AppSentinels.ai
Application Security Re-invented

AppSentinels API Security Platform

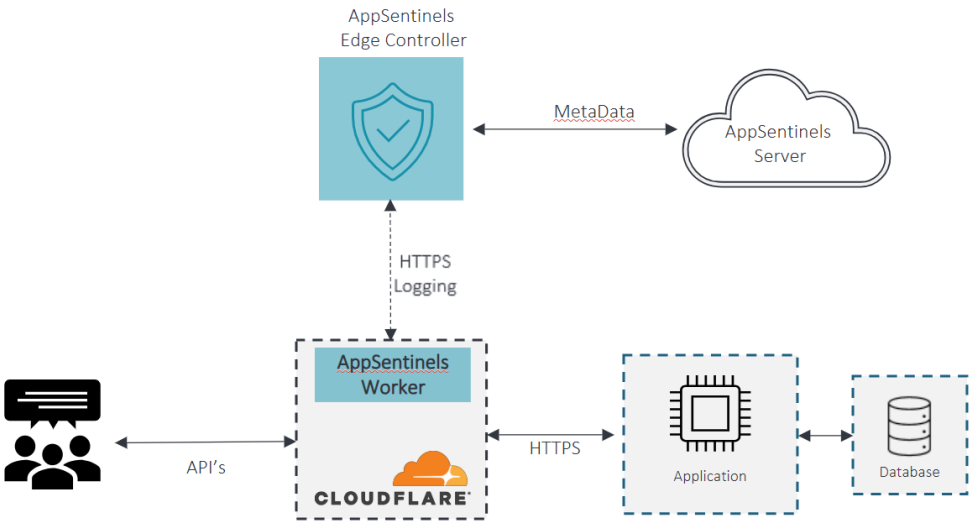
Cloudflare Integration

Table of Contents

1. Introduction 2
2. Architecture & Design 3
3. Deployment 4
4. Configuration 5
5. Secure HTTPS Logging to Controller 6
Using Cloudflare Generated Certificates 6
Using existing Self-Signed Certificates 6
8. Debugging & Verification 7
9. Security Notes 7
10. Upgrades & Maintenance 7
Appendix A – Worker Code 7
Worker code: 7

1. Introduction

AppSentinels' Cloudflare Worker performs API traffic logging at the edge to provide real-time visibility and optional enforcement. AppSentinels will provide a configurable JS based worker which will selectively perform logging and enforcement of API traffic in conjunction with AppSentinels edge controller.



This document will help,

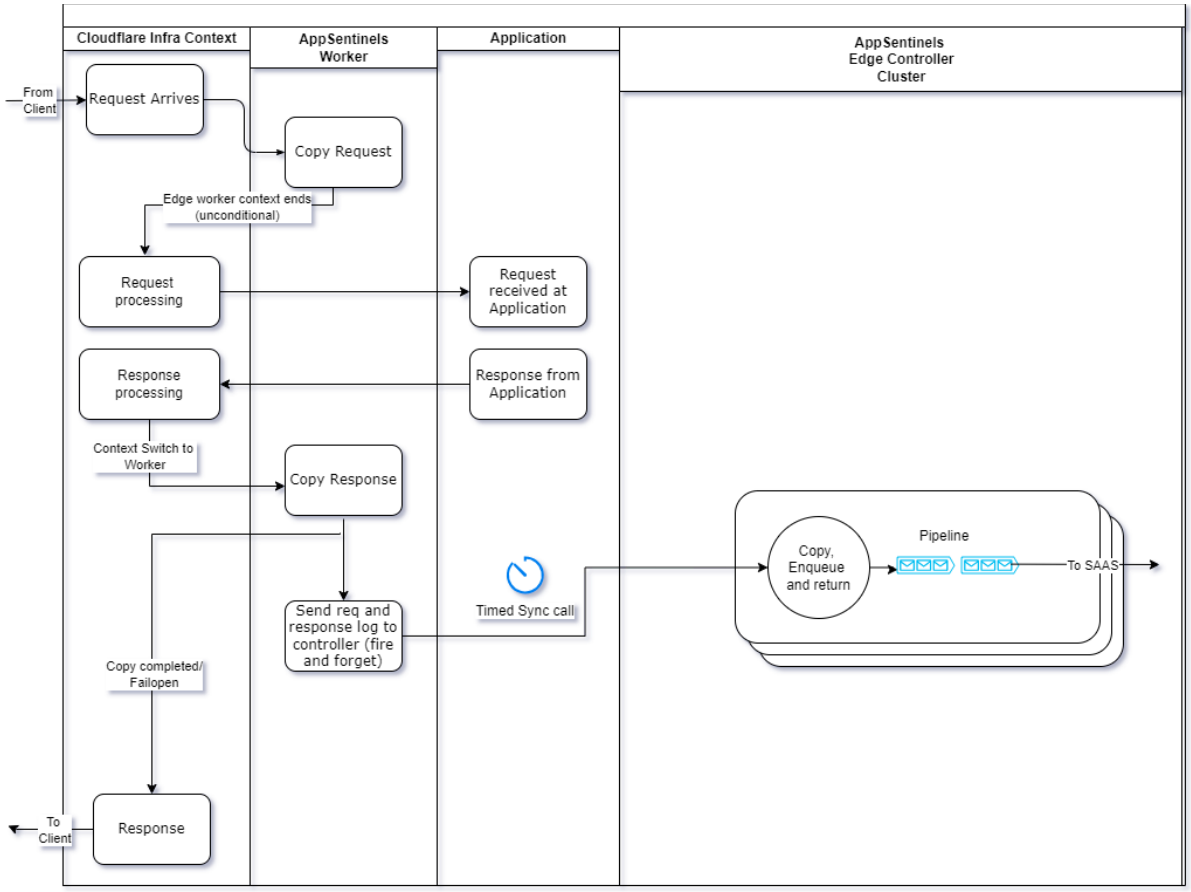
- Deploy the AppSentinels Worker
- Configure secure HTTPS logging to the Edge Controller
- Verify and Debug

