



## Database Theory for Mnesia

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Seminar Content

**Seminar:** Database Theory for Mnesia

**Targeted Audience:** Software Developers and Support and Test Engineers with programming experience.

**Requirements:** Erlang By Example (or similar) for developers

Erlang for Test and Support (or similar) with three months full time Erlang experience for Test and Support Engineers. OTP is recommended but not necessary.

**Objectives:** Understand the principles of database theory.

Understand transactions and atomicity.

Good understanding of Mnesia and its applications.

Understand of Mnesia and database optimisations.

Awareness of occurring problems when using Mnesia.

**Duration:** One day.

The Database Theory for Mnesia seminar covers the theory needed to work with Mnesia as well as indepth look at Mnesia and open source interfaces to other databases.

This one day course teaches the basic concepts of database theory such as transactions and atomicity. Takes a detailed look on designing databases with Mnesia and also how to maintain a Mnesia database. Further the open source and OTP libraries to interface with other databases and to extend the relational properties of Mnesia are covered.

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## **Database Theory**

All the major concepts needed to understand, design and implement a working database are covered.

## **An Introduction to Mnesia**

Mnesia is a distributed, fault tolerant relational database encapsulated in an Erlang application. This section looks at starting and configuring Mnesia, followed by creating, populating and manipulating tables. It introduces transaction handling, locks, and complex queries. It concludes with guidelines on when to use and not to use Mnesia.

## **Maintaining Mnesia**

Mnesia is a complex database, and lots can go wrong. This section introduces basic maintainability issues such as backups, repopulating databases from backups, traversing backup's offline gathering information. It also covers the largest problem with distributed databases, network partitioning.

## **Mnemosyne**

Mnemosyne is Mnesia's own query language based on list comprehensions. This section introduces mnemosyne and the more complex queries that can be achieved using it.

## **Query List Comprehensions**

QLC is a new query language intended to replace Mnemosyne as the Mnesia query language. QLC also support queries for ETS, DETS tables and other searchable data structures. The concepts and how construct queries presented.

## **External Interfaces**

There is general connectivity with external databases using the OTP's ODBC libraries. For MySQL and PostgreSQL there are dedicated open source interfaces. The Mnesia session library provides a CORBA interface enabling access from foreign programming languages. The open source Rdms library provides an additional relational database layer on top of Mnesia.