

Index

Symbols

.NET

- Web Services, resources, 378
- WSDL files, 67
- .NET Framework, asynchronous methods calls, 186-188**
- .NET Web services, 267**
- .vsdisco file, 14**

A

abilities, 171

- availability, 171-172
 - administrator communication, 172-175
 - clustered servers, 172-173
 - multiple deployment locations, 172-174
 - reporting, 172-175
- manageability, 171, 176-177
 - deployment packages, 177-180
 - performance monitor, 176-179
 - reporting, 177, 180
- performance, 171, 180-181
 - computation intensive, 181-182
 - I/O bound Web method, 181
 - memory hog, 181-182
- scalability, 171, 175
 - scalable components, 176
 - Web farms, 175-176
- absoluteExpiration parameter, 230**
- absoluteExpiration property, 230**
- Account Mappings dialog box, 166**
- Active Server pages (ASP), 233**
- Add New Item dialog box, 9**
- Add Web Reference command (Project menu), 26**
- Add Web Reference dialog box, 26**
- Add Web Service command (Project menu), 9**
- adding Web Service support to COM+ applications, 262-263**

380 administrator communication

administrator communication, 172-175**advertising models, 373****application level authentication, 149-153****Application object, 225-227****applications**

adding business objects, 344-345

building Web pages, 349

log out page, 367-368

login page, 350-352

portal page, 360-367

profile editor, 353-360

COM+ Web services, 262-266

configuring, 340-344

console, 152-153, 207-209

console applications, SOAP
requests/responses, 32-33

converting to Web services, 261-262

creating Web User Controls, 345-349

Web, scalability, 216

Web applications

creating, 38-39

event handling, 39-40

SOAP request/responses, 40-42

Windows, 297

editing window, 305-308

list window, 299-305

Microsoft Access databases, 297

Visual Studio .NET, 298

xmethods.net, 299

Windows applications

building, 37

creating, 33-34

event handling, 34-37

SOAP request/responses, 37-38

WinForm, 209-211

arguments, passing data types, 16-18**arrays, 18-22****ASP (Active Server pages), 233****ASP.NET applications, 335-337**

adding business objects, 344-345

building Web pages, 349

log out page, 367-368

login page, 350-352

portal page, 360-367

profile editor, 353-360

configuring, 340-344

creating Web User Controls, 345-349

designing databases, 337-340

ASP.NET Applications.Requests/sec counter, 178**ASP.NET pages, Cache object, 227-231****ASP.NET Session State, 218****ASP.NET State Server, 221-223****ASP.NET Web Service projects, 219****ASP.NET.Request Wait Time counter, 178****ASP.NET.Requests Queued counter, 177****ASP.NET.Requests Rejected counter, 178****aspnet_wp.exe, attaching to, 128****ASPState Service, 221****AssemblyInfo.vb file, 14****asynchronous processing, 203****asynchronous Web services, 185**

.NET Framework, 186-188

callback functions, 189-193

calling, 188-189

comparing with synchronous calls, 185-186

WaitHandle methods, 193-197

WaitOne methods, 197

Web pages asynchronous calls to
WebMethods, 199-202

WebMethod cancelled calls, 198

WebMethod length of wait, 196-197

Attach to Process dialog box, 128**attaching to processes, aspnet_wp.exe, 128****attributes**

sqlConnectionString, 219

stateConnectionString, 219, 223

WebMethod, 219-221

WebService, 76-77

Audit class, 168-169**audits, 130-131****authenticating users, 149-150**

- application level authentication, 149-153
 - Windows authentication, 149
 - client certificates, 149, 158-159, 162
 - data, 167
 - http basic authentication, 149, 154-158
 - http digest authentication, 149, 158
 - IP addresses of callers, 167
 - text fields, 168
 - time of action, 168
 - user activity, 167-170
 - user identity, 167
- availability, 171-172**
- administrator communication, 172-175
 - clustered servers, 172-173
 - multiple deployment locations, 172-174
 - reporting, 172-175

B**B2B, XML Web Services, 271**

- building
 - database classes, 275-279
 - databases, 274-275, 284-286
 - product pages, 286-294
 - Web Services, 279-283
 - Web sites, 283-284
- designing, 273
- product availability, 294-296
- read-only access to data, 272
- read/write-only access to data, 273
- software, 273
- write-only access to data, 272-273

base64 Web site, 262**Body element, 48-51****browse pattern (UDDI), 63-64****building**

