

# **Application Performance Management Best Practices Product Documentation**



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# Best Practices

## Configuring Client Sampling with Jaeger

Last updated : 2023-12-25 15:52:41

This document describes how to configure client sampling with Jaeger.

### Overview

When the number of access requests is high, reporting all trace data may greatly increase APM fees. In this case, data sampling is often used.

#### Note:

In sampling, certain data is sampled from all the collected trace data for analysis, which reduces the span volume and trace storage fees.

### Sampling

Take a simple call relationship as an example: A > B > C (service A calls service B that calls service C). If service A doesn't receive any tracing information when called, its Jaeger library will create a trace, assign a trace ID, and decide whether to save the trace based on the sampling configuration. Both the sampling configuration decision and request will be sent to services B and C; therefore, you only need to configure sampling for service A.

### Directions

#### Sampling policy

The Jaeger client supports four sampling policies as follows:

**Constant (sampler.type=const):** It samples either all or none traces when the sample rate is `1` or `0`.

**Probabilistic (sampler.type=probabilistic):** It makes a random sampling decision with the probability in the range of 0–1. For example, `0.5` indicates to sample 50% traces.

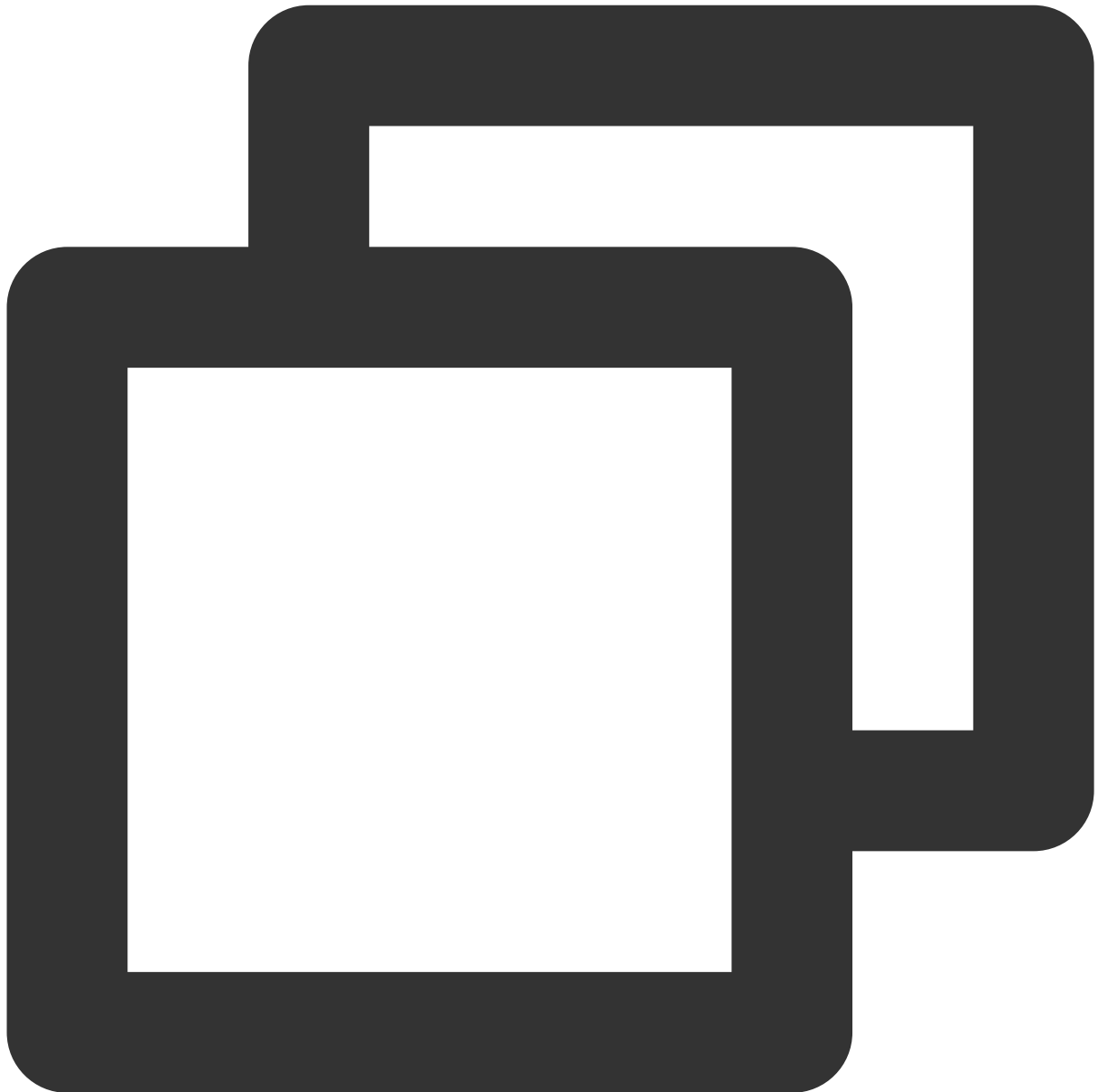
**Rate Limiting (sampler.type=ratelimiting):** It uses a rate limiter to ensure that traces are sampled with a certain constant rate. For example, `sampler.param = 2.0` indicates to sample requests with the rate of two traces per second.

