

Planning, Deploying, and Maintaining Guide for Dynamics 365

Version: 8.2

View the latest version of this document online.

[Planning](#)

[Installing](#)

[Operating](#)

Contents

Planning, Deploying, and Maintaining Guide for Dynamics 365	1
Planning on-premises Dynamics 365	18
In This Section.....	18
Related Sections	18
Planning your deployment of Microsoft Dynamics 365	18
Resources for planning and preparing users for Microsoft Dynamics 365	19
See Also	19
Microsoft Dynamics 365 editions and licensing.....	19
Editions and licensing for on-premises deployments.....	19
Microsoft Dynamics 365 (online) licensing.....	20
See Also	20
Microsoft Dynamics 365 system requirements and required technologies	21
See Also	22
Microsoft Dynamics 365 Server hardware requirements	22
See Also	23
Microsoft SQL Server hardware requirements for Microsoft Dynamics 365 Server.....	23
See Also	23
Software requirements for Microsoft Dynamics 365 Server	24
In This Topic.....	24
Windows Server operating system.....	24
Server virtualization	25
Active Directory modes	25
Internet Information Services (IIS)	26
SQL Server editions	26
Accessing Microsoft Dynamics 365 from the Internet - Claims-based authentication and IFD requirements	27
Software component prerequisites.....	29
Verify prerequisites.....	29
See Also	30
Active Directory and network requirements for Microsoft Dynamics 365.....	30
Federation and claims-based authentication support	30
Active Directory Federation Services	30
Digital certificates	31
IPv6 Support.....	31
See Also	31

Microsoft Dynamics 365 reporting requirements	31
In this topic	32
See Also	34
Microsoft Dynamics 365 language support	34
Microsoft Dynamics 365 Server language requirements	35
See Also	36
Prerequisites and considerations for planning your deployment of Microsoft Dynamics 365	36
In This Section	36
See Also	36
Hardware requirements	36
See Also	37
Software requirements	37
See Also	37
SQL Server installation and configuration	38
In This Section	38
Related Sections	39
SQL Server requirements and recommendations for Microsoft Dynamics 365	39
In this topic	39
General recommendations	39
Improve performance when you use Microsoft Dynamics 365 with SQL Server 2016	41
See Also	42
SQL Server deployment	42
In this topic	42
SQL Server deployment considerations	42
Language locale collation and sort order	43
Disk configurations and file locations	43
SQL Server program file location	44
SQL Server data file location	44
Microsoft Dynamics 365 database renaming considerations	45
SQL Server transparent data encryption (TDE)	46
SQL Server In-Memory OLTP	46
See Also	46
Additional resources for SQL Server	46
See Also	46
Planning requirements for SQL Server Reporting Services	47
Microsoft Dynamics 365 Reporting Extensions requirements	48
See Also	48

Security considerations for Microsoft Dynamics 365.....	49
In This Topic	49
What kind of service account should I choose?	49
Minimum permissions required for Microsoft Dynamics 365 Setup and services.....	49
Microsoft Dynamics 365 installation files	53
See Also	54
Security best practices for Microsoft Dynamics 365.....	54
Service principal name management in Microsoft Dynamics 365	55
See Also	55
Administration best practices for on-premises deployments of Microsoft Dynamics 365	56
See Also	56
Operating system and platform technology security considerations for Microsoft Dynamics 365	57
In this topic	57
Securing Windows Server	57
Securing SQL Server	58
Securing Exchange Server and Outlook	59
Securing mobile devices	60
See Also	60
Network ports for Microsoft Dynamics 365.....	60
In This Topic	60
Network ports for the Microsoft Dynamics 365 web application	61
Network ports for the Asynchronous Service, Web Application Server, and Sandbox Processing Service server roles	62
Network ports for the Organization Web Service server role	62
Network ports that are used by the SQL Server that runs the SQL Server and Microsoft Dynamics 365 Reporting Extensions server roles	63
See Also	64
Known risks and vulnerabilities	64
In This Topic	64
Risks when users connect to Dynamics 365 over an unsecured network.....	64
Security recommendations on server role deployments	64
Anonymous authentication	65
Isolate the HelpServer role for Internet-facing deployments.....	65
Claims-based authentication issues and limitations	65
Secure the web.config file	66
Outbound Internet calls from custom code executed by the Sandbox Processing Service are enabled	66
Secure server-to-server communication	67
DNS rebinding attacks.....	67

JavaScript allowed for Power BI URLs on personal dashboards.....	68
See Also	68
Microsoft Dynamics 365 supported configurations.....	68
Active Directory requirements	68
Single-server deployment.....	69
In This Section.....	70
See Also	70
Microsoft Dynamics 365 multiple-server deployment.....	70
Install server roles by running Microsoft Dynamics 365 Server Setup	70
Microsoft Dynamics 365 Server placement.....	71
SQL Server and Active Directory domain controller placement.....	71
See Also	71
Microsoft Dynamics 365 server roles	71
In This Topic.....	72
Available group server roles.....	72
Available individual server roles.....	74
Scope definition.....	76
Installation method definition.....	76
Install the Microsoft Dynamics 365 Asynchronous Service to process only asynchronous events or email.....	77
Microsoft Dynamics 365 Server role requirements	77
See Also	79
Support for Microsoft Dynamics 365 multiple-server topologies	80
In This Topic.....	80
Five-server topology.....	80
Multi-forest and multi-domain with Internet access Active Directory topology.....	81
See Also	84
Upgrade a Microsoft Dynamics CRM 2015 Server.....	84
In This Topic.....	84
Recommended upgrade steps	84
Microsoft Dynamics Server upgrade options	85
Microsoft Dynamics Server versions supported for upgrade	86
Upgrade product key	86
User permissions and privileges	86
Sharing a SQL Server	86
Tips for a successful upgrade	87
Next steps.....	87
See Also	87
Before you upgrade: issues and considerations	87

Upgrading from Microsoft Dynamics CRM 2015 to Microsoft Dynamics CRM 2016.....	88
Upgrading from previous versions of Microsoft Dynamics CRM.....	88
See Also	89
Upgrade the Microsoft Dynamics Deployment	89
In This Topic.....	89
The upgrade process	89
Prepare to upgrade	90
Establish the test environment	92
Upgrade and validate the test environment	93
What to do when you cannot successfully upgrade or migrate?.....	94
See Also	94
Advanced deployment options for Microsoft Dynamics 365 Server	94
Use a local package to update Setup files	94
Add or remove server roles	95
Use Windows Powershell to perform deployment tasks	95
In this section	95
See Also	95
Configure a Microsoft Dynamics 365 Internet-facing deployment.....	95
In This Topic.....	96
About claims-based authentication	96
Internet-facing server best practices	96
Configure IFD	97
See Also	97
Multi-organization deployment.....	98
See Also	98
Accessibility in Microsoft Dynamics 365.....	98
Accessibility features in browsers	99
See Also	99
Installing on-premises Dynamics 365.....	99
In This Section.....	99
Related Sections	100
Install or upgrade Microsoft Dynamics 365 Server.....	100
Components installed during Microsoft Dynamics 365 Server Setup.....	100
See Also	104
Microsoft Dynamics 365 Server installation.....	104
Install Microsoft Dynamics 365 Server	104
Microsoft Dynamics 365 installation files	105

In This Section.....	105
See Also	105
Install Microsoft Dynamics 365 Front End Server and Back End Server roles	106
In This Topic.....	106
Install Back End Server role.....	106
Install Front End Server role.....	110
Create the Microsoft Dynamics 365 organization	113
See Also	113
Install Microsoft Dynamics 365 Full Server role on a server without Microsoft Dynamics 365 installed	114
Install the Microsoft Dynamics 365 Server software	114
See Also	119
Install Microsoft Dynamics 365 Server on multiple computers.....	119
In This Topic.....	119
Multiple-server configuration overview.....	119
Step 1: Enable network load balancing.....	120
Step 2: Configure Active Directory	120
Step 3: Install Microsoft Dynamics 365 servers	121
Step 4: Configure failover clustering for the Microsoft Dynamics 365 deployment.....	122
Step 5: Verify and monitor the cluster installation.....	124
See Also	124
Install Microsoft Dynamics 365 Reporting Extensions	124
Install the Microsoft Dynamics 365 Reporting Extensions	125
See Also	126
Set configuration and organization databases for SQL Server AlwaysOn failover	126
Prerequisites.....	127
Enable SQL Server AlwaysOn	127
Create the availability group.....	128
Create the SQL logins for the Microsoft Dynamics 365 security groups on all secondary replicas... 129	
Update the configuration database connection strings in the Windows registry.....	130
Update the connection string in the configuration database	131
Restart IIS and Microsoft Dynamics 365 services.....	131
Monitor the availability group and test for failover.....	132
See Also	132
Upgrade Microsoft Dynamics CRM Server.....	133
Upgrade options	133
In This Section.....	133
Microsoft Dynamics CRM Server upgrade preparations	133

Estimate downtime due to upgrade.....	134
Software prerequisites.....	134
See Also	135
Upgrade from Microsoft Dynamics 2015 Server.....	135
Tasks to perform before the upgrade	136
Run the upgrade.....	136
See Also	138
Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011	139
In This Topic.....	139
Dynamics CRM upgrade best practices	139
In-place upgrade: Upgrade a CRM 2013 deployment using a valid CRM 2015 product key	139
Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key	140
Migrating from CRM 2011	142
See Also	142
Upgrade Microsoft Dynamics CRM Reporting Extensions	143
See Also	143
After the upgrade	143
Post-upgrade steps for servers	143
Post-upgrade steps for clients.....	144
See Also	145
Configure IFD for Microsoft Dynamics 365.....	145
In This Section.....	145
See Also	145
Implement claims-based authentication: internal access	145
In This Section.....	146
See Also	146
Deploy and configure AD FS	146
Deploy a federation server	146
Configure AD FS for Windows Server 2012 R2.....	147
Verifying AD FS installation.....	148
See Also	148
Configure the Microsoft Dynamics 365 Server for claims-based authentication.....	149
In This Topic.....	149
Set Microsoft Dynamics 365 Server binding to HTTPS and configure the root domain web addresses	149
The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate.....	150
Configuring claims-based authentication using the Configure Claims-Based Authentication Wizard.....	151

Configuring claims-based authentication using Windows PowerShell	153
Set Read permissions for the ADFSAppPool account	153
See Also	153
Configure the AD FS server for claims-based authentication	153
Configure the claims provider trust	154
Configure a relying party trust	154
Enable Forms Authentication	157
See Also	158
Add the AD FS website to the Local intranet security zone	159
Add the AD FS server to the Local intranet zone	159
See Also	159
Test internal claims-based authentication	159
Troubleshooting	159
See Also	160
Implement claims-based authentication: external access	160
In This Section	160
See Also	160
Configure the Microsoft Dynamics 365 server for IFD	160
Configure an Internet-facing deployment using the Configure Internet-Facing Deployment Wizard	161
See Also	164
Configure the AD FS server for IFD	165
Configure relying party trusts	165
See Also	166
Test external claims-based authentication	167
See Also	167
Dynamics 365 for tablets and IFD	167
See Also	168
Dynamics 365 for phones and IFD	168
See Also	169
Configure Microsoft Dynamics 365 for Outlook to use claims-based authentication	169
Set up a client for claims-based authentication	169
Use an administrative template (.adm) file	170
See Also	170
Troubleshoot Microsoft Dynamics 365 Server IFD	170
A quick checklist	171

AD FS	171
HTTP Error 401.1 - Unauthorized: Access is denied	174
Time differs between two servers	174
See Also	174
Troubleshooting installation and upgrade.....	174
Log files	174
See Also	175
Install or upgrade Language Packs for Microsoft Dynamics 365	175
Language Pack overview	175
In This Section.....	176
See Also	176
Install and enable a Language Pack	176
Install the Language Pack (on-premises only).....	176
See Also	177
Upgrade and enable a Language Pack	177
See Also	178
Install Microsoft Dynamics 365 Report Authoring Extension.....	178
Install the plug-in	179
See Also	180
Uninstall, repair, and change Microsoft Dynamics 365	180
In This Section.....	180
See Also	180
Uninstall, change, or repair Microsoft Dynamics 365 Server	181
See Also	182
Uninstall or repair Microsoft Dynamics 365 Reporting Extensions.....	183
See Also	183
Uninstall or repair Microsoft Dynamics 365 Report Authoring Extension.....	183
See Also	183
Uninstall or repair a Microsoft Dynamics 365 Language Pack.....	184
Uninstall a Language Pack.....	184
See Also	184
Use the command prompt to install Microsoft Dynamics Server 365.....	185
General procedures.....	185
Known issues	186
In This Section.....	186

See Also	187
Install Microsoft Dynamics 365 Server by using a command prompt.....	187
Parameters	187
See Also	188
Microsoft Dynamics 365 Server XML configuration file	188
Configuration file reference	188
See Also	197
Sample server XML configuration file.....	197
See Also	199
Sample server XML configuration file for installing with pre-created groups	200
See Also	200
Install Microsoft Dynamics 365 Server roles using the command prompt	201
Server role XML configuration file	201
See Also	203
Sample XML configuration file that installs only the WebApplicationServer and OrganizationWebService roles.....	203
See Also	204
Sample XML configuration file that installs only the HelpServer role.....	205
See Also	206
Install Microsoft Dynamics 365 Reporting Extensions using a command prompt.....	206
Microsoft Dynamics 365 Reporting Extensions requirements	207
Command example	207
See Also	208
Microsoft Dynamics 365 Reporting Extensions XML configuration file	208
See Also	209
Sample Microsoft Dynamics 365 Reporting Extensions XML configuration file	209
See Also	210
Install Microsoft Dynamics 365 Report Authoring Extension using a command prompt.....	210
See Also	211
Microsoft Dynamics 365 Report Authoring Extension XML configuration file	211
See Also	213
Sample Microsoft Dynamics 365 Report Authoring Extension XML configuration file	213
See Also	213
Deploy Microsoft Dynamics 365 on Azure FAQ	214

Overview.....	214
Microsoft Dynamics Lifecycle Services (LCS).....	217
Technical details.....	217
Other considerations	220
See Also	221
Post-installation and configuration guidelines for Microsoft Dynamics 365	222
In This Topic.....	222
Copy your organization encryption key	222
Make Dynamics 365 client-to-server network communications more secure.....	222
Configure a Dynamics 365 Internet-facing deployment	223
Add or remove sample data	223
Complete the configuration tasks for new organizations	224
Import a solution from the Microsoft Dynamics Marketplace	224
How can I disable the Navigation Tour video?.....	224
Configure Windows Server 2012 R2 for Dynamics 365 applications that use OAuth	225
User training and adoption	226
See Also	227
Operating on-premises Dynamics 365	227
In This Section.....	227
Related Sections	227
Operating Microsoft Dynamics 365	227
In This Section.....	228
Related Sections	228
Administer the deployment using Windows PowerShell	228
In This Topic.....	228
Get started using the Dynamics 365 PowerShell cmdlets	229
Use the PowerShell cmdlets	229
Set properties using PowerShell cmdlets.....	230
Get Dynamics 365 PowerShell cmdlet Help topics	230
Update deployment configuration settings using PowerShell	230
See Also	230
Update deployment configuration settings	230
In This Topic.....	231
AsyncSettings.....	231
ClaimsSettings	232
CustomCodeSettings	233
DashboardSettings.....	233
DupSettings	233
EtmSettings	234

IfdSettings.....	234
ImportSettings	235
MarketplaceSettings	235
MonitoringSettings.....	235
MultiEntityQuickFindSettings.....	236
OAuthClaimsSettings	237
QuickFindSettings	237
SqmSettings	237
TeamSettings	238
ThrottleSettings	238
TraceSettings	240
WebAddressSettings.....	240
WorkflowSettings.....	241
YammerSettings	241
See Also	241
Configure claims settings.....	241
Requirements	242
Demonstrates	242
Example.....	242
See Also	243
Configure IFD settings	243
Requirements	243
Demonstrates	243
Example.....	244
See Also	245
Configure web address settings	245
Requirements	245
Demonstrates	245
Example.....	245
See Also	247
Use Deployment Manager to manage the deployment	247
In this section	247
See Also	248
Microsoft Dynamics 365 deployment properties.....	248
See Also	251
Change the product key.....	252
Change the product key	252
See Also	252

Using Windows PowerShell to perform Deployment Manager tasks	252
Register the Microsoft Dynamics 365 cmdlet.....	253
See Also	253
Configure claims-based authentication	253
See Also	255
Disable claims-based authentication	256
Disable claims-based authentication.....	256
See Also	256
Configure an Internet-facing deployment	256
See Also	258
Disable an Internet-facing deployment	258
Disable an Internet-facing deployment.....	258
See Also	258
Deployment Administrators.....	258
See Also	259
Add a new Deployment Administrator	259
Add a Deployment Administrator	259
See Also	260
Remove a Deployment Administrator	260
Remove a Deployment Administrator	260
See Also	260
Manage organizations	260
View the Organizations page	261
See Also	261
Edit an organization's attributes.....	261
Edit an organization.....	261
See Also	262
Disable or enable an organization	262
Disable or enable an organization.....	262
See Also	263
Add a new organization	263
See Also	264
Import an organization	265
See Also	267

Upgrade an organization	267
Upgrade an organization by importing it	268
Upgrade an organization in-place	268
See Also	268
Update an organization.....	269
Update a disabled organization.....	269
Update management.....	269
See Also	269
Troubleshoot organization import and upgrade issues	270
See Also	270
Delete an organization.....	270
Delete an organization	270
See Also	271
Manage servers	271
See Also	271
Disable or enable a server.....	271
Disable or enable a server	272
See Also	272
Delete (remove) a Microsoft Dynamics 365 Server.....	272
Delete a server	273
See Also	273
Troubleshooting and known issues for Microsoft Dynamics 365	273
In this section	273
See Also	274
Monitor and troubleshoot Microsoft Dynamics 365	274
In This Topic.....	274
Microsoft Dynamics 365 deployment-level tracing (on-premises versions only)	275
Microsoft Dynamics 365 server-level tracing (on-premises versions only)	276
Enable tracing for Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services (on-premises versions only).....	277
Enable tracing for Microsoft Dynamics 365 for Outlook.....	279
Enable tracing for Microsoft Dynamics 365 Email Router.....	280
Enable tracing for Dynamics 365 for phones for Windows Phone.....	281
Enable tracing for Dynamics 365 for tablets	292
System Center Operations Manager management pack for Microsoft Dynamics 365 (on-premises versions only).....	305
See Also	305

Microsoft Dynamics 365 Monitoring Service	305
View monitoring results	305
Change monitoring settings.....	306
See Also	307
Update Microsoft Dynamics 365.....	307
In this topic	307
What is Dynamics 365 and how do I get it?	307
Microsoft Dynamics 365 Setup update	307
Microsoft Dynamics 365 application updates	308
See Also	308
Microsoft Dynamics 365 database maintenance.....	309
In this section	309
See Also	309
Dynamics 365 organization database indexes	309
How to get a list of all indexes stored in an organization database	310
See Also	310
Microsoft Dynamics 365 data protection and recovery	310
In This Section.....	311
See Also	311
Microsoft Dynamics 365 VSS writer service.....	311
In this topic	311
Dependencies	311
Permissions required.....	312
Features	312
Steps required to use with System Center Data Protection Manager.....	312
See Also	312
Back up the Microsoft Dynamics 365 System	313
In This Topic.....	313
Backup requirements summary.....	313
Selecting a backup technology and type.....	314
Backing up Windows Server	314
Backing up Active Directory	315
Backing up SQL Server, including Reporting Services.....	315
Backing up Microsoft Dynamics 365 Server	316
See Also	317
Exporting and importing customizations and solutions	317
See Also	317

Microsoft Dynamics 365 failure recovery.....	317
See Also	318
SQL Server failure recovery	318
See Also	319
Microsoft Dynamics 365 Server failure recovery.....	319
See Also	320
Copyright.....	320

Planning on-premises Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

IT Pros and Microsoft Dynamics 365 administrators can use the resources and topics in this guide to help them plan an on-premises deployment of Microsoft Dynamics 365.

In This Section

[Planning your deployment of Microsoft Dynamics 365](#)

[Microsoft Dynamics 365 editions and licensing](#)

[Microsoft Dynamics 365 system requirements and required technologies](#)

[Planning your deployment of Microsoft Dynamics 365](#)

[Advanced deployment options for Microsoft Dynamics 365 Server](#)

Related Sections

[Installing on-premises Dynamics 365](#)

[Referenced topic '633e9a2d-cba1-4700-ba18-01487767109c' is only available online.](#)

[Operating on-premises Dynamics 365](#)

[Referenced topic 'df6a8d7a-db0d-4860-8a65-039f2ddab50d' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Planning your deployment of Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

For larger organizations, planning Dynamics 365 (on-premises) or Microsoft Dynamics 365 (online), like any enterprise-wide software, is a significant task. This guide is written for the team of people responsible for planning Microsoft Dynamics 365, and provides information and tools that are needed to design a successful implementation. In smaller organizations, several roles may be filled by one person. In larger organizations, each role may be divided among several people. These roles include the following:

- Business managers. Responsible for determining how your business will use Microsoft Dynamics 365. This includes mapping your processes to Microsoft Dynamics 365, deciding on default values, and identifying any required customizations.
- Customization technical staff. Responsible for implementing the planned customizations.
- Network technical staff. Responsible for determining how Microsoft Dynamics 365 will be deployed on the network and how users will access the system.
- Project manager. Responsible for managing an enterprise-wide implementation project.

Organizations that implement Microsoft Dynamics 365 software may use the services of an independent software vendor (ISV) or value-added reseller, a consultant, or other organization that is

partnered with Microsoft and will help you with implementing and maintaining your Microsoft Dynamics 365 installation. Because of this assumption, there may be references in this guide to these "partners" who are expected to provide services to you.

Resources for planning and preparing users for Microsoft Dynamics 365

These resources are available to help you plan a deployment of Dynamics 365 (on-premises) or Microsoft Dynamics 365 (online).

Microsoft Dynamics SureStep

Microsoft Dynamics Sure Step is a full customer lifecycle methodology for all Microsoft Dynamics solutions, providing the Microsoft ecosystem with comprehensive sales through delivery guidance, project management discipline alignment and field-driven best practices. Microsoft Dynamics Sure Step is designed for Microsoft Dynamics Partners to successfully and reliably complete customer projects on time and on budget. More information: [Microsoft Dynamics CRM Sure Step Guide](#)

Microsoft Dynamics 365 (online) planning

If you're an administrator who needs to plan and implement Microsoft Dynamics 365 (online) in your organization, [TechNet: Manage your Microsoft Dynamics CRM Online subscription](#) is designed for you. The guide also helps other users to ramp up with Microsoft Dynamics 365 (online).

User training and adoption

More information: [Training and Adoption Kit for Microsoft Dynamics CRM](#).

See Also

[Planning on-premises Dynamics 365](#)

[Microsoft Dynamics 365 editions and licensing](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 editions and licensing

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 offers licensing options that cover implementations for small, to mid-level, to even very large organizations.

Editions and licensing for on-premises deployments

- **Microsoft Dynamics 365 Server.** There is no user limit for this edition. Additional features include support for multiple organizations, multiple server instances, and separate role-based service

installation. Role-based services let you increase performance by installing Microsoft Dynamics 365 Server features on different computers.

- **Microsoft Dynamics 365 Workgroup Server.** This edition is limited to five, or fewer, users. This version is limited to a single organization and a single computer that is running Microsoft Dynamics 365 Server.

Licensing

A Microsoft Dynamics 365 deployment operates by using a single product key. However, each Microsoft Dynamics 365 Server in a deployment requires a server license. Only the Microsoft Dynamics 365 Server edition is licensed for multiple Microsoft Dynamics 365 servers or server roles in a deployment. Microsoft Dynamics 365 Workgroup Server edition is limited to running on a single server in a deployment.

You can view and upgrade a license by using the **Get-CrmAccessLicense** and **Set-CrmProductKey** Windows PowerShell commands or in Deployment Manager. Deployment Manager is a Microsoft Management Console (MMC) snap-in that system administrators can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics 365.

[Download: Microsoft Dynamics 365 \(On-Premises\), Enterprise edition Licensing Guide](#)

Client access license types

You can view and modify client access license types for each user in the **Users** area of the **Settings** area in the Microsoft Dynamics 365 web client. For more information about Microsoft Dynamics 365 licensing, see [How to buy Microsoft Dynamics CRM](#).

Microsoft Dynamics 365 (online) licensing

With Microsoft Dynamics 365 (online), you get powerful Dynamics 365 capabilities and features delivered as a cloud service from Microsoft, providing instant-on, anywhere access, and predictable pay-as-you-go pricing. Licensing plans for Microsoft Dynamics 365 (online) determine the amount of features and functionality users need and is licensed using a subscription.

More information: [Licensing plans for Microsoft Dynamics CRM Online](#)

See Also

[Administer the deployment using Windows PowerShell](#)

[Use Deployment Manager to manage the deployment](#)

[Planning your deployment of Microsoft Dynamics 365](#)

[Microsoft Dynamics 365 system requirements and required technologies](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 system requirements and required technologies

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This Dynamics 365 (on-premises) version requires the following software:

- Microsoft Windows Server
- A Microsoft Windows ServerActive Directory infrastructure
- An Internet Information Services (IIS) website
- Claims-based security token service (required for Internet-facing deployments)
- Microsoft SQL Server
- Microsoft SQL Server Reporting Services
- Microsoft Exchange Server or access to a POP3-compliant email server (required for email tracking)
- SharePoint Server (required for document management)
- Supported device, Microsoft Dynamics 365 app, or web browser, such as later versions of Internet Explorer or the latest versions of Apple Safari, Google Chrome and Mozilla Firefox
- Microsoft Office for Microsoft Dynamics 365 for Outlook and other Office integration features

Note

For detailed hardware and software requirements or specific product versions and service pack levels that are supported, see the links in “In this Section” later in this topic.

Important

Typically, Microsoft Dynamics 365 applications support the latest version and service pack (SP) for all required components, such as Windows Server, Microsoft SQL Server, and Microsoft Office. However, to fully support the latest version of a required component, you should apply the latest update for Microsoft Dynamics 365.

Microsoft Dynamics 365 conforms to the support policies of all dependent products and technologies, such as Microsoft Office or Microsoft Exchange Server. For example, mainstream support for Microsoft Office 2010 ended 10/13/2015; therefore mainstream support for Dynamics 365 for Outlook running on Microsoft Office 2010 also ended on that date. For more information, see [Select a Product for Lifecycle Information](#).

Before you install Microsoft Dynamics 365, review the following topics, which provide detailed information about the products and technologies that are required or optional and supported configurations.

In This Section

[Microsoft Dynamics 365 Server hardware requirements](#)

[Microsoft SQL Server hardware requirements for Microsoft Dynamics 365 Server](#)
[Software requirements for Microsoft Dynamics 365 Server](#)
[Active Directory and network requirements for Microsoft Dynamics 365](#)
[Microsoft Dynamics 365 reporting requirements](#)
[Microsoft Dynamics 365 language support](#)

See Also

[Referenced topic '078f5277-db51-4a62-a20c-976db74f17a4' is only available online.](#)
[Referenced topic 'ae7a0418-73fc-476f-8fa5-dc6505273ea1' is only available online.](#)
[Referenced topic '4e950887-e432-44f7-8447-a8e6dae09d27' is only available online.](#)
[Referenced topic '4a79d1b6-0745-4858-9cca-17ec161d60d7' is only available online.](#)
[Planning your deployment of Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Server hardware requirements

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following table lists the minimum and recommended hardware requirements for this version of Microsoft Dynamics 365 Server running in a Full Server configuration. These requirements assume that additional components such as Microsoft SQL Server, Microsoft SQL Server Reporting Services, Microsoft SharePoint, or Microsoft Exchange Server aren't installed or running on the system.

Component	*Minimum	*Recommended
Processor	x64 architecture or compatible dual-core 1.5 GHz processor	Quad-core x64 architecture 2 GHz CPU or higher such as AMD Opteron or Intel Xeon systems
Memory	4-GB RAM	8-GB RAM or more
Hard disk	10 GB of available hard disk space	40 GB or more of available hard disk space

* Actual requirements and product functionality may vary based on your system configuration and operating system.

Note

Running Microsoft Dynamics 365 on a computer that has less than the recommended requirements may result in inadequate performance.

Computers with more than 16 GB of RAM will require more disk space for paging, hibernation, and dump files.

The minimum and recommended requirements are based on 320-user load simulation tests.

See Also

[Microsoft Dynamics 365 system requirements and required technologies](#)
[Microsoft SQL Server hardware requirements for Microsoft Dynamics 365 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft SQL Server hardware requirements for Microsoft Dynamics 365 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You need Microsoft SQL Server database engine and Microsoft SQL Server Reporting Services to install and run on-premises versions of Microsoft Dynamics 365 Server. The following table lists the minimum and recommended hardware requirements for Microsoft SQL Server. These requirements assume that additional components such as Microsoft Dynamics 365 Server, Microsoft SQL Server Reporting Services, SharePoint, or Microsoft Exchange Server aren't installed or running on the system.

Component	*Minimum	*Recommended
Processor	x64 architecture or compatible dual-core 1.5 GHz processor	Quad-core x64 architecture 2 GHz CPU or higher such as AMD Opteron or Intel Xeon systems
Memory	4-GB RAM	16-GB RAM or more
Hard disk	SAS RAID 5 or RAID 10 hard disk array	SAS RAID 5 or RAID 10 hard disk array

* Actual requirements and product functionality may vary based on your system configuration and operating system.

Maintaining Microsoft Dynamics 365 databases on a computer that has less than the recommended requirements may result in inadequate performance.

The minimum and recommended requirements are based on 320-user load simulation tests.

See Also

[Microsoft Dynamics 365 system requirements and required technologies](#)
[Microsoft Dynamics 365 Server hardware requirements](#)
[Software requirements for Microsoft Dynamics 365 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Software requirements for Microsoft Dynamics 365 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section lists the software and application requirements for this version of Microsoft Dynamics 365 Server.

In This Topic

[Windows Server operating system](#)

[Supported Windows Server 2012 editions](#)

[Server Core installations](#)

[Server virtualization](#)

[Active Directory modes](#)

[Internet Information Services \(IIS\)](#)

[SQL Server editions](#)

[Accessing Microsoft Dynamics 365 from the Internet - Claims-based authentication and IFD requirements](#)

[Software component prerequisites](#)

[Verify prerequisites](#)

Windows Server operating system

This version of Microsoft Dynamics 365 Server can be installed only on Windows Server 64-bit-based computers. The specific versions and editions of Windows Server that are supported for installing and running this version of Microsoft Dynamics 365 Server are listed in the following sections.

◆ Important

The following Windows Server versions are not supported for installing and running this version of Microsoft Dynamics 365 Server:

- Windows Server 2012 Foundation
- Windows Server 2012 Essentials
- Microsoft Windows Small Business Server editions
- The Windows Server 2008 family of operating systems

Supported Windows Server 2012 editions

The following editions of the Windows Server 2012 operating system are supported for installing and running Microsoft Dynamics 365 Server:

- Windows Server 2012 R2 Datacenter
- Windows Server 2012 R2 Standard

- Windows Server 2012 Standard
- Windows Server 2012 Datacenter

Server Core installations

With the exception of the Microsoft Dynamics 365 Help Server and Microsoft Dynamics 365 Reporting Extensions roles, you can install any Microsoft Dynamics 365 Server server role on a Server Core installation of Windows Server. Server Core is a minimal server installation option for the Windows Server family of operating systems. Server Core provides a low-maintenance server environment with limited functionality. For more information about Server Core as implemented on Windows Server 2012, see [Server Core for Windows Server 2012](#)

◆ Important

To install Microsoft Dynamics 365 Server on a Server Core Windows Server, you must run Setup in silent mode from the command line. More information: [Use the command prompt to install Microsoft Dynamics Server 365](#)

The Help Server role cannot be installed on a Windows Server running as Server Core.

Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services cannot be installed on Server Core. This is because Microsoft SQL Server Reporting Services, which is required by Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services, cannot be installed on a Windows Server running Server Core.

Server virtualization

Microsoft Dynamics 365 servers can be deployed in a virtualized environment by using Windows Server 2008 or Windows Server 2012 with Hyper-V or virtualization solutions from vendors who participate in the Microsoft Windows Server Virtualization Validation Program (SVVP). You must understand the limitations and best practices of server virtualization before you try to virtualize your installation of Microsoft Dynamics 365. For information about Hyper-V, see the [Microsoft Virtualization](#) website.

Active Directory modes

The computer that Microsoft Dynamics 365 Server is running on must be a member in a domain that is running in one of the following Active Directory directory service forest and domain functional levels:

- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2

For more information about Active Directory domain and forest functional levels, see the Active Directory Domains and Trusts Microsoft Management Console (MMC) snap-in Help.

◆ Important

- The computer that Microsoft Dynamics 365 is running on shouldn't function as an Active Directory domain controller.

- When you use the Add Users Wizard, only users from trusted domains in the current forest will be displayed. Users from trusted external forests aren't supported and don't appear in the wizard.
- Installing Microsoft Dynamics 365 Server in an LDAP directory that is running in Active Directory Application Mode (ADAM) is not supported.

Internet Information Services (IIS)

This version of Microsoft Dynamics 365 Server supports Internet Information Services (IIS) versions 8.0 and 8.5.

We recommend that you install and run IIS in Native Mode before you install Microsoft Dynamics 365 Server. However, if IIS is not installed and it is required for a Microsoft Dynamics 365 server role, Microsoft Dynamics 365 Server Setup will install it.

◆ Important

Microsoft Dynamics 365 can't use a website that has more than one http or https binding. Although IIS supports multiple http and https bindings, there is a limitation in using additional bindings with Windows Communication Foundation (WCF). WCF is required when you use Microsoft Dynamics 365 for Outlook. Before you install or upgrade, you must remove the additional bindings from the website used for Microsoft Dynamics 365 or select a different website.

SQL Server editions

Any one of the following Microsoft SQL Server editions is required and must be installed on Windows Server 2008 (SP2 or R2) 64-bit-based versions or Windows Server 2012 (RTM or R2) 64-bit-based computers, running, and available for Microsoft Dynamics 365:

- *Microsoft SQL Server 2016, Enterprise with Cumulative Update 2 (CU2)
- *Microsoft SQL Server 2016, Standard with Cumulative Update 2 (CU2)
- *Microsoft SQL Server 2016, Developer, with Cumulative Update 2 (CU2) (for non-production use only)
- SQL Server 2014 Enterprise, 64-bit with SP2
- SQL Server 2014 Business Intelligence, 64-bit with SP2
- SQL Server 2014 Standard, 64-bit with SP2
- SQL Server 2014 Developer, 64-bit with SP2 (for non-production use only)
- Microsoft SQL Server 2012, Enterprise, 64-bit SP3
- Microsoft SQL Server 2012, Business Intelligence, 64-bit SP3
- Microsoft SQL Server 2012, Standard, 64-bit SP3
- Microsoft SQL Server 2012, Developer, 64-bit SP3 (for non-production use only)

◆ Important

- *For recommendations that help improve performance when you use SQL Server 2016 with

Microsoft Dynamics 365, see [Improve performance when you use Microsoft Dynamics 365 with SQL Server 2016](#).

- 32-bit versions of Microsoft SQL Server database engine are not supported for this version of Microsoft Dynamics 365.
- SQL Server Compact or Microsoft SQL Server Express editions are not supported for use with this version of Microsoft Dynamics 365 Server.
- Microsoft SQL Server 2008 versions are not supported for use with this version of Microsoft Dynamics 365 Server.

Accessing Microsoft Dynamics 365 from the Internet - Claims-based authentication and IFD requirements

The following items are required or recommended for Internet-facing deployment (IFD). This topic assumes you will be using Active Directory Federation Services (AD FS) as the security token service (STS). For more information about configuring Microsoft Dynamics 365 for claims-based authentication, see [Configure IFD for Microsoft Dynamics 365](#).

◆ Important

Exposing the Microsoft Dynamics 365 website to the Internet is not supported unless claims-based authentication is used and Microsoft Dynamics 365 is configured for IFD.

Similarly, Outlook Anywhere (RPC over HTTP) is not supported as a solution to connect Dynamics 365 for Outlook to an on-premises deployment of Microsoft Dynamics 365 Server over the Internet. The on-premises deployment of Microsoft Dynamics 365 Server must be configured for IFD as described in the topic [Configure IFD for Microsoft Dynamics 365](#).

In order for Microsoft Dynamics 365 for tablets to successfully connect to a new deployment of Microsoft Dynamics 365 Server, you must run a Repair of Microsoft Dynamics 365 Server on the server running IIS where the Web Application Server role is installed *after* the Internet-Facing Deployment Configuration Wizard is successfully completed. For repair instructions, see [Uninstall, change, or repair Microsoft Dynamics 365 Server](#).

- The computer where Microsoft Dynamics 365 Server is installed must have access to a security token service (STS) service, such as Active Directory Federation Services (AD FS) federation server. Microsoft Dynamics 365 Server supports Active Directory Federation Services (AD FS) 2.0 (Windows Server 2008 and Windows Server 2008 R2), 2.1 (Windows Server 2012), and 3.0 (Windows Server 2012 R2) versions.
- Note the following conditions for the web components before you configure IFD:
 - If you are installing Microsoft Dynamics 365 in a single server configuration, be aware that Active Directory Federation Services 2.0 installs on the default website. Therefore, you must create a new website for Microsoft Dynamics 365.
 - When you run the Internet-Facing Deployment Configuration Wizard, Microsoft Dynamics 365 Server must be running on a website that is configured to use Transport Layer Security (TLS)

or Secure Sockets Layer (SSL). Microsoft Dynamics 365 Server Setup will not configure the website for TLS/SSL.

- We recommend that the IIS website where the Microsoft Dynamics 365 web application will be installed requires TLS/SSL.
- The website should have a single binding. Multiple IIS bindings, such as a website with an HTTPS and an HTTP binding or two HTTPS or two HTTP bindings, are not supported for running Microsoft Dynamics 365.
- Access to the Active Directory Federation Services (AD FS) federation metadata file from the computer where the Configure Claims-Based Authentication Wizard is run. Note the following:
 - The federation metadata endpoint must use the web services trust model (WS-Trust) 1.3 standard. Endpoints that use a previous standard, such as the WS-Trust 2005 standard, are not supported. In Active Directory Federation Services 2.0, all WS-Trust 1.3 endpoints contain /trust/13/ in the URL path.
- Encryption certificates. The following encryption certificates are required. You can use the same encryption certificate for both purposes, such as when you use a wildcard certificate:

◆ Important

If you use a certificate that is created by using a custom certificate request, the template that was used must be the **Legacy key** template. Custom certificate requests created by using the **CNG key** template are incompatible with Microsoft Dynamics 365. For more information about custom certificate request templates, see [Create a Custom Certificate Request](#).

- Claims encryption. Claims-based authentication requires identities to provide an encryption certificate for authentication. This certificate should be trusted by the computer where you are installing Microsoft Dynamics 365 Server so it must be located in the local Personal store where the Configure Claims-Based Authentication Wizard is running.
- TLS/SSL (HTTPS) encryption. The certificates for TLS/SSL encryption should be valid for host names similar to org.contoso.com, auth.contoso.com, and dev.contoso.com. To satisfy this requirement you can use a single wildcard certificate (*.contoso.com), a certificate that supports Subject Alternative Names, or individual certificates for each name. Individual certificates for each host name are only valid if you use different servers for each web server role. Multiple IIS bindings, such as a website with two HTTPS or two HTTP bindings, aren't supported for running Microsoft Dynamics 365. For more information about available options, contact your certification authority service company or your certification authority administrator.
- The **CRMAppPool** account of each Microsoft Dynamics 365 website must have read permission to the private key of the encryption certificate specified when configuring claims-based authentication. You can use the Certificates Microsoft Management Console (MMC) snap-in to edit permissions for the encryption certificate found in the Personal store of the local computer account.

Software component prerequisites

The following SQL Server components must be installed and running on the computer that is running SQL Server before you install Microsoft Dynamics 365 Server:

- SQL word breakers

This is only required for some Microsoft Dynamics 365 language editions. For more information about word breaker versions for languages supported by SQL Server see [Configure and Manage Word Breakers and Stemmers for Search](#).

- SQL Server Agent service
- SQL Server full-text indexing

The following components must be installed and running on the computer where Microsoft Dynamics 365 Server will be installed:

- Services
 - Indexing Service
To install this service, see the Windows Server documentation.
 - IIS Admin
 - World Wide Web Publishing
 - Net.Tcp Port Sharing Service
- Windows Data Access Components (MDAC)
- Microsoft ASP.NET (Must be registered, but does not have to be running.)

Verify prerequisites

Before you install Microsoft Dynamics 365 Server, you should understand the following:

- Microsoft SQL Server can be, but is not required to be, installed on the same computer as Microsoft Dynamics 365 Server.
- If Microsoft Dynamics 365 Server and Microsoft SQL Server are installed on different computers, both computers must be in the same Active Directory directory service domain.
- Microsoft SQL Server can be installed by using either Windows Authentication or mixed-mode authentication. (Windows Authentication is recommended for increased security and Microsoft Dynamics 365 will use only Windows Authentication).
- The service account that SQL Server uses to log on to the network must be either a domain user account (recommended) or one of the built-in system accounts supported by SQL Server (Network Service, Local Service, or Local System). Installation of Microsoft Dynamics 365 Server will fail if the SQL Server service account is the local administrator.
- The SQL Server service must be started and can be configured to automatically start when the computer is started.
- The Microsoft SQL Server Reporting Services service must be started and configured to automatically start when the computer is started.

- The SQL Server Agent service must be started. This service can be configured to automatically start when the computer is started.
- Although it is optional, we recommend that you accept the SQL Server default settings for Collation Designator, Sort Order, and SQL Collation. Microsoft Dynamics 365 supports both case-sensitive and case-insensitive sort orders.
- Microsoft Dynamics 365 Server Setup requires at least one network protocol to be enabled to authenticate by using SQL Server. By default, TCP/IP protocol is enabled when you install SQL Server. You can view network protocols in SQL Server Configuration Manager.

See Also

[Microsoft SQL Server hardware requirements for Microsoft Dynamics 365 Server](#)
[Microsoft Dynamics 365 reporting requirements](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Active Directory and network requirements for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Active Directory Domain Services (AD DS) is a feature of the Windows Server operating systems. AD DS provides a directory and security structure for network applications such as Microsoft Dynamics 365.

As with most applications that rely on a directory service, Microsoft Dynamics 365 has dependencies that are important for operation, such as use of AD DS to store user and group information and to create application security.

Microsoft Dynamics 365 Server should only be installed on a Windows Server that is a domain member. The domain where the server is located must be running in one of the Active Directory domain functional levels listed in the [Active Directory modes](#) topic.

Federation and claims-based authentication support

When you configure Microsoft Dynamics 365 for Internet-facing access it requires federated services that support claims-based authentication. We recommend Active Directory Federation Services (AD FS) in Microsoft Windows Server.

Active Directory Federation Services

Active Directory Federation Services (AD FS) is a highly secure, highly extensible, and Internet-scalable identity access solution that allows organizations to authenticate users from partner organizations. Using AD FS in Microsoft Windows Server, you can easily and very securely grant external users access to your organization's domain resources. AD FS can also simplify integration between untrusted resources and domain resources within your own organization.

AD FS is available as a server role in Windows Server.

Digital certificates

Active Directory Federation Services (AD FS) requires two types of digital certificates:

- **Claims encryption.** Claims-based authentication requires identities to provide an encryption certificate for authentication. This certificate should be trusted by the computer where you are installing Microsoft Dynamics 365 Server, so it must be located in the local Personal store where the Configure Claims-Based Authentication Wizard is running.
- **TLS/SSL (HTTPS) encryption.** The certificates for TLS/SSL encryption should be valid for host names similar to org.contoso.com, auth.contoso.com, and dev.contoso.com. To satisfy this requirement you can use a single wildcard certificate (*.contoso.com), a certificate that supports subject alternative names, or individual certificates for each name. Individual certificates for each host name are only valid if you use different servers for each web server role. Multiple IIS bindings, such as a website with two HTTPS or two HTTP bindings, aren't supported for running Microsoft Dynamics 365. For more information about the options that are available to you, contact your certification authority service company or your certification authority administrator.

To meet these requirements, your organization should have a public key infrastructure or a contract with a digital certificate provider such as VeriSign, GoDaddy, or Comodo.

IPv6 Support

This version of Microsoft Dynamics 365 works with IPv6 either alone or together with IPv4 within environments that have networks where IPv6 is supported.

See Also

[Prerequisites and considerations for planning your deployment of Microsoft Dynamics 365](#)

[Software requirements](#)

[SQL Server installation and configuration](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 reporting requirements

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 Reporting Extensions are data processing extensions that are installed on the Microsoft SQL Server Reporting Services server. The Microsoft Dynamics 365 Reporting Extensions accept authentication information from Microsoft Dynamics 365 Server and pass it to the Microsoft SQL Server Reporting Services server.

Microsoft Dynamics 365 Reporting Extensions Setup includes two data processing extensions: Fetch data processing extension and SQL data processing extension. By default, these extensions are installed during Microsoft Dynamics 365 Reporting Extensions Setup:

- The Fetch data processing extension is required to create, run, and schedule Fetch-based reports.
- The SQL data processing extension is required to create, run, and schedule the default (out-of-the-box) or SQL-based custom reports in Microsoft Dynamics 365.

You don't need Microsoft Dynamics 365 Reporting Extensions to run Microsoft Dynamics 365.

However, if you want to create, use, or schedule reports in Microsoft Dynamics 365, you need to install Microsoft Dynamics 365 Reporting Extensions. Additionally, you need to install these extensions if you want to create or import an organization, like when you migrate from an earlier version of Microsoft Dynamics 365 using Deployment Manager.

In this topic

[SQL Server Reporting Services](#)

[Microsoft Dynamics 365 Reporting Extensions requirements](#)

[Microsoft Dynamics 365 Reporting Authoring Extension requirements](#)

SQL Server Reporting Services

Microsoft SQL Server Reporting Services is required for reporting features in Microsoft Dynamics 365.

You can use the following Microsoft SQL Server editions for Microsoft Dynamics 365 reporting; you'll need to install them on a Windows Server 2012 (x64 RTM or R2) 64-bit-based computer, running and available for Microsoft Dynamics 365:

- *Microsoft SQL Server 2016, Enterprise with Cumulative Update 2 (CU2)
- *Microsoft SQL Server 2016, Standard with Cumulative Update 2 (CU2)
- *Microsoft SQL Server 2016, Developer, with Cumulative Update 2 (CU2) (for non-production use only)
- SQL Server 2014 Enterprise, 64-bit
- SQL Server 2014 Business Intelligence, 64-bit
- SQL Server 2014 Standard, 64-bit
- SQL Server 2014 Developer, 64-bit (for non-production use only)
- Microsoft SQL Server 2012, Enterprise, 64-bit SP1
- Microsoft SQL Server 2012, Business Intelligence, 64-bit SP1
- Microsoft SQL Server 2012, Standard, 64-bit SP1
- Microsoft SQL Server 2012, Developer, 64-bit SP1 (for non-production use only)

◆ Important

- *For recommendations that help improve performance when you use SQL Server 2016 with Microsoft Dynamics 365, see [Improve performance when you use Microsoft Dynamics 365 with SQL Server 2016](#).
- 32-bit versions of Microsoft SQL Server 2012 Reporting Services are not supported for this version of Microsoft Dynamics 365.
- SQL Server Compact or Microsoft SQL Server Express editions are not supported for use with

Microsoft Dynamics 365 Server.

- Microsoft SQL Server 2008 versions are not supported for use with this version of Microsoft Dynamics 365 Server.
- Using a SQL Server Reporting Services server running in SharePoint mode is not supported with Microsoft Dynamics 365. For more information about Microsoft SQL Server 2012 Reporting Services SharePoint mode, see [Install Reporting Services SharePoint Mode](#).

Microsoft Dynamics 365 Reporting Extensions requirements

The Microsoft Dynamics 365 Reporting Extensions component has the following requirements:

- You must complete Microsoft Dynamics 365 Server Setup *before* you run Microsoft Dynamics 365 Reporting Extensions Setup.
- You can install and run Microsoft Dynamics 365 Reporting Extensions on only one instance of Microsoft SQL Server Reporting Services on a computer.
- The identity account running the instance of Microsoft SQL Server Reporting Services where the Microsoft Dynamics 365 Reporting Extensions are running can't be the local system or a virtual account. This is required for Microsoft Dynamics 365 reporting to work because the identity account must be added to the **PrivReportingGroup** Active Directory security group that is used by Microsoft Dynamics 365.
- Separate deployments of Microsoft Dynamics 365 cannot share one Microsoft SQL Server Reporting Services server. However, a single deployment of Microsoft Dynamics 365 that has multiple organizations can use the same Microsoft SQL Server Reporting Services server.
- You must run the Microsoft Dynamics 365 Reporting Extensions Setup on a computer that has a supported version of Microsoft SQL Server Reporting Services installed. More information: [SQL Server Reporting Services](#)
- For smaller data sets and fewer users, you can use a single-server deployment or a multi-server deployment. With larger data sets or more users, performance decreases quickly when running complex reports. Use a multi-server deployment with one computer that is running SQL Server for Microsoft Dynamics 365, and another server for Microsoft SQL Server Reporting Services.

Microsoft Dynamics 365 Reporting Authoring Extension requirements

Microsoft Dynamics 365 Report Authoring Extension is required to author Fetch-based reports by using SQL Server Data Tools.

You must install the Microsoft Dynamics 365 Report Authoring Extension on a PC that has the following software.

- Microsoft Visual Studio 2015, Microsoft Visual Studio 2013, Microsoft Visual Studio 2012, or Microsoft Visual Studio 2010.

 **Note**

Compatibility with Microsoft Visual Studio 2015 and Microsoft Visual Studio 2013 requires December 2016 update for Dynamics 365 (online and on-premises).

- SQL Server Data Tools (SSDT) installed with Microsoft Visual Studio.
 - For Microsoft Visual Studio 2015: SQL Server Data Tools is already included.
 - For Microsoft Microsoft Visual Studio 2013: You must download and install [Download: Microsoft SQL Server Data Tools - Business Intelligence for Visual Studio 2013](#).
 - For Microsoft Visual Studio 2012: Download and install [Microsoft SQL Server Data Tools - Business Intelligence for Visual Studio 2012](#).
 - For Microsoft Visual Studio 2010: Select and install the SQL Server Data Tools (SSDT) feature that is included with Microsoft SQL Server 2012 or Microsoft SQL Server 2012 Express on the computer that is running Visual Studio 2010. [Download: Microsoft SQL Server 2012 Express](#)
- If your organization uses Microsoft Office 365, make sure the computer with Microsoft Dynamics 365 Report Authoring Extension installed also has the Microsoft Online Services Sign-in Assistant installed on it. If Microsoft Online Services Sign-in Assistant is already installed, check the registry key SOFTWARE\Microsoft\MSOIdentityCRL and make sure that the TargetDir registry key in MSOIdentityCRL contains msoidcli.dll.

Note

Multi-factor authentication with Microsoft Dynamics 365 Report Authoring Extension is supported with December 2016 update for Dynamics 365 (online and on-premises) or later versions.

See Also

[Microsoft Dynamics 365 system requirements and required technologies](#)
[Microsoft Dynamics 365 language support](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 language support

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section describes the supported configurations for different language versions of a Microsoft Dynamics 365 system. It doesn't include information about Microsoft Dynamics 365 Language Pack support, but instead explains the supported configurations for the base-language versions. For more information about Microsoft Dynamics 365 Language Pack, see [Install and enable a Language Pack](#).

Microsoft Dynamics 365 Server language requirements

The following requirements must be met when you run Microsoft Dynamics 365 Server with applications such as SQL Server. Note that all available Dynamics 365 languages are supported.

