

Table of Contents

Preface	xi
Chapter 1: Moodle Installation	1
Moodle installation – an overview	1
Choosing the best setup	2
Moodle prerequisites	3
Hardware requirements	3
Software requirements	4
Installation in a LAMP environment	5
Downloading Moodle	5
Creating the Moodle database and the data directory	7
Using a hosted server	7
Using the command line	8
Creating the Moodle data directory	9
Running the installer script	10
Finalizing the installation	16
Setting up the cron process	17
Installation in a Windows environment	19
Installation in a Mac OS X environment	20
Installation via the Command Line Interface	22
Updating Moodle	24
Manual update	25
Creating a backup	26
Creating your new Moodle system	27
Running the update script	28
Updating Moodle via CLI	29
Update notifications	31
Summary	32

Chapter 2: The Moodle System	33
Moodle architecture	33
The LAMP architecture	34
The Moodle layer	35
Code and data locations	36
Finding your way around in Moodle	38
The Navigation bar	40
The administrator search facility	40
Moodle bookmarks	40
Moodle Docs and Help	41
File management	42
The Moodle file management interface	43
Uploading files	44
Private files	47
To link or to copy?	47
File types	48
The upload limit	49
Web host file management	50
File management via the file system repository	50
Summary	52
Chapter 3: Courses, Users, and Roles	53
A high-level overview	54
Moodle courses	54
Moodle users	55
Moodle roles	59
Summary	61
Chapter 4: Course Management	63
Course categories	63
Course categories – an overview	64
Managing course categories	65
Adding course categories	66
Course sub-categories	67
Deleting course categories	67
Organizing courses and categories	68
Creating courses	70
Course requests – enabling teachers to ask for new courses	73
Managing courses in bulk	74
Forms of enrolment	79
Internal enrolment	82
Manual enrolment	82
Self enrolment	84
Guest access	87

Cohort enrolment and synchronization	88
Database-driven enrolment	90
LDAP	91
External databases	92
Flat files	94
The IMS Enterprise file	95
Meta courses – sharing enrolment across courses	96
Enrolment with payment	98
PayPal	98
Summary	100
Chapter 5: User Management	101
User profiles	101
Profile fields	102
General category	102
User picture category	104
Additional names	106
Interests category	106
Optional category	107
Creating user-defined profile fields	108
Profile categories	108
Profile fields	108
User preferences	112
Standard user actions	113
Browsing users	113
Filtering users	115
Bulk user actions	118
Manual accounts	120
Adding individual users	120
Bulk uploading and updating of users and their pictures	120
The text file format	121
Uploading users	126
Setting default values and templates	128
Loading of data	130
Uploading user pictures	131
Manual account settings	131
Cohorts	133
User authentication	134
Common authentication settings	136
Email-based self-registration	139
The LDAP server	140
The LDAP server settings	141
Data mapping	142
External databases	143
Connection settings	143

Data mapping	144
Other authentication mechanisms	144
External Moodle authentication methods	145
Internal Moodle authentication methods	146
Username – best practice	147
Summary	148
Chapter 6: Managing Permissions – Roles and Capabilities	149
<hr/>	
Moodle predefined roles	149
Contexts	151
Assigning roles	153
The System context	155
The Course Category context	156
The Course context	157
The Module context	158
The Block context	159
The User context	160
The Front page context	161
Multiple roles	161
Capabilities	162
Role definitions	162
Modifying roles	167
Overriding roles	168
Creating custom roles	170
Example roles	171
The parent/mentor role	172
Testing new roles	173
Roles management	176
Allowing roles assignments and overrides	176
Assigning of default roles	177
Moodle role assignment – best practice	178
Summary	179
Chapter 7: Moodle Look and Feel	181
<hr/>	
An overview of the look and feel	182
Site versus Dashboard	183
Customizing your front page	184
The front page settings	186
Arranging front page blocks	188
Logging in from a different website	191
Other front page items	191
Front page users	192
Front page filters	192
Front page reports	192

The front page backup and restore	192
Front page questions	193
The default Dashboard and Profile pages	193
Customizing navigation	194
Replacing the front page	196
Moodle themes	196
Fixed width versus fluid versus responsive themes	197
Selecting a Moodle theme	198
Theme types	199
Theme settings	201
Customizing themes	203
Theme customization basics	203
The Moodle editor	207
Configuring the Atto editor	208
Extending the functionality of tables	210
Supporting mathematical equations	210
Adding some awesomeness	211
Accessibility	211
Guaranteeing accessibility through Moodle themes	212
Accessibility support through the Moodle editor	213
Support for a screen reader	213
Summary	214
Chapter 8: Moodle Plugins	215
Plugins – an overview	216
Module plugins	218
Activity modules	218
Configuring blocks	221
Configuring filters	221
Moodle repositories	224
Internal repository plugins	226
External repository plugins	227
Data storage repositories	227
Application repositories	228
Moodle portfolios	230
Miscellaneous plugins	233
Course formats	234
Question types and behaviors	234
Availability restrictions	236
Licences	236
Plagiarism prevention	237
Installing third-party plugins	239
Third-party software – an overview	239