**Remote (sampler.type=remote):** It is the default policy. It resembles `probabilistic` as the sampling probability but allows for dynamically getting the sample rate settings from the Jaeger agent. To minimize costs,

Jaeger adopts the 0.1% sampling policy, i.e., sampling 1 in 1,000 traces.

## Java sample

1. Add the Jaeger library to the dependencies.



```
<dependency>
  <groupId>io.jaegertracing</groupId>
  <artifactId>jaeger-client</artifactId>
  <version>0.32.0</version>
</dependency>
```

2. Below is the sample code:



```
import io.jaegertracing.Configuration;
import io.jaegertracing.Configuration.ReporterConfiguration;
import io.jaegertracing.Configuration.SamplerConfiguration;
import io.jaegertracing.internal.JaegerTracer;
import io.jaegertracing.internal.samplers.ConstSampler;
import io.opentracing.Span;
import io.opentracing.util.GlobalTracer;

...
```

```
SamplerConfiguration samplerConfig = SamplerConfiguration.fromEnv()
    .withType(ConstSampler.TYPE)
    .withParam(1);

ReporterConfiguration reporterConfig = ReporterConfiguration.fromEnv()
    .withLogSpans(true);

Configuration config = new Configuration("helloWorld")
    .withSampler(samplerConfig)
    .withReporter(reporterConfig);

GlobalTracer.register(config.getTracer());

...
Span parent = GlobalTracer.get().buildSpan("hello").start();
try (Scope scope = GlobalTracer.get().scopeManager()
    .activate(parent)) {
    Span child = GlobalTracer.get().buildSpan("world")
        .asChildOf(parent).start();
    try (Scope scope = GlobalTracer.get().scopeManager()
        .activate(child)) {
    }
}
```

## Go sample



```
import (  
    "github.com/opentracing/opentracing-go"  
    "github.com/uber/jaeger-client-go"  
    "github.com/uber/jaeger-client-go/config"  
)  
  
...  
  
func main() {  
    ...  
    cfg := config.Configuration{
```



```
Sampler: &config.SamplerConfig{
    Type:  "const",
    Param: 1,
},
Reporter: &config.ReporterConfig{
    LogSpans:          true,
    BufferFlushInterval: 1 * time.Second,
},
}
tracer, closer, err := cfg.New(
    "your_service_name",
    config.Logger(jaeger.StdLogger),
)
opentracing.SetGlobalTracer(tracer)
defer closer.Close()

someFunction()
...
}

...

func someFunction() {
    parent := opentracing.GlobalTracer().StartSpan("hello")
    defer parent.Finish()
    child := opentracing.GlobalTracer().StartSpan(
        "world", opentracing.ChildOf(parent.Context()))
    defer child.Finish()
}
```

**Note:**

For more samples, see [Client Library Features](#).

# Configuring Java Application Data Collection with SkyWalking

Last updated : 2023-12-25 15:58:14

This document describes how to configure Java application data collection with SkyWalking.

## Overview

When the number of access requests is high, reporting all trace data may greatly increase APM fees. In this case, data sampling is often used.

### Note:

In sampling, certain data is sampled from all the collected trace data for analysis, which reduces the span volume and trace storage fees.

## Prerequisites

You have [reported the data of the Java application over the SkyWalking protocol](#).