Microsoft Dynamics 365 product	Requirement
Microsoft Dynamics 365 Server	The base language of Windows Server, SQL Server, Microsoft .NET Framework, MDAC, and MSXML must be either the same language as Microsoft Dynamics 365 Server or English. If an application isn't available in a certain language, the English version can be used.
Microsoft Dynamics 365 for Outlook	The base language of Windows Server, Microsoft SQL Server 2008 Express Edition, Internet Explorer, Microsoft Office, Microsoft .NET Framework, MDAC, and MSXML don't have to be the same language as Dynamics 365 for Outlook. Each client stack in a single deployment can be in a different language.
Microsoft Dynamics 365 Server and Microsoft Dynamics 365 for Outlook	The base language version of Microsoft Dynamics 365 Server must match that of Dynamics 365 for Outlook. For example, there can't be some users who run the German version of Dynamics 365 for Outlook while other users run the English version. For this scenario, we recommend provisioning the appropriate Microsoft Dynamics 365 Language Pack.

For example, you could have the following configuration with German as the base language for all programs:

- Microsoft Dynamics 365 Server
- Windows Server
- Microsoft SQL Server
- Microsoft Exchange Server
- MSXML
- .NET Framework

As another example, you could have Microsoft Dynamics 365 Server with Swedish as its base language, and it could be configured with the following applications that have English as their base language:

- Windows Server
- Microsoft SQL Server
- Microsoft Exchange Server

- MSXML
- .NET Framework

See Also

[Referenced topic 'c6cae3a1-afec-4d65-a58d-5a1276dd5a01' is only available online.](#)
[Microsoft Dynamics 365 system requirements and required technologies](#)
[Referenced topic 'c82f9957-51b7-4767-8ff8-eda3d9122583' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Prerequisites and considerations for planning your deployment of Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section contains lists of what you must have before you install Microsoft Dynamics 365, such as needed hardware and software. Use this section for preparing your network and to make sure that all requirements are satisfied before you run Microsoft Dynamics 365 Server Setup.

In This Section

[Hardware requirements](#)

[Software requirements](#)

[Active Directory and network requirements for Microsoft Dynamics 365](#)

[SQL Server installation and configuration](#)

[Planning requirements for SQL Server Reporting Services](#)

See Also

[Referenced topic '6804d996-86b2-4fb0-aed9-21fbdde0bab5' is only available online.](#)
[Planning your deployment of Microsoft Dynamics 365](#)
[Security considerations for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Hardware requirements

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Depending on how you plan to deploy the system, as a single-server solution, a multiple-server solution, or a clustered solution, the computer hardware that Microsoft Dynamics 365 and components will run on is important for acceptable application performance.

There are many factors that you must consider that can affect the hardware requirements. They include the following:

- Number of users the Dynamics 365 implementation will support and the way the application will be used, such as for intensive reporting.
- Number of servers and how they're configured.
- Microsoft SQL Server performance and availability.
- Integration of Microsoft Dynamics 365 with the Microsoft Exchange Server or POP3 email servers.
- Integration with SharePoint Server.
- Performance of your servers and the local area network (LAN).
- Whether users will be connecting from untrusted domains and forests or from the Internet.

For a list of the suggested hardware requirements, see these topics.

[Microsoft Dynamics 365 Server hardware requirements](#)

[Microsoft SQL Server hardware requirements for Microsoft Dynamics 365 Server](#)

See Also

[Referenced topic '001f5c04-4db9-485c-bb90-0671dd3dbf43' is only available online.](#)

[Referenced topic '3dbb25e8-befe-4466-9614-5d0b84e83ea7' is only available online.](#)

[Referenced topic '7f9d8425-f26c-43ac-bdc7-ff258977ff80' is only available online.](#)

[Referenced topic 'c82f9957-51b7-4767-8ff8-eda3d9122583' is only available online.](#)

[Prerequisites and considerations for planning your deployment of Microsoft Dynamics 365 Software requirements](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Software requirements

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Before you install an on-premises deployment of Microsoft Dynamics 365, there are several operating system, application, and software features that must be installed, configured, and running either on the computer where Microsoft Dynamics 365 Server is running or on another computer on your network. Some of these operating system and software components include Windows Server, Microsoft SQL Server, Microsoft SQL Server Reporting Services, and .NET Framework.

For a complete list of the software requirements, see [Microsoft Dynamics 365 system requirements and required technologies](#) in this guide.

See Also

[Prerequisites and considerations for planning your deployment of Microsoft Dynamics 365 Hardware requirements](#)

[Active Directory and network requirements for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

SQL Server installation and configuration

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To plan your use of Microsoft SQL Server with Microsoft Dynamics 365 Server, you must understand how Microsoft Dynamics 365 uses SQL Server, and what Microsoft Dynamics 365 Server Setup does and does not do:

- Microsoft Dynamics 365 Server requires SQL Server 64-bit versions for storing the databases that contain Microsoft Dynamics 365 data and metadata. For specific details, see [SQL Server editions](#).
- Reports in Microsoft Dynamics 365 depend on Microsoft SQL Server Reporting Services, a feature in SQL Server. Reporting Services includes two server components that are used to store, display, and manage reports: Report Server and Report Manager. A third component, Report Builder, is used to customize reports and write new reports. The Report Designer component is available for download on the [Microsoft Download Center](#) and is installed on a workstation, instead of on the computer that is running SQL Server.
- Microsoft Dynamics 365 Server Setup does not install SQL Server database engine or Microsoft SQL Server Reporting Services.

There are many configurations possible based on your expected usage of Microsoft Dynamics 365. For information about the feature implications when you install Microsoft SQL Server Reporting Services on a separate computer, see [Editions and Components of SQL Server](#).

- Although we do not recommend it, you can install SQL Server on the same computer as Microsoft Dynamics 365 Server. For better performance, install and run SQL Server on a separate dedicated computer. For better performance and improved availability, install and run SQL Server on separate multiple dedicated computers in a clustered configuration. For more information, see [Set configuration and organization databases for SQL Server AlwaysOn failover](#).
- Similarly, we recommend that you install Microsoft Dynamics 365 Reporting Extensions on a separate SQL Server that is running Microsoft SQL Server Reporting Services. However, if needed you can install Microsoft Dynamics 365 Reporting Extensions on a SQL Server that is running Microsoft SQL Server Reporting Services but also stores the Microsoft Dynamics 365 databases.
- Although, in a multiple organization deployment of Microsoft Dynamics 365, you can specify different Reporting Services servers or server instances when you create or edit an organization, only one instance of Reporting Services is supported for all organizations in the deployment. For better load balancing of reports, we recommend configuring Report Server in a Network Load Balancing (NLB) cluster. For more information, see [Configure a Report Server on a Network Load Balancing Cluster](#).
- Multiple Microsoft Dynamics 365 front-end servers that run in a network load balancing cluster can use the same computer that is running SQL Server.

In This Section

[SQL Server requirements and recommendations for Microsoft Dynamics 365](#)

[SQL Server deployment](#)

[Additional resources for SQL Server](#)

Related Sections

[Prerequisites and considerations for planning your deployment of Microsoft Dynamics 365](#)

[Planning requirements for SQL Server Reporting Services](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

SQL Server requirements and recommendations for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following requirements and recommendations apply to new and existing installations of SQL Server.

In this topic

[General recommendations](#)

[Improve performance when you use Microsoft Dynamics 365 with SQL Server 2016](#)

General recommendations

- Microsoft Dynamics 365 Server requires an instance of Microsoft SQL Server Reporting Services be installed, running, and available. All installations of the supported SQL Server editions can be used as the reporting server. However, the Reporting Services edition must match the SQL Server edition.
- For a list of supported SQL Server versions, see [SQL Server editions](#).
- Microsoft Dynamics 365 Server isn't supported with SQL Server that's running on Windows Server 2008 or Windows Server 2003.
- When Microsoft Dynamics 365 Server and SQL Server are installed on different computers, they must be in the same Active Directory domain.
- Microsoft Dynamics 365 Server Setup and Deployment Manager support the default instance or a named instance of SQL Server.
- Although you can install SQL Server by using either Windows Authentication or mixed-mode authentication, Windows Authentication is a prerequisite for Microsoft Dynamics 365.
- The service account that SQL Server uses to log on to the network must be either a domain user account (recommended) or the Network Service account (you can't use a local user account on the server). Using a low-privilege account strategy is recommended to help avoid compromising the security of the server.

- The SQL Server service must be started. This service should be configured to automatically start when the computer is started.
- SQL Server Agent must be started. This service should be configured to automatically start when the computer is started.
- SQL Server Full-Text Search must be installed and started. This service should be configured to automatically start when the computer is started.
- Microsoft Dynamics 365 Server Setup requires a network library to authenticate SQL Server. By default, TCP/IP network libraries are enabled when you install Microsoft SQL Server. SQL Server can use both TCP/IP or Named Pipes for authentication. However, the computer that is running SQL Server must be configured for at least one of the two network libraries.
- We recommend that the computer that is running SQL Server be located on the same local area network (LAN) as the computer that is running the Microsoft Dynamics 365 Server Back End Server roles. For a description of the server roles, see [Microsoft Dynamics 365 server roles](#).
- The computer that is running SQL Server must be configured to have sufficient disk space, memory, and processing power to support the Microsoft Dynamics 365 environment. For more information, see [Microsoft Dynamics 365 Server hardware requirements](#).
- Although it's optional, consider accepting the SQL Server default settings for Collation Designator, Sort Order, and SQL Collation. Microsoft Dynamics 365 supports the following collation orders:
 - Case-sensitive
 - Case-insensitive
 - Accent-sensitive
 - Accent-insensitive
 - Binary sort order (such as Latin1_General_100_BIN)

 **Note**

Microsoft Dynamics 365 sets the collation order at the database level. This setting might differ from that set at the SQL Server level.

- Review all SQL Server installation options and be prepared to make the needed selections when you run Setup. For more information, see [Installation for SQL Server](#).
- If you plan to install SQL Server in a location other than the default file location, see [File Locations for Default and Named Instances of SQL Server](#).

You should also consider where the Microsoft Dynamics 365 databases are located on the server, and the hard-disk configuration that will support them.

 **Note**

To achieve the best combination of disk fault tolerance and performance, consider the many specifications for redundant array of independent disks (RAID) available from hardware vendors. Format the disks where the SQL Server database files reside for the fault-tolerance requirements of the application and performance parameters for the I/O activity occurring on that partition.

- We recommend that Common Runtime Language (CLR) be enabled on the SQL Server that hosts the Microsoft Dynamics 365 organization database. CLR can show a significant improvement in performance for some features such as time zone conversions when you run dashboards, charts, advanced finds, and Microsoft Dynamics 365 interactive service hub experience. More information: [Enabling CRL Integration](#)

Improve performance when you use Microsoft Dynamics 365 with SQL Server 2016

The following settings can help improve Microsoft Dynamics 365 application performance and should be configured on the SQL Server 2016 instance where the Microsoft Dynamics 365 organization databases are serviced.

- Make sure you are running SQL Server 2016 with Cumulative Update 2 (CU2). [Server & Tools Blog: Cumulative Update #2 for SQL Server 2016 RTM](#)
- Configure the SQL Server instance where the Microsoft Dynamics 365 organization database is maintained with Trace Flag 1224 . This setting disables lock escalation based on the number of locks and helps reduce CPU usage on SQL Server 2016.

To determine the existing trace flag 1224 setting run the following T-SQL statement. A return value of 0 for status in the output indicates trace flag 1224 is not enabled.

```
DBCC TRACESTATUS (1224)
```

To set trace flag 1224 as a startup option, add the SQL Server database engine startup option - **T1224**. More information: [Database Engine Service Startup Options](#)

- If not already set, configure Microsoft Dynamics 365 organization databases to use compatibility level **110**, which is the compatibility level for SQL Server 2012. More information: [View or Change the Compatibility Level of a Database](#)
- Configure the Microsoft Dynamics 365 organization database to use indirect checkpoints and a target recovery time of 60 seconds. By default, new databases created with SQL Server 2016 use indirect checkpoints and have a default target recover time of 60 seconds. More information: [Change the Target Recovery Time of a Database \(SQL Server\)](#)

To determine the existing target recovery time, run the following T-SQL statement, where *<dbname>* is the name of the organization database. A return value of 0 indicates a target recover time has not been set.

```
SELECT target_recovery_time_in_seconds FROM sys.databases WHERE name = '<dbname>'
```

To set the target recover time of a database to 60 seconds, run the following T-SQL statement.

```
ALTER DATABASE <dbname> SET TARGET_RECOVERY_TIME = 60 seconds;
```

For information about SQL Server 2016 performance benefits, see [SQL Server Customer Advisory Team blog post: How SQL Server 2016 Cumulative Update 2 \(CU2\) can improve performance of highly concurrent workloads.](#)

See Also

[SQL Server installation and configuration](#)
[SQL Server deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

SQL Server deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

If your organization uses Microsoft SQL Server for applications other than Microsoft Dynamics 365, performance may degrade as resources are consumed by other applications. If you use a computer that is running SQL Server that is used for other applications, you must carefully analyze the effect that Microsoft Dynamics 365 will have on the existing installation of SQL Server. For information about monitoring SQL Server, see [Performance Monitoring and Tuning Tools](#).

For best results, we recommend that you maintain the Microsoft Dynamics 365 databases on a computer that is running SQL Server and that will support only Microsoft Dynamics 365 and no other databases or database applications.

In this topic

[SQL Server deployment considerations](#)

[Language locale collation and sort order](#)

[Disk configurations and file locations](#)

[SQL Server program file location](#)

[SQL Server data file location](#)

[Microsoft Dynamics 365 database renaming considerations](#)

[SQL Server transparent data encryption \(TDE\)](#)

[SQL Server In-Memory OLTP](#)

SQL Server deployment considerations

Microsoft Dynamics 365 is a database-intensive application. Before you deploy Microsoft Dynamics 365 to an instance of SQL Server, you should consider the following requirements and database configurations:

- **Modification of system tables.** The SQL Server system tables should not be modified before you install Microsoft Dynamics 365 Server. Some database applications may modify the SQL Server system tables. If this occurs, problems with Microsoft Dynamics 365 and data may result.
- **Indexing.** Full-text indexing must be installed. This is required for Microsoft Dynamics 365 knowledge-base functionality.
- **Compatibility level.** During an upgrade or a new installation, Microsoft Dynamics 365 Server Setup sets the organization database compatibility level to 100, which is the compatibility level of Microsoft SQL Server 2008.

- **Autogrowth.** By default, Microsoft Dynamics 365 organization database files are created to have an autogrowth setting of 256 megabytes. Earlier versions of Microsoft Dynamics 365 used the default setting of 1 megabyte autogrowth. If you perform intensive database transactions, such as large data imports, consider increasing the autogrowth value to improve performance. For information about how to change the autogrowth setting for a database, see the SQL Server Management Studio Help.
- **Max server memory.** We recommend that, if you run SQL Server on a computer that is also running other applications, that the SQL Server max server memory be set to no more than one half of the installed RAM. By default, max server memory is set to 2147483647 megabytes in recent versions of SQL Server, which has demonstrated resource issues with SQL Server during intensive use of Microsoft Dynamics 365. More information: [MSDN: Server Memory Options](#)
- **Max degree of parallelism.** We recommend if you experience poor SQL Server performance, which can occur due to complex index statements, that the SQL Server max degree of parallelism be set to 1 to help improve overall application performance on multiprocessor systems. More information: [MSDN: Configure max degree of parallelism Option](#)
- **RCSI.** Running Microsoft Dynamics 365 that uses a SQL Server configured for read committed snapshot isolation (RCSI) is supported for use with this version of Microsoft Dynamics 365 Server.

Language locale collation and sort order

Installing SQL Server in a language other than English (U.S.) may require changing the Collation designator. The following table indicates the Collation designator to use for some of the available languages.

Windows Locale	Locale Identifier (LCID)	Collation Designator	Code Page
Danish	0X406	Danish_Norwegian	1252
Dutch (Standard)	0X413	Latin1_General	1252
English (United States)	0X409	Latin1_General	1252
French (France)	0X40C	French	1252
German (Germany)	0X407	Latin1_General	1252
Italian	0X410	Latin1_General	1252
Portuguese (Brazil)	0X416	Latin1_General	1252
Spanish (Traditional Sort)	0XC0A	Modern_Spanish	1252

Disk configurations and file locations

For the default instance of SQL Server, the default directory for data files is \Program Files\Microsoft SQL Server\MSSQL<ver>.MSSQLSERVER\MSSQL\DATA, where <ver> is the major version of SQL Server, such as 11 for Microsoft SQL Server 2012. You can specify a file path other than the default for both program and data files.

Note

The default locations for program and data files are not necessarily the best locations. For the best combination of disk fault tolerance and performance, consider the RAID specifications available from hardware vendors. You can create the Microsoft Dynamics 365 databases on your partitions, especially for these files, and specify the existing databases when you run Microsoft Dynamics 365 Server Setup. The databases created by Microsoft Dynamics 365 are noted in the specified data file location. For more information, see [SQL Server data file location](#) later in this topic.

By default, tools are installed in \Program Files\Microsoft SQL Server\110\Tools on the system drive. This folder contains the default and named files shared by all instances of SQL Server. Tools include Microsoft SQL Server Management Studio, the T-SQL command line utility, and the OSQL SQL query tool.

Microsoft SQL Server Setup also installs files in the Windows system directory. The system file location cannot be changed.

SQL Server program file location

The SQL Server program files are located in \Program Files\Microsoft SQL Server\MSSQL<ver>.MSSQLSERVER\MSSQL\Binn.

The binary file location is in the root directory where Setup creates the folders that contain program files and other files that typically do not change this path as you use SQL Server. Although these files are not read-only, the folders do not contain data, logs, back-up files, or replication data. Therefore, the space requirements for these files should increase only marginally as SQL Server is used, and over time as updates are applied.

Important

Program files cannot be installed on a removable disk drive.

SQL Server data file location

Each SQL Server database consists of one or more database files and one or more transaction log files. Microsoft Dynamics 365 creates at least two databases:

- **MSCRM_CONFIG**. This database contains Microsoft Dynamics 365 metadata, such as configuration and location information that is specific to each organization database.
- **_MSCRM.OrganizationName** This is the organization database where Microsoft Dynamics 365 data is stored, such as all records and activities. Microsoft Dynamics 365 Server supports multiple organizations so that you can have multiple-organization databases.

Microsoft Dynamics 365 also relies on the SQL Server system databases to store Microsoft Dynamics 365 configuration information. These databases include the master and msdb databases. The database files that accompany a database contain all its data and properties. Transaction log files contain a record of the write activity in the database, such as when a row is added, changed, or removed. Transaction log files are binary and cannot be used for auditing database activity.

For backup and recovery information for SQL Server databases including transaction log files, see [MSDN: Back Up and Restore of SQL Server Databases](#).

Microsoft Dynamics 365 database renaming considerations

As described earlier, a Dynamics 365 (on-premises) deployment contains the following databases:

- A single MSCRM_CONFIG database
- One or more (for multi-tenant deployments) *OrganizationName_MSCRM* databases

The configuration database, MSCRM_CONFIG, cannot be renamed. If the MSCRM_CONFIG database is renamed, the Microsoft Dynamics 365 system will not function correctly.

Organization databases, OrganizationName_MSCRM, can be renamed by following the guidelines and considerations described here.

Organization database names

Microsoft Dynamics 365 organization databases use both a display and a unique name.

- **Display name.** This is the name that appears in the Microsoft Dynamics 365 application, such as the upper-right corner of the main application screen. The display name can contain spaces and be up to 250 characters long.
- **Unique name.** This is the name that is used to create the URL to connect to the application and is appended with **_MSCRM**. It is also the physical name of the database as it appears in SQL Server applications, such as Microsoft SQL Server Management Studio. This name cannot contain spaces and cannot be more than 30 characters long.

Organization database renaming

The display name may be changed by using the Edit Organization Wizard in Deployment Manager. The basic steps are to disable the organization, and then run the Edit Organization Wizard. For more information, see the Deployment Manager Help.

Although we do not recommend it, you can change the name of an organization's unique database name (*OrganizationName_MSCRM*). To change the database unique name, follow these steps:

Warning

Renaming the unique database name for an organization has not been fully tested by Microsoft and may cause unexpected results. We cannot guarantee that problems caused by performing this procedure can be resolved. Rename the organization database unique name at your own risk.

Important

Before you start the following procedure, take a full back up of the organization database that you want to rename.

The following steps require you to already have a functioning organization database that was created by Microsoft Dynamics 365 Server Setup or imported by a supported Microsoft Dynamics 365 method.

1. Restore the backup of the organization database to your SQL Server that uses the name that you want and that is supported by SQL Server.

2. Import the renamed organization database to your existing Microsoft Dynamics 365 deployment by using the Import Organization Wizard in Deployment Manager.
3. During the import, enter into the organization database a display name and unique name that are unrelated to the original database name.
4. Follow the instructions on your screen to complete the import.
5. Ensure that Microsoft Dynamics 365 users have the new URL that will be created as a result of the organization rename.

SQL Server transparent data encryption (TDE)

The Microsoft SQL Server transparent data encryption (TDE) feature is supported for use with Microsoft Dynamics 365. However, based on test results conducted internally, using this feature can cause a decrease in overall performance of approximately 10% when run against an encrypted database with the same workload.

SQL Server In-Memory OLTP

Currently, Microsoft Dynamics 365 database tables do not support SQL Server in-memory online transaction processing (OLTP). For more information about OLTP, see [In-Memory OLTP \(In-Memory Optimization\)](#).

See Also

[SQL Server installation and configuration](#)

[SQL Server requirements and recommendations for Microsoft Dynamics 365](#)

[Additional resources for SQL Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Additional resources for SQL Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

For more information about how to plan for and install Microsoft SQL Server, see the following resources:

[Microsoft SQL Server](#)

[Books Online for SQL Server](#)

[Microsoft SQL Server Solution Center](#)

See Also

[SQL Server installation and configuration](#)

[SQL Server deployment](#)

[Planning requirements for SQL Server Reporting Services](#)

Planning requirements for SQL Server Reporting Services

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Microsoft Dynamics 365 Reporting Extensions are data processing extensions that are installed on the Microsoft SQL Server Reporting Services server. Microsoft Dynamics 365 Reporting Extensions accept the authentication information from Microsoft Dynamics 365 Server and passes it to the Microsoft SQL Server Reporting Services server. Microsoft Dynamics 365 Reporting Extensions Setup includes both the Fetch data processing extension and SQL data processing extension.

The Microsoft Dynamics 365 Reporting Extensions are required for all major reporting tasks in Microsoft Dynamics 365, such as working with default (out-of-box) Microsoft Dynamics 365 reports, uploading custom reports, creating Report Wizard reports, or scheduling reports. Microsoft Dynamics 365 Reporting Extensions must also be installed before you import or provision new organizations.

The Microsoft Dynamics 365 Reporting Extensions Setup does the following:

1. Installs Fetch data processing extension and SQL data processing extension on the Microsoft SQL Server Reporting Services server.
2. Installs custom assemblies used by default reports and wizard reports on Microsoft SQL Server Reporting Services server.
3. Creates default reports (SQL-based) for the default organization both on Microsoft Dynamics 365 Server and Microsoft SQL Server Reporting Services servers.

The following table explains what reporting options will be available to you if you install Microsoft Dynamics 365 Reporting Extensions.

What reports will work?

Installed?	Default reports	Custom SQL-based reports	Fetch-based Wizard reports	Custom Fetch-based reports
No	Clean installation: Will not be available.	<ul style="list-style-type: none"> • Can't be scheduled. • Can be uploaded and run if Microsoft Dynamics 365 Server and SQL Server are installed on one computer or Trust for 	Will not be available.	Cannot be uploaded and run.

Installed?	Default reports	Custom SQL-based reports	Fetch-based Wizard reports	Custom Fetch-based reports
		Delegation is configured.		
Yes	Will be published for the default organization.	Can be uploaded and run.	Can be created, run, and scheduled.	Can be uploaded, run, and scheduled.

◆ Important

Microsoft Dynamics 365 Reporting Extensions shouldn't be installed on an instance of Microsoft SQL Server Reporting Services that is running under an account that is a member of the Active Directory SQL Access Group. This can occur when Microsoft SQL Server Reporting Services is running under the same account as a Microsoft Dynamics 365 Server service or feature. This configuration can make the system vulnerable to certain attacks. During installation, Setup detects this scenario and you can click Help for information about how to work around the issue.

Note that when you install Microsoft Dynamics 365 Reporting Extensions, you have the option of installing the component on a different server that is running Reporting Services. Therefore, by isolating Microsoft Dynamics 365 Reporting Extensions on a separate instance of SQL Server, which does not store the Microsoft Dynamics 365 databases, report performance may be improved.

Microsoft Dynamics 365 Reporting Extensions requirements

Microsoft Dynamics 365 Reporting Extensions has the following requirements:

- You must complete Microsoft Dynamics 365 Server Setup before you run the Microsoft Dynamics 365 Reporting Extensions Setup.
- You must run the Microsoft Dynamics 365 Reporting Extensions Setup on a computer that has Microsoft SQL Server Reporting Services installed. For smaller data sets and fewer users, you can use either a single-server deployment, or a multiple-server deployment with one computer that is running SQL Server for Microsoft Dynamics 365, and another server for Microsoft SQL Server Reporting Services. With larger datasets or more users, performance will decrease quickly when complex reports are run.

See Also

[SQL Server installation and configuration](#)
[Operating system and platform technology security considerations for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Security considerations for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 is designed in a way that helps make your deployment more secure. This section provides information and best practices for the Microsoft Dynamics 365 application. More information: [Referenced topic '5ca6019e-65f6-4bd8-8bd1-8f66d8814363' is only available online.](#)

In This Topic

[What kind of service account should I choose?](#)

[Minimum permissions required for Microsoft Dynamics 365 Setup and services](#)

[Microsoft Dynamics 365 installation files](#)

What kind of service account should I choose?

When you specify an identity to run a Microsoft Dynamics 365 service, you can choose either a domain user account or the Network Service account.

If the service interacts with network services, accesses domain resources like file shares or if it uses linked server connections to other computers, you can use a minimally-privileged domain account. Many server-to-server activities can be performed only with a domain user account and can provide the most secure option. This account should be pre-created by domain administration in your environment.

Note

When you configure a service to use a domain account, you can isolate the privileges for the application, but must manually manage passwords or create a custom solution for managing these passwords. Many server applications use this strategy to enhance security, but this strategy requires additional administration and complexity. In these deployments, service administrators spend a considerable amount of time on maintenance tasks such as managing service passwords and service principal names (SPNs), which are required for Kerberos authentication. In addition, these maintenance tasks can disrupt service.

The Network Service account is a built-in account that has more access to resources and objects than members of the Domain Users group. Services that run as the Network Service account access network resources by using the credentials of the computer account in the format `<domain_name>\<computer_name>$`. The actual name of the account is NT AUTHORITY\NETWORK SERVICE.

Minimum permissions required for Microsoft Dynamics 365 Setup and services

Microsoft Dynamics 365 is designed so that its features can run under separate identities. By specifying a domain user account that is granted only the permissions necessary to enable a particular feature to function, you help secure the system and reduce the likelihood of exploitation.

This topic describes the minimum permissions that are required by the user account for Microsoft Dynamics 365 services and features.

Microsoft Dynamics 365 Server Setup

The user account used to run Microsoft Dynamics 365 Server Setup that includes the creation of databases requires the following minimum permissions:

- Be a member of the Active Directory Domain Users group. By default, Active Directory Users and Computers adds new users to the Domain Users group.
- Be a member of the Administrators group on the local computer where Setup is running.
- Have Local Program Files folder read and write permission.
- Be a member of the Administrators group on the local computer where the instance of SQL Server is located that will be used to store the Microsoft Dynamics 365 databases.
- Have sysadmin membership on the instance of SQL Server that will be used to store the Microsoft Dynamics 365 databases.
- Have organizational unit and security group creation and add membership permission to those groups in Active Directory. Alternatively, you can use a Setup XML configuration file to install Microsoft Dynamics 365 Server when security groups have already been created. For more information, see [Use the command prompt to install Microsoft Dynamics Server 365](#).
- If Microsoft SQL Server Reporting Services is installed on a different server, you must add the Content Manager role at the root level for the installing user account. You must also add the System Administrator Role at the site-wide level for the installing user account.

Microsoft Dynamics 365 services and IIS application pool identity permissions

This section lists the minimum permissions that domain user accounts require for the services and the IIS application pools that Microsoft Dynamics 365 uses.

◆ Important

- Microsoft Dynamics 365 services and application pool (CRMAppPool) identity accounts must not be configured as a Microsoft Dynamics 365 user. Doing so can cause authentication issues and unexpected behavior in the application for all Microsoft Dynamics 365 users. More information: [Problems in CRM when the CRMAppPool user account is a CRM user](#)
- Managed service accounts (group-managed service accounts (gMSA) or single-managed service accounts) and virtual accounts (NT SERVICE\,<SERVICENAME>) aren't supported for running Microsoft Dynamics 365 services.

The following subsections describe the domain user account permissions required for each service or application pool identity:

[Microsoft Dynamics 365 Sandbox Processing Service](#)

[Microsoft Dynamics 365 Asynchronous Processing Service and Microsoft Dynamics 365 Asynchronous Processing Service \(maintenance\) services](#)
[Microsoft Dynamics 365 Monitoring Service](#)
[Microsoft Dynamics 365 VSS Writer service](#)
[Deployment Web Service \(CRMDeploymentServiceAppPool Application Pool identity\)](#)
[Application Service \(CRMAppPool IIS Application Pool identity\)](#)

Microsoft Dynamics 365 Sandbox Processing Service

- Domain Users membership.
- That account must be granted the Logon as service permission in the Local Security Policy.
- Folder read and write permission on the **Trace**, by default located under \Program Files\Microsoft Dynamics 365\Trace, and user account **%AppData%** folders on the local computer.
- Read permission to the HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM subkey in the Windows registry.
- The service account may need an SPN for the URL used to access the website that is associated with it. To set the SPN for the Sandbox Processing Service account, run the following command at a command prompt on the computer where the service is running.

```
SETSPN -a MSCRMSandboxService/<ComputerName> <service account>
```

Microsoft Dynamics 365 Asynchronous Processing Service and Microsoft Dynamics 365 Asynchronous Processing Service (maintenance) services

- Domain Users membership.
- PrivUserGroup and SQLAccessGroup membership. By default, these groups are created and appropriate membership is granted during Microsoft Dynamics 365 Server Setup.
- Built-in local group Performance Log Users membership.
- That account must be granted the Logon as service permission in the Local Security Policy.
- Read and write permission on the following folders.
 - The **Trace** folder. By default located under \Program Files\Microsoft Dynamics CRM\, and user account **%AppData%** folder on the local computer.
 - The **CustomizationImport** folder. By default located under \Program Files\Microsoft Dynamics CRM\. This may be required for solution import when you use the Microsoft Dynamics 365 SDK.
- All access permissions except Full Control and Write DAC to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** and **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSCRMSandboxService** subkeys in the Windows registry.
- The service account may need an SPN for the URL used to access the website that is associated with it. To set the SPN for the Asynchronous Service account, run the following command at a command prompt on the computer where the service is running.

```
SETSPN -a MSCRMAsyncService/<ComputerName> <service account>
```

Microsoft Dynamics 365 Monitoring Service

- Domain Users membership.
- That account must be granted the **Logon as service** permission in the Local Security Policy.
- If the Microsoft Dynamics 365 Monitoring Service is installed with a Front End Server server role, local administrator group membership on the computer where the service is running is required to monitor the web site and application pools. More information: [Available individual server roles](#)
- Read permission to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM**
- SQLAccessGroup membership. By default, this group is created and appropriate membership is granted during Microsoft Dynamics 365 Server Setup.
- The service account may need an SPN for the URL used to access the website that is associated with it.

Microsoft Dynamics 365 VSS Writer service

- Domain Users membership.
- That account must be granted the **Logon as service** permission in the Local Security Policy.
- Read permission to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM**
- PrivUserGroup and SQLAccessGroup membership. By default, these groups are created and appropriate membership is granted during Microsoft Dynamics 365 Server Setup.

Deployment Web Service (CRMDeploymentServiceAppPool Application Pool identity)

- Domain Users membership.
- That account must be granted the **Logon as service** permission in the Local Security Policy.
- Local administrator group membership on the computer where SQL Server is running is required to perform organization database operations (such as create new or import organization).
- Local administrator group membership on the computer where the Deployment Web Service is running.
- Sysadmin permission on the instance of SQL Server to be used for the configuration and organization databases.
- Folder read and write permission on the **Trace** and **CRMWeb** folders, by default located under \Program Files\Microsoft Dynamics CRM\, and user account **%AppData%** folder on the local computer.
- All access permissions except Full Control and Write DAC to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** and **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSCRMSandboxService** subkeys in the Windows registry.

- PrivUserGroup and SQLAccessGroup membership. By default, these groups are created and appropriate membership is granted during Microsoft Dynamics 365 Server Setup.
- CRM_WPG group membership. This group is used for IIS worker processes. The group is created and the membership is added during Microsoft Dynamics 365 Server Setup.
- The service account may need an SPN for the URL used to access the website that is associated with it.

Application Service (CRMAppPool IIS Application Pool identity)

- Domain Users group membership.
- Built-in local group Performance Log Users membership.
- Folder read and write permission on the **Trace** and **CRMWeb** folders, by default located under \Program Files\Microsoft Dynamics CRM\, and user account **%AppData%** folder on the local computer.
- All access permissions except Full Control and Write DAC to the **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM** and **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\MSCRMSandboxService** subkeys in the Windows registry.
- CRM_WPG group membership. This group is used for IIS worker processes. The group is created and the membership is added during Microsoft Dynamics 365 Server Setup.
- The service account may need an SPN for the URL used to access the website that is associated with it.

IIS Application Pool identities running under Kernel-Mode authentication and SPNs

By default, IIS websites are configured to use Kernel-Mode authentication. When you run the Microsoft Dynamics 365 website by using Kernel-Mode authentication, you might not need to configure additional service principal names (SPNs) for the CRMAppPool identities.

To determine whether your IIS deployment requires SPNs, see [Service Principal Name \(SPN\) checklist for Kerberos authentication with IIS 7.0/7.5](#).

Microsoft Dynamics 365 installation files

If you plan to install Microsoft Dynamics 365 from a location on the network, such as a network share, you must make sure that the correct permissions are applied to the folder, preferably on an NTFS volume, where the installation files are located. For example, you may want to allow only members of the Domain Admins group permissions for the folder. This practice can help to reduce the risk of attacks on the installation files that may compromise or alter them. For more information about how to set permissions on files and folders on the Windows operating system, see Windows Help.

See Also

[Planning your deployment of Microsoft Dynamics 365](#)

[Security best practices for Microsoft Dynamics 365](#)

[Administration best practices for on-premises deployments of Microsoft Dynamics 365](#)

[Network ports for Microsoft Dynamics 365](#)

[Microsoft Dynamics 365 server roles](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Security best practices for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Internet Information Services (IIS) is a mature web service that is included with Windows Server. Microsoft Dynamics 365 depends on an efficient and secure IIS web service. Consider the following:

- In the **machine.config** and **web.config** configuration files you can determine whether debugging is enabled, and also if detailed error messages are sent to the client. You should make sure that debugging is disabled on all production servers, and that a generic error message is sent to the client if a problem occurs. This avoids unnecessary information about the web server configuration being sent to the client.
- Make sure that the latest operating system and IIS service packs and updates are applied. For the latest information, see the [Microsoft Security](#) website.
- Microsoft Dynamics 365 Server Setup creates application pools called **CRMAppPool** and **CRMDeploymentServiceAppPool** that operate under user credentials that you specify during Setup. To facilitate a least-privileged model, we recommend that you specify separate domain user accounts for these application pools instead of using the Network Service account. Additionally, we recommend that no other ASP.NET-connected application be installed under these application pools. For information about the minimum permissions required for these components, see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

◆ Important

- Make sure all websites that are running on the same computer as the Microsoft Dynamics 365 website also have access to the Dynamics 365 database.
- If you use a domain user account, before you run Microsoft Dynamics 365 Server Setup, you may need to verify that the service principal name (SPN) is set correctly for that account, and if necessary, set the correct SPN. For more information about SPNs and how to set them, see [How to use SPNs when you configure Web applications that are hosted on IIS](#).

Service principal name management in Microsoft Dynamics 365

The service principal name (SPN) attribute is a multivalued, nonlinked attribute that is built from the DNS host name. The SPN is used during mutual authentication between the client and the server hosting a particular service. The client finds a computer account based on the SPN of the service that it's trying to connect to.

The Microsoft Dynamics 365 Server installer deploys role-specific services and web application pools that operate under user credentials specified during Setup. To review the complete list of these roles and their permission requirements, see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

When you deploy a hosted Microsoft Dynamics 365 infrastructure, two of these roles may require additional consideration:

- Deployment Web Service
- Application Service

In web farm scenarios, as is the case for a hosted offering, the recommendation is to leave kernel-mode authentication enabled. In addition, you should closely consider using separate domain user accounts to run these services because:

- Having separate service accounts for these server roles facilitates being able to implement hardware load balancing.
- The Deployment Web Service server role requires elevated permissions to provision organizations in the Dynamics 365 database. If you want to adhere to a least-privileged model, the safest approach for implementing SPNs in a hosted Microsoft Dynamics 365 infrastructure involves having the Deployment Web Service run under a different domain user account than the Application Service.

If you follow this suggestion to use separate domain accounts for these server roles, you should check to make sure that the SPN is correct for each account before you start Microsoft Dynamics 365 Server Setup. This will make it easier for you to set the correct SPN when necessary.

If kernel-mode authentication is enabled, the SPNs will be defined for the machine account, regardless of the specified service account. When you implement a web farm, enable kernel-mode authentication and change the local ApplicationHost.config file.

If application and deployment web services are running on the same system, and kernel-mode authentication is disabled, you could configure both services to run under the same domain user account to prevent duplicate SPN issues. If you can't enable kernel-mode authentication, install the Application and Deployment web services on separate systems. The SPNs may still need to be created manually since kernel-mode authentication is disabled.

For more information about SPNs and how to set them, see [Service Principal Name \(SPN\) checklist for Kerberos authentication with IIS 7.0/7.5](#)

See Also

[Security considerations for Microsoft Dynamics 365](#)

[Administration best practices for on-premises deployments of Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Administration best practices for on-premises deployments of Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

By following some simple rules of administration, you can significantly improve the security of your Microsoft Dynamics 365 on-premises deployment.

- Typically, there is no need for Dynamics 365 users to have administrative privileges over the domain. Therefore, all Dynamics 365 user accounts should be restricted to Domain Users membership. Also, following the principle of least-privilege, anyone who uses the Dynamics 365 system should have minimal rights. This starts at the domain level. A domain user account should be created and used to run Dynamics 365. Domain Administrator accounts should never be used to run Dynamics 365.
- Limit the number of Microsoft Dynamics 365 Deployment Administrator and System Administrator roles to a few people who are responsible for rule changes. Others who are SQL Server, Microsoft Exchange Server, or Active Directory administrators do not have to be members of the Dynamics 365 users group.
- Make sure that at least two or three trusted people have the Deployment Administrator role. This avoids system lockout if the primary Deployment Administrator is unavailable.
- In some organizations it is a common practice to reuse passwords across systems and domains. For example, an administrator responsible for two domains may create Domain Administrator accounts in each domain that use the same password, and even set local administrator passwords on domain computers that are the same across the domain. In such a case, a compromise of a single account or computer could lead to a compromise of the entire domain. Passwords should never be reused in this manner.
- It is also common practice to use Domain Administrator accounts as service accounts for common services such as back-up systems. However, it is a security risk to use Domain Administrator accounts as service accounts. The password can easily be retrieved by anyone who has administrative rights over the computer. In such a case, the compromise could affect the entire domain. Service accounts should never be Domain Administrator accounts, and they should be limited in privilege as much as possible.
- A domain user account that is specified to run a Microsoft Dynamics 365 service must not also be configured as a Dynamics 365 user. This can cause unexpected behavior in the application.

See Also

[Security considerations for Microsoft Dynamics 365](#)

[Security best practices for Microsoft Dynamics 365](#)

[Network ports for Microsoft Dynamics 365](#)

[Referenced topic '5ca6019e-65f6-4bd8-8bd1-8f66d8814363' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Operating system and platform technology security considerations for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

In the broadest sense, security involves planning and considering tradeoffs between threats and access. For example, a computer can be locked in a vault and available only to one system administrator. This computer may be secure, but it's not very usable because it's not connected to any other computer. If your business users need access to the Internet and your corporate intranet, you must consider how to make the network both secure and usable.

In this topic you'll find helpful information and links to many resources you can use to make your computing environment more secure. Because ultimately, Microsoft Dynamics 365 data security largely depends on how well you first secure the operating system and software components.

In this topic

[Securing Windows Server](#)

[Securing SQL Server](#)

[Securing Exchange Server and Outlook](#)

[Securing mobile devices](#)

Securing Windows Server

Windows Server, the foundation of Microsoft Dynamics 365, provides sophisticated network security. The Kerberos version 5 authentication protocol that is integrated into Active Directory and Active Directory Federation Services (AD FS) lets you federate Active Directory domains by using claims-based authentication. Both give you powerful standards-based authentication. These authentication standards let users enter a single user name and password sign-in combination for resource access across the network. Windows Server also includes several features that help make the network even more secure.

Follow these links to learn more about these features and how to make your Windows Server deployment more secure:

- Windows Server 2012
 - [Secure Windows Server 2012 R2 and Windows Server 2012](#)
 - [Windows Server 2012 Security Baseline](#)

Windows error reporting

Microsoft Dynamics 365 requires the Windows Error Reporting (WER) service, which Setup will install if it is missing. The WER service collects information, such as IP addresses. These IP addresses are not used to identify users. The WER service does not intentionally collect names, addresses, email addresses, computer names, or any other form of personally identifiable information (PII). It is possible that such information may be captured in memory or in the data collected from open files, but Microsoft

does not use it to identify users. In addition, some information that is transmitted between the Microsoft Dynamics 365 application and Microsoft may not be secure. For more information about the type of information that is transmitted, see [Privacy statement for the Microsoft Error Reporting Service](#).

Virus, malware, and identity protection

To better protect your identity and your system against malware or viruses, check out these resources:

- [Microsoft Security](#). This page is an entry point for tips, training, and guidance about how to keep your computer up to date and prevent it from being susceptible to exploitation, spyware, and viruses.
- [Security TechCenter](#). This page has links to technical bulletins, advisories, updates, tools, and guidance designed to make computers and applications up to date and more secure.

Update management

Microsoft Dynamics 365 updates include security, performance, and functional improvements. Making sure your Microsoft Dynamics 365 applications have the latest updates helps make sure your system runs as efficiently and reliably as it can. You can find more information about how to manage updates here:

- [Windows Server Update Services](#)
- [Software Updates in Configuration Manager](#)
- [Update Management in Windows Server 2012: Revealing Cluster-Aware Updating and the New Generation of WSUS](#)

Securing SQL Server

Because Microsoft Dynamics 365 relies on SQL Server, make sure you take the following measures to improve the security of your SQL Server database:

- Apply the latest operating system, SQL Server service packs (SPs), and updates. Check the [Microsoft Security](#) website for the latest details.
- Install all SQL Server data and system files on NTFS partitions for file system-level security. You should make the files available only to administrative or system-level users through NTFS permissions. This helps safeguard against users who access those files when the MSSQLSERVER service is not running.
- Use a low-privilege domain account. Or, specify the Network Service or Local System Account for SQL Server services. However, we do not recommend that you use these accounts because Domain User accounts can be configured with fewer permissions to run the SQL Server services. Domain User accounts should have minimal rights in the domain, which should help contain (but will not stop) an attack on the server if there is a compromise. In other words, Domain User accounts should have only local user-level permissions in the domain. If SQL Server is installed using a Domain Administrator account to run the services, a compromise of SQL Server will lead to a compromise of the entire domain. If you have to change this setting, use SQL Server

Management Studio to make the change, because the access control lists (ACLs) on files, the registry, and user rights will be changed automatically.

- Because SQL Server authenticates users who have either Windows Authentication or SQL Server credentials, we suggest you use Windows Authentication for single sign-on convenience and the most secure authentication.
- At a minimum, enable auditing of failed sign-ins. By default, SQL Server system auditing is disabled, and no conditions are audited. This makes intrusion detection difficult and helps attackers cover their tracks.
- Report Server administrators should enable RDL Sandboxing to restrict access to the Report Server. More information: [Enabling and Disabling RDL Sandboxing](#)
- Configure each SQL logon to use the master database as the default database. Although users shouldn't have rights to the master database, as a best practice, you should change the default for every SQL logon (except those with the SYSADMIN role) to use *OrganizationName_MSCRM* as the default database. More information: [Securing SQL Server](#)

Securing Exchange Server and Outlook

The following considerations are for Microsoft Exchange Server or Exchange Server in a Microsoft Dynamics 365 environment:

- Exchange Server contains a rich series of mechanisms for precise administrative control of its infrastructure. In particular, you can use administrative groups to collect Exchange Server objects like servers, connectors, or policies, and then modify the ACLs on those administrative groups to make sure only certain users can access them. You may, for example, want to give Microsoft Dynamics 365 administrators control over servers that directly affect their applications. When you implement administrative groups efficiently, you know you are giving Microsoft Dynamics 365 administrators exactly the rights they need to do their jobs.
- Frequently, you may find it convenient to create a separate organizational unit (OU) for Microsoft Dynamics 365 users, and give Microsoft Dynamics 365 administrators limited administrative rights over that OU. Administrators can make changes for any user in that OU, but not for any user outside it.
- Always be sure you adequately protect against unauthorized email relay. Email relay lets an SMTP client use an SMTP server to forward email messages to a remote domain. By default, Microsoft Exchange Server is configured to prevent email relay. The settings you configure will depend on your message flow and how your Internet service provider's (ISP) email server is configured. However, the best approach here is to lock down your email relay settings and then gradually open them to let email flow successfully. For more information, see the Exchange Server Help.
- If you use forward mailbox monitoring, the Email Router requires an Exchange Server or POP3-compliant mailbox. We recommend you set the permissions on this mailbox to prevent other users from adding server-side rules. For more information about Exchange Server mailboxes, see [Recipients Permissions](#).

- The Microsoft Dynamics 365Email Router service operates under the Local System Account. This enables the Email Router to access a specified user's mailbox and process email in that mailbox.

For more information about how to make Exchange Server more secure, see [Deployment Security Checklist](#).

Securing mobile devices

As organizations move to support an increasingly mobile workforce, strong security remains essential. Here are some resources to help you implement best practices for mobile devices, such as smartphones and tablets:

- [How to Manage Mobile Devices by Using Configuration Manager and Windows Intune](#)
- [Windows for business](#)
- [Security Considerations](#) (Microsoft Surface)
- [iOS in Business](#) (iPad and iPhone)

See Also

[Planning your deployment of Microsoft Dynamics 365](#)

[Referenced topic '6804d996-86b2-4fb0-aed9-21fbdde0bab5' is only available online.](#)

[Referenced topic '7bad6691-0842-4754-a0a4-f38428aa428e' is only available online.](#)

[Security considerations for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Network ports for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section describes the ports that are used for Microsoft Dynamics 365. This information is helpful as you configure the network when users connect through a firewall.

In This Topic

[Network ports for the Microsoft Dynamics 365 web application](#)

[Network ports for the Asynchronous Service, Web Application Server, and Sandbox Processing Service server roles](#)

[Network ports for the Organization Web Service server role](#)

[Network ports that are used by the SQL Server that runs the SQL Server and Microsoft Dynamics 365](#)

[Reporting Extensions server roles](#)

Network ports for the Microsoft Dynamics 365 web application

The following table lists the ports used for a server that is running a Full Server installation of Microsoft Dynamics 365. Moreover, except for the Microsoft SQL Server role, and the Microsoft Dynamics 365 Reporting Extensions server role, all server roles are installed on the same computer.

Protocol	Port	Description	Explanation
TCP	80	HTTP	Default web application port. This port may be different as it can be changed during Microsoft Dynamics 365 Server Setup. For new websites, the default port number is 5555.
TCP	135	MSRPC	RPC endpoint resolution.
TCP	139	NETBIOS-SSN	NETBIOS session service.
TCP	443	HTTPS	Default secure HTTP port. The port number may differ from the default port. This secure network transport must be manually configured. Although this port is not required to run Microsoft Dynamics 365, we strongly recommend it. For information about how to configure HTTPS for Dynamics 365, see Make Dynamics 365 client-to-server network communications more secure .
TCP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
UDP	123	NTP	Network Time Protocol.
UDP	137	NETBIOS-NS	NETBIOS name service.
UDP	138	NETBIOS-dgm	NETBIOS datagram service.
UDP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
UDP	1025	Blackjack	DCOM, used as an RPC

Protocol	Port	Description	Explanation
			listener.

◆ Important

Depending on your domain trust configuration, additional network ports may need to be available for Microsoft Dynamics 365 to work correctly. More information: [Active Directory and Active Directory Domain Services Port Requirements](#)

Network ports for the Asynchronous Service, Web Application Server, and Sandbox Processing Service server roles

The following table lists the additional ports that are used for a deployment where the Sandbox Processing Service is running on a separate computer.

Protocol	Port	Description	Explanation
TCP	808	Dynamics 365 server role communication	The Asynchronous Service and Web Application Server services communicate to the Sandbox Processing Service through this channel. The default port is 808, but can be changed in the Windows registry by adding the DWORD registry value TcpPort in the key HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM\.

Network ports for the Organization Web Service server role

The following table lists the additional port that is used by the Organization Web Service server role.

Protocol	Port	Description	Explanation
TCP	808	Used for Fetch-based reports	Microsoft SQL Server Reporting Services servers that run Fetch-based reports initiated by Dynamics 365 clients communicate with the Organization Web Service server role (a Front End Server role) over this port.

Network ports that are used by the SQL Server that runs the SQL Server and Microsoft Dynamics 365 Reporting Extensions server roles

The following table lists the ports that are used for a computer that is running SQL Server and has only SQL Server and the Microsoft Dynamics 365 Reporting Extensions (SRS Data Connector) server roles installed.

Protocol	Port	Description	Explanation
TCP	135	MSRPC	RPC endpoint resolution.
TCP	139	NETBIOS-SSN	NETBIOS session service.
TCP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
TCP	1433	ms-sql-s	SQL Server sockets service. This port is required for access to SQL Server. This number may be different if you have configured your default instance of SQL Server to use a different port number or you are using a named instance.
UDP	123	NTP	Network Time Protocol.
UDP	137	NETBIOS-NS	NETBIOS name service.
UDP	138	NETBIOS-dgm	NETBIOS datagram service.
UDP	445	Microsoft-DS	Active Directory service required for Active Directory access and authentication.
UDP	1025	Blackjack	DCOM, used as an RPC listener.

◆ Important

In addition to the ports listed previously, UDP port 1434 (SQL Server Browser Service) on the SQL Server is required by Microsoft Dynamics 365 Server Setup to return a list of the computers that are running SQL Server during the installation of Microsoft Dynamics 365 Server. To work around this, specify the *SQLServerInstanceName* during Setup.

See Also

[Referenced topic '5ca6019e-65f6-4bd8-8bd1-8f66d8814363' is only available online.](#)
[Known risks and vulnerabilities](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Known risks and vulnerabilities

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This topic describes the risks and vulnerabilities that may exist when you use Microsoft Dynamics 365. Mitigations and workarounds are also described when applicable.

In This Topic

[Risks when users connect to Dynamics 365 over an unsecured network](#)

[Security recommendations on server role deployments](#)

[Anonymous authentication](#)

[Isolate the HelpServer role for Internet-facing deployments](#)

[Claims-based authentication issues and limitations](#)

[Secure the web.config file](#)

[Outbound Internet calls from custom code executed by the Sandbox Processing Service are enabled](#)

[Secure server-to-server communication](#)

[DNS rebinding attacks](#)

[JavaScript allowed for Power BI URLs on personal dashboards](#)

Risks when users connect to Dynamics 365 over an unsecured network

Here are some issues that can occur when you run Microsoft Dynamics 365 without using Transport Layer Security (TLS) or Secure Sockets Layer (SSL) (HTTPS):

- Microsoft Dynamics 365 user-provided data, including Visual chart definitions, can be altered over an unsecured HTTP connection by using "man in the middle" type attacks. To mitigate this vulnerability, configure Microsoft Dynamics 365 to only use TLS/SSL. For more information about how to configure Microsoft Dynamics 365 Server to use TLS/SSL, see [Make Dynamics 365 client-to-server network communications more secure](#).

