Using Apache Derby - The built-in CF8 Database

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Who am I?

- Senior Software Architect for Alagad.
- Web developer for over 7 years.
- ColdFusion Developer since ColdFusion 5.
- Adobe Community Expert
- Author of Flogr
  - A Flex based tool for viewing ColdFusion log files.

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What Will We Cover?

- What is Derby?
- Advantages of Derby
- Advantages of Using Derby With ColdFusion
- When Would You Use Derby?
- Creating an Embedded Derby Database.
- Creating a Network Derby Database.

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What is Derby?

- Derby is a sub-project of the Apache DB Project.
  - The DB Project is charged with the creation and maintenance of commercial-quality, open-source, database solutions for distribution at no charge to the public.
- Derby is an open source relational database implemented entirely in Java and available under the Apache License, Version 2.0.

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What is Derby?

- There are 2 different types of Derby databases:
  - Embedded - A direct-connect (you have to run it in the same JVM as the code connecting to it), single-client database.
  - Network (client) - adds networking and multi-client support.
- With embedded databases, only one client can connect to database at any one time.

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Advantages of Derby

- Derby has a small footprint
  - About 2 megabytes for the base engine and embedded JDBC driver.
- Derby is based on the Java, JDBC, and SQL standards.
- Derby provides an embedded JDBC driver that lets you embed Derby in any Java-based solution.
- Derby is easy to install, deploy, and use.
- Databases are easily transferable to other systems.

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Advantages of Using Derby with ColdFusion

- No installation of Derby necessary.
  - Derby is installed when you install ColdFusion 8.
- No need to install a DBMS
- No need to do a restore or import
  - Simply set up a data source pointing to the database and off you go.
  - Changes made to data or schema are automatically updated
- Guaranteed compatibility regardless of operating system.

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When Would You Use Derby?

- To provide code examples where database access is necessary.
  - Such as in blog posts, online articles, presentations.
- Prototyping applications
  - In some cases it might be more efficient to create a Derby database for prototyping rather than creating a process to stub data.
  - This is **NOT** to say Derby is for development only.
- Product development
  - You would not need to develop for more than one RDBMS.
  - Could avoid customers having to use a RDBMS they normally would not.

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Creating an Embedded Derby Database

- There are several ways you can create a Derby database to use with ColdFusion
- Using ColdFusion Administrator
  - Creating a Derby data source allows you the option to create the database.
- Pros:
  - You have to create a data source anyway.
  - Quick, easy, familiar.
- Cons:
  - You still need to create the database schema.
    - Using an IDE
    - Using CF code (blech)

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Creating an Embedded Derby Database

- DerbyCFC
  - Developed by Sam Farmer to allow for easy creation and basic manangent of Derby databases

- Pros:
  - No need to worry about using CF Administrator.
  - Can be done programmatically
  - Quick, easy and familiar

- Cons:
  - You still need to create the database schema.
    - Using an IDE
    - Using CF code (blech)

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Creating an Embedded Derby Database

- Using and "IDE"
  - Squirrel
  - Data Tools Plugins for Eclipse
  - Aqua-Data Studio
    - Using Generic JDBC connection
  - RazorSQL (my favorite)
- Pros:
  - You can create the database and database schema using tools similar to other database management.
  - You can create the database in your project root and point to it when creating data source in CF Admin.
- Cons:
  - You still need to create the data source in CF Administrator
  - Some of the "IDE"s are expensive.
  - Configuring connections (or whatever the product calls them) could be confusing if you are not familiar with JDBC connections.

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Creating a Network Derby Database

- First, you will need to start the Derby "server"
  - You can run the derbynet.jar that comes with ColdFusion using
    - `java -jar /ColdFusion8/lib/ derbynet.jar start`
  - You can download, "install" and run Derby.

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Creating a Network Derby Database

- Using CF Administrator, create a data source of type 'Apache Derby Client'.
- Add ";create=true" to the 'Connection String' box under 'Advanced Settings'
  - A new folder will be created under the 'bin' directory where you started Derby.
- You can now connect to your DB using CF and an IDE at the same time.

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Creating a Network Derby Database

- You can easily copy the files created with a network database to an embedded database.
  - This make development a bit easier as you can modify database as needed without CF interfering.
- This will make it easier to deploy your application without having to worry about setting up a Derby server.

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Summary – What we learned.

- Apache Derby is a Java based database
- Derby can be run with ColdFusion as an embedded database or a network database.
- When you might consider using a Derby database.
- How to create and manage embedded and network databases.
- You can move the data files between an embedded and network database.

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Questions?

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Resources

- Apache Derby - http://db.apache.org/derby/

- Documentation - http://db.apache.org/derby/docs/10.2/ref/

- DerbyCFC - http://derbycfc.riaforge.org/

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