

OpenLDAP Driver for MySQL Cluster Carrier Grade Edition (CGE), FAQ

General

Q. What is the OpenLDAP Driver for [MySQL Cluster Carrier Grade Edition](#) ?

A: The OpenLDAP Driver for [MySQL Cluster CGE](#) allows directory data (i.e., entries and objects for users, devices and services) to be stored, accessed and managed within the MySQL Cluster CGE database, and presented as a shared network resource to distributed OpenLDAP directory servers.

Q. Who benefits from this approach ?

A: Users of OpenLDAP, users of MySQL Cluster and organizations looking to consolidate multiple data stores in order to accelerate time to market of new services and reduce operational costs

Q. What are the benefits to OpenLDAP users ?

A: Using a driver to the real-time, carrier-grade MySQL Cluster database, OpenLDAP directory data can be de-coupled from the directory server, and presented as a shared resource over the network. Using MySQL Cluster's in-built mechanisms for data replication and its real time design, users can improve directory performance and scalability with lower replication overhead and reduced management complexity for large, transaction-intensive directory data sets.

Q. What are the benefits to MySQL Cluster users ?

A: This solution enables existing data stored in MySQL Cluster to be accessed via an industry standard LDAP interface and directory server.

Q. What are the benefits in Data Consolidation Initiatives ?

A: This solution enables network operators to embark on initiatives that fully exploit user and network data that is currently distributed across legacy applications and networks.

In order to deploy a range of next generation, highly personalized services delivered over IP-based networks, operators need to expose subscriber and network data in a standardized way.

Storing directory data with MySQL Cluster liberates the data, allowing it to be accessed as one complete data set, by a broader range of applications. This approach allows for the sharing and re-use of common data allowing simplified data management, faster service integration, enhanced scalability and advanced data analysis / integration with multiple data types and IT systems. For example , it is much simpler to mine subscriber data via standard SQL access for business intelligence and customer care applications. Using the LDAP driver also makes it possible for network operators to make non-directory data available via OpenLDAP.

Q. Are there cost advantages to storing OpenLDAP directory data in MySQL Cluster ?

Yes, both acquisition and operational costs. Hardware costs can be reduced as the database can be distributed across multiple, low cost commodity servers rather than single multi-processor SMP systems equipped with large memory footprints. Data re-use allows simplified data management with the sharing and re-use of common data.

Q. What are the impacts on existing applications ?

A: None. Existing applications continue to work unchanged, providing a seamless upgrade to existing OpenLDAP environments. What is more, developers do not need to concern themselves with replication technologies or High Availability mechanisms, enabling them to concentrate on the applications, and delivering faster time to market at lower levels of cost and complexity.

Q. What is a typical use-case for this type of solution ?

A: The OpenLDAP Driver for MySQL Cluster has been optimized for authentication and authorization of devices and subscribers within telecommunications and network service provider applications, with applications demanding frequent look-ups and modification of subscriber and service data.

For many high-volume applications, the LDAP Driver for MySQL Cluster offers a seamless upgrade path to OpenLDAP directory users confronting requirements for 50 million+ entries, as well as highly active directories, and for directories with high update rates, i.e. more than 10% of all transactions.

In addition to large, complex directories, this solution is also attractive for smaller, high-value directories. It makes a great deal of sense to migrate a production directory off of current back-end data store technologies to MySQL Cluster CGE long before the growth of the directory makes scalability a major issue. Once that relatively simple conversion is complete, users can grow the directory using the superior flexibility of MySQL Cluster without impacting the directory client applications.

If multiple nodes are required to efficiently and economically host the directory database, then the capacity and scaling flexibility offered by MySQL Cluster will be an optimal solution.

Q. What is the broader use case for MySQL Cluster CGE ?

A: MySQL Cluster CGE has been successfully deployed in many telecommunications and web-based applications including AAA services, Application Servers, Value Added Telecommunications Services, Subscriber Databases, eCommerce, Gaming, etc.

MySQL Cluster provides multiple access methods to data access including SQL, native APIs (C++, Java), HTTP and now LDAP. As a result MySQL Cluster can be deployed as a consolidated data store powering a vast range of network applications within today's communications networks and web properties.

Q. Where can I learn more about the OpenLDAP Driver and MySQL Cluster

A: Please refer to our guide, posted here:

[Scaling OpenLDAP with MySQL Cluster](#)

Q. How is the OpenLDAP Driver licensed ?

A: The OpenLDAP Driver source code is licensed under the [OpenLDAP public license](#).