Security recommendations on server role deployments

The following recommendations can help make your Microsoft Dynamics 365 deployment more reliable and secure.

Server role	Recommendation
Sandbox Processing Service	Install this role on a dedicated server on a separate virtual LAN (VLAN) from other computers that are running Microsoft Dynamics 365 Server roles. Then, if there is a malicious plug-in running in the sandbox that exploits the computer, the network isolation from a separate VLAN can help protect other Dynamics 365 resources from being compromised.
Help Server	Install this role on a separate computer for both IFD and internally-facing deployments. For more information, see Isolate the HelpServer role for Internet-facing deployments later in this topic.

Anonymous authentication

Microsoft Dynamics 365 Internet-facing deployment (IFD) requires anonymous authentication enabled on IIS for claims-based authentication. The claims-based authentication token doesn't contain raw credentials or the connection string to Microsoft Dynamics 365 Server. However, the web.config file does contain configuration information about the authentication mode. For more information, see [Secure the web.config file](#) later in this topic. To secure the Microsoft Dynamics 365 website, use TLS/SSL.

Isolate the HelpServer role for Internet-facing deployments

Microsoft Dynamics 365 Internet-facing deployment (IFD) requires anonymous authentication. Because anonymous website authentication is used, the virtual directory used by the Microsoft Dynamics 365 Help site can be targeted for denial of service (DoS) attacks.

To isolate the Microsoft Dynamics 365 Help pages, and help protect the other Microsoft Dynamics 365 Server roles from potential DoS attacks, consider installing the Help Server role on a separate computer.

For more information about the options for installing Microsoft Dynamics 365 roles on separate computers, see [Microsoft Dynamics 365 server roles](#).

For more information about reducing the risk of DoS attacks, see [MSDN: Improving Web Application Security: Threats and Counter-measures](#).

Claims-based authentication issues and limitations

This topic describes issues and limitations when you use claims-based authentication with Microsoft Dynamics 365.

Verify that the identity provider uses a strong password policy

When you use claims-based authentication, you should verify that the identity provider is trusted by the security token service (STS) and, in turn, Microsoft Dynamics 365, enforces strong password policies.

Microsoft Dynamics 365 doesn't enforce strong passwords. By default, when it is used as an identity provider, Active Directory enforces a strong password policy.

AD FS federation server sessions are valid up to 8 hours even for deactivated or deleted users

By default, Active Directory Federation Services (AD FS) server tokens allocate a web single sign-on (SSO) cookie expiration of 8 hours. So even when a user is deactivated or deleted from an authentication provider, as long as the user session is still active, the user can continue to be authenticated to secure resources.

Use any of these options to work around this issue:

- Disable the user in Microsoft Dynamics 365 and in Active Directory. For information about how to disable a user in Microsoft Dynamics 365, see [Referenced topic '497693f7-bf8c-4d5a-bbde-015d5f6a15cc' is only available online.](#) For information about how to disable a user in Active Directory, see the Active Directory Users and Computers Help.
- Reduce the web SSO lifetime. To do this, see the Active Directory Federation Services (AD FS) Management Help.

Secure the web.config file

The web.config file that is created by Microsoft Dynamics 365 does not contain connection strings or encryption keys. However, the file does contain configuration information about the authentication mode and strategy, ASP.NET view state information, and debug error message display. If this file is modified with malicious intent it can threaten the server where Microsoft Dynamics 365 is running. To help secure the web.config file, we recommend you do these things:

- Give permissions to the folder where the web.config file is located to only those user accounts that require it, such as administrators. By default, the web.config file is located in the <drive:>Program Files\Microsoft Dynamics CRM\CRMWeb folder.
- Limit the number of users who have interactive access to Dynamics 365 servers, such as console logon permission.
- Disable directory browsing on the Dynamics 365 website. By default, this is disabled. For more information about how to disable directory browsing, see Internet Information Services (IIS) Manager Help.

Outbound Internet calls from custom code executed by the Sandbox Processing Service are enabled

By default, outbound calls from custom code executed by the Microsoft Dynamics 365 Sandbox Processing Service that access services on the Internet are enabled. For high-security deployments of Microsoft Dynamics 365, this can pose a security risk. If you don't want to allow outbound calls from custom code, such as Dynamics 365 plug-ins or custom workflow activities, you can disable outbound connections from custom code executed by the Sandbox Processing Service by following the procedure here.

Instead of blocking all outbound calls, you can enforce web access restrictions on sandboxed plug-ins. More information: [MSDN: Plug-in isolation, trusts, and statistics](#)

Disabling outbound connections for custom code includes disabling calls to cloud services such as Microsoft Azure and Microsoft Azure SQL Database.

Disable outbound connections for custom code on the computer that is running the sandbox processing service

1. On the Windows Server computer where the Microsoft Dynamics 365Sandbox Processing Service server role is installed, start Registry Editor and locate the following subkey:
HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFTMSCRM
2. Right-click **MSCRM**, point to **New**, click **DWORD Value**, type **SandboxWorkerDisableOutboundCalls**, and then press ENTER.
3. Right-click **SandboxWorkerDisableOutboundCalls**, click **Modify**, type 1, and then press ENTER.
4. Close Registry Editor.
5. Restart the Sandbox Processing Service. To do this, click **Start**, type **services.msc**, and then press ENTER.
6. Right-click **Microsoft Dynamics 365 Sandbox Processing Service**, and then click **Restart**.
7. Close the Microsoft Management Console (MMC) Services snap-in.

Secure server-to-server communication

By default, Microsoft Dynamics 365 server-to-server communication, such as communication between the Web Application Server role and the server that is running Microsoft SQL Server, isn't executed over a secure channel. Therefore, information that is transmitted between servers may be susceptible to certain attacks, like man-in-the-middle attacks.

We recommend you implement secure networking, such as Windows Firewall, to help protect information that is transmitted between servers in your organization. More information: [Windows Firewall with Advanced Security Overview](#)

DNS rebinding attacks

Like many web-based applications, Microsoft Dynamics 365 may be vulnerable to DNS rebinding attacks. This exploit involves misleading a web browser into retrieving pages from two different servers, trusting that the servers are from the same domain, and subsequently breaking the [Same Origin Policy](#). Using this technique, an attacker can tamper with Dynamics 365 data using the victim's identity through cross-site scripting attacks on Dynamics 365 pages.

For more information about how to help protect against such attacks, see [Protecting Browsers from DNS Rebinding Attacks](#).

JavaScript allowed for Power BI URLs on personal dashboards

Because JavaScript can be used so that personal dashboards can use Power BI URLs, be aware of the following risks of script injection attacks from malicious sources:

- Arbitrary redirection to an unexpected website, such as a phishing website.
- The creation of multiple large JavaScript objects in an attempt to crash the web browser.

To reduce the risk, consider implementing the following best practices:

- Only allow approved SharePoint sites to host Microsoft Office Excel documents used for embedding Power BI reports in dashboards. More information: [Introduction to Power BI for Office 365 Admin Center](#)
- Secure the SharePoint site that hosts the Power BI components so that only trusted sources can add documents that will be added to dashboards. [Read about SharePoint permission levels](#)
- Ask Microsoft Dynamics 365 users to avoid adding unapproved components to their dashboards. This is similar to educating users to not open attachments or click hyperlinks found in email messages from unknown sources.

See Also

[Security considerations for Microsoft Dynamics 365](#)
[Network ports for Microsoft Dynamics 365](#)
[Microsoft Dynamics 365 supported configurations](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 supported configurations

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The deployment architecture you will use depends on your business needs. Examples are provided here for planning a Microsoft Dynamics 365 deployment on four representative computer system architectures: a single-computer server deployment, a two-server deployment, a five-server deployment, and a multiple-server deployment involving a minimum of six servers. These deployments are discussed in detail in Microsoft Dynamics CRM 2011 supported configurations.

Additionally, this section describes the supported network, domain, and server configurations for Microsoft Dynamics 365, which supports multiple forest and domain topologies.

Active Directory requirements

The Active Directory requirements are as follows:

- The computers that run Microsoft Dynamics 365 Server roles and the computer that runs SQL Server, where the Microsoft Dynamics 365 databases are located, must be in the same Active Directory domain.
- The Active Directory domain where a Microsoft Dynamics 365 Server role is located must run in one of the domain modes listed in the [Active Directory modes](#) topic.
- The user account that is used to run a Microsoft Dynamics 365 service must be in the same domain as the computer that is running the Microsoft Dynamics 365 Server role.
- The Microsoft Dynamics 365 security groups (PrivUserGroup, SQLAccessGroup, ReportingGroup, and PrivReportingGroup) must be in the same domain as the computer that is running Microsoft Dynamics 365 Server. These security groups can be located in the same organizational unit (OU) or in different OUs. To use security groups that are located in different OUs, you must install Microsoft Dynamics 365 Server by using an XML configuration file and specify the correct distinguished name for each pre-existing security group within the **<Groups>** element. More information: [Sample server XML configuration file for installing with pre-created groups](#)

Warning

Direct user account membership in the Microsoft Dynamics CRM privusergroup security group is required and group membership nesting under privusergroup currently is not supported. Granting membership to privusergroup through another security group can cause system-wide failures in the CRM web application and reporting features. For example, if you add a security group named mycrmprivgroupusers to privusergroup, members of mycrmprivgroupusers will not resolve as privusergroup members. This includes the CRMAppPool or the SQL Server Reporting Services service identities.

- For users who access Microsoft Dynamics 365 from another domain and are not using claims-based authentication, a one-way trust must exist in which the domain where the Microsoft Dynamics 365 Server is located trusts the domain where the users are located.

Important

To add users to Microsoft Dynamics 365 that are not authenticated by using claims-based authentication, a two-way forest trust is required.

Single-server deployment

For small user bases, a Microsoft Dynamics 365 Server can be deployed in a single-server configuration, with Microsoft Dynamics 365 Server, SQL Server, Microsoft SQL Server Reporting Services, and optionally Microsoft Exchange Server installed and running on the same computer.

Single-server deployments are not recommended for best experience in application performance and disaster recovery.

There is one limitation to single-server deployments: the server where Microsoft Dynamics 365 Server is installed cannot also function as a domain controller. If the computer is a member server (not functioning as a domain controller), you can deploy the Microsoft Dynamics 365 Server Full Server role on a single Windows Server that is also running the additional required products.

◆ Important

Running Microsoft Dynamics 365 Server in a production environment on an Active Directory domain controller is not supported.

💡 Tip

To reduce IT administration overhead, consider running Microsoft Dynamics 365 in the cloud. More information: [Microsoft Dynamics](#)

In This Section

[Microsoft Dynamics 365 multiple-server deployment](#)

See Also

[Planning your deployment of Microsoft Dynamics 365](#)
[Microsoft Dynamics 365 multiple-server deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 multiple-server deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 Server deployments can include multiple servers, which provide additional performance and scaling benefits. However, with Microsoft Dynamics 365 Workgroup Server, server roles can't be installed on separate computers. Therefore, all server roles are installed on every computer where you install Microsoft Dynamics 365 Server.

Install server roles by running Microsoft Dynamics 365 Server Setup

During Microsoft Dynamics 365 Server Setup, you can select to install a server role:

- Individually.
- As one of the three predefined groups of server roles.
- As a full server installation that includes all roles.

Server roles let you increase flexibility and scalability of the Microsoft Dynamics 365 deployment. Note that all server roles must be running and available on the network to provide a fully functioning Microsoft Dynamics 365 system.

Install server roles by running Microsoft Dynamics 365 Server Setup at the command prompt

You can install Microsoft Dynamics 365 Server roles and Microsoft Dynamics 365 Reporting Extensions from their respective installation disks or file download location unattended by using the command prompt. The required setup information is provided to the Setup program both as command-line parameters and as an XML configuration file that the Setup program references. More information: [Use the command prompt to install Microsoft Dynamics Server 365](#).

Microsoft Dynamics 365 Server placement

For improved application performance, the computer or computers that run the Microsoft Dynamics 365 Server roles and the computer that is running SQL Server should be on the same LAN. This is because of the large amount of network traffic passing between the computers. This is also recommended with Active Directory where the computer or computers on which Microsoft Dynamics 365 Server and the Active Directory domain controller are running should be on the same LAN to guarantee efficient Active Directory access to Microsoft Dynamics 365.

SQL Server and Active Directory domain controller placement

For each organization, Microsoft Dynamics 365 stores all customer relationship management data in a SQL Server database. Make sure that the computer on which SQL Server is running that maintains the Microsoft Dynamics 365 databases is located near the Microsoft Dynamics 365 Server. This means there should be a high-speed, permanent network connection between the Microsoft Dynamics 365 Server and the computer that is running SQL Server. A network communications failure between these computers can result in data loss and service becoming unavailable.

The same is true for Active Directory because Microsoft Dynamics 365 depends on it for security information. If communication with Active Directory is lost, Microsoft Dynamics 365 will not function correctly. If communication with Active Directory is inefficient, Microsoft Dynamics 365 performance will be affected. Therefore, it is important to put an Active Directory domain controller on the same high-speed, permanent network connection as the Microsoft Dynamics 365 and SQL Server computers.

See Also

[Microsoft Dynamics 365 supported configurations](#)

[Microsoft Dynamics 365 server roles](#)

[Support for Microsoft Dynamics 365 multiple-server topologies](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 server roles

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

With Microsoft Dynamics 365 Server, you can install specific server functionality, components, and services on different computers. These components and services correspond to specific server roles.

For example, customers who have larger user bases can install the Front End Server role on two or more servers that run Internet Information Services (IIS) to increase throughput performance for users. Or, a Full Server role can be installed on one computer and Microsoft Dynamics 365 Reporting Extensions on another. If a server role is missing, Deployment Manager displays a message in the **Messages** area.

Use one of the following options to install server roles:

- Run the Microsoft Dynamics 365 Server Setup Wizard to select one or more server role groups or one or more individual server roles. If Microsoft Dynamics 365 Server is already installed, you can use Programs and Features in Control Panel to add or remove server roles.
- Configure an XML Setup configuration file and then run Setup at the command prompt to specify a server role group or one or more individual server roles. You cannot explicitly select the SQL Server "role" for installation during Microsoft Dynamics 365 Server Setup. This is a logical role that SQL Server sets when you specify a particular instance of SQL Server, either local or on another computer (recommended) for use in the Microsoft Dynamics 365 deployment. For more information, see [Microsoft Dynamics 365 Server XML configuration file](#).

Note

At any time after the initial installation of server roles, you can add or remove server roles in Control Panel. For more information, see [Uninstall, change, or repair Microsoft Dynamics 365 Server](#).

Important

If you have a Microsoft Dynamics 365 deployment that includes one or more Front End Server and Back End Server roles, the Language Pack must be installed on the computer that has the Front End Server role. If you have deployed individual server roles, the Language Packs must be installed on the computers that are running the Web Application Server and the Help Server roles.

In This Topic

[Available group server roles](#)

[Available individual server roles](#)

[Scope definition](#)

[Installation method definition](#)

[Install the Microsoft Dynamics 365 Asynchronous Service to process only asynchronous events or email](#)

[Microsoft Dynamics 365 Server role requirements](#)

Available group server roles

Although these server role groups are recommended for most deployments, any individual server role may be installed during Setup.

All server roles must be running in your organization's network to provide a fully functioning system.

Server Role Group	Description	Scope	Installation Method
Full Server	Contains all roles from Front End Server, Back End Server, and Deployment Administration Server. By default, Microsoft Dynamics 365 Server Setup deploys the system as Full Server. In a Full Server deployment, server roles are not listed separately in Control Panel. To view the installed roles or make changes, right-click Microsoft Dynamics 365 Server , click Uninstall/Change , and then click Configure .	Deployment	Full
Front End Server	Enables the server roles for running client applications and applications developed with the Microsoft Dynamics 365 SDK.	Deployment	Group or Full
Back End Server	Includes the server roles that handle processing asynchronous events, such as workflows and custom plug-ins, database maintenance, and email routing. These roles are usually not exposed to the Internet. For a list of server roles that are included in this group, see the following table.	Deployment	Group or Full
Deployment Administration Server	Enables the server roles for components that are used to manage the Microsoft Dynamics 365 deployment either by using the methods described in the Microsoft Dynamics 365 SDK or the deployment tools. Also includes the interface for database disaster recovery support. For a list of server roles that are included in this	Deployment	Group or Full

Server Role Group	Description	Scope	Installation Method
	group, see the following table.		

Available individual server roles

Server Role	Description	Server Group	Scope	Installation Method
Discovery Web Service	Finds the organization that a user belongs to in a multi-tenant deployment.	Front End Server	Deployment	Individual, Group, or Full
Organization Web Service	Supports running applications that use the methods described in the Microsoft Dynamics 365 SDK.	Front End Server	Deployment	Individual, Group, or Full
Web Application Server	Runs the Web Application Server that is used to connect users to Microsoft Dynamics 365 data. The Web Application Server role requires the Organization Web Service role.	Front End Server	Deployment	Individual, Group, or Full
Help Server	Makes Microsoft Dynamics 365 Help available to users.	Front End Server	Deployment	Individual, Group, or Full
Asynchronous Service	Processes queued asynchronous events, such as workflows, bulk e-mail, or data import.	Back End Server	Deployment	Individual, Group, or Full
Sandbox Processing Service	Enables an isolated environment to allow for the execution of custom code, such as plug-ins. This isolated environment reduces the possibility of	Back End Server	Deployment	Individual, Group, or Full

Server Role	Description	Server Group	Scope	Installation Method
	custom code affecting the operation of the organizations.			
Email Integration Service	Handles sending and receiving of email messages by connecting to an external email server.	Back End Server	Deployment	Individual, Group, or Full
Deployment Web Service	Publishes the web service that provides the deployment interface described in the Microsoft Dynamics CRM SDK , such as those used to create an organization or manage the list of Deployment Administrators for the Microsoft Dynamics 365 deployment.	Deployment Administration Server	Deployment	Individual, Group, or Full
Deployment Tools	Consists of the Deployment Manager and Windows PowerShell cmdlets. Microsoft Dynamics 365 administrators can use the Windows PowerShell cmdlets to automate Deployment Manager tasks. Deployment Manager is a Microsoft Management Console (MMC) snap-in that deployment administrators can use to manage	Deployment Administration Server	Deployment	Individual, Group, or Full

Server Role	Description	Server Group	Scope	Installation Method
	organizations, servers, and licenses for deployments of Microsoft Dynamics 365.			
Microsoft Dynamics 365 VSS Writer	The Microsoft Dynamics 365 VSS Writer service provides an interface to backup and restore Dynamics 365 data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.	Deployment Administration Server	Deployment	Individual, Group, or Full
Microsoft Dynamics 365 Reporting Extensions	Provides reporting functionality by interfacing with the Microsoft Dynamics 365 system and Microsoft SQL Server Reporting Services.	N/A	Deployment	Individual by using srsDataConnectorSetup.exe.
SQL Server	Installs the MSCRM_CONFIG database on the SQL Server.	N/A	Deployment	Individual during Microsoft Dynamics 365 Server Setup or from Deployment Manager Edit Organization Wizard .

Scope definition

- **Deployment.** Each instance of the server role services the entire deployment.
- **Organization.** Each instance of the server role services an organization. Therefore, you can use a different server role instance for a given organization.

Installation method definition

- **Individual , Group, or Full.** During Microsoft Dynamics 365 Server Setup, you can install a server role individually, install one of the three predefined groups of server roles, or perform a Full Server installation that includes all roles. Or, you can select multiple individual server roles.

- **Microsoft Dynamics 365 Reporting Extensions.** Install this role using srsDataConnectorSetup.exe on the computer where Microsoft SQL Server Reporting Services is running.

For more information about Microsoft Dynamics 365 server roles and multiple server deployment, see [Install Microsoft Dynamics 365 Server on multiple computers.](#)

Install the Microsoft Dynamics 365 Asynchronous Service to process only asynchronous events or email

The Microsoft Dynamics 365 Asynchronous Processing Service (NT style service) can be used to process asynchronous events and email, accounts, contacts, and tasks using server-side synchronization. Depending on what server roles you select during Microsoft Dynamics 365 Server Setup, you can configure the Asynchronous Service to have the following features.

- Selecting both Asynchronous Service and Email Integration Service server roles installs the Asynchronous Processing Service that will be configured to process both asynchronous events and email, accounts, contacts, and tasks using server-side synchronization.
- Selecting only the Asynchronous Service server role installs the Asynchronous Processing Service that will be configured to process only asynchronous events.
- Selecting only the Email Integration Service server role, installs the Asynchronous Processing Service that will be configured to only process email, accounts, contacts, and tasks by using server-side synchronization.

Given these options, you can separate asynchronous events from server-side synchronization to help improve Dynamics 365 system performance and simplify monitoring.

Microsoft Dynamics 365 Server role requirements

The following table describes the components necessary for each Microsoft Dynamics 365 Server role. An "X" indicates the component is required for the Microsoft Dynamics 365 Server role to install and function. Notice that, in most cases if a component is not already installed, Microsoft Dynamics 365 Server Setup will install it.

Microsoft Dynamics 365 Server Role Prerequisites

Component	Back End Server	Front End Server	Deployment Administration Server
Microsoft SQL Server Reporting Services ReportViewer control		X	
SQL Server Native Client	X	X	X
Microsoft Application Error Reporting Tool	X	X	X

Component	Back End Server	Front End Server	Deployment Administration Server
Microsoft Visual C++ Runtime Library	X	X	X
Windows Server Web Server Role		X	X
Indexing Service		X	
Microsoft .NET Framework 4	X	X	X
Microsoft Chart Controls for Microsoft .NET Framework		X	
Microsoft Azure platform SDK	X	X	X
Windows PowerShell			X
Microsoft URL Rewrite Module for IIS		X	
File Server Resource Manager		X	

The following table describes the group membership for the Active Directory that is used by Microsoft Dynamics 365. An "X" indicates the group membership required for the service to function.

Group Membership Requirements

Service	PrivUserGroup	SQLAccessGroup	PrivReportingGroup	ReportingGroup
Deployment Web Service service account	X	X		
Web Application Service*	X	X		
Asynchronous Service service account	X	X		
Sandbox Processing Service service account**				
SQL Server service account		X		
Microsoft SQL	X		X	

Service	PrivUserGroup	SQLAccessGroup	PrivReportingGroup	ReportingGroup
Server Reporting Services server account				
Email Router service account	X			
Installing User/Service account				X
Individual user accounts in Microsoft Dynamics 365				X
Unzip Service service account	X			
Microsoft Dynamics 365 VSS Writer service account	X	X		

* The Web Application Service identity is applied to the CRMAppPool application pool. Subsequently, this identity is used by the Organization Service, Web Application, and Microsoft Dynamics CRM platform.

** The Sandbox Service does not need any Microsoft Dynamics 365 group membership.

Note

Email Router runs as a local system.

Important

- The Installing user should be a separate service account, but it should not be used to run any services.
- If any of the service accounts are created as users in Microsoft Dynamics 365, you may encounter various problems, some of which are potential security issues.

See Also

[Microsoft Dynamics 365 multiple-server deployment](#)
[Support for Microsoft Dynamics 365 multiple-server topologies](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Support for Microsoft Dynamics 365 multiple-server topologies

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016
This section provides examples of various multiple-server topologies.

In This Topic

[Five-server topology](#)

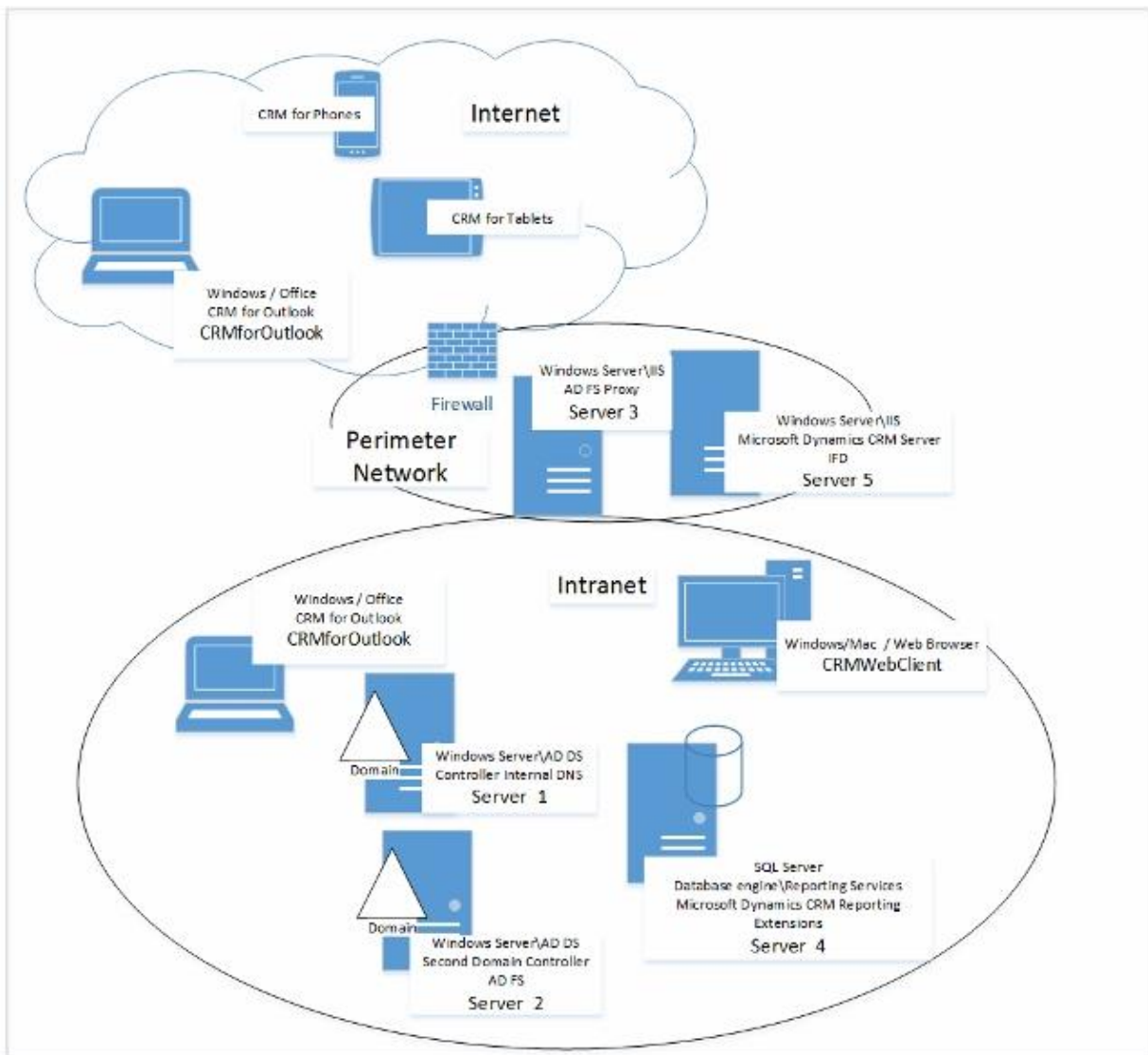
[Multi-forest and multi-domain with Internet access Active Directory topology](#)

Five-server topology

The five-server topology is for small to midsize user bases, typically 25 or fewer users concurrently using Microsoft Dynamics 365. The following example depicts a possible configuration running a supported version of Windows Server and the required and optional software technologies. It also includes a Full Server deployment of Microsoft Dynamics 365 Server that is configured for an Internet-facing deployment (IFD). For a complete list of the supported versions of the required and optional technologies, see [Software requirements for Microsoft Dynamics 365 Server](#).

A five server topology can consist of the following configuration:

- Server 1: Running on Microsoft Windows Server as a functioning domain controller.
- Server 2: Running on Windows Server as a secondary domain controller and Active Directory Federation Services (AD FS) server.
- Server 3: Running on Windows Server with IIS and an Active Directory Federation Services (AD FS) proxy.
- Server 4: Running on Windows Server with an instance of Microsoft SQL Server that includes the database engine, Microsoft SQL Server Reporting Services, and Microsoft Dynamics 365 Reporting Extensions.
- Server 5: Running on Windows Server, IIS, and a Full Server deployment of Microsoft Dynamics 365 Server configured for Internet-facing deployment (IFD).
- CRMWebClient, CRMforOutlook, tablet, and phone devices: These computers and devices are running applications that are available, connecting from the Internet or the LAN-based network, such as Dynamics 365 for Outlook, Microsoft Dynamics 365 for tablets, and Microsoft Dynamics 365 for phones.



Basic Microsoft Dynamics 365 five-server topology with Internet access example

Multi-forest and multi-domain with Internet access Active Directory topology

For very large user bases that span multiple domains and, in some cases, forests, the following configuration is supported. The following example depicts a possible configuration running a particular version of Windows Server and required software, such as SQL Server and Microsoft SharePoint.

The text and diagram show a possible deployment that lets users access Microsoft Dynamics 365 through the Internet by implementing Active Directory Federation Services (AD FS) supported by Front End Server roles that are isolated from user and resource domains on a perimeter network (also known as DMZ, demilitarized zone, and screened subnet) model.

For a complete list of the supported versions of these software technologies, see [Software requirements for Microsoft Dynamics 365 Server](#).

Forest X: Domain A: Perimeter subnet

- Network Load Balanced (NLB) virtual server consisting of the following two nodes:
 - Front End Server: Running Windows Server and Microsoft Dynamics 365 Server with the Front End Server role.
 - Front End Server: Another Windows Server running Microsoft Dynamics 365 Server with the Front End Server role.

 **Note**

To use Microsoft Dynamics 365 Server with NLB requires manual configuration.

- Active Directory Federation Services (AD FS) Server: Running on Windows Server as the Internet-facing claims-based authentication security token service.

Forest X: Domain A: Intranet

- NLB virtual server consisting of the following two nodes:
 - Windows Server, Microsoft SQL Server Reporting Services, and Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services (Server X).
 - Windows Server, Microsoft SQL Server Reporting Services, and Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services (Server Y).
- NLB virtual server consisting of the following nodes:
 - Front End Server and Deployment Administration Server: Running Windows Server and Microsoft Dynamics 365 Server with the Front End Server and Deployment Administration Server roles.
 - Front End Server and Deployment Administration Server: Another Windows Server running Microsoft Dynamics 365 Server with the Front End Server and Deployment Administration Server roles.

 **Note**

To use Microsoft Dynamics 365 Server with NLB requires manual configuration.

- Microsoft SQL Server failover cluster running the following two nodes:
 - Windows Server, SQL Server database engine (Server X).
 - Windows Server, SQL Server database engine (Server Y).

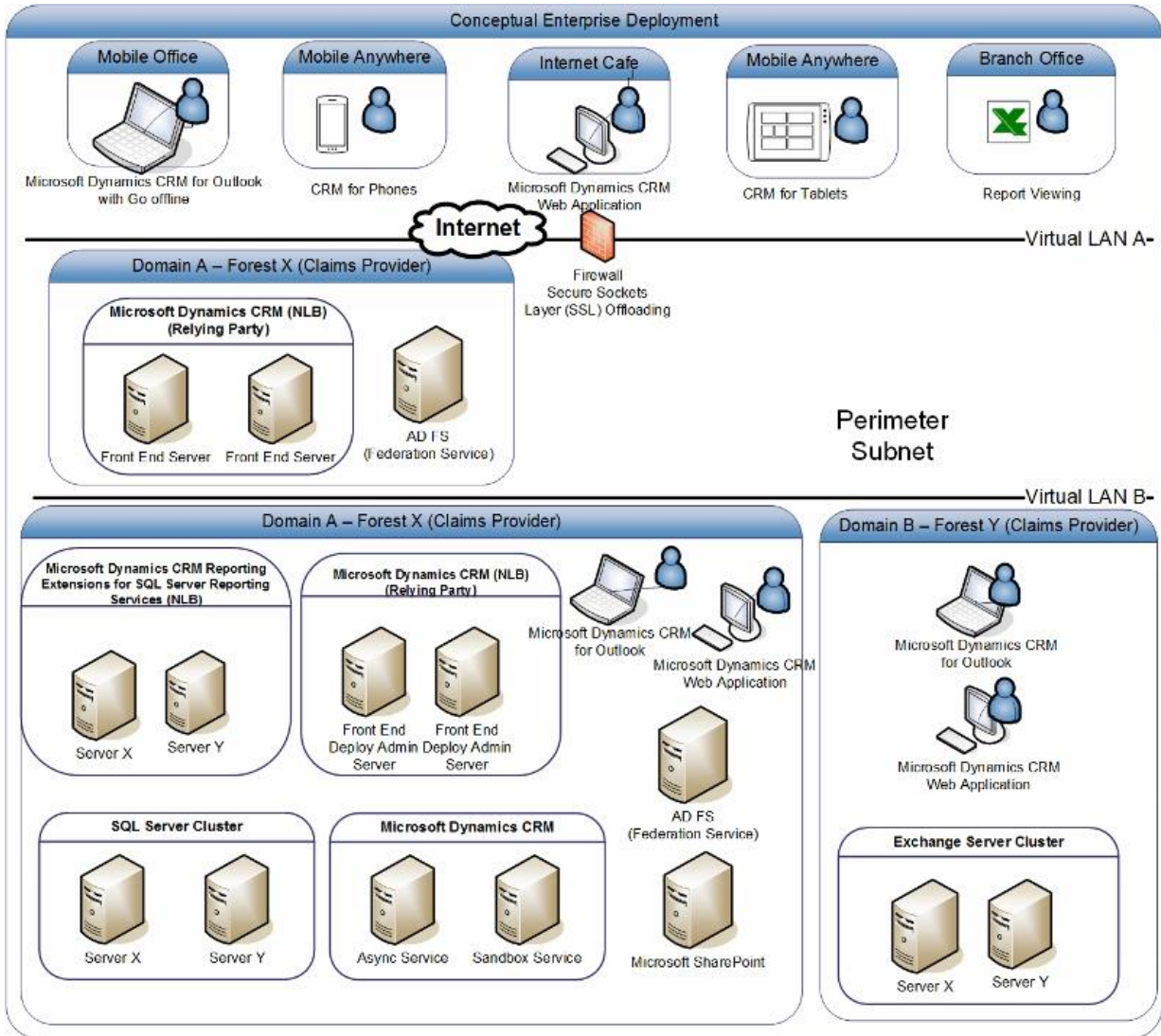
 **Note**

To use Microsoft Dynamics 365 Server with SQL Server failover clustering requires manual configuration. More information: [Set configuration and organization databases for SQL Server AlwaysOn failover](#)

- Windows Server running the Asynchronous Service server role.
- Windows Server running the Sandbox Processing Service server role.
- Windows Server running the Active Directory Federation Services (AD FS) Windows Server role.
- Windows Server running Microsoft SharePoint (required for document management).

Forest Y: Domain B: Intranet

- Exchange Server failover cluster consisting of the following two nodes:
 - Windows Server running Exchange Server (Server X).
 - Windows Server running Exchange Server (Server Y).



Multiple forest with Internet access to Microsoft Dynamics 365 topology example

See Also

[Microsoft Dynamics 365 multiple-server deployment](#)
[Upgrade a Microsoft Dynamics CRM 2015 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade a Microsoft Dynamics CRM 2015 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The only supported upgrade path to Microsoft Dynamics 365 Server is upgrade from Microsoft Dynamics CRM Server 2015 to Microsoft Dynamics CRM Server 2016 and then apply December 2016 Service Pack for Microsoft Dynamics 365 (on-premises) when it becomes available. This section provides guidelines for preparing for an upgrade to Microsoft Dynamics CRM Server 2016. Performing these tasks in advance can help minimize system downtime and ensure a successful upgrade. Also, this section describes how Microsoft Dynamics CRM Server 2016 upgrades your current system and what happens to items such as existing reports, customizations, and solutions.

Microsoft Dynamics CRM 2015 server roles are not compatible with a Microsoft Dynamics CRM Server 2016 deployment. Therefore, after you upgrade the first server, other Microsoft Dynamics CRM 2015 servers that are running in the deployment will become disabled. As each server is upgraded, the corresponding server will be enabled.

You can upgrade Microsoft Dynamics CRM 2015 server roles in any order. However, to have a fully functioning Microsoft Dynamics CRM Server 2016 deployment, all servers and server roles must be upgraded.

In This Topic

[Recommended upgrade steps](#)

[Microsoft Dynamics Server upgrade options](#)

[Microsoft Dynamics Server versions supported for upgrade](#)

[Upgrade product key](#)

[User permissions and privileges](#)

[Sharing a SQL Server](#)

[Tips for a successful upgrade](#)

[Next steps](#)

Recommended upgrade steps

To ease the upgrade process and minimize downtime, we recommend that you use the following order when you upgrade Microsoft Dynamics CRM Server 2015.

1. Although you can upgrade any version of Dynamics CRM 2015 for Outlook to Microsoft Dynamics 365 for Outlook, we recommend that you apply the latest update before you begin the upgrade.

[Microsoft Dynamics CRM 2015 updates and hotfixes](#)

2. Upgrade all Microsoft Dynamics CRM 2015 servers and organizations to Microsoft Dynamics CRM Server 2016.
3. Upgrade Dynamics 365 for Outlook to Microsoft Dynamics 365 for Outlook in order to have the **Go offline** capability.

Microsoft Dynamics Server upgrade options

There are three different upgrade options:

- **Migrate by using a new instance of SQL Server.** We recommend this option for upgrading Microsoft Dynamics CRM Server 2015. Although this option requires a different computer for Microsoft Dynamics CRM and a different instance of SQL Server, it provides the least amount of potential downtime for users since the existing deployment can remain functioning until the upgrade is completed and verified.
- **Migrate by using the same instance of SQL Server.** This option requires a different computer for Microsoft Dynamics CRM Server 2016, but will upgrade in-place the configuration and default organization databases using the same instance of SQL Server. If issues occur during the upgrade, you must roll back to the previous version to avoid significant downtime.
- **In-place upgrade.** Although this option doesn't require a different computer for Microsoft Dynamics CRM Server 2016 or a different instance of SQL Server, it poses the greatest risk if upgrade issues occur because a roll back and reinstall of the previous version of Microsoft Dynamics CRM will be required to avoid potential downtime.

For detailed procedures for each of these options, see [Upgrade Microsoft Dynamics CRM Server](#).

For the latest product information, see the [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#).

◆ Important

Always run a full backup of the Microsoft Dynamics 365 databases before you upgrade to a new version of the product. For information about database backups, see [Back up the Microsoft Dynamics 365 System](#).

During an in-place upgrade, only the organization that you specify to upgrade is upgraded. If the deployment contains additional organizations, those organizations are disabled and are not upgraded. You must upgrade those organizations using the Import-CrmOrganizationWindows PowerShell command or by using Deployment Manager. More information: [Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online](#), and [Import an organization](#)

For each organization that you upgrade, we recommend that the volume have free space that is at least three times the size of the organization database file (organizationName_MSCRM.mdf) and four times the size of the log file (organizationName_MSCRM.ldf). For example, if a single organization database and log file are located on the same volume where the mdf file is 326 MB and the ldf file is 56 MB, the recommended available space should be at least 1.2 GB to allow for growth $((326 \times 3) + (56 \times 4))$. Notice that the database files that expand during upgrade do not reduce in size after the upgrade is complete.

Microsoft Dynamics Server versions supported for upgrade

Microsoft Dynamics CRM Server 2015 is supported for upgrade to Microsoft Dynamics CRM Server 2016.

For information about upgrading from Microsoft Dynamics CRM Server 2013 and Microsoft Dynamics CRM Server 2011, see [Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#).

Upgrade product key

Before the upgrade, obtain the product key that you will enter during the upgrade. In Microsoft Dynamics 365, the server and client keys are combined so that you enter only one key.

More information: [Microsoft Dynamics 365 editions and licensing](#)

If you want to make system changes that require changes to your existing Microsoft Dynamics 365 licensing agreement, see [How to buy Microsoft Dynamics](#).

User permissions and privileges

To perform a successful upgrade, the user who runs Microsoft Dynamics CRM Setup must:

- Have an account in the same Active Directory domain as the server or servers that are being upgraded.
- Be a member of both the Deployment Administrator Role and the Microsoft Dynamics 365 System Administrator Role for any organizations that will be upgraded.

◆ Important

The upgrade will fail if the user who is running the upgrade has disabled the System Administrator Role.

- Have administrator rights on the SQL Server and Reporting Services server associated with the deployment that is being upgraded.
- Have sufficient permissions to create new security groups and add members to those groups in the Active Directory organizational unit that contains the existing Microsoft Dynamics CRM groups.

Sharing a SQL Server

Only one Microsoft Dynamics 365 deployment per instance of SQL Server is supported. This is because each deployment requires its own MSCRM_CONFIG database, and multiple instances of the MSCRM_CONFIG database can't coexist on the same instance of SQL Server. If you have multiple SQL Server instances running on the same computer, you can host the databases for multiple Microsoft Dynamics 365 deployments on the same computer. However, this might decrease system performance.

Tips for a successful upgrade

The following issues, if applicable to your current Microsoft Dynamics CRM 2015 deployment, should be resolved before you start the upgrade.

Do not exceed the maximum number of fields

If you have more than 1023 fields defined for an entity, you must delete the additional fields before you run the upgrade, or the upgrade will fail with the following message:

CREATE VIEW failed because column '*column_name*' in view '*view_name*' exceeds the maximum of 1024 columns.

Remove custom database objects

The Microsoft Dynamics 365 databases often change from one major release to the next because of database redesign.

We suggest that, if you have added custom database objects such as triggers, statistics, stored procedures, and certain indexes, you remove those objects from the configuration and organization databases. In many cases, Setup displays a warning when these objects are detected.

Remove the ignorechecks registry subkey

If you have manually added the ignorechecks registry subkey on the Microsoft Dynamics CRM Server 2015 server, remove it before you start the upgrade. More information: [You cannot deploy Microsoft Dynamics CRM by using an account that does not have local administrator permissions on Microsoft SQL Server](#)

Next steps

Read more about upgrade in the following topics:

- [Before you upgrade: issues and considerations](#)
- [Upgrade the Microsoft Dynamics Deployment](#)
- [Referenced topic '65f15bc1-3295-4b62-8cf2-1b3ff65b7064' is only available online.](#)

See Also

[Microsoft Dynamics 365 supported configurations](#)
[Advanced deployment options for Microsoft Dynamics 365 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Before you upgrade: issues and considerations

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This topic describes the changes and limitations when you upgrade to Microsoft Dynamics CRM 2016, as well as what might affect your deployment after the upgrade is complete.

Upgrading from Microsoft Dynamics CRM 2015 to Microsoft Dynamics CRM 2016

[What's changed in supported products and technologies](#)

[Microsoft Dynamics 2015 software and components not supported for in-place upgrade](#)

What's changed in supported products and technologies

For platform technology changes, see these topics.

- [Windows Server operating system](#)
- [SQL Server editions](#)
- [Referenced topic '6404db68-f66b-4128-ac2f-84258503bc82' is only available online.](#)
- [Bookmark link 'Exch_svr' is broken in topic '{ "project_id": "d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16", "entity_id": "4ceb9bc4-3a5e-45df-bd36-32dad2734c65", "entity_type": "Article", "locale": "en-US" }'. Rebuilding the topic '{ "project_id": "d1ee8af7-0e8f-4e94-9793-0d06bbfa9b16", "entity_id": "4ceb9bc4-3a5e-45df-bd36-32dad2734c65", "entity_type": "Article", "locale": "en-US" }' may solve the problem.](#)

Microsoft Dynamics 2015 software and components not supported for in-place upgrade

The following products and components aren't supported with Microsoft Dynamics CRM 2016 and won't be upgraded during Setup. If you upgrade a Microsoft Dynamics CRM 2015 system that includes the product or component listed, or you install these components after you install Microsoft Dynamics CRM 2016, these products or solutions may not function correctly. We recommend that you uninstall or manually remove the component before you upgrade.

- Microsoft Dynamics CRM 2015 Reporting Extensions (on-premises only)
- Microsoft Dynamics CRM 2015 Email Router
- Microsoft Dynamics CRM List Component for SharePoint Server

Upgrading from previous versions of Microsoft Dynamics CRM

Microsoft Dynamics CRM 2013 and Microsoft Dynamics CRM 2011 are not supported for upgrade to Microsoft Dynamics CRM 2016. However, you can migrate or in-place upgrade Microsoft Dynamics CRM Server 2013 SP1 to Microsoft Dynamics CRM Server 2015 by using a trial product key, and then either migrate or in-place upgrade to Microsoft Dynamics CRM Server 2016. More information: [Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#)

See Also

[Upgrade a Microsoft Dynamics CRM 2015 Server](#)
[Upgrade the Microsoft Dynamics Deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade the Microsoft Dynamics Deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics CRM 2016 presents a significant advancement in features and functionality from the previous version. As such, existing features, solutions, and extensions may be affected as a result of the upgrade. This topic provides a best practices process to minimize downtime while helping determine issues that may occur as a result of the upgrade.

In This Topic

[The upgrade process](#)

[Prepare to upgrade](#)

[Establish the test environment](#)

[Upgrade and validate the test environment](#)

[What to do when you cannot successfully upgrade or migrate?](#)

The upgrade process

There are two separate environments as part of the upgrade process:

- **Test environment.** The test environment represents a restricted deployment of Microsoft Dynamics CRM that is used to validate the upgrade. The test environment must mirror the production environment as closely as possible whereby there are substantial similarities in hardware (processor, disk, memory, and so on), technology platform (Windows Server, SQL Server, and so on), topology (1-server, 2-server, 5-server, and so on) and data (Microsoft Dynamics CRM databases). To create an appropriate environment for testing, it may require setting up Windows Network Load Balancing (NLB) or clustering, installing and configuring Microsoft Dynamics CRM components and applications, such as Email Router, workflows, customizations, and connectors, as well as installing any additional add-ons, plug-ins, or solutions particular to the deployment. Establishing a test environment that is running and configured wholly or in part by using virtualization technology, such as Windows ServerHyper-V, can greatly facilitate this process. In this test environment, the administrator performs the upgrade, optimizes for performance, may introduce upgraded code, and tests that the system is running well.
- **Production deployment.** This deployment represents the deployment of Microsoft Dynamics CRM that is used by all Microsoft Dynamics CRM users in the organization. In the production deployment, the upgrade is performed, and the administrator may use strategies that optimize upgrade performance. The upgrade administrator may move upgraded code from the development

or test environment to the production environment. The administrator then brings the production environment online, validates that the system is running well, and deploys Dynamics 365 for Outlook for users as needed.

Prepare to upgrade

Make sure you have enough staff, resources, and time to dedicate to the upgrade. As part of this phase, you must determine who will be involved in the upgrade, designate the test deployment hardware and software that will be used to validate the upgrade, and plan for potential failures.

You should also assess the current production environment for upgrade suitability. This requires reviewing the most recent Microsoft Dynamics 365 documentation.

- [Microsoft Dynamics 365 system requirements and required technologies](#)
- [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#)
- [Get ready for the next release](#)

Additionally, you must determine the acceptance criteria that will be used to decide whether to go forward with the production upgrade.

Tip

Microsoft Dynamics Sure Step is available to Microsoft Dynamics Partners to help reduce risk and guide you through the tasks associated with deployment and configuration of Microsoft Dynamics solutions. For more information about Microsoft Dynamics Sure Step, including training, methodology, and tool downloads, visit the [PartnerSource website](#) (requires Dynamics Partner membership).

Determine the upgrade strategy

To determine the upgrade strategy, you need to answer the following questions:

- What will be upgraded? Upgrading the Microsoft Dynamics CRM server may require that you upgrade platform components such as Windows Server or SQL Server. It will also require that other Microsoft Dynamics CRM applications or solutions such as Dynamics 365 for Outlook and Unified Service Desk be upgraded.
- When? What is the timeline for the upgrade?
- How? For example, will you upgrade in-place or will you migrate to new hardware before the upgrade? This should also include how the upgrade will be rolled out. Who will validate the upgrade? Will there be a pilot or phased rollout? Based on the outcome of the test upgrade you may need to modify or mitigate your strategy and perform corrective actions to ensure functionality. For example, if some workflows cannot be upgraded, you must plan to re-create those workflows and test them.

Plan for failure, backup, and recovery

Some components, such as custom reports, workflows, custom JavaScript, or third-party extensions may cause the upgrade to fail or not function correctly. These items should be documented and a contingency plan be established for each issue. Additionally, custom JavaScript and third-party extensions may need to be removed before the upgrade.

Therefore, you must be prepared to quickly and completely rollback the system. If you will recover from any scenario, you must back up all needed information and store a copy offsite. A backup plan should

be created and rehearsed for all Microsoft Dynamics CRM components and services to make sure that, if a failure occurs, the maximum amount of data is recoverable. To understand the failure-recovery procedures, you must examine several different scenarios to learn how restoration occurs in each case. For more information about how to back up or recover Microsoft Dynamics CRM data, see [Microsoft Dynamics 365 data protection and recovery](#).

Review appropriate planning and prerequisite documentation

Product documentation is instrumental in helping you scope the amount of preparation required before you upgrade. The documentation to review should include:

- [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#)
- This document and [Installing on-premises Dynamics 365](#). Of particular importance are the [Upgrade a Microsoft Dynamics CRM 2015 Server](#), [Microsoft Dynamics 365 system requirements and required technologies](#), and [Microsoft Dynamics 365 supported configurations](#) topics.
- Also, if you will be installing additional components, such as Dynamics 365 for Outlook or Microsoft Dynamics CRM Email Router, review the following topics:
 - [Referenced topic '04a2332e-0fc4-4487-8136-e48e01b63055' is only available online.](#)
 - [Referenced topic 'c4521aff-53c8-41b2-8dc3-f3b4bcfa619c' is only available online.](#)

Ensure you have the latest technologies

For best results, verify that you have applied the latest service packs and update rollups not only for Microsoft Dynamics CRM but for other dependent technologies such as Windows Server, SQL Server, and Exchange Server.

Determine an upgrade plan and checklists

In this task you will determine how to evaluate the overall functionality and production readiness of the upgraded environment. The purpose of these tasks is to validate a production ready and fully operational system suitable for rolling out to the user base.

Use the following steps as a checklist for the tasks that are required leading up to the production upgrade or "go-live" day.

Verify that the system is functional after the upgrade by performing these basic tests:

- Review the Setup log files for issues that may have occurred during the upgrade. By default, Setup creates these files in the C:\Documents and Settings\\Application Data\Microsoft\MSCRM\Logs folder on the computer where Setup is run and where <username> is the name of the user account who ran Setup.
- Review the Event Viewer log files. Microsoft Dynamics CRM events are recorded under the sources that begin with **MSCRM** in Event Viewer.
- Run the Microsoft Dynamics 365 Windows PowerShell commands to verify server and organizations that were upgraded are enabled. More information: [Administer the deployment using Windows PowerShell](#)

Alternatively, start Deployment Manager and verify that all Microsoft Dynamics CRM servers are enabled and that the upgraded organizations are enabled. Depending on whether you migrated or performed an in-place upgrade, additional organizations are upgraded by using the Import Organization Wizard or the Upgrade Organization Wizard in Deployment Manager.

- Start Internet Explorer and connect to the Microsoft Dynamics CRM server. After you have performed the previous tasks, perform a user acceptance test. The following is an example of some of the features to test in a typical organization:

- Validate reports against previous version reports.
- Print reports in Microsoft Dynamics CRM.
- Validate applicable data in the Microsoft Dynamics CRM system, such as creating, editing, deleting, and promoting/converting records for the following entities:
 - Accounts
 - Contacts
 - Opportunities
 - Cases
 - Activities
 - Custom Entities
- Verify workflows against previous workflows. Update any workflow items affected by configuration or data model modifications.
- Test all custom code, JavaScript, and custom reports (if applicable).
- Test all integration processes (if applicable).
- Test remote client and mobile app access and functionality.
- Test of third party applications or extensions.

Establish the test environment

We strongly recommend that you plan to run at least one test upgrade before you upgrade your production environment. After you run a test upgrade, verify the product configuration by performing operations that you would typically use in your production environment. For example, for a service organization, you may want to create an e-mail activity related to a case, and then verify the functionality by sending a test e-mail that contains text from an existing case. If you receive any errors while you are using Microsoft Dynamics CRM in a test environment, make sure that you resolve them before you upgrade your production environment.

