

5.8.1 Setting Up Multiple Data Directories	1103
5.8.2 Running Multiple MySQL Instances on Windows	1104
5.8.3 Running Multiple MySQL Instances on Unix	1107
5.8.4 Using Client Programs in a Multiple-Server Environment	1108
5.9 Debugging MySQL	1109
5.9.1 Debugging a MySQL Server	1109
5.9.2 Debugging a MySQL Client	1115
5.9.3 The LOCK_ORDER Tool	1115
5.9.4 The DBUG Package	1121
6 Security	1125
6.1 General Security Issues	1126
6.1.1 Security Guidelines	1126
6.1.2 Keeping Passwords Secure	1128
6.1.3 Making MySQL Secure Against Attackers	1131
6.1.4 Security-Related mysqld Options and Variables	1133
6.1.5 How to Run MySQL as a Normal User	1133
6.1.6 Security Considerations for LOAD DATA LOCAL	1134
6.1.7 Client Programming Security Guidelines	1137
6.2 Access Control and Account Management	1138
6.2.1 Account User Names and Passwords	1139
6.2.2 Privileges Provided by MySQL	1141
6.2.3 Grant Tables	1159
6.2.4 Specifying Account Names	1169
6.2.5 Specifying Role Names	1171
6.2.6 Access Control, Stage 1: Connection Verification	1172
6.2.7 Access Control, Stage 2: Request Verification	1175
6.2.8 Adding Accounts, Assigning Privileges, and Dropping Accounts	1176
6.2.9 Reserved Accounts	1180
6.2.10 Using Roles	1180
6.2.11 Account Categories	1188
6.2.12 Privilege Restriction Using Partial Revokes	1191
6.2.13 When Privilege Changes Take Effect	1198
6.2.14 Assigning Account Passwords	1198
6.2.15 Password Management	1200
6.2.16 Server Handling of Expired Passwords	1211
6.2.17 Pluggable Authentication	1213
6.2.18 Proxy Users	1218
6.2.19 Account Locking	1226
6.2.20 Setting Account Resource Limits	1227
6.2.21 Troubleshooting Problems Connecting to MySQL	1229
6.2.22 SQL-Based Account Activity Auditing	1234
6.3 Using Encrypted Connections	1235
6.3.1 Configuring MySQL to Use Encrypted Connections	1236
6.3.2 Encrypted Connection TLS Protocols and Ciphers	1243
6.3.3 Creating SSL and RSA Certificates and Keys	1250
6.3.4 Connecting to MySQL Remotely from Windows with SSH	1259
6.4 Security Components and Plugins	1259
6.4.1 Authentication Plugins	1260
6.4.2 The Connection-Control Plugins	1331
6.4.3 The Password Validation Component	1337
6.4.4 The MySQL Keyring	1350
6.4.5 MySQL Enterprise Audit	1403
6.4.6 The Audit Message Component	1476
6.4.7 MySQL Enterprise Firewall	1479