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Configuring Microsoft® Exchange Server 2010

Ian McLean

Rapid Review

MCTS EXAM

70-662

Rapid Review 70-662

Assess your readiness for MCTS Exam 70-662—and quickly identify where you need to focus and practice. This practical, streamlined guide walks you through each exam objective, providing “need to know” checklists, review questions, tips, and links to further study—all designed to help bolster your preparation.

Reinforce your exam prep with a *Rapid Review* of these objectives:

- Installing and Configuring Exchange Servers
- Configuring Exchange Recipients and Public Folders
- Configuring Client Access
- Configuring Message Transport
- Monitoring and Reporting
- Implementing High Availability and Recovery
- Configuring Message Compliance and Security



This book is an ideal complement to the in-depth training of the Microsoft Press® *Training Kit* and other exam-prep resources for Exam 70-662.

ISBN: 978-0-7356-5810-3



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9 780735 658103

U.S.A. \$29.99

Canada \$31.99

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Certification/Microsoft
Exchange Server

Configuring Microsoft® Exchange Server 2010

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Exchange Server 2010

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MCTS 70-662

Rapid Review:

Configuring Microsoft®
Exchange Server 2010

Ian McLean

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ISBN: 978-0-7356-5810-3

1 2 3 4 5 6 7 8 9 LSI 7 6 5 4 3 2

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This book is dedicated to my new and beautiful granddaughter, Isla Martha McLean, born on the twenty-third of September, 2011. Darling, you're too little as yet to know how much Grandpa loves you, but you'll find out.

—Ian McLean

Contents at a Glance

	<i>Introduction</i>	<i>xxi</i>
Chapter 1	Installing and Configuring Exchange Servers	1
Chapter 2	Configuring Exchange Recipients and Public Folders	41
Chapter 3	Configuring Client Access	77
Chapter 4	Configuring Message Transport	111
Chapter 5	Monitoring and Reporting	145
Chapter 6	Implementing High Availability and Recovery	179
Chapter 7	Configuring Message Compliance and Security	213
	<i>Index</i>	<i>245</i>

Contents

<i>Introduction</i>	<i>xxi</i>
Chapter 1 Installing and Configuring Exchange Servers	1
Objective 1.1: Prepare the infrastructure for Exchange	1
Exam need to know	1
Prepare the schema	2
Prepare Active Directory	3
Prepare the domain	3
Ensure that the domain functionality level is correct	4
Domain controller service packs	4
Exchange readiness check	5
Coexistence	5
Migration from 2003 or 2007	6
Disable LinkState	7
Exchange Server service pack level	7
Remove unsupported legacy components	8
Configuring DNS to support the Exchange deployment	8
Can you answer these questions?	9
Objective 1.2: Install Exchange prerequisites	9
Exam need to know	9
Install MMC 3.0	10
Windows PowerShell 2.0	11
Microsoft .NET 3.5	11
WinRM 2.0	11
IIS	11
Windows roles and features	12
Use Exchange prerequisite scripts	13
Use ServerManagerCMD	13
Can you answer these questions?	14

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Objective 1.3: Install Exchange roles.	14
Exam need to know	14
Adding and modifying roles from the command line and the GUI	15
Add server roles to existing Exchange 2003 or 2007 organizations	16
Verify Exchange installation	17
Security Configuration Wizard	18
Windows firewall, including port requirements	18
Installing Exchange Server by using standard and custom installation	19
Installing Exchange Server by using the command line	19
Provisioning an Exchange Server and delegating server installation	20
Troubleshooting a failed installation	21
Adding Exchange Server roles after an initial installation	21
Can you answer these questions?	22
Objective 1.4: Create and Configure databases	22
Exam need to know	22
Set database limits	23
Set retention limits	24
Set RBAC permissions for database creation	24
Naming conventions	24
Create and use GUI and Windows PowerShell	25
Create and manage public folder databases	25
Set default public folder database	26
Maintenance	26
Mount and dismount databases	27
Create new mailbox databases	27
Configure mailbox database settings	28
Move the mailbox database and transaction log locations	28
Configure public folder database settings	29
Can you answer these questions?	30
Objective 1.5: Create and configure address lists.	30
Exam need to know	30
Update legacy address lists	31
Configure Offline Address lists	31

Publish address lists	32
Filterable properties	33
Creating and configuring email address policies	33
Creating and configuring address lists	34
Creating and configuring OABs	36
Can you answer these questions?	37
Answers	37
Objective 1.1: Prepare the infrastructure for Exchange	37
Objective 1.2: Install Exchange prerequisites	38
Objective 1.3: Install Exchange roles	38
Objective 1.4: Create and configure databases	39
Objective 1.5 Create and configure address lists	39

Chapter 2 Configuring Exchange Recipients and Public Folders **41**

Objective 2.1: Create and configure mailboxes	41
Exam need to know	42
Deleted items	43
Deleted mailbox	44
Mailbox quota	44
Message size	45
Warning thresholds	45
Move from and to previous versions of Exchange	46
Online and offline moves	46
Intra-orgs and cross-orgs	47
Create proxy addresses	47
Create mailboxes	48
Configure client access protocols	49
Configure spam confidence level (SCL) and phishing confidence level (PCL)	49
Send-As permissions	49
Delegation	50
Forwarding	50
Mailbox permissions	51
Create and configure linked mailboxes	51
Can you answer these questions?	52

Objective 2.2: Configure RBAC.	52
Exam need to know	52
Create and assign RBAC roles	53
Define RBAC scopes	54
Configure RBAC for specific roles	55
Can you answer these questions?	56
Objective 2.3: Create and configure resource mailboxes and shared mailboxes.	57
Exam need to know	57
Equipment	57
Room	58
Permissions	59
Set mailbox calendaring options	60
Autoaccept	60
Custom resource types	61
Can you answer these questions?	62
Objective 2.4: Create and configure recipients and distribution groups	62
Exam need to know	62
Create and modify a distribution group	63
Security-enabled distribution groups	64
Configure moderation	65
Dynamic distribution groups	65
Create proxy addresses	66
Configure mail-enabled users	66
Contacts	67
Send-As permissions	67
Forwarding	68
Can you answer these questions?	68
Objective 2.5: Create and configure public folders	69
Exam need to know	69
Mail-enabled public folders	69
Deleted items	70
Message size	70
Item age	71
Public folder size	71

Create public folders in Enterprise Content Management, Outlook, and OWA	72
Configure public folder permissions	72
Configure public folder limits	74
Can you answer these questions?	74
Answers	75
Objective 2.1: Create and configure mailboxes	75
Objective 2.2: Configure RBAC	75
Objective 2.3: Create and configure resource mailboxes and shared mailboxes	75
Objective 2.4: Create and configure recipients and distribution groups	76
Objective 2.5: Create and configure public folders	76
Chapter 3 Configuring Client Access	77
Objective 3.1: Configure POP, IMAP, and Microsoft ActiveSync	77
Exam need to know	77
Enable, configure, and secure POP and IMAP	78
Manage certificates	79
Configure mobile device policies	80
Autodiscover	81
Authentication	82
Configure the Exchange ActiveSync virtual directory	82
Configure the external name for Exchange ActiveSync	83
Configure Client Access settings for Exchange ActiveSync	83
Direct Push	84
Configure Exchange ActiveSync mailbox policies	84
Configure Autodiscover for Exchange ActiveSync	84
Can you answer these questions?	85
Objective 3.2: Configure Outlook Anywhere and RPC client access	85
Exam need to know	85
Autodiscover	86
MAPI	86
Create client access arrays	87

Certificates	87
SAN	88
Configure virtual directories	88
Enable and configure Outlook Anywhere on the CAS	89
Troubleshoot Outlook Anywhere connectivity	90
Can you answer these questions?	91
Objective 3.3: Configure federated sharing	91
Exam need to know	91
Certificates	92
Enrollment	93
DNS	94
Calendar and free/busy	94
SAN	95
Assign policies	95
Create and configure a federated trust	96
Create and configure a federated organization identifier	97
Create and configure a sharing relationship	97
Create and configure a sharing policy	98
Assign sharing policies to user accounts	99
Can you answer these questions?	100
Objective 3.4 Configure Outlook Web App (OWA)	100
Exam need to know	101
Customize the OWA interface	102
Certificates	102
File share and SharePoint Access	102
Public folders	103
Verify multibrowser support	103
ECP	103
SAN	104
Configure virtual directories	104
Coexistence scenarios	105
Authentication	105
Configure the external name for OWA	106
Configure Client Access settings for OWA	106
Segmentation settings	107
Configure OWA mailbox policies	107
Can you answer these questions?	108

Answers	108
Objective 3.1: Configure POP, IMAP, and Microsoft ActiveSync	108
Objective 3.2: Configure Outlook Anywhere and RPC client access	109
Objective 3.3: Configure federated sharing	109
Objective 3.4: Configure Outlook Web App (OWA)	109
Chapter 4 Configuring Message Transport	111
Objective 4.1: Create and configure transport rules	111
Exam need to know	111
Enable and configure transport rules	112
Disclaimers	116
Implementing moderated transport	117
Install the Windows RMS pre-licensing agent	117
Configure rights protection by using transport rules	119
Can you answer these questions?	120
Objective 4.2: Configure Hub transport.	121
Exam need to know	121
Configure transport dumpster	122
Accepted domains	122
Remote domains	123
Authoritative domains	124
Email address policies	124
Can you answer these questions?	125
Objective 4.3: Configure Edge transport	126
Exam need to know	126
Create, configure, and test Edge Sync	126
Configure Edge Transport server cloning	127
Install the Edge Transport server role	128
Configure Edge Transport server settings	128
Configure Edge synchronization	129
Can you answer these questions?	130
Objective 4.4: Configure message routing	130
Exam need to know	130
Internal and external DNS	131
Configure routing based on sites and costs	132

Enable, configure, and secure Send and Receive connectors	134
Certificates	137
Relay connectors	138
Authentication	139
Message size limits	139
MTLS	140
Routing group connector for coexistence	140
Configure accepted and remote domains	141
Configure SMTP Send and Receive connectors	141
Configure message delivery limits	142
Configure TLS security for message delivery	142
Can you answer these questions?	143
Answers	143
Objective 4.1: Create and configure transport rules	143
Objective 4.2: Configure Hub transport	143
Objective 4.3: Configure Edge transport	144
Objective 4.4: Configure message routing	144
Chapter 5 Monitoring and Reporting	145
Objective 5.1: Monitor databases	145
Exam need to know	145
Public folder statistics	146
Mailbox databases statistics	147
Database status	147
DAG replication	148
Can you answer these questions?	149
Objective 5.2: Monitor mail flow	150
Exam need to know	150
Perform message tracking	150
DNS	152
Manage message queues	152
View, retry, and delete	153
Backpressure thresholds	155
Resolve NDRs	155
Can you answer these questions?	156

Objective 5.3: Monitor connectivity	156
Exam need to know	156
SMTP client to server	157
SMTP server to server	158
Outlook RPC/MAPI	158
Outlook Anywhere	159
Outlook EWS	160
POP	160
IMAP	161
ActiveSync	161
Can you answer these questions?	162
Objective 5.4: Generate reports.	163
Exam need to know	163
Mailbox folder statistics	163
Mailbox statistics	164
Mail flow statistics	165
Formatted list and formatted table	166
ExBPA	167
Can you answer these questions?	168
Objective 5.5: Configure logging	168
Exam need to know	168
Protocol logging	169
Store logging	170
Configure logging levels	171
Agent logs	171
Message tracking logs	172
Event logs	174
Analysis of logging results	175
Can you answer these questions?	175
Answers	176
Objective 5.1: Monitor databases	176
Objective 5.2: Monitor mail flow	176
Objective 5.3: Monitor connectivity	176
Objective 5.4: Generate reports	177
Objective 5.5: Configure logging	177

Chapter 6	Implementing High Availability and Recovery	179
Objective 6.1: Create and configure the Database		
Availability Group (DAG)		179
Exam need to know		179
Create and configure DAG		180
File share witness (FSW)		181
Replication latency		182
Configure lag		182
Add or remove database copies		183
Configure failover priority		184
Add or remove server members		184
Configure mailbox database copies		185
Manage continuous replication		186
Can you answer these questions?		186
Objective 6.2: Perform backup and restore of data.		187
Exam need to know		187
Recovery database		188
Dialtone restores		189
Deleted mailbox retention		190
Deleted item retention		190
Mailbox merge		191
Disconnected mailbox		192
Backing up Exchange servers		192
Creating a backup schedule		193
Can you answer these questions?		194
Objective 6.3: Configure public folders for high availability . . .		194
Exam need to know		194
Add or remove replicas		195
Schedules		196
Message tracking		197
Backup and restore public folder database and data		197
Can you answer these questions?		198
Objective 6.4: Configure high availability for non-mailbox servers		198
Exam need to know		198
DNS round robin		199

MX records	199
NLB	200
Configuring high availability for Client Access servers	201
Configuring high availability for Hub Transport servers	202
Configuring high availability for Edge Transport servers	202
Can you answer these questions?	203
Objective 6.5: Back up and recover server roles.....	203
Exam need to know	203
Hub	204
CAS IIS	204
Edge	205
Edge server clone configuration	205
Setup /m:recoverserver	206
Setup /recoverCMS	206
Mailbox server	207
Restoring Exchange Servers after server failure	207
Configuring messaging services during a server failure	208
Backup server roles	208
Can you answer these questions?	209
Answers	209
Objective 6.1: Create and configure the Database Availability Group (DAG)	209
Objective 6.2: Perform backup and restore of data	210
Objective 6.3: Configure public folders for high availability	210
Objective 6.4: Configure high availability for non-mailbox servers	210
Objective 6.5: Back up and recover server roles	211
Chapter 7 Configuring Message Compliance and Security	213
Objective 7.1: Configure records management	213
Exam need to know	213
Custom and default managed folders	214
Retention policy	215
Configure and apply retention policies and retention policy tags	216
Configure managed folders, including default and custom managed folders	218

Configure content settings	218
Configure managed folder mailbox policies	219
Can you answer these questions?	220
Objective 7.2: Configure compliance	221
Exam need to know	221
Configure RMS	222
Configure journaling	223
Configure alternate mailboxes	225
Enable message classification	225
Configure mail tips	227
Auditing	228
Transport rules	229
Can you answer these questions?	229
Objective 7.3: Configure message integrity.....	230
Exam need to know	230
S/MIME	230
MTLS	231
Certificates	232
Configure IRM and RMS Federation	232
Transport rules	233
Can you answer these questions?	234
Objective 7.4: Configure anti-virus and anti-spam.....	234
Exam need to know	234
File and process exclusions	235
Configuring transport rules	236
SCL	236
PCL	237
Sender ID	237
Safe sender/block sender	237
Real-time block list (RBL)	238
Sender Policy Framework (SPF) records	239
Sender reputation level (SRL)	239
Configuring anti-spam agents	239
Managing the quarantine mailbox	240
Managing updates for content filters	241
Can you answer these questions?	242

Answers	243
Objective 7.1: Configure records management	243
Objective 7.2: Configure compliance	243
Objective 7.3: Configure message integrity	243
Objective 7.4: Configure anti-virus and anti-spam	244
<i>Index</i>	245
<i>About the Author</i>	271

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Introduction

This *Rapid Review* is designed to help you assess—and complete—your readiness for MCTS exam 70-662: Microsoft Exchange Server 2010, Configuring. The *Rapid Review* series is intended for exam candidates who already have a solid grasp on the exam objectives through a combination of experience, skills, and study, and could use a concise review guide to help with the final stages of preparation.

The 70-662 exam is aimed at messaging generalists responsible for the maintenance and administration of the Exchange servers in an enterprise environment. Day to day, the candidate typically installs and manages Exchange Server 2010 SP2 and manages users, mailboxes, security, servers, and databases by using Exchange Server 2010. The candidate might also monitor and troubleshoot Exchange Server 2010 SP2 servers. Although this experience focuses on the Exchange Server 2010 messaging solution, you might have real world experience with other Microsoft messaging solutions such as Exchange Server 2007 or Exchange Server 2003 that you can build on and apply. Most candidates who take this exam work in an environment in which Exchange Server 2010 either has been deployed or is about to be deployed. It is important to note that you should have real-world experience with Exchange Server 2010 prior to taking the 70-662 exam; having practical knowledge is a key component to achieving a passing mark.

This book will review every concept described in the following exam objective domains:

- Installing and Configuring Exchange Servers
- Configuring Exchange Recipients and Public Folders
- Configuring Client Access
- Configuring Message Transport
- Monitoring and Reporting
- Implementing High Availability and Recovery
- Configuring Message Compliance and Security

This is a Rapid Review and not a comprehensive exam prep or skills training resource such as the Microsoft Press *Self-Paced Training Kit*. The book covers every exam objective for the 70-662 exam as presented in the objective domain. The exam team does not give anyone access to the exam questions and regularly adds new questions to the exam, which makes complete coverage a real challenge. The coverage in this book is as complete as possible based on the information available. This book should be an excellent supplement to your existing independent study and real-world experience with the product.

If you encounter a topic in this book with which you do not feel completely comfortable, you can visit the links described in the text, research the topic further by using Microsoft TechNet, and consult support forums. If you review a topic and find that you don't understand it, you should consider consulting books such as the *MCTS Self-Paced Training Kit (Exam 70-662): Configuring Microsoft® Exchange Server*

2010 and the Microsoft® Exchange Server 2010 Administrator's Pocket Consultant from Microsoft Press. You can also purchase practice tests, or use the one available with the Training Kit, to determine if you need further study on particular topics.

NOTE *MCTS Self-Paced Training Kit (Exam 70-662): Configuring Microsoft® Exchange Server 2010* provides comprehensive coverage of each 70-662 exam objective, along with exercises, review questions, and practice tests. The Training Kit also includes a discount voucher for the exam.

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Acknowledgments

I'd like to thank my friend and associate, Ken Jones at O'Reilly, for his continuing faith in me as an author and his invaluable support in writing this book. I've worked with Ken on many books and it's always a pleasure and a privilege to collaborate with a true professional.

I'm delighted that my writing colleague and good friend, Orin Thomas, is the Series Editor for the Rapid Review books. There could not be a better person for the job. Orin's technical knowledge and writing skills are very highly regarded, and there is no way that he's going to let anything past him that does not adhere to his high standards (I'm glad to say).

I'm very grateful for the invaluable technical help given to me by Craig Brown. I'd also like to thank Randy Muller, the Technical Reviewer; Holly Bauer, the Production Editor; Christie Rears, the Vendor Coordinator; and Bob Russell, the Copyeditor. Without your assistance and professionalism, the book wouldn't have come together as well as it has!

As always I'd like to thank Anne, my lovely wife of 36 years, for her patience with me during the writing of this book. She hasn't been well herself recently, and I know this time it's been particularly hard for her. I'm infinitely grateful.

I'd also like to thank you, the reader, for picking up this book. If you have any questions about anything and would like to get in touch with me, you can email me at ianmclean84@gmail.com. If, however, you spot any errors (let's hope not), please go through the process described in the Errata section that follows. This keeps it official.

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Installing and Configuring Exchange Servers

Roughly 15 percent of the 70-662 exam focuses on the topic “Installing and Configuring Exchange Servers.” You need to have a good grasp of how to prepare the Active Directory infrastructure for Microsoft Exchange Server 2010 RTM and Microsoft Exchange Server 2010 SP1 or SP2 installation, the software and hardware requirements, and how to install the various Exchange server roles. You also need to know how to create and configure Exchange databases and address lists.

This chapter covers the following objectives:

- Objective 1.1: Prepare the infrastructure for Exchange.
- Objective 1.2: Install Exchange prerequisites.
- Objective 1.3: Install Exchange roles.
- Objective 1.4: Create and configure databases.
- Objective 1.5: Create and configure address lists.

Objective 1.1: Prepare the infrastructure for Exchange

In this exam objective, you might be tested on how to prepare the schema, Active Directory, and domains for Exchange installation. You might be asked about domain and forest functionality levels, domain controller service packs, and the Exchange readiness check. You need to know about configuring coexistence with Exchange Server 2003 or 2007; when to disable LinkState; Exchange Server Service Pack level; and unsupported legacy components that you need to remove.

Exam need to know

- Prepare the schema
For example: Do you know the *Setup* command that prepares the schema, and what role groups you need to be a member of to run this command?
- Prepare Active Directory
For example: Do you know the *Setup* command that prepares Active Directory Domain Services (AD DS), and what role groups you need to be a member of to run this command?

- Prepare the domain
For example: Do you know how to prepare individual domains for Exchange Server 2010 SP1 and SP2 installation?
- Ensure that the domain functionality level is correct
For example: Do you know what minimum domain and forest functional levels are required for the installation?
- Domain controller service packs
For example: Do you know whether you can install Exchange Server 2010 in an organization that has Windows 2000 Server domain controllers?
- Exchange readiness check
For example: Do you know which EMC wizard performs an Exchange readiness check?
- Coexistence
For example: Do you know where you should deploy the first Exchange Server 2010 server in a coexistence scenario?
- Migration from 2003 or 2007
For example: Where should you deploy the first Exchange Server 2010 servers?
- Disable LinkState
For example: Do you know what tool to use to suppress link state upgrades?
- Exchange Server service pack level
For example: Do you know what level of service pack must be installed on Exchange Server 2003 and Exchange Server 2007 servers before you can configure coexistence?
- Remove unsupported legacy components
For example: Do you know what domain controllers you need to remove or upgrade?
- Configuring DNS to support the Exchange deployment
For example: Do you know which tool installs the DNS server role and which tool you use to configure DNS?

Prepare the schema

The exam might test that you know what steps you need to take to set up an Exchange 2010 organization, even though the Installation Wizard is available to automate the process. You should know that unless you need to change the default permissions in an existing Exchange 2003 (only) deployment, the first step that you take to prepare Active Directory for Exchange Server 2010 installation is to prepare the schema.

True or false? You use a *Setup* command to prepare the schema.

Answer: *True.* The command *Setup /PrepareSchema* prepares the schema. You can run this command separately or it can run automatically as part of the installation of the first Exchange Server 2010 server in the organization. Prior to running the *Setup /PrepareSchema* command, you must ensure that you are logged in with a

user account that is a member of both the Schema Admins group and the Enterprise Admins group. Also, you must execute this command on a 64-bit computer in the same Active Directory domain and same Active Directory site as the computer that holds the Schema Master role.

True or false? As soon as you have run the *Setup /PrepareSchema* command from an elevated command prompt, you can go on to the next step and prepare AD DS.

