KOENIG SOLUTIONS · COURSE OUTLINE

Database Security: Oracle, MySQL & SQL Server

Learn to identify, attack and secure Oracle, DB2, Informix, Sybase ASE, MySQL, SQL Server and PostgreSQL databases.

8
MODULES

95
TOPICS

COURSE OVERVIEW

This course examines why database security matters and the classes of flaws found across database servers. It then works through each major platform in turn, covering Oracle architecture, authentication, PL/SQL injection and network exposure, before addressing DB2 authorization models, buffer overflows and command execution risks. It continues through Informix, Sybase ASE, MySQL and SQL Server, examining discovery, attack techniques and defenses for each, and closes with PostgreSQL architecture, attack methods and securing recommendations.

WHO THIS COURSE IS FOR

- **Database Administrators**
- **Security Analysts**
- **Penetration Testers**
- **System Administrators**
- **Network Security Engineers**

LEARNING OBJECTIVES

- Explain the classes of database security flaws and their causes
- Identify methods for finding flaws in database servers
- Analyse Oracle architecture, authentication and PL/SQL injection risks
- Assess DB2 authorization views and command execution vulnerabilities
- Analyse Informix authentication, SPL attacks and buffer overflows
- Assess Sybase ASE attack techniques and filesystem access risks
- Apply securing recommendations across MySQL and SQL Server
- Explain PostgreSQL architecture and attack and defense methods

COURSE SYLLABUS

8 Modules, 95 Topics

01

Introduction

TOPICS

Why Care About Database Security? · Which Database Is the Most Secure? · The State of Database Security Research · Classes of Database Security Flaws · Finding Flaws in Your Database Server

02

Oracle

TOPICS

- The Oracle Architecture
- Attacking Oracle
- Examining the Oracle Architecture
- **Oracle:** Moving Further into the Network
- Securing Oracle
- Oracle Processes and Oracle on the Network
- The Oracle TNS Listener
- The Oracle RDBMS
- Oracle Authentication and Authorization
- The Oracle Intelligent Agent
- Database Authentication
- Oracle Auditing
- Scanning for Oracle Servers
- Oracle's PL/SQL
- PL/SQL Injection
- Injecting into Anonymous PL/SQL Blocks
- Executing User-Supplied Queries with DBMS_SQL
- PL/SQL Injection and Database Triggers
- PL/SQL and Oracle Application Server
- Running OS Commands with PL/SQL
- Accessing the File System
- Accessing the Network
- PL/SQL and the Network
- Oracle Security Recommendations

03

DB2

TOPICS

- IBM DB2 Universal Database
- DB2 on the Network
- DB2 Processes
- DB2 Physical Database Layout
- DB2 on Windows
- DB2 on Linux
- DB2 Logical Database Layout
- DB2 Authentication and Authorization
- Authorization
- The DBAUTH View
- The TABAUTH View
- The ROUTINEAUTH View
- **DB2:** Discovery, Attack, and Defense
- Finding DB2 on the Network
- Buffer Overflows in DB2 Procedures and Functions
- Other Overflows in DB2

DB2 (continued)

TOPICS (CONTINUED)

- DB2 Remote Command Server
- Running Commands Through DB2
- Gaining Access to the Filesystem Through DB2
- Local Attacks Against DB2
- Attacking DB2
- Securing DB2

04

Informix

TOPICS

- The Informix Architecture
- Examining the Informix Architecture
- Informix on the Network
- Connecting to a Remote Informix Server
- The Informix Logical Layout
- Understanding Authentication and Authorization
- Attacking and Defending Informix
- Attacking Informix with Stored Procedural Language (SPL)
- Running Arbitrary Commands with SPL
- SQL Buffer Overflows in Informix
- Local Attacks Against Informix Running on Unix Platforms
- **Informix:** Discovery, Attack, and Defense
- Securing Informix

05

Sybase ASE

TOPICS

- Sybase Architecture
- Introduction
- History
- Stand-Out Features
- Finding Targets
- Attacking Sybase
- MS SQL Server Injection Techniques in Sybase
- External Filesystem Access
- Defending Against Attacks
- Older Known Sybase ASE Security Bugs
- Sybase Version Tool
- Connecting to Other Servers with Sybase
- Java in SQL
- Trojanning Sybase
- **Sybase:** Discovery, Attack, and Defense
- **Sybase:** Moving Further into the Network
- Securing Sybase

06

MySQL

TOPICS

- MySQL Architecture
- **MySQL:** Discovery, Attack, and Defense
- **MySQL:** Moving Further into the Network
- Securing MySQL
- MySQL Client Hash Authentication Patch
- **Running External Programs:** User-Defined Functions
- User-Defined Functions in Windows
- MySQL Security Checklist

07

SQL Server

TOPICS

Microsoft SQL Server Architecture · **SQL Server:** Exploitation, Attack, and Defense · Securing SQL Server

08

PostgreSQL

TOPICS

The PostgreSQL Architecture · **PostgreSQL:** Discovery and Attack · Securing PostgreSQL

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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