

Deploying SharePoint 2016

Best Practices for Installing, Configuring,
and Maintaining SharePoint Server 2016



Vlad Catrinescu

Trevor Seward

Contents

About the Authors	Xix
About the Technical Reviewer	xxi
Acknowledgments	xxiii
Introduction	xxv
■ Chapter 1: Introduction to SharePoint 2016	1
What's New in SharePoint Server 2016	3
MinRole.....	3
Data Loss Prevention	3
Durable Links.....	4
Large File Support	5
SMTP Encryption	5
Zero Downtime Patching	5
Project Server Integration.....	6
List View Threshold.....	6
Fast Site Collection Creation.....	6
Recently Shared Items.....	6
TLS 1.2 Encryption.....	6
Hybrid Features in SharePoint 2016.....	7
Removed Features	12
SharePoint Foundation	12
User Profile Service Synchronization	12
Excel Services in SharePoint.....	13
Tags and Notes	13

Work Management Service	13
Standalone Install Mode	14
Next Steps	14
Chapter 2: Designing a Physical Architecture	15
SharePoint Server 2016 Farm Architecture.....	15
Hardware and Software Requirements	20
Virtualization	21
Virtualization Limitations and Restrictions	21
Network Requirements	22
Network Load Balancers	23
Service Accounts.....	23
SharePoint Farm Topology Options	25
Single Server Farm.....	25
Three-Tier Farm.....	25
Traditional Highly Available Farms.....	26
MinRole Farms.....	28
Zero Downtime MinRole Farms	28
Zero Downtime Traditional Farms.....	30
Traditional Service Application Topology	30
Streamlined Service Application Topology.....	30
Topology Service	30
Hybrid Considerations	31
SQL Server Architecture	31
Performance	31
High Availability and Disaster Recovery	31
Load Generation/Load Testing	32
Architecture in Action.....	32
Business Intelligence	35
Next Steps	35

Chapter 3: Installing SharePoint Server 2016	37
Active Directory Configuration	37
Service Accounts.....	39
BIOS and Windows Power Management	40
Host-Based Antivirus.....	40
Windows Server Configuration for SQL Server.....	41
Network Adapter Configuration	41
Storage Configuration.....	42
Identity Configuration	42
Failover Cluster Configuration	43
SQL Server 2014 Installation.....	44
SQL Server Installation	44
SQL Server AlwaysOn Availability Group Configuration	45
Kerberos Configuration.....	47
Model Database.....	47
MAXDOP.....	48
Instant File Initialization.....	48
SharePoint Server 2016 Installation.....	48
Disable Insecure Transport Security Protocols	48
Prerequisite Silent Installation.....	49
SharePoint Server 2016 Configuration	52
Central Administration	52
SQL Kerberos Validation	57
Adding SharePoint Servers.....	57
Central Administration High Availability.....	59
Service Auto Provision	59
Outgoing E-Mail	60
Information Rights Management	61
Managed Accounts	62
Service Application Pool.....	62
Diagnostic Logging	62

Claims to Windows Token Service	63
Distributed Cache Service	64
Service Applications	65
State Service	65
Usage and Health Data Collection Service Application.....	66
App Management Service	66
Secure Store Service	66
Business Data Connectivity Service	67
Managed Metadata Service.....	67
SharePoint Enterprise Search Service.....	67
User Profile Service	69
Completing Service Application Setup.....	70
Web Application Setup.....	70
Root Site Collections.....	72
Content Type Hub and Enterprise Search Center Configuration	72
MySite Configuration	72
User Profile User Import	73
Virtual Machine Templates	73
Next Steps	73
■ Chapter 4: Configuring Authentication and Security	75
Authentication Methods	75
Basic.....	75
NTLM	75
Kerberos	76
Security Assertion Markup Language.....	78
Forms-Based Authentication	78
Authorization	79
Transport Security	79
TLS.....	79
IPsec	79
Encryption Protocols.....	79

Firewalls.....	83
Windows Firewall	83
Firewall Appliances.....	83
Access Rules	84
Next Steps	85
■ Chapter 5: Configuring Add-ins	87
SharePoint Add-in Architecture Overview	87
Configuring DNS	90
Configuring SharePoint	98
Post Configuration Settings.....	102
The App Catalog	103
Creating an App Catalog Site Collection	104
Configure Requests	105
Next Steps	109
■ Chapter 6: Configuring the Search Service Application	111
SharePoint Search Service Application Architecture.....	111
Search Service Application Limitations.....	113
Creating a Search Service Application	113
Creating a Search Service Application from Central Administration	113
Creating a Search Service Application by Using PowerShell.....	117
Modifying the Search Service Application Topology.....	118
Configuring Search Settings.....	123
Configuring the Default Content Access Account	123
Creating Content Sources	125
SharePoint Security and Search Performance	133
Selecting the Search Center	134
Analyzing Crawl Logs	135
Resetting the Index	138
Next Steps	140

