# 🔥 Prometheus: Introduction

*How Prometheus works*

> 👋**Welcome on Stackhero's documentation!**
> Stackhero provides Prometheus instances that are ready for production in just 2 minutes!
> Including TLS encryption (aka HTTPS), customizable domain name, "Blackbox", "Alert Manager", a dedicated email server, backups and updates in just a click.
> Try our managed Prometheus cloud in just 2 minutes

## What is Prometheus

Prometheus is an advanced monitoring system perfect to keep an eye on physical or virtual servers, hardware devices like routers or switchs and much more.

It collects metrics from targets at given intervals, displays the results and can trigger alerts when specified conditions are encountered.

Thanks to `Alert Manager` (available out-of-the-box with your Prometheus instance on Stackhero), you can send alerts by email, Slack, Mattermost, PagerDuty, OpsGenie and more.

Combined with Grafana, you will get a complete monitoring system with dashboards in few minutes.
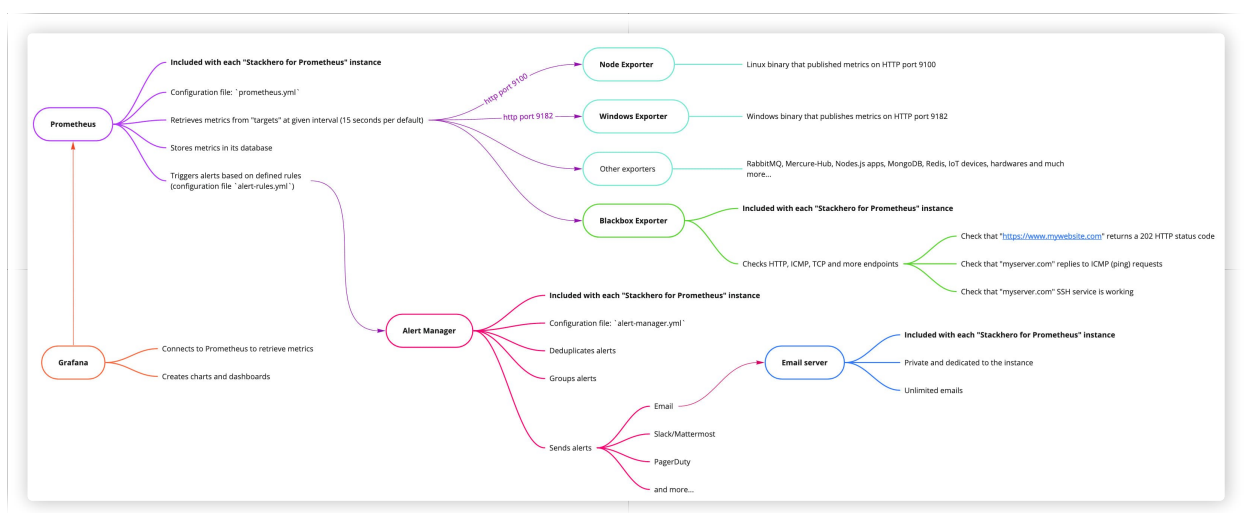


*Big picture of Stackhero for Prometheus*

## Overview of Prometheus services

Prometheus is not very useful by itself. Multiple services are required to make it fully useful.

Here are some interesting bricks:

- **Prometheus Server** (also known as "Prometheus")
  - Collects data from `targets` (exporters) at given intervals, typically by connecting to them using HTTP protocol.
  - Stores data to its integrated time series database.
  - Triggers alerts based on defined conditions.

- **Alert Manager** (included with your Prometheus instance on Stackhero)
  - Handles alerts sent byPrometheus.
  - Deduplicates alerts.
  - Groups alerts.
  - Routes alerts to email, Slack, Mattermost, PagerDuty, OpsGenie and more.

- **Blackbox Exporter** (included with your Prometheus instance on Stackhero)
  - Gives the ability to probe endpoints over HTTP, HTTPS, DNS, TCP and ICMP.

- **Node Exporter**
  - Installed on Linux servers, it provides metrics toPrometheus.

- **Grafana**
  - Configured to usePrometheus as a data source, it gives you the ability to displayPrometheus data in advanced dashboards.