Tip

Virtual machine software, such as Windows Server Hyper-V, can ease the deployment time to establish the test environment as well as limit the amount of hardware resources that are required to emulate the production deployment.

Determine which computers you will use, or, if you are using virtual machine technology, which virtual machine you will use.

Migrate by using a new instance of SQL Server

We recommend this upgrade option because it lets you maintain a deployment of the previous version at the same time that a new Microsoft Dynamics CRM system is being deployed. This reduces application down time as the new deployment can be installed, organizations imported, and then verified without effecting the production deployment in the event of an issue.

Important

The Migrate by using a new instance of SQL Server option provides the least amount of potential

downtime in the event of an issue as the result of the upgraded deployment.

1. Establish a new instance of SQL Server. You can use an existing instance but it must not be the same instance where the previous version's configuration database is located.
2. Run Microsoft Dynamics CRM Server Setup on a new 64-bit computer that does not already have Microsoft Dynamics CRM Server installed.
3. Back up the production Microsoft Dynamics CRM configuration and organization databases and restore them to the new instance of SQL Server.
4. Run the Import-CrmOrganization Windows PowerShell command or run the Import Organization Wizard to import one or more organizations to the newly installed system. During the import, the organization database will be upgraded to the new version.
5. If you have additional organizations or if you are using a new SQL Server for the migration, you must import the organization databases to the new system. To do this, on the computer where the new version of Microsoft Dynamics CRM Server is installed and running, run the Import-CrmOrganization Windows PowerShell command. Alternatively, start Microsoft Dynamics CRM Deployment Manager, right-click **Organizations**, click **Import Organization**, and then select the newly restored **OrganizationName_MSCRM** database.
6. If customizations were made to .NET assemblies or configuration files, you must copy those customized files to the new system. By default, these files are located under the **<drive>:\Program Files\Microsoft Dynamics CRM\Server\bin\assembly** folder on the earlier version of Microsoft Dynamics CRM Server.

Upgrade and validate the test environment

Verify the newly upgraded environment for stability and operation. This includes having a select set of users connect by using the Microsoft Dynamics CRM web application and use the system to perform all normal day-to-day tasks. Make sure workflows and reports are functioning correctly and test that new features from the upgrade are functioning as well.

Run acceptance criteria and checklists

Execute the previously mentioned tasks on the new deployment. Based on the tests, a decision will be made to either implement or not implement the upgrade to the production environment.

User acceptance testing

After the test checklist is completed and the quality of the tasks is within acceptable limits, user acceptance testing can start. This involves a subset of all users and typically can involve key users that carry out their normal day-to-day tasks against the system. These key users report any issues or unexpected behavior to the Microsoft Dynamics 365 administration team for action.

Go live

After user acceptance testing has successfully completed, bring the new Microsoft Dynamics CRM server online. This may require removing the previous version server before joining the new Microsoft Dynamics CRM Server to the domain, configuring the IIS bindings to use the same bindings as the previous version of Microsoft Dynamics CRM website, and updating DNS records as necessary to correctly resolve to the new website.

What to do when you cannot successfully upgrade or migrate?

If, after following the guidelines in this section, you cannot successfully upgrade the production deployment or migrate, use the following resources to help resolve the issue.

Self support

- Use the Event Viewer to view events that can help you troubleshoot the issue. Microsoft Dynamics CRM events are recorded under the sources that begin with **MSCRM** in the Event Viewer.
- Turn on platform tracing. For instructions, see the tracing topics under [Monitor and troubleshoot Microsoft Dynamics 365](#).
- Browse or search for knowledge base articles for Microsoft Dynamics 365 in the [Microsoft Dynamics CRM Solution Center](#).
- Visit the [CustomerSource](#) or the [PartnerSource website](#).

Assisted support

Contact Microsoft Customer Support Services. For a complete list of Microsoft Customer Support Services telephone numbers and information, visit the [Microsoft Customer Support](#) page.

See Also

[Upgrade a Microsoft Dynamics CRM 2015 Server](#)
[Advanced deployment options for Microsoft Dynamics 365 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Advanced deployment options for Microsoft Dynamics 365 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This topic describes advanced deployment options for Microsoft Dynamics 365 Server.

Use a local package to update Setup files

The update Setup feature lets you know if you have the latest updates to Microsoft Dynamics 365 before you run Setup. You can then tell Setup exactly where to find the MSP package that will be applied to the Setup files. This gives you more control over the update, like being able to apply the update package locally so you don't need an Internet connection.

To specify the location, you'll need to edit the XML configuration file **Patch** element, and then run Setup from the command prompt. More information: [Use the command prompt to install Microsoft Dynamics Server 365](#)

Add or remove server roles

Use either of these methods to easily add or remove server roles:

- Run the Microsoft Dynamics 365 Server Setup Wizard to choose one or more server role groups or individual server roles. If Microsoft Dynamics 365 Server is already installed, you can use Programs and Features in Control Panel to add or remove server roles. For more information, see [Microsoft Dynamics 365 server roles](#).
- Configure an XML configuration file, and then run Setup at the command prompt to choose a server role group, or one or more individual server roles. For more information, see [Install Microsoft Dynamics 365 Server roles using the command prompt](#).

Use Windows Powershell to perform deployment tasks

With Windows PowerShell you can perform many Microsoft Dynamics 365 deployment tasks. More information: [Administer the deployment using Windows PowerShell](#).

In this section

[Configure a Microsoft Dynamics 365 Internet-facing deployment Multi-organization deployment](#)

See Also

[Upgrade a Microsoft Dynamics CRM 2015 Server Installing on-premises Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure a Microsoft Dynamics 365 Internet-facing deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can deploy Microsoft Dynamics 365 so that remote users can connect to the application through the Internet. The following Internet-facing deployment (IFD) configurations are supported:

- Microsoft Dynamics 365 for internal users only
- Microsoft Dynamics 365 for internal users and IFD access
- Microsoft Dynamics 365 for IFD-only access

Configuring an IFD enables access to Microsoft Dynamics 365 from the Internet, outside the company firewall, without using a virtual private network (VPN) solution. Microsoft Dynamics 365 configured for Internet access uses claims-based authentication to verify credentials of external users. When you

configure Microsoft Dynamics 365 for Internet access, integrated Windows Authentication must remain in place for internal users.

To let users access the application over the Internet, the server that is running Internet Information Services (IIS) where the Microsoft Dynamics 365 application is installed must be available over the Internet.

For more information, see [Accessing Microsoft Dynamics 365 from the Internet - Claims-based authentication and IFD requirements](#).

In This Topic

[About claims-based authentication](#)

[Internet-facing server best practices](#)

[Configure IFD](#)

About claims-based authentication

The claims-based security model extends traditional authentication models to include other directory sources that contain information about users. This identity federation lets users from various sources, such as Active Directory Domain Services (AD DS), customers via the Internet, or business partners, authenticate with native single sign-on.

The claims-based model has three components: the relying party, which needs the claim to decide what it is going to do; the identity provider, which provides the claim; and the user, who decides what information they want to provide. Microsoft provides a claims-based access solution called Active Directory Federation Services (AD FS). AD FS enables Active Directory Domain Services (AD DS) to be an identity provider in the claims-based access platform.

AD FS consists of the following components:

- AD FS Framework provides developers pre-built .NET security logic for building claims-aware applications, enhancing either ASP.NET or WCF applications.
- Active Directory Federation Services (AD FS) is a security token service (STS) for issuing and transforming claims, enabling federations, and managing user access. Active Directory Federation Services (AD FS) supports the WS-Trust, WS-Federation, and Security Assertion Markup Language (SAML) protocols. Active Directory Federation Services (AD FS) can also issue manage information cards for AD DS users.

For more information about AD FS, see:

- [Active Directory Federation Services Overview](#) (Windows Server 2012)
- Download AD FS 2.0 for Windows Server 2008: [AD FS 2.0 RTW](#)

Internet-facing server best practices

Implement a strong password policy

To reduce the risk of "brute-force attacks" we strongly recommend that you implement a strong password policy for remote users who are accessing the domain where Microsoft Dynamics 365 is installed. For more information about how to implement a strong password policy in Windows Server,

see [Creating a Strong Password Policy](#) on Microsoft TechNet and the "Understanding User Accounts" topic in Active Directory Users and Computers Help.

Internet connection firewall

The current Windows Server operating systems provide firewall software to prevent unauthorized connections to the server from remote computers. For more information about how to configure the Internet connection firewall for Internet Information Services (IIS) Manager, see the IIS Help.

For information about how to make a Web site available on the Internet, see the "Domain Name Resolution" topic in the IIS Help.

Advanced network security

If you do not have a secure proxy and firewall solution on your network, we recommend that you use a dedicated remote access, proxy, or firewall server, such as the Windows Server Remote Access Server role or Windows Firewall with Advanced Security. For more information, see [Remote Access Overview](#) and [Windows Firewall with Advanced Security Overview](#).

Configure IFD

Use the following steps as configuration guidelines.

Step 1: Configure Microsoft Dynamics 365 Server for Internet access

You can configure Microsoft Dynamics 365 Server for Internet access. To do this, run the Configure Claims-Based Authentication Wizard, and then run the Internet-Facing Deployment Configuration Wizard where the Deployment Administration Server role is installed. For more information, see [Configure claims-based authentication](#) and [Configure an Internet-facing deployment](#).

Step 2: Configure Microsoft Dynamics 365 for Outlook to connect to the Microsoft Dynamics 365 Server by using the Internet

For Microsoft Dynamics 365 for Outlook to be able to access the Microsoft Dynamics 365 Server over the Internet, you must specify the external Web address that will be used to access the Internet-facing Microsoft Dynamics 365 Server. To do this, you must install Dynamics 365 for Outlook, and then run the Configuration Wizard. Then, during configuration, type the external Web address in the **External Web** address box. If you install server roles, this Web address must specify where the Discovery Web Service role is installed. For more information about how to configure Dynamics 365 for Outlook, see [Referenced topic '04a2332e-0fc4-4487-8136-e48e01b63055' is only available online.](#)

For detailed steps to configure IFD, see [Configure IFD for Microsoft Dynamics 365](#).

See Also

[Advanced deployment options for Microsoft Dynamics 365 Server Multi-organization deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Multi-organization deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Deployment Manager is a Microsoft Management Console (MMC) snap-in that you can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics 365. Deployment Manager is installed with the Full Server, Deployment Administration Server, or Deployment Tools server roles.

To use Deployment Manager, you must be a member of the deployment administrators group. This membership can be configured in Deployment Manager. By default, the user who runs Microsoft Dynamics 365 Server Setup is added to the deployment administrators group.

In the **Organizations** area of the Deployment Manager, you import, create, update, enable, disable, or remove organizations. For more information about organization management in Dynamics 365, see [Use Deployment Manager to manage the deployment](#).

Alternatively, you can perform Microsoft Dynamics 365 deployment tasks, such as organization management, using Windows PowerShell. More information: [Administer the deployment using Windows PowerShell](#)

◆ Important

There are several names that can't be used to name an organization. To view a list of reserved names, open the **ReservedNames** table in the MSCRM_CONFIG database, and review the names in the **ReservedName** column or use the following SQL query.

```
USE MSCRM_CONFIG SELECT ReservedName FROM ReservedNames
```

See Also

[Advanced deployment options for Microsoft Dynamics 365 Server](#)
[Installing on-premises Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Accessibility in Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Administrators and users who have administrative responsibilities typically use the Settings area of the Microsoft Dynamics 365 web application to manage Microsoft Dynamics 365 (online). A mouse and keyboard are the typical devices that administrators use to interact with the application.

Users who don't use a mouse can use a keyboard to navigate the user interface and complete actions. The ability to use the keyboard in this way is a result of support for keyboard interactions that a browser provides.

For more information, see the following Microsoft Dynamics 365 web application accessibility topics:

- [Keyboard shortcuts](#)
- [Accessibility for people with disabilities](#)

Administrators and other users who have administrative responsibilities for on-premises deployments of Microsoft Dynamics 365 also use Microsoft Dynamics 365 Deployment Manager, a Microsoft Management Console (MMC) application, to manage on-premises deployments of Microsoft Dynamics 365 Server.

For more information, see the following Microsoft Management Console (MMC) accessibility topics:

- [Navigation in MMC Using the Keyboard and Mouse](#)
- [MMC Keyboard Shortcuts](#)

Accessibility features in browsers

The following table contains links to documentation about web browser accessibility.

Browser	Documentation
Internet Explorer	Accessibility in Internet Explorer
Mozilla Firefox	Accessibility features in Firefox
Apple Safari	Safari
Google Chrome	Accessibility Technical Documentation

See Also

[Microsoft Accessibility Resource Center](#)
[Manage Your Microsoft Dynamics CRM Online Subscription](#)
[Help and additional resources for Microsoft Dynamics CRM Online](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Installing on-premises Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

IT professionals and Dynamics 365 administrators can use the resources and topics in this guide to help them install and configure on-premises deployments of Microsoft Dynamics 365 Server.

In This Section

[Install or upgrade Microsoft Dynamics 365 Server](#)
[Install or upgrade Language Packs for Microsoft Dynamics 365](#)
[Install Microsoft Dynamics 365 Report Authoring Extension](#)
[Uninstall, repair, and change Microsoft Dynamics 365](#)
[Use the command prompt to install Microsoft Dynamics Server 365](#)
[Deploy Microsoft Dynamics 365 on Azure FAQ](#)

Related Sections

[Referenced topic '0e6157ee-a9fc-4da2-8ade-9199a405db05' is only available online.](#)

[Referenced topic 'ed52c023-89b4-44f4-994c-c90c693ef509' is only available online.](#)

[Planning on-premises Dynamics 365](#)

[Referenced topic '633e9a2d-cba1-4700-ba18-01487767109c' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install or upgrade Microsoft Dynamics 365 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section explains how to install Microsoft Dynamics 365 Server. In addition, there is installation troubleshooting information and procedures to uninstall Microsoft Dynamics 365 Server.

◆ Important

To download the service pack, see the support article [December 2016 update for Dynamics 365 \(on-premises\)](#). There is additional information in the [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#).

Components installed during Microsoft Dynamics 365 Server Setup

This section describes what is installed during Microsoft Dynamics 365 Server Setup.

Microsoft Dynamics 365 Server installed configuration components

When you install Microsoft Dynamics 365 Server, by default Setup creates a folder structure under *SystemDrive:\Program Files\Microsoft Dynamics CRM*. Additional components include the following.

All of the following web components are added during a Full Server role installation. During an individual role installation, fewer or none of these components are installed on the server.

Component	Name	Description
Application Pool	CRMAppPool	Microsoft Dynamics 365 Server Setup creates a separate application pool for the Microsoft Dynamics 365 application.
Application Pool	CRMDeploymentServiceAppPool	Microsoft Dynamics 365 Server Setup creates a

Component	Name	Description
		separate application pool for the Deployment Web Service.
Site	Microsoft Dynamics 365	Website for Microsoft Dynamics 365.
Applications	XRMDeployment	Facilitates the implementation of XRM deployments.
Applications	Help	Services the Microsoft Dynamics 365 Help system for the application.

Microsoft Dynamics 365 Server Setup uses active directory groups to manage permissions as described in the following table.

Group	Description
PrivReportingGroup	Privileged Microsoft Dynamics 365 user group for reporting functions. This group is created during Microsoft Dynamics 365 Server Setup and configured during Microsoft Dynamics 365 Reporting Extensions Setup.
PrivUserGroup	Privileged Microsoft Dynamics 365 user group for special administrative functions, including CRMAppPool identity (domain user or Network Service). The users who configure Microsoft Dynamics 365 Server must be added to this group.
SQLAccessGroup	All server processes/service accounts that require access to SQL Server, including CRMAppPool identity (domain user or Network Service). Members of this group have db_owner permission on the Microsoft Dynamics 365 databases.
ReportingGroup	All Microsoft Dynamics 365 users are included in this group. This group is updated automatically as users are added and removed from Microsoft Dynamics 365. By default, all Microsoft Dynamics 365 Reporting Services reports grant Browse permission to this group.


All of the following services are added during a Full Server role installation. During an individual role installation, fewer or none of these services are installed on the server.

Service	Description
Microsoft Dynamics 365 Asynchronous Processing Service	Services asynchronous processes such as bulk email and workflow.
Microsoft Dynamics 365 Asynchronous Processing Service (maintenance)	Services asynchronous maintenance such as encryption key generation for authentication and

Service	Description
	database deletion clean up.
Microsoft Dynamics 365 Unzip Service	Handles the uncompressing of zipped files for data import. This service is installed as part of the Web Application Server role.
Microsoft Dynamics 365 Sandbox Processing Service	The Sandbox Processing Service server role enables an isolated environment to allow for the execution of custom code, such as plug-ins.
Microsoft Dynamics 365 Monitoring Service	Monitors all Microsoft Dynamics 365 Server roles that are installed on the local computer. With this release of Microsoft Dynamics 365, the service is used to detect expired digital certificates that may affect Microsoft Dynamics 365 services that are running in the deployment. The Monitoring Service does not perform any other monitoring tasks and does not transmit information outside the computer where the service is running. The Monitoring Service is installed with the installation of any Microsoft Dynamics 365 Server role and records events under the MSCRMMonitoringServerRole source in the Event log.
Microsoft Dynamics 365 VSS Writer	Provides an interface to back up and restore Microsoft Dynamics 365 data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.

The following SQL Server components are added.

Component	Name	Description
Databases	MSCRM_CONFIG OrganizationName_MSCRM	Microsoft SQL Server Setup creates the <i>SystemDrive:\Program Files\Microsoft SQL Server\MSSQL<ver>\MSSQL\Data\</i> folder and Microsoft Dynamics 365 Server Setup installs the Microsoft Dynamics 365 configuration database and organization databases in it.
SQL Server Jobs	MSCRM_CONFIG.SiteWideCleanup	Microsoft Dynamics 365 Server Setup creates one SQL Server job that is used for maintenance.
Logins	PrivReportingGroup ReportingGroup SQLAccessGroup MSCRMSqlLogin	Microsoft Dynamics 365 Server Setup creates SQL Server logins for the PrivReportingGroup, ReportingGroup, and SQLAccessGroup Active Directory groups that are created. MSCRMSqlLogin is used for time zone

Component	Name	Description
		<p>conversions when you use dashboards and charts, and do queries using Advanced Find. When Microsoft SQL Server is enabled to use common language runtime (CLR), this can significantly improve performance for those features.</p> <p> Note</p> <p>By default, CLR is not enabled in Microsoft SQL Server. For more information about how to enable CLR, see Enabling CLR Integration.</p>

Other software installed during setup

If not already installed, the following software is installed for a Full Server during Microsoft Dynamics 365 Server Setup:

 **Note**

The installation of some of these items such as Microsoft .NET Framework and SQL System CLR Types may require you to restart your computer before you can continue to run Microsoft Dynamics 365 Setup.

- Microsoft SQL Reporting Service Report Viewer Control
- Microsoft SQL Server Native Client
- SQL System CLR Types
- SQL Server Management Objects
- Microsoft Application Error Reporting Tool
- Microsoft Visual C++ Runtime Library
- Windows Server Web Server Role
- Windows Search
- Microsoft .NET Framework 4, which includes the following components:
 - Microsoft .NET Framework 4.5.2 (required by Microsoft Dynamics 365 Server)
 - Windows Workflow Foundation (required by Microsoft Dynamics 365 Server)
 - Windows Presentation Foundation
 - Windows Communication Foundation (WCF) (required by Microsoft Dynamics 365 Server)
- Microsoft Chart Controls for Microsoft .NET Framework

- Windows PowerShell
- Microsoft URL Rewrite Module for IIS
- File Server Resource Manager

The following topics describe step-by-step procedures to install Microsoft Dynamics 365 Server or upgrade from an earlier version.

In This Section

[Microsoft Dynamics 365 Server installation](#)

[Upgrade Microsoft Dynamics CRM Server](#)

[Configure IFD for Microsoft Dynamics 365](#)

[Troubleshooting installation and upgrade](#)

[Set configuration and organization databases for SQL Server AlwaysOn failover](#)

See Also

[Installing on-premises Dynamics 365](#)

[Install or upgrade Language Packs for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Server installation

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section covers procedures to install Microsoft Dynamics 365 Server on a computer that doesn't already have Microsoft Dynamics 365 installed.

Install Microsoft Dynamics 365 Server

1. Verify that you have completed the necessary planning and that you have the required hardware and software components installed and running. More information: [Planning on-premises Dynamics 365](#)
2. Make sure that you have the appropriate permissions to run Microsoft Dynamics 365 Server Setup. More information: [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#)
3. Run Microsoft Dynamics 365 Server Setup.
4. On a server that has Microsoft SQL Server Reporting Services, run Microsoft Dynamics 365 Reporting Extensions Setup.
5. If you want to configure Microsoft Dynamics 365 for Internet access, run the Set-CRMSettings ClaimsSettings and Set-CRMSettings IfdSettingsWindows PowerShell commands. More information: [Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#) Alternatively, start Deployment Manager and run the Configure Claims-Based Authentication Wizard and then the Internet-Facing Deployment Configuration Wizard.

6. If one or more Microsoft Dynamics 365 users will need email routing, configure server-side synchronization or, for more complex email routing options, consider installing the Email Router to enable email message tracking. More information: [Referenced topic '6804d996-86b2-4fb0-aed9-21fbdde0bab5' is only available online.](#)

Microsoft Dynamics 365 installation files

The following table lists the Microsoft Dynamics 365 installation files to use and their location.

Setup file	Location
SetupServer.exe for Microsoft Dynamics 365 Server	..\Server\amd64
SetupSrsDataConnector.exe for the Microsoft Dynamics 365 Reporting Extensions	..\Server\amd64\SrsDataConnector
SetupBIDSExtensions.exe for the Microsoft Dynamics 365 Report Authoring Extension. This is an optional feature that can be installed on a computer that has Microsoft Visual Studio for creating and customizing fetch-based reports.	..\BIDSExtensions\i386
Setupclient.exe for Dynamics 365 for Outlook	<ul style="list-style-type: none"> • ..\Client\amd64 for 64-bit • ..\Client\i386 for 32-bit
SetupEmailRouter.exe for Microsoft Dynamics CRM Email Router	<ul style="list-style-type: none"> • ..\EmailRouter\amd64 for 64-bit • ..\EmailRouter\i386 for 32-bit

In This Section

[Install Microsoft Dynamics 365 Front End Server and Back End Server roles](#)

[Install Microsoft Dynamics 365 Full Server role on a server without Microsoft Dynamics 365 installed](#)

[Install Microsoft Dynamics 365 Server on multiple computers](#)

[Install Microsoft Dynamics 365 Reporting Extensions](#)

[Set configuration and organization databases for SQL Server AlwaysOn failover](#)

See Also

[Referenced topic '0e6157ee-a9fc-4da2-8ade-9199a405db05' is only available online.](#)

[Referenced topic 'ed52c023-89b4-44f4-994c-c90c693ef509' is only available online.](#)

[Install or upgrade Microsoft Dynamics 365 Server](#)

[Upgrade Microsoft Dynamics CRM Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Front End Server and Back End Server roles

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following procedure installs Microsoft Dynamics 365 Front End Server and Back End Server roles on two separate servers that do not already have Microsoft Dynamics 365 Server installed. We recommend this configuration instead of a single Full Server deployment because it helps improve security and performance by isolating specific Microsoft Dynamics 365 Server services on each computer. As part of this procedure, the Microsoft Dynamics 365 Reporting Extensions are installed on the server where the Back End Server roles are installed, and the Deployment Tools are installed on the server where the Front End Server roles are installed. More information: [Microsoft Dynamics 365 server roles](#)

A backend and frontend deployment configuration requires two separate computers running Windows Server. This example uses two computers that are named *CRMbackend* and *CRMfrontend*.

◆ Important

After Setup is completed, you must either import or create at least one organization to be able to connect a client to the Microsoft Dynamics 365 deployment. You can do this by using Windows PowerShell or Microsoft Dynamics 365 Deployment Manager. More information: [Administer the deployment using Windows PowerShell](#)

In this example, the Back End Server role will be installed before the Front End Server role.

In This Topic

[Install Back End Server role](#)

[Install Front End Server role](#)

[Create the Microsoft Dynamics 365 organization](#)

Install Back End Server role

On the computer named *CRMbackend* complete the following procedure.

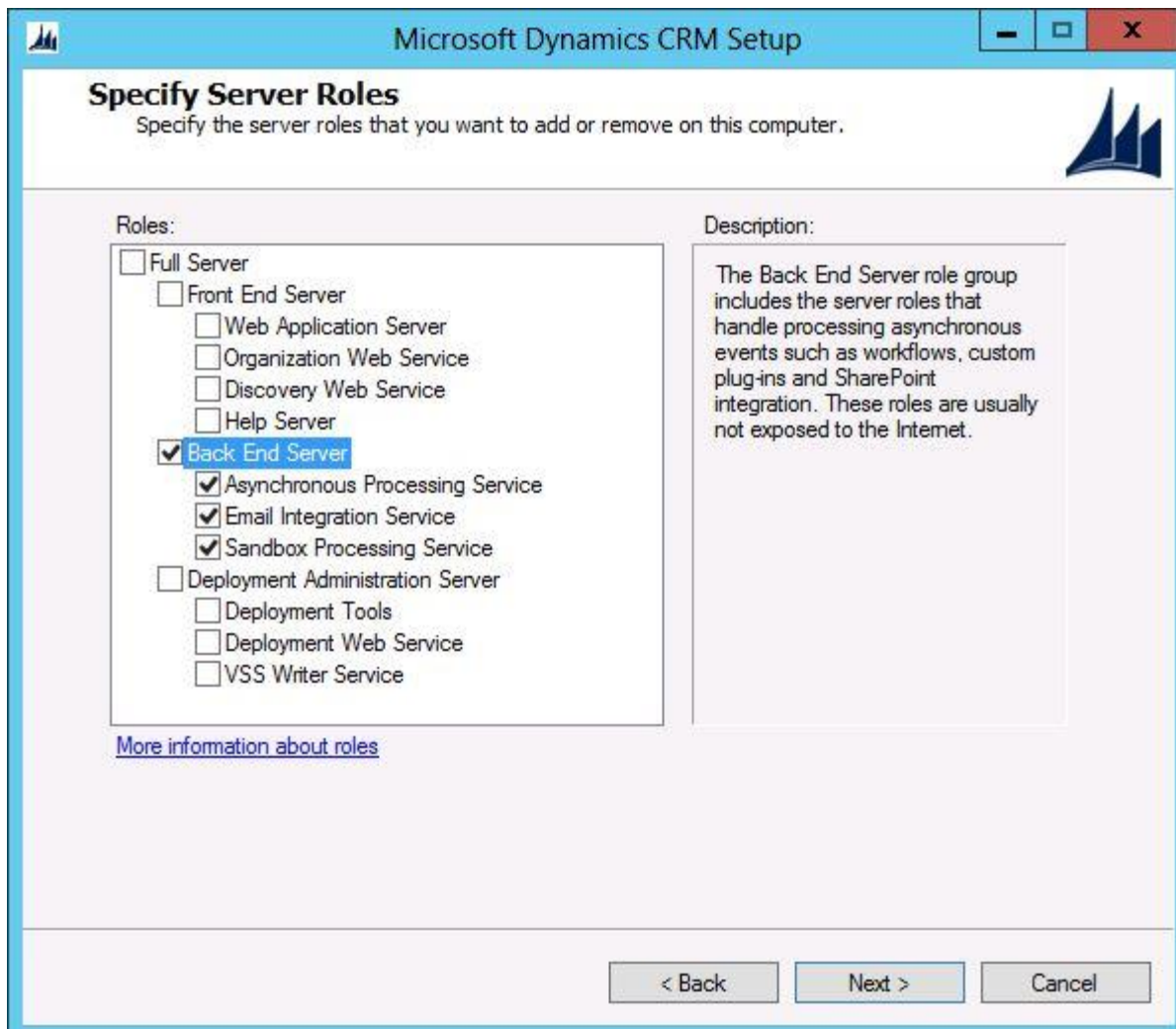
1. Meet all requirements specified in [Microsoft Dynamics 365 system requirements and required technologies](#) in the Planning Guide.
2. Log on to the domain as a user who has administrator-level privileges where Microsoft Dynamics 365 will be installed and who is a member of the Administrators group on the local computer. You cannot install the application as a member from a trusted domain.
3. Locate the Microsoft Dynamics 365 installation files. You can find the Microsoft Dynamics 365 Server [download packages on the Microsoft Download Center](#).

4. In the folder where the Microsoft Dynamics 365 files are located, move to the Server\amd64 folder, and then double-click **SetupServer.exe**.
5. On the **Welcome to Microsoft Dynamics 365 Server Setup** page, we recommend that you click **Get updates for Microsoft Dynamics 365**, to make sure that Setup has the most recent installation files. Click **Next**.
6. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.
7. On the **License Agreement** page, review the information and if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.
8. If Setup detects that components are missing, the **Install Required Components** page appears.
 - If you have already installed the required components, this page will not appear.
 - If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Not Installed** to **Installed**, and you can click **Next** to continue.

 **Note**

If you are prompted to restart the computer, do so, and then start Setup again.

9. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.
10. On the **Specify Server roles** page, select all the Back End Server roles. Leave the rest blank.



11. On the **Specify Deployment Options** page, in the **Enter or select the name of the computer that is running SQL Server to use with the deployment** box, type or select the instance of Microsoft SQL Server that will be used to store the Microsoft Dynamics 365 database (MSCRM_CONFIG).

12. On the **Select the Organizational Unit** page, click **Browse** to display your Active Directory structure. Select the organizational unit where you want Microsoft Dynamics 365 to add security groups, click **OK**, and then click **Next**.

13. On the **Specify Service Accounts** page, select the security accounts for the Microsoft Dynamics 365 services, and then click **Next**.

The services are described below. For more information about the service accounts required to run these services, see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

- **Sandbox Processing Service.** Enables an isolated environment to allow for the execution of custom code, such as plug-ins. This isolated environment reduces the possibility of custom code affecting the operation of the organizations in the Microsoft Dynamics 365 deployment.
- **Asynchronous Processing Service.** Processes queued asynchronous events, such as bulk email or data import.
- **Monitoring Service.** This service will be installed with any Microsoft Dynamics 365 Server role installation to monitor Microsoft Dynamics 365 server roles that are running on the local computer.

More information: [Available individual server roles](#)

For each service, we recommend that you select a low-privilege domain user account that is dedicated to running these services and is not used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics 365 service cannot be a Microsoft Dynamics 365 user. The domain account must be a member of the Domain Users group. Additionally, if the Asynchronous Service and Sandbox Processing Service roles are installed, such as in a Full Server or a Back End Server installation, the domain account must be a member of the Performance Log Users security group.

14. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing, see [Windows Update FAQ](#).
15. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.
16. The **Service Disruption Warning** page appears. This page lists all services that will be stopped or restarted during Setup.
17. Review the **Ready to Install Microsoft Dynamics 365** page, and then click **Back** to correct any warnings. When you are ready to continue, click **Install**.
18. When the Setup program is finished, click **Finish**.
19. Run Microsoft Dynamics 365 Reporting Extensions Setup. More information: [Install Microsoft Dynamics 365 Reporting Extensions](#)

◆ Important

Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services are required to complete the Front End Server and Back End Server deployment of Microsoft Dynamics 365 Server.

20. When the Microsoft Dynamics 365 Reporting Extensions Setup has finished, complete the next procedure to install the Front End Server role.

Install Front End Server role

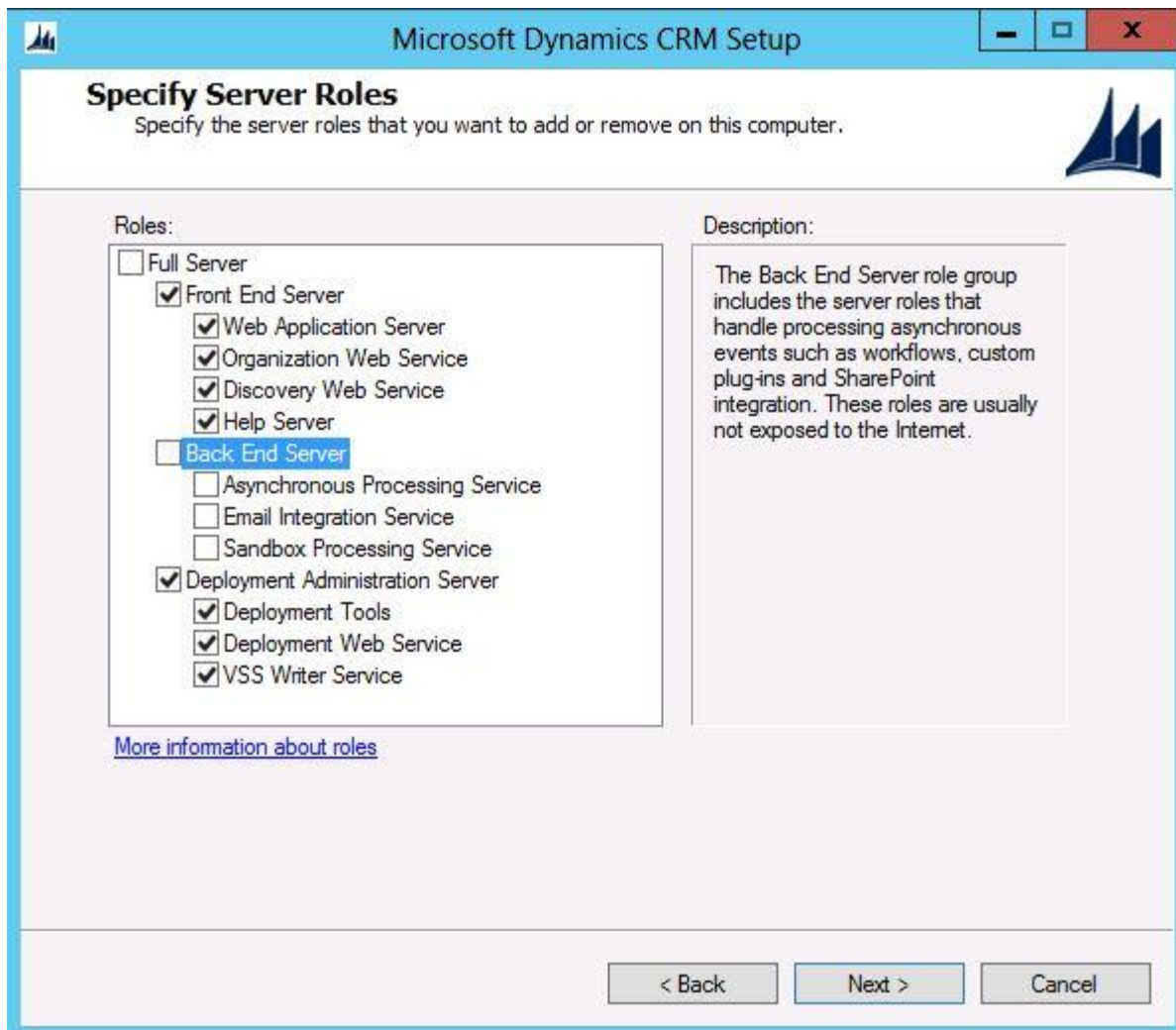
On the computer named *CRMfrontend*, follow these steps.

1. Log on to the domain as a user who has administrator-level privileges where Microsoft Dynamics 365 will be installed and who is a member of the Administrators group on the local computer. You cannot install the application as a member from a trusted domain.
2. In the folder where the Microsoft Dynamics 365 files are located, move to the Server\amd64 folder, and then double-click **SetupServer.exe**.
3. On the **Welcome to Microsoft Dynamics 365 Setup** page, we recommend that you click **Get updates for Microsoft Dynamics 365**, to make sure that Setup has the most recent installation files. Click **Next**.
4. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.
5. On the **License Agreement** page, review the information and, if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.
6. If Setup detects that components are missing, the **Install Required Components** page appears.
 - If you have already installed the required components, this page will not appear.
 - If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Not Installed** to **Installed**, and you can click **Next** to continue.

Note

If you are prompted to restart the computer, do so, and then start Setup again.

7. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.
8. On the **Specify Server roles** page, select all the Front End Server and Deployment Administration Server roles. Leave the rest blank.



9. On the **Specify Deployment Options** page, click **Connect to**, and if necessary, upgrade an **existing deployment**, and then in the **Enter or select the name of the computer that is running SQL Server to use with the deployment** box, type or select the instance of SQL Server that you entered previously, and then click **Next**.
10. On the **Select the Organizational Unit** page, click **Browse** to display your Active Directory structure. Select the location where you want the Microsoft Dynamics 365 organizational unit to be installed, click **OK**, and then click **Next**. We recommend that you select the same organization unit that you selected in the previous step.
11. On the **Specify Service Accounts** page, select the security accounts for the Microsoft Dynamics 365 services, and then click **Next**.

The services are described below. For more information see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

- **Application Service.** This service runs the Microsoft Dynamics 365 web application that is used to connect users to Dynamics 365 data.
- **Deployment Web Service.** Publishes the web service that provides the deployment interface described in the [MSDN: Microsoft Dynamics CRM SDK](#), such as those used to create an organization or manage the list of Deployment Administrators for the Microsoft Dynamics 365 deployment.

◆ Important

For each service, we recommend that you select a low-privilege domain user account that is dedicated to running these services and is not used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics 365 service cannot be a Microsoft Dynamics 365 user. This domain account must be a member of the Domain Users group.

If you select to run the ASP.NET service under a domain user account that is not a domain administrator or a local administrator, you must set a local security policy after you install Microsoft Dynamics 365 Server for the ASP.NET service to work correctly. Also, depending on the password policies that you have implemented for your organization, the password for the user may expire. More information: [How to use the ASP.NET utility to encrypt credentials and session state connection strings](#).

- **VSS Writer Service.** The Microsoft Dynamics 365 VSS Writer service provides an interface to backup and restore Microsoft Dynamics 365 data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.
 - **Monitoring Service.** This service will be installed with any Microsoft Dynamics 365 Server role installation to assist in event monitoring.
12. On the **Select a Web Site** page, click **Create a new Web site** or click **Select a Web Site** and select a website from the list. By default, Setup will use the default website.

◆ Important

We strongly recommend that you verify the status of the existing website before you specify Setup to use an existing website. We strongly recommend that the website you select is configured for TLS/SSL. For more information see the IIS documentation. During the installation, Setup can bind the Microsoft Dynamics 365 application to the HTTPS website. If you select a network port other than a default port, ensure that the firewall does not block the port.

When you select the **Create a new Web site** option, Setup creates a new website for Microsoft Dynamics 365. You can specify the following option:

- **Port Number.** Type the TCP port number that Microsoft Dynamics 365 clients will use to connect to the Microsoft Dynamics 365 Server. The default port number is 5555.
13. Click **Next**.
14. On the **Specify E-mail Router Settings** page, in the **E-mail Router server name** box, type the name of the computer where the Email Router will be installed. This computer will route Microsoft Dynamics 365 email messages. If you are not going to install the Email Router you can leave this box blank. However, if you install the Email Router later you must add the computer where the

Email Router service is running when you use Local System, or if you use a domain user account, the account, to the PrivUserGroup security group. Click **Next**.

15. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing, see [Windows Update FAQ](#).
16. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.
17. The **Service Disruption Warning** page appears. This page lists all services that will be stopped or restarted during Setup.
18. Review the **Ready to Install Microsoft Dynamics 365** page, and then click **Back** to make changes. When you are ready to continue, click **Install**.
19. When the Setup program is finished, click **Finish**.

Create the Microsoft Dynamics 365 organization

After Microsoft Dynamics 365 Server Setup program is finished installing the Back End Server, Front End Server, Deployment Administration Server roles, and Microsoft Dynamics 365 Reporting Extensions, you must create at least one organization to make the deployment available for users.

To create an organization, on the computer named *CRMfrontend* where the Deployment Administration Server role is installed, run the New-CrmOrganization Windows PowerShell command. More information: [Administer the deployment using Windows PowerShell](#) Alternatively, you can use Microsoft Dynamics 365 Deployment Manager.

If you have a Microsoft Dynamics CRM 2015 deployment, you can import the organization databases into the new deployment. Imported databases will be upgraded during the operation. To import an organization, on the computer named *CRMfrontend* where the Deployment Administration Server role is installed, run the Import-CrmOrganization Windows PowerShell command. Alternatively, you can use Microsoft Dynamics 365 Deployment Manager.

See Also

[Microsoft Dynamics 365 Server installation](#)

[Install Microsoft Dynamics 365 Full Server role on a server without Microsoft Dynamics 365 installed](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Full Server role on a server without Microsoft Dynamics 365 installed

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Install the Microsoft Dynamics 365 Server software

1. Meet all requirements specified in [Microsoft Dynamics 365 system requirements and required technologies](#).
2. Log on to the domain as a user who has administrator-level privileges where Microsoft Dynamics 365 Server will be installed and who is a member of the Administrators group on the local computer. You cannot install the application as a member from a trusted domain.
3. See the [Microsoft Dynamics CRM and Microsoft Dynamics CRM Online Readme](#) file to determine the location of the Microsoft Dynamics 365 installation files.
4. In the folder where the Microsoft Dynamics 365 files are located, move to the Server\amd64 folder, and then double-click **SetupServer.exe**.
5. On the **Welcome to Microsoft Dynamics 365 Server Setup** page, we recommend that you click **Get updates for Microsoft Dynamics 365**, to make sure that Setup has the most recent installation files. Click **Next**.
6. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.
7. On the **License Agreement** page, review the information and if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.
8. If Setup detects that components are missing, the **Install Required Components** page appears.
 - If you have already installed the required components, this page will not appear.
 - If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Not Installed** to **Installed**, and you can click **Next** to continue.

Note

If you are prompted to restart the computer, do so, and then start Setup again.

9. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.

10. If you are installing a version of Microsoft Dynamics 365 Server that supports server roles, the **Specify Server Roles** page appears. By default, Full Server is selected and will install all server roles on the computer. Alternatively, you can select a predefined group of server roles or one or more individual server roles. Notice that all server roles must be deployed on the network in the same Active Directory domain for Microsoft Dynamics 365 to operate correctly. For more information, see [Planning your deployment of Microsoft Dynamics 365](#). Click **Next**.

◆ Important

When you select a server role other than Full Server, Microsoft Dynamics 365 Server Setup does not create an organization database during the installation. If the deployment does not have an organization database, you must use the Windows PowerShell cmdlet or Deployment Manager to create a new organization. For information about how to create a new organization using Windows PowerShell, see the New-CrmOrganization command in the [Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#)

11. On the **Specify Deployment Options** page, if Setup detects an existing deployment, you can select whether you want to create a new deployment or connect to an existing deployment. In the **Enter or select the name of the computer that is running SQL Server to use with the deployment** box, type or select the instance of SQL Server that will be used to store the Microsoft Dynamics 365 configuration database (MSCRM_CONFIG).

◆ Important

When you select **Create a new deployment**, Setup creates a new organization database using the name that you specified and a configuration database by using the name MSCRM_CONFIG. An error message will appear if an MSCRM_CONFIG database already exists. You must delete this database to create a new MSCRM_CONFIG database. Only one deployment is supported for each instance of SQL Server.

Currently, you can't specify a Microsoft SQL Server 2012 Availability Group listener during Microsoft Dynamics 365 Server Setup. To use SQL Server 2012 Availability Groups for high availability, complete the Microsoft Dynamics 365 Server installation by selecting the SQL Server 2012 primary replica. After Setup is complete, follow the procedure in the [Set configuration and organization databases for SQL Server AlwaysOn failover](#) topic.

When you select **Connect to, and if necessary, upgrade an existing deployment**, Setup requires that a configuration database (MSCRM_CONFIG) already exist on the computer that is running SQL Server. An error message will appear if an MSCRM_CONFIG database does not already exist.

12. On the **Select the Organizational Unit** page, click **Browse** to display your Active Directory structure. Select the organizational unit where you want Microsoft Dynamics 365 to add security groups, click **OK**, and then click **Next**.
13. On the **Specify Service Accounts** page, select the security accounts for the Microsoft Dynamics 365 services, and then click **Next**.

The services are described below. For more information about the service accounts required to run these services, see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

- **Application Service.** This service runs the Microsoft Dynamics 365 web application that is used to connect users to Dynamics 365 data.
- **Deployment Web Service.** Publishes the web service that provides the deployment interface described in the [Microsoft Dynamics CRM SDK](#), such as create an organization or manage the list of Deployment Administrators for the Microsoft Dynamics 365 deployment.
- **Sandbox Processing Service.** Enables an isolated environment to allow for the execution of custom code, such as plug-ins. This isolated environment reduces the possibility of custom code affecting the operation of the organizations in the Microsoft Dynamics 365 deployment.
- **VSS Writer Service.** The Microsoft Dynamics 365 VSS Writer service provides an interface to backup and restore Microsoft Dynamics 365 data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.
- **Asynchronous Processing Service.** Processes queued asynchronous events, such as bulk e-mail or data import.

◆ Important

We strongly recommend that you select a low-privilege domain account that is dedicated to running these services and is not used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics 365 service cannot be a Microsoft Dynamics 365 user. This domain account must be a member of the Domain Users group. Additionally, if the Asynchronous Service and Sandbox Processing Service roles are installed, such as in a Full Server or a Back End Server installation, the domain account must be a member of the Performance Log Users security group.

If you select to run the ASP.NET service under a domain user account that is not a domain administrator or a local administrator, you must set a local security policy after you install Microsoft Dynamics 365 Server for the ASP.NET service to work correctly. Also, depending on the password policies that you have implemented for your organization, the password for the user may expire. For more information, see the Microsoft Knowledge Base (KB) article 329290, [How to use the ASP.NET utility to encrypt credentials and session state connection strings](#).

- **Monitoring Service.** This service will be installed with any Microsoft Dynamics 365 Server role installation to provide event monitoring on Microsoft Dynamics 365 server roles that are running on the local computer.

14. On the **Select a Web Site** page, click **Create a new Web site** or click **Select a Web Site** and select a website from the list. By default, Setup will use the default website.

◆ Important

We strongly recommend that you verify the status of the existing website before you specify Setup to use an existing website.

We strongly recommend that the website you select is configured for TLS/SSL. For more information, see the IIS documentation. During the installation, Setup will bind the Microsoft Dynamics 365 application to the HTTPS website. If you select a network port other than a default port ensure that your firewall does not block the port.

When you select the **Create a new Web site** option, Setup creates a new website for Microsoft Dynamics 365 Server. You can specify the following option:

- **Port Number.** Type the TCP port number that Microsoft Dynamics 365 clients will use to connect to the Microsoft Dynamics 365 Server. The default port number is 5555.

15. Click **Next**.

16. On the **Specify Email Router Settings** page, in the **Email Router server name** box, type the name of the computer where the Email Router will be installed. This computer will route Microsoft Dynamics 365 email messages. If you will not install the Email Router you can leave this box blank. However, if you install the Email Router later you must add the computer where the Email Router service is running when you use Local System, or if you use a domain user account, the account, to the PrivUserGroupP security group. Click **Next**.

17. On the **Specify the Organization Name** page, specify the following information.

- a. In the **Display Name** box, type the name of your organization.
- b. In the **Name** box, you can keep the name that is automatically generated or you can type a unique name that must be limited to 30 characters. Spaces and extended characters are not allowed.
- c. Under **ISO currency code**, click **Browse**, select the ISO currency code that you will use as the base currency for the organization in the list, and then click **OK**.
You can change the currency's symbol, name, or precision.
- d. In the **Base Language** list, select the base language for the organization.
With Microsoft Dynamics 365 Server, only the base language of the first organization is tied to the language of the server installation. All other organizations can have different base languages, but you must first install Language Packs for the additional languages. For instructions about how to install Language Packs, see [Install or upgrade Language Packs for Microsoft Dynamics 365](#).
- e. In the **SQL collation** list, keep the default selection or select a different database collation that the organization database will use to sort and compare data characters.
The default SQL collation changes based on the base language selection.
For more information, see [Collation and Unicode support](#).
- f. Click **Next**.

◆ Important

After Setup is complete, you cannot change the database collation, base ISO currency code, or the organization unique name. However, you can change the base currency name and base currency symbol.

18. On the **Specify Reporting Services Server** page, type the Report Server URL. Make sure that you use the Report Server URL, not the Report Manager URL. To verify that you are using the correct URL, in a browser, type the Report Server URL as the address. You should see a page titled **<server>/ReportServer - /:** with text that displays the version number: **Microsoft SQL Server Reporting Services Version <version number>**. Click **Next**.

19. On the **Help Us Improve the Customer Experience** page, select whether you want to participate in the Customer Experience Improvement Program, and then click **Next**.

 **Note**

For more information, see [Microsoft Customer Experience Improvement Program](#).

20. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing see [Windows Update FAQ](#).
21. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.
22. The **Service Disruption Warning** page appears. Verify the suitability of the services that will be stopped or restarted, and then click **Next**.
23. Review the **Ready to Install Microsoft Dynamics 365** page, and then click **Back** to correct any warnings. When you are ready to continue, click **Install**.
When Setup completes successfully, the **Microsoft Dynamics 365 Server setup completed** page appears. If the Reporting Server instance that you specified during this Setup points to the local computer where Microsoft Dynamics 365 is installed, Setup provides an option to invoke Microsoft Dynamics 365 Reporting Extensions Setup.
24. To install Microsoft Dynamics 365 Reporting Extensions on the computer now, select the **Launch Microsoft Dynamics 365 Reporting Extensions Setup** check box. Click **Finish**.

 **Important**

- After you install Microsoft Dynamics 365 Server, you must install the Microsoft Dynamics 365 Reporting Extensions to create, run, and schedule reports in Microsoft Dynamics 365. For instructions, see [Install Microsoft Dynamics 365 Reporting Extensions](#).
- By default, Setup turns on HTTP compression on the server that is running IIS where the Microsoft Dynamics 365 web application is installed. If you use another method to compress HTTP communications, you may want to turn this feature off. To do this, start Internet Information Services (IIS) Manager, click the website, double-click **Compression**, and then clear the compression check boxes.
- For an IFD deployment, after Microsoft Dynamics 365 Server Setup completes, you must configure claims-based authentication and the relying parties on the STS server. Then, run the Internet-Facing Deployment Configuration Wizard to complete the configuration. For more information about this configuration see [Configure IFD for Microsoft Dynamics 365](#).

See Also

[Microsoft Dynamics 365 Server installation](#)
[Install Microsoft Dynamics 365 Reporting Extensions](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Server on multiple computers

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can install Microsoft Dynamics 365 Server on multiple computers to balance the processing load across several servers. Deploying Microsoft Dynamics 365 Server in this manner can increase performance and availability.

◆ Important

Installing the Microsoft Dynamics 365 Workgroup Server edition on multiple servers isn't supported and is a violation of the license agreement.

In This Topic

[Multiple-server configuration overview](#)

[Step 1: Enable network load balancing](#)

[Step 2: Configure Active Directory](#)

[Step 3: Install Microsoft Dynamics 365 servers](#)

[Step 4: Configure failover clustering for the Microsoft Dynamics 365 deployment](#)

[Step 5: Verify and monitor the cluster installation](#)

Multiple-server configuration overview

The base configuration typically uses separate computers that run the components of a Microsoft Dynamics 365 deployment that includes Microsoft SQL Server and an instance of Windows Server functioning as an Active Directory domain controller. A multiple-server configuration of Microsoft Dynamics 365 has multiple computers that are running Microsoft Dynamics 365 Server that access a single server that is running SQL Server.

This topic describes the steps to install Microsoft Dynamics 365 in a two-node failover clustering configuration where all Microsoft Dynamics 365 Server roles are installed on a single computer, using the failover clustering feature in Windows Server. This kind of deployment is called a *Full Server installation*. You can use similar steps to install a particular server group role, such as the Front End Server role, or one or more individual server roles. When you install Microsoft Dynamics 365, you have the following choices for load balancing the Dynamics 365 web application, where both servers in the failover cluster must have the following server-group roles or individual server roles installed.