- databases, XML Web Services, 274-275, 284-286
- classes, 275-279

mobile applications, 319-332

- customer viewer menus, 321-325
- main menus, 319-320
- order viewer menus, 325-328
- product catalog viewer menus, 329-332
- product pages, XML Web Services, 286-296
- projects, 12
- Web pages, 349
 - log out page, 367-368
 - login page, 350-352
 - portal page, 360-367
 - profile editor, 353-360
- Web Services, 310-318
- Web sites, 283-284
- Windows applications, 37
- XML Web Services, 279-283

C**CA (Certificate Authority), 158-161****cache expiration, 228****Cache object, 227-231****cached data (stateful services), 215****CacheltemPriority parameter, 231****callback functions, 189-193****calling**

- Web Services, 13-14
 - from other Web Services, 42-44
- Web services asynchronously, 185, 188-189
 - .NET Framework, 186-188
 - callback functions, 189-193
 - compared with synchronous, 185-186
 - WaitHandle methods, 193-197
 - WaitOne methods, 197
 - Web pages asynchronous calls to WebMethods, 199-202
 - WebMethod cancelled calls, 198
 - WebMethod length of wait, 196-197

Certificate Authority (CA), 158-161**Certificate Export Wizard, 165**

382 Certification Authority dialog box

Certification Authority dialog box, 161**Chapter2CLI application, SOAP requests/responses, 32-33****Chapter2GUI application**

- building, 37
- creating, 33-34
- event handling, 34-37
- SOAP request/responses, 37-38

Chapter2WEB application

- creating, 38-39
- event handling, 39-40
- SOAP request/responses, 40-42

classes

- adding to projects, 9
- Audit, 168-169
- Database, 275-278
- databases, 275-279
- PersonMapper, 243
- SecurityToken, 278-279
- SoapConnector, 257
- SoapReader, 257
- SoapSerializer, 257
- token, 152

click event handler, sample Windows application, 34-36**client certificates, 149**

- client-side, 162
- ISS, setting up, 162-166
- X509, 158-159

client Web Services, 205-206**client-side certificates, 162-166****clients, SOAP Toolkit, 252**

- high-level interface, 252-257
- low-level interface, 257-259

clustered servers, 172-173**COM objects, 266**

- Web Service, 266-267

COM+ applications, Web services, 262-264

- SOAP, 264-266

commands

- iisreset, 128
- Project menu

Add Web Reference, 26

Add Web Service, 9

comparing asynchronous and synchronous calls, 185-186**complex types, passing, 16-18****Component Install Wizard, 264****components, scalable, 176****computation intensive, 181-182****configuring applications, 340-344****ConnectionString variable, 312****console applications, 152-153, 207-209**

- SOAP requests/responses, 32-33

consuming Web Services

- console applications, SOAP requests/responses, 32-33
- Web applications
 - creating, 38-39
 - event handling, 39-40
 - SOAP request/responses, 40-42

Web references

- adding, 26-28
- defined, 26
- namespaces, 28
- properties, 28-30

Windows applications

- building, 37
- creating, 33-34
- event handling, 34-37
- SOAP request/responses, 37-38

converting applications to Web services, 261-262**costs, Web services, 371****custom states, 232****customer view menus, 321-325****customers service, Northwind database, 315-316****D****data, user authentication, 167****data types**

- arrays, 18-19
- passing, 16-18

Database class, 275-278, 310-312

databases

- building, 274-275, 284-294
 - classes, 275-279
- designing, 337-340
- Northwind Traders, 309-310
 - building mobile applications, 319-332
 - building Web Services, 310-318
 - creating customer viewer menus, 321-325
 - creating main menus, 319-320
 - creating order viewer menus, 325-328
 - creating product catalog viewer menus, 329-332
 - customers service, 315-316
 - Database class, 310-312
 - orders service, 316-318
 - products service, 313-314

DataGrid, 299-301**DataSet object, 299-301****debugging Web Services, 121**

- audits, 130-131
- example, 142-143
- local debugging, 128
- remote debugging, 129
- test plans, 141-142
- trace utility, 122-127
 - formatted traces, 124-125
 - installing, 122
 - starting, 122
 - unformatted traces, 125-127

decoding encoded copy, 154-155**definitions element, 54, 73, 76-77****demand, Web services, 370-371****deploying**