## Configuration of Prometheus, Alert Manager and Blackbox

Prometheus, Alert Manager and Blackbox are configured using Yaml files.
You will get access to these files in your Stackhero dashboard and can edit them directly online.
When you will save them, the services will automatically reload their configuration with no downtime.

If your file contains an error, the service will not load the new configuration.
You can get errors details in your Stackhero dashboard, in the "logs" tab of your Prometheus service.

## Prometheus configurations backups

Each time you update a configuration file, a backup of this file will be created in the directory "backups".
The last 5 backups or younger than 14 days will be kept. Others backups will be automatically deleted.

You can find the backups on the URL https://<yourServiceDomain>/configurations/files/backups/

## How to delete data from Prometheus

If you have scrape some data that you do not need anymore, you can delete them using the admin API.

For example, to delete the data related to the job named `oldJob` , you can use this request:
`curl -u admin -X POST -g 'https://<yourServiceDomain>/api/v1/admin/tsdb/delete_series?match[]={job="oldJob"}'`
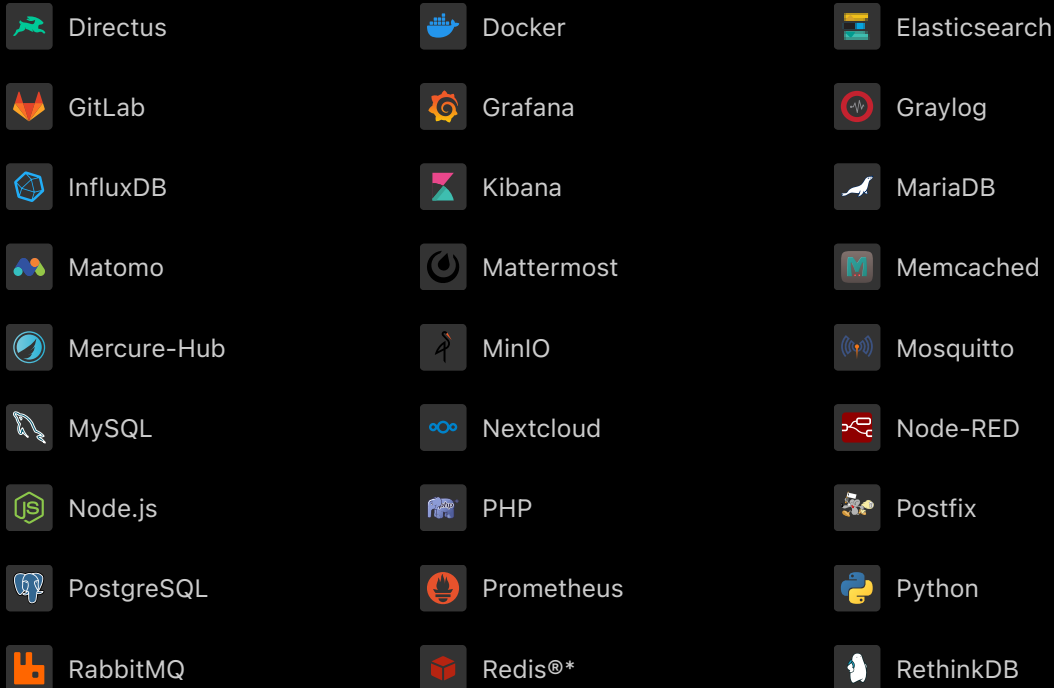
> ⚠️ Once you have deleted data, there is no way to retrieve them.
> You should be very careful before validating such a query!

You will find more informations on the official documentation.

## Other articles about Prometheus that might interest you

○ Using Node Exporter
   How to retrieve data metrics from Linux servers in Prometheus using Node Exporter

○ Blackbox Exporter
   How to use Prometheus Blackbox Exporter to probe HTTP and ICMP (ping) endpoints

○ Alerts
   How Prometheus alerts work and how to configure them

**Our Managed Services**

Directus

Docker

Elasticsearch

GitLab

Grafana

Graylog

InfluxDB

Kibana

MariaDB

Matomo

Mattermost

Memcached

Mercure-Hub

MinIO

Mosquitto

MySQL

Nextcloud

Node-RED

Node.js

PHP

Postfix

PostgreSQL

Prometheus

Python

RabbitMQ

Redis®*

RethinkDB

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