1. Full Server install.

2. Front End Server install.
3. Server role install (by using Microsoft Dynamics 365 Server Setup Wizard or command-line install with an XML configuration file). You'll have to install at least the following two roles on the load-balanced servers in the cluster.
 - Web Application Server role. This Microsoft Dynamics 365 Server role is used to run the web application components that connect users to Microsoft Dynamics 365 data.
 - Organization Web Service role. This Microsoft Dynamics 365 Server role is used to run applications that use the methods described in the Microsoft Dynamics 365 SDK.

◆ Important

If you decide to install only the Front End Server role, you must install the Back End Server group role on another server in the Active Directory domain. Similarly, if you want to install only the required Web Application Server and Organization Web Service roles, you must install the remaining server roles on other servers in the Active Directory domain.

Before getting started with failover clustering, an understanding of Microsoft Dynamics 365 Server multiple-server deployment options are needed. More information: [Microsoft Dynamics 365 multiple-server deployment](#)

This topic assumes the hardware and failover cluster are already established and functioning. For information about procedures for setting up and administering failover clustering on Windows Server, see the Failover Cluster Manager Help on the Windows Server computer. For information about failover clustering requirements and how to configure failover clustering in Windows Server, see [Failover Clustering](#).

In this example, a two-node cluster will be set up by using two computers that are running Windows Server. The server names are *CRM01* and *CRM02*.

Step 1: Enable network load balancing

Verify that failover clustering is configured correctly and functioning on the network for the servers *CRM01* and *CRM02*. The following port-rule settings are required when you enable the failover cluster.

- Port range. Leave the default range, which is from 0 to 65535.
- Protocols. Both
- Affinity. Single

Step 2: Configure Active Directory

Configure Active Directory by creating an account to run the **CRMAppPool** service and use a service principal name (SPN). This is required when you run IIS in a clustered or a network load-balanced environment. The SPN uniquely identifies an instance of a running service. Active Directory uses the SPN for mutual authentication of a service instance, which enables the service instance to correctly authenticate when a user attempts to access resources that are located on other domain-member computers. For more information, see the MSDN article [MSDN: Service Principal Names](#).

To create SPNs, you use ADSI Edit that is included with Windows Server. You can use this Microsoft Management Console (MMC) snap-in tool to enter SPN values for a specific computer or user account.

Configure the SPN

1. If a user account isn't already specified for the CRMAppPool identity, create a user account that will be used to run the CRMAppPool application pool in IIS. To do this, open Active Directory Users and Computers and create a new user account. When you create the user account, we recommend that you use a name that describes what the account will be used for, such as *CRMAppPoolService*.

◆ Important

This user account must be member of the Domain Users group. For specific permissions that are required, see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

Instead of using ADSI Edit to configure the SPN as described here, you can use the setspn command line tool with the `-s` parameter to verify whether the SPN is already in use, and if not, set it. In this example *CRMAppPoolService* is the name of the account that is used as the identity of the CRMAppPoolIIS application pool. `setspn -s http/CRMNLBName.FQDN CRMAppPoolService` More information: [Setspn](#)

2. Start **ADSI edit**.
3. Expand the domain, expand the node that begins with **DC=**, and then expand the organizational unit (OU) where the user account is located, such as **CN=Users**.
4. Right-click the user account that you created in the previous step, such as *CRMAppPoolService*, and then click **Properties**.
5. In the **Attribute** list, scroll down, select **servicePrincipalName**, and then click **Edit**.
6. In the **Value to add** box, type `HTTP/CRMNLBName.FQDN` and then click **Add**. (*CRMNLBName*, is the failover cluster name and *FQDN* is the fully qualified domain name.) For example, the `CRMNLBName.FQDN` name might be *CRMNLBCluster.contoso.com*.

◆ Important

Note this failover cluster name. You must use this name in the following step when you create the failover cluster and when you update the configuration database.

7. In the **Value to add** box, type `HTTP/CRMNLBName` and then click **Add**.
8. Click **OK** two times.
9. Close ADSI Edit.

Step 3: Install Microsoft Dynamics 365 servers

Each instance of Microsoft Dynamics 365 Server in a multi-server deployment must be installed one at a time. The following steps assume that an instance of a Full Server installation of Dynamics 365 will be deployed on a computer named *CRM01*, and a second instance will be installed on a computer named *CRM02*.

Install the first instance of Microsoft Dynamics 365 Server on CRM01

1. Run Microsoft Dynamics 365 Server Setup on server *CRM01*. For step-by-step guidance, see [Install Microsoft Dynamics 365 Full Server role on a server without Microsoft Dynamics 365 installed](#).
2. On the **Specify Deployment Options** page, select the instance of SQL Server that will be used for the Microsoft Dynamics 365 databases. Then, select the **Create a new deployment** option. Click **Next** and continue Setup.
3. On the **Specify Security Account** page, select the domain user account (for example, *CRMAppPoolService*) created previously.
4. Continue to run Setup until the installation is completed.

Install the second instance of Microsoft Dynamics 365 Server on CRM02

1. Run Microsoft Dynamics 365 Server Setup on server *CRM02*.
2. On the **Specify Deployment Options** page, enter or select the name of the computer that is running SQL Server where the Microsoft Dynamics 365 databases are stored (from the installation of *CRM01*), and then click **Connect to, and if necessary, upgrade an existing deployment**. Click **Next**.
3. On the **Specify Security Account** page, select the domain user account (for example, *CRMAppPoolService*) created previously.
4. Continue to run Setup until the installation is completed.

Step 4: Configure failover clustering for the Microsoft Dynamics 365 deployment

After the Microsoft Dynamics 365 Server installations are complete, run the `Set-CrmSettings WebAddressSettings Windows PowerShell` command to configure failover clustering for the deployment. More information: [Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online](#).

Alternatively, you can use Deployment Manager as described here.

Verify or change the web addresses using Deployment Manager

1. On the Microsoft Dynamics 365 server, start Deployment Manager.
2. In the console tree, right-click **Microsoft Dynamics 365**, and then click **Properties**.
3. Click the **Web Address** tab and make sure that the virtual cluster name, such as *crmcluster:5555* appears.

◆ Important

Depending on how you deployed the Microsoft Dynamics 365 Server role group (Full or Front End) or

individual server role installation, and the configuration of each server in the failover cluster, the Web Application Server, Organization Web Service, Discovery Web Service, or Deployment Web Service web addresses may be different. For example, if you installed the Front End Server role group on a server in an failover cluster that is named *crmcluster1* in the *contoso* domain but installed the Back End Server role group on a different server in a different failover cluster such as *crmcluster2* in the same domain, the name of the Web Application Server, Organization Web Service, Discovery Web Service web addresses will be different from the Deployment Web Service web address.

For a Full Server role deployment, all web addresses will use the same computer name or FQDN of the cluster. If you're using a TCP port other than 80 (non-secure HTTP) or 443 (secure HTTP or TLS/SSL), you must specify the port number by appending the FQDN name with *:5555*, where 5555 is the port number, such as *crmcluster:5555*.

Set failover clustering for the deployment

1. On the Microsoft Dynamics 365 Server, start Deployment Manager.
2. In the console tree, right-click **Microsoft Dynamics 365**, and then click **Properties**.
3. Click the **Web Address** tab and then click **Advanced**.
4. To make Microsoft Dynamics 365 aware of the failover cluster, you must select **The deployment uses an NLB** option. Selecting **The deployment uses an NLB** sets Microsoft Dynamics 365 to configure Windows Identity Foundation (WIF) to use the encryption certificate to encrypt, decrypt, and sign the Microsoft Dynamics 365 session authentication cookies. The encrypted cookies can then be processed by any server in the failover cluster.

For information about procedures for loading and administering failover clustering on Windows Server, see the Failover Cluster Manager Help on the Windows Server computer. For information about how to configure failover clustering in Windows Server, see [Create a Failover Cluster](#).

Note

If you are using a cluster solution that uses Transport Layer Security (TLS) or Secure Sockets Layer (SSL) offloading hardware, you must specify the TLS/SSL header in the **SSL Header** box. Notice that the TLS/SSL header is not a URL or domain. It is an agreed upon header value for the HTTP request that is configured on the device that is handling the TLS/SSL offloading. Review the TLS/SSL offloading device documentation for the header value.

5. Click **OK** and then close Deployment Manager.

Configure domain names for IFD

To configure Microsoft Dynamics 365 for IFD, you must either run the `Set-Crmsetting ifdSettings` Windows PowerShell command or start Deployment Manager and run the Internet-Facing Deployment Configuration Wizard to add or revise the domain values. Depending on how you deployed the Microsoft Dynamics 365 Server role group or individual server role installation, and the configuration of each server in the failover cluster, the **Web Application Server Domain**, **Organization Web Service Domain**, and **Discovery Web Service Domain** values use the failover virtual cluster domain name. For example, if the Web Application Server is installed on an Internet-facing failover cluster that has the FQDN virtual name *crmcluster.contoso.com*, enter **contoso.com** as the **Web Application Server Domain** value. More information: [Configure the Microsoft Dynamics 365 server for IFD](#)

For more information about how to configure internal web address and external domain values using Deployment Manager, see the Deployment Manager Help.

Step 5: Verify and monitor the cluster installation

Verify that Microsoft Dynamics 365 client applications can connect to Dynamics 365 by using the cluster name, such as *CRMNLBCluster*.

To monitor the cluster, you have the following options.

- Failover Cluster Manager. Log entries are displayed in the bottom of Failover Cluster Manager.
- Event Viewer. Entries are recorded in the System logs by using the **FailoverClustering** source.
- Run the Failover Clustering Windows PowerShell commands to view information about the state of the cluster. More information: [Failover Clusters Cmdlets in Windows PowerShell](#)

See Also

[Microsoft Dynamics 365 Server installation](#)
[Install Microsoft Dynamics 365 Reporting Extensions](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Reporting Extensions

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 Reporting Extensions has the following requirements:

- You must complete Microsoft Dynamics 365 Server Setup before you run Dynamics 365 Reporting Extensions Setup.
- You must run Microsoft Dynamics 365 Reporting Extensions Setup on a computer that has a supported version of Microsoft SQL Server Reporting Services installed. More information: [Microsoft Dynamics 365 reporting requirements](#).

Warning

Microsoft Dynamics 365 users who use the Report Viewer control included with Microsoft Visual Studio 2008 can view information from the reports that they have access to. By using this control, the user can view additional report and session data that is not displayed when running the report in Microsoft Dynamics 365. To reduce the risk of exposing confidential data, we recommend that you configure the Microsoft SQL Server Reporting Services website where the Microsoft Dynamics 365 Reporting Extensions is installed to allow only Transport Layer Security (TLS) or Secure Sockets Layer (SSL), also known as Secure HTTP, connections. More information: [Configure SSL Connections on a Native Mode Report Server](#).

To reduce the risk of certain security vulnerabilities, we strongly recommend that you use different

Active Directory accounts for the application pools used to run the Microsoft Dynamics 365 and Microsoft SQL Server Reporting Services websites.

Install the Microsoft Dynamics 365 Reporting Extensions

To install the Microsoft Dynamics 365 Reporting Extensions, locate the Microsoft Dynamics 365 installation files, and follow these steps:

1. In the ..\Server\amd64\SrsDataConnector folder, double-click **SetupSrsDataConnector.exe**.
2. On the **Welcome to Microsoft Dynamics 365 Reporting Extensions Setup** page, select whether you want to update Microsoft Dynamics 365 Reporting Extensions Setup. We recommend that, if updates are available, you let Setup download the latest version. To do this, click **Update installation files**, wait until the update process is complete, and then click **Next**.
3. On the **License Agreement** page, review the information and, if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.
4. If Setup detects that components are missing, the **Install Required Components** page appears.
 - a. If you have already installed the required components, this page will not appear.
 - b. If you have not installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column will change from **Missing** to **Installed**, and you can click **Next** to continue.
5. On the **Specify Configuration Database Server** page, if you are using the default instance of the SQL Server, enter the name of the computer that is running SQL Server and contains the Microsoft Dynamics 365 configuration database (MSCRM_CONFIG), and then click **Next**.

Note

If you are not using the default SQL Server instance, enter <machine-name>\<instance-name>.

6. On the **Specify SSRS Instance Name** page, select a Microsoft SQL Server Reporting Services instance that will be used for Microsoft Dynamics 365 reporting, and then click **Next**.
7. On the **Select Microsoft Update OptIn** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use the Microsoft Update to check for updates because this helps keep your computer up-to-date and secure.
8. On the **Select Installation Location** page, accept the default location or enter a different file installation location where you want to install Microsoft Dynamics 365 Reporting Extensions. Click **Next**.

9. The **System Checks** page appears. This page is a summary of the requirements for a successful Dynamics 365 Reporting Extensions installation. Errors must be corrected before installation can continue. All errors must be resolved. If no errors or only warnings appear, you can continue with the installation. To do this, click **Next**.
10. The **Service Disruption Warning** page appears. Verify the suitability of the services that will be stopped or restarted, and then click **Next**.
11. Review the **Ready to Install Microsoft Dynamics 365 Reporting Extensions** page, and then click **Back** to correct any errors. When you are ready to continue, click **Install**.
12. When Setup completes successfully, the **Microsoft Dynamics 365 Reporting Extensions Setup Completed** page appears. Click **Finish**.
During Setup, reports will be published for the default organization.

◆ Important

The reports will not be published if:

- The user running Dynamics 365 Reporting Extensions Setup does not have appropriate permissions on the organization database.
- Dynamics 365 Reporting Extensions are installed for a Microsoft SQL Server Reporting Services instance that is different from the one that is being used by the organization.
- The base language of the organization is different from the language in which Dynamics 365 Reporting Extensions are being installed.

See Also

[Microsoft Dynamics 365 Server installation](#)
[Install Microsoft Dynamics 365 Report Authoring Extension](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Set configuration and organization databases for SQL Server AlwaysOn failover

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft SQL Server AlwaysOn Failover Cluster Instances (FCI) and AlwaysOn Availability Groups provide a comprehensive high availability and disaster recovery solution. This topic describes how to configure an existing on-premises deployment of Microsoft Dynamics 365 Server so that the configuration and organization databases are part of a two-node AlwaysOn failover cluster instance that uses availability groups.

◆ Important

If you're upgrading Microsoft Dynamics 365 configuration and organization databases that already have

SQL Server AlwaysOn FCI configured, you don't have to perform this procedure again.

For more information about these SQL Server high availability solutions, see [AlwaysOn Failover Cluster Instances](#) and [AlwaysOn Availability Groups](#).

In this topic

[Prerequisites](#)

[Enable SQL Server AlwaysOn](#)

[Create the availability group](#)

[Create the SQL logins for the Microsoft Dynamics 365 security groups on all secondary replicas](#)

[Update the configuration database connection strings in the Windows registry](#)

[Update the connection string in the configuration database](#)

[Restart IIS and Microsoft Dynamics 365 services](#)

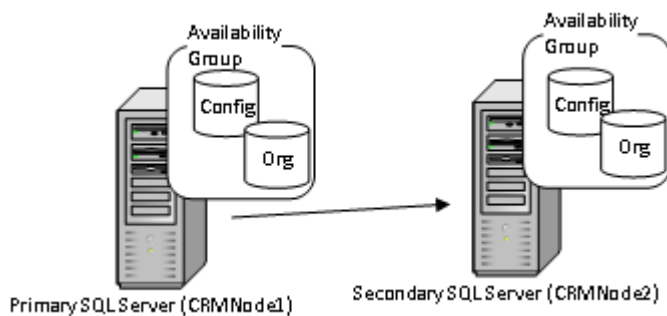
[Monitor the availability group and test for failover](#)

Prerequisites

In this topic, a simple two-server instance failover cluster will be configured that requires the following:

- Two SQL Server servers running in a two-node failover cluster configuration with shared storage, such as a SAN, NAS, or Windows Storage Server. For a list of supported versions of SQL Server, see [SQL Server editions](#).
- Two servers running SQL Server on Microsoft Windows Server that will be replicas in the SQL Server AlwaysOn instance failover cluster. The SQL Server primary replica instance has both the configuration (MSCRM_CONFIG) and organization (OrganizationName_MSCRM) databases.

For more information about what versions of SQL Server support AlwaysOn, see [High Availability \(AlwaysOn\)](#). For more information about how to create a SQL Server failover cluster, see, [Create a New SQL Server Failover Cluster \(Setup\)](#).



Enable SQL Server AlwaysOn

The following steps for establishing the AlwaysOn features use Microsoft SQL Server Management Studio. You can also use Transact-SQL or SQL Server PowerShell. More information: [Getting Started with AlwaysOn Availability Groups \(SQL Server\)](#)

 **Note**

Although the steps here are specific to Microsoft SQL Server 2012, you can use similar steps for other supported versions of SQL Server.

1. In SQL Server Configuration Manager, enable AlwaysOn Availability Groups on the primary and secondary replica. For detailed steps, see [Enable AlwaysOn Availability Groups](#).
2. In SQL Server Management Studio, create an availability group; specify the configuration and organization databases, and primary and secondary replica. More information: [Creation and Configuration of Availability Groups \(SQL Server\)](#)

Create the availability group

The following steps create a single SQL Server availability group that includes a Microsoft Dynamics 365 configuration database and a single organization database. Additionally, a listener will be added to the availability group.

Create the availability group for the configuration and organization databases

1. On the SQL Server that will be the primary replica, start SQL Server Management Studio.
2. In Object Explorer, right-click **AlwaysOn High Availability**, and then click **New Availability Group Wizard**.
3. When the wizard appears, click **Next**.
4. On the **Specify Name** page, type a name for the availability group, such as *Dynamics 365*, and then click **Next**.
5. On the **Select Databases** page, select the MSCRM_CONFIG and *OrganizationName_MSCRM* databases, and then click **Next**.

◆ Important

Requirements to add a database to an availability group:

- Recovery model must be set to Full. By default, organization databases (*OrganizationName_MSCRM*), are set to Simple.
 - Full backup of the database.
6. On the **Specify Replicas** page, click **Add Replica**, type the name of your replica SQL Server in the **Server name** box (such as *CRMNode2* in this example), and then click **Connect**. The replica server instance appears in the **Server Instance** list.
 7. Click the **Endpoints** tab and verify that both replicas are in the list. Scroll right to the **SQL Server Service Account** and make sure a domain user account is specified. A domain user account for the SQL Server service is required for SQL Server failover clustering.
 8. Click the **Listener** tab. An availability group listener enables faster client connection failover in multi-subnet scenarios. Enter the following information:

- **Listener DNS name:** Type a name for the listener.
 - To complete the listener creation, specify a TCP port, and set the **Network Mode** to **Static IP**. Click **Add** to enter the IP address, and click **OK**. For more information about these properties, click Help in the New Availability Group wizard.
Click **Next**.
9. Determine what, if any, additional changes to make to the replicas, and then click **Next**. For more information, click Help in the New Availability Group wizard.
 - a. On the **Select Data Synchronization** page, select the data synchronization method. If you select **Full**, you must add a network share that can be accessed by all replicas. Notice that the SQL Server service account requires read-write permissions to the share. For more information, click Help in the New Availability Group wizard.
Click **Next**.
 10. The **Validation** page, which runs validation checks for the new availability group, appears. Resolve any errors before you create the availability group. Click **Next**.
 11. On the **Summary** page, verify that the choices are correct, and then click **Finish**.

Create the SQL logins for the Microsoft Dynamics 365 security groups on all secondary replicas

Create the SQL logins for the Microsoft Dynamics 365 security groups on the secondary replica. To do this, follow these steps:

1. Start SQL Server Management Studio and connect to the secondary SQL Server replica (CRMNode2).
2. Expand the **Security** node, right-click **Logins**, and then click **New Login**.
3. In the **Login** name box, click **Search**, and then make sure that **Groups** is included in the **Select this object type** (if not, click Object Types and add it). Type *DomainName\PrivReportingGroup*, click **Check Names**, and when the name resolves correctly, click **OK**.

Note

The actual *PrivReportingGroup* name may be different. Verify the name as it exists in Active Directory.

4. Repeat steps 2 and 3 for the following security groups:
 - ReportingGroup
 - SQLAccessGroup

Create the MSCRMSqlClrLogin SQL Login

1. Create the asymmetric key for the MSCRMSqlClrLogin SQL Login.

On all secondary replicas, execute the following SQL statement against the master database to create the asymmetric key, where <path> is the path to the Microsoft.Crm.SqlClr.Helper.dll file that is located on the server where the Deployment Tools server role is installed. For example, specify a UNC path on a share similar to `\\crmdeploymenttools\CRMshare\Tools\`. By default,

Microsoft.Crm.SqlClr.Helper.dll is located on the Deployment Tools server in the C:\Program Files\Microsoft Dynamics CRM\Tools\ folder.

```
IF NOT EXISTS (SELECT * FROM sys.asymmetric_keys WHERE name = 'MSCRMSqlClrKey') BEGIN
CREATE ASYMMETRIC KEY MSCRMSqlClrKey FROM EXECUTABLE FILE =
'<path>\Microsoft.Crm.SqlClr.Helper.dll';
END
```

2. Create the MSCRMSqlClrLogin SQL login.

Execute the following SQL statement against the master database to create the MSCRMSqlClrLogin SQL login.

```
IF NOT EXISTS (SELECT * FROM sys.syslogins WHERE name = 'MSCRMSqlClrLogin') BEGIN
CREATE LOGIN MSCRMSqlClrLogin FROM ASYMMETRIC KEY MSCRMSqlClrKey GRANT UNSAFE
ASSEMBLY TO MSCRMSqlClrLogin END
```

Update the configuration database connection strings in the Windows registry

Update the SQL Server connection string in every Windows registry on all servers that are running a Microsoft Dynamics 365 Server role, including the Microsoft Dynamics 365 Reporting Extensions server. To do this, follow these steps.

Warning

Serious problems might occur if you modify the registry incorrectly by using Registry Editor or by using another method. These problems might require you to reinstall the operating system and Microsoft Dynamics 365. We can't guarantee that these problems can be resolved. Modify the registry at your own risk.

1. On the computer that is running the Microsoft Dynamics 365 Server role, start Registry Editor and locate the following registry subkey:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM\
2. Right-click **configdb**, and then click **Modify**.
 - a. If **Failover Partner=MSCRM_Mirror** is present, remove this from the value.
 - b. Change the **Data Source** from the SQL Server instance name to the availability group listener name.

The complete connection string should appear similar to the following example, where *MSCRMAG* is the availability group listener name for the availability group that includes the Microsoft Dynamics 365 configuration database:

```
Data Source MSCRMAG;Initial Catalog= MSCRM_CONFIG;Integrated Security=SSPI
```

Tip

The listener name can be located under the **Availability Groups** node in SQL Server Management Studio.

- c. If you are using a listener, add `;multisubnetfailover=true` to the end of the configdb value to form the connection string. More information: [SqlClient Support for High Availability, Disaster Recovery](#)

A complete configdb value for a multiple subnet should appear as shown here:
Data Source MSCRMAG;Initial Catalog= MSCRM_CONFIG;Integrated
Security=SSPI;multisubnetfailover=true

3. Click **OK**, and then close Registry Editor.
4. Repeat the previous steps to add the connection string to the config subkey for each server that is running a Microsoft Dynamics 365 Server role, including the server running Microsoft Dynamics 365 Reporting Extensions.

Update the connection string in the configuration database

Update the organization table in the configuration database to specify the availability group listener name for the client connection string. To do this, run the following update statement against the configuration (MSCRM_CONFIG) database.

Warning

Back up the Microsoft Dynamics 365 configuration database (MSCRM_CONFIG) before you run these update statements.

```
Update Organization set ConnectionString = 'Provider=SQLOLEDB;Data  
Source=AG_Listener_Name;Initial Catalog=OrganizationName_MSCRM;Integrated  
Security=SSPI';MultiSubnetFailover=True' where DatabaseName = 'OrganizationName_MSCRM'
```

- Replace *AG_Listener_Name* with the availability group listener name where the Microsoft Dynamics 365 organization database is located.
- Replace *OrganizationName_MSCRM* with the name of the organization database.

Additional parameters available

If you use a port number other than 1433 for the availability group listener, add the following parameter where *Port_Number* is the network port number.

```
Update Organization set ConnectionString = 'Provider=SQLOLEDB;Data  
Source=AG_Listener_Name,Port_Number;Initial Catalog=OrganizationName_MSCRM;Integrated  
Security=SSPI;multisubnetfailover=true' where DatabaseName = 'OrganizationName_MSCRM'
```

Restart IIS and Microsoft Dynamics 365 services

After you make these changes, reset IIS on the computer that is running the Web Application Server role.

Warning

All active Microsoft Dynamics 365 users will be disconnected.

To do this, click **Start**, and then click **Run**. In the **Open** box, type **iisreset**, and then click **OK**.

Restart all Microsoft Dynamics 365 services in the deployment on all servers where Microsoft Dynamics CRM Server 2013 features are installed.

Monitor the availability group and test for failover

Microsoft SQL Server Management Studio includes features that make viewing the availability group status and executing a manual failover easy.

View the availability group state

1. Start SQL Server Management Studio and connect to the instance of SQL Server that is the primary replica in the availability group.
2. In SQL Server Management Studio, expand **Availability Groups**, right-click the availability group that you created for Microsoft Dynamics 365, and then click **Show Dashboard**.

The dashboard displays all replicas and the synchronization state. You can view the dashboard from any replica in the availability group.

Test for failover

1. Verify that a Microsoft Dynamics 365 can connect to the availability group. For example, start Internet Explorer, and connect to the Microsoft Dynamics 365 organization URL.
2. From the dashboard described in the previous procedure, click **Start Failover Wizard** to begin the failover process.
3. Follow the instructions in the wizard to complete the failover.
After a successful failover, the primary replica becomes the secondary replica and the secondary replica becomes the primary replica.
4. Switch to the web browser connected to the Microsoft Dynamics 365 organization and verify that you can seamlessly connect to the new primary replica by clicking anywhere in the application.

To switch back to the original primary and secondary replicas, perform the manual failover procedure again on the new primary replica.

See Also

[Install or upgrade Microsoft Dynamics 365 Server](#)

[Failover Cluster Step-by-Step Guide: Configuring a Two-Node File Server Failover Cluster](#)

[Upgrade Microsoft Dynamics CRM Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade Microsoft Dynamics CRM Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section provides best practices guidelines and procedures to install Microsoft Dynamics CRM Server 2016 in a deployment that already has the previous version of Microsoft Dynamics CRM Server installed.

Upgrade options

There are three different upgrade options:

- Migrate by using a new instance of Microsoft SQL Server. We recommend this option for upgrading Microsoft Dynamics CRM Server. Although this option requires a different computer for the new version of Microsoft Dynamics CRM Server and a different instance of SQL Server, it provides the least amount of potential downtime for Microsoft Dynamics CRM because the previous Microsoft Dynamics CRM deployment can remain functioning until the upgrade is completed and verified.
- **Migrate by using the same instance of SQL Server.** This option requires a different computer for the new version of Microsoft Dynamics CRM Server, but will upgrade in-place the configuration and default organization databases using the same instance of SQL Server. If issues occur during the upgrade, you must roll back to the previous deployment to avoid significant downtime.
- **In-place upgrade.** Although this option doesn't require a different computer for the new version of Microsoft Dynamics CRM Server or a different instance of SQL Server, it poses the greatest risk if upgrade issues occur because a roll back and reinstall of the previous deployment will be required to avoid potential downtime.

In This Section

[Microsoft Dynamics CRM Server upgrade preparations](#)

[Upgrade from Microsoft Dynamics 2015 Server](#)

[Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#)

[Upgrade Microsoft Dynamics CRM Reporting Extensions](#)

[After the upgrade](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics CRM Server upgrade preparations

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To prepare the upgrade, follow the guidelines in this section.

Microsoft Dynamics CRM 2015 roles aren't compatible with a Microsoft Dynamics CRM 2016 deployment. Therefore, after you upgrade the first Microsoft Dynamics CRM Server 2015, other

Microsoft Dynamics CRM 2015 servers that are running in the deployment will become disabled. As each server is upgraded, it will be enabled.

◆ Important

We recommend that for each organization that you upgrade, the volume have free space that is at least three times the size of the organization database file and four times the size of the log file. Therefore, if a single organization database and log file are located on the same volume and are one gigabyte in total, you should have at least seven gigabytes of available disk space before you perform the upgrade.

Estimate downtime due to upgrade

This section provides best practices for managing Microsoft Dynamics CRM deployment downtime that will be incurred during an upgrade.

- Upgrade in a test environment to estimate the duration of downtime and determine issues that may occur as a result of the upgrade. More information: [Upgrade the Microsoft Dynamics Deployment](#)
- Consider a phased approach to upgrade.
 - Microsoft Dynamics CRM Server upgrade only (binary upgrade). To do this, don't specify an organization during the upgrade.

◆ Important

After the Microsoft Dynamics CRM Server upgrade is complete, all Microsoft Dynamics CRM 2015 organizations are disabled and can't be enabled until they are upgraded.

- Upgrade organizations. Use the `Import-CrmOrganizationWindows` PowerShell command to upgrade each organization. More information: [Administer the deployment using Windows PowerShell](#)
Alternatively, you can use Deployment Manager to individually upgrade each organization.

Software prerequisites

Before you run the upgrade, we recommend that you install or enable the following components on the computer where you will install Microsoft Dynamics CRM Server 2016 or on the computer where Microsoft Dynamics CRM will be migrated to:

- .NET Framework 4.5.2
- Microsoft SQL Server Native Client
- Microsoft Application Error Reporting Tool
- Microsoft URL Rewrite Module for IIS

If these components aren't present when you run the upgrade, Setup will install them. However, to reduce the upgrade processing time, consider installing these components in advance. These components can be found in the **redist** folder of the Microsoft Dynamics CRM installation media.

See Also

[Upgrade Microsoft Dynamics CRM Server](#)
[Upgrade from Microsoft Dynamics 2015 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade from Microsoft Dynamics 2015 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section shows you how to run the actual in-place upgrade on Microsoft Dynamics CRM Server 2015. If you encounter problems during the upgrade, see [Troubleshooting installation and upgrade](#) in this guide.

Caution

Following these steps may cause significant application downtime if issues occur during the upgrade. Instead of using an upgrade option that may affect the production deployment, we recommend that you migrate your deployment. More information: [Microsoft Dynamics Server upgrade options](#)

Important

We strongly recommend that you back up your existing Microsoft Dynamics CRM data, including all reports and customizations, before you run Setup. In addition, we recommend that you implement the following backup strategy before you run Setup:

1. Configure the existing deployment's Microsoft Dynamics CRM databases by using a simple recovery model.
2. Complete a full backup of all production configuration and organization databases and transaction logs.

More information: [Back up the Microsoft Dynamics 365 System](#)

Important

- Only Microsoft Dynamics CRM 2015 versions can be upgraded. For upgrade information from previous versions of Microsoft Dynamics CRM, see [Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#).
- To upgrade an existing Microsoft Dynamics CRM deployment, the user who is running Microsoft Dynamics CRM Server 2016 Setup must be a member of the Deployment Administrators group. Additionally, the user must have **db_owner** permission on the existing Microsoft Dynamics CRM databases and have **sysadmin** permission on the SQL Server. For more information about how to add a member to the Deployment Administrators group, see the **the New-CrmDeploymentAdministrator** Windows PowerShell command. More information: [Set properties using PowerShell cmdlets](#). Alternatively, you can use Deployment Manager. For more information

about how to grant permission in SQL Server, see the SQL Server Management Studio Help.

Tasks to perform before the upgrade

- We recommend that you apply the latest [Microsoft Dynamics CRM updates](#) before you start the upgrade.
- Meet all requirements as specified under [Microsoft Dynamics 365 Server hardware requirements](#) and [Software requirements for Microsoft Dynamics 365 Server](#).
- Log on to your domain as a user who has administrator-level permission.
- SQL Server replication isn't supported with Microsoft Dynamics CRM. If you run SQL Server replication, disable it.
- Uninstall Microsoft Dynamics CRM Reporting Extensions if it's installed on the same computer where Microsoft Dynamics CRM Server 2015 is installed. More information: [Uninstall or repair Microsoft Dynamics 365 Reporting Extensions](#)
- To determine the location of the Microsoft Dynamics CRM installation files, see the [Microsoft Dynamics CRM 2016 and Microsoft Dynamics CRM Online Readme](#).

Run the upgrade

1. In the folder where the Microsoft Dynamics CRM files are located, go to the Server\amd64 folder, and then double-click **SetupServer.exe**.
2. On the **Welcome to Microsoft Dynamics CRM Server Setup** page, we recommend that you select **Get updates for Microsoft Dynamics CRM** to make sure that Setup has the most recent installation files. Click **Next**. After Setup is done checking for updates, click **Next** again.

◆ Important

For the **Get updates for Microsoft Dynamics CRM** functionality to work you must:

- Have an Internet connection on the computer where Setup is running.
 - Enable Microsoft Update for "other Microsoft products" on the Windows Server computer where Microsoft Dynamics CRM Server 2016 Setup is running.
3. On the **Product Key Information** page, type your product key in the **Product key** boxes, and then click **Next**.

📝 Note

If you purchased Microsoft Dynamics CRM through a Microsoft Volume Licensing program, the license key is provided in the **license.txt** file, which is included in the Microsoft Dynamics CRM installation

files.

4. On the **License Agreement** page, review the information and if you accept the license agreement, click **I accept this license agreement**, and then click **I Accept**.
5. If Setup detects that components are missing, the **Install Required Components** page appears.
 - If you have already installed the required components, this page won't appear.
 - If you haven't installed the required components listed, you can install them now. Click **Install**. When the components are installed, the status column changes from **Not Installed** to **Installed**, and you can click **Next** to continue.

Note

If you're prompted to restart the computer, do so, and then start Setup again.

6. On the **Upgrade to Microsoft Dynamics CRM** page, you can select an organization to upgrade or leave the choice **<None>** so that no organizations will be upgraded during Setup. Before you select an organization, consider the following:
 - Notice that any organization not upgraded will become disabled after the upgrade is complete. To upgrade organizations after Setup is complete, use the **Import-CrmOrganizationWindows** PowerShell command. Alternatively, you can use Deployment Manager.Click **Next** to upgrade Microsoft Dynamics CRM.
7. On the **Specify Service Accounts** page, Setup will add the service accounts used for the Microsoft Dynamics CRM Server services. You can use the existing service accounts or specify new ones. For information about the permissions required to run these services see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).
8. If you want to use server-side synchronization and/or Dynamics 365 for Outlook for the deployment, leave this box blank. More information: [Referenced topic '6804d996-86b2-4fb0-aed9-21fbdde0bab5' is only available online](#).
Otherwise, on the **Specify E-mail Router Settings** in the, **Email router server name** box, type the name of the computer where the Email Router will be installed. This computer will route Microsoft Dynamics CRM email messages. If you leave the box blank but decide later you want to use the Email Router, you must add the computer where the Email Router Service is running (part of the Asynchronous Service) when you use Network Service, or if you use a domain user account, the account to the PrivUserGroup security group.
Click **Next**.
9. On the **Select Microsoft Update Preference** page, select whether you want to use Microsoft Update for checking for updates for your Microsoft products, and click **Next**. We recommend that you use Microsoft Update to check for updates because this helps keep your computer up-to-date and secure. For more information about the legal terms and privacy with Microsoft Update licensing, see [Windows Update FAQ](#).
10. The **System Checks** page appears. This page is a summary of all requirements and recommendations for a successful installation. Errors must be resolved before installation can

continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.

11. The **Service Disruption Warning** page appears. This page lists all services that will be stopped or restarted during Setup. Verify the suitability of the services that will be stopped or restarted, and then click **Next**.
12. Review the **Ready to Upgrade the Application** page, and click **Back** to correct any errors. When you are ready to continue, click **Upgrade**.

When Setup completes successfully, the Microsoft Dynamics CRM Server Setup completed page appears. If the Reporting Server instance that you specified during this Setup points to the local computer where Microsoft Dynamics CRM is installed, Setup provides an option to invoke Microsoft Dynamics CRM Reporting Extensions Setup.

13. For a full server deployment running on the Microsoft SQL Server Reporting Services computer, select the **Launch Microsoft Dynamics CRM Reporting Extensions Setup** check box to install Microsoft Dynamics CRM Reporting Extensions. Click **Finish**.

◆ Important

- After you upgrade, you must install the Microsoft Dynamics CRM Reporting Extensions to create, run, and schedule reports in Microsoft Dynamics 365. For instructions, see [Install Microsoft Dynamics 365 Reporting Extensions](#) in this guide.
- You can't install the Microsoft Dynamics CRM Reporting Extensions before you install or upgrade Microsoft Dynamics CRM Server.
- If you had Language Packs provisioned in your deployment, to continue to use multiple languages, upgrade each language pack to Microsoft Dynamics CRM 2016, and then provision them. More information: [Upgrade and enable a Language Pack](#)
- Notice that Setup turns on HTTP compression on the server that's running IIS where the web application is installed. If you use another method to compress HTTP communications, you may want to turn this feature off after Setup completes. To do this, start Internet Information Services (IIS) Manager, choose the website, double-click **Compression**, and then clear the compression check boxes.

See Also

[Administer the deployment using Windows PowerShell](#)
[Upgrade Microsoft Dynamics CRM Server](#)
[Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#)
[Microsoft Dynamics CRM Server upgrade preparations](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can't directly upgrade from Microsoft Dynamics CRM 2013 or Microsoft Dynamics CRM 2011 to Microsoft Dynamics CRM 2016. However, you can upgrade a Microsoft Dynamics CRM 2013 or Microsoft Dynamics CRM 2011 deployment in-place by using a valid Microsoft Dynamics CRM product key, or migrate by using a Microsoft Dynamics CRM 2013 trial product key, as an interim step in the upgrade process.

In This Topic

[Dynamics CRM upgrade best practices](#)

[In-place upgrade: Upgrade a CRM 2013 deployment using a valid CRM 2015 product key](#)

[Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key](#)

[Migrating from CRM 2011](#)

Dynamics CRM upgrade best practices

- Before you upgrade Microsoft Dynamics CRM Server, make sure all Microsoft Dynamics CRM for Outlook users with go offline capability sync with the Microsoft Dynamics CRM server to send and receive the most recent data.
- Consider migrating the deployment by using a new instance of SQL Server. Although this option requires a different computer for Microsoft Dynamics CRM Server and a different instance of SQL Server, it provides the least amount of potential downtime for Microsoft Dynamics CRM users since the existing Microsoft Dynamics CRM deployment can remain functioning until the upgrade is completed and verified.
- When you migrate the deployment from Microsoft Dynamics CRM 2013 to Microsoft Dynamics CRM 2016, you can create separate deployments for both CRM 2015 and Microsoft Dynamics CRM 2016 at the same time. After the deployments are verified, you can import the Microsoft Dynamics CRM 2013 organizations in to the CRM 2015 deployment and then quickly import them into the Microsoft Dynamics CRM 2016 deployment as described in the [Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key](#) topic below. Since the CRM 2015 deployment is only temporary, the CRM 2015 deployment can be created as a virtual machine.

In-place upgrade: Upgrade a CRM 2013 deployment using a valid CRM 2015 product key

Be aware that following these steps may cause significant application downtime if issues occur during the in-place upgrade of a production Microsoft Dynamics CRM server. Instead of using an upgrade

option that may affect the production deployment, consider migrating your deployment. More information: [Upgrade from Microsoft Dynamics CRM 2013](#)

1. Make sure the servers running Microsoft Dynamics CRM 2013 meet the minimum hardware and software requirements. More information: [Microsoft Dynamics 365 Server hardware requirements](#) and [Software requirements for Microsoft Dynamics 365 Server](#)
2. Upgrade the Microsoft Dynamics CRM Server 2013 using a valid product key. To do this, follow the steps in this topic: [Upgrade from Microsoft Dynamics CRM 2013 Server](#)
3. Complete post-upgrade tasks such as install Microsoft Dynamics CRM Reporting Extensions. [After the upgrade: Post-upgrade steps for servers](#)
4. If you have Microsoft Dynamics CRM 2013 for Outlook users, upgrade them Microsoft Dynamics CRM 2015 for Outlook. More information: [Upgrade to Microsoft Dynamics CRM 2015 for Outlook](#)
5. Upgrade the Microsoft Dynamics CRM Server 2015 to Microsoft Dynamics CRM Server 2016. More information: [Upgrade from Microsoft Dynamics 2015 Server](#)

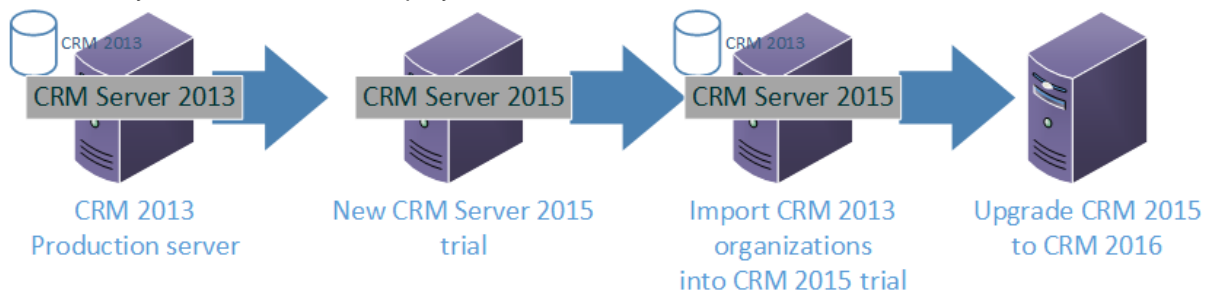
◆ Important

Microsoft Dynamics CRM 2013 for Outlook is not compatible with Microsoft Dynamics CRM Server 2016. Microsoft Dynamics CRM 2013 for Outlook users must be upgraded to at least Microsoft Dynamics CRM 2015 for Outlook for compatibility with Microsoft Dynamics CRM Server 2016. More information: [Referenced topic 'd88114e6-d1a8-4a5a-902e-f79988f29c6d' is only available online.](#)

6. For users who require go offline capability, upgrade Dynamics CRM 2015 for Outlook to Microsoft Dynamics 365 for Outlook. More information: [Referenced topic '65f15bc1-3295-4b62-8cf2-1b3ff65b7064' is only available online.](#)

Migration upgrade: Upgrade a CRM 2013 deployment by using a CRM 2015 trial product key

Notice that when you use a Microsoft Dynamics CRM 2015 trial product key you cannot upgrade Microsoft Dynamics CRM 2013 in-place. Instead, you must create a new deployment of Microsoft Dynamics CRM 2015 and then migrate your Microsoft Dynamics CRM 2013 organizations into the new Microsoft Dynamics CRM 2015 deployment.



1. Create a new deployment. To do this,
 - Have at least one Windows Server computer running IIS.

- Although you can also run SQL Server on the same computer that is running IIS, we recommend at least one dedicated SQL Server to use for the database engine.
- Microsoft Dynamics CRM Server. Download and install [Microsoft Dynamics CRM Server 2015](#) that is available on the Microsoft Download Center. The trial product keys are included in the download description. More information: [Install Microsoft Dynamics CRM Full Server role on a server without Microsoft Dynamics CRM installed](#)

◆ Important

You cannot in-place upgrade Microsoft Dynamics CRM Server 2013 to Microsoft Dynamics CRM Server 2015 using a trial product key. You must create a new deployment.

Trial versions of Microsoft Dynamics CRM Server can be used within a 90-day period before you must enter a valid commercial product key to continue use.

To make sure the latest updates to the Setup program are applied that help ease upgrading, we strongly recommend that you click **Get updates for Microsoft Dynamics CRM** during the installation or upgrade.

2. In the new Microsoft Dynamics CRM Server 2015 trial versioned deployment:
 - a. Install Microsoft Dynamics CRM Reporting Extensions.
3. Take the Microsoft Dynamics CRM 2013 production deployment offline. For information about how to disable organizations and servers in Microsoft Dynamics CRM, see [Disable or enable an organization](#) and [Disable or enable a server](#).
4. Import each organization into the new deployment. Organizations will be upgraded during the import. To do this, back up each organization database on the SQL Server that maintains the Microsoft Dynamics CRM 2013 organization databases and restore each database to the new SQL Server. Then, use the **Update-CrmOrganizationWindows** PowerShell command or Deployment Manager to import each organization in to the deployment.
5. Install or upgrade the new trial version to Microsoft Dynamics CRM Server 2016 by following the steps in the [Install or upgrade Microsoft Dynamics 365 Server](#) topics.

◆ Important

CRM 2013 for Outlook is not compatible with Microsoft Dynamics CRM Server 2016. CRM 2013 for Outlook users must be upgraded to at least Dynamics CRM 2015 for Outlook for compatibility with Microsoft Dynamics CRM Server 2016. More information: [Referenced topic 'd88114e6-d1a8-4a5a-902e-f79988f29c6d' is only available online.](#)

If you import (migrate) a Microsoft Dynamics CRM 2015 organization in to a new Microsoft Dynamics CRM 2016 deployment, make a copy of the encryption key for each Microsoft Dynamics CRM 2015 organization in the deployment. The key will be required when you import a Microsoft Dynamics CRM 2015 organization in to a new Microsoft Dynamics CRM 2016 deployment. More information: [Referenced topic 'f88f7c87-2ee2-42f3-8101-7271f6731cf9' is only available online.](#)

6. In the new Microsoft Dynamics CRM 2016 deployment:
 - a. Install Microsoft Dynamics CRM Reporting Extensions.

- b. Import each CRM 2015 organization into the new deployment. To do this, use the **Update-CrmOrganization** Windows PowerShell command or Deployment Manager.
 - c. Upgrade optional applications to Microsoft Dynamics CRM 2016.
 - i. In-place upgrade Dynamics CRM 2015 for Outlook. More information: [Referenced topic '65f15bc1-3295-4b62-8cf2-1b3ff65b7064' is only available online.](#)
 - ii. Uninstall optional applications that cannot be upgraded in-place, such as Microsoft Dynamics CRM Email Router, and install the Microsoft Dynamics CRM 2016 version as necessary.
 - d. Update the appropriate records to the DNS server so that Microsoft Dynamics CRM clients will resolve to the new Microsoft Dynamics CRM server.
7. Upgrade Dynamics 365 for Outlook.
 - a. In-place upgrade CRM 2013 versions of Microsoft Dynamics CRM for Outlook to CRM 2015. More information: [Upgrade to Microsoft Dynamics CRM 2015 for Outlook.](#)

◆ Important

To use Microsoft Dynamics CRM Server, Microsoft Dynamics CRM for Outlook users must have Dynamics 365 for Outlook or Dynamics CRM 2015 for Outlook. Although Dynamics CRM 2015 for Outlook is compatible with Microsoft Dynamics CRM Server 2016, CRM 2013 for Outlook is not. More information: [Referenced topic 'd88114e6-d1a8-4a5a-902e-f79988f29c6d' is only available online.](#)

8. For users who require go offline capability, upgrade Dynamics CRM 2015 for Outlook to Dynamics 365 for Outlook.

Migrating from CRM 2011

You can use similar steps to migrate from CRM 2011 to Microsoft Dynamics CRM 2016. To do this, you must include the preliminary task to migrate the CRM 2011 organizations to CRM 2013, and then follow the steps described earlier to migrate the CRM 2013 organizations to CRM 2015 before completing the upgrade to Microsoft Dynamics CRM 2016. For information about how to migrate CRM 2011 to CRM 2013, see [Upgrade from Microsoft Dynamics CRM Server 2011.](#)

See Also

[Upgrade from Microsoft Dynamics 2015 Server](#)
[Upgrade Microsoft Dynamics CRM Reporting Extensions](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade Microsoft Dynamics CRM Reporting Extensions

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics CRM Reporting Extensions aren't supported for in-place upgrade. To upgrade to the new version, you must first uninstall the existing version.

To upgrade Microsoft Dynamics CRM Reporting Extensions, do the following:

1. Meet all requirements as specified under [Microsoft Dynamics 365 reporting requirements](#).
2. Uninstall the existing version of Microsoft Dynamics CRM Reporting Extensions.
3. Before you run the new version of Microsoft Dynamics CRM Reporting Extensions Setup, upgrade Microsoft Dynamics CRM Server 2015. More information: [Upgrade from Microsoft Dynamics 2015 Server](#)
4. At the computer where Microsoft Dynamics CRM Reporting Extensions was installed, log on to your domain as a user who has administrator-level privileges.
5. In the `..\Server\amd64\SrsDataConnector` folder where the Microsoft Dynamics CRM installation media is located, double-click **SetupSrsDataConnector.exe**.
6. Follow the instructions on the screen. More information: [Install Microsoft Dynamics 365 Reporting Extensions](#)

See Also

[Upgrade Microsoft Dynamics CRM Server](#)
[Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#)
[After the upgrade](#)
[Troubleshooting installation and upgrade](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

After the upgrade

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

After Setup completes the upgrade, perform the following tasks.

Post-upgrade steps for servers

Do post-upgrade server steps

1. If you have additional network load balanced servers or Microsoft Dynamics 365 server roles installed on other computers, upgrade or uninstall and reinstall Microsoft Dynamics 365 on those

servers as described in [Install Microsoft Dynamics 365 Front End Server and Back End Server roles](#).

2. Install the Microsoft Dynamics 365 Reporting Extensions. You must install Microsoft Dynamics 365 Reporting Extensions before you can import and upgrade organizations not upgraded during Microsoft Dynamics 365 Server Setup.
3. If you had Language Packs provisioned in the deployment, download and install Microsoft Dynamics 365 Language Packs for the languages that you want. More information: [Upgrade and enable a Language Pack](#)
4. Install the latest update rollup packages.
5. If needed, import organizations. During import, each organization will be upgraded. To do this, use the Import-CrmOrganization Windows PowerShell command. Alternatively, you can use Microsoft Dynamics 365 Deployment Manager.
6. In Microsoft SQL Server Reporting Services Report Manager, re-create any custom data sources under the *OrganizationName_MSCRM* folders.
7. Some organization data is encrypted using encryption keys. These keys should be copied as part of your failure recovery procedures. More information: [Referenced topic 'f88f7c87-2ee2-42f3-8101-7271f6731cf9' is only available online.](#)
8. Verify that the system jobs and workflows are running.
9. Although not required, we recommend that you register Microsoft Dynamics 365.

Post-upgrade steps for clients

To ease the upgrade process, Microsoft Dynamics CRM 2015 for Outlook is compatible with Microsoft Dynamics 365 Server.

◆ Important

To have **Go offline** functionality or to experience new features that are available with this release, you must upgrade to Microsoft Dynamics 365 for Outlook.

Upgrade clients

1. Run Dynamics 365 for Outlook Setup on every Dynamics 365 for Outlook user's computer. To distribute the upgrade, use Microsoft System Center or Microsoft Group Policy to push the upgrade to users. For more information about Group Policy distribution, see [Referenced topic '9e0b3f19-c041-4cab-a620-339f0d1d8674' is only available online.](#)
2. After the upgrade is complete, verify that Dynamics 365 for Outlook has the latest updates.
3. Test the functionality from Microsoft Outlook and from the Microsoft Dynamics 365 web application. More information: [Referenced topic '65f15bc1-3295-4b62-8cf2-1b3ff65b7064' is only available online.](#)

See Also

[Upgrade Microsoft Dynamics CRM Server](#)
[Configure IFD for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure IFD for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Dynamics 365 (on-premises) uses claims-based authentication to authenticate internal users and to enable Internet access for external users not using VPN.

In claims-based authentication, an identity provider that contains a security token service (STS) responds to authentication requests and issues SAML security tokens that include any number of claims about a user, such as a user name and groups the user belongs to. A relying party application receives the SAML token and uses the claims inside to decide whether to grant the client access to the requested resource. Claims-based authentication can be used to authenticate your organization's internal users, external users, and users from partner organizations.

This content provides the steps needed to configure Internet-facing deployment (IFD) using claims-based authentication. Much more conceptual and procedural information is available in the white paper [Configure Claims-based Authentication for Microsoft Dynamics CRM Server](#) available in the Microsoft Download Center.

