

Microsoft

Integrating PHP with Windows[®]



Arno Hollosi

Table of Contents

Introductionxxi

Part I **Internet Information Services (IIS)**

1	Setting Up the Work Environment	3
	Setting Up IIS.....	4
	Installing IIS by Using the Server Manager.....	4
	Installing from the Command Line.....	6
	Setting Up PHP.....	6
	Installing PHP.....	6
	Available PHP Modules.....	8
	Configuring PHP in IIS.....	8
	Configuring PHP by Using the IIS Manager.....	9
	Configuring PHP from the Command Line.....	11
	Installing by Using the Web Platform Installer.....	12
	Setting Up the Web PI.....	12
	Setting Up IIS and PHP.....	13
	Checking Your PHP Installation.....	14
	Backing Up Your Configuration.....	14
	A First Sample Application.....	15
	Remote Access.....	16
	Summary.....	18
2	IIS Architecture	19
	Sites.....	19
	Setting Up a New Site.....	20
	Adding Additional Bindings.....	24
	Managing the Website.....	26

What do you think of this book? We want to hear from you!

Microsoft is interested in hearing your feedback so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit:

microsoft.com/learning/booksurvey

- Applications 27
 - Paths and Folders 27
 - Setting Up a New Application 28
 - Changing Application Settings 29
- Virtual Directories 30
 - Setting Up a Virtual Directory by Using IIS Manager 30
 - Setting Up a Virtual Directory from the Command Line 31
- HTTP Request Flow 31
 - Request Flow Overview 32
 - Application Process Flow 33
- Modules 34
- Application Pools 35
 - Setting Up Application Pools by Using IIS Manager 35
 - Setting Up Application Pools from the Command Line 35
 - Application Pool Identity 36
- FastCGI 38
 - FastCGI vs. CGI 38
 - FastCGI vs. ISAPI 40
- Summary 40
- 3 Configuring IIS 41**
 - Configuration Files 42
 - Global Configuration 42
 - Distributed Configuration 42
 - Configuration Structure 43
 - Sections and Section Groups 44
 - Elements and Configuration Listings 44
 - Moving and Binding Sections 45
 - The Configuration Editor 45
 - Schema and *configSections* 47
 - Configuring Paths by Using *location* 47
 - Configuring by Using IIS Manager 48
 - Configuring from the Command Line 49
 - Sites, Applications, and Directories 49
 - Sites 50
 - Applications 52
 - Virtual Directories 53

Locking the Configuration	53
Locking with <i>configSections</i>	54
Locking and Unlocking with <i>location</i>	54
Specifying Rights for Individual Settings	56
Locking and Unlocking by Using IIS Manager	58
Summary	60
4 Configuring PHP	61
Installing PHP Manager	61
Configuring PHP	63
Recognizing Configuration Changes	63
Path and Host-Dependent Configuration in <i>php.ini</i>	65
Configuring by Using <i>.user.ini</i>	66
Specifying the Default Document	69
Specifying the Default Document by Using the IIS Manager	69
Specifying from the Command Line	70
Defining Directly in the Configuration	71
Request Limits	71
Configuring by Using the IIS Manager	72
Configuring from the Command Line	73
Configuring Directly in the Configuration File	73
Time Limits for Request Processing	74
PHP Limits	74
FastCGI Limits	74
Session Storage and Temporary Files	75
Setting Up PHP Syntax Highlighting	76
Configuring Syntax Highlighting by Using the IIS Manager	76
Configuring from the Command Line	78
Setting Up Different PHP Versions	78
Installing a New PHP Version	78
Configuring by Using the PHP Manager	79
Configuring the Handler Assignment	79
Configuring the FastCGI Application	80
Testing	81
Setting Up Different PHP Configurations	83
Summary	83