## Directions

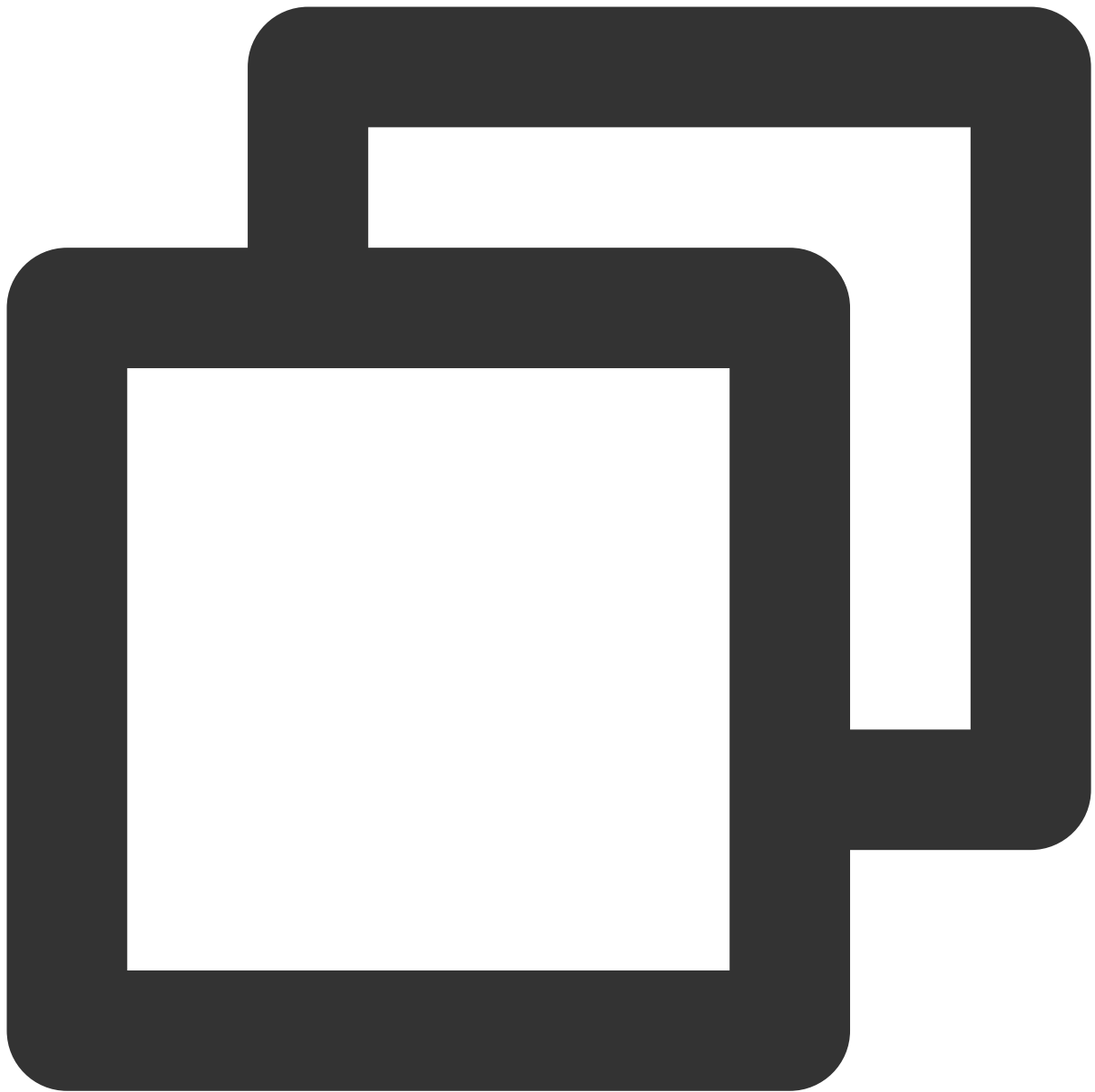
1. Open the `agent/config/agent.config` file and find the `agent.sample_n_per_3_secs=${SW_AGENT_SAMPLE:-1}` configuration item.

```
# The number of sampled traces per 3 seconds
# Negative or zero means off, by default
# agent.sample_n_per_3_secs=${SW_AGENT_SAMPLE:-1}
```

2. Modify the sample rate. `agent.sample_n_per_3_secs` indicates the volume of trace data (TraceSegment) that can be collected every three seconds. If it is negative or `0`, all traces are collected, which is the default option.

### Example:

To collect 1,500 TraceSegments in three seconds, set as follows:



```
agent.sample_n_per_3_secs=${SW_AGENT_SAMPLE:1500}
```