In This Section

[Implement claims-based authentication: internal access](#)

[Implement claims-based authentication: external access](#)

[Dynamics 365 for tablets and IFD](#)

[Dynamics 365 for phones and IFD](#)

[Configure Microsoft Dynamics 365 for Outlook to use claims-based authentication](#)

[Troubleshoot Microsoft Dynamics 365 Server IFD](#)

See Also

[Install or upgrade Microsoft Dynamics 365 Server](#)
[Referenced topic 'ed52c023-89b4-44f4-994c-c90c693ef509' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Implement claims-based authentication: internal access

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Enabling claims-based authentication for internal access to Microsoft Dynamics 365 Server data involves the following steps:

1. Deploy and configure AD FS.
2. Configure the Microsoft Dynamics 365 server for claims-based authentication.
3. Configure the AD FS server for claims-based authentication.
4. Test internal claims-based authentication.

Claims-based authentication is not a requirement for intranet Microsoft Dynamics 365 Server access. However, claims-based authentication is required for Microsoft Dynamics 365 IFD access.

In This Section

[Deploy and configure AD FS](#)

[Configure the Microsoft Dynamics 365 Server for claims-based authentication](#)

[Configure the AD FS server for claims-based authentication](#)

[Add the AD FS website to the Local intranet security zone](#)

[Test internal claims-based authentication](#)

See Also

[Configure IFD for Microsoft Dynamics 365](#)

[Implement claims-based authentication: external access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Deploy and configure AD FS

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

A variety of identity providers can be used with Microsoft Dynamics 365 Server. This document uses Active Directory Federation Services (AD FS) for the security token service. For information on configuring identity federation deployment between AD FS and other identity providers, see: [AD FS 2.0 Step-by-Step and How To Guides](#).

◆ Important

If you are deploying on Windows Server 2012, and you are installing AD FS on the same server as Microsoft Dynamics 365, AD FS installs on the default website. Before installing AD FS, you must create a new website for Microsoft Dynamics 365 Server.

This does not apply to Windows Server 2012 R2 as AD FS in Windows Server 2012 R2 does not depend on IIS.

Deploy a federation server

For information on deploying an AD FS server, see [AD FS Deployment](#).

Configure AD FS for Windows Server 2012 R2

To configure AD FS as a stand-alone federation server for Microsoft Dynamics 365 Server claims authentication, do the following:

1. Open the Windows Server 2012 R2 **Add Roles and Features Wizard** and add the **Active Directory Federation Services** server role.
2. Proceed through the wizard. Click **Configure the federation service on this server**.
3. On the **Welcome** page in the Active Directory Federation Services Configuration Wizard, choose an option for a federation server, and then click **Next**.
4. Proceed through the wizard. On the **Specify Service Properties** page, select your TLS/SSL certificate, enter a **Federation Service Name**, and then enter a **Federation Service Display Name**.

Note

You only add the federation service name if you are using a wildcard certificate for the AD FS website. If you install AD FS and Microsoft Dynamics 365 Server on the same server, do not use the same URL for the Federation Service name and internal claims access to Microsoft Dynamics 365 Server. For example, if you use sts1.contoso.com for the Federation Service name, do not use https://sts1.contoso.com for internal Microsoft Dynamics 365 data access.

The screenshot shows the 'Specify Service Properties' page of the Active Directory Federation Services Configuration Wizard. The window title is 'Active Directory Federation Services Configuration Wizard'. The page is titled 'Specify Service Properties' and shows a 'TARGET SERVER' field with the value '.contoso.com'. On the left, a navigation pane lists the steps: Welcome, Connect to AD DS, Specify Service Properties (highlighted), Specify Service Account, Specify Database, Review Options, Pre-requisite Checks, Installation, and Results. The main area contains three fields: 'SSL Certificate' with a dropdown menu showing '*.contoso.com' and an 'Import...' button; 'Federation Service Name' with a dropdown menu showing 'sts1.contoso.com' and an example 'Example: fs.contoso.com'; and 'Federation Service Display Name' with a text box containing 'Contoso Corporation' and a note 'Users will see the display name at sign in. Example: Contoso Corporation'. At the bottom, there are buttons for '< Previous', 'Next >', 'Configure', and 'Cancel'.

5. Proceed through and complete the **Active Directory Federation Services Configuration Wizard**. Close the **Add Roles and Features Wizard**.
6. If you have not created a host record in DNS for the federation server name you specified in Step 4 previously, do so now.

For more information, see [Configure a Federation Server](#).

Verifying AD FS installation

Use the following steps to verify the AD FS installation:

1. On the AD FS server, open Internet Explorer.
2. Browse to the URL of the federation metadata. For example, <https://sts1.contoso.com/federationmetadata/2007-06/federationmetadata.xml>
You may need to turn on **Compatibility View** in Internet Explorer.
3. Verify that no certificate-related warnings appear. If necessary, check your certificate and DNS settings.

```

- <EntityDescriptor ID="_6794c234-9ccf-481b-b317-ba3a0e285313" entityID="http://sts1.contoso.com/adfs/services/trust"
  xmlns="urn:oasis:names:tc:SAML:2.0:metadata">
- <Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
  - <SignedInfo>
    <CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
    <SignatureMethod Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256" />
    + <Reference URI="#_6794c234-9ccf-481b-b317-ba3a0e285313">
    </SignedInfo>
    <SignatureValue>xsxAvHQXKRranGmJ6GBY7ijarjcdHhHjD4vutd2p4GvHhGowHr2HIpB0ypA+Gbq8FDvg67U5ARib8Vklg7n4xtYClZ:
  - <KeyInfo>
    - <X509Data>
      <X509Certificate>MIIC3DCCAcSgAwIBAgIQcwV35NztM7J8VbKXnDCVczANBgkqhkiG9w0BAQsFADAqMSgwJgYDVQQDEx9BREZTIE
      </X509Data>
    </KeyInfo>
  </Signature>
- <RoleDescriptor xsi:type="Fed:ApplicationServiceType" protocolSupportEnumeration="http://docs.oasis-open.org/ws-sx/ws-
  trust/200512 http://schemas.xmlsoap.org/ws/2005/02/trust http://docs.oasis-open.org/wsfed/federation/200706"
  ServiceDisplayName="sts1.contoso.com" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:fed="http://docs.oasis-open.org/wsfed/federation/200706">
- <KeyDescriptor use="encryption">
  - <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
    - <X509Data>
      <X509Certificate>MIIC4jCCAcqgAwIBAgIQN+TkB6Xo/q5MdiU2IvJHYjANBgkqhkiG9w0BAQsFADAUMSswKQYDVQQDEyJBREZTIE
      </X509Data>
    </KeyInfo>
    </KeyDescriptor>
- <fed:ClaimTypesRequested>
  - <auth:ClaimType Uri="http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress"
    xmlns:auth="http://docs.oasis-open.org/wsfed/authorization/200706">
    <auth:DisplayName>E-Mail Address</auth:DisplayName>
    <auth:Description>The e-mail address of the user</auth:Description>
    </auth:ClaimType>
  - <auth:ClaimType Uri="http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname"
    xmlns:auth="http://docs.oasis-open.org/wsfed/authorization/200706">
    <auth:DisplayName>Given Name</auth:DisplayName>
  
```

See Also

[Implement claims-based authentication: internal access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure the Microsoft Dynamics 365 Server for claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

After you have installed AD FS, you need to set the Microsoft Dynamics 365 Server binding type and root domains before you enable claims-based authentication.

In This Topic

[Set Microsoft Dynamics 365 Server binding to HTTPS and configure the root domain web addresses](#)

[The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate](#)

[Configuring claims-based authentication using the Configure Claims-Based Authentication Wizard](#)

[Configuring claims-based authentication using Windows PowerShell](#)

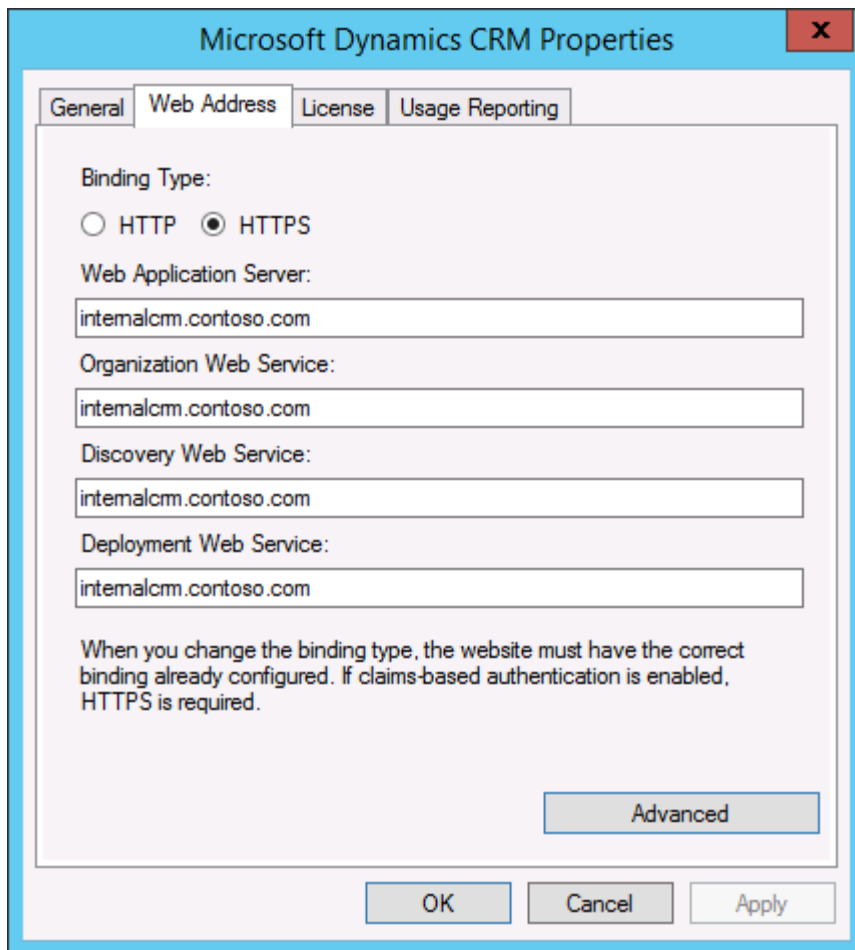
[Set Read permissions for the ADFSAppPool account](#)

Set Microsoft Dynamics 365 Server binding to HTTPS and configure the root domain web addresses

1. On the Microsoft Dynamics 365 server, start the Deployment Manager.
2. In the **Actions** pane, click **Properties**.
3. Click the **Web Address** tab.
4. Under **Binding Type**, select **HTTPS**.
5. Verify that the web addresses are valid for your TLS/SSL certificate and the TLS/SSL port bound to the Microsoft Dynamics 365 website. Because you are configuring Microsoft Dynamics 365 Server to use claims authentication for internal access, use the host name for the root domain web addresses.

For example, for a *.contoso.com wildcard certificate, you would use internalcrm.contoso.com for the web addresses.

If you install AD FS and Microsoft Dynamics 365 Server on separate servers, do not specify port 443 for the Web Application Server, Organization Web Service, or Discovery Web Service.



6. Click **OK**.

⚠ Warning

If Dynamics 365 for Outlook clients were configured using the old binding values, these clients will need to be configured with the new values.

The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate

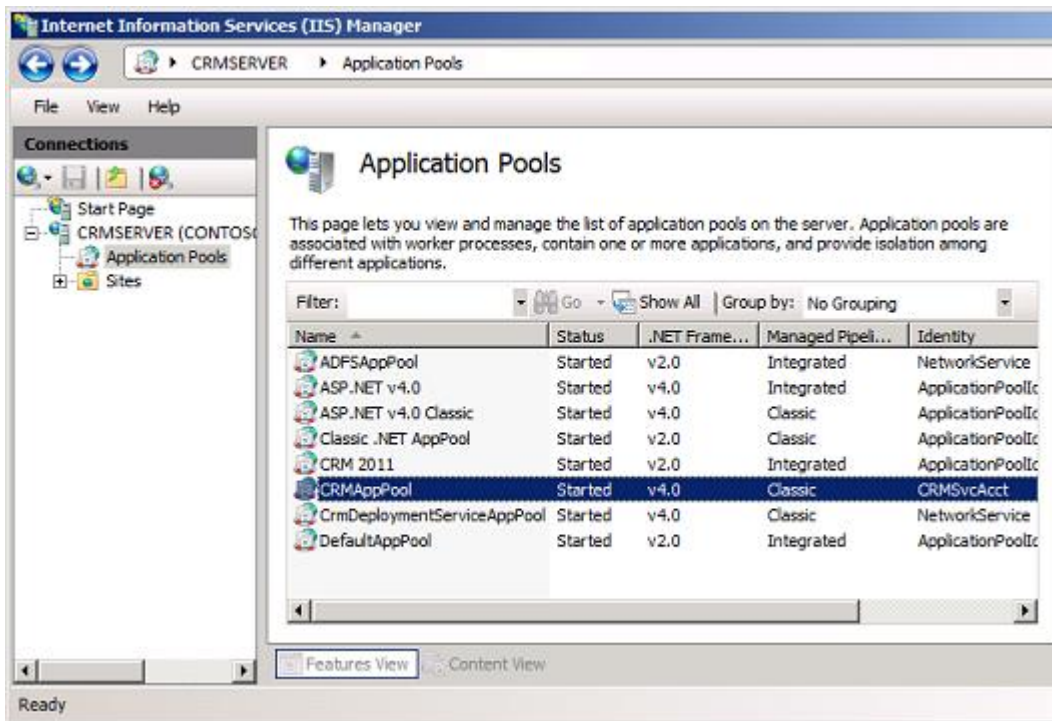
The certificate you specify in the Configure Claims-Based Authentication Wizard is used by AD FS to encrypt security tokens issued to the Microsoft Dynamics 365 Server client. The CRMAppPool account of each Microsoft Dynamics 365 web application must have read permission to the private key of the encryption certificate.

1. On the Microsoft Dynamics 365 server, create a Microsoft Management Console (MMC) with the **Certificates** snap-in console that targets the **Local computer** certificate store.

- In the console tree, expand the **Certificates (Local Computer)** node, expand the **Personal** store, and then click **Certificates**.
- In the details pane, right-click the encryption certificate specified in the Configure Claims-Based Authentication Wizard, point to **All Tasks**, and then click **Manage Private Keys**.
- Click **Add**, (or select the Network Service account if that is the account you used during Setup) add the **CRMAppPool** account, and then grant **Read** permissions.

Note

You can use IIS Manager to determine what account was used during setup for the CRMAppPool account. In the Connections pane, click Application Pools, and then check the Identity value for CRMAppPool.



- Click **OK**.

Configuring claims-based authentication using the Configure Claims-Based Authentication Wizard

Run the Configure Claims-Based Authentication Wizard to enable claims authentication on your Microsoft Dynamics 365 Server.

1. On the Microsoft Dynamics 365 server, start the Deployment Manager.
2. In the **Deployment Manager** console tree, right-click **Microsoft Dynamics 365**, and then click **Configure Claims-Based Authentication**.
3. Review the contents of the page, and then click **Next**.
4. On the **Specify the security token service** page, enter the federation metadata URL, such as <https://sts1.contoso.com/federationmetadata/2007-06/federationmetadata.xml>.

This data is typically located on the website where Active Directory Federation Services is running. To verify the correct URL, open an Internet browser and view the federation metadata URL. Verify that no certificate-related warnings appear.

You may need to turn on **Compatibility View** in Internet Explorer.

5. Click **Next**.
6. On the **Specify the encryption certificate** page, specify the encryption certificate in one of two ways:
 - In the **Certificate** box, type the complete common name (CN) of the certificate by using the format CN=certificate_subject_name.
 - Under **Certificate**, click **Select**, and then select a certificate.

This certificate is used by AD FS to encrypt authentication security tokens that are issued to the Microsoft Dynamics 365 client.

Note

The Microsoft Dynamics 365 service account must have Read permissions for the private key of the encryption certificate. For more information, see “The CRMAppPool account and the Microsoft Dynamics 365 encryption certificate” above.

7. Click **Next**.

The Configure Claims-Based Authentication Wizard verifies the token and certificate that you specified.
8. On the **System Checks** page, review the results, perform any steps required to fix problems, and then click **Next**.
9. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.
10. Note the URL you must use to add the relying party to the security token service. View and save the log file for later reference.
11. Click **Finish**.

Configuring claims-based authentication using Windows PowerShell

1. On the Microsoft Dynamics 365 server, open a Windows PowerShell prompt.
2. Add the Microsoft Dynamics 365 Windows PowerShell snap-in:

```
PS > Add-PSSnapin Microsoft.Crm.PowerShell
```

3. Get the claims-based authentication settings:

```
PS > $claims = Get-CrmSetting -SettingType "ClaimsSettings"
```

4. Configure the claims-based authentication object:

```
PS > $claims.Enabled = 1 (or $true) PS > $claims.EncryptionCertificate =  
certificate_name PS > $claims.FederationMetadataUrl = federation_metadata_URL
```

Where:

- 1 = "true".
 - **certificate_name** is the name of the encryption certificate.
 - **federation_metadata_URL** is the federation metadata URL for the security token service. (For example, <https://sts1.contoso.com/federationmetadata/2007-06/federationmetadata.xml>.)
5. Set the claims-based authentication values:

```
PS > Set-CrmSetting $claims
```

Set Read permissions for the ADFSAppPool account

If you are installing AD FS on a separate server, verify the account used for the ADFSAppPool application pool has **Read** permissions. See the preceding topic "The CRMAppPool account and the Microsoft Dynamics 365 encryption certificate" for the process steps.

See Also

[Implement claims-based authentication: internal access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure the AD FS server for claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

After enabling claims-based authentication, the next step is to add and configure the claims provider and relying party trusts in AD FS.

Configure the claims provider trust

You need to add a claims rule to retrieve the user principal name (UPN) attribute from Active Directory and send it to Microsoft Dynamics 365 as a UPN.

Configure AD FS to send the UPN LDAP attribute as a claim to a relying party

1. On the server running AD FS, start AD FS Management.
2. In the **Navigation Pane**, expand **Trust Relationships**, and then click **Claims Provider Trusts**.
3. Under **Claims Provider Trusts**, right-click **Active Directory**, and then click **Edit Claims Rules**.
4. In the Rules Editor, click **Add Rule**.
5. In the **Claim rule template** list, select the **Send LDAP Attributes as Claims** template, and then click **Next**.
6. Create the following rule:
 - Claim rule name: UPN Claim Rule (or something descriptive)
 - Add the following mapping:
 - i. Attribute store: **Active Directory**
 - ii. LDAP Attribute: **User Principal Name**
 - iii. Outgoing Claim Type: **UPN**
7. Click **Finish**, and then click **OK** to close the Rules Editor.

Configure a relying party trust

After you enable claims-based authentication, you must configure Microsoft Dynamics 365 Server as a relying party to consume claims from AD FS for authenticating internal claims access.

1. On the server running AD FS, start AD FS Management.
2. In the **Navigation Pane**, expand **Trust Relationships**, and then click **Relying Party Trusts**.
3. On the **Actions** menu located in the right column, click **Add Relying Party Trust**.
4. In the **Add Relying Party Trust Wizard**, click **Start**.
5. On the **Select Data Source** page, click **Import data about the relying party published online or on a local network**, and then type the URL to locate the federationmetadata.xml file.

This federation metadata is created during claims setup. Use the URL listed on the last page of the Configure Claims-Based Authentication Wizard (before you click **Finish**), for example, <https://internalcrm.contoso.com/FederationMetadata/2007-06/FederationMetadata.xml>. Verify that no certificate-related warnings appear.

6. Click **Next**.
7. On the **Specify Display Name** page, type a display name, such as Dynamics 365 Claims Relying Party, and then click **Next**.
8. On the **Configure Multi-factor Authentication Now** page, make your selection and click **Next**.
9. On the **Choose Issuance Authorization Rules** page, click **Permit all users to access this relying party**, and then click **Next**.
10. On the **Ready to Add Trust** page, on the **Identifiers** tab, verify that **Relying party identifiers** has a single identifier such as the following:
 - <https://internalcrm.contoso.com>If your identifier differs from the above example, click **Previous** in the **Add Relying Party Trust Wizard** and check the Federation metadata address.
11. Click **Next**, and then click **Close**.
12. If the Rules Editor appears, click **Add Rule**. Otherwise, in the **Relying Party Trusts** list, right-click the relying party object that you created, click **Edit Claims Rules**, and then click **Add Rule**.

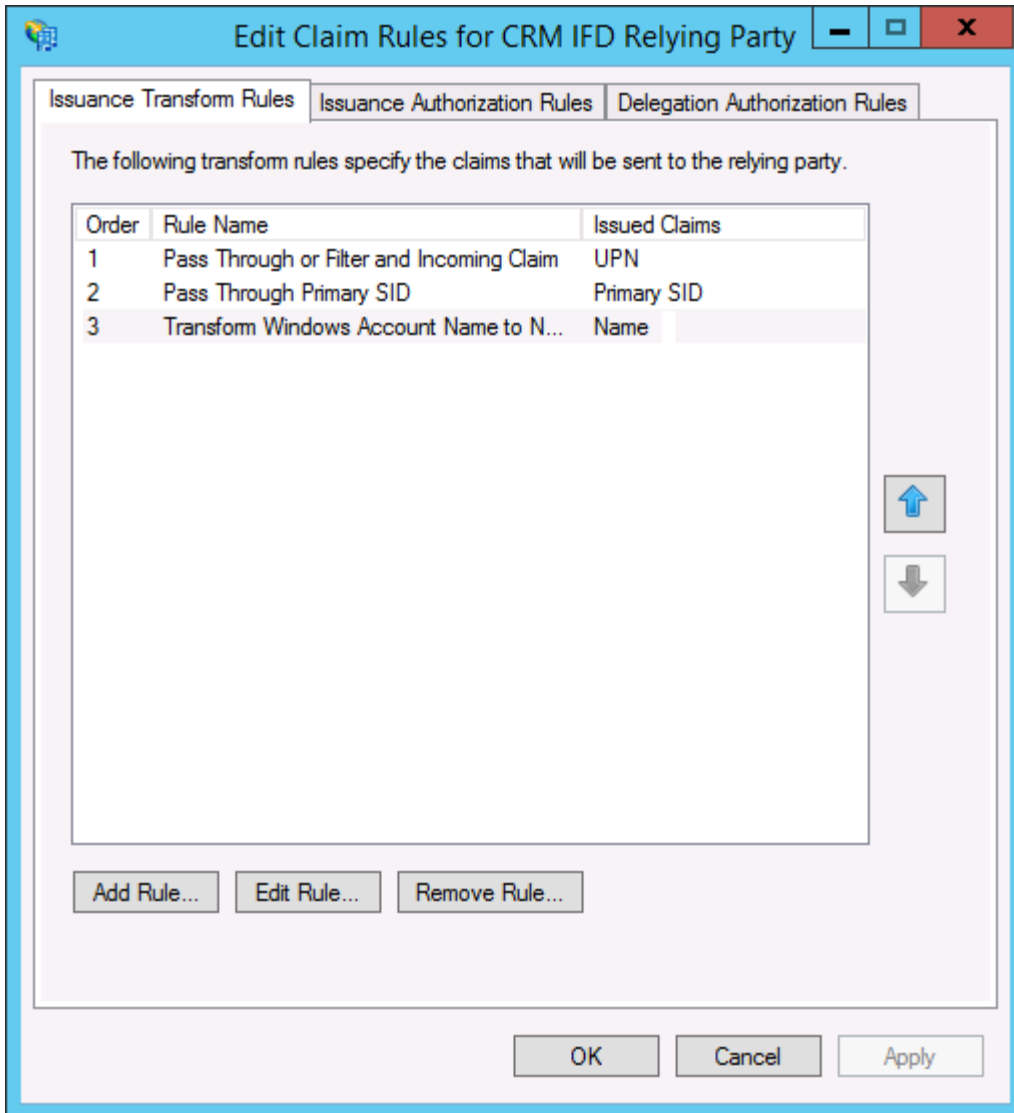
◆ Important

Be sure the **Issuance Transform Rules** tab is selected.

13. In the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.
14. Create the following rule:
 - Claim rule name: Pass Through UPN (or something descriptive)
 - Add the following mapping:
 - i. Incoming claim type: **UPN**
 - ii. **Pass through all claim values**
15. Click **Finish**.
16. In the **Rules Editor**, click **Add Rule**, in the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.
17. Create the following rule:
 - Claim rule name: Pass Through Primary SID (or something descriptive)
 - Add the following mapping:
 - i. Incoming claim type: **Primary SID**
 - ii. **Pass through all claim values**
18. Click **Finish**.
19. In the **Rules Editor**, click **Add Rule**.
20. In the **Claim rule template** list, select the **Transform an Incoming Claim** template, and then click **Next**.
21. Create the following rule:

- Claim rule name: Transform Windows Account Name to Name (or something descriptive)
- Add the following mapping:
 - i. Incoming claiming type: **Windows account name**
 - ii. Outgoing claim type: **Name**
 - iii. **Pass through all claim values**

22. Click **Finish**, and when you have created all three rules, click **OK** to close the Rules Editor.



This illustration shows the three relying party trust rules you create.

The relying party trust you created defines how AD FS Federation Service recognizes the Microsoft Dynamics 365 relying party and issues claims to it.

Enable Forms Authentication

In AD FS in Windows Server 2012 R2, forms authentication is not enabled by default.

1. Log on to the AD FS server as an administrator.
2. Open the AD FS management console and click **Authentication Policies**.
3. Under **Primary Authentication, Global Settings, Authentication Methods**, click **Edit**.
4. Under **Intranet**, enable (check) **Forms Authentication** and then click **OK**.

Edit Global Authentication Policy [X]

Primary | **Multi-factor**

Select authentication methods. By selecting more than one authentication method, you enable users to have a choice of what method to authenticate with at sign in.

If Integrated Windows authentication method is specified, it appears as the default authentication method on browsers that support Integrated Windows authentication.

Extranet

- Forms Authentication
- Certificate Authentication

Intranet

- Forms Authentication
- Windows Authentication
- Certificate Authentication

Enable device authentication

OK Cancel Apply

See Also

[Implement claims-based authentication: internal access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Add the AD FS website to the Local intranet security zone

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Because the AD FS website is loaded as a FQDN, Internet Explorer places it in the **Internet** zone. By default, Internet Explorer clients do not pass Kerberos tickets to websites in the **Internet** zone. You must add the AD FS website to the **Intranet** zone in Internet Explorer on each client computer accessing Microsoft Dynamics 365 data internally.

Add the AD FS server to the Local intranet zone

1. In Internet Explorer, click **Tools**, and then click **Internet Options**.
2. Click the **Security** tab, click the **Local intranet** zone, and then click **Sites**.
3. Click **Advanced**.
4. In **Add this website to the zone**, type the URL for your AD FS server, for example, <https://sts1.contoso.com>.
5. Click **Add**, click **Close**, and then click **OK**.
6. Select the **Advanced** tab. Scroll down and verify that under Security **Enable Integrated Windows Authentication** is checked.
7. Click **OK** to close the Internet Options dialog box.

See Also

[Implement claims-based authentication: internal access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Test internal claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You should now be able to access Microsoft Dynamics 365 Server internally using claims authentication. Browse to the internal Microsoft Dynamics 365 webpage (for example, <https://internalcrm.contoso.com>).

You will be required to log on several times to the Microsoft Dynamics 365 webpage. Subsequent visits to the Microsoft Dynamics 365 website will only require one log on. In the browser, notice that the AD FS URL is loaded and then directed back to the Microsoft Dynamics 365 server.

Troubleshooting

If the Microsoft Dynamics 365 website does not display, at a command prompt, run the `iisreset` command, and then try browsing to the Microsoft Dynamics 365 website again.

Try adding the following sites to your Trusted sites in your browser:

- <https://sts1.contoso.com> – change to what use in DNS
- <https://internalcrm.contoso.com> – change to what you use in DNS

See Also

[Implement claims-based authentication: internal access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Implement claims-based authentication: external access

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To enable claims-based authentication for external access to Microsoft Dynamics 365 Server data, do the following:

1. Complete the steps in the previous section, Implementing Claims-based Authentication - Internal Access.
2. Configure the Microsoft Dynamics 365 Server server for IFD.
3. Configure the AD FS for IFD.
4. Test external claims-based authentication.

In This Section

[Configure the Microsoft Dynamics 365 server for IFD](#)

[Configure the AD FS server for IFD](#)

[Test external claims-based authentication](#)

See Also

[Implement claims-based authentication: internal access](#)

[Dynamics 365 for tablets and IFD](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure the Microsoft Dynamics 365 server for IFD

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

With internal claims authentication access enabled on Microsoft Dynamics 365 Server, you can now enable external claims access through IFD.

Configure an Internet-facing deployment using the Configure Internet-Facing Deployment Wizard

1. Start the Deployment Manager.
2. In the Deployment Manager console tree, right-click **Microsoft Dynamics 365**, and then click **Configure Internet-Facing Deployment**.
3. Click **Next**.
4. On the **Make Microsoft Dynamics 365 available to users who connect through the Internet** page, type the domains for the specified Microsoft Dynamics 365 Server roles, and then click **Next**.

◆ Important

- Specify domains, not servers.
- If your deployment is on a single server or on servers that are in the same domain, the Web Application Server domain and Organization Web Service domain will be identical.
- The Discovery Web Service domain must be a resolvable host name and not a root domain. For example: dev.contoso.com.
- The Discovery Web Service domain must not match an organization's Fully Qualified Domain Name (FQDN). For example, the Discovery Web Service domain should not be: orgname.contoso.com.
- The domains must be valid for the TLS/SSL certificate's common name or names.
- The domains must be set to resolve correctly in DNS to your Microsoft Dynamics 365 servers holding the server roles.
- The domains can be in a different domain than the domain which the Microsoft Dynamics 365 servers reside.

Example domains:

- Web Application Server domain: **contoso.com**
- Organization Web Service domain: **contoso.com**
- Discovery Web Service domain: **dev.contoso.com**

With the example settings above, if your organization name was "orgname", clients would access your Microsoft Dynamics 365 website with the following URL: **https://orgname.contoso.com**.

Internet-Facing Deployment Configuration Wizard

Configure Internet-Facing Deployment

Make Microsoft Dynamics CRM available to users who connect through the Internet.

Enter the domains for the following server roles. Server roles that are installed on separate computers may have different domains.

Web Application Server Domain:

Organization Web Service Domain:

Discovery Web Service Domain:

[More information about Internet-facing deployments](#)

< Back Next > Cancel

5. In the **Enter the external domain where your Internet-facing servers are located** box, type the external domain information where your Internet-facing Microsoft Dynamics 365 Server servers are located, and then click **Next**.

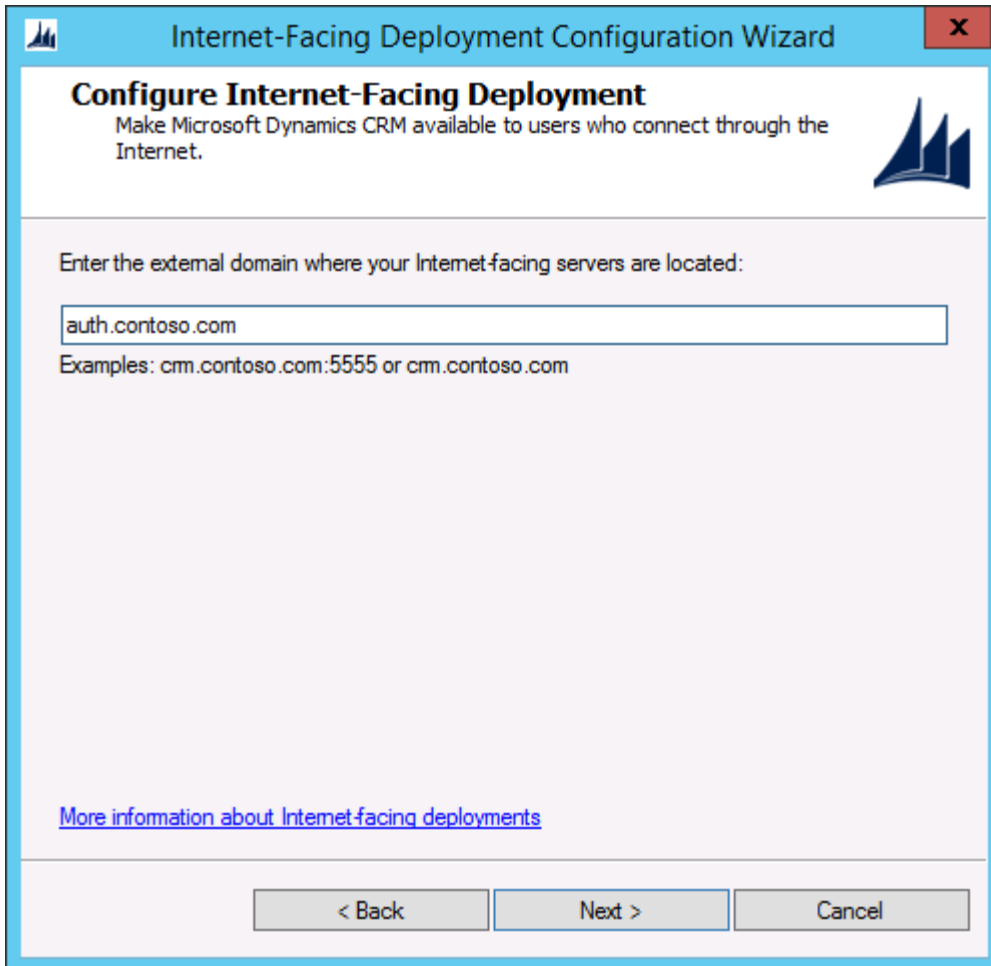
The domain you specify must be a sub-domain of the Web Application Server domain specified in the previous step. By default, "auth." is pre-pended to the Web Application Server domain.

◆ Important

- The external domain is used by the AD FS server when retrieving the Microsoft Dynamics 365 IFD federationmetadata.xml file.
- The external domain must not contain an organization name.
- The external domain must not contain an underscore character (“_”).
- The external domain must be valid for the TLS/SSL certificate's common name or names.
- The external domain must be set to resolve correctly in DNS to your Microsoft Dynamics 365 server holding the Web Application Server role.

Example domain:

- External domain: **auth.contoso.com**



The screenshot shows a Windows dialog box titled "Internet-Facing Deployment Configuration Wizard". The main heading is "Configure Internet-Facing Deployment" with the subtitle "Make Microsoft Dynamics CRM available to users who connect through the Internet." Below this, there is a text input field containing "auth.contoso.com". The text "Enter the external domain where your Internet-facing servers are located:" is positioned above the input field. Below the input field, there are examples: "Examples: crm.contoso.com:5555 or crm.contoso.com". At the bottom left, there is a blue hyperlink: "More information about Internet-facing deployments". At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

6. On the **System Checks** page, review the results, fix any problems, and then click **Next**.
7. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.
8. Click **Finish**.
9. Run the following command at a command prompt: `iisreset`
10. If you have not already done so, add host records in DNS for the IFD endpoints (for example: `orgname.contoso.com`, `auth.contoso.com`, `dev.contoso.com`)

To Configure an Internet-facing deployment using Windows PowerShell

1. Open a Windows PowerShell prompt.

2. Add the Microsoft Dynamics 365 Windows PowerShell snap-in:

```
PS > Add-PSSnapin Microsoft.Crm.PowerShell
```

3. Get the IFD settings:

```
PS > $ifd = Get-CrmSetting -SettingType "IfdSettings"
```

4. Configure the IFD object:

```
PS > $ifd.Enabled = 1 (or $true) PS > $ifd.DiscoveryWebServiceRootDomain =  
Discovery_Web_Service_DomainPS > $ifd.ExternalDomain = External_Server_DomainPS >  
$ifd.OrganizationWebServiceRootDomain= Organization_Web_Service_DomainPS >  
$ifd.WebApplicationRootDomain = Web_Application_Server_Domain
```

where:

- 1 = "true".
- Discovery_Web_Service_Domain is the Discovery Web Service domain.
- External_Server_Domain is the external server domain.
- Organization_Web_Service_Domain is the Organization Web Service domain.
- Web_Application_Server_Domain is the Web Application Server domain.

For the domain paths, the values for the paths must be in the form:

server:port

or

server.domain.tld:port,

where:

- server is the computer name
- domain is the complete sub domain path where the computer is located
- tld is the top level domain, such as com or org
- The :port designation is required if you are not using the standard http port (80) or https port (443).

Typically, in a Full Server or Front-end Server role deployment, the path values are the same. However, if you deploy Microsoft Dynamics 365 on multiple servers with separate server roles, that is, where the Web Application Server, Organization Web Service, or Discovery Web Service server roles are located on different servers, these path values will be different:

- Web Application Server. WebApplicationServerName.domain.tld:port
- Organization Web Service. OrganizationWebServiceServerName.domain.tld:port
- Discovery Web Service. DiscoveryWebServiceServerName.domain.tld:port

5. Set the Internet-facing deployment object.

```
PS > Set-CrmSetting $ifd
```

See Also

[Implement claims-based authentication: external access](#)

Configure the AD FS server for IFD

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

After you have enabled IFD on the Microsoft Dynamics 365 Server you will need to create a relying party for the IFD endpoint on the AD FS server.

Configure relying party trusts

1. On the computer that is running Windows Server where the AD FS federation server is installed, start AD FS Management.
2. In the **Navigation Pane**, expand **Trust Relationships**, and then click **Relying Party Trusts**.
3. On the **Actions** menu located in the right column, click **Add Relying Party Trust**.
4. In the **Add Relying Party Trust Wizard**, click **Start**.
5. On the **Select Data Source** page, click **Import data about the relying party published online or on a local network**, and then type the URL to locate the federationmetadata.xml file.
This federation metadata is created during IFD Setup, for example, <https://auth.contoso.com/FederationMetadata/2007-06/FederationMetadata.xml>.
Type this URL in your browser and verify that no certificate-related warnings appear.
6. Click **Next**.
7. On the **Specify Display Name** page, type a display name, such as **Dynamics 365 IFD Relying Party**, and then click **Next**.
8. On the **Configure Multi-factor Authentication Now** page, make your selection and click **Next**.
9. On the **Choose Issuance Authorization Rules** page, click **Permit all users to access this relying party**, and then click **Next**.
10. On the **Ready to Add Trust** page, on the **Identifiers** tab, verify that **Relying party identifiers** has three identifiers such as the following:
 - <https://auth.contoso.com>
 - <https://orgname.contoso.com>
 - <https://dev.contoso.com>If your identifiers differ from the above example, click **Previous** in the **Add Relying Party Trust Wizard** and check the Federation metadata address.
11. Click **Next**, and then click **Close**.
12. If the Rules Editor appears, click **Add Rule**. Otherwise, in the **Relying Party Trusts** list, right-click the relying party object that you created, click **Edit Claims Rules**, and then click **Add Rule**.

◆ Important

Be sure the **Issuance Transform Rules** tab is selected.

13. In the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.
14. Create the following rule:
 - Claim rule name: **Pass Through UPN** (or something descriptive)
 - Add the following mapping:
 - i. Incoming claim type: **UPN**
 - ii. **Pass through all claim values**
15. Click **Finish**.
16. In the **Rules Editor**, click **Add Rule**, and in the **Claim rule template** list, select the **Pass Through or Filter an Incoming Claim** template, and then click **Next**.
 - Claim rule name: **Pass Through Primary SID** (or something descriptive)
 - Add the following mapping:
 - i. Incoming claim type: **Primary SID**
 - ii. **Pass through all claim values**
17. Click **Finish**.
18. In the **Rules Editor**, click **Add Rule**,
19. In the **Claim rule template** list, select the **Transform an Incoming Claim** template, and then click **Next**.
20. Create the following rule:
 - Claim rule name: **Transform Windows Account Name to Name** (or something descriptive)
 - Add the following mapping:
 - i. Incoming claim type: **Windows account name**
 - ii. Outgoing claim type: **Name**
 - iii. **Pass through all claim values**
21. Click **Finish**, and, when you have created all three rules, click **OK** to close the Rules Editor.

See Also

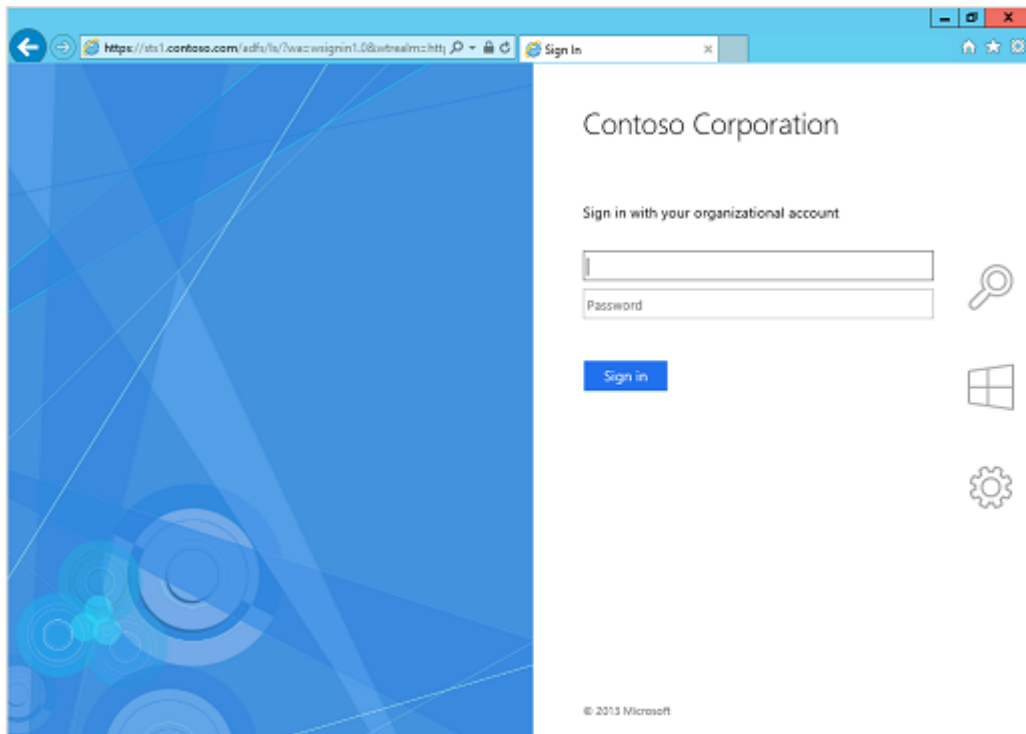
[Implement claims-based authentication: external access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Test external claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You should now be able to access Microsoft Dynamics 365 Server externally using claims authentication. Browse to your Microsoft Dynamics 365 website's external address (for example: <https://orgname.contoso.com>). You should see a screen like the following:



Sign in and verify that you have external access to Microsoft Dynamics 365 Server.

Note

You might need to add the external access website as a trusted site. Use the wild card designator (for example: https://*.contoso.com).

See Also

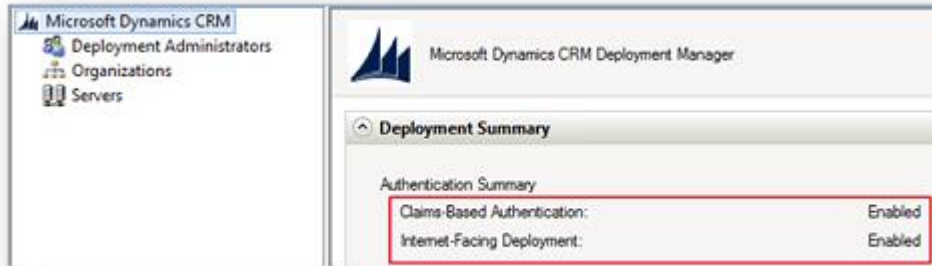
[Implement claims-based authentication: external access](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Dynamics 365 for tablets and IFD

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 on-premises deployments require Internet Facing Deployment (IFD) for users to access their data on their tablets. If you have your Microsoft Dynamics 365 website available over the internet but it is not using the Microsoft Dynamics 365 IFD configuration, **it is not supported**. To verify that your on-premises deployment is configured for IFD, open Microsoft Dynamics 365 Deployment Manager on your Microsoft Dynamics 365 Server. The Authentication Summary section should show that both Claims-Based Authentication and Internet-Facing Deployment are enabled.



◆ Important

For Microsoft Dynamics 365 for tablets to successfully connect to a new deployment of Microsoft Dynamics 365, you must run a Repair of Microsoft Dynamics 365 on the server running IIS where the Web Application Server role is installed *after* the Internet-Facing Deployment Configuration Wizard is successfully completed. More information: [Uninstall, change, or repair Microsoft Dynamics 365 Server](#).

See Also

[Help & Training: Set up Dynamics 365 for phones and Dynamics 365 for tablets](#)
[Configure IFD for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Dynamics 365 for phones and IFD

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

By default, Windows Integrated Authentication (WIA) is enabled in Active Directory Federation Services (AD FS) in Windows Server 2012 R2. WIA is used for authentication requests that occur within the organization's internal network (intranet) for any application that uses a browser for its authentication.

WIA is not supported for Microsoft Dynamics 365 for phones running on Windows Phone 8.1. If you have deployed Dynamics 365 (on-premises) with Internet-facing deployment (IFD), you will need to run a Windows PowerShell script on your AD FS server to fall back to forms-based authentication for Dynamics 365 for phones on Windows Phone 8.1. For the script and more information on this issue, see [Configuring intranet forms-based authentication for devices that do not support WIA](#).

See Also

[Referenced topic '4eadd04d-98cd-443e-94fc-9ca0c1d62728' is only available online. Configure IFD for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure Microsoft Dynamics 365 for Outlook to use claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

In an environment that supports claims-based authentication, a client (such as Dynamics 365 for Outlook) can use federated AD FS to connect to the Microsoft Dynamics 365 Server. The client obtains credentials through federated AD FS and uses these credentials to be authenticated on the same or a different Active Directory domain to connect to the Microsoft Dynamics 365 Server.

You can connect Dynamics 365 for Outlook on one Active Directory domain to a Microsoft Dynamics 365 server in a different Active Directory domain. You can do this when the credentials that Dynamics 365 for Outlook uses on its own domain are authenticated by a server on the other domain. To make this work, use AD FS.

After federation is established, the client can use either its current domain credentials or different domain credentials when attempting to connect to the Microsoft Dynamics 365 Server. You specify which domain and which Active Directory to use through the home realm - an identity provider that authenticates the user.

Note

For external claims-based authentication deployments, use the Microsoft Dynamics 365 Server website's external address (for example: <https://orgname.contoso.com>) for the **Server URL** connection setting.

Set up a client for claims-based authentication

In the following procedure, you create a registry key on a single client computer. You may also want to consider using group policy so that you can make this registry change on multiple client computers.

1. Make sure that a web browser on the client can reach the Microsoft Dynamics 365 Server URL with no certificate errors. If you use a self-signed certificate, you will need to import it to avoid certificate errors. After you import any needed certificates, you should be able to connect to the organization by using non-federated credentials.
2. To use federated credentials, specify HomeRealmUrl in the Windows registry, as shown here:

Note

This registry key is only needed if the claims provider server is different from the claims provider server used by Microsoft Dynamics 365 Server; for example, the Microsoft Dynamics 365 client authenticates across realms to a different domain.

- a. With Administrator privileges, open the Registry Editor.
- b. Open the registry key **HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\MSCRMClient**.
- c. Create the registry string **HomeRealmUrl**.
- d. Enter the value data of the federated AD FS. This URL will end in /adfs/services/trust/mex. For example, <https://adfs.contoso.com/adfs/services/trust/mex>.
- e. Close the Registry Editor.
- f. Configure Dynamics 365 for Outlook. More information: [Referenced topic '04a2332e-0fc4-4487-8136-e48e01b63055' is only available online.](#)

You should now be able to connect Dynamics 365 for Outlook to Microsoft Dynamics 365 Server by using claims-based authentication.

Use an administrative template (.adm) file

Modify the following sample data to create an .adm file to use group policy to publish the HomeRealmUrl registry setting.

```
CLASS MACHINECATEGORY "Microsoft CRM"      KEYNAME "Software\Policies\Microsoft\MSCRMClient"
POLICY "Home Realm URL"      EXPLAIN "Allow Administrator to specify the Home Realm URL for
federated domains."      PART "Specify Home Realm URL (example:
https://adfs.contoso.com/adfs/services/trust/mex" EDITTEXT REQUIREDVALUENAME "HomeRealmUrl"
END PART      END POLICYEND CATEGORY
```

For more information, see [Administrative Template File Format](#).

See Also

[Referenced topic '7e846aff-e472-4a3a-810d-de2aea0817f0' is only available online.](#)
[Configure IFD for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Troubleshoot Microsoft Dynamics 365 Server IFD

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

A quick checklist

Did you...	Reference
Configure DNS records?	See "DNS configuration" in the downloadable document
Install and bind your certificate on the Microsoft Dynamics 365 website?	See "Certificate selection and requirements" in the downloadable document
Add an AD FS signing certificate as a trusted certificate under the CRMAppPool account profile?	See "Enable AD FS token signing" in the downloadable document
Change the binding type for Microsoft Dynamics 365 websites to HTTPS and use the correct web addresses in Deployment Manager?	Configure the Microsoft Dynamics 365 server for IFD
Give the CRMAppPool account the rights to use an existing certificate used by Microsoft Dynamics 365 as signing certificate? This could be the wildcard certificate installed on the Microsoft Dynamics 365 server.	Configure the Microsoft Dynamics 365 Server for claims-based authentication
Run the Configure Claims-Based Authentication Wizard from Microsoft Dynamics 365 Deployment Manager? Have you specified the correct URL in this wizard? Have you selected the appropriate encryption certificate?	Configure the Microsoft Dynamics 365 Server for claims-based authentication
Configure relying party trust in AD FS for Microsoft Dynamics 365 internal claims endpoint? Have you provided the correct URL for the Microsoft Dynamics 365 IFD claims endpoint? Have you setup the correct rules for the relying party trusts?	Configure the AD FS server for claims-based authentication Configure the AD FS server for IFD

AD FS

Use the following to verify your AD FS settings.

Review AD FS events

1. Open Event Viewer.
2. Expand **Applications and Services Logs**. Expand **AD FS**. Click **Admin**.
3. Review the events looking for errors.

Verify relying party trust identifiers

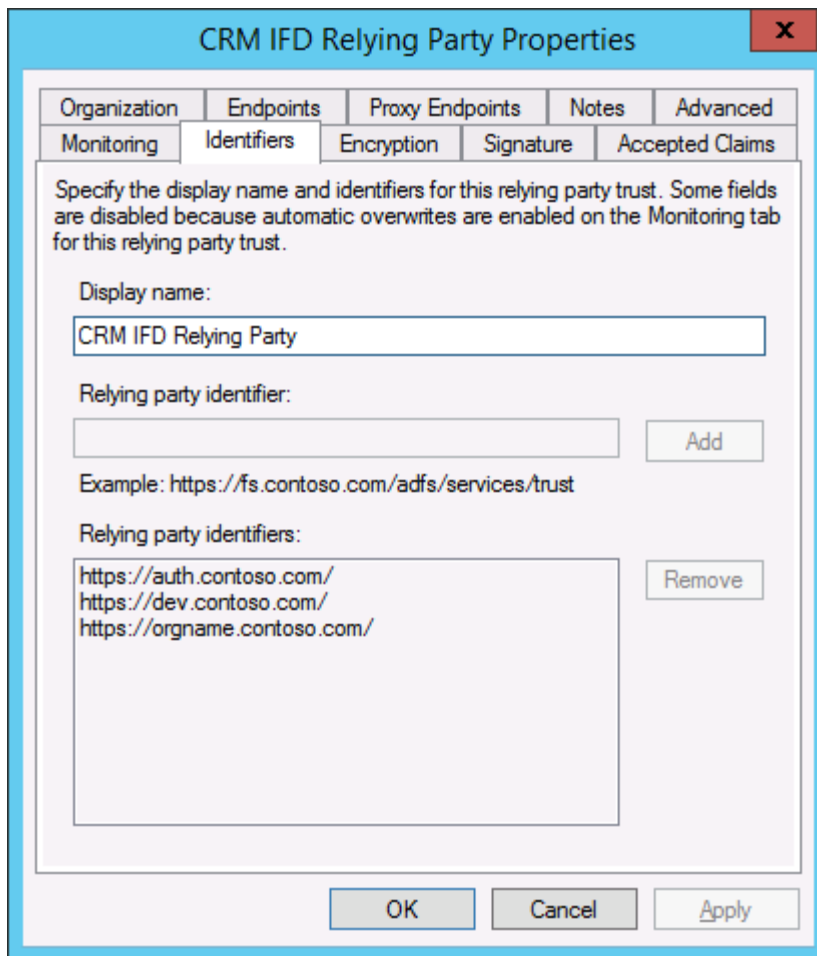
1. Open the AD FS Management console.
2. Under **Trust Relationships**, click **Relying Party Trusts**. Verify the relying party trusts are enabled and not displaying an alert.