Answer: *False.* If you run the *Setup* command from the command prompt, you need to wait for the subsequent changes that result from running this command to replicate across your organization prior to performing the next step of preparing Active Directory. (Note that if you perform a GUI install, replication occurs before the next step is implemented.)

Prepare Active Directory

You should be aware that when the changes implemented by running *Setup /PrepareSchema* have propagated throughout the organization, your next step is to use the *Setup /PrepareAD* command to prepare Active Directory. Unless an Exchange organization already exists in your forest, you need to specify the name of your new Exchange Server organization.

True or false? To successfully run the *Setup /PrepareAD* command, you must be logged in with a user account that is a member of the Schema Admins group.

Answer: *False.* You must be logged in with a user account that is a member of the Enterprise Admins group. Note that the user account does not need to be a member of the Schema Admins group.

MORE INFO To learn more about preparing Active Directory and domains, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb125224.aspx>.

True or false? You must run the *Setup /PrepareAD* command on a computer that is in the same domain and Active Directory site as the computer that holds the schema master role.

Answer: *True.* You should also ensure that the changes introduced by running this command are able to propagate across your organization before preparing domains.

Prepare the domain

You are expected to know that to prepare Active Directory for the introduction of Exchange Server 2010, you need to run the *Setup /PrepareDomain* or the *Setup /PrepareAllDomains* command.

True or false? The account used to run the *Setup /PrepareDomain* command must be a member of the Enterprise Admins group.

Answer: *True.* It should also be a member of the Domain Admins group in the domain against which the command is being run. If the domain is created after the execution of the *Setup /PrepareAD* command, the account used must also be a member of the Exchange Organization Administrators group.

True or false? Running *Setup /PrepareDomain* configures permissions for various groups but does not create any new groups.

Answer: *False*. Running the command also creates a domain global group called Exchange Install Domain Servers. Note that it is not necessary to run this command in the domain in which you ran the *Setup /PrepareAD* command.

EXAM TIP You first prepare the schema, then prepare AD DS, and then prepare the domains.

MORE INFO To learn more about preparing Active Directory and domains, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb125224.aspx>.

Ensure that the domain functionality level is correct

The exam might test that you know what steps to take to introduce Exchange 2010 into an Active Directory environment. You should be aware that the forest functional level must be configured at Windows Server 2003 or higher. Therefore, all domains within your forest must have a domain functional level of at least Windows Server 2003.

True or false? The forest functional level of Contoso.com is currently Windows Server 2003. The forest has three domains. Two of these are set at the Windows Server 2003 domain functional level, but you have raised the domain functional level of the third to Windows Server 2008. This enables you to raise the forest functional level of Contoso.com to Windows Server 2008.

Answer: *False*. To raise the forest functional level to Windows Server 2008, you first need to raise the domain functional level of all three domains to at least Windows Server 2008.

True or false? You can view the domain and forest functional level by using the Active Directory Domains and Trusts console. You can also raise the domain and forest functional levels by using this console.

Answer: *True*. You can use the Active Directory Domains and Trusts console to view and to raise both domain and forest functional levels.

MORE INFO To learn more about domain and forest functional levels, consult the TechNet document at [http://technet.microsoft.com/en-us/library/cc787290\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc787290(WS.10).aspx).

Domain controller service packs

You should know the basic infrastructure requirements for Exchange installation, such as the levels of operating system required on computers that have key roles in the AD DS infrastructure.

True or false? The computer that holds the Schema Master role in the forest and the computer that functions as a Global Catalog server in the site on which Exchange Server 2010 SP1 or SP2 is being installed must both be running the Windows Server 2003 SP2 operating system or later.

Answer: *True*. Windows Server 2003 SP2 is the minimum level of operating system in either case. (Note that if you are installing Exchange Server 2010 RTM, Windows Server 2003 SP1 is the minimum level of operating system for both schema master and global catalog servers.)

True or false? The only method of discovering which domain controller in the forest holds the schema master role is by using the Active Directory Schema snap-in, which is available by default for custom MMCs.

Answer: *False*. You can determine which computer in your environment holds the schema master role by using the Active Directory Schema snap-in and selecting Operations Master from the File menu. This snap-in is not available by default but becomes so for custom MMCs when you run the *regsvr32 schmmgmt.dll* command. You can also determine which computer holds the Schema Master role by running the command *dsquery server -hasfsmo schema* from an elevated command prompt. Alternatively, you can issue a PowerShell command. By using the PowerShell *Get-ADForest* cmdlet, you can find the schema and domain naming masters. With the PowerShell *Get-ADDomain* cmdlet, you can find the PDC Emulator, Infrastructure master, and RID master.

MORE INFO To learn more about the *dsquery server* command, consult the TechNet document at [http://technet.microsoft.com/en-us/library/cc732885\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc732885(WS.10).aspx).

Exchange readiness check

You should be aware that if you perform a GUI-based installation, prerequisite and system readiness checks are performed before installation starts. The results of these checks are written to the setup log file, which you can use to verify the installation.

True or false? The Exchange Server 2010 Installation Wizard automatically performs an Exchange readiness check.

Answer: *True*. When you install Exchange Server 2010 SP2 by using the Exchange Server 2010 Installation Wizard, the installation program performs an Exchange readiness check and informs you if any installation prerequisites have not been met.

Coexistence

You should know that Exchange 2010 supports coexistence with Exchange 2003, Exchange 2007, and mixed Exchange 2003 and Exchange 2007 environments. The exam might check that you are aware that it is not possible to directly upgrade a server running Exchange Server 2003 or Exchange Server 2007 to Exchange Server 2010. You should know what steps to take to configure a period of coexistence that allows the migration of organizational resources from servers running previous versions of Exchange to Exchange Server 2010.

True or false? If it is necessary to run the *Setup /PrepareLegacyExchangePermissions* command, you must run it before the *Setup /PrepareSchema* command.

Answer: *True*. If your organization has an existing Exchange 2003 deployment (but not a coexisting Exchange 2003 and Exchange 2007 organization), you must run the `Setup /PrepareLegacyExchangePermissions` command prior to running the `Setup /PrepareSchema` command. This ensures that the Exchange 2003 Recipient Update Service will function correctly after you update the schema.

EXAM TIP If an Exchange Server 2007 already exists in your messaging environment, the Exchange Server 2003 legacy permissions must already have been configured in order to support Exchange Server 2007 coexistence.

True or false? You can run the `Setup /PrepareLegacyExchangePermissions` command only against all domains in the forest, not against a single domain. Because of this, you cannot run this command unless your logged-in account is a member of the Enterprise Admins group.

Answer: *False*. If you run the command without additional options, all domains in the forest are prepared for Exchange Server 2010 SP2, and you need to be a member of the Enterprise Admins group to do this. However, you can run the command in individual domains, provided that you first run it in the domain that contains the server that holds the Schema Master role. If the command is being run for a specific domain, the account used to run the command must be a member of the Domain Admins group and must have been delegated the Exchange Full Administrator permissions.

MORE INFO To learn more about preparing legacy exchange permissions in an Exchange Server 2003 organization prior to the deployment of Exchange Server 2010, consult the TechNet document at: <http://technet.microsoft.com/en-us/library/aa997914.aspx>.

True or false? You should deploy the first Exchange Server 2010 SP2 servers in Internet-facing Active Directory sites when preparing for coexistence with Exchange Server 2007.

Answer: *True*. You should deploy the first Exchange Server 2010 SP2 server in Internet-facing Active Directory sites. This is because Client Access proxying works from Exchange Server 2010 SP2 Client Access servers to Exchange Server 2007 Client Access servers, but it does not work in the opposite direction.

MORE INFO To learn more about deploying Exchange Server 2010 in an environment that has an existing Exchange Server 2007 deployment, consult the TechNet document at <http://technet.microsoft.com/en-us/library/dd638158.aspx>.

Migration from 2003 or 2007

You are expected to know that migration from both Exchange 2003 and Exchange 2007 to Exchange 2010 is supported. You should know what steps to take to implement a transition to Exchange 2010 from an Exchange 2007 messaging system or a combined Exchange 2003 and Exchange 2007 messaging system.

True or false? Migration is the process by which you upgrade to Exchange 2010 by migrating data from an Exchange 2003 or 2007 organization to Exchange 2010.

Answer: *True*. In the migration scenario, you migrate the data without retaining any of the Exchange configuration from the first organization. The migration process includes installing a completely new Exchange 2010 organization, and then migrating mailboxes from the old messaging system to the new Exchange 2010 messaging system.

True or false? When transitioning to Exchange 2010, you can perform an in-place server upgrade on an existing Exchange server.

Answer: *False*. You must instead install a new Exchange 2010 server into the existing organization, and then move data to the new Exchange 2010 server.

MORE INFO To learn more about upgrading to Exchange 2010, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa998604.aspx>.

Disable LinkState

You should be aware that because Exchange 2010 does not use a link state routing table and does not support the relay of link state information, you need to suppress link state updates in Exchange Server 2003; otherwise, routing loops can occur. You need to know what steps to take to suppress these updates.

MORE INFO To learn more about deploying Exchange Server 2010 in an environment that has an existing Exchange Server 2003 deployment, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa998186.aspx>.

True or false? You use the Registry Editor on each Exchange Server 2003 server in the organization to suppress link state updates.

Answer: *True*. If the existing Exchange 2003 organization contains more than one routing group, and you are intending to configure more than one routing group connector between Exchange 2003 routing groups and Exchange 2010, you need to suppress link state update by using the Registry Editor to modify the registry on each Exchange Server 2003 server.

MORE INFO To learn more about configuring suppression of link state updates, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa996728.aspx>.

Exchange Server service pack level

If you are configuring coexistence with and migration from Exchange Server and Exchange 2003 organizations to an Exchange Server 2010 server, you need to be aware that SP2 must be installed on the Exchange Server 2003 and 2007 servers.

True or false? When preparing for coexistence between Exchange Server 2003 and Exchange Server 2010, you must ensure that the Exchange Server 2003 organization is configured to use Native mode and that all Exchange Server 2003 servers have SP2 installed.

Answer: *True*. If the Exchange Server 2003 organization is running in Mixed mode, you must configure it to use Native mode. All Exchange Server 2003 servers should have Service Pack 2 installed. In addition, you should introduce Exchange Server 2010 servers in Internet-facing sites first, and you should deploy Exchange Server 2010 roles in the following order: Client Access, Hub Transport, Mailbox, and Unified Messaging.

Remove unsupported legacy components

The exam might test that you know which operating systems or Exchange Server versions need to be upgraded or removed before you can install Exchange Server 2010 or configure coexistence. For example, because you need to raise forest and domain functional levels to Windows Server 2003, you need to remove or upgrade any Windows 2000 Server domain controllers in your environment. One or more domain controllers in each of your domains should be running at least Windows Server 2003 SP1 to configure coexistence.

Exchange 2010 does not support coexistence with Exchange 2000 Server organizations. To migrate from Exchange 2000 to Exchange Server 2010, you must first migrate Exchange 2000 Server to either an Exchange Server 2003 or an Exchange Server 2007 organization.

Configuring DNS to support the Exchange deployment

The exam might test that you know that when you are installing the DNS server role by using the Active Directory Domain Services Installation Wizard, and you want to set up DNS to support Exchange Server 2010 deployment, you should choose Active Directory integrated DNS with dynamic updates enabled. This setting provides a number of advantages, such as fail-over protection and AD DS replication. If necessary, you can use the DNS Management console to reconfigure DNS.

True or false? You cannot install Exchange Server 2010 in a forest that uses third-party name resolution servers. Active Directory integrated DNS is essential.

Answer: *False*. Exchange Server 2010 will work with most name resolution systems—even foreign systems such as BIND—but Microsoft recommends Active Directory integrated DNS.

True or false? Active Directory integrated DNS is typically used to meet the name resolution needs of Exchange servers that hold the Edge Transport role.

Answer: *False*. There are additional DNS requirements for Exchange servers that hold the Edge Transport role. These are discussed later in this chapter. Servers that hold the Edge Transport role are typically standalone servers on a peripheral network. It is possible to configure Active Directory integrated DNS to meet the name resolution needs of Edge Transport servers, but this is neither a typical nor a recommended solution.

Can you answer these questions?

You can find the answers to these questions at the end of this chapter.

1. TreyResearch.com is a single-domain forest. It contains domain controllers running Windows 2000 Server and Windows Server 2003 SP2. The domain functional level is Windows 2000 native. The forest functional level is Windows 2000. You have installed Windows Server 2008 R2 on a new 64-bit member server in the domain. You want to install Exchange Server 2010 SP2 on this server. What is the first task that you need to perform?
2. You have configured all the prerequisites for the installation of Exchange server 2010 SP2. Your single-domain forest contains member servers running Windows Server 2003 R2 (x64) Enterprise edition, Windows Server 2008 Enterprise edition with SP2 (x86), and Windows Server 2008 Standard edition with SP2 (x64). On which of these servers can you install Exchange Server 2010 SP2?
3. The MargiesTravel.com forest has a Windows Server 2003 forest functional level. The forest contains two domains and all domain controllers are running Windows Server 2003 R2. MargiesTravel.com has an existing Exchange Server 2003 deployment with Exchange servers in each domain. What command must you run first when configuring Active Directory for the introduction of Exchange Server 2010 SP2?
4. Adatum.com is a single-domain forest. Both domain and forest functional levels are set to Windows Server 2008. The Adatum.com forest currently uses Exchange Server 2003 SP2 as its messaging solution. What *Setup* commands do you need to issue to configure permissions and Active Directory so that you can install Exchange Server 2010 SP2 in a coexistence scenario, and in what order should you issue them?
5. What command can you issue from an elevated command prompt to determine which domain controller in your organization holds the schema master role?

Objective 1.2: Install Exchange prerequisites

In this exam objective, you might be tested on the installation of MMC 3.0; Windows PowerShell 2.0; Microsoft .NET 3.5; WinRM 2.0; IIS, and Windows roles and features. The exam might test that you know how to use ServerManagerCMD and Exchange prerequisite scripts.

Exam need to know

- Install MMC 3.0

For example: Do you know what version of Windows Server 2008 requires that you install MMC 3.0 before installing Exchange Server 2010?

- Windows PowerShell 2.0
For example: Do you know whether Windows PowerShell 2.0 is a prerequisite for Exchange 2010 installation on a computer running Windows Server 2008 R2?
- Microsoft .NET 3.5
For example: Do you know under what circumstances you need to install .NET 3.5?
- WinRM 2.0
For example: Do you know when WinRM 2.0 installation is required?
- IIS
For example: Do you know what exchange server roles require the installation of IIS 6.0?
- Windows roles and features
For example: Do you know what roles, role services, and features you need to install to support the Exchange Server 2010 SP2 Edge Transport server role?
- Use Exchange prerequisite scripts
For example: Do you know what XML script specifically supports the Client Access server role?
- Use ServerManagerCMD
For example: Do you know how to use the ServerManagerCMD utility to apply an XML prerequisite script?

Install MMC 3.0

You need to know the software installation prerequisites to prepare either a server running the x64 version of Windows Server 2008 with SP2 (or later) or a server running Windows Server 2008 R2 to support an Exchange Server 2010 RTM or Exchange Server 2010 SP1 or SP2 deployment.

True or false? You need to check that a server running Windows Server 2008 R2 is a 64-bit computer before you install Exchange Server 2010.

Answer: False. Windows Server 2008 R2 only comes in an x64 version, so you do not need to check the processor architecture.

True or false? If you do not intend to deploy the Hub Transport or Mailbox server roles on a computer running Windows Server 2008 R2 and Exchange Server 2010, no software prerequisites are required.

Answer: False. If you are going to deploy the Hub Transport or Mailbox server roles on a computer running Windows Server 2008 R2 and Exchange Server 2010, you need to obtain and install the 2007 Office System Converter: Microsoft Filter Pack. If you do not intend to deploy these Exchange server roles, then you can configure the required roles, role services, and features on a computer running Windows Server 2008 R2, and then install Exchange.

True or false? Before you can install Exchange Server 2010 SP2 on a computer running the x64 version of the Windows Server 2008 operating system with SP2 or later, you need to install MMC 3.0

Answer: *True*. The installation wizard identifies this requirement and guides you through the installation. If you are not using the wizard, you download and install the software from a Microsoft download site.

EXAM TIP If you are asked about installation prerequisites, read the question carefully to determine which operating system is specified. Remember also that Exchange Server 2010 is 64-bit software; you cannot install it on a 32-bit computer, no matter which version of Windows Server is installed.

Windows PowerShell 2.0

You should know the steps you need to take before you can install Exchange Server 2010 on a computer running the x64 version of the Windows Server 2008 operating system with SP2 or later. You should be aware that you need to install Windows PowerShell 2.0. As with MMC 3.0, you do not need to install this on a computer running Windows Server 2008 R2.

Microsoft .NET 3.5

As with the previous two software requirements, you should know that you need to install Microsoft .NET Framework 3.5 Service Pack 1 and Microsoft .NET Framework 3.5 Family Update for Windows Vista x64, and Windows Server 2008 x64 on a computer running the x64 version of the Windows Server 2008 operating system with SP2 or later before you install Exchange Server 2010.

WinRM 2.0

You need to know that before you can install Exchange Server 2010 on a computer running the x64 version of the Windows Server 2008 operating system with SP2 or later, you need to install WinRM 2.0

True or false? You also need to install Filter Packs, but only if the Exchange Server SP1 computer is to be configured with the Hub Transport or Mailbox server role.

Answer: *True*. You need to install the Office 2010 Filter Packs. This applies to computers running either the x64 version of the Windows Server 2008 operating system with SP2 or later, or to computers running Windows Server 2008 R2. Note that if you are installing Exchange Server 2010 RTM, you can use the 2007 Office System Converter Microsoft Filter Pack.

IIS

The exam might test that you know when you need to install IIS 6.0 (or later) before installing Exchange Server 2010.

True or false? You need to install IIS 6 Metabase Compatibility and IIS 6 Management Console if you intend to deploy the Edge Transport role.

Answer: *False*. You need to install this software if you intend to deploy one or more of the Mailbox, Hub Transport, or Client Access roles. Note that this is a requirement that applies to Windows Server 2008 SP2 and Windows Server 2008 R2.

Windows roles and features

You should be aware that each Exchange Server 2010 role is dependent upon roles, role services, and features on either Windows Server 2008 x64 version SP2 or Windows Server 2008 R2 servers. You need to know that the roles, role services, and features that you install depend on the Exchange server role or roles that you intend to deploy on the server platform. You need to be logged in using an account that is a member of the local Administrators group on the computer you are configuring in order to install the roles, role services, and features required.

True or false? You need to install remote server administration tools (RSAT) to support every one of the Exchange Server 2010 server roles.

Answer: *True*. The roles, role services, and features that you need to install to support each of the Exchange Server 2010 server roles are as follows:

- **Hub Transport** RSAT, .NET Framework 3.5.1, Web Server, Web Server Basic Authentication, Web Server Windows Authentication, IIS 6 Metabase Compatibility, Web Server .NET Extensibility, IIS 6 Management Console, and Windows Process Activation Service Process Model.
- **Mailbox** This role has the same requirements as those for the Hub Transport server role.
- **Client Access** RSAT, .NET Framework 3.5.1, Web Server, Web Server Basic Authentication, Web Server Windows Authentication, Web Server Digest Authentication, IIS 6 Metabase Compatibility, Web Server .NET Extensibility, IIS 6 Management Console, Windows Process Activation Service Process Model, Web Server ISAPI Extensions, Web Server Dynamic Content Compression, .NET Framework HTTP Activation, and RPC over HTTP Proxy.
- **Edge Transport** RSAT, Active Directory Lightweight Directory Services, and .NET Framework 3.5.1.

True or false? You need to configure the Net.TCP Port Sharing Service if you want to deploy the Client Access server role.

Answer: *True*. If the server you are configuring is going to host the Client Access server role, you need to configure the Net.TCP Port Sharing Service so that it starts automatically. You can do this through the Services console or by issuing the command `sc config NetTcpPortSharing start=auto` from an elevated command prompt.

True or false? You can use the Server Manager console to add the required components.

Answer: *True*. Using the Server Manager console is relatively straightforward. The disadvantage is that it requires that you know precisely which roles, role services, and features must be deployed to support specific Exchange Server 2010 server roles.

Use Exchange prerequisite scripts

You need to know how you can use prepared XML-formatted answer files located in the Scripts folder of the Exchange Server 2010 installation media to support the prerequisites required for the various Exchange Server 2010 server roles. The answer files that are relevant to the Exchange server roles are as follows:

- **Exchange-All.xml** Supports the Client Access, Hub Transport, Mailbox, and Unified Messaging server roles.
- **Exchange-Typical.xml** Supports the Client Access, Hub Transport, and Mailbox server roles.
- **Exchange-CAS.xml** Supports the Client Access server role.
- **Exchange-Edge.xml** Supports the Edge Transport server role.
- **Exchange-Hub.xml** Supports the Hub Transport server role.
- **Exchange-MBX.xml** Supports the Mailbox server role.

Use ServerManagerCMD

The exam might test that you know how to use the ServerManagerCMD.exe command-line tool to apply a prerequisite script that adds the required components. For example, if you want to configure a server running Windows Server 2008 version x64 SP2 or Windows Server 2008 R2 so that you can install Exchange Server 2010 SP2 and support the Client Access, Hub Transport, Mailbox, and Unified Messaging server roles, you would issue the following command on the target server (note that the restart parameter is optional if you plan to restart the computer manually after the command runs):

```
ServerManagerCmd.exe -ip Exchange-All.xml -restart
```

MORE INFO To learn more about the ServerManagerCMD tool, consult the TechNet document at <http://technet.microsoft.com/en-us/library/dd184077.aspx>.

True or false? You can use PowerShell 2.0 commands directly to install the required roles, role services, and features. You do not require the PowerShell ServerManager module.

Answer: *False*. You can use PowerShell 2.0 commands for this purpose, provided the PowerShell ServerManager module is available. You can load the ServerManager module into an elevated PowerShell 2.0 window by issuing the following command:

```
Import-Module ServerManager
```

You can then use the PowerShell *Add-WindowsFeature* cmdlet to install the appropriate roles, role services, and features. For example the Edge Transport server role has the lowest number of prerequisites, and the command you need to issue on the server on which you intend to deploy this role is as follows:

```
Add-WindowsFeature NET-Framework,RSAT-ADDS,ADLDS
```

MORE INFO To learn more about the *Add-WindowsFeature* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/ee662309.aspx>.

Can you answer these questions?

You can find the answers to these questions at the end of this chapter.