Chapter 7: Configuring the User Profile Service	141
Initial Configuration	141
External Identity Manager Configuration.....	147
Configuring Additional Import Properties.....	151
Configuring Export Properties.....	154
Custom Properties	158
Audiences.....	158
OneDrive for Business	160
Next Steps	161
Chapter 8: Configuring Productivity Service Applications	163
Managed Metadata Service Application.....	163
Business Data Connectivity Service.....	167
Word Automation Services	168
PowerPoint Automation Service	172
Visio Graphics Service.....	173
Machine Translation Services.....	174
Access Services 2010	177
Access Services 2013	178
Next Steps	187
Chapter 9: Configuring Office Online Server for SharePoint	189
Office Online Server Architecture Overview	189
Installing Office Online Server 2016.....	192
Creating the Office Online Server Farm.....	195
SSL Configuration	197
Connecting Office Online Server with SharePoint 2016.....	198
Office Online Server Maintenance.....	199
Patching Office Online Server.....	200
Next Steps	201

Chapter 10: Workflow Manager	203
Initial Setup	203
SSL Configuration	211
SharePoint Server Workflow Manager Integration	211
Testing Workflow Manager with SharePoint Designer 2013	212
Next Steps	215
Chapter 11: SharePoint and Exchange Integration	217
Site Mailbox Overview	217
Configure SharePoint Server 2016 Site Mailbox	219
Installing Exchange Web Services Managed API	219
Establish OAuth Trust and Permissions on SharePoint	220
Configure Exchange Server 2016 for Site Mailboxes	221
Exchange Photo Synchronization	222
Next Steps	223
Chapter 12: Business Intelligence Service Applications	225
SharePoint Server 2016 Business Intelligence Architecture	225
Installing SSAS in PowerPivot Mode	226
Configuring Office Online Server for BI	229
Configuring PowerPivot Services	231
Configuring SSRS	238
Next Steps	242
Chapter 13: Creating Web Applications and Site Collections	243
SharePoint Web Architecture	243
Web Applications	244
Alternate Access Mappings	250
Extending a Web Application	254
Web Application User Policy	257
Object Cache Accounts	259
Content Databases	260

Site Collections	263
Path-Based Site Collections	263
Site Quotas	266
Managed Paths.....	267
Host Named Site Collections	270
Fast Site Collection Creation	272
Next Steps.....	274
■ Chapter 14: Hybrid Scenarios.....	275
What Is a Hybrid Deployment?	275
Authentication and Authorization	275
Architecture Overview.....	276
Hybrid Search Options.....	276
Hybrid Federated Search Overview	277
Hybrid Cloud Search Overview	277
Which Option Should You Choose?	278
Prerequisites	278
SharePoint Server Prerequisites.....	278
Licensing Prerequisites	278
Reverse Proxy Requirements.....	279
Accounts Needed for Hybrid Configuration and Testing	279
Domain User Requirements.....	280
Certificate Requirements.....	280
Software	281
Hybrid Features Required Configurations.....	282
Configure Server-to-Server Authentication	282
Replacing the Default STS Certificate.....	282
Upload the STS Certificate to SharePoint Online	283
Add a Service Principal Name to Azure Active Directory	285
Register the SharePoint Online Application Principal	286
Set the Authentication Realm	286

Configure the On-Premises Proxy for Azure AD.....	286
Hybrid OneDrive for Business.....	287
Hybrid Sites.....	291
Hybrid Federated Search.....	294
One-Way Outbound Federated Search.....	295
One-Way Inbound Federated Search.....	301
Hybrid Cloud Search.....	311
Setting Up the Cloud Search Service Application.....	311
On-Boarding Process.....	313
Crawling and Testing.....	314
Searching from SharePoint On-Premises.....	316
Customizing Your Search Results.....	318
Hybrid Business Connectivity Services.....	319
Creating an OData Source.....	319
Creating an External Content Type File.....	329
Creating a Secure Store Target Application.....	333
Creating a CSO.....	335
Configure External Content Type Files for Hybrid.....	336
Uploading the External Content Type to SharePoint Online.....	337
Testing the BDC Model.....	337
Next Steps.....	338
Chapter 15: Migrating to SharePoint Server 2016.....	339
Migration Path.....	339
Migrating Service Applications.....	340
Managed Metadata Service Application.....	340
Search Service Application.....	340
User Profile Service Application.....	341
Add-ins.....	343

Migrating Content.....	344
Migration Order	347
Next Steps	347
■ Chapter 16: Implementing High Availability and Disaster Recovery	349
Unsupported Methods	349
SQL Server High Availability	349
SQL Clustering	350
Database Mirroring.....	350
AlwaysOn Availability Groups.....	351
Disaster Recovery	352
Database Mirroring.....	352
Log Shipping.....	352
AlwaysOn Availability Groups.....	352
Initiating a Disaster Recovery Failover.....	361
Cloud Disaster Recovery	363
Next Steps	363
■ Chapter 17: Patching SharePoint Server 2016	365
The Basics of Patching.....	365
Upgrade Log Files.....	369
Highly Available Upgrades	370
Patching SQL Server	373
Next Steps	373
■ Chapter 18: Monitoring and Maintaining a SharePoint 2016 Deployment	375
Monitoring	375
IIS Logging.....	375
ULS Logging.....	377
Event Viewer.....	381
IIS Manager	383
Usage Logging	384

Central Administration Health Analyzer	386
Performance Monitor for SharePoint.....	387
Performance Monitor for SQL Server	388
System Center Operations Manager.....	388
Index.....	389