3. Right-click the relying party trust and click **Properties**. Click the **Identifiers** tab. You should see identifiers like the following.

Relying party trust for claims: internalcrm.contoso.com

The screenshot shows a dialog box titled "CRM Claims Relying Party Properties" with a close button (X) in the top right corner. The dialog has several tabs: "Organization", "Endpoints", "Proxy Endpoints", "Notes", "Advanced", "Monitoring", "Identifiers", "Encryption", "Signature", and "Accepted Claims". The "Identifiers" tab is selected. Below the tabs, there is a text box for "Display name" containing "CRM Claims Relying Party". Below that is a "Relying party identifier" section with an empty text box and an "Add" button. An example URL "https://fs.contoso.com/adfs/services/trust" is provided. Below that is a "Relying party identifiers" section with a text box containing "https://internalcrm.contoso.com/" and a "Remove" button. At the bottom of the dialog are "OK", "Cancel", and "Apply" buttons.

Relying party trust for IFD: auth.contoso.com



When attempting an internal claims-based authentication connection, you might receive prompt for your credentials. Try the following steps.

Resolve prompt for credentials

1. Add the add website address for the AD FS server (for example, <https://sts1.contoso.com>) to the Trusted Intranet Zone in Internet Explorer.
2. Turn off Extended Protection. On the server running IIS for the Microsoft Dynamics 365 website: Turn off extended protection on the Microsoft Dynamics 365 website.
 - a. Open IIS.
 - b. Select the Microsoft Dynamics 365 website.
 - c. Under IIS, double-click **Authentication**.
 - d. Right-click **Windows Authentication**, and then click **Advanced Settings**.
 - e. Set **Extended Protection** to **Off**.

For more AD FS troubleshooting information

1. See the following: [Troubleshoot AD FS 2.0](#)

HTTP Error 401.1 - Unauthorized: Access is denied

If the Microsoft Dynamics 365 website fails to display or produces the following error: HTTP Error 401.1 - Unauthorized: Access is denied, there are two steps to try to resolve this issue:

1. You might need to update the Federation metadata URLs and do an IIS reset. See [KB2686840](#).
2. You might need to register the AD FS server as a service principal name (SPN). See “Register the AD FS server as a service principal name (SPN)” in the [downloadable document](#).

Time differs between two servers

An authentication error can occur if the time between the AD FS and the Microsoft Dynamics 365 server differs by more than 5 minutes. See [Windows Time Service Technical Reference](#) for information on how to configure time synchronization on your servers.

See Also

[Configure IFD for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Troubleshooting installation and upgrade

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section describes how to troubleshoot installation and known issues.

Log files

Setup creates log files that can be reviewed and used for troubleshooting. The log files are produced in clear unstructured text or xml and can be viewed by a basic text editor, such as Notepad. By default, the location of the log files, where *User* is the account of the user who ran Setup, is as follows:

```
SystemDrive:\Users\User\AppData\Roaming\Microsoft\MSCRM\Logs\
```

◆ Important

By default, Windows Server hides the folders where the log files are located. To view these folders, go to **Folder Options** in Control Panel to change the setting so you can view these folders.

Microsoft Dynamics 365 Server Setup generates several distinct log files, depending on whether the installation is for a new deployment or an upgrade from a previous version.

- Crmserversetup.log. The file that contains most of the Microsoft Dynamics 365 Server installation or upgrade activity.
- Crmsetup.log. The file that contains Setup update (self-healing Setup) activity.
- LegacyFeatureCheck.xml. During Microsoft Dynamics 365 Server upgrade, Setup analyzes the deployment for outdated (legacy) customization and extensibility features, such as Microsoft Dynamics CRM 4.0 plug-ins or solutions that use the 2007 web services endpoint. This file contains the results.
- SrsDataConnectorSetup.log. The file that contains most of the Microsoft Dynamics 365 Reporting Extensions installation activity.

See Also

[Install or upgrade Microsoft Dynamics 365 Server](#)
[Install or upgrade Language Packs for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install or upgrade Language Packs for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Microsoft Dynamics 365 Language Pack enables users to change the language of the user interface or Help that is displayed in the application. For example, your multinational organization might have standardized on an English user interface to simplify internal training and troubleshooting, but if you prefer to read Help in your native language, you can specify that Microsoft Dynamics 365 display Help in that language.

Language Pack overview

The basic steps to install and provision one or more Language Packs are described here.

1. Download the Language Packs that you want. Language Packs are not included with other Microsoft Dynamics 365 applications and are only available through the Microsoft Download Center. Each language pack installation (.msi) file includes the locale id (LCID) that represents that language. Download a [Microsoft Dynamics CRM 2016 Language Pack](#).

Note

For a list of locale IDs and the associated language, see [MSDN: Locale IDs assigned by Microsoft](#). You can't install a Language Pack that is the same locale ID as the Microsoft Dynamics 365 base language.

2. Install the Language Pack .msi package on the Microsoft Dynamics 365 Server. If you have deployed server roles, install it on the Front End Server or the servers that are running the Web Application Server role.
3. Sign-in to the organizations that you want to provide language support for and enable each Language Pack. More information: [Install and enable a Language Pack](#)
4. For Microsoft Dynamics 365 for Outlook users, the same language packs must also be installed on the users' PCs.

After installing and enabling a Language Pack, its capabilities and corresponding options are available for users to select in Microsoft Dynamics 365 client applications from personal **Settings > Options**.

For more detailed installation and enabling instructions, see the following topics.

In This Section

[Install and enable a Language Pack](#)

[Upgrade and enable a Language Pack](#)

See Also

[Install or upgrade Microsoft Dynamics 365 Server](#)

[Install Microsoft Dynamics 365 Report Authoring Extension](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install and enable a Language Pack

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Follow the procedures in this topic to install a Microsoft Dynamics 365 Language Pack.

Install the Language Pack (on-premises only)

If you have users who are running Microsoft Dynamics 365 for Outlook, in addition to installing Language Pack on the computer running Microsoft Dynamics 365 Server, you must also install the same Language Packs on the computer where Dynamics 365 for Outlook is installed.

1. Log on to the computer where Microsoft Dynamics 365 Server or Dynamics 365 for Outlook is installed.
2. Verify that you have local Administrator permission on the computer and System Administrator security role or equivalent privileges on Microsoft Dynamics 365.
3. [Microsoft Dynamics CRM 2016 Language Pack](#).

4. Where the Language Pack files are located, double-click the file MUISetup_<loc_code>_<proc_type>.msi file, where:
<loc_code> is the locale code for the Language Pack that you're installing. (For example, "1031" for German or "1041" for Japanese.)
<proc_type> specifies the application processor version. (For example, **amd64** for Microsoft Dynamics 365 Server and 64-bit versions of Dynamics 365 for Outlook or **i386** for 32-bit versions of Dynamics 365 for Outlook.)
5. On the **License Agreement** page, review the information and, if you accept the terms of the agreement, click **I accept the terms in the License Agreement**, and then click **Install**.
Setup copies the Language Pack files to the correct locations in Microsoft Dynamics 365. By default, the Language Pack files are copied to drive:\Program Files\Microsoft Dynamics 365\LangPacks\<loc_code>, where <loc_code> is the locale code for the Language Pack that you are installing.
6. To complete the installation, click **Finish**.
Repeat the previous steps for each Language Pack that you want to make available to your Dynamics 365 (on-premises)Deployment.
7. Enable the language packs that you want to make available to users. More information: [Referenced topic 'd5ac01dc-ebc6-455a-9a73-3367ff69eb1a' is only available online.](#)

See Also

[Install or upgrade Language Packs for Microsoft Dynamics 365](#)
[Upgrade and enable a Language Pack](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade and enable a Language Pack

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

After you upgrade Microsoft Dynamics CRM Server 2015, if you had Microsoft Dynamics CRM Language Packs installed you should install new Language Packs that correspond to the new version of Microsoft Dynamics 365 Server. Then, enable the Language Packs so they are available to users after the upgrade.

Upgrade and provision a Language Pack

1. On each Microsoft Dynamics CRM server that was upgraded, download the new Language Packs. More information: [Download: Microsoft Dynamics CRM 2016 Language Pack](#)
2. Follow the steps to install each Language Pack. More information: [Install the Language Pack \(on-premises only\)](#)

◆ Important

After you install a new language pack, enable it to load the new language pack files into Microsoft Dynamics 365 Server. More information: [Referenced topic 'd5ac01dc-ebc6-455a-9a73-3367ff69eb1a' is only available online.](#)

3. After you install and provision all the new Language Packs, uninstall the previous version of each Language Packs. More information: [Uninstall or repair a Microsoft Dynamics 365 Language Pack.](#)

See Also

[Install or upgrade Language Packs for Microsoft Dynamics 365](#)
[Uninstall, repair, and change Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Report Authoring Extension

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 Report Authoring Extension is required to create and customize fetch-based reports by using SQL Server Data Tools - Business Intelligence, an authoring environment for Microsoft Visual Studio. More information: [Microsoft Dynamics 365 Reporting Extensions requirements](#)

If not already installed, the following components are installed during Microsoft Dynamics 365 Report Authoring Extension Setup:

- .NET Framework
- Microsoft Application Error Reporting Tool
- Windows Live ID Sign-in Assistant 6.5

Warning

Microsoft Dynamics 365 users who use the Report Viewer control included with Microsoft Visual Studio can view information from the reports that they have access to. By using this control, the user can view additional report and session data that is not displayed when running the report in Microsoft Dynamics 365. To reduce the risk of exposing confidential data, we recommend that you configure the Microsoft SQL Server Reporting Services URL where the Microsoft Dynamics 365 Reporting Extensions is installed to allow only Transport Layer Security (TLS) or Secure Sockets Layer (SSL), also known as Secure HTTP, connections. More information: [MSDN: Configure SSL Connections on a Native Mode Report Server.](#)

Important

If your organization uses Microsoft Office 365, the computer on which the Microsoft Dynamics 365 Report Authoring Extension is installed must have the Microsoft Online Services Sign-in Assistant installed on it. If Microsoft Online Services Sign-in Assistant is already installed, check the registry key SOFTWARE\Microsoft\MSOIdentityCRL and make sure that the TargetDir registry key in

MSOIdentityCRL contains msoidcli.dll.

Install the plug-in

Microsoft Dynamics 365 Report Authoring Extension is a plug-in that obtains the metadata and data from Microsoft Dynamics 365. This metadata is required to design and preview Fetch-based reports in SQL Server Data Tools.

1. In the /BIDSExtensions/ folder, double-click **SetupBIDSExtensions.exe**. [Download from the Microsoft Download Center](#).
2. On the **Welcome to Microsoft Dynamics 365 Report Authoring Extension Setup** page, we recommend that you choose **Get updates for Microsoft Dynamics 365**, to make sure that Setup has the most recent installation files. Click **Next**.
3. On the **License Agreement** page, review the information, and if you accept the license agreement, select the **I accept this license agreement** check box, and then click **I Accept**.
4. If Setup detects that some required components are missing, the **Install Required Components** page appears. To install them, click **Install**. When the components are installed, the status column changes from **Not Installed** to **Installed**. Click **Next** to continue.

Note

- These components are required before Microsoft Dynamics 365 Report Authoring Extension can be installed. You can exit Setup and install the components manually, or select **Install**. The **Next** button on this page is disabled until Setup detects that these components are installed.
 - Installing these components may require you to restart the computer. If you are prompted to restart the computer, do so, and then start Setup again.
5. On the **Select Microsoft Update Preference** page, we recommend that you select the **Use Microsoft Update when I check for updates (recommended)** option. Microsoft Update makes sure that your computer has the latest technology, which can help to reduce the risk of vulnerabilities and security issues.
 6. On the **Select Installation Location** page, accept the default location or enter a different file installation location, and then click **Next**.
 7. On the **System Checks** page, a summary of all requirements and recommendations for a successful installation is shown. Errors must be corrected before installation can continue. If no errors, or only warnings appear, you can continue with the installation. To do this, click **Next**.
 8. Review the **Ready to Install Microsoft Dynamics 365 Report Authoring Extension** page, and then click **Back** to correct any errors. When you are ready to continue, click **Install**.

9. When Setup successfully completes, the **Microsoft Dynamics 365 Report Authoring Extension Completed** page appears. Click **Finish**.

See Also

[Download: Microsoft Online Services Sign-In Assistant for IT Professionals RTW](#)

[Microsoft Dynamics 365 Server installation](#)

[Upgrade Microsoft Dynamics CRM Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Uninstall, repair, and change Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section describes how to uninstall, repair, or change Microsoft Dynamics 365. Uninstalling Microsoft Dynamics 365, purging the computer system of Dynamics 365 data, and making system changes involves a series of automated and manual procedures. These procedures involve working in the following areas:

- Microsoft Dynamics 365
- Internet Information Services (IIS)
- Microsoft SQL Server
- Microsoft SQL Server Reporting Services
- Active Directory

In This Section

- [Uninstall, change, or repair Microsoft Dynamics 365 Server](#)
- [Uninstall or repair Microsoft Dynamics 365 Reporting Extensions](#)
- [Uninstall or repair Microsoft Dynamics 365 Report Authoring Extension](#)
- [Referenced topic '27bdd238-54f9-478f-be15-464a4e448678' is only available online.](#)
- [Referenced topic '6bf2bc59-9949-4afd-ae5-5b6101e90f75' is only available online.](#)
- [Uninstall or repair a Microsoft Dynamics 365 Language Pack](#)

See Also

[Install or upgrade Language Packs for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Uninstall, change, or repair Microsoft Dynamics 365 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To perform Microsoft Dynamics 365 Server maintenance, select from the following options that are available. Before selecting an option, you must start **Programs and Features** in Control Panel.

1. Log on to the computer where the Microsoft Dynamics 365 Server application is installed. Then, start **Programs and Features** in **Control Panel**.
2. Select from the following options.
 - **Uninstall.** Selecting this option will remove Microsoft Dynamics 365 Server from the computer. To do this, right-click **Microsoft Dynamics 365 Server**, click **Uninstall/Change**, select **Uninstall** to remove Microsoft Dynamics 365 Server, and then click **Uninstall**. Follow the instructions that are on the screen.

Important

The Microsoft Dynamics 365 uninstall process does not remove some components, such as the SQL Server databases, Active Directory groups, or the Microsoft Dynamics 365 website (when the website is not created by Microsoft Dynamics 365 Server Setup). Those components must be removed manually. Additionally, some components installed during Microsoft Dynamics 365 Server Setup are not removed during an uninstall. More information: [Components not removed during a Microsoft Dynamics 365 Server uninstall](#)

- **Configure.** To add or remove one or more Microsoft Dynamics 365 server roles, right-click **Microsoft Dynamics 365 Server**, click **Uninstall/Change**, select **Configure**, and then click **Next**. Follow the instructions that are on the screen to select or clear one or more server roles. More information: [Microsoft Dynamics 365 server roles](#)
- **Repair.** To repair a Microsoft Dynamics 365 Server installation, right-click **Microsoft Dynamics 365 Server**, click **Uninstall/Change**, select **Repair**, and then click **Next**. Follow the instructions that are on the screen.

Note

Repairing a Microsoft Dynamics 365 Server installation reinstalls the program files. It has no effect on the databases. To recover from Microsoft Dynamics 365 database problems, you must restore the MSCRM_CONFIG and *OrganizationName_MSCRM* databases. For information about database backup and failure recovery, see [Backing up SQL Server, including Reporting Services](#).

Components not removed during a Microsoft Dynamics 365 Server uninstall

The following system components, although installed during Microsoft Dynamics 365 Server Setup, aren't removed when you uninstall Microsoft Dynamics 365 Server.

Windows role services:

- Web Server Role Services
 - Static Content
 - Default Document
 - Directory Browsing
 - HTTP Errors
 - ASP.NET
 - Microsoft .NET Framework Extensibility
 - ISAPI Extensions
 - ISAPI Filters
 - HTTP Logging
 - Request Monitor
 - Windows Authentication
 - Request Filtering
 - Static Content Compression
 - Dynamic Content Compression
 - IIS Management Console
 - IIS Metabase Compatibility
- File services role services:
 - Windows Search
- Windows features:
 - Microsoft .NET Framework
 - HTTP Activation
 - Windows PowerShell
 - Windows Process Activation

See Also

[Uninstall, repair, and change Microsoft Dynamics 365](#)

[Uninstall or repair Microsoft Dynamics 365 Reporting Extensions](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Uninstall or repair Microsoft Dynamics 365 Reporting Extensions

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To perform Microsoft Dynamics 365 Reporting Extensions maintenance, sign in to the computer where Microsoft Dynamics 365 Reporting Extensions is installed. Then, start **Programs and Features** in Control Panel and select from the following options.

- **Uninstall.** To remove (uninstall) the Microsoft Dynamics 365 Reporting Extensions, right-click **Microsoft Dynamics 365 Reporting Extensions**, click **Uninstall/Change**, select **Uninstall**, and then click **Uninstall**. Follow the instructions on the screen.
- **Repair.** To repair the Microsoft Dynamics 365 Reporting Extensions, right-click **Microsoft Dynamics 365 Reporting Extensions**, click **Uninstall/Change**, select **Repair**, and then click **Next**. Follow the instructions on the screen.

See Also

[Uninstall, repair, and change Microsoft Dynamics 365](#)

[Uninstall or repair Microsoft Dynamics 365 Report Authoring Extension](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Uninstall or repair Microsoft Dynamics 365 Report Authoring Extension

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To perform Microsoft Dynamics 365 Report Authoring Extension maintenance, select from the following options. Before you select an option, you must start **Programs and Features** in Control Panel.

Sign in to the computer where Microsoft Dynamics 365 Report Authoring Extension is installed.

- **Uninstall.** To remove (uninstall) Microsoft Dynamics 365 Report Authoring Extension, right-click **Microsoft Dynamics 365 Report Authoring Extension**, click **Uninstall/Change**, select **Uninstall**, and then click **Uninstall**. Follow the instructions on the screen.
- **Repair.** To repair Microsoft Dynamics 365 Report Authoring Extension, right-click **Microsoft Dynamics 365 Report Authoring Extension**, click **Uninstall/Change**, select **Repair**, and then click **Next**. Follow the instructions on the screen.

See Also

[Uninstall, repair, and change Microsoft Dynamics 365](#)

[Uninstall or repair a Microsoft Dynamics 365 Language Pack](#)

Uninstall or repair a Microsoft Dynamics 365 Language Pack

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To perform Language Pack maintenance, select from the following options that are available. Before you select an option, you must start **Programs and Features** in Control Panel.

◆ Important

Rather than uninstall a Language Pack that is installed on the Microsoft Dynamics 365 server, you can disable a Language Pack in the organization. After you do this, users will no longer be able to see the Microsoft Dynamics 365 user interface and Help in the language that you disabled. Later, you can enable the Language Pack by clicking the language in the **Language Settings** list.

When a Language Pack is removed or disabled, users who have that Language Pack language selected on the **Personal Preferences** form will have to use the base language. For example, consider the following scenario. A Microsoft Dynamics 365 deployment has English as the base language, but the Spanish Language Pack was used in the organization. Then, when the system administrator disables (or uninstalls) the Spanish Language Pack, users who selected the user interface to be in Spanish will see it in English.

To disable a Language Pack, see [Referenced topic 'd5ac01dc-ebc6-455a-9a73-3367ff69eb1a' is only available online.](#)

Uninstall. Selecting this option will remove the selected Language Pack from the computer. If you uninstall a Language Pack, you must reinstall and then enable it before it is available to users again.

Uninstall a Language Pack

1. Right-click the Language Pack, such as **Microsoft Dynamics 365 German Language Pack**, and then click **Uninstall**.
2. If other users are logged on to the computer, you will receive a warning message. Click **Continue** if you want to continue and remove the Language Pack.
3. To confirm that you want to remove the Language Pack, click **Yes**, and then follow the instructions that are on your screen.

Repair. To repair a damaged Language Pack installation, right-click the Language Pack, click **Repair**, and then follow the instructions that are on your screen.

See Also

[Uninstall, repair, and change Microsoft Dynamics 365](#)
[Use the command prompt to install Microsoft Dynamics Server 365](#)

Use the command prompt to install Microsoft Dynamics Server 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can install Microsoft Dynamics 365 Server, Microsoft Dynamics 365 Reporting Extensions, and Microsoft Dynamics 365 for Outlook from their respective installation disks or file download locations by using the command prompt. The required setup information is provided to the Setup program both as command-line parameters and as an XML configuration file that the Setup program references.

One advantage of using the command prompt to install Microsoft Dynamics 365 is that you don't have to attend to the installation. Attended installation requires you to make decisions and provide information so the installation can run successfully. Unattended installation, by using the command prompt, requires you to provide installation information as command-line parameters and an XML configuration file. No other action is required until the Setup program is finished. Warnings and installation progress can be logged to a file you can view and analyze later.

Tip

To help troubleshoot invalid XML error messages, open the XML configuration file by using Internet Explorer to help indicate where the problem occurs in the file.

General procedures

The general procedures for running the Setup program from a command prompt are described here. For more detailed instructions, see the [In This Section](#) topics. The prerequisites for each of the Microsoft Dynamics 365 system features as discussed in previous sections also apply.

To run the Setup program from a command prompt, follow these steps:

1. Provide a customized Setup configuration file. Examples are in the topics that follow.
2. Sign in as a member of the Domain Users Active Directory directory service group and administrators group on the local computer. If you're installing Microsoft Dynamics 365 Server using the Full Server role, the user running Setup must be a member of the local administrators group on the computer that has Microsoft SQL Server installed, and permissions on the organizational unit to create or modify Active Directory groups in the domain where Microsoft Dynamics 365 Server is installed. If you're using pre-created groups, you must have read and write permission to each group.
3. If you're installing from an installation disk, insert the Microsoft Dynamics 365 Server or the Microsoft Dynamics 365 for Outlook installation disk into the CD/DVD drive. The **Autorun** screen appears. Close the **Autorun** screen.
4. Open a Command Prompt window.
5. At the command prompt, change to the CD/DVD drive or change to the location where the Microsoft Dynamics 365 installation files are located:

- **SetupServer.exe** for Microsoft Dynamics 365 Server is located in the Server folder of the Microsoft Dynamics 365 Server installation disk or file download location.
 - **SetupSrsDataConnector.exe** for the Microsoft Dynamics 365 Reporting Extensions is located in the \SrsDataConnector folder of the Microsoft Dynamics 365 Server installation disk or file download location.
 - **Setupclient.exe** for Dynamics 365 for Outlook is located in the **Client** folder of the Dynamics 365 for Outlook installation disk or file download location.
6. Run the Setup command using the following syntax:
SetupServer.exe /Q /config c:\CRMSetupconfig.xml

Known issues

Error message “Setup failed to validate specified Reporting Services Report Server http://ServerName/ReportServer” when you install Dynamics 365 Server on Server Core

You may see this error message when the following conditions are true:

- You run Microsoft Dynamics 365 Server Setup on a Windows Server running Server Core.
- The Microsoft SQL Server Reporting Services server that is specified in the Setup XML configuration file is running Microsoft SQL Server 2012 Reporting Services that is configured for an authentication type that is not only NTLM authentication.

To work around this problem, on the Windows Server where you are installing Microsoft Dynamics 365 Server, modify the RServer.config file to remove all authentication types so that the only authentication type is RSWindowsNTLM.

```
<AuthenticationTypes>  
    <RSWindowsNTLM/>  
</AuthenticationTypes>
```

More information: [RSReportServer Configuration File](#)

After you make the RServer.config file change, run Microsoft Dynamics 365 Server Setup again.

This issue does not occur when you specify later versions of SQL Server Reporting Services.

In This Section

[Install Microsoft Dynamics 365 Server by using a command prompt](#)

[Microsoft Dynamics 365 Server XML configuration file](#)

[Install Microsoft Dynamics 365 Server roles using the command prompt](#)

[Install Microsoft Dynamics 365 Reporting Extensions using a command prompt](#)

See Also

[Referenced topic '0e35546e-766b-4f5a-aead-0e8219ecb7f2' is only available online.](#)

[Referenced topic 'e80734d6-fc6e-4ba9-8c30-45fb488c6eb3' is only available online.](#)

[Installing on-premises Dynamics 365](#)

[Post-installation and configuration guidelines for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Server by using a command prompt

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following command will install Microsoft Dynamics 365 Server:

```
SetupServer.exe [/Q] [/InstallAlways] [/L [drive:][[path] logfilename.log]] [/config [drive:] [[path] configfilename.xml]]
```

Parameters

None

Used without parameters, Setup will run with all display screens.

/Q

Quiet mode installation. This parameter requires a configuration file in XML format. The `/config` parameter contains the name of the XML configuration file. No dialog boxes or error messages will appear on the display screen.

/InstallAlways

This parameter forces Setup to ignore the installation state and operate in install mode. When you use this parameter, Setup will try to install on a server where Microsoft Dynamics 365 is already installed.

/QR

Requires a configuration file in XML format specified by the `/config` parameter. Similar to the `/Q` parameter, but displays installation progress bars and all error messages.

/L [drive:][[path] logfilename.log]

Specifies the location and name of the log file to record installation activity. Additional log files may be created during prerequisites installation and will be located in the path specified. The path value cannot be a relative path, such as `..\..\crmlog.txt`. If you do not specify a name or location, a log file will be created in the drive:\Documents and Settings*UserName*\Application Data\Microsoft\MSCRM\Log folder, where *UserName* is the account name of the user running Setup.

/config [drive:] [[path] configfilename.xml]]

The `/config` parameter uses the specified XML configuration file to provide Setup with the additional information to complete installation successfully. An example XML configuration file is discussed in the following section. Notice that when you specify a configuration file without the `/Q` or `/QR` parameter, Setup screens appear filled with the information from the configuration file.

See Also

[Use the command prompt to install Microsoft Dynamics Server 365 Microsoft Dynamics 365 Server XML configuration file](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Server XML configuration file

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The `/config [drive:] [[path] configfilename.xml]` command-line parameter provides Microsoft Dynamics 365 Server Setup with required information. The information supplied by the XML configuration file is required by each installation screen.

◆ Important

The XML elements must be in English (US). An XML configuration file that has localized XML elements won't work correctly. For example, if you have a German version of Microsoft Dynamics 365 Server, the XML file elements must still be English (US).

By default, Setup will use UTF-8 encoding for the Setup XML configuration file. Setup can't load an XML configuration file when there are extended characters in the file. You'll receive an error message from Setup that the XML file is invalid. If the XML configuration file contains extended characters, you can work around this issue by saving the XML configuration file by using **Unicode** encoding. To do this, open the XML configuration file in Notepad, click **Save As**, in the **Encoding** list select **Unicode**, and then click **Save**.

An explanation of each XML element and a sample XML file for a Full Server installation follows. For information about how to install separate server roles by using the command prompt, see [Install Microsoft Dynamics 365 Server roles using the command prompt](#) in this guide.

Configuration file reference

`<CRMSetup> </CRMSetup>`

The configuration file must be a valid XML file that uses **<CRMSetup>** as the root element.

`<Server> </Server>`

Specifies a Microsoft Dynamics 365 Server installation. All the Microsoft Dynamics 365 Server entries that follow must be inside the **<Server>** elements.

<InstallType>Uninstall/Repair/Configure</InstallType>

Specifies the type of installation that Setup will perform. The following options are available:

Uninstall. Uninstalls Microsoft Dynamics 365 Server.

Repair. Starts Setup in repair mode.

Configure. Starts Setup in configuration mode.

<Patch update="true"/"false">\\ServerName\ShareName\Patch_Location</Patch>

Determines the behavior of the update Microsoft Dynamics 365 Server Setup technology. This feature lets Setup perform a one-time search for, and if applicable, download and apply the latest installation files for Microsoft Dynamics 365.

By default, this element doesn't specify a location, which configures Setup to search for available updates by using Microsoft Update. If you want Setup to install updates from another location, such as a share on your network, add the file paths to the .msp file in the element, as shown in the following topic.

◆ Important

The patch update feature can only be used for updates to Setup, also known as self-healing Setup. It cannot be used to apply application updates, such as Microsoft Dynamics CRM 2016 Service Pack 1.

update

Specifies whether Setup will look for, download, and apply updates for Microsoft Dynamics 365 Server Setup. We recommend that you let Setup download the latest version by specifying **true**. By default, this value is set to **false**. If the value is set to **false**, Setup ignores this step and continues with the installation. However, if you run Setup by using the /Q or /QR parameter, you must specify this element.

<SqlServer>SQLServername\InstanceName</SqlServer>

Specifies the name of the instance of Microsoft SQL Server that will manage the Microsoft Dynamics 365 Server database files. If you use the default instance, you can provide the name of the computer where SQL Server is installed. If SQL Server is running on the computer where you're installing Microsoft Dynamics 365 Server, you can specify ". " or "localhost".

<Database create="true"/"false" update="true"/"false"/>

create

Values for this parameter are either **true** or **false**. **True** causes Setup to create a new Microsoft Dynamics 365 configuration database. **False** causes Setup to connect to an existing Microsoft Dynamics 365 configuration database.

update

Values for this parameter are either **true** or **false**. When you select **true**, Setup writes the appropriate server deployment information to the configuration database (MSCRM_CONFIG). Select **false** only when you are using a pre-existing configuration database and you don't want Setup to update the server deployment information. When you select **false**, the appropriate server deployment information for the computer where Microsoft Dynamics 365 Server is being installed must already exist in the configuration database for Setup to complete successfully. The default value is **true**.

<Organization>Organization friendly or long name</Organization>

Specifies the long name of your organization. The name can be up to 250 characters long

and extended characters are supported.

<OrganizationUniqueName>Unique name</OrganizationUniqueName>

UniqueName

Specifies the name of your organization in the URL that users will use to access the deployment. There is a 30 character limit. Extended characters or spaces are not allowed. If you don't specify this element or leave the value blank, Setup will generate a short name based on the <Organization> element value.

◆ Important

The unique organization name will be used to construct the URL for users to sign-in to the application. Therefore, we recommend that you limit the length of the unique organization name to reduce the overall length of the URL.

<muoptin optin="true"/></muoptin />

Specifies whether to use Microsoft Update to download and install updates to Microsoft Dynamics 365 Server and other installed applications. After the installation is completed, this feature helps keep your computer up-to-date on an ongoing basis.

- **True.** When you specify this option, Setup will opt in to Microsoft Update as the update service and use the Windows automatic updating settings on the computer. Windows automatic update settings can be viewed in Windows Update in Control Panel. Microsoft Update helps make sure that your computer has the latest technology, which can help reduce the risk of vulnerabilities and security issues.
- **False.** When you specify this option, Setup won't change the existing Windows automatic update settings. If the computer isn't already configured to use Microsoft Update as the update service, we recommend that you have another method to install updates on the computer, such as by using Windows Update Services. If left blank, a value of **false** will be selected.

<OU> OU=value,DC=value,DC=value,DC=value,DC=value</OU>

The <OU> element specifies the Active Directory organizational unit (OU) where the security groups will be created, for example, <OU> OU=Dynamics 365, DC=MySubDomain, DC=MyDomain, DC=com</OU>.

◆ Important

You can't use the <Groups> element with the <OU> element. Setup won't continue if you specify both elements together.

<PreferredDC>servername.domain.com</PreferredDC>

Specifies the domain controller to contact when performing operations that require Active Directory. If not specified, Setup will use the first domain controller available. This setting is only available when you use a configuration file.

<LicenseKey>KeyValue</LicenseKey>

Specifies the product key for this deployment. The configuration file can contain only one Microsoft Dynamics 365 product key. For example:

<licenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</licenseKey>

Note

If you purchase Microsoft Dynamics 365 through a Microsoft Volume Licensing program, the product key is provided in the license.txt file. The license.txt file is included in the Microsoft Dynamics 365 installation files.

`<WebsiteUrl Create="true"/"false" port="TCPportnumber">path</WebsiteUrl>`

Specifies the website to be used for Microsoft Dynamics 365 Server. Use **Create="true"** to create a new Microsoft Dynamics 365 website and leave the value between the element tags blank. Use **port="TCPportnumber"**, where *TCPportnumber* is a valid and available TCP port number, to specify the port for connecting to the Microsoft Dynamics 365 Server application. If left blank, the port number that will be used is 5555.

Specify **Create="false"** to use an existing website and then you must type the website path in the element tags by using one of the following formats. When you use the **Create="false"** attribute, the port attribute is ignored.

For example:

- `http://server:port/` or `http:// server.contoso.com`
- `/LMW3SVC/n`, where *n* is the website ID. 1 is the default website.

`<Help anonymous="true"/"false">http://host/Help</Help>`

Optional element to specify a different URL where Microsoft Dynamics 365 Help is located. This setting is typically used in a multiserver deployment or to replace the default URL such as when using a host header. If you select **false** to disable anonymous access, it may produce repeated logon prompts for users who access Microsoft Dynamics 365 Help. This setting is only available when you use a configuration file.

`<InstallDir>c:\program files\Microsoft Dynamics 365</InstallDir>`

Specifies the folder in which application files will be installed. By default, Setup will use the folder `C:\Program Files\Microsoft Dynamics 365`.

`<basecurrency isocurrencycode="CurrencyCode" currencyname="CurrencyName" currencysymbol="CurrencySymbol" currencyprecision="2"/"3"/"4"/>`

isocurrencycode

Specifies the ISO three-letter currency-code, display name, and symbol to use for the base currency. For example, if you want to use U.S. dollars as the base currency, use **isocurrencycode="USD"**. You must use a valid ISO currency description for the **isocurrencycode** attribute.

currencyname and currencysymbol

You must also specify the currency-name and currency-symbol display names for the ISO base currency. For example, if the ISO currency code is USD, the currency name should be "US Dollar" and the currency symbol should be "\$". However, you can use any string that you want for these attributes.

Important

After Setup is complete, you cannot change the base ISO currency code. However, you can change the base-currency name, base-currency symbol, and base-currency precision.

The currency codes are provided from Microsoft .NET Framework and may change.

currencyprecision

You must specify the precision for the base currency that you specified in the **currencycode** attribute. Valid values depend on the type of currency that you specify. For example, USD

valid values are 1 – 9 and the default value is 2.

```
<OrganizationCollation>CollationName</OrganizationCollation>
```

This optional element specifies the SQL Server database collation name to use for the organization database. The default collation depends on the language of Microsoft Dynamics 365 Server that you're installing, for example, Latin1_General_CI_AI, which is the default collation for English (US) language deployments. For more information about database collation, see the Microsoft MSDN Library website [MSDN: Using SQL Server Collations](#).

```
<CrmServiceAccount type="DomainUser"/"NetworkService">
```

Specifies the service account used to run the Microsoft Dynamics 365 Unzip Service and ASP.NET AppPool application pool identity.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. However, using the Network Service system account isn't recommended because it may limit some database operations such as organization create, import, upgrade, or update. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, **<ServiceAccountLogin>** and **<ServiceAccountPassword>** are required. When you run Setup by using the */Q* or */QR* parameter, if this element isn't specified, the Network Service account will be used.

Warning

Maintaining the configuration file that has **<ServiceAccountLogin>** and **<ServiceAccountPassword>** values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

We strongly recommend that you select a low-privilege domain account that is dedicated to running these services and isn't used for any other purpose. Additionally, the user account that is used to run a Microsoft Dynamics 365 service can't be a Microsoft Dynamics 365 user. This domain account must be a member of the Domain Users group. Additionally, if the Asynchronous Service and Sandbox Processing Service roles are installed, such as in a Full Server or a Back End Server installation, the domain account must be a member of the Performance Log Users security group.

```
<SandboxServiceAccount type="DomainUser"/"NetworkService">  
<ServiceAccountLogin>Domain\User</ServiceAccountLogin>  
<ServiceAccountPassword>password</ServiceAccountPassword>  
</SandboxServiceAccount>
```

Specifies the service account to use for the Sandbox Processing Service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, **<ServiceAccountLogin>** and **<ServiceAccountPassword>** are required. When you run Setup by using the */Q* or */QR* parameter, if this element isn't specified, the Network Service account will be used.

Warning

Maintaining the configuration file that has **<ServiceAccountLogin>** and **<ServiceAccountPassword>** values specified is a security risk because you're storing a

password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

If you don't specify this element, Setup will use the account specified in the **<CrmserviceAccount>** element to run this service. Therefore, we recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics 365 service accounts.

```
<DeploymentServiceAccount type="DomainUser"/"NetworkService">  
<ServiceAccountLogin>Domain\User</ServiceAccountLogin>  
<ServiceAccountPassword>password</ServiceAccountPassword>  
</DeploymentServiceAccount>
```

Specifies the service account to use for the Deployment Web Service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. However, using the Network Service system account isn't recommended because it may limit some database operations such as organization create, import, upgrade, or update. By default, Setup will use the DomainUser option. If DomainUser or no type is specified, **<ServiceAccountLogin>** and **<ServiceAccountPassword>** are required. When you run Setup by using the */Q* or */QR* parameter, if this element is not specified the Network Service account will be used.

Caution

Maintaining the configuration file that has **<ServiceAccountLogin>** and **<ServiceAccountPassword>** values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server. If you don't specify this element, Setup will use the account specified in the **<CrmserviceAccount>** element to run this service. Therefore, we recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics 365 service accounts. In addition to the permissions required by the other Microsoft Dynamics 365 service accounts, the Deployment Web Service account requires system administrator permission on the SQL Server, and must be a member of the local administrator group where SQL Server is running to be able to create or import organizations.

Important

To perform organization operations through the Deployment Web Service or Windows PowerShell, the Deployment Service account must have system administrator permissions on the computer that is running SQL Server and must be a member of the local administrators group where SQL Server is installed. Additionally, the user that is performing the organization operations should be a Deployment Administrator.

The Deployment Administrator role in Microsoft Dynamics 365 is set in Deployment Manager.

```
<AsyncServiceAccount type="DomainUser"/"NetworkService">  
<ServiceAccountLogin>Domain\User</ServiceAccountLogin>  
<ServiceAccountPassword>password</ServiceAccountPassword>  
</AsyncServiceAccount>
```

Specifies the service account to use for the asynchronous processing services.

Accepted values are *DomainUser*, which will use the specified domain user provided in the *<prefixServiceAccount>* element or *NetworkService*, which uses the Network Service system account. However, using the Network Service system account isn't recommended because it may limit some database operations such as organization create, import, upgrade, or update. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified,

<**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required.

Warning

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

If you don't specify this element, Setup will use the account specified in the <**CrmserviceAccount**> element to run this service. Therefore, we recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics 365 service accounts.

```
<VSSWriterServiceAccount type="DomainUser"/"NetworkService">  
<ServiceAccountLogin>="DomainUser"/"NetworkService"</ServiceAccountLogin>  
<ServiceAccountPassword>password</ServiceAccountPassword>  
</VSSWriterServiceAccount>
```

Specifies the service account to use for the Microsoft Dynamics 365 VSS Writer service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the <*prefixServiceAccount*> element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required.

Warning

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

We recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics 365 service accounts.

```
<MonitoringServiceAccount type="DomainUser"/"NetworkService">  
<ServiceAccountLogin>="DomainUser"/"NetworkService"</ServiceAccountLogin>  
<ServiceAccountPassword>password</ServiceAccountPassword>  
</MonitoringServiceAccount>
```

Specifies the service account to use for the Microsoft Dynamics 365 Monitoring service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the <*prefixServiceAccount*> element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, <**ServiceAccountLogin**> and <**ServiceAccountPassword**> are required.

Warning

Maintaining the configuration file that has <**ServiceAccountLogin**> and <**ServiceAccountPassword**> values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

We recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics 365 service accounts.

For information about Microsoft Dynamics 365 services, see [Microsoft Dynamics 365 server roles](#). For information about the permissions required for Microsoft Dynamics 365

services and what type of account to use, see [Security considerations for Microsoft Dynamics 365](#).

<SQM optin=" true / false"/>

Specifies whether you will participate in the Customer Experience Improvement Program. If you specify **true**, you'll participate in the program.

Note

For more information, see [Microsoft Customer Experience Improvement Program](#).

<Reporting URL="http://srsserver1/ReportServer"/>

URL

Specifies the URL of the Report Server.

<Groups autogroupmanagementoff="true/false">

When specified, Setup will use the existing groups in Active Directory instead of creating them during installation. If <**automanagegroupsoff**> is **true**, Setup will not add or remove any members to those groups. If you specify <**automanagegroupsoff**> as **true**, you must manually create and add the appropriate membership to these groups for users to be able to run the application, and you must continue to do so as new members are added or removed from Microsoft Dynamics 365.

Important

- You can't use the <**Groups**> element with the <**OU**> element. Setup won't continue if you specify both elements together.
- Direct user account membership in the Microsoft Dynamics CRM privusergroup security group is required and group membership nesting under privusergroup currently is not supported. Granting membership to privusergroup through another security group can cause system-wide failures in the CRM web application and reporting features. For example, if you add a security group named mycrmprivgroupusers to privusergroup, members of mycrmprivgroupusers will not resolve as privusergroup members. This includes the CRMAppPool or the SQL Server Reporting Services service identities.

This setting is only available when you use a configuration file.

<remoteinstall>"true" / "false" </remoteinstall>

This option is required when you run a remote installation by using Windows PowerShell remoting. The default value is **false**.

<Reboot>"true" / "false"</Reboot>

If this option is not specified, the default is **false**. This means that the server won't automatically restart at the end of Setup. Also, this option applies only to a final install restart, and not previous restarts that may be required for other components.

Note

The installation of Microsoft .NET Framework may require you to restart your computer before you can continue to run Microsoft Dynamics 365 Setup.

<Email>

This optional element specifies the Microsoft Exchange Server computer or POP3 that will be used by the Email Router to route incoming email messages. If not specified and later the Email Router is used in the deployment, the computer must be added to the **PrivUserGroup** security group.

</Email>

Specifies the email server that will be used for email routing.

<configdb>

This is the parent for the following encryption key elements:

Warning

By default, encryption keys aren't stored in the configuration database in an encrypted format. We strongly recommend that you specify encryption when you run Setup by using the following entries.

```
<encryptionkeys certificate="CrmEncryptionCertificate" generate="true"/><False" password="SCpassword" keysource="uniqueID">
```

The **<encryptionkeys>** element specifies how, and whether, to encrypt the keys that are stored in the Microsoft Dynamics 365 system. Use **generate="true"** to enable the system-generated keys that are encrypted. The **keysource** may be any value, but must be different from other **keysource** values. **SCpassword** is the password that will be used to create the symmetric certificate. This setting is only available when you use a configuration file.

Warning

Maintaining a configuration file that has **password** and **keysource** values specified is a security risk because you are storing a password and key information in plain text. We recommend that you save the password in a secure location from where it can be retrieved later for recovery. For more information about best practices for password storage, see the MSDN article [Passwords Best practices](#). Then, delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365.

```
<encryptionkey physicalname="CrmSymmetricKey" virtualname="CrmKeyEncryptionKey"/>
```

Each **<encryptionkeys>** element specifies a mapping between a symmetric key store in the Microsoft SQL Server database to a virtual key name, hard-coded in Microsoft Dynamics 365 for encrypting data in the configuration database. This setting is only available when you use a configuration file.

```
</encryptionkeys>
```

```
<LaunchReportingExtensionsSetup>"false" / "true"</LaunchReportingExtensionsSetup>
```

Optional element that specifies whether to start Microsoft Dynamics 365 Reporting Extensions Setup immediately after Microsoft Dynamics 365 Server Setup completes. By default, the value for this element is false and Microsoft Dynamics 365 Reporting Extensions Setup won't start after Microsoft Dynamics 365 Server Setup completes. Additionally,

Microsoft Dynamics 365 Reporting Extensions Setup will only start when the following conditions are true:

- Microsoft Dynamics 365 Server Setup will be creating or upgrading the first organization in the deployment
- The specified Report Server computer is the local computer where Setup is running

See Also

[Use the command prompt to install Microsoft Dynamics Server 365](#)

[Sample server XML configuration file](#)

[Sample server XML configuration file for installing with pre-created groups](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Sample server XML configuration file

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following configuration file installs an update file that is located on an internal share, installs a Full Server with all Microsoft Dynamics 365 Server features, and creates new databases on the default instance of a SQL Server that is named **SQLServer**.

```
<
  CRMSetup
>

<Server>
<Patch update="true">\\ServerName\ShareName\patchfile.msp</Patch>
<LicenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</LicenseKey>
<SqlServer>SQLServer</SqlServer>
<Database create="true"/>
<Reporting URL="http://MyReportingServer/ReportServer"/>
<OrganizationCollation>Latin1_General_CI_AI</OrganizationCollation>
<basecurrency isocurrencycode="USD" currencyname="US Dollar" currencysymbol="$"
currencyprecision="2"/>
<Organization>Organization Display Name</Organization>
<OrganizationUniqueName>Organization-Name</OrganizationUniqueName>
<OU>OU=value,DC=subdomain,DC=subdomain,DC=subdomain,DC=com</OU>
<WebsiteUrl create="true" port="5555"> </WebsiteUrl>
```

```
<InstallDir>c:\Program Files\Microsoft Dynamics CRM</InstallDir>

<CrmServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMAppService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</CrmServiceAccount>

<SandboxServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMSandboxService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</SandboxServiceAccount>

<DeploymentServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMDeploymentService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</DeploymentServiceAccount>

<AsyncServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMAsyncService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</AsyncServiceAccount>

<VSSWriterServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMVSSWriterService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</VSSWriterServiceAccount>

<MonitoringServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</MonitoringServiceAccount>

<SQM optin="true"/>
```

```

<muoptin optin="true"/>

<!-- Settings for IFD installation. May be skipped for intranet-only deployment or to configure
IFD later. -->
<ifdsettings enabled="false">
    <!-- Define what address considered internal, required only if enabled=true -->
    <internalnetworkaddress>10.0.0.1-255.0.0.0</internalnetworkaddress>
    <!-- Define URLs with IFD authentication, required only if enabled=true -->
    <rootdomainscheme>http</rootdomainscheme>
    <sdkrootdomain>api.contoso.com</sdkrootdomain>
    <webapplicationrootdomain>app.contoso.com</webapplicationrootdomain>
    <discoveryrootdomain>disc.contoso.com</discoveryrootdomain>
</ifdsettings>

<Email>
    <IncomingExchangeServer name="ExchangeServerName"/>
</Email>

</Server>
</CRMSetup>

```

Caution

Maintaining the configuration file that has **<ServiceAccountLogin>** and **<ServiceAccountPassword>** values specified is a security risk because you are storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

See Also

[Microsoft Dynamics 365 Server XML configuration file](#)
[Sample server XML configuration file for installing with pre-created groups](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Sample server XML configuration file for installing with pre-created groups

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

By default, Setup creates four Active Directory security groups that are used by Microsoft Dynamics 365. You can create these groups in advance and then provide the information for the groups in the Setup configuration file.

To use the pre-created Active Directory directory service security groups, create an XML configuration file that uses the LDAP distinguished name syntax that is similar to the following example. Modify the variables as appropriate.

For example, the following sample would be used when the Organizational unit (OU) where the pre-created groups (PrivUserGroup, SQLAccessGroup, ReportingGroup, and PrivReportingGroup) are located is named *Dynamics 365* and the full domain name where the *Dynamics 365* OU is located is *sales.contoso.com*.

◆ Important

The user who runs Microsoft Dynamics 365 Server Setup must have **Add User or Group** permission to these Active Directory groups. For more information about how to assign user rights to a group in Active Directory Domain Services (AD DS), see the Active Directory Users and Computers Help.

Because the organizational unit will be specified when you use the Active Directory groups <GROUPS> element, you cannot specify the organizational unit again using the <OU> element.

The <Groups> element must be inside the <Server> and <CRMSetup> elements. For syntax structure, see [Microsoft Dynamics 365 Server XML configuration file](#).

```
<Groups AutoGroupManagementOff="false">
  <PrivUserGroup>CN=PrivUserGroup,OU=CRM,DC=sales,DC=contoso,DC=com</PrivUserGroup>
  <SQLAccessGroup>CN=SQLAccessGroup,OU=CRM,DC=sales,DC=contoso,DC=com</SQLAccessGroup>
  <ReportingGroup>CN=ReportingGroup,OU=CRM,DC=sales,DC=contoso,DC=com</ReportingGroup>
  <PrivReportingGroup>CN=PrivReportingGroup,OU=
CRM,DC=sales,DC=contoso,DC=com</PrivReportingGroup>
</Groups>
```

See Also

[Microsoft Dynamics 365 Server XML configuration file](#)
[Install Microsoft Dynamics 365 Server roles using the command prompt](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Server roles using the command prompt

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

By default, Setup installs all Microsoft Dynamics 365 Server roles on the local computer. However, when you are installing Microsoft Dynamics 365 Server, you can select to install one or more server roles. Additionally, you can install the same server role or roles on two or more computers, which can provide load balancing benefits. To do this, you can either select the roles that you want by running the Microsoft Dynamics 365 Server Setup Wizard or you can configure an XML configuration file and then run Setup at a command prompt on the computer where you want the role installed.

Note

You can run Setup at a command prompt or from Programs and Features in the Control Panel to add or remove server roles to a computer that already has one or more server roles installed.

For more information about server roles, see [Microsoft Dynamics 365 server roles](#).

Parameters

The supported command prompt parameters are the same as those previously described under [Install Microsoft Dynamics 365 Server by using a command prompt](#) in this guide.

Server role XML configuration file

The `/config [drive:] [[path] configfilename.xml]` command-line parameter provides Microsoft Dynamics 365 Server Setup with required information. The information supplied by the XML configuration file is what is required by each installation screen.

Important

The XML elements must be in English (US). An XML configuration file that has localized XML elements will not work correctly.

An explanation of each XML element and a sample XML file follows:

```
<Roles>
<Role Name="RoleName1" Action="Add" / "Remove"/>
<Role Name="RoleName2" Action="Add" / "Remove"/>
```

Name. The name of the Microsoft Dynamics 365 Server role. For available server role names, see [Microsoft Dynamics 365 Server role names used in the XML configuration file](#).

Action. This attribute is only required when you reconfigure an existing deployment by adding or removing server roles.

</Roles>

Microsoft Dynamics 365 Server role names used in the XML configuration file

WebApplicationServer

Installs the components that are needed to run the Web application server.

OrganizationWebService

Installs the Organization Web Service components that are needed to run applications that use the methods described in the Microsoft Dynamics 365 SDK.

DiscoveryWebService

Installs the Discovery Web Service component users need to find the organization that they are a member of in a multi-tenant deployment.

HelpServer

Installs the components that are needed to make Microsoft Dynamics 365 Help available to users.

AsynchronousProcessingService

Installs the Asynchronous Service. This service is used to process queued asynchronous events, such as bulk email or data import.

EmailConnector

Installs the service and related files that handle sending and receiving of email messages by connecting to an external email server.

SandboxProcessingService

Installs the components that are needed to provide custom code execution isolation.

DeploymentTools

Installs Deployment Manager and Windows PowerShell cmdlets that you can use to automate deployment tasks. Deployment Manager is a Microsoft Management Console (MMC) snap-in that system administrators can use to manage organizations, servers, and licenses for deployments of Microsoft Dynamics 365.

DeploymentWebService

Installs the Deployment Web Service component that is required to manage the deployment by using the methods described in the Microsoft Dynamics 365 SDK, such as create an organization or remove a Deployment Administrator role from a user.

VSSWriter

Installs the interface that can be used to back up and restore Microsoft Dynamics 365 data by using the Windows Server Volume Shadow Copy Service (VSS) infrastructure.

