

# LDAP & Active Directory Directory Services in Networks

In state-of-the-art enterprise networks, a large number of server services is used in parallel. In such networks, the directory service is the central component which provides information for all other services. LDAP, the Lightweight Directory Access Protocol, provides the basic architecture to store and administrate information centrally. It is supported by all conventional network operating systems. The Active Directory Model of Windows 2000, for instance, uses LDAP, as well. In the course, the participants will acquire profound and practice-related know-how on directory services. They will be able to assess in which environment the application of directory services like LDAP makes sense.

## Course Contents

- Application Areas of Directory Services
- Architecture of an LDAP Directory
- Security Concepts for LDAP
- Objects, Attributes, and Parameters
- The Scheme
- Querying and Adding Entries
- The LDAP Data Interchange Format (LDIF)
- Configuration of an LDAP Directory Shown with OpenLDAP
- Maintaining the Directory Service
- Active Directory-the Directory Service of Microsoft
- The Domain Model
- Interaction with DHCP, DNS, and Kerberos
- User Registration in a Microsoft Windows Network

In this course of the ExperTeach Networking series, each student will receive the comprehensive ExperTeach course documentation.

## Target Group

The course is designed for technicians and administrators who wish to acquire detailed knowledge of the LDAP architecture and the processes it is based on.

## Knowledge Prerequisites

A basic know-how of the TCP/IP protocol family and the client-server concept is required for participation in this course.



## Reservation and Registration

We will be glad to make a free and non-binding course reservation for you for the duration of two weeks. On [www.experteach-training.com](http://www.experteach-training.com) under *Registration*, you can conveniently make course reservations, registrations, and hotel reservations. Alternatively, call us under +49 6074 4868-0.

For closed groups of participants, we can modify the course contents according to your requirements. Do not hesitate to contact us!



**2 days** €1,095 exclusive of V.A.T.

### Course date (mm/dd/yy)/Location

02/16-02/17/12	Frankfurt	11/15-11/16/12	Frankfurt
05/31-06/01/12	Frankfurt	02/14-02/15/13	Frankfurt
08/23-08/24/12	Frankfurt		

Up-to-date information: [www.experteach-training.com](http://www.experteach-training.com) LDAP



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<p><b>1 Directory Services in Networks</b></p> <p><b>1.1</b> What is a Directory Service?</p> <p><b>1.2</b> Fields of Application for Directory Services</p> <p><b>1.2.1</b> Administration of Personal Data</p> <p><b>1.2.2</b> E-Commerce</p> <p><b>1.2.3</b> Resource Management</p> <p><b>1.2.4</b> Bandwidth Administration</p> <p><b>1.2.5</b> User Administration (Single Sign On)</p> <p><b>1.3</b> X.500—A Standardized Directory Service</p> <p><b>1.3.1</b> The Standards</p> <p><b>1.3.2</b> Directory User Agent</p> <p><b>1.3.3</b> Directory System Agents</p> <p><b>1.4</b> DA Service and DIXIE—Predecessors of LDAP</p> <p><b>1.4.1</b> First Steps to LDAP</p> <p><b>1.4.2</b> The Development of LDAP</p> <p><b>1.4.3</b> LDAP and X.500</p> <p><b>1.4.4</b> Request for Comments</p> <p><b>1.5</b> Active Directory and DNS</p> <p><b>1.5.1</b> A New Name Service Replaces WINS</p> <p><b>1.5.2</b> User Administration and Authentication</p> <p><b>2 LDAP—The Concept</b></p> <p><b>2.1</b> The LDAP Architecture</p> <p><b>2.1.1</b> Directory Information Tree</p> <p><b>2.1.2</b> Objects, Object Classes, and Attributes</p> <p><b>2.1.3</b> The Database Scheme</p> <p><b>2.2</b> LDAP—The Access Protocol</p> <p><b>2.2.1</b> LDAP URLs</p> <p><b>2.2.2</b> LDAP Browsers</p> <p><b>2.2.3</b> Searching in the Directory Tree</p> <p><b>2.2.4</b> Further Functions and Commands</p> <p><b>2.3</b> LDIF—The LDAP Data Interchange Format</p> <p><b>2.4</b> Application Programming Interface</p> <p><b>2.4.1</b> Software Development Kits</p> <p><b>2.4.2</b> Gateway Services</p> <p><b>3 The LDAP Security Concept</b></p> <p><b>3.1</b> Server and Data Protection</p> <p><b>3.2</b> Access Rights</p> <p><b>3.2.1</b> Simple Authentication</p> <p><b>3.2.2</b> Simple Authentication and Security Layer</p> <p><b>3.2.3</b> Secure Socket Layer and Transport Layer Security</p> <p><b>3.2.4</b> Kerberos—Your Ticket, Please!</p> <p><b>3.2.5</b> MD5—Security by Means of Hash Values</p> <p><b>4 Planning the Directory Service</b></p> <p><b>4.1</b> Basic Considerations</p> <p><b>4.1.1</b> The Directory Tree—Preplanning</p> <p><b>4.1.2</b> The Security Concept</p> <p><b>4.1.3</b> Physical Implementation</p> <p><b>4.2</b> Migration of Existing Directory Services</p>	<p><b>5 Configuration of an LDAP Server</b></p> <p><b>5.1</b> Server Types</p> <p><b>5.2</b> Configuration—OpenLDAP as an Example</p> <p><b>5.2.1</b> The Configuration File</p> <p><b>5.2.2</b> Access Control</p> <p><b>5.2.3</b> Exercise: Configuration of a Directory via LDIF</p> <p><b>6 Active Directory—The Concept:</b></p> <p><b>6.1</b> Server Architecture with Windows 2000</p> <p><b>6.2</b> Migration of Windows NT 4.0</p> <p><b>6.3</b> The Domain Concept</p> <p><b>6.3.1</b> Organizational Units and Containers</p> <p><b>6.3.2</b> The Active Directory Schema</p> <p><b>6.4</b> Procedures under Active Directory</p> <p><b>6.5</b> Interoperability with LDAP</p> <p><b>6.6</b> DNS in Windows 2000</p> <p><b>6.6.1</b> DDNS and Active Directory</p> <p><b>6.6.2</b> DHCP and DDNS</p> <p><b>7 Security with Windows 2000</b></p> <p><b>7.1</b> The Encrypting File System</p> <p><b>7.2</b> User Authentication</p> <p><b>7.2.1</b> Registration Process via NTLM</p> <p><b>7.2.2</b> Windows 2000 and Kerberos</p> <p><b>8 Hands-On Exercises on the Active Directory Service</b></p> <p><b>8.1</b> Exercise: Creation of a Domain</p> <p><b>8.1.1</b> Exercise: Creation of Organizational Units</p> <p><b>8.1.2</b> Exercise: Creation of Users</p> <p><b>8.2</b> Exercises on DDNS</p> <p><b>9 Trends—The Future of LDAP and Active Directory</b></p> <p><b>9.1</b> IETF—LDAP Roadmap</p> <p><b>9.2</b> The Distributed Computing Environment—DCE</p> <p><b>9.3</b> The DEN Initiative</p> <p><b>A Product and Information Materials</b></p> <p><b>A.1</b> Server Products</p> <p><b>A.2</b> Client Products</p> <p><b>A.3</b> Literature</p> <p><b>A.4</b> Links</p>
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Status 01/27/2012