

Contents at a Glance

<i>Introduction</i>	1
<i>Part I: SQL Server 2005: An Overview</i>	7
Chapter 1: Introducing SQL Server 2005	9
Chapter 2: New Features in SQL Server 2005.....	21
Chapter 3: Introducing and Configuring Management Studio	35
<i>Part II: Basic Operations</i>	51
Chapter 4: Creating Databases, Tables, and Relationships with T-SQL.....	53
Chapter 5: Asking Questions and Getting Answers	67
Chapter 6: Building a Simple Application.....	87
<i>Part III: Working with SQL Server</i>	99
Chapter 7: Working with XML.....	101
Chapter 8: Using the Common Language Runtime	121
Chapter 9: Using Stored Procedures	131
Chapter 10: Error Handling in T-SQL.....	143
<i>Part IV: Protecting Your Data</i>	155
Chapter 11: Securing Your Data.....	157
Chapter 12: Availability and Preventing Data Loss	173
Chapter 13: Maintaining Integrity with Transactions	185
Chapter 14: Maintaining Data Integrity with Constraints and Triggers.....	191
<i>Part V: Administering a SQL Server System</i>	209
Chapter 15: Configuring a SQL Server System	211
Chapter 16: Scheduling SQL Server Agent Jobs	231
Chapter 17: Sending Information Using Notification Services.....	253
Chapter 18: Maintaining a SQL Server System	261
Chapter 19: Working with Multiple Servers	283

<i>Part VI: Using SQL Server Business Intelligence (BI) Services</i>	305
Chapter 20: SQL Server Integration Services.....	307
Chapter 21: Analysis Services.....	337
Chapter 22: Building Business Reports with Reporting Services	359
<i>Part VII: The Part of Tens</i>	377
Chapter 23: Ten Sources of Information on SQL Server 2005.....	379
Chapter 24: Products that Work with SQL Server 2005.....	383
<i>Index</i>	387

Table of Contents

<i>Introduction</i>	1
About This Book.....	2
Foolish Assumptions	2
Conventions Used in This Book	3
How This Book Is Organized.....	3
Part I: SQL Server 2005: An Overview.....	3
Part II: Basic Operations.....	3
Part III: Working with SQL Server	3
Part IV: Protecting Your Data.....	4
Part V: Administering a SQL Server System.....	4
Part VI: Using SQL Server Business Intelligence (BI) Services.....	4
Part VII: The Part of Tens	4
About the Web site.....	5
Icons Used in This Book.....	5
Where to Go from Here.....	5
<i>Part I: SQL Server 2005: An Overview</i>	7
Chapter 1: Introducing SQL Server 2005	9
Getting to Know SQL Server 2005	9
A Client-Server Database.....	10
OLTP	10
OLAP	11
A Secure Database	11
A Programmable Database.....	12
Transact-SQL.....	13
SQL Server Management Studio	13
Business Intelligence Development Studio	14
A Scalable Database.....	14
An Available Database	15
Miscellaneous changes.....	15
Online indexing.....	16
Online page and file restore	16
A Reliable Database	16
Backing up data	16
Replication	17

A Manageable Database	17
Command-line tools	18
Graphical tools	18
SQL Server Agent.....	18
Performance tools.....	18
A Database That Supports Business Intelligence	18

Chapter 2: New Features in SQL Server 2005 21

Security Enhancements.....	22
System catalog security.....	22
Password policy enforcement	22
Schema and user separation.....	22
Automated certificate creation for SSL	23
Transact-SQL Enhancements.....	23
Improved XML support	23
Error handling.....	23
Transact-SQL templates	24
Other Developer-Orientated Enhancements	24
Support for the Common Language Runtime	24
New datatypes	25
SQL Management Objects (SMO).....	25
Scripting actions.....	25
HTTP endpoints.....	26
Manageability Enhancements.....	26
New management tools	26
Profiler	27
SQL Server Agent.....	27
Dynamic configuration	27
Full-text search	28
SQL Server Service Broker	28
Dedicated Administrator connection	28
SQLCMD.....	28
Easier updates	29
Replication	29
WMI configuration.....	29
Database Mail.....	29
Availability Enhancements.....	29
Concurrent data access	30
Availability after server failure	30
Availability during database maintenance.....	30
Scalability Enhancements	31
Installing in a cluster.....	31
Partitioning data.....	31
Database Engine Tuning Advisor	32
Hot-add memory support.....	32
Replication	32

Business Intelligence Enhancements32
 Integration Services33
 Analysis Services33
 Reporting Services33