1. You want to install Windows Server 2010 SP2 on a server running Windows Server 2008 R2. You need to support the deployment of the Mailbox, Hub Transport, and Client Access roles. What ServerManagerCMD command should you issue before restarting the server and installing Exchange?
2. You are installing roles, role services, and features on a computer running Windows Server 2008 R2, on which you intend to install Exchange Server 2010 SP2 and deploy the Edge Transport server role. You issue the PowerShell `Add-WindowsFeature NET-Framework,RSAT-ADDS,ADLDS` command. What roles and features does this add?
3. You have been tasked with installing Exchange Server 2010 SP2 on a computer running Windows Server 2008 R2, and you intend to deploy the Mailbox server role. What additional component do you need to obtain and install before configuring the required server roles, role services, and features, and installing Exchange?
4. Which Exchange Server 2010 server role requires that you install Web Server ISAPI Extensions before installing Exchange?
5. You intend to install Exchange Server 2010 SP2 on a server running Windows Server 2008 x64 version with SP2 installed. What additional components do you need to obtain and install? (A multiple choice exam question would probably give you a list of components and ask you to select those that are required.)

Objective 1.3: Install Exchange roles

In this exam objective, you might be tested on adding and modifying roles, adding server roles to existing Exchange 2003 or 2007 organizations, and verifying Exchange installation. You need to know when to use the Security Configuration Wizard (SCW), the port requirements for Windows Firewall, and how to install Exchange Server by using standard and custom installation. You should also know how to install Exchange Server by using the command line; provision an Exchange Server; delegate server installation; troubleshoot a failed installation; and add Exchange Server roles after an initial installation.

Exam need to know

- Adding and modifying roles from the command line and the GUI
For example: Do you know what the prerequisites are for installing Exchange Management tools on a workstation running Windows 7?
- Add server roles to existing Exchange 2003 or 2007 organizations
For example: What do you first need to configure before you add the Exchange Server 2010 Edge Transport server role to an existing Exchange Server 2003 organization?

- Verify Exchange installation
For example: How do you access the setup log?
- Security Configuration Wizard
For example: Which tool can you use to roll back a security policy?
- Windows firewall, including port requirements
For example: Which TCP port is used for Mailbox server MAPI access?
- Installing Exchange Server by using standard and custom installation
For example: Which Exchange server roles do you deploy on a single server during a standard installation?
- Installing Exchange Server by using the command line
For example: Which command do you use to start the installation of an Exchange Server 2010 server and deploy the Mailbox server role?
- Provisioning an Exchange Server and delegating server installation
For example: Which command would you issue to provision a server?
- Troubleshooting a failed installation
For example: Which tools are available to troubleshoot a failed installation?
- Adding Exchange Server roles after an initial installation
For example: Which command would you use to add the Client Access server role?

Adding and modifying roles from the command line and the GUI

You should know what permissions are required to install Exchange Server 2010 by running *setup.exe* (which implements the Exchange Installation Wizard GUI) from within an appropriately configured server. You should be aware that you can also run *setup.exe* automatically when you insert the Exchange Server 2010 installation media. You should know that another option is to run *setup.com* from an elevated command prompt. Commands such as *Setup /PrepareSchema* and *Setup /PrepareAD* were discussed earlier in this chapter. Installing Exchange Server 2010 from the command prompt and managing server roles after installation are described later in this Objective.

In a production network, application servers such as messaging servers are often administered from administrative workstations, and you need to know how to install Exchange Administrator tools on such a workstation.

True or false? The Exchange Installation Wizard lets you perform only a typical installation.

Answer: *False*. When you run the Exchange Installation Wizard you are given the choice between performing a typical (or standard) Exchange Server installation and performing a custom Exchange Server installation. When you perform a typical installation, the Hub Transport, Client Access, and Mailbox server roles are deployed on the host server.

True or false? You can administer Exchange from a client workstation.

Answer: *True*. You can install only the Exchange Management tools but not Exchange itself. Typically, you would do this on an administrative workstation running Windows Vista SP2 (or later) or Windows 7. The prerequisites for installing Exchange Management tools on a workstation running Windows 7 are IIS6 Management Console and Microsoft .NET Framework 3.5.1. On a Windows Vista workstation, you need these prerequisites plus Microsoft .NET Framework 3.5 Family Update for Windows Vista x64 and Windows Server 2008 x64, WinRM 2.0, and PowerShell 2.0.

True or false? You can create a public folder database and configure Internet-facing addresses during installation.

Answer: *True*. If you choose to deploy the Mailbox server role, you are asked whether there are any client computers that are running Outlook 2003 or Entourage. If such computers are present, setup creates a public folder database. You can also create a public folder database retrospectively if the need arises.

True or false? If you run *setup.exe*, the wizard performs a readiness check.

Answer: *True*. The Exchange Installation Wizard performs a set of readiness checks based on the roles that you have chosen to install on the server. If these readiness checks complete successfully, then you can proceed with the installation. Otherwise, you must address the specified issues.

MORE INFO To see a more detailed overview of the process of installing Exchange Server 2010, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb125143.aspx>.

Add server roles to existing Exchange 2003 or 2007 organizations

You should be aware that you can deploy the Exchange Server 2010 Edge Transport server role in an Existing Exchange 2003 organization before upgrading to Exchange 2010. Keep in mind that by doing this, you can provide anti-spam, antivirus, and transport rules processing for your Exchange organization. You are expected to know what steps to take to deploy and configure an Edge Transport server to act as a smart host in the perimeter network before you start upgrading your existing Exchange 2003 servers to Exchange Server 2010. When you install the first instance of Exchange Server 2010 into an existing Exchange Server 2007 organization, you should install the Client Access server role first, followed by the Hub Transport server role, followed by the Unified Messaging server role, and last, the Mailbox server role.

True or false? If you want to create an Edge Subscription, you must deploy at least one Exchange 2010 Hub Transport server in the Exchange organization and configure the organization for coexistence.

Answer: *True*. Because no computers running Microsoft Exchange Server 2010 are currently deployed in the Exchange organization before you introduce the Edge Transport server role, you cannot use features that rely on Edge Subscription, for example, recipient lookup and safelist aggregation.

True or false? To deploy the Exchange Server 2010 Edge Transport server role, you must first create a Send connector from the Edge Transport server to the Internet.

Answer: *True*. You can use the New Send Connector Wizard in the EMC on the Edge Transport server to create this Send connector. You select Internet as the intended use and specify all (an asterisk) in the SMTP Address Space dialog box. You can also use the EMS *New-SendConnector* cmdlet. For example, the following command creates a Send connector named Internet that uses DNS to route messages:

```
New-SendConnector -Name "Internet" -AddressSpaces * -Usage Internet  
-DNSRoutingEnabled $true
```

MORE INFO To learn more about deploying the Exchange Server 2010 Edge Transport server role in an Existing Exchange 2003 Organization, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb124011.aspx>.

EXAM TIP Remember that if you use a smart host to route messages to the Internet, you need to configure the Send connector to use the smart host at its specified IP address instead of DNS to route messages.

True or false? When you introduce the Exchange Server 2010 Client Access server role into an Exchange Server 2007 organization, you need to perform additional configuration steps on your Client Access server.

Answer: *True*. Because the Client Access server role is the first Windows Server 2010 role introduced into the Exchange Server 2007 organization, you need to enable Outlook Anywhere (if used), configure the virtual directories for the Offline Address Book (OAB), Exchange Web Services, Microsoft Exchange ActiveSync, OWA, and Exchange Control Panel (ECP). You also need to configure OWA settings and Exchange ActiveSync authentication settings.

EXAM TIP Remember that Client Access is the first Exchange 2010 server role installed into an Exchange Server 2007 organization, and you need to enable Outlook Anywhere, configure various virtual directories, and configure OWA settings and Exchange ActiveSync authentication settings.

MORE INFO To learn more about installing Exchange 2010 in an existing Exchange 2007 organization, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb124350.aspx>.

Verify Exchange installation

You should be aware that when you run the Exchange Installation Wizard, the completion summary indicates whether each step of the setup process has completed successfully. You need to know that you can view the setup log when setup completes by clicking View Setup Log on the Completion page. The exam might test that you know how to view this file directly by using a text editor such as Notepad. The log is stored at `C:\ExchangeSetupLogs\ExchangeSetup.log`.

True or false? You can use EMS commands to verify installation.

Answer: *True*. You can verify that Exchange Server 2010 has been deployed successfully by using the EMS *Get-ExchangeServer* cmdlet. For example, the following command displays information about Exchange Server VAN-EX1:

```
Get-ExchangeServer -Identity VAN-EX1 | Format-List
```

The output of this command will inform you of which roles have been deployed, the path where Exchange files have been installed, the network name of the Exchange server, and the location of the Exchange Server's Active Directory object.

MORE INFO To learn more about verifying an Exchange Server 2010 installation, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb125254.aspx>.

Security Configuration Wizard

You should know that the Security Configuration Wizard (SCW) guides you through the process of creating, editing, applying, or rolling back a security policy. You should know what steps to take to create or modify a security policy for a server, based on its role.

True or false? You can use the SCW to minimize the attack surface of a computer.

Answer: *True*. By using the SCW, you can minimize the attack surface of a computer by disabling functionality that is not required by the server in performance of its roles.

MORE INFO For more information about the SCW, consult the TechNet document at [http://technet.microsoft.com/en-us/library/cc771492\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc771492(WS.10).aspx).

Windows firewall, including port requirements

The Exchange Server 2010 setup process configures Windows Firewall with Advanced Security so that all necessary ports required to support the roles that you deploy are open for server and client communication. You should be aware that because this process occurs automatically, it is not necessary to use the SCW tool to configure these settings.

True or false? If an additional hardware firewall is installed, you might need to configure its ports.

Answer: *True*. In some cases, it will be necessary to configure the ports on a separate hardware-based firewall—for example, if you have a hardware firewall separating subnets on your organization's internal network. The most commonly used ports for each role are as follows:

- **25** Hub Transport, Edge Transport server SMTP traffic
- **135** Mailbox server MAPI access
- **80** Client Access server Autodiscover, availability, OWA, Outlook Anywhere, Exchange ActiveSync

- **443** Client Access server secure (SSL) Autodiscover, availability, OWA, Outlook Anywhere, Exchange ActiveSync

MORE INFO To learn more about the network ports that are used by Exchange Server 2010, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb331973.aspx>.

Installing Exchange Server by using standard and custom installation

You should know that typically you install Exchange Server 2010 and deploy the Hub Transport, Client Access, and Mailbox server roles on a single server. However, you should also know what steps you need to take to customize your Exchange deployment and, for example, deploy only one server role. You might want to automate the process and perform unattended installations of Exchange Server 2010. You also might want to delegate installation tasks to your team members without giving them unnecessary privileges in your Exchange organization.

True or false? You must prepare the environment before you install Exchange Server 2010.

Answer: *False*. In general, it is preferable to perform environmental preparation steps separately so that you can ensure that changes replicate successfully before attempting to deploy the first Exchange server in your organization. You can, however, choose to prepare Active Directory as a part of the setup process on the first Exchange Server 2010 server deployed in the forest. If you take this approach, the user account used to deploy Exchange Server 2010 must be a member of the Enterprise Admins, Schema Admins, and Domain Admins groups, as well as a member of the local Administrators group on the server that will host Exchange. When you perform this type of deployment, you also need to install Exchange in the same site and domain as the computer that hosts the Schema Master.

True or false? You must deploy Mailbox and Hub Transport roles in each Active Directory site. You must deploy the Client Access role in each site that has a Mailbox server.

Answer: *True*. For email messages to flow correctly, you need at least one Hub Transport server and one Mailbox server at each site. You need at least one Client Access server in each site that has a Mailbox server.

True or false? You can deploy the Unified Messaging and Edge Transport roles on a single Exchange server.

Answer: *False*. You cannot deploy the Edge Transport role on the same server as other roles.

Installing Exchange Server by using the command line

You should know how to start installation and optionally specify an answer file with a command such as `Setup.com /Mode:Install /Roles:Mailbox`.

True or false? You can use *setup.com* in an unattended installation script.

Answer: *True*. You can use *setup.com* to specify the location of a local directory that hosts updates, install language packs, and specify installation options such as whether Exchange supports legacy Outlook clients. You can include the *setup.com* command with all required options in an unattended installation script. The user account used to uninstall or modify Exchange must be a member of the Organization Management role as well as a member of the local Administrators group on the host server.

EXAM TIP Performing an unattended installation of Exchange Server 2010 is not specifically mentioned in the 70-662 exam objectives and is unlikely to be tested in depth. It is probably sufficient to know that you need to include a *setup.com* command in the installation script. Be careful to distinguish between *setup.com*, which you use to install or remove Exchange roles from the command line, and *setup.exe*, which runs the Exchange Server 2010 installation routine from Windows Explorer.

MORE INFO You can find a list of *setup.com* options and more about performing unattended installations in the TechNet document at <http://technet.microsoft.com/en-us/library/aa997281.aspx>.

Provisioning an Exchange Server and delegating server installation

The exam might test that you know what steps to take to delegate the Organization Management role to enable another user to deploy Exchange Server 2010 in an existing Exchange 2010 organization. If, however, you want someone at a remote branch office to install Exchange Server 2010 and do not want to add this user to this role group, you should be aware that you can configure a Delegated Setup role group so that an account in that group is permitted to install a single, specified Exchange server in the domain. This allows the local administrator to complete the designated task without conferring unnecessary administrative privileges.

True or false? Members of the Delegated Setup role group can provision servers.

Answer: *False*. Local administrators who are members of the Delegated Setup role group are able to deploy Exchange Server 2010, provided the host server has been provisioned by a member of the Organization Management role group. Members of the Organization Management role group can provision servers by using the following command:

```
Setup.com /NewProvisionedServer:ServerName
```

The first server in the domain must be installed by using a user account that is a member of the Organization Management role group as well as the local Administrators group. Members of the Delegated Setup role are also unable to uninstall an Exchange Server. It is only possible to uninstall or remove Exchange Server 2010 by using an account that is a member of the Organization Management role as well as the local Administrators group on the host server.

MORE INFO To learn more about delegated setup, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb201741.aspx>.

Troubleshooting a failed installation

You should be aware that if you carry out a GUI-based installation, the Exchange Installation Wizard indicates whether each task you perform completes successfully, and why a task failed. You should know how to troubleshoot a failed installation by using the same procedures that you employ to verify a successful one, namely, running the *Get-ExchangeServer* cmdlet or viewing the setup log.

Adding Exchange Server roles after an initial installation

The exam might test that you know how to use *setup.com* to deploy and remove Exchange Server 2010 roles. The *setup.com* options that you are most likely to be tested on in the 70-662 exam involve installing, adding, or removing roles. You should know that you can also use the Programs And Features item in Control Panel to add or remove roles from a computer running Exchange Server 2010 after setup has completed.

True or false? You cannot use abbreviations in a *setup.com* command.

Answer: *False*. *Setup.com* commands for installing roles can use abbreviations. For example, you can specify roles by using the following terms:

- HubTransport, HT, or H
- Mailbox, MB, or M
- ClientAccess, CA, or C
- EdgeTransport, ET, or E
- UnifiedMessaging, UM, or U

You can also abbreviate the option */mode:install* to */M:Install*.

For example, the command

```
Setup.com /mode:install /role:Mailbox,HubTransport
```

accomplishes the same thing as the command:

```
Setup.com /mode:install /r:M,H
```

This can be further abbreviated as follows:

```
Setup.com /M:Install /r:M,H
```

In all its formats, this command installs the Mailbox and Hub Transport server roles.

True or false? You can use the *setup.com* command to remove roles.

Answer: *True*. The */mode:uninstall* option removes a role. If no specific roles are selected, this option removes the Exchange installation. For example, the following command removes the Hub Transport server role:

```
Setup.com /M:Uninstall /r:HT
```

Can you answer these questions?

You can find the answers to these questions at the end of this chapter.

1. What command do you issue from an elevated command prompt to add the Hub Transport server role on a computer running Exchange Server 2010 SP2?
2. You have just completed the installation of Exchange Server 2010 SP2 on a server running Windows Server 2008 R2, and you want to view the setup log by using Notepad. By default, where is this file stored?
3. What are the prerequisites for installing Exchange Management tools on a workstation running Windows 7?
4. You are a member of the Organization Management role group and you want another user who is a member of the Delegated Setup role group to deploy Exchange Server 2010 SP2 on the server VAN-SRV1. What command do you issue to provision this server?
5. You want to deploy the Exchange Server 2010 Edge Transport server role in an Exchange Server 2003 organization that currently has no servers running Exchange Server 2010 configured. What is the first step you should take?

Objective 1.4: Create and Configure databases

In this exam objective, you might be tested on setting database limits and retention limits. You need to know what role-based access control (RBAC) permissions are required for database creation, and how to create new mailbox databases, move the mailbox database and transaction log locations, and configure mailbox database settings. You also need to know how to create and manage public folder databases, set the default public folder database, and configure public folder database settings. You need to be able to maintain, mount, and dismount databases.

Exam need to know

- Set database limits
For example: Do you know how to configure a size limit for a mailbox database?
- Set retention limits
For example: Do you know how to configure deleted item retention times?
- Set RBAC permissions for database creation
For example: Do you know what RBAC role membership you need to create a mailbox database?
- Naming conventions
For example: Do you know how to specify the default database name that is created when you install the Mailbox server role?
- Create and use GUI and Windows PowerShell
For example: Do you know how to create a new mailbox database by using the appropriate EMC wizard?

- Create and manage public folder databases
For example: Do you know how to create a new public folder database?
- Set Default Public Folder Database
For example: Do you know how to specify a default public folder database for a mailbox database?
- Maintenance
For example: Do you know how to configure a database maintenance schedule?
- Mount and dismount databases
For example: Do you know how to dismount a database?
- Create new mailbox databases
For example: Do you know how to use the EMS to create a mailbox database?
- Configure mailbox database settings
For example: Do you know how to configure the warning quota for a mailbox database?
- Move the mailbox database and transaction log locations
For example: Do you know how to specify a new path to the database file and move the file to the new location?
- Configure public folder database settings
For example: Do you know how to configure the quota notification schedule for all public folders in a public folder database?

Set database limits

You should be aware that Exchange Server 2010 stores mailboxes and public folders in Exchange databases and that Mailbox servers can contain both public folder and mailbox databases. Each database is stored in a single Extensible Storage Engine database (.edb) file.

True or false? You can use the EMC to configure database size limits.

Answer: *False.* You can configure options by using the database Properties dialog box in the EMC. The Limits tab lets you specify the limits at which warning messages are sent, Send is prohibited, and Send and Receive are prohibited. It does not, however, let you specify the size limit for the mailbox database.

True or false? You can use the EMS to configure database size limits.

Answer: *False.* To do this, you need to configure the registry of the server running Exchange Server 2010 that hosts the database. You need to know the database GUID, which you can obtain by using the EMS *Get-MailboxDatabase* cmdlet. You then use the Registry Editor (regedit.exe) to locate and edit the following registry subkey:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\MSExchangeIS
\<server name> \Private-<database GUID>
```

MORE INFO To learn more about modifying database size limits, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb232092.aspx>.

Set retention limits

The exam might test that you know how to set retention limits such as the deleted items and deleted mailboxes retention limits. You should also know what steps to take to configure a database so that items are not deleted until the database has been backed up. You can configure these settings by accessing the Limits tab of the database Properties dialog box.

True or false? You can use the EMS to configure database properties.

Answer: *True*. For example, the following command configures a deleted item retention time of 14 days for the mailbox database MyMailboxDatabase:

```
Set-MailboxDatabase -Identity "MyMailboxDatabase"  
-DeletedItemRetention 14.00:00:00
```

Set RBAC permissions for database creation

You should be aware that to create mailbox or public folder databases, you need to be (at least) a member of the Organizational Management RBAC role group. Members of this role group have administrative access to the entire Exchange 2010 organization and can perform any task against any Exchange 2010 object, except for mailbox searches and management of top-level management roles. You also need to be a member of the Server Management RBAC role group on the Mailbox server on which you are creating the database. Members of this role group can configure server-specific mailbox features, such as database copies, certificates, transport queues, Send connectors, virtual directories, and client access protocols.

MORE INFO To learn more about mailbox permissions, consult the TechNet document at <http://technet.microsoft.com/en-us/library/dd638132.aspx>.

Naming conventions

You should be aware that you can use the *MdbName* parameter with the *setup.com* command to enter the default database name that is created when you install the Mailbox server role. This name must be unique within the organization. It is good practice to ensure that database names meet your organization's naming convention. Naming conventions make it easier to identify objects in your organization.

For example, to specify the default database name *MailboxDatabase01*, you would use the following command:

```
Setup.com /mode: Install /roles: Mailbox /MdbName:. MailboxDatabase01
```

Create and use GUI and Windows PowerShell

The exam might test that you can use the EMC New Mailbox Database Wizard or New Public Folder Database Wizard to create a mailbox database and a public folder database, respectively. Similarly, you should know how to use the EMS *New-MailboxDatabase* and *New-PublicFolderDatabase* cmdlets to perform the same tasks. Creating mailbox and public folder databases are discussed later in this Objective. You can edit the properties of mailbox or public folder databases by accessing the Properties dialog box for the relevant database or by using the EMS *Set-MailboxDatabase* and *Set-PublicFolderDatabase* cmdlets. With the Move Database Path Wizard, you can change a database location, as you can with the EMS *Move-DatabasePath* cmdlet.

Create and manage public folder databases

You should know that a public folder database is an Exchange database that stores public folders and system folders, and assists in the replication of the folders with other Exchange servers. A Mailbox server can host a maximum of one public folder database. Exchange Server 2010 supports public folder functionality. You need to configure public folders if your clients are using IMAP4 or WebDAV clients such as Entourage or Microsoft Outlook 2003 SP1 (or earlier). You need to be granted the Exchange Organization Administrator role and be a member of the Local Administrators group on the target server to create and manage a public folder database.

True or false? You can use the *New-PublicFolderDatabase* cmdlet to create a public folder database.

Answer: *True*. You can use either the New Public Folder Database Wizard in the EMC or the EMS *New-PublicFolderDatabase* cmdlet to create a public folder database. For example, the following command creates a public folder database named My Public Folder Database and specifies its file path and log file path:

```
New-PublicFolderDatabase -Name "My Public Folder Database"  
-EdbFilePath "C:\Program Files\Microsoft\Exchange Server\Mailbox\  
PublicDatabase.edb" -LogFolderPath "D:\ExchangeDatabases\Public\Log\  
PublicDatabase"
```

MORE INFO To learn more about using public folder scripts, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa997966.aspx>.

True or false? Removing user or system public folders from a public folder database by using the EMS is a two-stage procedure.

Answer: *True*. You first need to identify the public folder by using the EMS *Get-PublicFolder* cmdlet and pipe the result into the EMS *Remove-PublicFolder* cmdlet. The following command removes all user public folders from the public folder database on the mailbox server VAN-EX1:

```
Get-PublicFolder -Server VAN-EX1 "*" -Recurse -ResultSize:Unlimited |  
Remove-PublicFolder -Server VAN-EX1 -Recurse -ErrorAction:SilentlyContinue
```

The following command removes all system public folders from the public folder database on the mailbox server VAN-EX1:

```
Get-PublicFolder -Server VAN-EX1 "\\Non_Ipm_Subtree" -Recurse  
-ResultSize:Unlimited | Remove-PublicFolder -Server VAN-EX1 -Recurse  
-ErrorAction:SilentlyContinue
```

MORE INFO To learn more about the *Get-PublicFolder* and *Remove-PublicFolder* cmdlets, including a description of the parameters used in the previous two commands, consult the TechNet documents at <http://technet.microsoft.com/en-us/library/aa997615.aspx> and <http://technet.microsoft.com/en-us/library/bb124894.aspx>.

Set default public folder database

You should be aware that each mailbox database is configured with a default public folder database. MAPI client applications such as Outlook 2010 open a connection to the default public folder database and perform operations that include viewing, creating, and deleting public folders against the server that contains that database. You need to know when it is necessary or advisable to change the default public folder database for a mailbox database. For example, in a coexistence scenario, you might need to change the default public folder database if your public folder database and your mailbox database are associated with different versions of Exchange.

True or false? You can use the *New-MailboxDatabase* command to change the default public folder database associated with a mailbox database.

Answer: *False*. You can specify a default public folder database on the Client Settings tab of the mailbox database Properties dialog box. You can also use the *Set-MailboxDatabase* (not the *New-MailboxDatabase*) cmdlet. For example, the following command specifies the public folder database PFDB01 as the default public folder database for mailbox database MailDatabase01:

```
Set-MailboxDatabase -Identity "MailDatabase01"  
-PublicFolderDatabase "PBDB01"
```

MORE INFO To learn more about specifying a default public folder database, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb629522.aspx>.

Maintenance

To ensure that your databases continue to operate efficiently, Microsoft recommends that you perform nightly maintenance on mailbox databases and public folder databases. Exchange Mailbox servers automate the maintenance tasks, such as the removal of items that have passed their retention period, the removal of unused indexes, and other cleanup tasks, but the exam might test that you know how to set the maintenance schedule.

True or false? There is no Maintenance tab in the Properties dialog box for a public folder database.

Answer: *True*. You set the maintenance schedule for a public folder database on the General tab. For a mailbox database, you use the Maintenance tab. You can also

use the *Set-MailboxDatabase* or *Set-PublicFolderDatabase* cmdlet as appropriate. For example, the following command sets the database schedule for the mailbox database MailDatabase01 on Server MBX01 to run between 02:00 and 04:00 hours on Sundays and Wednesdays:

```
Set-MailboxDatabase -Identity "MBX01\MailDatabase01"  
-MaintenanceSchedule "Sun.2:00-Sun.4:00","Wed.2:00-Wed.4:00"
```

MORE INFO To learn more about specifying a maintenance schedule for a mailbox database, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb691410.aspx>.

Mount and dismount databases

The exam might test that you know how to mount and dismount a mailbox database. You should be aware that mounting a mailbox database enables it to be used to provision new mailboxes.

True or false? When you use the EMS to create a new mailbox database, you can specify that it is mounted when it is created.

Answer: *False*. When you use the EMC to create a mailbox database, you would typically specify that it is mounted when it is created. However, if you use the *New-MailboxDatabase* cmdlet to create a mailbox database, you need to mount it after it is created. You can use the EMS *Mount-Database* cmdlet to do this. For example, the following command mounts the mailbox database *MyMailboxDatabase*:

```
Mount-Database -Identity MyMailboxDatabase.
```

The following command dismounts the mailbox database *MyMailboxDatabase*:

```
Dismount-Database -Identity MyMailboxDatabase
```

EXAM TIP Remember that the *New-MailboxDatabase* cmdlet syntax requires the *Name* parameter, whereas the syntax of cmdlets to configure, mount, dismount, or remove a database requires the *Identity* parameter.

MORE INFO To learn more about the *Remove-MailboxDatabase* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa997931.aspx>.

Create new mailbox databases

You should know how to create a mailbox database by running the New Mailbox Database Wizard from the EMC and specifying the database name, the server on which it resides, the location of the database file path, the location of the log folder path, and whether the database should be mounted when it is created. Mounting puts the database online so that its contents are available to users

True or false? You can create a mailbox database by using the EMS.

Answer: *True*. You can create a mailbox database by using the *New-MailboxDatabase* cmdlet. For example, the following command creates the mailbox database *MyMailboxDatabase* on server *VAN-EX1* and specifies the *.edb* database file path and the log folder path:

```
New-MailboxDatabase -Name "MyMailboxDatabase" -Server VAN-EX1
-EdbFilePath C:\MyDatabaseFiles\MyMailboxDatabase.edb
-LogFolderPath D:\MyDatabaseFiles\LogFolder
```

MORE INFO To learn more about the *New-MailboxDatabase* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa997976.aspx>.

True or false? You can use either the EMC or the EMS to remove a mailbox database.

Answer: *True*. To use the EMC, you click Mailbox under Organization Configuration. In the Work pane, click the mailbox database that you want to remove, and then in the Actions pane, click Remove. In the EMS, you use the *Remove-MailboxDatabase* cmdlet. For example, the following command removes the mailbox database *MyMailboxDatabase*:

```
Remove-MailboxDatabase -Identity MyMailboxDatabase
```

Configure mailbox database settings

The exam might check that you know how to set the following storage limits: Issue warning at (MB); Prohibit send at (MB); and Prohibit send and receive at (MB). You also need to know what steps you need to take to customize the Warning message interval, which is the time at which mailboxes are scanned for compliance with their storage limits. Other settings such as deleted item retention time and default public folder database are discussed elsewhere in this Objective.

True or false? You can use the *Set-MailboxDatabase* cmdlet to configure mailbox database settings.

Answer: *True*. You can use the EMC to access the database Properties dialog box or use the EMS *Set-MailboxDatabase* cmdlet. For example, the following command sets the warning quota to 600 MB, the prohibit send quota to 750 MB, and the prohibit send and receive quota to 950 MB on the mailbox database *My MailboxDatabase*:

```
Set-MailboxDatabase -Identity "My MailboxDatabase" -IssueWarningQuota 600MB
-ProhibitSendQuota -750MB ProhibitSendReceiveQuota 950MB
```

MORE INFO To learn more about configuring mailbox database properties, consult the TechNet document at <http://technet.microsoft.com/en-us/library/dd297937.aspx>.

Move the mailbox database and transaction log locations

You need to know that each mailbox database has a single set of transaction logs that record changes. Their primary function is to ensure that Exchange Server 2010 follows the Atomicity, Consistency, Isolation, and Durability model for databases.

Each individual database and its transaction logs are by default stored in the same folder—but in a different folder from all other databases. By default, the folders that hold the databases are stored in the folder path `C:\Program Files\Microsoft\Exchange\Server\v14\Mailbox`.

EXAM TIP In Exchange Server 2010, each database must have its own set of transaction logs. If you see an answer in the 70-622 examination that proposes shared transaction logs or a storage group, then you can reject this answer.

True or false? You can use the `Set-MailboxDatabase` cmdlet to configure the database and transaction logs location.

Answer: *False*. In the EMC, you can right-click the database, and then click Move Database Path. You can also use the EMS `Move-DatabasePath` (not the `Set-MailboxDatabase`) cmdlet. For example, the following command configures a new path for the location of the mailbox database `MyMailDatabase01` and moves the related files to that location:

```
Move-DatabasePath -Identity MyMailDatabase01
-EdbFilePath C:\MyFolder\ MyMailDatabase01.edb
```

MORE INFO To learn more about moving the mailbox database path, consult the TechNet document at <http://technet.microsoft.com/en-us/library/dd351168.aspx>.

Configure public folder database settings

You should be aware that you can access the Properties dialog box for a public folder database through the EMC. This provides access to the General, Replication, Limits, and Public Folder Referral tabs. You should also know how to use the EMS to obtain and modify public folder database settings.

True or false? You can use the EMS to obtain but not to modify public folder database settings

Answer: *False*. You can use the EMC or the EMS to configure public folder database settings. The EMS `Get-PublicFolderDatabase` cmdlet can obtain the settings for all public folder databases in an Exchange 2010 organization or for a specified public folder database. For example, the following command lists the settings for all public folder databases in an Exchange organization:

```
Get-PublicFolderDatabase | fl
```

The following command lists the properties of the public folder database `MyPublicFolderDatabase` on the server `ServerA`:

```
Get-PublicFolderDatabase -Identity "ServerA\MyPublicFolderDatabase"
```

With the EMS `Set-PublicFolderDatabase` cmdlet, you can configure public server database settings. For example, the following command sets the issue warning quota to 2,000 MB and configures the quota notification schedule for all public folders in the public folder database named `MyPublicFolderDatabase`:

```
Set-PublicFolderDatabase -Identity MyPublicFolderDatabase  
-IssueWarningQuota 2000MB -QuotaNotificationSchedule "Mon.3:00 AM-Mon.3:20  
AM, Wed.3:00 AM-Wed.3:20 AM, Fri.3:00 AM-Fri.3:20 AM"
```

MORE INFO To learn more about the *Get-PublicFolderDatabase* and *Set-PublicFolderDatabase* cmdlets, consult the TechNet documents at <http://technet.microsoft.com/en-us/library/aa998827.aspx> and <http://technet.microsoft.com/en-us/library/aa997225.aspx>.

Can you answer these questions?

You can find the answers to these questions at the end of this chapter.

1. You have used the *New-MailboxDatabase* cmdlet to create a mailbox database called Finance on the server DEN-EX2. You want to enable this mailbox database to be used to provision new mailboxes. What EMS command do you issue?
2. You want to ensure that mailboxes in a mailbox database are retained for six weeks after deletion. What EMS cmdlet and parameter should you use to do this?
3. You want to set the default public folder database for the mailbox database named HRD Mail to the database HRD-DB on server GLAS-MBX1. What EMS command do you issue?
4. You want to ensure that the mailbox database named Manufacturing undergoes the removal of items that have passed their retention period, the removal of unused indexes, and other cleanup tasks. You want to schedule these operations so that they occur every Saturday between 10:15 and 11:45 PM. What EMS command do you issue?
5. You need to move the transaction log files for a specified mailbox. What EMS cmdlet do you use to carry this out?

Objective 1.5: Create and configure address lists

In this exam objective, you might be tested on creating and configuring email address policies, address lists, and OABs. You need to know how to publish address lists and use filterable properties.

Exam need to know

- Update legacy address lists
For example: Do you know how to upgrade default recipient filters on a legacy address list?
- Configure Offline Address lists
For example: Do you know what distribution method Outlook 2007 and Outlook 2010 clients typically use to access an OAB?

- Publish address lists
For example: Do you know how to add or remove address lists from an OAB?
- Filterable properties
For example: Do you know in what situations filterable policies are typically used?
- Creating and configuring email address policies
For example: Do you know how to edit an existing email address policy?
- Creating and configuring address lists
For example: Do you know how to create an address list that uses recipient filters to determine its membership?
- Creating and configuring OABs
For example: Do you know how to move OAB generation to another server?

Update legacy address lists

In a coexistence or migration scenario, you need to be aware that LDAP filtering syntax was used when customizing default Exchange 2003 address lists created during an Exchange installation. In Exchange 2010, the OPATH filtering syntax (used by PowerShell) replaces the LDAP filtering syntax. You need to know how to update the filtering syntax for any legacy default address lists from LDAP to OPATH. The following default address lists might need to be upgraded:

- All Users
- All Groups
- All Contacts
- Public Folders
- Default Global Address List

True or false? You use the EMS *Set-AddressList* cmdlet to upgrade default recipient filters. You cannot use the EMC for this purpose.

Answer: *True*. For example, the following command updates the All Groups default legacy address list:

```
Set-AddressList "All Groups" -IncludedRecipients MailGroups
```

MORE INFO To learn more about upgrading default address lists, consult the TechNet document at <http://technet.microsoft.com/en-us/library/dd335105.aspx>.

Configure Offline Address lists

You should know that an OAB is a copy of a collection of offline address lists, generated on an Exchange server and then downloaded to a client computer so that a Microsoft Outlook user can access the information it contains while disconnected from the Exchange organization. You should be aware that Exchange Server 2010 generates OAB files, compresses them, and then places them on a local share. You should know what steps to take to choose the address lists that are available to

offline users, and how to configure the distribution method. An OAB can be distributed to client computers by using web-based or public folder distribution (or both).

True or false? Outlook 2007 and Outlook 2010 clients can access the OAB by using the web-based distribution method.

Answer: *True*. Web-based distribution does not require public folders. When the OAB is generated, the Client Access server replicates the files. In web-based distribution, the HTTPS web address is the distribution point from which client computers can download the OAB.

True or false? Outlook 2003 SP1 or earlier clients access the OAB through public folder distribution.

Answer: *True*. Outlook 2003 SP1 (or earlier) clients that are working offline or through a dial-up connection access the OAB through public folder distribution. The OAB generation process places files directly in a public folder, and Exchange public folder replication copies the data to other public folder distribution points. OABs that use the public folder distribution method are sometimes termed *Legacy OABs*.

Publish address lists

You should know what steps to take to publish an address list by adding it to an OAB that is distributed to email clients. You should be aware that you can use the New Online Address Book Wizard in the EMC to create an OAB and specify either web-based or public folder distribution. If you use the EMS *New-OfflineAddressBook* cmdlet, an OAB with web-based distribution is created by default, unless you specify public folder distribution by using the *PublicFolderDistributionEnabled* parameter. For example, the following command creates the OAB MyOAB on DEN-EX1. This OAB uses the web-based distribution method and the default virtual directory:

```
New-OfflineAddressBook -Name "MyOAB" -AddressLists "\My Address List"
-Server DEN-EX1 -VirtualDirectories "DEN-EX1\OAB (Default Web Site)"
```

The following command creates an OAB named Other-OAB on server VAN-EX2 that uses the public folder distribution method and uses the public folder database MyPublicDatabase:

```
New-OfflineAddressBook -Name "Other-OAB" -AddressLists "My Address List"
-Server VAN-EX2 -PublicFolderDatabase "MyPublicDatabase"
-PublicFolderDistributionEnabled $true -Versions Version3,Version4
```

MORE INFO To learn more about the *New-OfflineAddressBook* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb123692.aspx>.

True or false? You can use only the EMS *Set-OfflineAddressBook* cmdlet to add or remove address lists from an OAB.

Answer: *False*. You can use the EMC to add or remove an address list from an OAB by accessing the OAB Properties dialog box. You can also use the EMS *Set-OfflineAddressBook* cmdlet to add or remove address lists from an OAB. For example, if you have an OAB named MyOAB that contains address lists MyAddressList01 and

MyAddressList02, you would issue the following command to add the address list MyAddressList03:

```
Set-OfflineAddressBook -Identity "MyOAB"  
-AddressLists MyAddressList01,MyAddressList02,MyAddressList03
```

If you subsequently wanted to remove MyAddressList01 from the OAB, you would issue the following command:

```
Set-OfflineAddressBook -Identity "MyOAB"  
-AddressLists MyAddressList02,MyAddressList03
```

MORE INFO To learn more about the *Set-OfflineAddressBook* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa996330.aspx>.

True or false? You can use the *Set-OfflineAddressBook* cmdlet to select the server on which the OAB is generated.

Answer: *False*. You can perform this task in the EMC by using the Move Offline Address Book Wizard. In the EMS you use the *Move-OfflineAddressBook* cmdlet. For example, the following command moves the generation task for a custom OAB named MarketingOAB to the server VAN-EX2:

```
Move-OfflineAddressBook -Identity "MarketingOAB" -Server VAN-EX2
```

MORE INFO To learn more about the *Move-OfflineAddressBook* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa998191.aspx>.

Filterable properties

You should know how to configure filterable properties in (for example) email policies, for which you might specify that a recipient is in a State or Province, a Department, or a Company. How you would use these filterable properties is discussed in the next section. Also, if you are using the *RecipientFilter* parameter to create an address list and want the address list to include recipients that are mailbox users and have *StateOrProvince* set to (for example) New York, you can again specify filterable properties to define this condition. These settings are discussed in the relevant sections later in this Objective.

Creating and configuring email address policies

You should be aware that a recipient must have an email address to receive or send email messages, and that email address policies generate the primary and secondary email addresses for your recipients. You should know how to use the EMC or the EMS to create and configure email address policies. You need to be a member of the Server Management and Organization Management role groups to create and configure email address policies.

True or false? You can use the EMS *New-EmailAddressPolicy* cmdlet to create an email address policy.

Answer: *True*. You can use the New E-Mail Address Policy Wizard in the EMC to create an email address policy. You can also use the EMS *New-EmailAddressPolicy* cmdlet. For example, the following command creates an email address policy that includes mailbox users in the Southeast Australia Adatum offices who will have email addresses that include their last name combined with the first two letters of their first name:

```
New-EmailAddressPolicy -Name "Southeast Australia"  
-IncludedRecipients MailboxUsers  
-ConditionalStateorProvince "Victoria","New South Wales"  
-EnabledEmailAddressTemplates "SMTP:%s%2g@southeast.adatum.com"
```

MORE INFO To learn more about creating an email address policy, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb125137.aspx>.

True or false? You should always use the EMC to edit an address policy.

Answer: *False*. You can use the EMC or the EMS to edit an email address policy. However, if you created the policy by using the EMS, some email address policy settings that you can set cannot be managed in the EMC. Microsoft recommends that if you used the EMS to create a policy, you should use the same tool to edit it.

You can use the Edit E-mail Address Policy Wizard in the EMC or the EMS *Set-EmailAddressPolicy* cmdlet to edit an email address policy. For example, the following command edits the email address policy Southeast Australia that currently includes recipients in Victoria and New South Wales to also include recipients in South Australia.

```
Set-EmailAddressPolicy -Identity "Southeast Australia"  
-ConditionalStateorProvince "Victoria","New South Wales","South Australia"
```

You should then issue the following EMS command to apply the policy to all existing users within the policy scope:

```
Update-EmailAddressPolicy -Identity "Southeast Australia"
```

MORE INFO To learn more about editing email address policies, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb124580.aspx>.

Creating and configuring address lists

You should be aware that an address list is a collection of recipient and other AD DS objects. The exam might ask you what object types an address list can contain, such as users, contacts, groups, public folders, conferencing, and other resources. You need to be assigned to the Organization Management role group to create an address list.

True or false? You can create an address list by using the *Set-AddressList* cmdlet.

Answer: *False*. You can use the EMC New Address List Wizard to create an address list. You can also use the EMS *New-AddressList* (not the *Set-AddressList*) cmdlet. For example, the following command creates the address list PennsylvaniaAddressList

by using the *RecipientFilter* parameter, and includes recipients that are mailbox users and have *StateOrProvince* set to Pennsylvania:

```
New-AddressList -Name PennsylvaniaAddressList  
-RecipientFilter {((RecipientType -eq 'UserMailbox')  
-and (StateOrProvince -eq 'Pennsylvania'))}
```

If you create an address list in the EMS, you need to apply it by using the EMS *Update-AddressList* cmdlet or the Apply Address List Wizard in the EMC.

MORE INFO To learn more about the *New-AddressList* and *Update-AddressList* cmdlets, consult the TechNet documents at <http://technet.microsoft.com/en-us/library/aa996912.aspx> and <http://technet.microsoft.com/en-us/library/aa997982.aspx>.

True or false? When you are creating an address list, you can define recipient filters.

Answer: *True*. You use recipient filters to determine what recipients are included in the list. For example, suppose that you want to create the address list *ColoradoStaff* that includes recipients who are mailbox users and have *StateOrProvince* set to Colorado. You then want to create the child address list *DenverStaff* in the *ColoradoStaff* parent container.

To create the address *ColoradoStaff* parent you would issue the following EMS command:

```
New-AddressList -Name "ColoradoStaff"  
-RecipientFilter {((RecipientType -eq 'UserMailbox')  
-and (StateOrProvince -eq 'Colorado'))}
```

To create the child address list *DenverStaff* in the *ColoradoStaff* parent container, you would issue the following EMS command:

```
New-AddressList -Name "DenverStaff" -Container "\ColoradoStaff"  
-ConditionalCustomAttribute1 "Denver"
```

MORE INFO To learn more about managing address lists, access the TechNet document at <http://technet.microsoft.com/en-us/library/aa997686.aspx> and follow the links.

True or false? You can use the EMS *Set-AddressList* cmdlet to configure an address list.

Answer: *True*. For example, the following command configures the address list *Adatum Delaware Branch* to include recipients that work in Adatum's Delaware office:

```
Set-AddressList -Identity "Adatum Delaware Branch"  
-ConditionalCompany Adatum -ConditionalStateOrProvince Delaware
```

EXAM TIP You can use the EMS *Get-AddressList* cmdlet to obtain the distinguished name (DN) of an address list and the EMS *Get-Recipient* cmdlet to list address list members.

MORE INFO To learn more about the *Set-AddressList* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa998847.aspx>.

True or false? You can use the *Update-AddressList* cmdlet to update an address list, based on conditional attributes.

Answer: *True*. The following command updates the address list Room3A under the container All Users\Administration to include all users who have this custom attribute:

```
Update-AddressList -Identity "All Users\Administration\Room3A"
```

MORE INFO For more information about the *Update-AddressList* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa997982.aspx>.

True or false? You use the EMS *New-GlobalAddressList* cmdlet to create a Global Address List (GAL).

Answer: *True*. For example, the following command creates a GAL named Contoso Global for recipients who are mailbox users and have their company listed as Contoso:

```
New-GlobalAddressList -Name "Contoso Global"  
-IncludedRecipients MailboxUsers -ConditionalCompany Contoso
```

EXAM TIP Exchange 2010 SP2 introduces the Address Book Policy (ABP) object. This can be assigned to a mailbox user and determines the GAL, OAB, room list, and address lists that are visible to that mailbox user. This enhancement helps to accomplish GAL separation for an on-premises organization that needs to run disparate GALs.

MORE INFO To learn more about the enhancements introduced by Exchange Server 2010 SP2, consult the TechNet document at <http://technet.microsoft.com/en-us/library/hh529924.aspx>.

For more information about the *New-GlobalAddressList* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/bb123785.aspx>.

Creating and configuring OABs

As mentioned earlier in this Objective, you can use the EMC New Online Address Book Wizard or the EMS *New-OfflineAddressBook* cmdlet to create an OAB. The exam might test that you know how to configure OAB properties and move the generation task for an OAB to another server. You should know how to edit the OAB Properties dialog box in the EMC or use the EMS *Set-OfflineAddressBook* cmdlet to configure OAB properties. For example, the following command modifies the time and date at which OAB generation occurs for MyOAB:

```
Set-OfflineAddressBook -Identity "MyOAB" -Schedule "Sat.2:00 AM-Sat.2:15 AM"
```

True or false? You can use the EMC Move Offline Address Book Wizard to move an OAB generation server.

Answer: *True*. You can also use the EMS *Move-OfflineAddressBook* cmdlet. For example, the following command moves the generation task for a custom OAB named MarketingOAB to the server VAN-EX2:

```
Move-OfflineAddressBook -Identity "MarketingOAB" -Server VAN-EX2
```

MORE INFO To learn more about the *Move-OfflineAddressBook* cmdlet, consult the TechNet document at <http://technet.microsoft.com/en-us/library/aa998191.aspx>.

Can you answer these questions?

You can find the answers to these questions at the end of the chapter.

1. You have created a custom OAB named WingTipToysGlasow. You want to move the generation task for this OAB from the server GLA-EX1 to the server GLA-EX2. What EMS command do you issue?
2. You want to create a GAL named Fabrikam – All Employees to include all mailbox users employed by Fabrikam. What EMS command do you issue?
3. You want to create an OAB named Offline-Contoso-Managers based on the Contoso-Managers address list. This OAB should be generated on the server named GlasgowMBX1 and should be available to Outlook 2003 and other MAPI clients. What EMS command should you issue?
4. What EMS cmdlet can you use to add or remove address lists from an OAB?
5. You want to create an email address policy for adatum.com that configures email addresses so that a recipient's last name is combined with the first two letters of his given name. For example: Don Hall would be halldo@adatum.com. What setting would you specify for the *EnabledEmailAddressTemplates* parameter of the *New-EmailAddressPolicy* cmdlet?

Answers

This section contains the answers to the "Can you answer these questions?" sections in this chapter.

Objective 1.1: Prepare the infrastructure for Exchange

1. You need to update the Windows 2000 Server domain controllers to Windows Server 2003 SP2. If the hardware specifications of these servers do not support this, then you need to demote them to member servers or remove them from the network. You can then raise the domain functional level to Windows Server 2003. By doing this, you in turn raise the forest functional level to Windows Server 2003.
2. The server running Windows Server 2008 Standard edition with SP2 (x64).
3. The *Setup /PrepareLegacyExchangePermissions* command.

4. *Setup /PrepareLegacyExchangePermissions, Setup /PrepareLegacyExchangePermissions, Setup /PrepareSchema, Setup /PrepareAD, and Setup /Prepare Domain*, in that order.
5. You issue the *dsquery server -hasfsmo* schema command.

Objective 1.2: Install Exchange prerequisites

1. *Servermanagercmd.exe -ip exchangetypical.xml*
2. RSAT, Active Directory Lightweight Directory Services, and .NET Framework 3.5.1
3. The 2007 Office System Converter: Microsoft Filter Pack
4. Client Access
5. The required additional components include the following:
 - Microsoft .NET Framework 3.5 SP1.
 - Microsoft .NET Framework 3.5 Family Update for Windows Vista x64, and Windows Server 2008 x64.
 - Microsoft Management Console (MMC) 3.0.
 - Windows Remote Management (WinRM) 2.0.
 - Windows PowerShell V2.
 - 2007 Office System Converter: Microsoft Filter Pack. This is only necessary if you intend to deploy the Hub Transport or Mailbox server role on the computer.

Objective 1.3: Install Exchange roles

1. You issue the command *setup.com /mode:install /role:HubTransport*. This can also be entered as *setup.com /M:Install /R:HT* or *setup.com /M:Install /R:H*. Note that the command is not case-sensitive.
2. It is stored at *C:\ExchangeSetupLogs\ExchangeSetup.log*.
3. The prerequisites are IIS6 Management Console and Microsoft .NET Framework 3.5.1.
4. You issue the *Setup.com /NewProvisionedServer VAN-SRV1* command.
5. You should first create a Send connector from the Edge Transport server to the Internet.

Objective 1.4: Create and configure databases

1. The *Mount-Database -Identity Finance* command.
2. You use the *Set-MailboxDatabase* cmdlet with the *DeletedItemRetention* parameter.
3. The *Set-MailboxDatabase -Identity "HRD Mail" -PublicFolderDatabase "GLAS-MBX1\HRD-DB"* command.
4. The *Set-MailboxDatabase -Identity Production -MaintenanceSchedule 6.22:15-6.23:45* command.
5. The *Move-DatabasePath* cmdlet.

Objective 1.5 Create and configure address lists

1. You issue the *Move-OfflineAddressBook -Identity "WingTipToysGlasgow" -Server GLA-EX2* command.
2. You issue the *New-GlobalAddressList -Name "Fabrikam - All Employees" -IncludedRecipients MailboxUsers -ConditionalCompany "Fabrikam"* command.
3. You should issue the *New-OfflineAddressBook -name "Offline-Contoso-Managers" -Server GlasgowMBX1 -AddressLists Contoso-Managers -PublicFolderDistributionEnabled \$true* command.
4. You can use the *Set-OfflineAddressBook* cmdlet.
5. You would specify *"SMTP:%s%2g@adatum.com"* for this parameter.

Index

Symbols

/m:recoverserver setup, 206

A

accepted domains, message transport routing, 141

Active Directory Federation Services. *See* AD FS

Active Directory, preparing, 3

Active Directory Rights Management Services. *See* AD RMS

Active Directory Schema snap-in, 5

ActiveSync, 82

client access settings, 83–84

configuring Autodiscover for, 84–85

external names, 83

mailbox policies, 84–85

Microsoft Windows file share, 83

monitoring connectivity, 161–162

virtual directory, 82

WSS (Windows SharePoint Services), 83

Add-ADPermission cmdlet, 68, 135

Add-ContentFilterPhrase cmdlet, 241

Add-DatabaseAvailabilityGroupsServer cmdlet, 184

Add-Mailbox cmdlet, 51

Add-MailboxDatabaseCopy cmdlet, 182, 183, 185

Add Mailbox Database Copy Wizard, 183

Add-PublicFolderAdministrativePermission cmdlet, 73

address lists

configuring, 30–37, 34–35

creating, 30–37, 34–35

publishing, 32–33

updating legacy lists, 31

Address Lists Management role, 56

Add-WindowsFeature cmdlet, 13

AD FS (Active Directory Federation Services), message integrity, 232–233

AD RMS (Active Directory Rights Management Services), 221–229

auditing, 228

configuring journaling, 223–224

configuring mailboxes, 225–226

configuring mail tips, 227–229

configuring RMS, 222–223

enabling message classifications, 225–226

transport rules, 229

agent logs, 171

anonymous relay, 138

answer files

Exchange server roles, 13

anti-spam

configuring

agents, 239

file and process exclusions, 235

PCL, 237

quarantine mailboxes, 240

RBL (real-time block list), 238–239

Safe Senders option, 237

SCL (Spam Confidence Level), 236

Sender ID, 237

SPF (sender policy framework)

records, 239–240

SRL (sender reputation level), 239–240

transport rules, 236

updating content filters, 241–242

configuring Exchange 2010, 234–242

configuring SCL/PCL, 49

disabling anti-spam processing, 49

stamps, 49

antivirus

configuring

file and process exclusions, 235

PCL, 237

quarantine mailboxes, 240

RBL (real-time block list), 238–239

Safe Senders option, 237

SCL (Spam Confidence Level), 236

Sender ID, 237

SPF (sender policy framework)

records, 239–240

SRL (sender reputation level), 239–240

transport rules, 236

updating content filters, 241–242

configuring Exchange 2010, 234–242

auditing, 228

authentication, 82

message transport routing, 139

NT LAN Manager (NTLM), 89

OWA, 105

authoritative domains, message transport dumpster, 124

Author role, 72

Autodiscover

- Autodiscover, 81–82
 - configuring for ActiveSync, 84–85
 - Outlook Anywhere, 86
- AutomateProcessing parameter, 60
- automatic booking, 60–61
- availability
 - Database Availability Group (DAG), 179–180
 - configuring, 180–181
 - continuous replication management, 186
 - creating, 180–181
 - database copies, 183–184
 - failover priority configuration, 184
 - file share witness (FSW), 181–182
 - lag configuration, 182–183
 - mailbox database copies, 185
 - replication latency, 182
 - server members, 184
 - non-mailbox server configuration, 198–199
 - Client Access servers, 201–202
 - DNS round robin, 199
 - Edge Transport server, 202
 - Hub Transport servers, 202
 - MX records, 199
 - NLB, 200–201
 - public folders, 194
 - message tracking, 197
 - recovering, 197–198
 - replicas, 195
 - schedules, 196–197

B

- backpressure thresholds, monitoring mail flow, 155
- Backup Once Wizard, 209
- backups
 - creating schedule, 193–194
 - recovering server roles, 208–209
- baselines, scans, 167
- browsers, OWA, 103–104

C

- Calendar sharing, 95
- CAs (Certificate Authorities), federated sharing, 92–93
- CAS (Client Access Server), enabling Outlook Anywhere, 89–90
- Categorizer, 133
- certificates
 - assigning services to, 80
 - federated sharing, 92–93

- managing, 79–80
 - message integrity, 232–233
 - message transport routing, 137–138
 - Outlook Anywhere, 87–88
 - OWA, 102
 - self-signed, 79–80
 - S/MIME, 230
 - X509, 93
- Clean-MailboxDatabase cmdlet, 192
 - Clear-ActiveSyncDevice cmdlet, 81
 - client access
 - configuring
 - ActiveSync client access settings, 83–84
 - ActiveSync external names, 83
 - ActiveSync virtual directory, 82
 - authentication, 82
 - Autodiscover, 81–82
 - Autodiscover for ActiveSync, 84–85
 - certificates, 79–80
 - Direct Push, 84
 - IMAP4, 77–85
 - mobile device policies, 80–81
 - Outlook Anywhere, 85–91
 - POP3, 77–85, 78–79
 - RPC, 85–91
 - Outlook Anywhere
 - Autodiscover, 86
 - certificates, 87–88
 - client access arrays, 87
 - SANs, 88
 - client access arrays (Outlook Anywhere), 87
 - Client Access role, 12
 - Client Access server, enabling Outlook Anywhere, 89–90
 - Client Access servers
 - non-mailbox high availability, 201–202
 - recovering roles, 204
 - Cluster Continuous Replication (CCR), 206
 - cmdlets
 - Add-ADPermission, 68, 135
 - Add-ContentFilterPhrase, 241
 - Add-DatabaseAvailabilityGroupsServer, 184
 - Add-Mailbox, 51
 - Add-MailboxDatabaseCopy, 182, 183, 185
 - Add-PublicFolderAdministrativePermission, 73
 - Add-WindowsFeature, 13
 - Clean-MailboxDatabase, 192
 - Clear-ActiveSyncDevice, 81
 - Connect-Mailbox, 44, 192
 - Disable-Mailbox, 44

EMS Enable-Mailbox, 48
 Enable-DistributionGroup, 64
 Enable-MailPublicFolder, 70
 Enable-OutlookAnywhere, 159
 Get-ActiveSyncDevice, 81–82
 Get-ActiveSyncDeviceStatistics, 81
 Get-AdSiteLink, 139
 Get-AgentLog, 172
 Get-CASMailbox, 87
 Get-ContentFilterConfig, 236
 Get-DistributionGroupMember, 216
 Get-EdgeSubscription, 129
 Get-EdgeSyncServiceConfig, 129
 Get-EmailAddressPolicy, 124
 Get-EventLogLevel, 174
 Get-Exchange Server, 18
 Get-FederationInformation, 94
 Get-FederationTrust, 94
 Get-Mailbox, 215
 Get-MailboxDatabase, 147
 Get-MailboxDatabaseCopy, 183
 Get-MailboxDatabaseCopyStatus, 148
 Get-MailboxFolderStatistics, 163
 Get-MailboxStatistics, 147, 164
 Get-MessageTrackingLog, 228
 Get-OutlookProtectionRule, 120
 Get-PublicFolder, 25, 26, 71, 195
 Get-PublicFolderAdministrativePermis-
 sion, 73
 Get-PublicFolderDatabase, 29, 146,
 148, 196
 Get-PublicFolderItemStatistics, 71, 146
 Get-Queue, 152, 154
 Get-RetentionPolicy, 215
 Get-RMSTemplate, 222–223
 Get-SharingPolicy, 99
 Get-StoreUsageStatistics, 147
 Get-TransportAgent, 115
 Get-TransportConfig, 225
 Get-TransportRule, 114
 Get-TransportRuleAction, 113
 Get-TransportRulePredicate, 112
 Mount-Database, 27
 Move-ActiveMailboxDatabase, 185
 Move-DatabasePath, 29
 Move-Mailbox, 46
 Move-OfflineAddressBook, 33
 New-AcceptedDomain, 122
 New-ActiveSyncMailboxPolicy, 80–81
 New-AddressList, 35
 New-ClientAccessArray, 201
 New-DatabaseAvailabilityGroup, 180
 New-DistributionGroup, 63
 New-DynamicDistributionGroup, 66
 New-EdgeSubscription, 129
 New-EdgeSyncServiceConfig, 129
 New-EmailAddressPolicy, 33
 New-ExchangeCertificate, 137
 New-FederationTrust, 93, 97
 New-ForeignConnector, 136
 New-GlobalAddressList, 36
 New-JournalRule, 224
 New-Mailbox, 48, 58
 New-MailboxDatabase, 25, 27, 188
 New-MailUser, 67
 New-ManagedContentSettings, 218
 New-ManagedFolder, 214
 New-MessageClassification, 226
 New-MoveRequest, 46
 New-OfflineAddressBook, 32–33, 36
 New-OrganizationRelationship, 94, 97
 New-OutlookProtectionRule, 120
 New-PublicFolder, 70
 New-PublicFolderDatabase, 25
 New-RetentionPolicy, 215
 New-RetentionPolicyTag, 217
 New-RoleGroup, 56
 New-SendConnector, 136
 New-SharingPolicy, 98
 New-TransportRule, 114, 116, 119, 229,
 236
 Remove-AcceptedDomain, 123
 Remove-ActiveSyncDevice, 81
 Remove-ContentFilterPhrase, 241
 Remove-DatabaseAvailability-
 GroupServer, 184
 Remove-EdgeSubscription, 129
 Remove-Mailbox, 44
 Remove-MailboxDatabase, 27
 Remove-MailboxDatabaseCopy, 184
 Remove-ManagementRoleAssign-
 ment, 100
 Remove-Message, 155
 Remove-PublicFolder, 26
 Restore-Mailbox, 188, 191
 Resume-Queue, 154
 Retry-Queue, 154
 Search-Mailbox, 43
 Select-Object, 167
 Set-ActiveSyncMailboxPolicy, 80, 84–85
 Set-ActiveSyncVirtualDirectory, 82, 83,
 83–84

- Set-AddressList, 31, 35
- Set-CalendarProcessing, 59–60, 60
- Set-CASMailbox, 49
- Set-ContentFilterConfig, 237, 240, 241
- Set-DatabaseAvailabilityGroup, 181, 182
- Set-DistributionGroup, 65, 65–66
- Set-EcpVirtualDirectory, 104
- Set-EdgeSyncServiceConfig, 129
- Set-EventLogLevel, 171, 174
- Set-FederatedOrganizationIdentifier, 97
- Set-FederationTrust, 92
- Set-IRMConfiguration, 118, 119, 222
- Set-JournalRule, 224
- Set-Mailbox, 43, 45, 68, 95, 191–192, 216
- Set-MailboxDatabase, 26, 28, 191–192, 202
- Set-MailboxDatabaseCopy, 184, 185
- Set-MailboxServer, 151
- Set-MailPublicFolder, 71
- Set-ManagedFolder, 218
- Set-ManagedFolderMailboxPolicy, 220
- Set-MessageClassification, 226
- Set-MessageTrackingLog, 228
- Set-OrganizationConfig, 228
- Set-OrganizationRelationship, 95
- Set-OutlookAnywhere, 89
- Set-OutlookProvider, 88
- Set-OWAMailboxPolicy, 106, 107, 223
- Set-OwaVirtualDirectory, 104, 105, 106, 107
- Set-OWAVirtualDirectory, 106, 223, 231
- Set-PublicFolder, 70, 195
- Set-PublicFolderDatabase, 29, 196, 197
- Set-ReceiveConnector, 169
- Set-RetentionPolicy, 215
- Set-RetentionPolicyTag, 217
- Set-SendConnector, 136, 169
- Set-SharingPolicy, 99
- Set-TransportConfig, 122
- Set-TransportRule, 115
- Set-TransportServer, 128, 151, 169, 170, 172
- Sort-Object, 167
- Start-EdgeSynchronization, 129
- Suspend-MailboxDatabaseCopy, 186
- Suspend-PublicFolderReplication, 195
- Suspend-Queue, 154
- Test-ActiveSyncConnectivity, 82, 161
- Test-EdgeSynchronization, 126, 129
- Test-ImapConnectivity, 161
- Test-IPAllowListProvider, 238–239
- Test-IRMConfiguration, 119
- Test-Mailflow, 165
- Test-MapiConnectivity, 158
- Test-OutlookConnectivity, 86, 90, 160, 161
- Test-OutLookWebServices, 81
- Test-PopConnectivity, 160
- Test-ReplicationHealth, 148
- Test-WebServicesConnectivity, 160
- Update-AddressList, 35
- Update-EmailAddressPolicy, 125
- Update-PublicFolderHierarchy, 195
- coexistence
 - Exchange, 5
 - group connectors, 140–141
 - OWA scenarios, 105
- CollectOverMetrics.ps1 script, 149
- CollectReplicationMetrics.ps1 script, 149
- command line
 - adding roles from, 15–16
 - installing Exchange Server 2010, 19
- commands
 - dsquery server, 5
 - EMS New-MailboxDatabase, 26
 - PrepareAD, 3, 4
 - PrepareLegacyExchangePermissions, 6
 - PrepareSchema, 2
 - Setup, 2, 3, 4
- compliance
 - configuring, 221–229
 - journaling, 223–224
 - journaling mailboxes, 225–226
 - mail tips, 227–229
- conditions, message transport rules, 112
- configuring
 - ActiveSync
 - client access settings, 83–84
 - external names, 83
 - virtual directory, 82
 - address lists, 30–37, 34–35
 - anti-spam, 234–242
 - agents, 239
 - file and process exclusions, 235
 - PCL, 237
 - quarantine mailboxes, 240
 - RBL (real-time block list), 238–239
 - Safe Senders option, 237
 - SCL (Spam Confidence Level), 236
 - Sender ID, 237
 - SPF (sender policy framework)
 - records, 239–240
 - SRL (sender reputation level), 239–240
 - transport rules, 236
 - updating content filters, 241–242

- antivirus, 234–242
 - file and process exclusions, 235
 - PCL, 237
 - quarantine mailboxes, 240
 - RBL (real-time block list), 238–239
 - Safe Senders option, 237
 - SCL (Spam Confidence Level), 236
 - Sender ID, 237
 - SPF (sender policy framework)
 - records, 239–240
 - SRL (sender reputation level), 239–240
 - transport rules, 236
 - updating content filters, 241–242
- Autodiscover for ActiveSync, 84–85
- compliance, 221–229
- Database Availability Group (DAG), 180–181
- databases, 22–30
 - default public folder, 26
 - mailbox settings, 28
 - naming conventions, 24
 - public folder settings, 29
 - RBAC permissions, 24
 - retention limits, 24–25
 - size limits, 23
- distribution groups, 62–68
- DNS, Exchange Server deployment, 8
- Edge synchronization, 129–130
- Edge transport server settings, 128
- e-mail address policies, 33–34
- failover priorities, 184
- federated organization identifiers, 97
- IMAP4, 78–79
- journaling, 223–224
- journaling mailboxes, 225–226
- logging, 168
 - agent logs, 171
 - event logs, 174
 - levels, 171
 - message tracking logs, 172–174
 - protocol, 169–170
 - result analysis, 175
 - store, 170–171
- mailboxes, 41–52
 - delegating permissions, 50
 - deleted items, 43–44
 - deleted mailboxes, 44
 - forwarding messages, 50
 - linked mailboxes, 51
 - message size, 45
 - quota settings, 44–45
 - Send-As permissions, 49–50
 - warning quotas, 45
- mail-enabled users, 66
- mail tips, 227–229
- managed folders, 218
 - management scopes, 54
 - message integrity, 230–234
 - message transport, 111
 - Edge transport, 126–130
 - Hub Transport, 121–125
 - routing, 130–141
 - rules of transport, 111–120
 - moderators (distribution groups), 65–66
 - non-mailbox server high availability, 198–199
 - Client Access servers, 201–202
 - DNS round robin, 199
 - Edge Transport servers, 202
 - Hub Transport servers, 202
 - MX records, 199
 - NLB, 200–201
 - OABs (Online Address Book), 36
 - offline addresses, 31
 - OWA, 100–107
 - authentication, 105
 - certificates, 102
 - client access settings, 106–107
 - coexistence scenarios, 105
 - ECP (Exchange Control Panel), 103
 - external names, 106
 - interface, 102
 - JavaScript support, 103–104
 - mailbox policies, 107–108
 - public folders, 103
 - SANs, 104
 - segmentation settings, 107
 - virtual directories, 104–105
 - Windows file shares, 102
 - WSS (Windows Sharepoint Services), 102
- PCL (Phishing Confidence Level), 49
- policies
 - mailbox, 219–220
 - mobile devices, 80–81
- POP3, 78–79
- proxy addresses, 66
- public folders, 69–75
 - permissions, 72–73
 - quota limits, 74
- RBAC, 52–56
- records management, 213–221
 - custom folders, 214
 - default folders, 214
 - managed folder mailbox policies, 219–220
 - managed folders, 218
 - retention policy tags (RPTs), 215–218
- retention policy tags (RPTs), 216–218
- rights protection, 119–121
- RMS (Rights Management Service), 222–223

- SCL (Spam Confidence Level), 49, 236
- send and receive connectors, 134–137
- sharing relationships, 97–98
- transport dumpster, 122–123
- connection filter agents, 171
- connection filtering, 239
- connectivity
 - monitoring, 156–157
 - ActiveSync, 161–162
 - IMAP, 161
 - Outlook Anywhere, 159–160
 - Outlook EWS, 160
 - Outlook RPC/MAPI, 158–159
 - POP3, 160–161
 - SMTP client to server, 157
 - SMTP server to server, 158
 - test scans, 167
- Connect-Mailbox cmdlet, 44, 192
- Connect Mailbox Wizard, 192
- contacts, creating, 67
- content filter agents, 171
- content filters
 - updating, 241–242
- content settings
 - configuring, 218–219
- continuous replication, Database Availability Group (DAG), 186
- Contributor role, 73
- converting mailboxes, 58–59
- costs, message transport routing, 132–134
- cross-forest mailbox moves, 47
- custom folders, 213
 - configuring, 214
 - creating, 214
- customizing OWA, 102
- custom mail tips, 228
- custom resource types (resource mailboxes), 61

D

- DAG (Database Availability Group), 179–180
 - configuring, 180–181
 - continuous replication management, 186
 - creating, 180–181
 - database copies, 183–184
 - Exchange 2010 server recovery, 206
 - failover priority configuration, 184
 - file share witness (FSW), 181–182
 - lag configuration, 182–183
 - mailbox database copies, 185
- replication
 - monitoring databases, 148–149
 - replication latency, 182
 - server members, 184
- databases
 - configuring, 22–30
 - default public folder, 26
 - mailbox settings, 28
 - naming conventions, 24
 - public folder settings, 29
 - RBAC permissions, 24
 - retention limits, 24–25
 - setting limits, 23
 - copies
 - Database Availability Group (DAG), 183–184
 - creating, 22–30
 - new databases, 27–28
 - setting limits, 23
 - dismount, 27
 - mailbox copies
 - Database Availability Group (DAG), 185
 - maintenance, 26
 - monitoring, 145–146
 - DAG replication, 148–149
 - mailbox statistics, 147–148
 - public folder statistics, 146
 - status, 147–148
 - mount, 27
 - moving, 28–29
 - recovery, 188–190
 - creating backup schedule, 193–194
 - deleted item retention, 190–191
 - deleted mailbox retention, 190–191
 - dialtone restores, 189–190
 - disconnected mailbox, 192
 - Exchange server back up, 192–193
 - mailbox merge, 191–192
- decryption, journal report decryption, 222
- default folders, 213
 - configuring, 214
 - creating, 214
- default policy tags (DPTs), 216–217
- default public folders (databases), 26
- Default Public Folders tree, 69
- Delegated Setup role
- Delegated Setup role group, 20
- delegating
 - Organization Management role, 20
 - role assignments (federated sharing), 99
- delegating permissions, 50
- deleted items
 - mailbox retention settings, 43–44
 - public folder retention settings, 70

- deleting. *See also* removing
 - mailboxes, 44
 - mail messaging queue, 153–155
- delivery, message limits, 142
- deployments
 - Exchange Server 2010, 6
 - configuring DNS, 8
- dialog boxes
 - Properties, 45, 220
 - SMTP Address Space, 17
- digital certificates, 80
- directories (virtual), Outlook Anywhere, 88–89
- Directory Domains and Trusts console, 4
- Direct Push, 84
- Disable-Mailbox cmdlet, 44
- Disable-TransportRule TransportRule, 115
- disabling
 - anti-spam processing, 49
 - IRM (Information Rights Management), 222
 - mailboxes, 44
 - mailbox features, 49
 - mail tips, 227
 - MAPI, 86
 - RPC encryption, 90
 - S/MIME for OWA, 231
- disaster recovery
 - full system servers, 207–208
- disclaimers, message transport rules, 116
- disconnecting mailboxes, 44
- dismount databases, 27
- distribution groups
 - adding members to, 63
 - configuring, 62–68
 - configuring moderator, 65–66
 - configuring proxy addresses, 66
 - contacts, 67
 - creating, 62–68
 - dynamic, 65–66
 - configuring proxy addresses, 66
 - forwarding, 68
 - modifying, 63
 - security-enabled, 64–65
 - Send-As permissions, 68
- DNS
 - configuring
 - Exchange Server deployment, 8
 - configuring for federated sharing, 94
 - internal/external message transport routing, 130–131
 - monitoring mail flow, 152

- domain controllers
 - service packs, 4–5
- domain functional level, 4
- domains
 - accepted
 - message transport routing, 141
 - domain functional level, 4
 - forest functional level, 4
 - functionality, 4
 - internal relay, 138
 - message transport dumpster
 - authoritative domains, 124
 - configuring accepted domains, 122–123
 - remote domains, 123–124
 - preparing, 3–4
 - remote
 - message transport routing, 141
- DPTs (default policy tags), 216–217
- dsquery server command, 5
- dumpster (message transport)
 - configuring, 122–123
 - accepted domains, 122–123
 - authoritative domains, 124
 - remote domains, 123–124
 - e-mail address policies, 124–125
- dynamic distribution groups, 65–66
 - configuring proxy addresses, 66

E

- ECP (Exchange Control Panel)
 - OWA, 103
- edge rules agent, 171
- Edge Subscription, 16
- Edge Sync, 126
- EdgeSync process, 205
- Edge transport, 126–127
 - configuring Edge synchronization, 129–130
 - configuring server cloning, 127–128
 - configuring server settings, 128
- Edge Sync, 126
 - installing server role, 128–129
 - internal/external DNS, 130–131
- Edge Transport role, 12, 19
- Edge Transport server role, 17
- Edge Transport servers
 - anti-spam agents, 239
 - block list messages, 238
 - clone configuration, 205–206
 - non-mailbox high availability configuration, 202
 - recovering roles, 205
 - updating content filters, 241–242

Edit E-mail Address Policy Wizard

- Edit E-mail Address Policy Wizard, 34
- Edit Mailbox Database Copy Wizard, 183
- Editor role, 72
- Edit Transport Rule Wizard, 114, 116
- e-mail
 - monitoring flow, 150
 - backpressure thresholds, 155
 - deleting message, 153–155
 - DNS, 152
 - generating report, 165–166
 - message queues, 152–153
 - message tracking, 150–152
 - resolving NDRs, 155
 - retry sending message, 153–155
 - view message in queue, 153–155
- email
 - address policies, 124
- e-mail addresses
 - configuring, 30–37
 - offline addresses, 31
 - creating policies, 33–34
 - email policies, 124
 - policies, 33–34
 - proxy, 47–48
 - configuring, 66
 - creating, 66
- e-mail policies, filterable properties, 33
- e-mail tips
 - configuring, 227–229
 - disabling, 227
- EMC Connect Mailbox Wizard, 192
- EMC Edit Transport Rule Wizard, 114
- EMC (Exchange Management Console)
 - enabling IMAP4, 78–79
 - enabling POP3, 78–79
- EMC Get-TransportRule cmdlet, 114
- EMC Manage Diagnostic Logging Properties Wizard, 171
- EMC New Address List Wizard, 34
- EMC New Distribution Group Wizard, 63