5	Security	85
	Structuring the Application	86
	Root Folder or Virtual Directory	87
	Specifying the Executable Files	89
	PHP Configuration	90
	User Authentication	92
	Installing the Required Role Services	93
	Setting Up User Authentication by Using IIS Manager	93
	Setting Up User Authentication from the Command Line	94
	Windows Authentication and Host Names	94
	Retrieving the Authentication in PHP	95
	Identity and Access Rights	96
	Identity of the Application Pool	96
	Path Logon Information	97
	Specifying the Identity of the Anonymous User	97
	Securing the PHP Application	98
	Authorization Rules	98
	Installing the Required Role Services	99
	Defining the Rules by Using IIS Manager	99
	Defining the Rules from the Command Line	100
	Request Filter	101
	Defining General Settings	102
	Filtering File Name Extensions	106
	Filtering with Rules	107
	Encrypted Connections (HTTPS)	109
	Creating Keys and Certificates	109
	Setting up an Encrypted Connection	110
	Authentication with Client Certificates	114
	Summary	115
6	Caching	117
	Caching in the Web	117
	Caching for a Limited Time	118
	Mutable Contents	120
	Caching Conditions	122
	Specifying the Headers with IIS	123

Output Cache	126
Configuring by Using IIS Manager	126
Configuring from the Command Line	128
Configuration Elements	128
The WinCache Extension for PHP	129
Setting Up the WinCache Extension	130
The PHP Opcode and File Cache	132
Session Handler	133
User Cache	134
Summary	136

7 URL Rewrite **137**

Setting Up URL Rewrite	137
Installing URL Rewrite Manually	138
Installing URL Rewrite by Using the Web PI	138
Predefined Variables	138
Common Gateway Interface Variables	139
IIS and PHP Variables	140
Merging PHP Script	142
Evaluating Rules	143
Action Types	144
Hierarchy and URL Paths	144
Time of the Evaluation	145
Setting Up Rules	146
Setting Up Redirect Rules	146
Setting Up Rewrite Rules	149
Additional Action Types	151
Setting Up Rules with Templates	152
Rewrite Maps	154
Creating a Rewrite Map	154
Creating an Associated Rule	156
Rules in Detail	156
Patterns	156
Conditions	160
Actions	161
Setting Server Variables and HTTP Headers	162
Outbound Rules	164
Tag Filters	165
Creating an Outbound Rule	166

XML Configuration	167
URL Rewrite	167
Allowed Server Variables	168
Rules	168
Conditions	169
Server Variables and HTTP Headers	170
Actions	170
Rewrite Maps	171
Outbound Rules	172
Single Outbound Rule	174
Examples	175
User-Friendly URLs	175
Canonical Host Name	176
Multilingual Pages	176
Canonical User Directories	177
Preventing the Embedding of Graphics on Foreign Sites	179
Redirecting to HTTPS	180
Adding a Notice to Each Page	180
Converting from Apache <i>mod_rewrite</i>	181
Summary	183
8 Error Messages and Error Search	185
Detailed Error Messages	185
Disabling Friendly Error Messages in Internet Explorer	186
Enabling Detailed Error Messages	186
PHP Error Output	188
Tracing	189
Installing the Tracing Role Service	190
Enabling a Trace	190
Configuring Logging Rules	191
Trace Entries	192
PHP Error Messages	194
Outputting to <i>STDERR</i>	194
PHP Messages in the Trace	194
<i>FastCGI</i> and <i>STDERR</i>	195
Determining the Causes of Server Problems	196
The Server Can't Be Reached	196
PHP Scripts are not Executing	197
Summary	198

Part II **SQL Server**

9	Setting Up SQL Server	201
	Installing SQL Server	202
	Configuring SQL Server	202
	Installing SQL Server Express	206
	Installing the SQL Server PHP Extension	209
	SQL Server Tools	211
	SQL Server Management Studio	211
	The <i>sqlcmd</i> Command-Line Tool	213
	The T-SQL Batch	213
	Configuring for Remote Access	214
	Enabling the TCP/IP Protocol	214
	Sharing Access in the Windows Firewall	215
	Installing the Sample Database	217
	Migrating MySQL Databases	219
	Installing the Migration Assistant	219
	Migrating a MySQL Database	221
	Summary	223
10	Databases and Tables	225
	Databases	225
	System Databases	225
	Database Structure	226
	Setting Up Databases	227
	Deleting a Database	230
	Creating a Snapshot	231
	Data Types	234
	Numeric Data Types	234
	Strings and Binary Data	235
	Dates and Times	237
	Other Data Types	237
	Schemas and Object Names	238
	Object Names	238
	Creating Schemas	238
	Deleting Schemas	239
	Tables	239
	Creating Tables	239
	Deleting Tables	243