- SOAP Web service, 251
- Web services, 171
 - availability, 171-172
 - manageability, 171, 176-177
 - performance, 171, 180-181
 - scalability, 171, 175

deployment, equipment security, 147-148**deployment locations, 172-174****deployment packages, 177-180****designing XML Web Services, 273****detail element, 52****diagnostics**

- audits, 130-131
- trace utility, 122-127
 - formatted traces, 124-125
 - installing, 122
 - starting, 122
 - unformatted traces, 125-127

dialog boxes

- Account Mappings, 166
- Add New Item, 9
- Add Web Reference, 26
- Attach to Process, 128
- Certification Authority, 161
- Export File Format, 165
- Geographical Information, 160
- Name and Security Settings, 159
- New Project, 8, 319
- Organization Information, 160
- Processes, 128
- Secure Communication, 166
- Trace Setup, 124

disco files, defined, 26**discovery files, defined, 26****documentation, projects, 12-13****documentation element, 54****drill-down pattern (UDDI), 63-65****dynamic URL behavior, 29-30****E****ebXML**

- resources, 378
- Web sites, 378

editing

- WSDL files, 239-251
- WSML files, 239-251

editing window, stocks, 305-308

elements

- definitions, 73, 76-77
- detail, 52
- extensibility, 53
 - WSDL, 57-60
- faultactor, 52
- faultcode, 52-53
- faultstring, 52
- message, 85-92
- service, 92-93
- sessionState, 218-219
- SOAP, 48
 - Body element, 48-51
 - Envelope element, 48-51
 - Fault element, 48-53
 - Header element, 48-51
- soap:address, 60
- soap:binding, 59
- soap:body, 60
- soap:fault, 60
- soap:header, 60
- soap:headerfault, 60
- soap:operation, 59-60
- types, 77-85
- WSDL, 54-57
 - definitions element, 54
 - documentation element, 54
 - message element, 54
 - portType element, 54
 - service element, 54
 - types element, 54
- WSDL files, changing element locations, 98-103

encoded copy, decoding, 154-155**endpoints**

- defined, 53
- WSDL files, 240
- WSML files, 240

Envelope element, 48-50

- XML namespaces, 50-51

equipment deployment, security, 147-148**event handlers**

- click, sample Windows application, 34-36
- Page_Load, sample Web application, 39-40

event handling

- Web applications, 39-40
- Windows applications, 34-37

Export File Format dialog box, 165**extensibility elements, 53**

- WSDL, 57-60

extensions (custom SOAP), WSDL files, 103-111**F****Fault element, 48, 52**

- subelements, 52-53

faultactor element, 52**faultcode element, 52-53****faultstring element, 52****file and key dependencies, 227****files**

- .vsdisco, 14
- AssemblyInfo.vb, 14
- disco files, defined, 26
- Global.asax, 14
- Web.config, 14
- WSDL, 67-68
 - .NET, 67
 - custom SOAP extensions, 103-111
 - definitions element, 73, 76-77
 - deploying SOAP Web service, 251
 - editing, 239-251
 - element locations, 98-103
 - high-level interface, 253
 - message element, 85-92
 - servers, 111-114
 - service element, 92-93
 - shaping, 68-76
 - SOAP Headers, 94-97
 - SOAP Toolkit, 235-239
 - types element, 77-85
- WSML
 - deploying SOAP Web service, 251
 - editing, 239-251