- EMC New Dynamic Distribution Group Wizard, 66
- EMC New-Mailbox cmdlet, 58
- EMC New Mailbox Database Wizard, 25
- EMC New Mailbox Wizard, 58
- EMC New Mail Contact Wizard, 67
- EMC New Managed Custom Folder Wizard, 214
- EMC New Managed Folder Mailbox Policy Wizard, 220
- EMC New Online Address Book Wizard, 36
- EMC Public Folder Management Console, 195
- EMC Queue Viewer tool, 153
- EMS Add-ADPermission cmdlet, 68, 135
- EMS Add-ContentFilterPhrase cmdlet, 241
- EMS Add-DatabaseAvailabilityGroupsServer cmdlet, 184
- EMS Add-Mailbox cmdlet, 51
- EMS Add-MailboxDatabaseCopy cmdlet, 182, 183
- EMS Add-PublicFolderAdministrativePermission cmdlet, 73
- EMS Clean-MailboxDatabase cmdlet, 192
- EMS Clear-ActiveSyncDevice cmdlet, 81
- EMS Connect-Mailbox cmdlet, 44, 192
- EMS Disable-Mailbox cmdlet, 44
- EMS Enable-DistributionGroup cmdlet, 64
- EMS Enable-Mailbox cmdlet, 48
- EMS Enable-MailPublicFolder cmdlet, 70
- EMS Enable-OutlookAnywhere cmdlet, 159
- EMS Get-ActiveSyncDevice cmdlet, 81–82
- EMS Get-ActiveSyncDeviceStatistics cmdlet, 81
- EMS Get-AdSiteLink cmdlet, 139
- EMS Get-AgentLog cmdlet, 172
- EMS Get-CASMailbox cmdlet, 87
- EMS Get-ContentFilterConfig cmdlet, 236
- EMS Get-EdgeSubscription cmdlet, 129
- EMS Get-EdgeSyncServiceConfig cmdlet, 129
- EMS Get-EmailAddressPolicy cmdlet, 124
- EMS Get-Exchange Server cmdlet, 18
- EMS Get-FederationInformation cmdlet, 94
- EMS Get-FederationTrust cmdlet, 94
- EMS Get-MailboxDatabase cmdlet, 147
- EMS Get-MailboxDatabaseCopy cmdlet, 183
- EMS Get-MailboxDatabaseCopyStatus cmdlet, 148
- EMS Get-MailboxFolderStatistics cmdlet, 163
- EMS Get-MailboxStatistics cmdlet, 147
- EMS Get-MessageTrackingLog cmdlet, 228
- EMS Get-OutlookProtectionRule cmdlet, 120
- EMS Get-PublicFolderAdministrativePermission cmdlet, 73
- EMS Get-PublicFolder cmdlet, 25, 26, 71, 195
- EMS Get-PublicFolderDatabase cmdlet, 29, 146, 148, 196
- EMS Get-PublicFolderItemStatistics cmdlet, 71, 146
- EMS Get-Queue cmdlet, 152
- EMS Get-RetentionPolicy cmdlet, 215
- EMS Get-RMSTemplate cmdlet, 222–223
- EMS Get-SharingPolicy cmdlet, 99
- EMS Get-StoreUsageStatistics cmdlet, 147
- EMS Get-TransportAgent cmdlet, 115

- EMS Get-TransportConfig cmdlet, 225
- EMS Get-TransportRuleAction cmdlet, 113
- EMS Get-TransportRulePredicate cmdlet, 112
- EMS Mount-Database cmdlet, 27
- EMS Move-ActiveMailboxDatabase cmdlet, 185
- EMS Move-DatabasePath cmdlet, 29
- EMS Move-Mailbox cmdlet, 46
- EMS Move-OfflineAddressBook cmdlet, 33
- EMS New-AcceptedDomain cmdlet, 122
- EMS New-ActiveSyncMailboxPolicy cmdlet, 80–81
- EMS New-AddressList cmdlet, 35
- EMS New-ClientAccessArray cmdlet, 201
- EMS New-DatabaseAvailabilityGroup cmdlet, 180
- EMS New-DistributionGroup cmdlet, 63
- EMS New-DynamicDistributionGroup cmdlet, 66
- EMS New-EdgeSubscription cmdlet, 129
- EMS New-EdgeSyncServiceConfig cmdlet, 129
- EMS New-EmailAddressPolicy cmdlet, 33
- EMS New-ExchangeCertificate cmdlet, 137
- EMS New-FederationTrust cmdlet, 93, 97
- EMS New-ForeignConnector cmdlet, 136
- EMS New-GlobalAddressList cmdlet, 36
- EMS New-JournalRule cmdlet, 224
- EMS New-Mailbox cmdlet, 48
- EMS New-MailboxDatabase cmdlet, 25, 27, 188
- EMS New-MailboxDatabase command, 26
- EMS New-MailUser cmdlet, 67
- EMS New-ManagedContentSettings cmdlet, 218
- EMS New-ManagedFolder cmdlet, 214
- EMS New-MessageClassification cmdlet, 226
- EMS New-MoveRequest cmdlet, 46
- EMS New-OfflineAddressBook cmdlet, 32–33, 36
- EMS New-OrganizationRelationship cmdlet, 94, 97
- EMS New-OutlookProtectionRule cmdlet, 120
- EMS New-PublicFolder cmdlet, 70
- EMS New-PublicFolderDatabase cmdlet, 25
- EMS New-RetentionPolicy cmdlet, 215
- EMS New-RetentionPolicyTag cmdlet, 217
- EMS New-RoleGroup cmdlet, 56
- EMS New-SharingPolicy cmdlet, 98
- EMS New-TransportRule cmdlet, 114, 119, 229
- EMS Remove-ActiveSyncDevice cmdlet, 81
- EMS Remove-ContentFilterPhrase cmdlet, 241
- EMS Remove-DatabaseAvailability-GroupServer cmdlet, 184
- EMS Remove-EdgeSubscription cmdlet, 129
- EMS Remove-Mailbox cmdlet, 44
- EMS Remove-MailboxDatabase cmdlet, 27
- EMS Remove-MailboxDatabaseCopy cmdlet, 184
- EMS Remove-ManagementRoleAssignment cmdlet, 100
- EMS Remove-Message cmdlet, 155
- EMS Remove-PublicFolder cmdlet, 26
- EMS Restore-Mailbox cmdlet, 188, 191
- EMS Resume-Queue cmdlet, 154
- EMS Retry-Queue cmdlet, 154
- EMS Search-Mailbox cmdlet, 43
- EMS Set-ActiveSyncMailboxPolicy cmdlet, 80, 84–85
- EMS Set-ActiveSyncVirtualDirectory cmdlet, 82, 83, 83–84
- EMS Set-AddressList cmdlet, 31, 35
- EMS Set-CalendarProcessing cmdlet, 59–60, 60
- EMS Set-CASMailbox cmdlet, 49
- EMS Set-ContentFilterConfig cmdlet, 237, 240, 241
- EMS Set-DatabaseAvailabilityGroup cmdlet, 181, 182
- EMS Set-DistributionGroup cmdlet, 65, 65–66
- EMS Set-EcpVirtualDirectory cmdlet, 104
- EMS Set-EdgeSyncServiceConfig cmdlet, 129
- EMS Set-EventLogLevel cmdlet, 171
- EMS Set-FederatedOrganizationIdentifier cmdlet, 97
- EMS Set-FederationTrust cmdlet, 92
- EMS Set-IRMConfiguration cmdlet, 118, 119, 222
- EMS Set-JournalRule cmdlet, 224
- EMS Set-Mailbox cmdlet, 43, 45, 68, 95, 191–192, 216
- EMS Set-MailboxDatabase cmdlet, 26, 28, 202
- EMS Set-MailboxDatabaseCopy cmdlet, 184, 185
- EMS Set-MailboxServer cmdlet, 151
- EMS Set-MailPublicFolder cmdlet, 71
- EMS Set-ManagedFolder cmdlet, 218

- EMS Set-ManagedFolderMailboxPolicy cmdlet, 220
- EMS Set-MessageClassification cmdlet, 226
- EMS Set-MessageTrackingLog cmdlet, 228
- EMS Set-OrganizationConfig cmdlet, 228
- EMS Set-OrganizationRelationship cmdlet, 95
- EMS Set-OutlookAnywhere cmdlet, 89
- EMS Set-OutlookProvider cmdlet, 88
- EMS Set-OWAMailboxPolicy cmdlet, 106, 107, 223
- EMS Set-OwaVirtualDirectory cmdlet, 104, 105, 106, 107
- EMS Set-OWAVirtualDirectory cmdlet, 106, 223, 231
- EMS Set-PublicFolder cmdlet, 70
- EMS Set-PublicFolderDatabase cmdlet, 29, 196
- EMS Set-ReceiveConnector cmdlet, 169
- EMS Set-RetentionPolicy cmdlet, 215
- EMS Set-RetentionPolicyTag cmdlet, 217
- EMS Set-SharingPolicy cmdlet, 99
- EMS Set-TransportConfig cmdlet, 122
- EMS Set-TransportServer cmdlet, 128, 151
- EMS Start-EdgeSynchronization cmdlet, 129
- EMS Suspend-MailboxDatabaseCopy cmdlet, 186
- EMS Suspend-PublicFolderReplication cmdlet, 195
- EMS Suspend-Queue cmdlet, 154
- EMS Test-ActiveSyncConnectivity cmdlet, 82, 161
- EMS Test-EdgeSynchronization cmdlet, 126, 129
- EMS Test-ImapConnectivity cmdlet, 161
- EMS Test-IPAllowListProvider cmdlet, 238–239
- EMS Test-IRMConfiguration cmdlet, 119
- EMS Test-Mailflow cmdlet, 165
- EMS Test-OutlookConnectivity cmdlet, 86, 90, 160
- EMS Test-OutlookWebServices cmdlet, 81
- EMS Test-PopConnectivity cmdlet, 160
- EMS Test-ReplicationHealth cmdlet, 148
- EMS Test-WebServicesConnectivity cmdlet, 160
- EMS Update-AddressList cmdlet, 35
- EMS Update-EmailAddressPolicy cmdlet, 125
- EMS Update-PublicFolderHierarchy cmdlet, 195
- Enable-DistributionGroup cmdlet, 64
- Enable-Mailbox cmdlet, 48
- Enable-MailPublicFolder cmdlet, 70
- Enable-OutlookAnywhere cmdlet, 159
- Enable-TransportRule TransportRule, 115
- enabling
 - IMAP4, 78–79
 - IRM (Information Rights Management), 222
 - journal report decryption, 222
 - licensing, 222
 - mailbox features, 49
 - MAPI, 86
 - message classifications, 225–226
 - POP3, 78–79
 - S/MIME for OWA, 231
- encryption
 - SSL, 82
- enrollment, Microsoft Federation Gallery, 93
- Enterprise Content Management, creating
 - public folders, 72–73
- equipment mailboxes, 57–58
- Eseutil tool, 189–190
- event logs, 174
- ExBPA
 - generating reports, 167
- Exchange 2003
 - moving mailboxes to other versions, 46
- Exchange 2007
 - moving mailboxes to other versions, 46
- Exchange 2010
 - disabling mail tips, 227
 - federated sharing, 96–97
 - message classifications, 225
- Exchange 2010 servers
 - recovering roles, 206
- Exchange-All.xml, 13
- Exchange-CAS.xml, 13
- Exchange Control Panel. *See* ECP
- Exchange-Edge.xml, 13
- Exchange-Hub.xml, 13
- Exchange Installation Wizard, 15
 - verifying Exchange 2010 installation, 17
- Exchange Installation Wizard, setup.exe
 - and, 16
- Exchange Management
 - installing, 16
- Exchange-MBX.xml, 13
- Exchange Remote Connectivity Analyzer (ExRCA), 159–160
- Exchange Server 2003
 - adding server roles, 16–17
 - coexistence, 5
 - migration to Exchange 2007, 6–7
 - suppressing link state updates, 7

- Exchange Server 2007
 - adding server roles, 16–17
 - coexistence, 5
 - Exchange 2003 migration to, 6–7
- Exchange Server 2010
 - coexistence, 5
 - deployment, 6
 - configuring DNS, 8
 - infrastructure, 1–9
 - domain functionality, 4
 - preparing Active Directory, 3
 - preparing domains, 3–4
 - preparing schema, 2–3
 - installing
 - custom installation, 19–20
 - from command line, 19
 - IIS, 11
 - Microsoft .NET Framework 3.5, 11
 - MMC 3.0, 10
 - operating system requirements, 4–5
 - prerequisites, 9–14
 - roles, 12–13
 - role services, 12–13
 - software requirements for Windows Server 2008 with R2, 10
 - software requirements for Windows Server 2008 with SP2, 10
 - standard installation, 19–20
 - troubleshooting, 21
 - Windows PowerShell 2.0, 11
 - WinRM 2.0, 11
 - legacy permissions, 6
 - migration to, 7
 - prerequisite scripts, 13–14
 - provisioning, 20
 - readiness check, 5
 - removing legacy components in, 8
 - roles. *See* roles
 - service pack level, 7
 - suppressing link state updates, 7
 - upgrading, 8
 - Windows Firewall with Advanced Security, 18
- Exchange Server 2010 Installation Wizard
 - readiness check, 5
- Exchange Server 2010 SP1 Mailbox server
 - moving mailboxes to, 46
- Exchange servers
 - back up, 192–193
- Exchange-Typical.xml, 13
- EXPR Outlook Provider, 87–88
- external DNS
 - message transport routing, 130–131
- external names
 - ActiveSync, 83
 - configuring for OWA, 106

F

- failovers
 - configuring priorities, 184
- Federated Organization Identifier (OrgID), 94
- federated organization identifiers,
 - creating, 97
- federated sharing, 91–100
 - assigning share policies, 95
 - assigning sharing policies to user accounts, 99–100
 - certificates, 92–93
 - creating federated organization identifiers, 97
 - creating federated trusts, 96–97
 - creating sharing relationships, 97–98
 - delegating role assignments, 99
 - DNS, 94
 - enrollment, 93
 - organizational relationships, 94
 - SANs (subject alternativenames), 95
 - sharing policies, 98–99
- federated trusts
 - configuring, 97–98
 - creating, 96–97
- file and process exclusions, 235
- file-level scanners
 - file and process exclusions, 235
- file share witness (FSW)
 - Database Availability Group (DAG), 181–182
- filterable properties, e-mail policies, 33
- Filter Packs (Office 2010), 11
- filter settings (Transport servers), 241–242
- firewalls (Windows Firewall), 18
- folders, 213
 - custom, 213
 - default, 213
 - mailbox statistics
 - generating reports, 163–164
 - managed, 213, 214
 - configuring, 218
 - mailbox policies, 219–220
 - RPTs (return policy tags), 215
 - public
 - configuring, 69–75
 - creating, 69–75
 - creating databases, 16, 25–26
 - deleted items, 70
 - high availability, 194
 - item age, 71
 - managing, 73
 - managing databases, 25–26

- message size, 70–71
- message tracking, 197
- OWA, 103
- replicas, 195
- schedules, 196–197
- scripts, 25
- size, 71
- statistics, 146
- forest functional level, 4
- Format-List PowerShell cmdlet, 163
- Format-Table PowerShell cmdlet, 163
- forwarding
 - distributions groups, 68
 - messages, 50
- FT cmdlet
 - generating reports, 166–167
- Full Access permission, 49–50

G

- GAL (Global Address List), 36
- Get-ActiveSyncDevice cmdlet, 81–82
- Get-ActiveSyncDeviceStatistics cmdlet, 81
- Get-AdSiteLink cmdlet, 139
- Get-AgentLog cmdlet, 172
- Get-AntiSpamFilteringReport.ps1 script, 172
- Get-CASMailbox cmdlet, 87
- Get-ContentFilterConfig cmdlet, 236
- Get-DistributionGroupMember cmdlet, 216
- Get-EdgeSubscription cmdlet, 129
- Get-EdgeSyncServiceConfig cmdlet, 129
- Get-EmailAddressPolicy cmdlet, 124
- Get-EventLogLevel cmdlet, 174
- Get-Exchange Server cmdlet, 18
- Get-FederationInformation cmdlet, 94
- Get-FederationTrust cmdlet, 94
- Get-Mailbox cmdlet, 215
- Get-MailboxDatabase cmdlet, 147–148
- Get-MailboxDatabaseCopy cmdlet, 183
- Get-MailboxDatabaseCopyStatus cmdlet, 148
- Get-MailboxFolderStatistics cmdlet, 163–164
- Get-MailboxStatistics cmdlet, 147, 164
- Get-MessageTrackingLog cmdlet, 228
- Get-OutlookProtectionRule cmdlet, 120
- Get-PublicFolderAdministrativePermission cmdlet, 73
- Get-PublicFolder cmdlet, 25, 26, 71, 195
- Get-PublicFolderDatabase cmdlet, 29, 146, 148, 196
- Get-PublicFolderItemStatistics cmdlet, 71, 146
- Get-PublicFolderStatistics cmdlet, 146
- Get-Queue cmdlet, 152–153, 154–155
- Get-RetentionPolicy cmdlet, 215
- Get-RMSTemplate cmdlet, 222–223
- Get-SharingPolicy cmdlet, 99
- Get-StoreUsageStatistics cmdlet, 147
- Get-TransportAgent cmdlet, 115–116
- Get-TransportRuleAction cmdlet, 113–114
- Get-TransportRule cmdlet, 114–115
- Get-TransportRulePredicate, 112–113
- Global Address List (GAL), 36
- Global Catalog server, Windows Server 2003 SP2, 4
- group connectors, coexistence, 140–141
- groups
 - Delegated Setup role, 20
 - distribution
 - adding members to, 63
 - configuring, 62–68
 - configuring moderator, 65–66
 - contacts, 67
 - creating, 62–68
 - dynamic, 65–66
 - modifying, 63
 - security-enabled, 64–65
 - Send-As permissions, 68
 - distributions
 - forwarding, 68
 - permissions, 4–5
 - Server Management RBAC role, 24
 - Universal security, 64
- GUI, adding roles from, 15–16

H

- health check scans, 167
- high availability
 - non-mailbox server configuration, 198–199
 - Client Access servers, 201–202
 - DNS round robin, 199
 - Edge Transport server, 202
 - Hub Transport servers, 202
 - MX records, 199
 - NLB, 200–201
 - public folder, 194
 - message tracking, 197
 - recovering, 197–198
 - replicas, 195
 - schedules, 196–197
- HTML custom mail tips, 228
- Hub Transport role, 12
 - installing Exchange Server 2010, 19
- Hub transport servers
 - internal DNS, 152
- Hub Transport servers
 - configuring anti-spam agents for, 239

- configuring transport dumpster, 122–123
 - accepted domains, 122–123
 - authoritative domains, 124
 - email address policies, 124–125
 - remote domains, 123–124
- creating Edge Subscriptions, 16
- internal/external DNS, 130–131
- non-mailbox high availability configuration, 202
- recovering roles, 204

I

- IGMP Multicast Mode, 200
- IIS Exchange Server installation, 11
- IMAP4
 - configuring, 78–79
 - enabling, 78–79
 - monitoring connectivity, 161
 - security, 78–79
- Information Rights Management. *See* IRM
- infrastructure, 1–9
 - domain functionality, 4
 - preparing Active Directory, 3
 - preparing domains, 3–4
 - preparing schema, 2–3
 - readiness check, 5
- installing
 - Edge transport server role, 128–129
 - Exchange Management, 16
 - Exchange Server 2010
 - custom installation, 19–20
 - from command line, 19
 - IIS, 11
 - Microsoft .NET Framework 3.5, 11
 - MMC 3.0, 10
 - operating system requirements, 4–5
 - prerequisites, 9–14
 - roles, 12–13
 - role services, 12–13
 - software requirements for Windows Server 2008 with R2, 10
 - software requirements for Windows Server 2008 with SP2, 10
 - standard installation, 19–20
 - troubleshooting, 21
 - Windows PowerShell 2.0, 11
 - WinRM 2.0, 11
 - RMS pre-licensing agent, 117–119
 - roles, 14–22
- interface (OWA), configuring, 102
- internal DNS, message transport routing, 130–131
- internal relay domains, 138

- intra-forest moves, 47
- intra-org moves, 47
- IP addresses, allow list, 238
- IRM (Information Rights Management), 222
 - disabling features, 222
 - disabling in OWA, 223
 - enabling, 222
 - Outlook 2010, 222
 - OWA, 222
- item age, public folders, 71

J

- JavaScript, OWA, 103–104
- journaling, 218
 - configuring, 223–224
 - mailboxes, 224
 - configuring, 225–226
 - options, 223
 - rules, 224
- journal report decryption, enabling, 222
- journal rule scope, 223
- junk mail messages, configuring SCL/PCL, 49

L

- lag configuration
 - Database Availability Group (DAG), 182–183
- LDAP filtering syntax. *See* OPATH filtering syntax
- legacy address lists
 - updating, 31
- legacy permissions
 - Exchange Server, 6
- levels, logging, 171
- licensing
 - enabling, 222
- linked mailboxes, 51
- link state updates
 - suppressing, 7
- lists
 - address. *See* address lists
 - formatting, 166–167
- logging, configuring, 168
 - agent logs, 171
 - event logs, 174
 - levels, 171
 - message tracking logs, 172–174
 - protocol, 169–170
 - result analysis, 175
 - store, 170–171

M

mailboxes

- configuring, 41–52
 - delegating permissions, 50
 - deleted items, 43–44
 - forwarding messages, 50
 - linked mailboxes, 51
 - message size, 45
 - resource mailboxes, 57–61
 - Send-As permissions, 49–50
 - shared mailboxes, 57–61
 - warning quotas, 45
- converting, 58–59
- creating, 41–52, 48
 - resource mailboxes, 57–61
 - shared mailboxes, 57–61
- Database Availability Group (DAG), 185
- databases. *See* databases
- deleting, 44
- delivery queues, 153
- disabling, 44
- disabling features, 49
- enabling features, 49
- equipment, 57–58
- generating reports
 - folder statistics, 163–164
 - statistics, 164
- journaling, 224
 - configuring, 225–226
- linked, 51
- monitoring
 - statistics, 147–148
- moving, 46–47
- permissions, 51
- policies, 219–220
 - ActiveSync, 84–85
 - OWA, 107–108
 - sharing, 95
- proxy addresses, 47–48
- quarantine, 240
- quota settings, 44–45
- RDB (recovery database)
 - deleted retention, 190–191
 - disconnected, 192
- resource
 - configuring properties, 60
 - custom resource types, 61
 - equipment, 57–58
 - permissions, 59–60
 - room, 57–59
- retention policies, 215
- room, 57–59
- Mailbox role, 12
 - installing Exchange Server 2010, 19
- Mailbox servers
 - recovering in CCR cluster, 206
 - role recovery, 207
- Mailbox Settings tab (Properties dialog box), 45
- mail contacts
 - creating, 67
- mail-enabled users
 - configuring, 66
- Mail Flow Troubleshooter, 155, 166, 166–167
- maintenance
 - databases, 26
- managed content settings,
 - configuring, 218–219
- managed folders, 213, 214
 - configuring, 218
 - mailbox policies, 219–220
 - RPTs (return policy tags), 215
- Manage Diagnostic Logging Properties Wizard, 171
- management role groups, 53
- management roles, 53
- management scopes
 - configuring, 54
 - creating, 54
- MAPI connections
 - RPC client access, 86
- MAPI protocol, 158–159
- MC New Transport Rule Wizard, 119
- message classifications
 - applying, 226
 - creating, 226
 - enabling, 225–226
 - precedence, 226
- message integrity
 - AD FS (Active Directory Federation Services), 232–233
 - certificates, 232–233
 - configuring, 230–234
 - MTLS, 231
 - RMS Federation, 232–233
 - S/MIME, 230
 - transport rules, 233–234
- Message Life Span, 219
- messages
 - configuring transport, 111
 - Edge Transport, 126–130
 - Hub Transport, 121–125
 - routing, 130–141
 - rules of transport, 111–120
 - forwarding, 50
 - managing queues, 152–153
 - recovering services configuration, 208

- size
 - configuring maximum size, 45
 - public folders, 70–71
 - tracking, 150–152
 - high availability public folders, 197
 - tracking logs, 172
 - message tracking logs
 - auditing, 228
 - Microsoft Federation Gateway
 - certificates, 92
 - configuring federation trusts, 97–98
 - created federated trusts, 96–97
 - enrollment, 93
 - Microsoft .NET Framework 3.5
 - Exchange Server installation, 11
 - Microsoft Windows file share
 - ActiveSync, 83
 - migrations
 - Exchange 2003 to Exchange 2007, 6–7
 - to Exchange 2010, 7
 - MMC 3.0
 - Exchange Server 2010 installation, 10
 - mobile devices
 - configuring policies, 80–81
 - Direct Push, 84
 - moderate transport
 - messages, 117–118
 - moderators (distribution groups), 65–66
 - monitoring
 - connectivity, 156–157
 - ActiveSync, 161–162
 - IMAP, 161
 - Outlook Anywhere, 159–160
 - Outlook EWS, 160
 - Outlook RPC/MAPI, 158–159
 - POP3, 160–161
 - SMTP client to server, 157
 - SMTP server to server, 158
 - databases, 145–146
 - DAG replication, 148–149
 - mailbox statistics, 147–148
 - public folder statistics, 146
 - status, 147–148
 - mail flow, 150
 - backpressure thresholds, 155
 - deleting message, 153–155
 - DNS, 152
 - message queues, 152–153
 - message tracking, 150–152
 - resolving NDRs, 155
 - retry sending message, 153–155
 - viewing queue, 153–155
 - Mount-Database cmdlet, 27
 - mount databases, 27
 - Move-ActiveMailboxDatabase cmdlet, 185
 - Move-DatabasePath cmdlet, 29
 - Move Database Path Wizard, 25
 - Move-Mailbox cmdlet, 46
 - Move-OfflineAddressBook cmdlet, 33
 - moving
 - databases, 28–29
 - transaction log locations, 28–29
 - moving mailboxes, 46–47
 - MTLS
 - message transport routing, 140
 - MTLS (Mutual Transport Layer Security), 230, 231
 - Multicast Mode, 200
 - Mutual Transport Layer Security. *See* MTLS (Mutual Transport Layer Security)
 - MX records
 - non-mailbox server configuration, 199
 - MyRetentionPolicyTag, 215
- ## N
- naming conventions, configuring
 - databases, 24
 - NDRs
 - resolving, 155
 - New-AcceptedDomain cmdlet, 122
 - New-ActiveSyncMailboxPolicy cmdlet, 80–81
 - New-AddressList cmdlet, 35
 - New-ClientAccessArray cmdlet, 201
 - New-DatabaseAvailabilityGroup cmdlet, 180
 - New-DistributionGroup cmdlet, 63
 - New-DynamicDistributionGroup cmdlet, 66
 - New-EdgeSubscription cmdlet, 129
 - New-EdgeSyncServiceConfig cmdlet, 129
 - New-EmailAddressPolicy cmdlet, 33
 - New E-Mail Address Policy Wizard, 124
 - New Exchange ActiveSync Mailbox Policy Wizard, 80
 - New-ExchangeCertificate cmdlet, 137
 - New-FederationTrust cmdlet, 93, 97
 - New-ForeignConnector cmdlet, 136
 - New-GlobalAddressList cmdlet, 36
 - New-JournalRule cmdlet, 224
 - New-Mailbox cmdlet, 48, 58
 - New-MailboxDatabase cmdlet, 25, 27, 188
 - New Mailbox Database Wizard, 25
 - New-MailUser cmdlet, 67
 - New-ManagedContentSettings cmdlet, 218
 - New-ManagedFolder cmdlet, 214
 - New-MessageClassification cmdlet, 226
 - New-MoveRequest cmdlet, 46
 - New-OfflineAddressBook cmdlet, 32–33, 36

- New Organizational Relationship Wizard, 94
- New-OrganizationRelationship cmdlet, 94, 97
- New-OutlookProtectionRule cmdlet, 120
- New-PublicFolder cmdlet, 70
- New-PublicFolderDatabase cmdlet, 25
- New Public Folder Database Wizard, 25
- New-ReceiveConnector cmdlet, 137
- New-Retention-Policy, 215
- New-RetentionPolicy cmdlet, 215
- New-RetentionPolicyTag cmdlet, 217
- New-RoleGroup cmdlet, 56
- New-SendConnector cmdlet, 135, 136
- New Send Connector Wizard, 17
- New-SharingPolicy cmdlet, 98
- New-TestCasConnectivityUser.ps1 script, 160
- New-TransportRule cmdlet, 112, 114–115, 116, 119, 120, 229, 236
- New Transport Rule Wizard, 229
- NLB
 - non-mailbox server configuration, 200–201
- Non-EditingAuthor role, 72
- NT LAN Manager (NTLM) authentication, 89

O

- OABs (Online Address Books)
 - configuring, 36
 - creating, 36
- objectionable messages, 113
- objectives
 - 1.1 Prepare the Infrastructure for Exchange, 1–9
 - 1.2 Install Exchange Prerequisites, 9–14
 - 1.3 Install Exchange Roles, 14–22
 - 1.4 Create and Configure Databases, 22–30
 - 2.2 Configure RBAC, 52–57
 - 2.3 Create and Configure Resource Mailboxes and Shared Mailboxes, 57–62
 - 2.4 Create and Configure Recipients and Distribution Groups, 62–69
 - 2.5 Create and Configure Public Figures, 69–74
 - 3.1 Configure POP, IMAP, and Microsoft ActiveSync, 77–85
 - 3.2 Configure Outlook Anywhere and RPC Client Access, 85–91
 - 3.3 Configure Federated Sharing, 91–100
 - 3.4 Configure Outlook Web App (OWA), 100–107
 - 4.1 Create and Configure Transport Rules, 111–120
 - 4.2 Configure Hub Transport, 121–125
 - 4.3 Configure Edge Transport, 126–130
 - 4.4 Configure Message Routing, 130–143
 - 5.2 Monitor Mail Flow, 150–156
 - 5.3 Monitor Connectivity, 156–162
 - 5.4 Generate Reports, 163–169
 - 6.1 Create and Configure the Database Availability Group (DAG), 179–186
 - 6.2 Perform Backup and Restore of Data, 187–193
 - 6.3 Configure Public Folders for High Availability, 194–198
 - 6.4 Configure High Availability for Non-Mailbox Servers, 198–202
 - 6.5 Back Up and Recover Server Roles, 203–208
 - 7.1 Configure Records Management, 213–221
 - 7.2 Configure Compliance, 221–229
 - 7.3 Configure Message Integrity, 230–234
 - 7.4 Configure Antivirus and Anti-spam, 234–242
 - Configure Logging, 168–175
 - Create and Configure Mailboxes, 41–52
 - Monitor Databases, 145–150
- Office 2010
 - Filter Packs, 11
- offline addresses
 - configuring, 31
- Old-Retention-Policy, 215
- Online Address Books. *See* OABs
- online mailboxes
 - moves, 46
- OPATH filtering syntax, 31
- operating systems, requirements for Exchange installation, 4–5
- organizational relationships, federated sharing, 94
- Organization Management role, delegating, 20
- OrgID (Federated Organization Identifier), 94
- Outlook 2010
 - configuring mail tips, 227–229
 - creating public folders, 72–73
 - federated sharing, 96–97
 - IRM functionality, 222
 - message classification, 225–226
 - retention tags, 216