Chapter 3: Introducing and Configuring Management Studio 35

Starting Management Studio and Connecting to SQL Server36
 Using Registered Servers36
 Exploring Database Objects Using the Object Explorer38
 View and modify database properties39
 Security41
 Replication42
 Getting an Overview on the Summary Tab43
 Asking Questions in the Query Pane45
 Customizing the Environment46
 Setting Startup options47
 Displaying results47
 Keyboard shortcuts48
 Restoring the default configuration49
 Using templates in Management Studio49

Part II: Basic Operations51

Chapter 4: Creating Databases, Tables, and Relationships with T-SQL 53

Firing Up SQL Server 2005.....54
 Exploring the Object Explorer55
 Creating Databases57
 Creating Tables58
 Defining Relationships61
 Adding Constraints63
 Adding Data to the Database65

Chapter 5: Asking Questions and Getting Answers 67

Using the Query Editor67
 Using the SELECT Statement69
 Filtering with the WHERE Clause72
 Sorting with ORDER BY75
 Retrieving Data from Multiple Tables77
 Joins81
 Modifying a Template83

Chapter 6: Building a Simple Application 87

Designing the Application88
 Creating a New Project90

Building the Connection to the Data	92
Building the User Interface	96
Debugging the Application.....	97

Part III: Working with SQL Server **99**

Chapter 7: Working with XML **101**

Introducing XML.....	102
XML and SQL Server 2000	103
XML and SQL Server 2005	103
The xml datatype.....	104
Creating XML Documents and Fragments.....	104
Using Untyped and Typed XML.....	105
Using untyped XML.....	105
Understanding the XML Schema Definition language	108
Using typed XML	110
Querying XML.....	113
Understanding XQuery.....	113
Creating indexes for the xml datatype	116
Using the XML Data Modification Language.....	116
Converting Data to and from XML	118
Using the FOR XML statement	119
Using the OPENXML keyword.....	120

Chapter 8: Using the Common Language Runtime **121**

Introducing CLR Integration	122
Development	123
Manual coding and deployment	123
Comparison with Traditional Approaches	125
Potential benefits of CLR integration.....	126
CLR and T-SQL comparison	127
CLR and extended stored procedure comparison	128
CLR and middle tier comparison.....	129
CLR Code Access Security	129

Chapter 9: Using Stored Procedures **131**

What a Stored Procedure Is	131
Types of stored procedure.....	132
What a stored procedure does	132
Reasons to use a stored procedure	133
System stored procedures	134
Creating a Stored Procedure.....	137
Creating a procedure without parameters.....	138
Creating a stored procedure with a parameter	139
Naming stored procedures.....	140

Calling a Stored Procedure141
 CLR Stored Procedures141

Chapter 10: Error Handling in T-SQL143

Handling Errors with T-SQL143
 The TRY...CATCH Construct.....144
 Rules for the TRY...CATCH construct.....144
 Error message severity levels.....144
 Using Error Functions.....145
 Using error codes147
 RAISERROR.....149
 Using nested TRY...CATCH constructs.....150
 @@Error151

Part IV: Protecting Your Data.....155

Chapter 11: Securing Your Data157

Introducing The New Security Model158
 Security terminology.....159
 Principals hierarchy.....159
 Securables hierarchy159
 New security features160
 Granular permissions control.....161
 Permissions basics.....161
 Permission levels.....162
 How permissions apply to specific securables162
 Working with the New Security Model165
 Logins and users.....166
 Separation of users and schemas.....166
 The default schema.....167
 Granting permissions to a user168
 Module Execution Context170
 Catalog security.....170
 Password policy enforcement170
 Using Common Language Runtime Security.....172

Chapter 12: Availability and Preventing Data Loss173

Availability Overview.....174
 Reducing Downtime with Database Mirroring174
 Database mirroring overview175
 Transparent client redirect176
 Database views176
 Differences from failover clustering.....176
 Similarities to failover clustering177
 Recovery models.....177

Speeding Recovery with Checkpointing	178
Automatic checkpoints.....	178
Setting the recovery interval.....	179
Using Failover Clustering.....	179
Database Snapshots.....	180
Naming database snapshots	181
Creating a database snapshot	181
Deleting unwanted database snapshots.....	182
Reverting to a database snapshot.....	182
Backing Up and Restoring Data.....	183
Assessing the risks to protect against.....	183
Backing up data	183
Checking backups	184
Restoring data.....	184
Chapter 13: Maintaining Integrity with Transactions	185
Understanding Transactions	186
ACID.....	186
The transaction log	186
Coding Transactions.....	187
A simple update.....	187
A simple transaction.....	187
Implicit transactions	190
Chapter 14: Maintaining Data Integrity with Constraints and Triggers	191
Understanding Constraints, Defaults, Rules, and Triggers.....	192
Constraints.....	192
Defaults.....	192
Rules.....	194
Triggers.....	195
Using Check Constraints	196
Creating a check constraint visually.....	197
Dropping a check constraint visually	200
Creating a check constraint with T-SQL	200
DDL Triggers	201
Preventing undesired changes	201
Auditing changes	203
DML Triggers	205
The inserted and deleted tables.....	206
Triggers for auditing DML	206