Keys and Indexes	243
Primary Keys	243
Foreign Keys	246
Indexes	249
Summary	252
11 Working with SQL Server	253
Querying Data (<i>SELECT</i>)	253
Simple <i>SELECT</i> Expressions	254
Constraining Queries by Using <i>WHERE</i>	255
Grouping Query Data (<i>GROUP BY, HAVING</i>)	255
Sorting (<i>ORDER BY</i>)	256
Queries with Multiple Tables	257
Common Table Expressions (<i>WITH</i>).	261
Paging Through Data	263
Manipulating Data	266
The <i>INSERT</i> Command	266
The <i>UPDATE</i> Command	268
The <i>DELETE</i> Command	271
Querying Metadata	274
Listing Databases	274
Listing Tables	275
Retrieving Table Information	276
Listing the Columns of a Table	277
Listing Constraints	277
Listing Keys and Indexes	278
Summary	278
12 PHP and SQL Server	279
Approach and Process	279
Preparations	279
The Sample Program	280
An Overview of the Individual Steps	282
Supporting Script	285
Database Connections	285
Server Names	286
Authentication	287
Connection Pooling	289
More Connection Options	290

Database Queries	291
Parameterizing Statements	291
Retrieving Results	297
Prepared Statements	299
Data Types	304
Converting from PHP to SQL Server	304
Converting from SQL Server to PHP	304
Streams	306
PDO and SQL Server	310
PDO Database Access Lifecycle	310
Connecting to SQL Server	311
Direct Queries and Prepared Statements	311
Retrieving Results	314
Data Types and Streams	315
Summary	317
13 Advanced Database Functions	319
Full-Text Search	319
Installing the Module	320
Language Selection	320
Creating the Catalog and the Index by Using SSMS	321
Creating the Catalog and the Index by Using T-SQL	322
Search with Full-Text Index	323
Transactions	326
T-SQL Transactions	326
Transaction Isolation Levels	327
PHP Transactions	328
Transactions Using PHP Data Objects	330
Stored Procedures	331
Variables	331
Defining Procedures	332
Calling Procedures	333
Output Parameters and Return Values	333
Control Structures	334
Calls from PHP	336
Calling Stored Procedures from PDO	337
Custom Functions	338
Scalar Functions	338
Table-Valued Functions	339

Triggers	340
Creating a Trigger	340
Detailed Explanation	341
Initiating the Trigger	342
Summary	342
14 Users and Permissions	343
SQL Server Principals	343
Server Principals	343
Database Principals	344
Creating SQL Server Principals	346
Creating Logins	346
Creating Users	348
Creating Database Roles	351
Objects and Permissions	353
Permissions	353
Managing Permissions by Using SSMS	355
Managing Permissions by Using T-SQL	356
Stored Procedures	358
Security Through Permissions	358
Execute as User	360
Summary	361

Part III **Active Directory**

15 Setting Up Active Directory	365
Overview	365
Domains	366
Entries	367
Installing Active Directory	367
Preparation	368
Installing the Role	368
Installing the Domain Services	370
First Steps	372
Active Directory Domain Services	372
Organizational Units	373
Users	375
Groups	377
Setting Up Active Directory Certificate Services	381

Working with Certificates	384
Issuing a Certificate for Active Directory	385
Exporting the Root Certificate	386
Exporting Other Certificates	387
Summary	388
16 LDAP Basics	389
LDAP Basics	389
Hierarchical Structure	390
Classes and Inheritance	391
Protocol Elements	391
Utilities	392
LDP	393
ADSI Edit	395
Configuring the PHP LDAP Extension	398
Activating the LDAP Extension	398
Communication Process	399
Supporting Script	400
Establishing an Encrypted Connection	401
Authenticating Users	403
Querying Entries	405
Sample Program: Searching for Domain Users	405
LDAP Filter	407
Iterating Through Search Results	410
Summary	412
17 Searching in Active Directory	413
The PHP LDAP Browser	413
Main Program and User Interface	413
Formatting an LDAP Entry	417
Type Information and Search Definitions	419
Conversion Functions	421
The Directory Information Tree and Naming Contexts	421
Active Directory Schema	422
Object Classes	422
Attribute Classes	426
Domain Objects	431
General Attributes for Domain Objects	431
Groups	438
Organizational Units	440