Good add-ons and bad add-ons	240
Popular add-ons	241
Organizational decisions around plugins	243
Installing third-party add-ons	244
Installing the Collapsed Topics format plugin via the web interface	244
Installing the Configurable Reports plugin manually	246
Installing the Certificate module via Git	247
Installing plugins via the command line	248
Keeping plugins up to date	249
Uninstalling third-party add-ons	250
Summary	251
Chapter 9: Moodle Configuration	253
Collaboration	253
Configuring blogs	254
Supporting comments	255
Managing tags	256
Configuring and managing badges	257
Adding badges	259
Supporting the LTI consumers and producers	261
Localization	262
Languages, idiomas, 语言, and تاغللا	262
Language packs	263
Language settings	264
Language customization	266
Multilingual content	268
Calendaric information	269
Calendars	269
Time zones	270
Grades and gradebook settings	271
Miscellaneous educational settings	273
Communication	273
Synchronous communication	273
Instant messaging	273
Video conferencing	274
Asynchronous communication	275
Messaging configuration	275
Configuration RSS feeds	283
Experimental settings	284
Summary	285
Chapter 10: Moodle Logging and Reporting	287
Moodle's logging framework	287
Events	289
Event lists	289

Event monitoring rules	290
The log manager	292
The log store	292
Reports	295
An overview of reporting	295
Moodle's reporting facilities	296
Live logs	299
Error reports	300
Course and user reports	300
Statistics	302
Statistics settings	302
Statistics view	304
Report generation	305
Configurable reports	306
The Totara report builder	307
Data analysis	309
Web log analyzers	310
Google Analytics and Piwik	310
Miscellaneous reports	313
Summary	314
Chapter 11: Moodle Security and Privacy	315
Security – an overview	315
Security notifications	316
Moodle notifications	317
Security report	318
User security	319
Access to Moodle	319
Self-registration	320
Guest access	320
Protection of user details	321
Course contacts	322
Moodle passwords	323
Security in roles	325
Spam prevention	327
Data and content security	328
Content created within Moodle	328
Visibility of content	329
Site policy	330
Antivirus	331
System security	332
Configuration security	332

Access to dataroot	332
The cron process	332
HTTP security	333
The IP blocker	334
Moodle privacy	335
Information stored about users	335
Information available to other users	336
Summary	337
Chapter 12: Moodle Performance and Optimization	339
An overview of performance and optimization	340
The Moodle content	343
Content creation	343
Content volume	343
Content types	343
Moodle's filter settings	345
Moodle Universal Cache	345
The MUC background	346
Cache types	346
Cache stores	346
Cache definitions	349
MUC configuration and testing	351
The Moodle system settings	353
Session handling	353
Cron management and scheduled tasks	354
Module settings	356
Gradebook optimization	356
Chat optimization	356
Forums	357
Miscellaneous settings	357
Course backups	357
Log files	358
System paths	358
Front page courses	358
Roles and users	359
Moodle performance profiling and monitoring	359
Built-in profiling	359
System profiling	364
Summary	364
Chapter 13: Backup and Restore	365
The course-level backup and restore	365
The course backup	366
Initial settings	366
Schema settings	369

Confirmation and review	370
Finalizing a backup	371
The course restore	372
The restore destination	373
Restore settings	374
The backup schema	374
Finalizing a restore	375
The course Import	375
Site-level backups	377
Backup settings	378
Backup reports and notifications	379
The backup strategy	380
Drawbacks of site-level backups	381
System-level backups	381
Moodle backups	381
The Moodle software	382
The Moodle data	382
Snapshot creation	383
Uses of backup and restore	383
The year-end procedure	383
Course templates	384
Summary	385
Chapter 14: Moodle Admin Tools	387
Web-based admin tools	387
Upgrade tools	388
Database tools	389
Other tools	391
Command Line Interface (CLI)	392
Moosh – the Moodle shell	393
Moodle Adminer	395
Summary	396
Chapter 15: Moodle Integration	397
Web services overview	397
Web services in Moodle	398
Enabling web services for external systems	400
Create a specific user	401
Check user capability	401
Select a service	401
Add functions	402
Select a specific user	403
Create a token for a user	404
Enable developer documentation	405

Test the service	406
Enabling web services for users	408
The Moodle mobile web service	408
Customizing styles for the Moodle app	410
Mobile app notifications	411
Summary	412
Chapter 16: Moodle Networking	413
Networking overview	414
Networking prerequisites and security	415
Required PHP extensions	416
Networking security	416
Peer-to-peer networks	418
Adding a peer	418
Peer services	420
Profile fields	421
Network authentication	422
Allowing roaming	422
Network servers block	423
Network enrolment	425
Moodle hubs	426
Integrating Mahara or Totara Social	426
Mahoodle!	427
Mahara networking	427
Adding Mahara to Moodle	429
The Mahara portfolio	429
The Moodle Community Hub (Moodle.net)	430
Summary	435
Appendix: Configuration Settings	437
Configuration reference: an overview	437
Configuration reference: administration settings	441
Configuration reference: system settings	442
Default parameters	443
Optional parameters	444
Index	449