SigNoz is an open-source application performance monitoring (APM) tool that helps you monitor your applications and troubleshoot issues by collecting and visualizing traces, logs, and metrics. Here's an overview of why you'd use SigNoz and some important commands to get you started:

### Why Use SigNoz?

1. **Performance Monitoring**: It helps you track the performance of your applications in real-time, providing insights into request latencies, errors, and throughput.
2. **Distributed Tracing**: SigNoz allows you to trace requests across different services, helping you understand the flow of requests and identify bottlenecks.
3. **Log Management**: You can aggregate and analyze logs from different services, making it easier to debug issues.
4. **Custom Metrics**: SigNoz lets you collect custom metrics that are specific to your application, helping you monitor specific performance indicators.
5. **Open Source**: Being open-source, you can host it on your own infrastructure, customize it, and contribute to its development.

### Important Commands and Concepts

1. **Installation**:
   * To install SigNoz, you typically use Docker or Kubernetes. You can find the installation instructions in the SigNoz documentation.
   * Example command to install using Docker:

bash

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docker-compose up

1. **Instrumenting Your Application**:
   * To use SigNoz with PHP, you need to install the SigNoz PHP library.
   * Use Composer to require the library:

bash

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composer require signoz/signoz-php

* + Then, initialize the library in your application to start sending traces and metrics.

1. **Sending Traces and Metrics**:
   * After installing the library, you can use it to create spans and track the performance of different functions or requests. Here's a basic example:

php

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use Signoz\Signoz;

// Initialize Signoz

$signoz = new Signoz();

// Start a trace

$span = $signoz->startSpan("my\_span");

// Your application logic here...

// End the span

$span->end();

1. **Viewing Data**:
   * Once you have your application instrumented and sending data to SigNoz, you can access the SigNoz UI (usually at http://localhost:3000 or http://<your-server-ip>:3000) to view traces, metrics, and logs.
2. **Common CLI Commands**:
   * If you are using Docker, common commands include:
     + docker-compose up: Starts all services defined in your docker-compose.yml.
     + docker-compose down: Stops and removes the services.
     + docker-compose logs: Shows logs for all services.
3. **Debugging Issues**:
   * If you encounter issues, check the logs of the SigNoz services using:

bash

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docker-compose logs

### Learning Resources

* **Documentation**: Refer to the official SigNoz documentation for detailed information on installation, configuration, and usage.
* **GitHub Repository**: Explore the [SigNoz GitHub repository](https://github.com/SigNoz/signoz) for the source code and additional resources.

### Conclusion

Using SigNoz will help you gain insights into your application's performance and make it easier to troubleshoot issues. As you get more familiar with its capabilities, you'll be able to leverage it for effective monitoring and performance optimization.