 - Safe Senders option, 237

- Outlook Anywhere, 85
 - Autodiscover, 86
 - certificates, 87–88
 - client access arrays, 87
 - enabling on Client Access server, 89–90
 - managing, 89
 - monitoring connectivity, 159–160
 - NT LAN Manager (NTLM)
 - authentication, 89
 - SANs, 88
 - troubleshooting, 90
 - virtual directories, 88–89
 - Outlook EWS, monitoring connectivity, 160
 - Outlook Providers, 88–89
 - Outlook Web Access
 - creating public folders, 72–73
 - Outlook Web App. *See* OWA (Outlook Web App)
 - OWA (Outlook Web App)
 - clients, retention tags, 216
 - configuring mail tips, 227–229
 - disabling IRM in, 223
 - IRM message protection, 222
 - message classification, 225–226
 - S/MIME, 230
 - OWA (Outlook Web App)
 - configuring, 100–107
 - authentication, 105
 - certificates, 102
 - client access settings, 106–107
 - coexistence scenarios, 105
 - ECP (Exchange Control Panel), 103
 - external names, 106
 - interface, 102
 - JavaScript support, 103–104
 - mailbox policies, 107–108
 - public folders, 103
 - SANs, 104
 - segmentation settings, 107
 - virtual directories, 104–105
 - Windows file shares, 102
 - WSS (Windows Sharepoint Services), 102
 - mobile device policies, 81
 - multi-browser support, 103–104
 - WebReady, 106
 - Owner role, 72
- P**
- PCL, 237
 - PCL (Phishing Confidence Level)
 - configuring, 49
 - permissions
 - check scan, 167
 - delegating, 50
 - Full Access, 49–50
 - groups, 4–5
 - legacy, Exchange Server, 6
 - public folders, 72–73
 - resource mailboxes, 59–60
 - Send-As, 49–50
 - distribution groups, 68
 - Personally Identifiable Information. *See* PII phishing, 237
 - PII (Personally Identifiable Information)
 - transport rules, 233
 - poison message queues, 153
 - policies
 - e-mail addresses
 - configuring, 33–34
 - creating, 33–34
 - filterable properties, 33
 - mailboxes
 - ActiveSync, 84–85
 - OWA, 107–108
 - sharing, 95
 - mobile devices, 80–81
 - sharing, 95
 - assigning to user accounts, 99–100
 - creating/configuring, 98–99
 - removing, 99
 - POP3
 - configuring, 78–79
 - enabling, 78–79
 - monitoring connectivity, 160–161
 - security, 78–79
 - precedence, message classifications, 226
 - premium journaling option, 223
 - PrepareAD command, 3, 4
 - PrepareLegacyExchangePermissions
 - command, 6
 - PrepareSchema command, 2
 - prerequisite scripts, Exchange Server 2010, 13–14
 - properties
 - Outlook Anywhere, 89
 - Properties dialog box, 45, 220
 - protocol logging, 169–170
 - provisioning Exchange Server 2010, 20
 - proxy addresses, 47–48
 - configuring, 66
 - creating, 66
 - Public Folder Management Console, 70, 72, 195
 - Public Folder Management role group, 73
 - public folders
 - configuring, 69–75
 - permissions, 72–73
 - quota limits, 74

- configuring database settings, 29
- creating, 69–75
- creating databases, 16, 25–26
- databases, 26
- deleted items, 70
- high availability, 194
 - message tracking, 197
 - replicas, 195
 - schedules, 196–197
- item age, 71
- managing, 73
- managing databases, 25–26
- message size, 70–71
- OWA, 103
- permissions, 72–73
- scripts, 25
- size, 71
- statistics, 146
- public key cryptography, 230–234
- publishing address lists, 32–33
- PublishingAuthor role, 72
- PublishingEditor role, 72

Q

- quarantine mailboxes, 240
- queues, managing message, 152–155
- Queue Viewer, 152
- Queue Viewer tool, 152–153, 153
- quota settings
 - mailboxes, 44–45
 - public folders, 74

R

RBAC

- configuring, 52–56
- permissions, configuring databases, 24
- roles, 53–54
- scopes, 54–55

RBL (real-time block list), 238–239

RDB (recovery database), 188

- creating backup schedule, 193–194
- deleted item retention, 190–191
- deleted mailbox retention, 190–191
- dialtone restores, 189–190
- disconnected mailbox, 192
- Exchange server back up, 192–193
- mailbox merge, 191–192

readiness check (Exchange), 5

real-time block list. *See* RBL

receive connectors

- message transport routing, 134–136
- SMTP, 141–142

recipient filter agents, 171

recipients

- configuring, 62–68
- creating, 62–68
- records management, 213–221
 - custom folders, 214
 - default folders, 214
 - managed folder mailbox policies, 219–220
 - managed folders, 218
 - retention policy tags (RPTs), 215–218

Recoverable Items folders, 190–191

recovering

- database (RDB), 188–190
 - creating backup schedule, 193–194
 - deleted item retention, 190–191
 - deleted mailbox retention, 190–191
 - dialtone restores, 189–190
 - disconnected mailbox, 192
 - Exchange server back up, 192–193
 - mailbox merge, 191–192
- high availability public folder, 197–198
- server roles, 203–204
 - Client Access server, 204
 - clustered Mailbox server, 206
 - disaster recovery, 207–208
 - Edge Transport server, 205
 - Edge Transport services, 205–206
 - Exchange 2010 server, 206
 - from backup, 208–209
 - Hub Transport server, 204
 - Mailbox server, 207
 - message services configuration, 208
 - Unified Messaging server roles, 208

recovering deleted items, 43

Registry Editor, suppressing link state updates, 7

relay connectors, message transport routing, 138

Remote Connectivity Analyzer, 91

remote delivery queues, 153

remote domains, message transport routing, 141

Remove-AcceptedDomain cmdlet, 123

Remove-ActiveSyncDevice cmdlet, 81

Remove-ContentFilterPhrase cmdlet, 241

Remove-DatabaseAvailabilityGroupServer cmdlet, 184

Remove-EdgeSubscription cmdlet, 129

Remove-Mailbox cmdlet, 44

Remove-MailboxDatabase cmdlet, 27

Remove-MailboxDatabaseCopy cmdlet, 184

Remove-ManagementRoleAssignment cmdlet, 100

Remove-Message cmdlet, 155

Remove-OutlookProtectionRule cmdlet, 120

Remove-PublicFolder cmdlet, 26

Remove-TransportRule TransportRule, 115

- removing. *See also* deleting
 - legacy components in Exchange Server, 8
 - sharing policies, 99
- replicas, public folder high availability, 195
- replication, Database Availability Group (DAG), 186
- replication latency, Database Availability Group (DAG), 182
- reports, generating, 163
 - ExBPA, 167
 - FT cmdlet, 166–167
 - mailbox folder statistics, 163–164
 - mailbox statistics, 164
 - mail flow statistics, 165–166
- Resource Booking Attendant, 60
- resource mailboxes
 - configuring, 57–61
 - configuring properties, 60
 - creating, 57–61
 - custom resource types, 61
 - equipment, 57–58
 - permissions, 59–60
 - room, 57–59
- Restore-Mailbox cmdlet, 188, 191
- Resume-Queue cmdlet, 154
- retention limits
 - databases, 24–25
- retention policies
 - New-Retention-Policy, 215
 - Old-Retention-Policy, 215
- retention policy tags (RPTs), 213
 - applying, 216–218
 - configuring, 216–218
 - MyRetentionPolicyTag, 215
 - Tag-PersonalArchive, 217
- Retry-Queue cmdlet, 154
- return policy tags (RPTs), managed folders, 215
- Reviewer role, 72
- Rights Management Service. *See* RMS rights management templates, transport rules, 229–230
- RMS Federation, 232–233
- RMS (Rights Management Service)
 - configuring, 222–223
- RMS (Rights Management Services), 111
 - pre-licensing agent, 117–119
- roles
 - adding after installation, 21–22
 - adding from command line, 15–16
 - adding from GUI, 15–16
 - adding server roles to Exchange 2003, 16–17
 - adding server roles to Exchange 2007, 16–17
 - Address Lists Management, 56
 - answer files, 13
 - Client Access, 12
 - configuring RBAC, 53–54, 55–56
 - Delegated Setup
 - Edge Transport, 12, 17, 19
 - Exchange Server 2010 installation, 12–13
 - Hub Transport, 12
 - installing Exchange Server 2010, 19
 - installing, 14–22
 - Mailbox, 12
 - installing Exchange Server 2010, 19
 - modifying from command line, 15–16
 - modifying from GUI, 15–16
 - Organization Management
 - delegating, 20
 - Unified Messaging, 19
- role services
 - Exchange Server 2010 installation, 12–13
- room mailboxes, 57–59
- routing, message transport, 130–131
 - accepted domains, 141
 - authentication, 139
 - certificates, 137
 - group connector coexistence, 140–141
 - internal/external DNS, 130–131
 - message delivery limits, 142
 - message size limits, 139–140
 - MTLS, 140
 - relay connectors, 138
 - remote domains, 141
 - send and receive connectors, 134–136
 - sites and costs based, 132–134
 - SMTP send and receive connectors, 141–142
 - TLS security, 142
- RPC, 85
 - disabling encryption, 90
 - MAPI connections, 86
- RPC/MAPI, monitoring connectivity, 158–159
- RPTs (retention policy tags), 213
 - applying, 216–218
 - configuring, 216–218
 - MyRetentionPolicyTag, 215
 - Tag-PersonalArchive, 217
- RPTs (return policy tags), managed folders, 215

rules

- journaling, 224
- transport. *See* transport rules
- transporting messages, 111–112
 - configuring rights protection, 119–121
 - disclaimers, 116
 - enabling, 112–116
 - moderate transport implementation, 117–118
 - RMS pre-licensing agent installation, 117–119

S

- Safe Senders option, 237
- SANs (subject alternativenames)
 - federated sharing, 95
 - Outlook Anywhere, 88
 - OWA, 104
- scanners, file-level, 235
- schedules, public folder high availability, 196–197
- schema (Exchange), preparing, 2–3
- Schema Master role, Windows Server 2003 SP2, 4
- SCL (Spam Confidence Level)
 - configuring, 49
- SCL (Spam Confidence Level), configuring, 236
- scopes
 - management, 54
 - RBAC, 54–55
- Search-Mailbox cmdlet, 43
- SecGroup, 64
- Secure Multipurpose Internet Mail Extensions (S/MIME). *See* S/MIME (Secure Multipurpose Internet Mail Extensions)
- security
 - authentication. *See* authentication
 - IMAP4, 78–79
 - POP3, 78–79
 - Security Configuration Wizard, 18
 - TLS
 - message delivery, 142
- Security Configuration Wizard, 18
- security-enabled distribution groups, 64–65
- segmentation settings (OWA), 107
- Select-Object cmdlet, 167
- Select-Object PowerShell cmdlet, 163
- self-signed certificates, 79–80
- Send-As permissions, 49–50
 - distribution groups, 68
- send connectors
 - message transport routing, 134–136
 - SMTP, 141–142

- sender filter agents, 171
- Sender ID, 237, 239
- sender identity (ID) agents, 171
- sender policy framework. *See* SPF (sender policy framework) records
- sender reputation level. *See* SRL
- Server Management RBAC role group, 24
- ServerManagerCMD, 13
- server roles
 - answer files, 13
 - Client Access, 12
 - Edge Transport, 12, 17
 - Hub Transport, 12
 - Mailbox, 12
- servers
 - DAG (Database Availability Group)
 - members, 184
 - Edge transport cloning, 127–128
 - non-mailbox high availability
 - configuration, 198–199
 - Client Access servers, 201–202
 - DNS round robin, 199
 - Edge Transport server, 202
 - Hub Transport servers, 202
 - MX records, 199
 - NLB, 200–201
 - recovering roles, 203–204
 - Client Access server, 204
 - clustered Mailbox server, 206
 - disaster recovery, 207–208
 - Edge Transport server, 205
 - Edge Transport services, 205–206
 - Exchange 2010 server, 206
 - from backup, 208–209
 - Hub Transport server, 204
 - Mailbox server, 207
 - message services configuration, 208
- Service Pack 2, 8
- service packs, domain controllers, 4–5
- Set-ActiveSyncMailboxPolicy cmdlet, 80, 84–85
- Set-ActiveSyncVirtualDirectory cmdlet, 82, 83, 83–84
- Set-AddressList cmdlet, 35
- Set-ADSiteLink cmdlet, 134
- Set-CalendarProcessing cmdlet, 59–60, 60
- Set-CASMailbox cmdlet, 49
- Set-ContentFilterConfig cmdlet, 237, 240, 241
- Set-DatabaseAvailabilityGroup cmdlet, 181, 182
- Set-DistributionGroup cmdlet, 65, 65–66
- Set-EcpVirtualDirectory cmdlet, 104
- Set-EdgeSyncServiceConfig cmdlet, 129
- Set-EmailAddressPolicy cmdlet, 125

- Set-EventLogLevel cmdlet, 171, 174
- Set-FederatedOrganizationIdentifier cmdlet, 97
- Set-FederationTrust cmdlet, 92
- Set-IRMConfiguration cmdlet, 118, 119, 222
- Set-IRMConfiguration –ExternalLicensingEnabled \$true, 118
- Set-IRMConfiguration –InternalLicensingEnabled \$true, 118–119
- Set-IRMConfiguration –OWAEnabled \$false, 119
- Set-IRMConfiguration –TransportDecryptionSetting optional, 119
- Set-JournalRule cmdlet, 224
- Set-Mailbox cmdlet, 43, 45, 68, 95, 191–192, 216
- Set-MailboxDatabase cmdlet, 26, 28, 191–192, 202
- Set-MailboxDatabaseCopy cmdlet, 183, 184, 185
- Set-MailboxServer cmdlet, 151–152
- Set-MailPublicFolder cmdlet, 71
- Set-ManagedFolder cmdlet, 218
- Set-ManagedFolderMailboxPolicy cmdlet, 220
- Set-MessageClassification cmdlet, 226
- Set-MessageTrackingLog cmdlet, 228
- Set-OrganizationConfig cmdlet, 228
- Set-OrganizationRelationship cmdlet, 95
- Set-OutlookAnywhere cmdlet, 89
- Set-OutlookProvider cmdlet, 88
- Set-OWAMailboxPolicy cmdlet, 106, 107, 223
- Set-OwaVirtualDirectory cmdlet, 104, 105, 106, 107
- Set-OWAVirtualDirectory cmdlet, 106, 223, 231
- Set-PublicFolder cmdlet, 70, 195
- Set-PublicFolderDatabase cmdlet, 29, 196, 197
- Set-ReceiveConnector cmdlet, 137, 169
- Set-RetentionPolicy cmdlet, 215
- Set-RetentionPolicyTag cmdlet, 217
- Set-Send-Connector cmdlet, 135
- Set-SendConnector cmdlet, 169
- Set-SharingPolicy cmdlet, 99
- Set-TransportConfig cmdlet, 122–123
- Set-TransportRule cmdlet, 115
- Set-TransportServer cmdlet, 128, 132, 151, 169, 170, 172
- Setup command, 2, 3, 4
- setup.exe, Exchange Installation Wizard and, 16
- shared mailboxes
 - configuring, 57–61
 - creating, 57–61
- sharing policies
 - assigning to user accounts, 99–100
 - creating/configuring, 98–99
 - federated sharing, 95
 - removing, 99
- sharing relationships, 97–98
- sites, message transport routing, 132–134
- size
 - messages
 - configuring maximum size, 45
 - public folders, 70–71
 - public folders, 71
- S/MIME (Secure Multipurpose Internet Mail Extensions), 230–234
 - configuring message integrity, 230–234
 - disabling for OWA, 231
 - enabling for OWA, 231
- SMTP
 - monitoring connectivity
 - client to server, 157
 - server to server, 158
 - send and receive connectors, 141–142
- SMTP Address Space dialog box, 17
- SMTP servers, block list messages, 238
- snap-ins, Active Directory Schema, 5
- Sort-Object cmdlet, 167
- Sort-Object PowerShell cmdlet, 163, 164
- spam. *See also* anti-spam
 - configuring Exchange 2010, 234–242
- Spam Confidence Level (SCL),
 - configuring, 236
- SPF (sender policy framework) records, 239–240
- SRL (sender reputation level), 239–240
- SSL certificates, managing, 79–80
- SSL encryption, 82
- stamps (anti-spam), 49
- standard journaling option, 223
- Start-EdgeSynchronization cmdlet, 129
- statistics
 - mailbox databases, 147–148
 - mailboxes
 - folders, 163–164
 - generating reports, 164–165
 - public folders, 146
 - store logging, 170–171
- Subject alternative names. *See* SANs (subject alternativenames)
- submission queues, 153
- Suspend-MailboxDatabaseCopy cmdlet, 186

Suspend-PublicFolderReplication cmdlet, 195
Suspend-Queue cmdlet, 154
synchronization, Edge transport, 129–130

T

tables, formatting, 166–167
Tag-PersonalArchive, 217
TechNet document
 Remove-PublicFolder cmdlet, 26
TechNet documents
 activating lagged mailbox database copies, 183
 ActiveSync mailbox policies, 84
 adding and removing servers, 185
 adding roles to role groups, 54
 AD RMS, 118
 agent logging, 172
 agent priority, 171
 anonymous relay, 138
 assigning services to certificates, 80
 audit logging, 228
 Autodiscover, 81
 backpressure thresholds, 155
 Categorizer, 133
 CheckDatabase
 Redundancy.ps1 script, 149
 client access arrays, 202
 Client Access servers, 205
 cloning Edge Transport server, 206
 CollectOverMetrics.ps1 script, 149
 CollectReplicationMetrics.ps1 script, 149
 configuring anti-spam agents for Hub Transport servers, 240
 configuring external names for OWA, 106
 configuring external namespace for client access, 83
 configuring IMAP4, 79–80
 configuring mailbox database properties, 28
 configuring POP3, 79–80
 configuring resource mailbox properties, 60
 configuring segmentation in OWA, 107
 configuring SSL for Outlook Anywhere, 88
 continuous replication, 186
 creating certificates, 80
 creating Database Availability Group (DAG), 181
 creating mailboxes, 48
 creating public folders, 70
 creating SMTP Receive connector, 142
 creating SMTP Send connector, 141
 creating transport rules, 114
 crimson channels, 174
 cross-forest mailbox moves, 47
 DAG member server recovery, 206
 Database Availability Group (DAG), 180
 Database Availability Group (DAG) properties, 181
 default public folder databases, 26
 deploying Exchange Server 2010 Edge Transport server role, 17
 dialtone recovery, 190–191
 digital certificates, 79–80, 80
 disaster recovery, 208
 domain functional level, 4
 dsquery server command, 5
 ECP, 104
 Edge Sync, 127
 Edge Transport server cloning, 127
 Edge transport server properties, 129
 Edge transport server role, 128
 Edge Transport server role, 205
 email address policies, 125
 EMS Get-FederationInformation cmdlet, 94
 EMS Get-TransportRule cmdlet, 115
 EMS New-OrganizationRelationship cmdlet, 94
 EMS New-SharingPolicy cmdlet, 99
 EMS Set-DistributionGroup cmdlet, 117
 EMS Set-FederatedOrganizationIdentifier cmdlet, 95, 97
 EMS Set-OutlookAnywhere cmdlet, 89
 EMS Set-SharingPolicy cmdlet, 99
 ExBPA, 167
 Exchange legacy permissions, 6
 Exchange Remote Connectivity Analyzer, 160
 Exchange Server 2010 changes, 182
 Exchange Server 2010 discontinued features, 207
 Exchange Server 2010 SP2, 36
 Exchange Server deployment, 6
 exporting transport rules, 116
 failovers, 185
 file and process exclusions, 236
 file share witness (FSW), 182
 forest functional level, 4
 Format-List cmdlet, 167
 Format-Table cmdlet, 167
 Get-DistributionGroupMember cmdlet, 216

- Get-Mailbox cmdlet, 215
- Get-MailboxDatabase cmdlet, 148
- Get-MailboxDatabaseCopyStatus cmdlet, 148
- Get-MailboxFolderStatistics cmdlet, 164
- Get-MailboxStatistics cmdlet, 147
- Get-MailboxStatistics cmdlet, 192
- Get-MessageTrackingLog cmdlet, 174
- Get-OutlookProtectionRule cmdlet, 120
- Get-PublicFolderDatabase cmdlet, 30, 148
- Get-Queue cmdlet, 153
- Get-RMSTemplate cmdlet, 222
- Get-StoreUsageStatistics cmdlet, 147
- high availability for non-Mailbox server roles, 202
- Hub Transport server role, 204
- Hub Transport servers, 133
- importing transport rules, 116
- installing Exchanger 2010 server role, 17
- installing Exchange Server 2010, 16
- journaling mailboxes, 224
- load balancing on Transport servers, 199
- mailbox policies, 220
- Mailbox server role, 207
- Mail Flow troubleshooter, 156
- managed folders, 214
- managing address lists, 35
- managing DNS resource records, 199
- message classifications, 226
- message delivery limits, 142
- Message Life Span, 219
- message tracking, 151, 197
- Microsoft Federation Gateway, 96
- Microsoft Federation Gateway enrollment, 93
- moderated transport, 117
- Move-OfflineAddressBook cmdlet, 33
- moving mailbox database path, 29
- multi-browser support for OWA, 103
- New-ExchangeCertificate cmdlet, 138
- New-FederationTrust cmdlet, 93
- New-ForeignConnector cmdlet, 136
- New-MailboxDatabase cmdlet, 28–29
- New-ManagedFolder cmdlet, 214
- New-MoveRequest cmdlet, 46
- New-OfflineAddressBook cmdlet, 32–33
- New-OutlookProtectionRule cmdlet, 120
- New-ReceiveConnector cmdlet, 137
- New-RetentionPolicy cmdlet, 215
- New-SendConnector cmdlet, 135
- New-TransportRule cmdlet, 112, 120
- NLB, 201
- Outlook Anywhere, 159
- Outlook protection rules, 118
- OWA, 103
- OWA virtual directories, 105
- preparing Active Directory, 3
- public folder replication, 195, 197
- public folders, 71
- public folder scripts, 25
- Queue Viewer, 152
- Remote Connectivity Analyzer, 91
- Remove-MailboxDatabase cmdlet, 27
- Remove-ManagementRoleAssignment cmdlet, 100
- replication latency, 182
- Restore-Mailbox cmdlet, 192
- retention age, 191–192
- retention policies, 217
- retention policy tags (RPTs), 217
- RMS federation, 233
- routing group connectors, 140
- SCL (Spam Confidence Level), 237
- seeding/updating mailbox database copies, 186
- ServerManagerCMD.exe, 13
- Set-AddressList cmdlet, 36
- Set-ADSiteLink cmdlet, 134
- Set-EventLogLevel cmdlet, 171
- Set-ForeignConnector EMS cmdlet, 140
- Set-Mailbox cmdlet, 216
- Set-MailboxServer cmdlet, 152
- Set-ManagedFolder cmdlet, 218
- Set-ManagedFolderMailboxPolicy cmdlet, 220
- Set-OrganizationConfig cmdlet, 228
- Set-PublicFolder cmdlet, 70
- Set-PublicFolderDatabase cmdlet, 30, 198
- Set-ReceiveConnector cmdlet, 137, 170
- Set-RetentionPolicy cmdlet, 215
- Set-RetentionPolicyTag cmdlet, 218
- Set-Send-Connector cmdlet, 135
- Set-SendConnector cmdlet, 170
- Set-TransportServer cmdlet, 132, 151, 170
- Set-TransportTules EMS cmdlet, 114
- SMTP events, 171
- SMTP failover, 199
- Sort-Object PowerShell cmdlet, 164
- SRL (sender reputation level), 239
- SSL certificates, 79–80, 80
- suppressing link state updates, 7
- switchovers, 185
- Telnet SMTP testing, 158

- Test-ActiveSyncConnectivity cmdlet, 162
- Test-ImapConnectivity cmdlet, 161
- testing Outlook Anywhere, 160
- Test-IRMConfiguration cmdlet, 119
- Test-Mailflow cmdlet, 165
- Test-MapiConnectivity cmdlet, 159
- Test-PopConnectivity cmdlet, 161
- Test-WebServicesConnectivity cmdlet, 160
- TLS functionality and terminology, 142
- transport agents, 171
- transport protection rules, 234
- transport queues, 133
- transport queue types, 153
- transport rule actions, 113
- transport rule application, 113
- transport rule enabling/disabling, 115
- transport rule predicates, 112
- transport settings dumpster, 122
- Update-AddressList cmdlet, 35
- upgrading OWA, 105
- wbadmin command, 194–195
- Windows Server 2008 R2, 201
- Windows Server 2008 RS SP1 back-up, 193–194
- Windows Server Backup, 209
- Telnet tool, SMTP connectivity, 157
- Test-ActiveSyncConnectivity cmdlet, 82, 161–162
- Test-EdgeSynchronization cmdlet, 126, 129
- Test-ImapConnectivity cmdlet, 161
- Test-IPAllowListProvider cmdlet, 238–239
- Test-IRMConfiguration, 119
- Test-IRMConfiguration cmdlet, 119
- Test-Mailflow cmdlet, 165
- Test-MapiConnectivity cmdlet, 158–159
- Test-OutlookConnectivity cmdlet, 86, 90, 160, 161
- Test-OutlookWebServices cmdlet, 81
- Test-PopConnectivity cmdlet, 160
- Test-ReplicationHealth cmdlet, 148–149
- Test-WebServicesConnectivity cmdlet, 160
- TLS security, message delivery, 142
- Tracking Log Explorer, 173, 228
- tracking messages, 150–152, 197
- transaction log locations
 - moving, 28–29
- transport agents, 171
- transporting messages
 - Edge transport, 126–130
 - Hub Transport, 122–126
 - routing, 130–141

- rules, 111–112
 - configuring rights protection, 119–121
 - disclaimers, 116
 - enabling, 112–116
 - moderate transport
 - implementation, 117–118
 - RMS pre-licensing agent
 - installation, 117–119
- transport rules, 229–230
 - configuring antivirus/anti-spam, 236
 - message integrity, 233–234
- PII (Personally Identifiable Information), 233
- rights management templates, 229–230
- troubleshooting
 - Exchange Server 2010 installation, 21
 - Outlook Anywhere, 90
- trusts
 - configuring, 97–98
 - federated trusts, 96–97

U

- Unicast Mode, 200
- Unified Messaging role, 19
- Unified Messaging servers, 208
- Universal security group, 64
- unreachable queues, 153
- Update-AddressList cmdlet, 35
- Update-EmailAddressPolicy cmdlet, 125
- Update-PublicFolderHierarchy cmdlet, 195
- updating
 - content filters, 241–242
 - legacy address lists, 31
- upgrading Exchange Server, 8
- UseDatabaseReplication
 - Schedule parameters, 196
- user accounts, sharing policies, 99–100
- users, mail-enabled users, 66

V

- virtual directories
 - ActiveSync, 82
 - Outlook Anywhere, 88–89
 - OWA, 104–105

W

- warning quotas, 45
- WebReady, OWA, 106
- Windows Complete PC Restore Wizard, 208
- Windows file shares (OWA), 102

- Windows Firewall with Advanced Security, 18
- Windows Live Domain Services, 92–93
- Windows PowerShell 2.0
 - Exchange Server installation, 11
- Windows Rights Management Services (RMS), 111
- Windows Server 2003
 - forest functional level, 4
- Windows Server 2003 SP2
 - Global Catalog server, 4
 - Schema Master role, 4
- Windows Server 2008
 - domain functional level, 4
- Windows Server 2008 with R2
 - Exchange Server installation software requirements, 10
- Windows Server 2008 with SP2
 - Exchange Server installation software requirements, 10
- Windows Server Backup, 208–209
- Windows SharePoint Services (WSS). See WSS
- WinRM 2.0
 - Exchange Server installation, 11
- wizards
 - Edit E-mail Address Policy, 34
 - EMC New Address List, 34
 - EMC New Distribution Group, 63
 - EMC New Dynamic Distribution Group, 66
 - EMC New Mailbox, 58
 - EMC New Mailbox Database, 25
 - EMC New Mail Contact, 67
 - EMC New Managed Custom Folder, 214
 - EMC New Managed Folder Mailbox Policy, 220
 - EMC New Online Address Book, 36
 - Exchange Installation, 15
 - verifying Exchange 2010 installation, 17
 - Exchange Server 2010 Installation readiness check, 5
 - Move Database Path, 25
 - New Exchange ActiveSync Mailbox Policy, 80
 - New Mailbox Database, 25
 - New Organizational Relationship, 94
 - New Public Folder Database, 25
 - New Send Connector, 17
 - New Transport Rule, 229
 - Security Configuration, 18
- WSS (Windows SharePoint Services)
 - ActiveSync, 83
 - configuring OWA, 102

X

- X.509 certificates, 93

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