---

2. Architecture & Design

Flow

1. Client → Cloudflare Edge → **AppSentinels Worker** (observes request)
2. Worker proxies to origin → receives response, observes it
3. Worker assembles **merged log** (req/resp + timing + headers)
4. Worker **asynchronously** ships merged log to **Edge Controller** over HTTPS (fail-open)



Design Goals

- **Fail-open**: never block user traffic due to logging issues
- **Predictable cost & latency**: Capped payload logging; short timeouts; static page bypasses, non-API method bypasses
- **Signal over noise**: headers/body captured only when useful
- **Operationally friendly**: simple config knobs; clear debugging paths

Key Components

- Cloudflare Worker (JavaScript)
- Edge Controller (HTTPS endpoint: POST `/mergedlog`)

3. Deployment

Prerequisites

- Cloudflare account and a proxied zone
- Edge Controller reachable via HTTPS with public DNS

Creating AppSentinels worker

1. Log into Cloudflare account
2. Choose the website for enabling AppSentinels worker
3. Select on Workers (sidebar) and name it as **appsentinels-apisec-logger**
4. Select HTTP handler and then click on Create service
5. Click on Quick Edit button and copy paste the JS worker code provided by AppSentinels
6. The JS code requires logging endpoint to be configured along with its scheme. Open the JS script and populate **REMOTE_CONTROLLER_ENDPOINT_URL**,

   For example:

   REMOTE_CONTROLLER_ENDPOINT_URL = http://onprem-controller:9004/mergedlog?sensor=cf

7. Save and deploy

Enable AppSentinels worker for a website

1. Go to the websites (on the sidebar) and select the website which need to monitored and protected by AppSentinels Security Solution
2. Click on Worker Routes and then Add Route
3. The worker can be enabled for specific routes on the website using wildcards. Possible combinations,

   website-hostname/*

   *website-hostname

   website-hostname/path*

4. Save this config and worker should start seeing the API traffic now

---

4. Configuration

Primary knobs in the Worker

- `REMOTE_CONTROLLER_ENDPOINT_URL` – HTTPS URL to Edge Controller (must include query flags like `sensor=cf&cap=nohb`).
- `MAX_SUPPORTED_PAYLOAD` – Max bytes to capture from request/response bodies (default `131072`).
- `SUPPORTED_CONTENT_TYPES` – Substrings matched in `Content-Type` for body capture.
- `BYPASS_METHOD` – Methods to skip (default `OPTIONS, HEAD`).
- `DEFAULT_LOGGING_TIMEOUT` – Max ms the Worker will wait when sending logs (default `1000`).
- `SENSOR_INSTANCE` – Optional instance label injected into response headers for traceability.

- `SKIP_EXTENSIONS` – Static file extensions to bypass (avoid noisy/large bodies).

---

5. Secure HTTPS Logging to Controller

Cloudflare worker will be performing logging onto AppSentinels controller which acts like a server. The worker will, as part of HTTPS, perform server validation. It is essential that controller be provided with server cert and private key.

Using Cloudflare Generated Certificates

If controller will be deployed as a Cloudflare endpoint alongside your existing endpoints, please follow the below procedure,

1. In Cloudflare dashboard of your websites, go to DNS settings
2. Create an A record that maps the controller's hostname to the IP address. Let us assume the controller will be accessible at **https://appsentinels.<domain>**
3. Go to SSL/TLS > Origin Server
4. Choose "Create Certificate" and then "Generate private key and CSR with Cloudflare". Provide hostname for as **appsentinels.<domain>.** Click create. A public cert and private key will be generated. Save them and provide them to the edge controller
5. Ensure the worker's configurable REMOTE_CONTROLLER_ENDPOINT_URL is configured accordingly.

   Do not attach the worker to this route, ever.

Using existing Self-Signed Certificates

Verify the Self-Signed Certificate Details

- Ensure the certificate is **not expired** and the domain name matches your website.

Configure Cloudflare to Accept the Self-Signed Cert

1. In Cloudflare, go to **SSL/TLS > Origin Server** and select **Origin CA**.
2. Generate an Origin CA certificate and download it (e.g., `cloudflare-gen-origin-cert.pem`).
3. Upload the Origin CA certificate to the controller.

Adjust Cloudflare SSL/TLS Settings

1. In Cloudflare, go to **SSL/TLS > Overview**.
2. Set SSL/TLS encryption mode to **Full (strict)**.
3. This enforces end-to-end encryption and validates the origin certificate against Cloudflare's trust store.

8. Debugging & Verification

- **Cloudflare Dashboard** → Worker → *Logs*: live tail errors and metrics.
- **Wrangler**: `wrangler tail` for local log streaming.
- **Functional test**: Hit a routed API and confirm entries appear in AppSentinels (API catalog, latency, headers).
- **Network sanity**: If nothing arrives, validate DNS/TLS to the controller and check firewall rules.

---

9. Security Notes

- Always use **HTTPS** to the controller.

---

10. Upgrades & Maintenance

- Track **APPSENTINELS_PLUGIN_VERSION** in the Worker.
- When changing constants (timeouts, payload caps), roll out gradually and watch controller load.

Appendix A – Worker Code

Worker code:

The complete Worker source code is available upon request.

Revision	Date Modified	Author	Comments
1.0	01-Aug-24		Initial Draft
1.1	04-Dec-24		Secure logging
1.2	16-Aug-25		Reformatted document