Q. How is the OpenLDAP Driver distributed ?

A: The source code for the Driver is available as part of the OpenLDAP Version 2.4.12 and above source tree. A fully built binary of the Driver, integrated with the OpenLDAP server and configured for MySQL Cluster CGE is available to users who purchases licenses for MySQL Cluster CGE

Q. How is the OpenLDAP Driver supported ?

A: For [support](#), users need to purchase licenses for MySQL CGE, and the [support contract](#) that meets their needs. Pricing information is available by [contacting](#) MySQL.

Q. What is the difference between the Community and Commercial versions of the OpenLDAP Driver for MySQL Cluster ?

A: There is no difference in the code. The Community version is available as source code within the OpenLDAP server tree. The Commercial version is distributed as a pre-integrated and configured binary to licensed customers. Licensed customers can also purchase support, offering up to 24x7 coverage, hot fixes, etc.

Q. What support is provided by MySQL ?

A: MySQL provides full support to customers with a valid support contract. This covers initial call handling all the way th

[here](#)

Q. Which version of MySQL Cluster CGE is the OpenLDAP Driver available for

A: The OpenLDAP Driver is available with MySQL Cluster 7.0 and above

Technical

Q. Is there a performance penalty (throughput / latency) when the LDAP server accesses data from MySQL Cluster versus accessing data directly from existing data stores used by the OpenLDAP server ?

A: For very simple deployments comprising just one or two nodes, then more traditional configurations, i.e. using OpenLDAP with HDB as the back-end data store, will deliver higher throughput than MySQL Cluster.

As the size of the directory database increases and cannot scale efficiently or economically on a single node, then distributing the database over a cluster of nodes with MySQL Cluster will deliver greater capacity and scaling. Overall LDAP throughput (i.e. operations per second) will be higher as the overhead for data replication and updates is off-loaded from LDAP servers to the dedicated MySQL Cluster Data Nodes. As the database is de-coupled from the directory servers to become a shared resource on the network, there maybe very slight impacts to latency, but these are minimized due to MySQL Cluster's in-memory design and fast network interconnects.

Overall, LDAP throughput will be higher, while requiring less expensive hardware and lower administrative effort, so price/performance will also be significantly improved for OpenLDAP deployments requiring multiple nodes to handle the back-end database

Q. Which platforms are supported with the OpenLDAP Driver ?

A:

Operating System	Version	Chip Set
Red Hat Enterprise Linux	4 and 5	x86_64
Novell SuSE Enterprise Linux	10	x86_64
Sun Solaris	10	SPARC, x86_x64

Q: Can the OpenLDAP Driver take advantage of MySQL Cluster CGE features such as Geographic Replication ?

A: Yes. The ability to withstand site failures by replicating clusters across multiple remote locations is an important capability for many deployments. Geographic Replication is available as an option with MySQL Cluster Carrier Grade Edition, and ideally suited to those organizations with multiple data centers

Q: How do I install, configure and the OpenLDAP Driver for MySQL Cluster ?

A: Please read the [deployment guide](#)

You can also learn more from this [blog](#)

Q: If the index data is a denormalized table, how do you ensure consistency ?

A: The LDAP/x.500 data model allows for multiple values per attribute per object, and for that value to appear on many objects, that wouldn't be a problem. Consistency within the table is managed by MySQL Cluster itself.

Q: Will the OpenLDAP Server daemon (slapd) reject substring searches when using the Driver for MySQL Cluster or will it simply handle the query slowly ?

A: The OpenLDAP Server daemon (slapd) can be configured to limit the look-through limit, however by default it will scan the entire database, applying the filter individually to each object so that the query can (eventually) be answered correctly.

Q: Do tables have to be manually defined to match the OpenLDAP schema ?

A: No, the OpenLDAP Driver automatically creates MySQL tables from LDAP schema. For example, if you load an ldif file for a new schema, OpenLDAP converts it and stores it in the MySQL Cluster database. Whenever you create an entry with an object class that hasn't been used before, a MySQL table will be created for that object class.

Q: Does the use of the OpenLDAP Driver impact the use of other data access methods provided by MySQL Cluster ?

A: No, MySQL Cluster can continue to service simultaneous access requests over NDB-API, SQL, mod-ndb, etc. For OpenLDAP connectivity, you can use either the native API, SQL or any of the connectors that are available for MySQL, but using the Driver will deliver the highest level of throughput.

Q: Is it possible to control which tables are memory resident within MySQL Cluster ?

A: MySQL Cluster gives you control over which tables (and even which columns) should be held on disk rather than in memory. Indexes from the tables must be held in memory.

Q: Are the interfaces for 32-bit applications different from 64-bit ?

A: No, the interfaces are the same.