**Research & Development**

Apache Dolphin Scheduler

**Apache Dolphin Scheduler - Introduction**

* Apache Dolphin Scheduler provides a distributed and easy to expand visual workflow task scheduling open-source platform. It is suitable for enterprise-level scenarios. It provides a solution to visualize operation tasks, workflows, and the entire data processing procedures.

**Key Features and aspects of Apache Dolphin Scheduler-**

* Dolphin Scheduler assembles tasks in the Directed Acyclic Graph (DAG) streaming mode, which can monitor the execution status of tasks in time, and supports operations like retry, recovery failure from specified nodes, pause, resume, and kill tasks, etc.
* Supports more than 10tasks types, like Shell, MR, Spark, SQL, etc., with cross-language support making it easy to extend.
* User-friendly drag-and-drop workflow definition and facility for run-time control & Modularity facilitates easy customization and maintenance.

**Optimal Scenarios for Apache Dolphin Scheduler Utilization-**

* Apache Dolphin Scheduler is ideal for automating and managing a range of complex workflows. It excels in orchestrating ETL processes for data pipelines, scheduling large-scale batch jobs, and streamlining CI/CD pipelines for software development.

* It handles scheduled reporting, system maintenance tasks like backups, and can trigger workflows based on specific events.
* It is a robust and scalable workflow management tool that excels in orchestrating complex tasks and processes. It offers an intuitive user interface for easy workflow design and monitoring, supports diverse task types.

**Scope of Apache Dolphin Scheduler-**

* Apache Dolphin Scheduler has a broad and versatile scope, making it suitable for a range of complex workflow management needs. The tool handles machine learning workflows, automating routine business processes, managing system maintenance tasks.
* Additionally, it supports event-driven workflows and optimizes resource management, making it a versatile solution for enhancing operational efficiency and reliability in various industries.
* Its scalability and fault-tolerant features ensure it meets the needs of both small and large-scale operations.

**How to Use Apache Dolphin Scheduler-**

*To install Apache Dolphin Scheduler following are the requirements:*

* docker
* Docker Compose

*To extract the project, below is the command used-*

*tar -zxf apache-dolphinscheduler-3.2.2-src.tar.gz*

*To change directory to required path- cd apache-dolphinscheduler-3.2.2-src\deploy\docker*

*To initialize the database, use profile up-* docker-compose --profile schema up -d

*To start all dolphin Scheduler server, use profile all- docker-compose --profile all up -d*

**Login to Apache Dolphin Scheduler-**

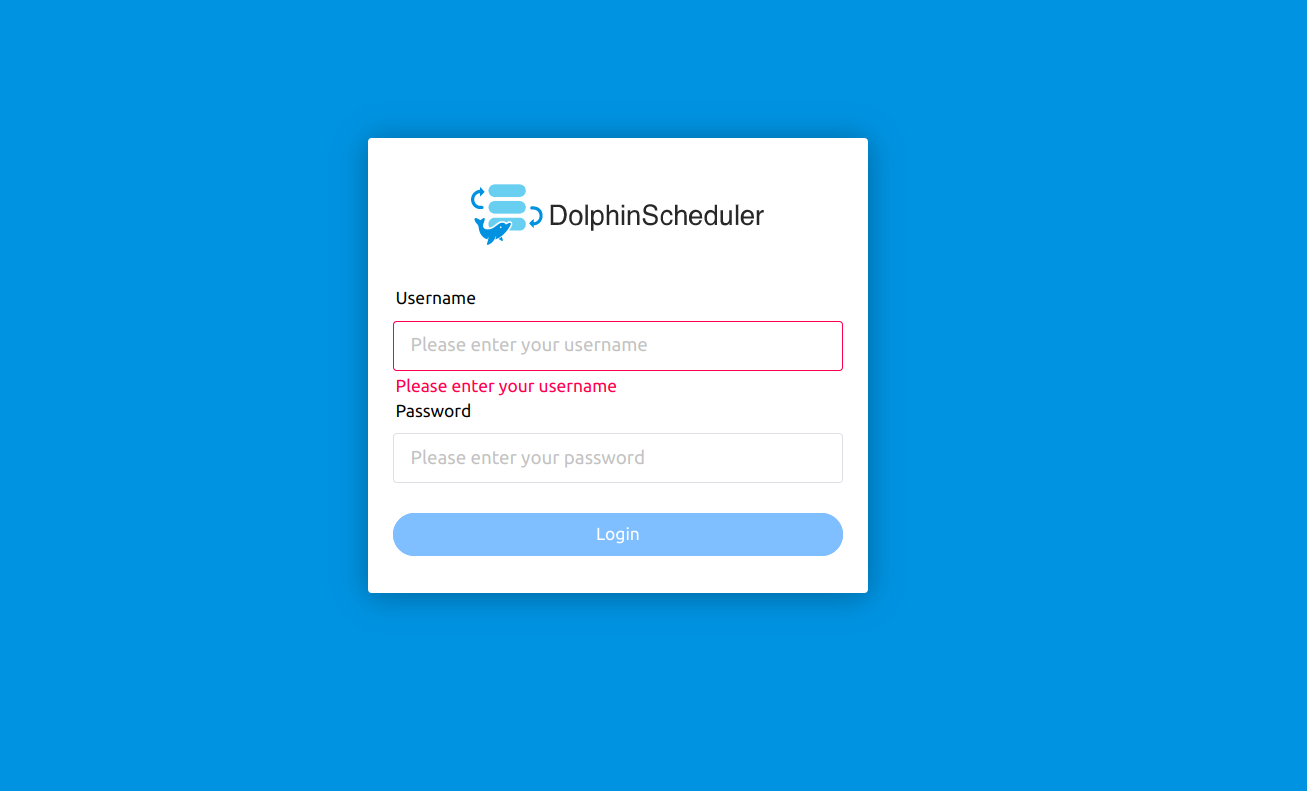
You can access Dolphin Scheduler now via your web browser by visiting- *http://localhost:12345/dolphinscheduler/ui*