high-level interface, 254

SOAP Toolkit, 235-239

FirstService object, GetRandomNumbers method

returned XML, 19

source code, 18

flat-fee access, 372

formatted traces (trace utility), 124-125

functions, GetAuthorNames, 243-250

G

Geographical Information dialog box, 160

GetAuthorNames function, 243-250

GetAuthorNames method, 21-22, 39

GetDaysAlive method, 43

GetRandomNumbers method

debugging, 142-143

returned XML, 19

source code, 18

Global.asax file, 14

globally unique ID (GUID), 61

graphical user interface applications.
See Windows applications

GUI (graphical user interface) applications.
See Windows applications

GUID (globally unique ID), 61

H

Header element, 48, 51

Headers (SOAP), WSDL files, 94-97

Hello, World project, 8

adding classes to, 9

building, 12

creating, 8-9

documentation, 12-13

project files

.vsdisco, 14

AssemblyInfo.vb, 14

Global.asax, 14

Web.config, 14

wizard-generated code, 9-11

high-level interface, 252-257

http basic authentication, 149, 154-158

http digest authentication, 149, 158

I-K

I/O bound Web method, 181

identity, users, 167

IIS (Internet Information Service), 219

iisreset command, 128

in-process mode (session states), 219-221

Independent software vendors. *See ISVs*

installing trace utility, 122

Internet Information Service (IIS), 219

Internet Services API (ISAPI), 233

invocation pattern (UDDI), 63-66

invoking Web Services, 13-14

from other Web Services, 42-44

IP addresses, user authentication, 167

ISAPI (Internet Services API), 233

ISS, setting up, 162

client certificates, 162-166

ISVs (Independent software vendors), 369

L

list window, stocks, 299-305

listings

application authentication, 152

ASP.NET applications

footer.ascx, 347

header.ascx, 346

header.ascx.vb, 347

MyStockData.vb, 344-345

styles.css, 348-349

ASP.NET Web Application, web.config,
341-343

asynchronous Web services

callback functions, 190-191

calling, 188

WaitHandle methods, 194-195

Web pages asynchronous calls to
WebMethods, 199-201

WebMethod method, 196

- btnGetValues Click event handler, 34-36
- Client Web Service, ResponseService class, 206
- COM+ applications, SOAP activation, 265
- console applications, 207-208
- dynamic URL behavior, 30
- editing window, frmEditStock.frm code, 306-307
- FirstService.asmx/WSDL service declaration, 30
- GetAuthorNames method, 21-22
- GetDaysAlive method, 43
- GetRandomNumbers method
 - returned XML, 19
 - source code, 18
- list window, frm.ListStocks.frm code, 301-303
- Name and Person objects, 16
- Northwind database
 - Customers.asmx, 315-316
 - Database.vb, 310-312
 - Orders.asmx, 316-318
 - Products.asmx, 313-314
- Server Web Service, RequestService class, 204
- SOAP messages, 48-50
- SOAP extensions, 104
 - attribute class, 106-107
 - custom attributes, 110
 - ReverseExtension class, 107-110
- SOAP Toolkit
 - client-side Type Mapper, 254-255
 - custom Type Mapper, 255
 - functions, 234-235
 - GetAuthorNames to read
 - IXMLDOMNodeList instance, 256
 - GetRandomNumbers function, 253
 - high-level interface, 252
 - low-level interface, 258-259
 - WSML edited files, 254
- user authentication, 149
 - auditing data, 168
 - client certificates, 162
 - constructors for auditing data, 169
 - custom login method, 151
 - http authentication client, 158
 - storing audited data, 169
 - token class, 152
- Web pages
 - default.aspx, 360-364
 - default.aspx.vb, 364-366
 - login.aspx, 350-351
 - login.aspx.vb, 351-352
 - logout.aspx, 367
 - logout.aspx.vb, 368
 - profil.aspx, 355
 - profil.aspx.vb, 356-359
 - profile.aspx, 353-355
- Web portals
 - StoredProcs.sql, 338-340
 - Tables.sql, 337-338
- Web Services
 - customers.aspx, 323-324
 - orders.aspx, 327-328
 - products.aspx, 331
- WebForm1 Page_Load event handler, 39-40
- WinForm Client, 210-211
- wizard-generated Web Service code, 10-11
- WSDL
 - elements, 55-56
 - extensibility elements, 58-59
- WSDL files, 68-69
 - AddService, 111-112
 - AddService abstract base class, 114
 - AddService skeleton, 113-114
 - applying classes to AudioCD class, 83-85
 - AudioCD.Name variable, 80-81
 - binding elements, 88
 - changes to documents, 95-97
 - class declarations, 99-102
 - default, 70-72
 - descriptions for Web methods, 91-92
 - Generator defined types, 240
 - GetAuthorNames request, 246-249
 - GetCD Web method, 89-91
 - message elements, 85-87

