

Application Support

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Cloudera Operational Database supported programming languages for application development

Cloudera Operational Database (COD) enables you to build applications using various programming languages. You can choose a programming language to build applications that can access data stored in your COD.

List of supported programming languages to access data stored in your COD are as follows:

- Apache Groovy
- C
- C++
- Go
- Java
- Jython
- Python
- PHP
- Scala

You can also use REST for API support.

Related Information

[Operational Database Application Support - Blog post](#)

Java 2 platform and Enterprise Edition support

You can use the Apache HBase Java API for applications to communicate with Apache HBase. Cloudera Operational Database supports the Java 2 Enterprise Edition (J2EE) along with the plugins for Eclipse.

You can perform operations on Apache HBase tables by using the Java client API. You can develop Java applications that can be used to create tables and insert data. The native Java client API offers programmatic access. For more information, see *Use the Java API* using the link in the related information section.

Related Information

[Use the HBase APIs for Java](#)

Cloudera Operational Database JDBC support

You can use the Java Database Connectivity (JDBC) interface to access the operational database. Apache Phoenix in Cloudera Operational Database provides a JDBC SQL endpoint to interact with data stored in Cloudera Operational Database.

You can create and interact with Apache HBase tables using DDL/DML statements through its standard JDBC API. Apache Phoenix JDBC driver can be easily embedded in any application that supports JDBC. The JDBC interface is provided in Cloudera Operational Database.

For more information about using the JDBC driver URL syntax and usage, see the *Client connectivity information for compiling your application for Cloudera Operational Database* and *Using JDBC API with Apache Phoenix* using the links provided in the related information section.

Related Information

[Client connectivity information for compiling your application for Cloudera Operational Database](#)
[Using JDBC API with Apache Phoenix](#)

Cloudera Operational Database Open Database Connectivity support

You can use the Open Database Connectivity (ODBC) interface to access your Cloudera Operational Database. The ODBC driver is provided by Cloudera as an additional download, but you can also use ODBC drivers from third-party providers.

The driver complies with the ODBC data standard, including important functionality such as Unicode and 32-bit and 64-bit support for high-performance computing environments on all platforms. ODBC is one of the most established and widely supported API for connecting to and working with databases.

You can download the Phoenix ODBC Driver for Cloudera Operational Database from the **Connect** tab in the Databases user interface. For more information, see *Client connectivity information for compiling your application for Cloudera Operational Database* link in the related information section.



Note: You must have a Cloudera Enterprise Support Subscription to download the ODBC driver.

Related Information

[Download ODBC Driver for Apache Phoenix \(v1.0.8.1011\)](#)

Cloudera Operational Database .Net interface support

You can use the C# client library to develop applications that can access data stored in the Cloudera Operational Database.

Microsoft .Net Framework is supported through multiple interfaces including ODBC, Thrift Server, and the Phoenix Query Server.

You can use the Apache Phoenix ODBC driver to connect your .Net applications to Apache Phoenix. The .Net applications that you develop interface with the Phoenix Query Server using the Avatica API and Google Protocol Buffers serialization format.

Related Information

[Download Microsoft Phoenix Client](#)