Concrete Search Examples	442
Schema	442
ANR	444
Users	445
Groups	446
Summary	450
18 Writing in Active Directory	451
Preparation	451
Access Rights	451
Error Logging	453
Supporting Scripts	455
Writing Attributes	458
Adding Attributes	458
Deleting Attributes	459
Changing Attributes	461
Encoding and Character Sets	462
Practical Examples for Changing Attributes	463
Unlocking an Account	463
Activating and Deactivating Accounts	464
Group Memberships	464
Forced Password Change	465
Changing Passwords	466
Writing Entries	467
Adding New Entries	467
Deleting Entries	469
Moving Entries	470
Practical Examples	471
Creating a New Group	472
Creating a New User	472
Deleting a User or a Group	474
Summary	475

Part IV Exchange Server

19	Setting Up Exchange Server	479
	Setting Up Required Services and Features	479
	General Requirements	480
	Configuring IIS	480
	Configuring Features	481
	Configuring Shared Ports	481
	Installing the Office System Converter	482
	Configuring DNS Entries	482
	Installing Exchange Server	482
	Configuration After the Installation	484
	Registering Exchange	484
	Configuring the Exchange Server Certificate	485
	Creating a Mailbox	489
	Summary	490
20	Exchange Web Services	491
	Required PHP Extensions	491
	Autodiscover	492
	How Autodiscover Searches for Configuration Data	492
	Configuration Data	493
	Retrieving Configuration Data	495
	Alternative Methods for URL Queries	498
	SOAP and WSDL	499
	WSDL Structure	499
	EWS, WSDL, and PHP	500
	SOAP Messages	501
	<i>ExchangeSoapClient</i> Class	502
	Using the <i>ExchangeSoapClient</i> Class	504
	Information About the Following Chapters	506
	Shorter SOAP Messages	506
	Shorter PHP Listings	506
	Object-Oriented Alternative for Parameters	507
	Summary	508

21 Email and Exchange Web Services Basics	509
Structure, IDs, and Views	509
IDs of Labeled Folders	510
Viewing Elements	510
Selected Properties of Elements.	511
Names of Properties.	511
Finding Folders (<i>FindFolder</i>)	513
Selected Properties.	513
Request.	513
Response.	514
Listing Messages (<i>FindItem</i>)	516
Limiting the Results (Paging)	516
Sorting	517
PHP and Replacement Groups	517
Request.	519
Response.	520
Viewing a Message (<i>GetItem</i>)	522
Requesting the Exchange 2010 Mode Within a SOAP Header	523
Defining and Filtering the Message Content.	524
Requesting the Original MIME Content	524
Request.	525
Response.	526
Example	527
Email Attachments (<i>GetAttachment</i>)	529
Sending a Message (<i>CreateItem</i>)	531
SOAP Errors Caused by References and Accessors	531
Request.	533
Response.	536
Deleting Messages (<i>DeleteItem</i>).	536
XML Messages.	537
PHP	537
Summary.	538
22 Contacts and Search	539
Properties of Contacts	539
Standard Properties	539
Name Properties	541
Properties of Email Addresses	542
Address Properties	543

Changing a Contact (<i>UpdateItem</i>)	543
Request	544
Response	547
Finding Certain Properties	548
Expressions	548
Preparation: Modifying the Schema	550
Defining the Search in a Request	552
Complete PHP Example	552
Summary	558

23 Calendar and Impersonation..... 559

Calendar Entries	559
Standard Properties	560
Meetings	561
Recurring Appointments	561
Time and Time Zones	562
Creating a Common Calendar Entry	563
The Request Message	563
The Response Message	564
Created Entry	564
Meetings	566
Creating a Meeting	566
Creating the Meeting Invitation	570
Responding to a Meeting Invitation	572
Canceling a Meeting	577
Appointment Conflicts	580
The Request Message	580
The Response Message	581
Searching the Calendar	582
The Request Message	582
The Response Message	583
A Complete PHP Example	583

What do you think of this book? We want to hear from you!

Microsoft is interested in hearing your feedback so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit:

microsoft.com/learning/booksurvey

Impersonation	587
Granting Impersonation Rights	587
Impersonation in EWS Operations.....	588
Additional Steps	590
Summary.....	591
24 Example Scripts and Data	593
The <i>HTMLPage</i> Class	593
The HTML Template	596
The <i>DatabaseConnection</i> Class.....	597
Example Database: <i>AdventureWorksLT2008</i>	599
 Index	 601