PersonMapper class, 243-244
 PersonMapper class conversion to Person
 to XML, 245
 RPC/encoded Web service access, 73-77
 service element, 93
 setting names of binding, 98-99
 SOAP Headers, 94
 SOAP method by GetAuthorNames
 request, 249-250
 source code to set locations, 102-103
 targetNamespace, 78-80
 type definitions, 242
 undefined types, 241
 Visual Basic .NET client, 250-251
 Web method response, 245-246
 WebService attribute, 77
 XmlAttributeAttribute, 81-82
 XmlEnumAttribute class, 82
 XSD types, 242
 XML Web Services
 CustomerService.asmx, 280-281
 Database class, 275-277
 databases tables, 274-275
 EE ProdAvail.aspx.vb, 294-295
 EE Script.sql, 285-286
 EE ViewProducts.aspx.vb, 290-291
 product pages, 289-290
 SecurityToken class, 278
 sp RetrieveProductTimestamp, 292
 stored procedures, 293
local debugging, 128
log out page, 367-368
login, application level authentication, 151
login page, 350-352
low-level interface, 257-259

M

manageability, 171, 176-177
 deployment packages, 177-180
 performance monitor, 176-179
 reporting, 177-180

marketing Web services, 374
memory hog, 181-182
Memory.Available Mbytes counter, 177
message element, 54, 85-93
message patterns (WSDL), 57
messages (SOAP), 14
 console applications, 32-33
 viewing, 122-127
 Web applications, 40-42
 Windows applications, 37-38
methods
 GetAuthorNames, 21-22, 39
 GetDaysAlive, 43
 GetRandomNumbers
 debugging, 142-143
 returned XML, 19
 source code, 18
 return values
 data types, 18-19
 structures, 20-22
 WaitHandle, 193-197
 WaitOne, 197
 WebMethod
 cancelling calls, 198
 length of wait, 196-197
Microsoft Access databases, stocks, 297
Microsoft Developer Network (MSDN), 233
Microsoft Message Queue (MSMQ), 168
**Microsoft Mobile Internet Toolkit, Northwind
 database, 309**
Microsoft Mobile Internet Toolkit Web site, 309
Microsoft SOAP Toolkit (STK), 267
Microsoft UDDI Web site, 61
middleman models, 373-374
mobile applications, building, 319-332
 customer viewer menus, 321-325
 main menus, 319-320
 order viewer menus, 325-328
 product catalog viewer menus, 329-332

