB.

For further assistance, refer to the **AWS Load Balancer Documentation** or contact **AWS Support**.