

Lesson Description - Query Operators

PromQL includes a wide variety of operators you can use to manipulate data in your queries. In this lesson, we provide an overview of what the various types of operators can do. We also demonstrate how to use operators by building some queries.

Relevant Documentation

- [Operators](#)

Lesson Reference

Access the Prometheus expression browser for your Prometheus server in a web browser. Be sure to use the public IP address of your Prometheus server:

```
http://<PROMETHEUS_SERVER_PUBLIC_IP>:9090
```

Use an arithmetic operator:

```
node_cpu_seconds_total * 2
```

Experiment with combining datasets using an arithmetic operator:

```
node_cpu_seconds_total{mode="system"} + ignoring(mode)  
node_cpu_seconds_total{mode="user"}
```

```
node_cpu_seconds_total{mode="system"} + on(cpu)  
node_cpu_seconds_total{mode="user"}
```

Use a comparison operator to filter results:

```
node_cpu_seconds_total == 0
```

Use the **bool** keyword to display the results of a comparison:

```
node_cpu_seconds_total == bool 0
```

Experiment with combining datasets using logical set operators:

```
node_cpu_seconds_total
```

```
node_cpu_guest_seconds_total
```

```
node_cpu_seconds_total and node_cpu_guest_seconds_total
```

```
node_cpu_seconds_total or node_cpu_guest_seconds_total
```

Use an aggregation operator:

```
node_cpu_seconds_total{mode="idle"}
```

```
avg(node_cpu_seconds_total{mode="idle"})
```

```
sum(node_cpu_seconds_total{mode="idle"})
```