MSDN (Microsoft Developer Network), 233

MSMQ (Microsoft Message Queue), 168

MSSOAPT.EXE. *See* trace utility

N

.NET

Web Services, resources, 378

WSDL files, 67

.NET Framework, asynchronous methods calls, 186-188

.NET Web services, 267

Name and Security Settings dialog box, 159

Name object, 16-18

NET.NET, resources, 375

Netscape Web site, 159

New Project dialog box, 8, 319

Northwind Traders database, 309-310

building

mobile applications, 319-332

Web Services, 310-318

creating

customer viewer menus, 321-325

main menus, 319-320

order viewer menus, 325-328

product catalog viewer menus, 329-332

customers service, 315-316

Database class, 310-312

orders service, 316-318

products service, 313-314

O

objects

Application, 225-227

Cache, 227-231

COM, 266-267

DataSet, 299-301

FirstService, GetRandomNumbers method, 18-19

Name, 16-18

OleDbConnection, 299-301

OleDbDataAdapter, 299-301

Person, 16-18

Session, 217

OleDbConnection object, 299-301

OleDbDataAdapter object, 299-301

onRemoveCallback parameter, 231

Openwave SDK, 309

Openwave SDK Web site, 309

order view menus, 325-328

orders service, Northwind database, 316-318

Organization Information dialog box, 160

out-of-process mode (session states), 221

ASP.NET State Server, 221-223

SQL Server, 223-225

P

Page_Load event handler, sample Web application, 39-40

parameters

absoluteExpiration, 230

CacheItemPriority, 231

onRemoveCallback, 231

passing complex types, 16-18

performance, 171, 180-181

computation intensive, 181-182

I/O bound Web method, 181

memory hog, 181-182

stateful services, 214-216

cached data, 215

performance monitor, 176-179

Person object, 16-18

PersonMapper class, 243

PKI (public key infrastructure), 158

portal page, 360-367

portals, 335-337

adding business objects, 344-345

building Web pages, 349

log out page, 367-368

login page, 350-352

portal page, 360-367

profile editor, 353-360

configuring applications, 340-344

creating Web User Controls, 345-349

designing databases, 337-340

portType element, 54

processes, aspnet_wp.exe, 128

Processes dialog box, 128

Processor.% ProcessorTime counter, 177

product catalog view menus, 329-332

products service, Northwind database, 313-314

profile editor, 353-360

profiting, Web services, 369-370

costs, 371

demand, 370-371

revenue models, 372-374

project files

.vsdisco, 14

AssemblyInfo.vb, 14

Global.asax, 14

Web.config, 14

Project menu commands

Add Web Reference, 26

Add Web Service, 9

projects

adding classes to, 9

building, 12

console applications, SOAP
requests/responses, 32-33

creating, 8-9

documentation, 12-13

project files

.vsdisco, 14

AssemblyInfo.vb, 14

Global.asax, 14

Web.config, 14

Web applications

creating, 38-39

event handling, 39-40

SOAP request/responses, 40-42

Web references

adding, 26-28

defined, 26

namespaces, 28

properties, 28-30

Windows applications

building, 37

creating, 33-34

event handling, 34-37

SOAP request/responses, 37-38

wizard-generated code, 9-11

properties

absoluteExpiration, 230

slidingExpiration, 230

Web references, URL Behavior, 28-30

proxies, defined, 26

public key infrastructure (PKI), 158

Q-R

queries, UDDI Registry, 63

browse pattern, 63-64

drill-down pattern, 63-65

invocation pattern, 63-66

read-only access to data, 272

read/write-only access to data, 273

references (Web)

adding, 26-28

defined, 26

namespaces, 28

properties, URL Behavior, 28-30

registering UDDI, 61-62

query patterns, 63-66

remote debugging, 129

Remote Object proxy Engine (ROPE), 233

reporting, 172-180

requests (SOAP), 14

console applications, 32-33

Web applications, 40-42

Windows applications, 37-38

resources, .NET Web Service, 378

responses (SOAP), 14

console applications, 32-33

Web applications, 40-42

Windows applications, 37-38

return values

data types, 18-19

structures, 20-22

390 returning arrays

returning arrays

- data types, 18-19
- structures, 20-22

revenue models, Web services, 372

- advertising models, 373
- flat-fee access, 372
- middleman models, 373-374
- volume-based access fees, 372-373

ROPE (Remote Object Proxy Engine), 233

S

scalability, 171, 175

- scalable components, 176
- stateful services, 214
- Web applications, 216
- Web farms, 175-176

Secure Communications dialog box, 166

security

- authenticating users, 149-150
 - application level authentication, 149-153
 - client certificates, 149, 158-162
 - data, 167
 - http basic authentication, 149, 154-158
 - http digest authentication, 149, 158
 - text fields, 168
 - time of action, 168
 - user activity, 167-170
 - user identity, 167
 - Windows authentication, 149
- equipment deployment, 147-148
- resources, 378
- Web sites, 378

SecurityToken class, 278-279

Server Web Services, 204-205

servers

- debugging services on, 128
- server to server communications, 202
- SOAP, 203
- SOAP Toolkit, 234-235
- SSL, running on, 159-161
- WSDL files, 111-114

service element, 54

services, stateful, 213

- performance, 214-216
- scalability, 214

Session object, 217

session states, 217-219

- Application object, 225-227
- Cache object, 227-231
- in-process mode, 219-221
- out-of-process mode, 221
 - ASP.NET State Server, 221-223
 - SQL Server, 223-225

sessions, defined, 217

sessionState element, 218-219

setting up

- CA, 159, 161
- IIS, 162
 - client certificates, 162-166
 - SSL on servers, 159-161

Simple Object Access Protocol. *See* SOAP

simple types, arrays, 18-19

slidingExpiration property, 230

SOAP (Simple Object Access Protocol), 48

- COM+ applications, 264-266
- elements, 48
 - Body element, 48-51
 - Envelope element, 48-51
 - Fault element, 48, 52-53
 - Header element, 48-51
- messages, viewing, 122-127
- requests, 14
 - console applications, 32-33
 - Web applications, 40-42
 - Windows applications, 37-38
- resources, 376
- responses, 14
 - console applications, 32-33
 - Web applications, 40-42
 - Windows applications, 37-38
- SOAPAction, 50
- standardization, 48