Part V: Administering a SQL Server System209
Chapter 15: Configuring a SQL Server System211

Using SQL Server Configuration Manager.....	211
Adding SQL Server Configuration Manager to an MMC console	213
Managing SQL Server services	216
Connecting to a remote computer	219
Configuring network protocols.....	221
Configuring client computers	223
Configuring Using SQLCMD	223
Getting started with SQLCMD	223
Executing a T-SQL script with SQLCMD	226
Logging in as a specified user	226
Connecting to a remote SQL server instance	227
Configuring Using SQL Server Management Studio.....	228
SQL Server instance level configuration	228
Configuring at the database level.....	229

Chapter 16: Scheduling SQL Server Agent Jobs231

Introducing SQL Server Agent	232
Managing Agent from SQL Server Management Studio.....	232
Starting and stopping SQL Server Agent.....	234
Setting SQL Agent to start automatically	234
Using Agent in Business Intelligence	237
Security.....	237
Permissions for SQL Agent	237
Permissions for users	238
Configuring SQL Server Agent	240
Windows permissions.....	240
Enabling SQL Agent extended stored procedures	242
Creating Jobs and Alerts	243
Creating a SQL Agent job.....	243
Creating a SQL Agent alert	249
Using T-SQL with SQL Server Agent	250
Using the Maintenance Plan Wizard	250

Chapter 17: Sending Information Using Notification Services253

The Notification Services Approach.....	254
The basic steps.....	254
New notification features in SQL Server 2005.....	255

How Notification Services works	255
Working with events.....	256
Application Definition and Instance Configuration Files	257
The Application Definition file.....	257
The Instance Configuration file	259
Chapter 18: Maintaining a SQL Server System	261
Using Maintenance Plans	261
Backing up.....	262
Different types of backup	270
Restoring from backups	270
Checking Error Logs	270
Working with Indexes	274
Halting Runaway Queries with the Dedicated Administrator Connection.....	277
Looking under the Covers with Profiler	278
Using the Database Engine Tuning Advisor.....	280
Chapter 19: Working with Multiple Servers	283
Replication Overview	284
Replication jargon	284
Replication enhancements in SQL Server 2005	285
Security for replication.....	285
Replicating Your Data	286
Setting up a publisher and distributor	286
Creating a new publication	293
Creating a subscription	297
Introducing Service Broker	301
Queues	302
Messages	302
Behind the scenes	303
Security.....	304
 Part VI: Using SQL Server Business Intelligence (BI) Services	 305
Chapter 20: SQL Server Integration Services	307
Overview of Business Intelligence	308
Business intelligence tools.....	308
Data warehouses	308

Integration Services Overview	309
Creating an Integration Services package	310
Sources	311
Transformations	312
Destinations	314
Task flows	315
Error flows	315
Event handling	315
Logging options	315
Package restart	316
Digital signing	316
Business Intelligence Development Studio	316
The Control Flow tab	317
The Data Flow tab	319
The Event Handlers tab	319
The Package Explorer tab	320
The Toolbox	321
The Solution Explorer	321
Import/Export Wizard	321
Creating an Integration Services Project	329
Deploying an Integration Services Project	336

Chapter 21: Analysis Services 337

Introducing Analysis Services	337
New features in Analysis Services 2005	338
Key Performance Indicators	339
Managing Analysis Services	340
Business Intelligence Development Studio and Analysis Services	341
Creating an Analysis Services Project	342
Data Mining	358

**Chapter 22: Building Business Reports
with Reporting Services 359**

Overview of Reporting Services	360
Replicating to a Report Server	361
Database mirroring and database views	361
Creating Reports	361
Viewing Reports	370
Managing Reports	371
Managing in Report Manager	371
Managing in SQL Server Management Studio	372
Distributing reports to those who need them	372

Report Definition Language	372
Report Builder	373
Report Viewer Controls.....	375

Part VII: The Part of Tens.....377

Chapter 23: Ten Sources of Information on SQL Server 2005 379

Books Online.....	379
The Public Newsgroups.....	380
Microsoft Forums.....	380
The SQL Server 2005 Web Site.....	380
The SQL Server Developer Center	381
The Business Intelligence Site	381
The Integration Services Developer Center	381
The Reporting Services Web Site	381
Channel 9	382
Other Web Sites	382

Chapter 24: Products that Work with SQL Server 2005 383

Visual Studio 2005.....	383
Microsoft Office InfoPath 2003	384
Red-Gate Tools.....	384
Quest Software	384
PromptSQL.....	385

Index387