Log in with the default username and password:

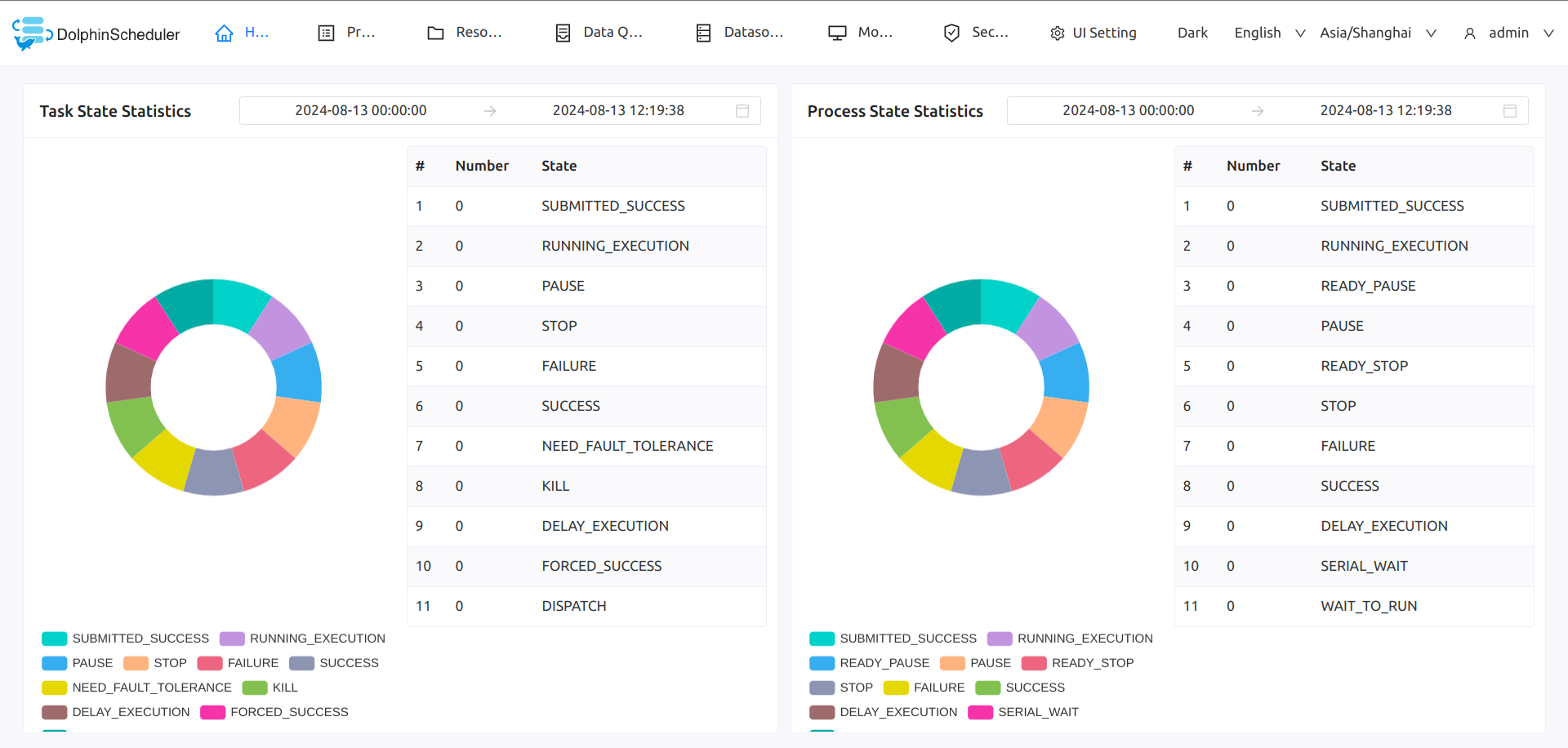
*username: admin*

*password: dolphinscheduler123*

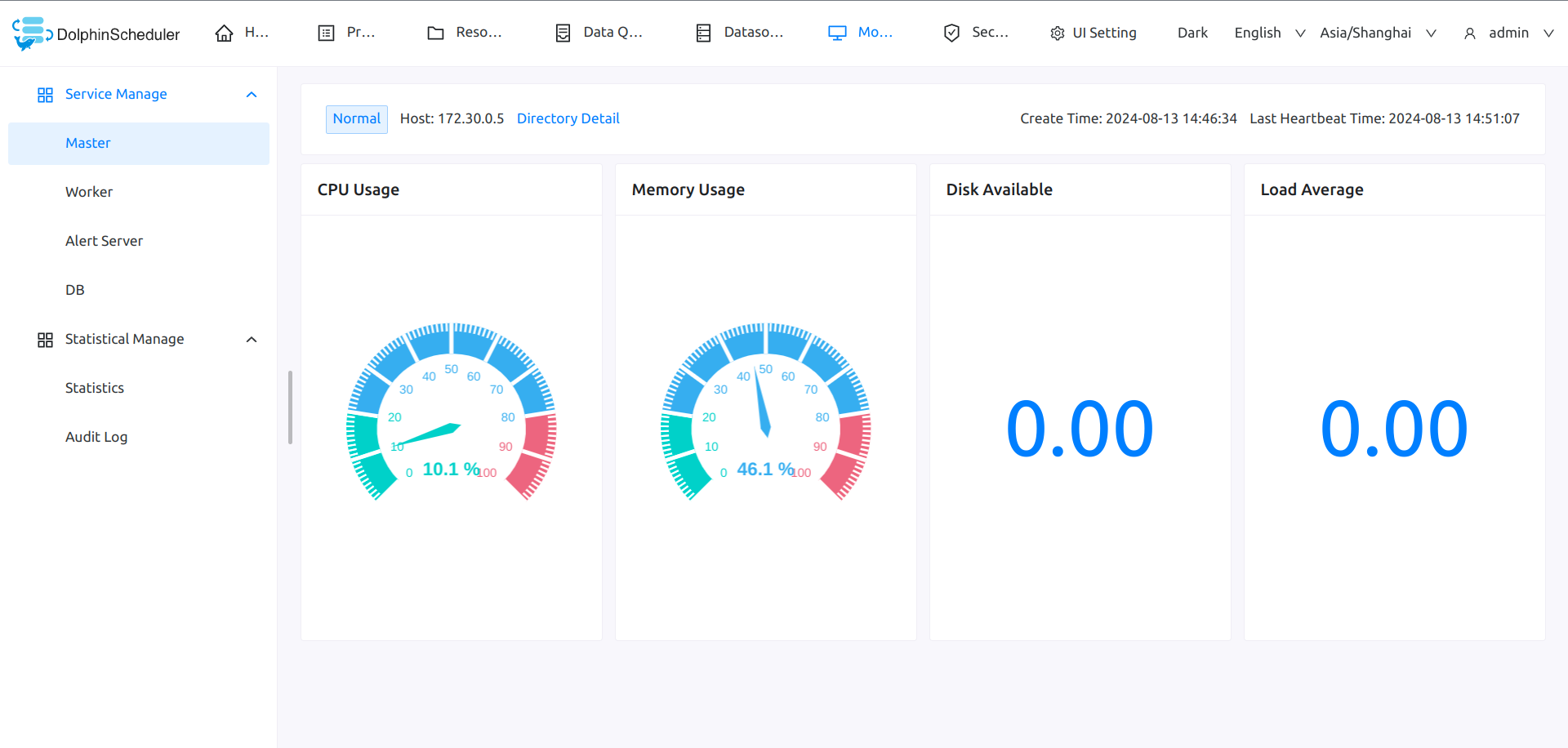
***Login Page:***



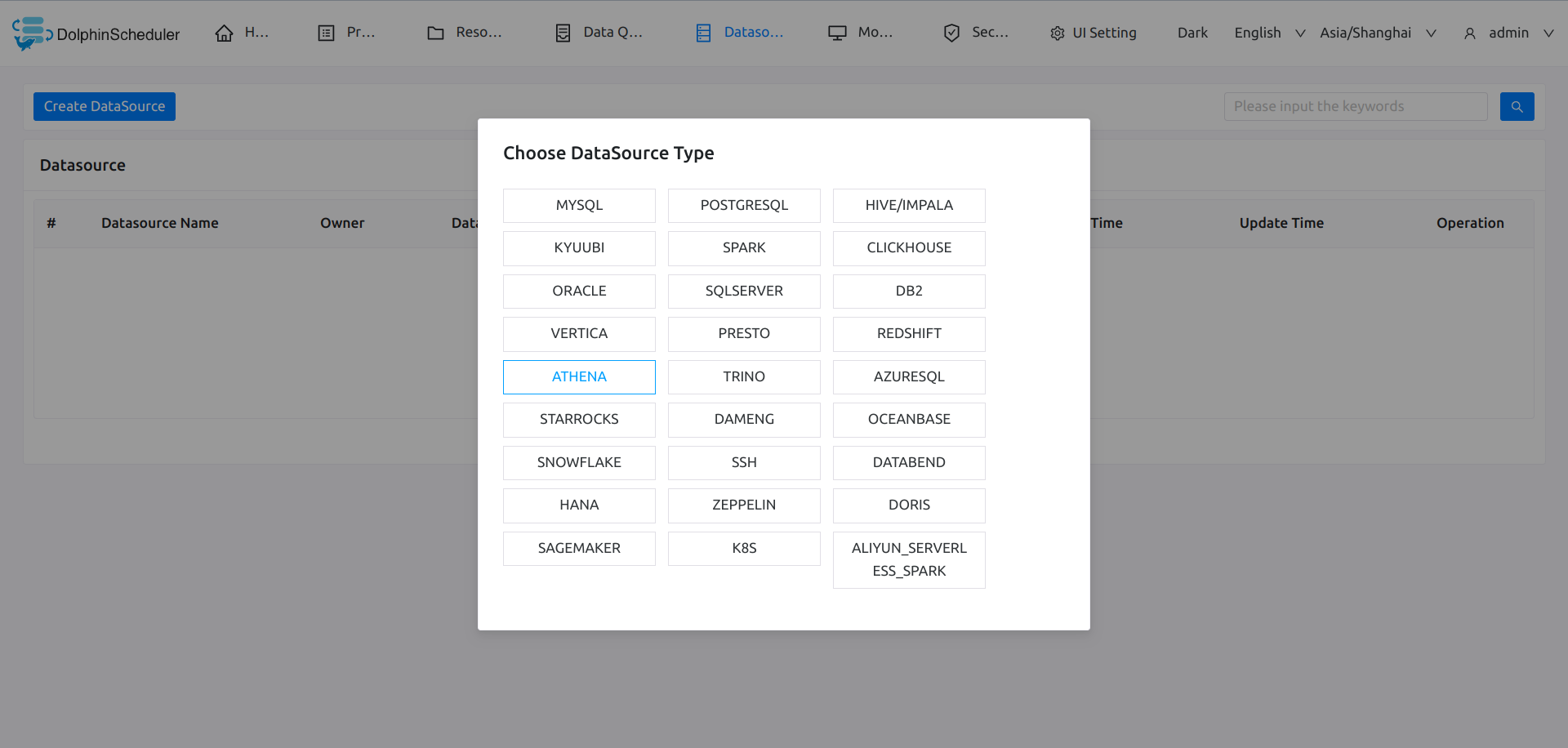
***Home page:***



***Monitoring:***



***Data Source:***

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**Supported Database-**

MySql , PostgreSql , Oracle, SqlServer , SQLite, H2Database

**Supported File Formats-**

TXT, CSV, YAML, JSON, SQL, SH, BAT, XML, LOG

**Pros & Cons of Apache Dolphin Scheduler-**

***Pros-***

* Powerful Workflow Management: Efficiently handles complex workflows with multiple dependencies and scheduling needs.
* Fault Tolerance: Includes features for error handling, retries, and notifications to ensure reliable task execution.
* Open Source: Free to use and customizable, with a growing community for support and contributions.

***Cons-***

* Resource Intensive: Can be resource-heavy, requiring adequate infrastructure to handle large-scale operations effectively.
* Community Support: While growing, community support may not be as extensive as more established tools, potentially leading to fewer resources for troubleshooting.
* Documentation Gaps: Some advanced features or configuration details may be under-documented or harder to find.