SOAP Headers, WSDL files, 94-97

SOAP servers, 203

SOAP Toolkit (STK), 233-234

- clients, 252
- high-level interface, 252-257
- low-level interface, 257-259
- servers, 234-235
- WSDL files, 235-239
 - deploying SOAP Web service, 251
 - editing, 239-241, 243-251
 - high-level interface, 253
- WSML files, 235-239
 - deploying SOAP Web service, 251
 - editing, 239-251
 - high-level interface, 254

SOAP Toolkit Web site, 237

SOAP Web service, deploying, 251

soap:address element, 60

soap:binding element, 59

soap:body element, 60

soap:fault element, 60

soap:header element, 60

soap:headerfault element, 60

soap:operation element, 59-60

SOAPAction http header, 50

SoapConnector class, 257

SoapExtension class, 105-106

SoapReader class, 257

SoapSerializer class, 257

SQL Server

- Northwind database, 310
- out-of-process state management, 223-225

sqlConnectionString attribute, 219

SQLServer mode, 223

SSL, running on servers, 159-161

standardization (SOAP), 48

starting trace utility, 122

stateConnectionString attribute, 219, 223

stateful services, 213-216

states

- custom, 232
- session, 217-219
 - Application object, 225-227
 - Cache object, 227-231
 - in-process mode, 219-221
 - out-of-process mode, 221-225
- Web services, 232

static URL behavior, 29

STK (SOAP Toolkit), 267

stocks

- editing window, code, 305-308
- list window, 299-301
 - code, 301-305
- Microsoft Access databases, 297
- Visual Studio .NET, 298
- xmethods.net, 299

structures, arrays, 20-22

subelements, Fault element, 52-53

T

test plans, 141-142

tModels, 61

token class, 152

Trace Setup dialog box, 124

trace utility, 122-127

- formatted traces, 124-125
- installing, 122
- starting, 122
- unformatted traces, 125-127

transactions, resources, 377

troubleshooting, 121

- diagnostics
 - audits, 130-131
 - trace utility, 122-127
- example, 142-143
- local debugging, 128
- remote debugging, 129
- test plans, 141-142

392 types

types

- arrays, 18-19
- passing, 16-18

types element, 54, 77-85**U****UDDI (Universal Description, Discovery, and Integration), 61****UDDI Registry, 61-62, 115-118**

- Microsoft administrative user interface, 61
- query patterns, 63
 - browse pattern, 63-64
 - drill-down pattern, 63-65
 - invocation pattern, 63-66

UDDI Web Service, 61**UDDI Web site, 374****uncached data (stateful services), 215****unformatted traces (trace utility), 125-127****Universal Description, Discovery, and Integration. *See* UDDI****URL Behavior property (Web references), 28**

- Dynamic setting, 29-30
- Static setting, 29

users, authenticating, 149-150

- http basic authentication, 149, 154-158
- http digest authentication, 149, 158
- Windows authentication, 149
- application level authentication, 149-153
- client certificates, 149, 158-162
- data, 167
- IP addresses of callers, 167
- text fields, 168
- time of action, 168
- user activity, 167-170
- user identity, 167

utilities, trace, 122-127

- formatted traces, 124-125
- installing, 122
- starting, 122
- unformatted traces, 125-127

V**.vsdisco file, 14****variables, `ConnectionString`, 312****viewing SOAP messages, 122-127****Visual Basic .NET, 267****Visual Basic 6.0, 267**

- high-level interface. *See* high-level interface

Visual Studio .NET

- registering SOAP endpoint, 115-118
- stocks, 298

Visual Studio IDE projects

- adding classes to, 9
- building, 12
- creating, 8-9
- documentation, 12-13
- project files, 14
- Web references, 26-30
- wizard-generated code, 9-11

volume-based access fee, 372-373**W****WaitHandle methods, 193-197****WaitOne methods, 197****Web applications**

- creating, 38-39
- event handling, 39-40
- scalability, 216
- SOAP requests/responses, 40-42

Web farms, 175-176, 216**Web methods. *See* methods****Web pages**

- asynchronous calls to `WebMethods`, 199-202
- building, 349
 - log out page, 367-368
 - login page, 350-352
 - portal page, 360-367
 - profile editor, 353-360

