



# 4D Development - Programming

## Multi-User

**Level 3 Course**  
**Course Duration : 2 days**  
**Course Code : 4D-DEV4**

### About the Course

4D Server is a Client/Server Development environment that is both powerful and scalable. This course gives delegates an in-depth understanding of the issues facing developers of multi-user systems written in 4D.

### Benefits

- Learn how to program a multi-user database system.
- Understand how to deal with record locking conflicts.
- Learn how to maintain performance in a multi-user environment.
- Learn about 4D's powerful multi-purpose architecture.
- Understand the detail of inter process communication.
- Learn how to use stored procedures and distributed processing effectively.
- Understand Transactions and Triggers.
- Understand 4D memory requirements.

### Prerequisites

It is recommended that you have attended our Level 2 4D Development - Programming Introduction course (4D-DEV2) or that you are familiar with the 4D Programming concepts and the 4D programming language.

### What Next ?

4D Development - Programming - Advanced (4D-DEV3)  
4D Development - Programming - Web Integration (4D-DEV5)  
Bespoke Training

### Course Content

- Client/Server Programming** • The 4D Architecture • Unified Client/Server • Network Considerations • 4D Client - what is created where • Single File on NTFS.
- Record Locking** • Locked Records • Load and Unload Record • Read Only and Read Write • Locked Attributes • Record Selections & The "LockedSet".
- Database Methods** • When executed • When to use • On Server Startup and Shutdown • On Server Open Connection and Close Connection.
- Database Properties and Settings** • Properties Dialog • Memory Considerations • Database Parameters • Tuning.
- Processes** • Process Concepts • Creating a Process • Local Processes • Process Attributes.
- Inter Process Communications** • Semaphores • Process Communications • Process Variables • Synchronous vs Asynchronous operations.
- Stored Procedures** • Execute on Server • Variable Scope.
- Distributed Processing** • Register and Unregister Client • Automatic Registration • Execute on Client.
- Transactions** • 4D Implementation • Simple Transactions • Advanced Transactions • Managing Transactions • Working with Selections inside a Transaction • Transaction Do's and Don'ts.
- Triggers** • Anatomy of a 4D Trigger • Trigger Level and Trigger Properties.
- Cross Platform Considerations** • 4D Transporter • Fonts and Form Design • Understanding the ASIFONT.MAP File • Plug-ins • Code Bracketing Techniques • Interface Considerations • Character Sets • Document Management.

To discuss your training needs, call us on **020 8245 4545** or email [training@mehdiward.com](mailto:training@mehdiward.com).



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