Web references

- adding, 26-28
- defined, 26

- namespaces, 28
- properties, URL Behavior, 28-30
- Web services, asynchronous, 185**
 - .NET Framework, 186-188
 - callback functions, 189-193
 - calling, 188-189
 - comparing with synchronous calls, 185-186
 - WaitHandle methods, 193-197
 - WaitOne methods, 197
 - Web pages asynchronous calls to WebMethods, 199-202
 - WebMethod cancelled calls, 198
 - WebMethod length of wait, 196-197

Web services, 1, 203-205

- .NET resources, 378
- applications of, 2
- arguments, data type, 17-18
- calling from other Web Services, 42-44
- client, 205-206
- COM objects, 266-267
- COM+ applications, 262-264
 - SOAP, 264-266
- converting from applications, 261-262
- debugging, 121
 - audits, 130-131
 - example, 142-143
 - local debugging, 128
 - remote debugging, 129
 - test plans, 141-142
 - trace utility, 122-127
- deploying, 171
 - availability, 171-172
 - manageability, 171, 176-177
 - performance, 171, 180-181
 - scalability, 171, 175
- invoking, 13-14
- marketing, 374
- Microsoft Mobile Internet Toolkit, 309-310
 - building mobile applications, 319-332
 - building Web Services, 310-318

- creating customer viewer menus, 321-325
- creating main menus, 319-320
- creating order viewer menus, 325-328
- creating product catalog viewer menus, 329-332
- minimum requirements, 1
- profiting, 369-370
 - costs, 371
 - demand, 370-371
 - revenue models, 372-374
- projects
 - adding classes to, 9
 - building, 12
 - creating, 8-9
 - documentation, 12-13
 - project files, 14
 - wizard-generated code, 9-11
- resources, 376
- states, 232
- UDDI registry, 115-118
- Web references
 - adding, 26-28
 - defined, 26
 - namespaces, 28
 - properties, 28-30

Web Services Description Language. See WSDL**Web sites**

- .NET Web Service resources, 378
- base64, 262
- building, 283-284
- ebXML, 378
- ebXML resources, 378
- Microsoft Mobile Toolkit Internet, 309
- Microsoft UDDI, 61
- NET.NET resources, 375
- Netscape, 159
- Openwave SDK, 309
- security, 378
- security resources, 378
- SOAP resources, 376

SOAP Toolkit, 237

transaction resources, 377

UDDI, 374

Web Service resources, 376

WSDL resources, 377

xmethods.net, 299

XML resources, 375

Web User Controls, 345-349

Web.config file, 14

WebMethod

cancelling calls, 198

length of wait, 196-197

Web page asynchronous calls to, 199-202

WebService attribute, 76-77

WebMethod attribute, 219-221

Windows applications, 297

building, 37

creating, 33-34

editing window, stocks, 305-308

event handling, 34-37

list window, stocks, 299-305

Microsoft Access databases, stocks, 297

SOAP requests/responses, 37-38

Visual Studio .NET, stocks, 298

xmethods.net, stocks, 299

Windows authentication, 149

WinForm application, 209-211

write-only access to data, 272-273

WSDL (Web Services Description Language), 53-54

elements, 54-57

extensibility elements, 57-60

message patterns, 57

Notification, 57

One-way, 57

Request/Response, 57

Solicit/Response, 57

resources, 377

WSDL files, 67-68

.NET, 67

custom SOAP extensions, 103-111

definitions element, 73, 76-77

element locations, 98-103

message element, 85-92

servers, 111-114

service element, 92-93

shaping, 68-76

SOAP Headers, 94-97

SOAP Toolkit, 235-239

deploying SOAP Web service, 251

editing, 239-251

high-level interface, 253

types element, 77-85

WSDL Generator, 236

wsdlgen.exe utility, 236

WSML files, SOAP Toolkit, 235-239

deploying SOAP Web service, 251

editing, 239-251

high-level interface, 254

X-Z

X509 client certificates, 158-159

xmethods.net, stocks, 299

xmethods.net Web site, 299

XML resources, 375

XML namespaces, Envelope element, 50-51

XML Web Services, 271

building databases, 274-275, 284-286

classes, 275-279

building product pages, 286-294

building Web Services, 279-283

designing, 273

product availability, 294-296

read-only access to data, 272

read/write-only access to data, 273

write-only access to data, 272-273

XSD Instance data, 50

XSD Schema data, 50