◆ Important

Although you cannot specify a group of server roles (Front End Server, Back End Server or Deployment Administration Server), you can specify all server roles in the server role group, such as the following XML sample snippet that installs all Front End Server roles.

```
<
  Roles
>
<Role Name="WebApplicationServer" />
<Role Name="OrganizationWebService" />
<Role Name="DiscoveryWebService" />
<Role Name="HelpServer" />
</Roles>
```

See Also

[Microsoft Dynamics 365 Server XML configuration file](#)
[Sample XML configuration file that installs only the WebApplicationServer and OrganizationWebService roles](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Sample XML configuration file that installs only the WebApplicationServer and OrganizationWebService roles

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following example installs only the Web Application Server and Organization Web Service server roles on the local computer. In order to use this configuration file the configuration database must already exist on the Microsoft SQL Server that is named *SQLServer*. The feature will be installed in the default IIS website. To specify a different website, use the **<WebsiteUrl>** element. For more information, see [Microsoft Dynamics 365 Server XML configuration file](#).

Note

The Web Application Server requires the Organization Web Service. Therefore, even when you specify only the WebApplicationServer role name, the Organization Web Service (OrganizationWebService) will automatically be installed.

```
<
  CRMSetup
>
```

```

<Server>
<Patch update="true">\\server\share\patchfile.msp</Patch>
<LicenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</LicenseKey>
<SqlServer>SQLServer</SqlServer>
<Database create="false" />
<InstallDir>c:\Program Files\Microsoft Dynamics CRM</InstallDir>
<WebsiteUrl create="true" port="5555"> </WebsiteUrl>
<Roles>
  <Role name="WebApplicationServer"/>
</Roles>
<SQM optin="true" />
<MUoptin optin="true" />
<CrmServiceAccount type="DomainUser">
  <ServiceAccountLogin>contoso\user1</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</CrmServiceAccount>
<MonitoringServiceAccount type="DomainUser">
<ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>
<ServiceAccountPassword>password</ServiceAccountPassword>
</MonitoringServiceAccount>
</Server>
</CRMSetup>

```

Caution

Maintaining the configuration file that has **<ServiceAccountLogin>** and **<ServiceAccountPassword>** values specified is a security risk because you are storing a password in plain text. Delete these elements as soon as the configuration file is used to install Microsoft Dynamics 365 Server.

See Also

[Install Microsoft Dynamics 365 Server roles using the command prompt](#)
[Sample XML configuration file that installs only the HelpServer role](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Sample XML configuration file that installs only the HelpServer role

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following example installs only the Help Server role on the local computer.

```
<
  CRMSetup
>

<Server>
  <Patch update="true"/>
  <LicenseKey>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</LicenseKey>
  <SqlServer>SQLServerName</SqlServer>
  <Database create="false"/>
  <WebsiteUrl create="true" port="5555">LM/W3SVC/1</WebsiteUrl>
  <Help anonymous="true">http://LocalHost/Help</Help>
  <InstallDir>c:\Program Files\Microsoft Dynamics CRM</InstallDir>
  <Roles>
    <Role name="HelpServer"/>
  </Roles>
  <SQM optin="true"/>
  <MUoptin optin="true"/>
  <CrmServiceAccount type="DomainUser">
    <ServiceAccountLogin>contoso\CRMHelpservice</ServiceAccountLogin>
    <ServiceAccountPassword>password</ServiceAccountPassword>
  </CrmServiceAccount>
  <MonitoringServiceAccount type="DomainUser">
    <ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>
    <ServiceAccountPassword>password</ServiceAccountPassword>
  </MonitoringServiceAccount>
</Server>
```

</CRMSetup>

◆ Important

Unless you use **<Help anonymous="true">**, the Help Server contents in IIS will not be configured for anonymous access. If the Help Server application isn't configured for anonymous access, users may be prompted repeatedly for authentication credentials when they access Microsoft Dynamics 365 Help.

By default, the Help Server uses the Web Application Server web address that appears in Deployment Manager. Additionally, Microsoft Dynamics 365 Server Setup does not update the URL when you install the Help Server on a separate computer. You must change the URL manually. To change the URL, run the following Windows PowerShell commands in the following topic on the computer that is running the Deployment Tools server role.

Change the Microsoft Dynamics 365 HelpServer URL

The following Windows PowerShell cmdlets change the Microsoft Dynamics 365Help Server URL to <https://crmhelpserver.contoso.com>, an Internet-facing Help Server configured for TLS/SSL. Before you can run the Microsoft Dynamics 365Help Server cmdlets, you must register them first. For more information, see [Get started using the Dynamics 365 PowerShell cmdlets](#).

View existing web address settings. Notice that, if the Helpserverurl web address setting appears blank when you run the following Windows PowerShell command, the Help Server is using the same web address as the Web Application Server (WebAppRootDomain).

```
Get-CrmSetting WebAddressSettings
```

Set the Help Server url.

```
$websetting = Get-CrmSetting WebAddressSettings
```

```
$websetting.HelpServerUrl = "https://crmhelpserver.contoso.com"
```

```
Set-CrmSetting $websetting
```

Verify the new URL by viewing the web address settings again.

```
Get-CrmSetting WebAddressSettings
```

See Also

[Sample XML configuration file that installs only the WebApplicationServer and OrganizationWebService roles](#)

[Install Microsoft Dynamics 365 Server roles using the command prompt](#)

[Install Microsoft Dynamics 365 Reporting Extensions using a command prompt](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Reporting Extensions using a command prompt

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 Reporting Extensions are data processing extensions that are installed on the Microsoft SQL Server Reporting Services server. Microsoft Dynamics 365 Reporting Extensions accept the authentication information from Microsoft Dynamics 365 Server and pass it to the Microsoft SQL Server Reporting Services server.

Installing Microsoft Dynamics 365 Reporting Extensions installs two data processing extensions: Microsoft Dynamics 365 Fetch data processing extension and SQL data processing extension. The Fetch data processing extension is required to create, run, and schedule Fetch-based reports in Microsoft Dynamics 365. The SQL data processing extension is required to schedule SQL-based reports in Microsoft Dynamics 365.

Microsoft Dynamics 365 Reporting Extensions requirements

Microsoft Dynamics 365 Reporting Extensions has the following requirements:

- You must have all Microsoft Dynamics 365 Server roles installed before you run Microsoft Dynamics 365 Reporting Extensions Setup.
- You must run Microsoft Dynamics 365 Reporting Extensions Setup on a computer that has Microsoft SQL Server Reporting Services installed.
- You can run Microsoft Dynamics 365 Reporting Extensions with any supported version of Microsoft SQL Server Reporting Services. For detailed information about the versions of Microsoft SQL Server Reporting Services supported, see [Microsoft Dynamics 365 reporting requirements](#).
- Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services can't be installed on a server running a Server Core installation of Windows Server. This is because Microsoft SQL Server Reporting Services, which is required by Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services, can't be installed on a server running a Server Core installation of Windows Server.
- For smaller data sets and fewer users, it may be suitable to use a single-server deployment where SQL Server database engine and Microsoft SQL Server Reporting Services run on the same server. However, with larger datasets or more users, performance will decrease quickly when complex reports are run, so we recommend that you use a multi-server deployment with one computer running SQL Server for the Microsoft Dynamics 365 databases, and another server for Microsoft SQL Server Reporting Services.

Command example

Microsoft Dynamics 365 Reporting Extensions accepts the same command-line parameters as Microsoft Dynamics 365 Server. To install Microsoft Dynamics 365 Reporting Extensions in quiet mode, which uses an XML configuration file named **install-config.xml**, and creates a log file named **log.txt**, run the Setup program that is located in the **SrsDataConnector** folder from the Microsoft Dynamics 365 installation files as follows:

```
SetupSrsDataConnector /Q /CONFIG folderpath\install-config.xml /L c:\logfiles\crm\log.txt
```

See Also

[Use the command prompt to install Microsoft Dynamics Server 365](#)
[Referenced topic '0e35546e-766b-4f5a-aead-0e8219ecb7f2' is only available online.](#)
[Microsoft Dynamics 365 Reporting Extensions XML configuration file](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Reporting Extensions XML configuration file

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Before you run Microsoft Dynamics 365 Reporting Extensions Setup at a command prompt, you must modify the XML configuration file to include information, such as the name of the computer where the configuration database is located. A sample Microsoft Dynamics 365 Reporting Extensions configuration file named **install-config.xml** is located in the SrsDataConnector folder on the installation media or download location of the Microsoft Dynamics 365 Server installation files.

The **/config[drive:] [[path] configfilename.xml]** command-line parameter provides the Microsoft Dynamics 365 Reporting Extensions Setup with required information. The information this configuration file supplies is the same that each installation screen requires. The XML elements must be in English (US); special or extended characters cannot be used. An XML configuration file that has localized XML elements will not work correctly. An explanation of each XML element and a sample XML file follows:

`<CRMSetup> </CRMSetup>`

The configuration file must be a valid XML file that uses **<CRMSetup>** as the root element.

`<srsdataconnector>`

The configuration file must be a valid XML file that uses **<srsdataconnector>** as the primary element. All the Microsoft Dynamics 365 Reporting Extensions entries that follow must be within the **<srsdataconnector>** tags.

`<InstallType>Uninstall/Repair</InstallType>`

Specifies the type of installation that Setup will perform. The following options are available:

Uninstall. Uninstalls Microsoft Dynamics 365 Reporting Extensions.

Repair. Starts Setup in repair mode.

`<Patch update="true"/"false">\\ServerName\ShareName\Patch_Location</Patch>`

If you do not specify a location, by default Setup will go online to a location that is managed by Microsoft to search for available updates. Or, you can point Setup to install a Microsoft Dynamics 365 Reporting Extensions Setup update .msp file from a different location, such as an internal share.

`update`

Specifies whether Setup will look for, download, and apply updates for Microsoft Dynamics 365 Server Setup. We recommend that you let Setup download the latest version by selecting **true**. By default, this value is set to **false**. If the value is set to **false**, Setup will ignore this step and continue with the installation.

`<configdbserver>SQLServerName\Instancename</configdbserver>`

Specifies the instance of SQL Server that stores the configuration database. If you specify

the default instance, use *SQLServerName*, or if you use a named instance use *SQLServerName\InstanceName*.

`<muoptin optin="true"/"false" />`

Specifies whether to use Microsoft Update to download and install updates for Microsoft Dynamics 365 Reporting Extensions. After the installation is completed, this feature helps keep your computer up-to-date on an ongoing basis.

- **True.** When you specify this option, Setup will opt in to Microsoft Update as the update service and use the Windows automatic updating settings on the computer. Windows automatic update settings can be viewed in Windows Update in Control Panel. Microsoft Update helps make sure that your computer has the latest technology, which can help reduce the risk of vulnerabilities and security issues.
- **False.** When you specify this option, Setup won't change the existing Windows automatic update settings. If the computer isn't already configured to use Microsoft Update as the update service, we recommend that you have another method to install updates on the computer, such as by using Windows Update Services. If left blank, a value of **false** will be selected.

`<InstallDir>c:\program files\Microsoft Dynamics CRM Reporting Extensions</InstallDir>`

Specifies the folder in which the Microsoft Dynamics 365 Reporting Extensions files will be copied. The default location is `c:\program files\Microsoft Dynamics 365 Reporting Extensions`.

`<autogroupmanagementoff>1/0</autogroupmanagementoff>`

If `<automanagegroupsoff>` is **1** (true), Setup will not add or remove any members to the security group in Active Directory directory service. Therefore, you must manually add the Microsoft SQL Server Reporting Services service account for the associated instance of SQL Server to the **PrivReportingGroup** security group.

See Also

[Install Microsoft Dynamics 365 Reporting Extensions using a command prompt](#)
[Sample Microsoft Dynamics 365 Reporting Extensions XML configuration file](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Sample Microsoft Dynamics 365 Reporting Extensions XML configuration file

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following XML configuration sample will search, and if found download and apply, updates to Setup. It will optin to Microsoft Update, then look for the Microsoft Dynamics 365 configuration database on a Microsoft SQL Server named **SQLServer** and install the Microsoft Dynamics 365 Reporting Extensions on on the local SQL Server instance that is named **SQLReportServerInstance**. Additionally, Setup will add or remove any members to the Microsoft Dynamics 365 related security

groups in Active Directory directory service as needed and install the monitoring service configured for an existing domain user account named *CRMMonitoringService*.

```
<
  crmsetup
>
<srsdataconnector>
<configdbserver>SQLServer</configdbserver>
<autogroupmanagementoff>0</autogroupmanagementoff>
<instancename>SQLReportServerInstance</instancename>
<patch update="true" />
<muoptin optin="true" />
<MonitoringServiceAccount type="DomainUser">
  <ServiceAccountLogin>Contoso\CRMMonitoringService</ServiceAccountLogin>
  <ServiceAccountPassword>password</ServiceAccountPassword>
</MonitoringServiceAccount>
</srsdataconnector>
</crmsetup>
```

Logging

By default, Setup creates a file that is named **SrsDataConnectorSetup.log** in the %appdata%\Microsoft\MSCRM\Logs folder on the computer where Setup is run.

See Also

[Microsoft Dynamics 365 Reporting Extensions XML configuration file](#)
[Install Microsoft Dynamics 365 Report Authoring Extension using a command prompt](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Install Microsoft Dynamics 365 Report Authoring Extension using a command prompt

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

From a command prompt, you can use the following command to install Microsoft Dynamics 365 Report Authoring Extension:

```
SetupBIDSExtensions.exe [/Q] [/config configfile.xml]
```

Microsoft Dynamics 365 Report Authoring Extension command-line parameters

`/Q`

Quiet mode installation. This parameter requires an XML configuration file. The `/config` parameter contains the name of the configuration file. No dialog boxes or error messages will appear on the display screen.

`/config [drive:] [[path] configfilename.xml]`

The `/config` parameter uses the specified XML configuration file to provide Setup with the additional information to complete the installation. An example XML configuration file is shown in [Microsoft Dynamics 365 Report Authoring Extension XML configuration file](#). Notice that if you specify a configuration file without the `/Q` parameter, you'll see Setup screens displayed with the information from the configuration file.

`/uninstall`

Uninstalls Microsoft Dynamics 365 Reporting Extensions. This is a maintenance mode option that is only available after the application is installed.

See Also

[Install Microsoft Dynamics 365 Reporting Extensions using a command prompt](#)
[Microsoft Dynamics 365 Report Authoring Extension XML configuration file](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Report Authoring Extension XML configuration file

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This topic lists explanations for each XML element and a sample XML file for installing Microsoft Dynamics 365 Report Authoring Extension:

`<CRMSetup> </CRMSetup>`

The configuration file must be a valid XML file that uses `<CRMSetup>` as the root element.

`<bidsextensions> </bidsextensions>`

The configuration file must be a valid XML file that uses `<bidsextensions>` as the primary element. All the Report Authoring Extension entries that follow must be within the `<bidsextensions>` tags

`<patch update="true" / "false" />`

Determines the behavior of the update Setup technology. When you specify **True** this feature lets Setup perform a one-time search for, and if applicable, download to apply the latest installation files for Microsoft Dynamics 365. If you specify **False**, updates will not be applied to Setup.

`<muoptin optin="true" / "false" />`

Specifies whether to use Microsoft Update to download and install updates for Microsoft

Dynamics 365 Report Authoring Extension. After the installation is completed, this feature helps keep your computer up-to-date on an ongoing basis.

- **True.** When you specify this option, Setup will opt in to Microsoft Update as the update service and use the Windows automatic updating settings on the computer. Windows automatic update settings can be viewed in Windows Update in Control Panel. Microsoft Update helps make sure that your computer has the latest technology, which can help reduce the risk of vulnerabilities and security issues.
- **False.** When you specify this option, Setup will not change the existing Windows automatic update settings. If the computer is not already configured to use Microsoft Update as the update service, we recommend that you have another method to install updates on the computer, such as by using Microsoft Windows Update Services (WSUS). If left blank, a value of `false` will be selected.

`<InstallDir>c:\program files\Microsoft Dynamics CRM</InstallDir>`

Specifies the folder in which application files will be installed. By default, Setup uses the folder `C:\Program Files (x86)\Microsoft Dynamics 365`.

`<InstallType>uninstall/repair</InstallType>`

Uninstalls or repairs Microsoft Dynamics 365 Report Authoring Extension. This is a maintenance mode option that is only available when the application is already installed.

`<InstanceName>InstanceName</InstanceName>`

Specifies a named instance of Microsoft SQL Server where to install Microsoft Dynamics 365 Report Authoring Extension. If left blank or not used, Setup uses the default instance of SQL Server.

`<MonitoringServiceAccount type="DomainUser"/"NetworkService">`

`<ServiceAccountLogin>="DomainUser"/"NetworkService"</ServiceAccountLogin>`

`<ServiceAccountPassword>password</ServiceAccountPassword>`

`</MonitoringServiceAccount>`

Specifies the service account to use for the Microsoft Dynamics 365 Monitoring service.

Accepted values are *DomainUser*, which will use the specified domain user provided in the `<prefixServiceAccount>` element or *NetworkService*, which uses the Network Service system account. By default, Setup will use the *DomainUser* option. If *DomainUser* or no type is specified, `<ServiceAccountLogin>` and `<ServiceAccountPassword>` are required.

Warning

Maintaining the configuration file that has `<ServiceAccountLogin>` and `<ServiceAccountPassword>` values specified is a security risk because you're storing a password in plain text. Delete these elements as soon as the configuration file is used to install the application.

We recommend that you specify a different low-privilege user account for each of the Microsoft Dynamics 365 service accounts.

For information about Microsoft Dynamics 365 services, see [Microsoft Dynamics 365 server roles](#). For information about the permissions required for Microsoft Dynamics 365 services and what type of account to use, see [Security considerations for Microsoft Dynamics 365](#).

Note

Microsoft Dynamics 365 Report Authoring Extension is only available in 32-bit.

Microsoft Dynamics 365 Report Authoring Extension requires SQL Server Data Tools (SSDT). For more information about the system requirements, see [Microsoft Dynamics 365 Reporting Authoring Extension requirements](#).

See Also

[Install Microsoft Dynamics 365 Report Authoring Extension using a command prompt](#)

[Install Microsoft Dynamics 365 Reporting Extensions using a command prompt](#)

[Sample Microsoft Dynamics 365 Reporting Extensions XML configuration file](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Sample Microsoft Dynamics 365 Report Authoring Extension XML configuration file

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The following XML configuration contents will install Microsoft Dynamics 365 Report Authoring Extension that will opt-in to use Microsoft Update, search and apply existing updates, and install Microsoft Dynamics 365 Report Authoring Extension in the C:\Program Files (x86)\Not default CRM Report Authoring Extension folder. By default, Setup installs in the <drive>:\Program Files (x86)\Microsoft Dynamics CRM Report Authoring Extension folder.

```
<
  crmsetup
>
<bidsextensions>
  <patch update="true" />
  <muoptin optin="true" />
  <installdir>C:\Program Files (x86)\Not default CRM Report Authoring Extension</installdir>
</bidsextensions>
</crmsetup>
```

See Also

[Microsoft Dynamics 365 Report Authoring Extension XML configuration file](#)

[Referenced topic '0e35546e-766b-4f5a-aead-0e8219ecb7f2' is only available online.](#)

Deploy Microsoft Dynamics 365 on Azure FAQ

Applies To: Dynamics CRM 2013, Dynamics CRM 2015

The following Microsoft Dynamics 365 on-premises versions can be deployed on Microsoft Azure virtual machines.

- Microsoft Dynamics CRM 2015
- Microsoft Dynamics CRM 2013 Service Pack 1 (SP1)

This article presents the frequently asked questions about Microsoft Dynamics 365 and Azure.

Overview

What is supported?

Support for Microsoft Dynamics 365 deployment on Microsoft Azure infrastructure as a service (IaaS):

- To support a new deployment choice for customers, we will now be supporting production deployments of Dynamics 365 on-premises in a customer's Microsoft Azure subscription using the IaaS capability with Azure Premium Storage. Introducing this deployment option offers our customers all the benefits of using Microsoft cloud services while continuing to meet their requirement for in-house IT.

Support for Dynamics 365 on Azure using Microsoft Dynamics Lifecycle Services (LCS):

- LCS, a cloud-based application life cycle management tool for Microsoft Dynamics customers, provides cloud deployment services for Dynamics 365 into a customer's Azure subscription. Although not required, LCS is the preferred method for the deployment of Dynamics 365 onto Azure IaaS. The LCS deployment service will markedly reduce manual deployment efforts, expended time and costs and create a running Dynamics 365 in Azure IaaS environment in a few hours.

What are the support considerations?

- Dynamics 365 deployed on Azure IaaS qualifies for production support using the Microsoft Dynamics Partner or customer support offerings, including Microsoft Software Assurance for all Dynamics 365 issues. Azure support must be acquired through the Azure support portal for all support issues. To learn more about the Azure support options, visit [Azure support plans](#).
- Dynamics 365 deployed on Azure IaaS production support requires that Azure Premium storage services be used. Be sure to check if Azure Premium Storage services are available in the Azure data center you are considering. Visit [Azure Regions](#) for the latest information.
- Microsoft Dynamics Lifecycle Services (LCS) is the preferred deployment service for Dynamics 365 on Azure IaaS. Support for specific issues concerning LCS is available. For more information, visit

[Lifecycle Services](#). All other support issues are to be directed to Dynamics 365 support or Azure support services.

What does “Dynamics 365 is supported for production use on Azure” really entail?

- Dynamics 365 on Azure is supported in Azure using IaaS. This is another deployment capability for Dynamics 365 on Azure along with the previously supported deployment types: on-premises, on-premises virtual machines, and Microsoft Dynamics partner-hosted virtual machines.
- You will require a Dynamics 365 subscription that can be acquired at [Microsoft Azure](#) to deploy into Dynamics 365.

When is the official date that Dynamics 365 will be supported on Azure?

- Support was officially made available in July, 2015.

Are there different Dynamics 365 on Azure versions?

No. Dynamics 365 on Azure is simply a deployment of Dynamics 365 (on-premises) to Azure IaaS.

How do I buy Dynamics 365 on Azure for Azure?

- First, there is no Dynamics 365 on Azure “for” Azure. As stated previously, there is only one product version, namely Dynamics 365 (on-premises).
- There is nothing different from buying the product for Dynamics 365 (on-premises) or Azure deployment. You will continue to buy the product as you have in the past or buy other Microsoft products using Microsoft Sales or authorized Microsoft Dynamics Partners.

Do I need different Dynamics 365 licenses to deploy to Azure?

- No. Software Assurance comes with a mobility option allowing for deployment to Azure IaaS using your Dynamics 365 (on-premises) software license.

Will my existing Dynamics 365 on-premises license allow for an on Azure deployment?

- Yes, your existing Microsoft Dynamics 365 on-premises licenses can be used. Keep in mind, that when you deploy to Azure, the server license goes with that deployed server. If there are additional servers in your architecture, each will need to be licensed accordingly.

What do I need to know to deploy Dynamics 365 on Azure?

- First, Dynamics 365 on Azure is the same release of Microsoft Dynamics 365 on-premises with no new or different capabilities.
- Use the available readiness resources as a first step to learn about Dynamics 365. in general. Also, you can use the existing installation guides.
- Architecturally, the same basic considerations are in view whether deploying on-premises or in Azure, namely the number of simultaneous users, workloads, and so on.
- Finally, most IT staffs might not be familiar with Azure. In those cases, Azure has extensive readiness resources that should be used. For more information, you can download the [Azure Readiness Content](#).

Who do I call when things aren't working as expected?

- All current means with which to get support from Microsoft will continue to be available. If you have a support agreement with Dynamics 365 already, there will be nothing new introduced if you decide to deploy to Azure.
- However, if the issue in question is about Azure or its functionality and issues, those questions will need to be addressed by Azure support. We recommend that you add an Azure support agreement.
- Dynamics 365 support resources will continue to be available as in the past for Dynamics 365 questions, issues, and problems.

Are there performance considerations when using IaaS in Azure?

- Azure IaaS provides a range of compute models that vary around number of cores and amount of memory. The compute model of each virtual machine that supports your Dynamics 365 on Azure deployment can be “tuned” and adjusted in minutes to accommodate variations in workloads.
- Azure IaaS provides support for connectivity using virtual networks. While the bandwidth allocated here is quite adequate, it can vary at bit. Planning for this architecturally is important.
- For production use of Dynamics 365 on Azure – Premium Storage is required.

Will there be authorized Dynamics Partners who can assist in an Azure deployment?

- While there's no “official list” at this time, many Microsoft Dynamics Partners are very excited about this new deployment option and are pursuing readiness and experience as fast as possible.

If I decide to deploy Dynamics 365 on Azure, what resources are available to assist?

- Microsoft Dynamics Lifecycle Services (LCS) will be the preferred way to deploy Dynamics 365 on Azure IaaS. More information: [Lifecycle Services](#)

Microsoft Dynamics Lifecycle Services (LCS)

Do I need to use LCS to deploy Dynamics 365 on Azure IaaS?

- No. However we highly recommend that you use LCS as it will eliminate many hours to possibly weeks of installation time and effort.

What is LCS?

LCS is a Azure-based collaboration portal that provides a unifying, collaborative environment along with a set of regularly updated services that help you manage the application lifecycle of your Microsoft Dynamics implementations. More information: [Lifecycle Services](#)

What do I need to use LCS?

- You will need a PartnerSource (formerly VOICE) account to sign in to the service.
- If you're an existing Microsoft Dynamics customer or partner, you should already have a VOICE account.

What else does LCS provide to help with my Azure deployment?

- At this time, development and test environments are available to deploy Dynamics 365 on Azure. This three-box environment is a great way to start and learn about Azure, LCS, and running a Dynamics 365 deployment in the cloud.
- In the very near future, Dynamics 365 customers and partners will be able to deploy a production environment. This production environment will be configured for high availability.
- Additional capabilities, such as implementation sizing, cloud-powered support, and more will be available to assist you in maintaining your Dynamics 365 on Azure deployment.

What does LCS cost?

- LCS is Azure-based software as a service (SaaS) that's free to Microsoft Dynamics customers.

Technical details

What is Azure Premium Storage?

- A Microsoft Azure Premium Storage account is locally redundant storage (LRS) and keeps three copies of the data in a single region. For considerations regarding geo replication when using Premium Storage, see the Snapshots and Copy Blob when using the Premium Storage section in Azure: [Premium Storage: High-Performance Storage for Azure Virtual Machine Workloads](#).

- Premium Storage is currently available in the following regions: West US, East US 2, West Europe, East China, Southeast Asia, West Japan, and Australia East.
- Premium Storage supports only Azure page blobs, which are used to hold persistent disks for Azure Virtual Machines. For information about Azure page blobs, see [MSDN: Understanding Block Blobs and Page Blobs](#). Premium Storage doesn't support the Azure Block Blobs, Azure Files, Azure Tables, or Azure Queues.

When is Premium Storage required?

- Premium Storage must be used for production deployments in Azure IaaS to be supported.
- Premium Storage isn't required for non-production environments.

What virtual machine compute models are required, if any?

- To use a Premium Storage account for your virtual machine disks, you need to use the DS-series of virtual machines. You can use both Standard and Premium storage disks with the DS-series of virtual machines. But you can't use Premium Storage disks with non-DS-series of virtual machines. For information on available Azure virtual machine disk types and sizes, see [Azure: Sizes for Virtual Machines](#) and [Azure: Sizes for Cloud Services](#).

Are there any special considerations for Premium Storage?

- The process for setting up Premium Storage disks for a virtual machine is similar to Standard Storage disks. You need to choose the most appropriate Premium Storage option for your Azure disks and virtual machine. The virtual machine size should be suitable for your workload based on the performance characteristics of the Premium offerings. For more information, visit [Scalability and Performance Targets when using Premium Storage](#).

Where do I go to learn more about creating an Azure virtual machine using Premium Storage via the Azure Preview Portal?

- Complete information can be found at [Microsoft Azure](#).
- You'll need to sign in to the [Azure Preview Portal](#) to create a Premium Storage account.
- Download [Deploying Microsoft Dynamics CRM in Microsoft Azure Virtual Machines](#).

What is IaaS?

- Infrastructure as a service, or IaaS, is a service in Azure that basically provides virtualized hardware. In essence, the hardware normally required for an on-premises deployment is now virtualized. This is the basic concept though there are additional considerations for an Azure deployment such as, for example, the network virtualization.
- For more information, see [Microsoft Support Lifecycle](#).

Can I keep my on-premises Dynamics 365 installation?

Yes, but if you're deploying net new servers, new licenses for these servers are required.

Can I keep my on-premises installation and deploy a new Dynamics 365 on Azure environment and network the two together?

- Yes. We recommend that the two environments use Azure ExpressRoute as the means to network them together. More information: [Azure ExpressRoute](#).

Why do I need to run SQL Server in a virtual machine and not simply use Azure SQL Database?

Microsoft Azure SQL Database, while a capable offering, doesn't include several capabilities that are in SQL Server Enterprise edition, such as business intelligence (BI) and AlwaysON.

What is AlwaysON?

- AlwaysOn Availability Groups is a feature in the SQL Server 2014 Enterprise edition for Azure deployments. A high-availability and disaster-recovery solution that provides comprehensive data protection.

What's the recommended configuration?

- Your configuration will completely depend on your planned workload and number of concurrent users. Any and all considerations in this area are the same for Azure IaaS deployment as it would be for on-premises.

What's the minimum number of servers required?

- A minimum installation involves three servers, one each for Active Directory, Microsoft Dynamics 365 Server, and SQL Server.
- LCS deploys a three-server environment for non-production purposes.

Is a high availability configuration required?

- Though not required, we recommend high availability for production deployments. Azure will perform virtual machine maintenance from time to time and this could make a non-high availability environment unavailable for hours or days.
- A minimum configuration in this case requires seven servers: two Active Directory servers, two Microsoft Dynamics 365 servers, two SQL Server servers, and a SQL Server high availability witness server.

What if my database runs out of disk space?

- Normal database maintenance and practices continue to be required. If a data disk attached to the virtual machine running the database becomes full, adding an additional data disk is straightforward. Moving parts of the database to this new data disk are handled just as if it was an actual physical hard drive.

Are there performant configurations recommended for SQL Server databases in IaaS?

- Yes. For more information, download the white paper: [Performance Guidance for SQL Server in Microsoft Azure Virtual Machines](#)

What if one of my virtual machines runs out of memory?

- Changing the compute model of that virtual machine is a simple portal or LCS operation. Several compute model sizes are available with new ones planned. For more details, visit [Microsoft Azure](#).

I read that Office isn't supported in Azure. Is that true?

- That was the case in the past. Microsoft Office 365 is available to users of Microsoft Dynamics on Azure.
- Locally installed Microsoft Office can also be used, though there will be configuration requirements of the local PC installation to access the services running in the cloud.

Other considerations

What does an Azure deployment cost?

- This depends on the deployed experience, which differ in the number of compute units used by each unit. One compute unit per hour (known as an A1) is approximately \$.08 per hour. There is also an additional cost for storage and bandwidth usage. For pricing information, visit [Microsoft Azure](#).

Why does LCS provisioning take several hours?

- The provisioning starts by creating a storage account in your subscription that software is deployed and configured to. Azure storage only allows this to occur so fast.
- There is variability in the length of time the copy takes and depends on the Azure region your storage account is created in. This is a structural limit internally to Azure Storage and as more details and information becomes available, we'll certainly forward it along.

How long does it take to start up my LCS provisioned experience?

- It starts immediately after everything is copied, created and configured. Depending on how many virtual machines are being created and started (depends on the deployment experience you've chosen) it can take 10 minutes to an hour or more.

Can I have multiple LCS deployments in my Azure account?

- Yes. Keep in mind that you'll incur the time to provision each deployment.
- There will be an upper limit to the number of compute cores assigned to your subscription, which by default is 20. Contact the Azure Business desk and ask for this limit to be raised.

Will Mobile Apps work with my demo?

- Yes. There will be a little manual setup required which will be clearly documented on how to set up and configure. This is a one-time only setup.

Will I be able to invite others, like partners or customers to use my LCS project?

Yes, simply add them to the LCS project from which you've deployed the Dynamics 365 on Azure environment.

How is Azure architecturally being used by LCS?

- LCS runs as a software as a service (SaaS) in Azure. After GA, LCS will provide support for the deployment of IaaS-based virtual machines to support three initial environments: demo, dev/test, and production.

Can I deploy Dynamics 365 on Azure's government cloud?

- Yes. However, LCS isn't available to assist you because it isn't available in the Microsoft Azure Government cloud at this time.
- For more information, visit [Microsoft Azure Government](#).

See Also

[Use the command prompt to install Microsoft Dynamics Server 365](#)
[Post-installation and configuration guidelines for Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Post-installation and configuration guidelines for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section describes several of the tasks that the Microsoft Dynamics 365 administrator should consider after the Microsoft Dynamics 365 Server application is installed. This section isn't meant to be an exhaustive resource used to configure deployments. Instead, use this section as a guideline to determine what best practices to implement and features to configure, based on your organization's needs.

In This Topic

[Copy your organization encryption key](#)

[Make Dynamics 365 client-to-server network communications more secure](#)

[Configure a Dynamics 365 Internet-facing deployment](#)

[Add or remove sample data](#)

[Complete the configuration tasks for new organizations](#)

[Import a solution from the Microsoft Dynamics Marketplace](#)

[How can I disable the Navigation Tour video?](#)

[Configure Windows Server 2012 R2 for Dynamics 365 applications that use OAuth](#)

[User training and adoption](#)

Copy your organization encryption key

All new and upgraded organizations use data encryption that uses an encryption key to secure data such as user passwords for email mailboxes and Yammer accounts. This encryption key may be required to use Microsoft Dynamics 365 after a redeployment or failure recovery. We strongly recommend that you make a copy of the encryption key and save it to a secure location. More information: [Referenced topic 'f88f7c87-2ee2-42f3-8101-7271f6731cf9' is only available online.](#)

Make Dynamics 365 client-to-server network communications more secure

With any network design, it is important to consider the security of your organization's client-to-server communications. When making necessary decisions that can help protect data, we recommend that you understand the following information about Microsoft Dynamics 365 network communication and about the technology options that are available that provide more secure data transmissions.

If you installed Microsoft Dynamics 365 or upgraded a Microsoft Dynamics 365 Server that isn't already configured for HTTPS, Microsoft Dynamics 365 client-to-server communications are not encrypted. When using a website that supports only HTTP, information from Dynamics 365 clients is transmitted in clear text and, therefore, possibly vulnerable to malicious intent, such as "man-in-the-middle" type attacks that could compromise content by adding scripts to perform harmful actions.

Configuring Dynamics 365 for HTTPS

Configuring a site for HTTPS will cause a disruption in the Microsoft Dynamics 365 application so plan the configuration when there will be minimal disruption to users. The high-level steps for configuring Microsoft Dynamics 365 for HTTPS are as follows:

1. In Microsoft Dynamics 365 Deployment Manager, disable the server where the Web Application Server, Organization Web Service, Discovery Web Service, and Deployment Web Service roles are running. If this is a Full Server deployment, all server roles are running on the same computer. For information about how to disable a server, see Microsoft Dynamics 365 Deployment Manager Help.
2. Configure the website where the Web Application Server role is installed to use HTTPS. For more information about how to do this, see Internet Information Services (IIS) Help.
3. Set the binding in Deployment Manager. This is done on the **Web Address** tab of the **Properties** page for the deployment. For more information about how change the bindings see [Microsoft Dynamics 365 deployment properties](#).
4. If you want to make other Dynamics 365 services more secure and Microsoft Dynamics 365 is installed by using separate server roles, repeat the previous steps for the additional server roles.

Configure a Dynamics 365 Internet-facing deployment

After all Microsoft Dynamics 365 Server roles are installed, you can configure the deployment so that remote users can connect to the application through the Internet. To do this, start Rule Deployment Manager and complete the Configure Claims-Based Authentication Wizard followed by the Internet-Facing Deployment Configuration Wizard. Alternatively, you can complete these tasks using Windows PowerShell. More information: [Administer the deployment using Windows PowerShell](#)

◆ Important

For Microsoft Dynamics 365 for tablets to successfully connect to a new deployment of Microsoft Dynamics 365 Server, you must run a Repair of the Microsoft Dynamics 365 Server application on the server running IIS where the Web Application Server role is installed *after* the Internet-Facing Deployment Configuration Wizard is successfully completed. More information: [Uninstall, change, or repair Microsoft Dynamics 365 Server](#)

For more information about configuring Microsoft Dynamics 365 for claims-based authentication, see [Configure IFD for Microsoft Dynamics 365](#).

Add or remove sample data

Sample data is available to help you become familiar with how Microsoft Dynamics 365 works. By using sample data, work with records and see how they relate to each other, how data displays in charts, and see what information is in reports.

Sample data can be added or removed from within the Dynamics 365 application. More information: [Add or remove sample data](#)

Complete the configuration tasks for new organizations

After you've completed installing Microsoft Dynamics 365, but before the business users in your organization start using it, there are some basic tasks that you, as the Dynamics 365 administrator, should complete. These tasks include defining business units and security roles, adding users, and importing data.

More information: [Referenced topic 'b2925270-924f-406e-85ce-4bb7866b7f66' is only available online.](#)

Import a solution from the Microsoft Dynamics Marketplace

Use solutions to extend functionality and the user interface. Customizers and developers distribute their work as solutions. Organizations use Microsoft Dynamics 365 to import the solution. Find a solution in the [Microsoft Dynamics Marketplace](#).

Important

Importing a solution or publishing customizations can interfere with normal system operation. We recommend that you schedule solution imports when it's least disruptive to users.

For more information about how to import a solution, see [Import a solution](#).

How can I disable the Navigation Tour video?

By default, the Navigation Tour video prompt appears the first time a user signs in to Microsoft Dynamics 365 (online) or Dynamics 365 (on-premises) using a web browser. The video prompt won't appear on subsequent sign-ins after the user clicks **Don't show me this again**. Notice that, if the user clears the browser cache or signs in from a different computer's web browser, the video prompt will display again.

For the typical deployment the Navigation Tour video can be a valuable learning tool for users new to Microsoft Dynamics 365. However, for some Dynamics 365 (on-premises) deployments that use Remote Desktop Services or are highly customized, you may want to disable the video. To disable the video prompt, follow these steps from the Microsoft Dynamics 365 Server, where the Front End Server role is running.

You can disable the navigation tour for the entire organization by setting the **Display navigation tour to users when they sign in** in **Settings > Administration > System Settings > General** tab to **No**. If disabled, users aren't presented with the welcome tour screen every time they sign in to Microsoft Dynamics 365.

Note

You can run the Navigation Tour video at any time from a web browser running Microsoft Dynamics 365. To do this click or tap **Settings** and then click or tap **Open Navigation Tour**.

Configure Windows Server 2012 R2 for Dynamics 365 applications that use OAuth

The following information describes how to configure Windows Server 2012 R2 with Active Directory Federation Services (AD FS) 2.2 to support Dynamics 365 applications such as Dynamics 365 for phones, Microsoft Dynamics 365 for tablets, Dynamics 365 for Outlook, Microsoft Social Engagement, or other Dynamics 365 applications that need OAuth support.

Note

- There are a few issues that were present when configuring AD FS 2.0 and 2.1 that are no longer needed for AD FS 2.2. For example, with 2.0/2.1 you had to configure the MEX endpoint using a script or obtain a hotfix. This isn't needed with AD FS 2.2. In addition, AD FS 2.2 adds the rule "Pass through all UPN Claims" in the Active Directory claim provider trust by default, so the extra step to add the rule is no longer required.
- To register Microsoft Social Engagement, see [Set up the connection between Dynamics CRM and Social Engagement](#).

Enable forms authentication

By default, forms authentication is disabled in the intranet zone. You must enable forms authentication by following these steps.

1. Log on to the AD FS server as an administrator.
2. Open the ADFS management wizard.
3. Click **Authentication Policies > Primary Authentication > Global Settings > Authentication Methods > Edit**.
4. Click (check) **Form Based Authentication** on the **Intranet** tab.

Configure the OAuth provider

Follow these steps to configure the OAuth provider in Microsoft Dynamics 365.

1. Log on to the Microsoft Dynamics 365 server as an administrator.
2. In a Windows PowerShell console window, run the following script.

```
$ClaimsSettings = Get-CrmSetting -SettingType OAuthClaimsSettings
$ClaimsSettings.Enabled = $true
Set-CrmSetting -Setting $ClaimsSettings
```

Register the client apps

The client apps must be registered with AD FS.

1. Log on to the AD FS server as administrator.
2. In a PowerShell window, execute the following commands to register each application that is applicable to your deployment.

Dynamics 365 mobile apps for Apple iPhone, Android, and Windows.

```
Add-AdfsClient -ClientId ce9f9f18-dd0c-473e-b9b2-47812435e20d -Name "Microsoft Dynamics CRM for tablets and phones" -RedirectUri ms-app://s-1-15-2-2572088110-3042588940-2540752943-3284303419-1153817965-2476348055-1136196650/, ms-app://s-1-15-2-1485522525-4007745683-1678507804-3543888355-3439506781-4236676907-2823480090/, ms-app://s-1-15-2-3781685839-595683736-4186486933-3776895550-3781372410-1732083807-672102751/, ms-app://s-1-15-2-3389625500-1882683294-3356428533-41441597-3367762655-213450099-2845559172/, ms-auth-dynamicsxrm://com.microsoft.dynamics,ms-auth-dynamicsxrm://com.microsoft.dynamics.iphone.moca,ms-auth-dynamicsxrm://com.microsoft.dynamics.ipad.good,msauth://code/ms-auth-dynamicsxrm%3A%2F%2Fcom.microsoft.dynamics,msauth://code/ms-auth-dynamicsxrm%3A%2F%2Fcom.microsoft.dynamics.iphone.moca,msauth://code/ms-auth-dynamicsxrm%3A%2F%2Fcom.microsoft.dynamics.ipad.good,msauth://com.microsoft.crm.crmtablet/v%2BXU%2FN%2FCMC1uRVXXA5o143%2BT75s%3D,msauth://com.microsoft.crm.crmphone/v%2BXU%2FN%2FCMC1uRVXXA5o143%2BT75s%3D, urn:ietf:wg:oauth:2.0:oob
```

Dynamics 365 for Outlook.

```
Add-AdfsClient -ClientId 2f29638c-34d4-4cf2-a16a-7caf612cee15 -Name "Dynamics CRM Outlook Client" -RedirectUri app://6BC88131-F2F5-4C86-90E1-3B710C5E308C/
```

Unified Service Desk client.

```
Add-AdfsClient -ClientId 4906f920-9f94-4f14-98aa-8456dd5f78a8 -Name "Dynamics 365 Unified Service Desk" RedirectUri app://41889de4-3fe1-41ab-bcff-d6f0a6900264/
```

Microsoft Dynamics 365 developer tools.

```
Add-AdfsClient -ClientId 2ad88395-b77d-4561-9441-d0e40824f9bc -Name "Dynamics 365 Development Tools" RedirectUri app://5d3e90d6-aa8e-48a8-8f2c-58b45cc67315/
```

3. To register the Dynamics 365 App for Outlook, in Dynamics 365 (on-premises), go to **Settings > Dynamics 365 App for Outlook** and register the app there.

User training and adoption

More information: [Training and Adoption Kit for Microsoft Dynamics CRM](#).

See Also

[Installing on-premises Dynamics 365](#)
[Operating on-premises Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Operating on-premises Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Microsoft Dynamics 365 operating section contains resources and topics designed to help you operate and maintain your on-premises deployment of Microsoft Dynamics 365.

In This Section

[Operating Microsoft Dynamics 365](#)

Related Sections

[Installing on-premises Dynamics 365](#)

[Referenced topic '633e9a2d-cba1-4700-ba18-01487767109c' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Operating Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

As you administer Microsoft Dynamics 365, you'll want to guarantee availability for your users by monitoring server status and performance, troubleshooting issues, and planning for disaster recovery. Ongoing maintenance of Microsoft Dynamics 365 includes operations such as updating, customizing, monitoring, and relocating or reconfiguring Microsoft Dynamics 365 Server and required or optional technologies such as Microsoft SQL Server and Microsoft SharePoint.

Caution

Operations that require intensive database transactions cannot be run concurrently. This includes the following operations.

- Language pack provisioning
- Importing a solution
- Publishing customizations
- Database updates (Dynamics 365 (on-premises) only)
- Solution update operations (Microsoft Dynamics 365 (online) only)

In This Section

[Update Microsoft Dynamics 365](#)

Related Sections

[Planning on-premises Dynamics 365](#)

[Installing on-premises Dynamics 365](#)

[Referenced topic '633e9a2d-cba1-4700-ba18-01487767109c' is only available online.](#)

[Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Administer the deployment using Windows PowerShell

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

With Windows PowerShell you can easily run deployment commands to change the configuration of your deployment, like tasks that can be performed from the Deployment Manager user interface. You can also use the methods described in the Microsoft Dynamics 365 SDK to perform these tasks. The PowerShell cmdlets are installed on the computer when you install a Full Server role or when you install the Deployment Tools server role, if you're installing individual server roles. To execute commands, you must first register the Microsoft Dynamics 365 commands with PowerShell. This topic describes how to do this plus additional tasks to help you use PowerShell.

Find help about the PowerShell cmdlets for Microsoft Dynamics 365 at [Microsoft Dynamics CRM PowerShell Reference](#).

For more information about using PowerShell, see [Scripting with Windows PowerShell](#).

For more information about the programmatic use of the Deployment Web Service, see [MSDN: Administer the deployment using the deployment web service](#).

In This Topic

[Get started using the Dynamics 365 PowerShell cmdlets](#)

[Use the PowerShell cmdlets](#)

[Set properties using PowerShell cmdlets](#)

[Get Dynamics 365 PowerShell cmdlet Help topics](#)

[Update deployment configuration settings using PowerShell](#)

Get started using the Dynamics 365 PowerShell cmdlets

Register the cmdlets

1. Sign in to the administrator account on your Microsoft Dynamics 365 server.
2. Open a PowerShell command prompt.
3. Enter the following command.

```
Add-PSSnapin Microsoft.Crm.PowerShell
```

This command adds the Dynamics 365PowerShell snap-in to the current session. The snap-in is registered during installation and setup of the Microsoft Dynamics 365 server.

◆ Important

- For information about registering the XRM tooling connector cmdlets, Get-CrmConnection and Get-CrmOrganizations, see [MSDN: Use PowerShell cmdlets for XRM tooling to connect to CRM](#).
- For information about registering the Package Deployer cmdlets, see [Referenced topic '27676d3a-d35c-4452-9ff3-bcdadd943bef' is only available online.](#)
- You must register the Dynamics 365PowerShell commands; otherwise you'll receive the following message when you try to run a cmdlet.

The term '*Microsoft Dynamics 365 Windows PowerShell command*' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again.

Get a list of the Dynamics 365 cmdlets

1. At the PowerShell prompt, type the following.

```
Get-Help *Crm*
```

Get help for a cmdlet

1. At the PowerShell prompt, type the following, replacing *CrmCmdletName* with the name of a command.

```
Get-Help CrmCmdletName
```

Use the PowerShell cmdlets

When you have registered the Dynamics 365PowerShell commands, you can use them to perform tasks.

Use the following command to output the list of deployment administrators.

```
PS C:\Users\Administrator> Get-CrmDeploymentAdministrator
```

This command results in the following output.

Id	Name	ExtensionData
--	----	-----
4f431656-90f8-e211-831c-00155da83c4f	myDomainName\Administrator	

Set properties using PowerShell cmdlets

When you have registered the Microsoft Dynamics 365 PowerShell commands, you can use them to perform tasks, such as set deployment-wide properties or set some organization properties.

For example, to add a Microsoft Dynamics 365 deployment administrator, run the following command where *domain\adminName* is the Active Directory domain and user name of the administrator you want to add.

```
New-CrmDeploymentAdministrator domain\adminName
```

Get Dynamics 365 PowerShell cmdlet Help topics

For a complete list of the Microsoft Dynamics 365 PowerShell cmdlets with links to Help topics, see the [Microsoft Dynamics CRM PowerShell Reference](#).

Update deployment configuration settings using PowerShell

Use PowerShell to update deployment-wide settings, such as claims-based authentication, Internet-facing deployment (IFD), and web addresses. More information: [Update deployment configuration settings](#)

See Also

[Update deployment configuration settings](#)
[Operating Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Update deployment configuration settings

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can use the **Microsoft.Crm.PowerShell.Get-CrmSetting** and **Microsoft.Crm.PowerShell.Set-CrmSetting** cmdlets to retrieve and update many different settings properties for your Microsoft Dynamics 365 deployment. The **Get-CrmSetting** cmdlet retrieves a Microsoft Dynamics 365 deployment setting object, such as **IfdSettings**. The **Set-CrmSetting** cmdlet updates the deployment setting.

This topic lists the setting types with their parameters. For more information about these settings, see [MSDN: Microsoft.Xrm.Sdk.Deployment Namespace](#). For an example of code using the **Get-CrmSetting** and **Set-CrmSetting** cmdlets see [“Change monitoring settings”](#).

In This Topic

[AsyncSettings](#)

[ClaimsSettings](#)

[CustomCodeSettings](#)

[DashboardSettings](#)

[DupSettings](#)

[EtmSettings](#)

[IfdSettings](#)

[ImportSettings](#)

[MarketplaceSettings](#)

[MonitoringSettings](#)

[MultiEntityQuickFindSettings](#)

[OAuthClaimsSettings](#)

[QuickFindSettings](#)

[SqmSettings](#)

[TeamSettings](#)

[ThrottleSettings](#)

[TraceSettings](#)

[WebAddressSettings](#)

[WorkflowSettings](#)

[YammerSettings](#)

AsyncSettings

The following settings are available.

Name	Description	Data type
JobTimeoutLockedInterval	Gets or sets the interval used to query to see if there are any organization maintenance jobs that have timed out.	Integer
MaxJobExecutionTime	Gets or sets a value used for organization maintenance jobs to determine if a job has timed out.	Integer
MaxRetries	Gets or sets the number of times an asynchronous job will retry before it fails or	Integer

Name	Description	Data type
	suspends.	
MaxStateStatusUpdateMaxRetryCount	Gets or sets the maximum number of times a database operation will be attempted before failure.	Integer
OrgDatabaseMaintenanceJobInterval	Gets or sets the interval used to query to see if there is a pending organization maintenance job.	Integer
RetryInterval	Gets or sets the default rate of retries for failed asynchronous operations.	Integer
SdkRootDomain	Gets or sets the root domain used for calls into the Microsoft Dynamics Dynamics 365 service from the asynchronous service.	String
SelectInterval	Gets or sets the interval used to determine if new asynchronous operations should be loaded into memory.	Integer
ThrottlingConfiguration	Gets or sets the throttling configuration.	String
TimeoutLockedInterval	Gets or sets the interval used to query to see if there are any asynchronous operations that have timed out.	Integer

ClaimsSettings

For an example of code you can use to update Internet-facing deployment (IFD) settings in your Microsoft Dynamics 365 deployment, see [Configure IFD settings](#). The following settings are available.

Name	Description	Data type
Enabled	Gets or sets whether or not claims is enabled.	Boolean
EncryptionCertificate	Gets or sets the encryption certificate name.	String
FederationMetadataUrl	Gets or sets the federation metadata URL.	String
FederationProviderType	Gets or sets the federation	Integer

Name	Description	Data type
	type provider.	
SessionSecurityTokenLifetimeInHours	Gets or sets the security session token lifetime, in hours.	Integer

CustomCodeSettings

The following settings are available.

Name	Description	Data type
AllowDeclarativeWorkflows	Gets or sets whether XAML workflows are allowed on the server.	Boolean
AllowExternalCode	Gets or sets whether plug-ins and custom workflow activities can be registered on the server.	Boolean

DashboardSettings

The following setting is available.

Name	Description	Data type
MaximumControlsLimit	Gets or sets the maximum number of controls allowed on dashboards for the server. The maximum number cannot exceed 20.	Integer

DupSettings

The following settings are available.

Name	Description	Data type
BulkDetectBatchSize	Gets or sets the bulk duplicate detection batch size.	Integer
MatchcodeLength	Gets or sets the length of the match code.	Integer
MatchcodePersistenceInterval	Gets or sets the persistence interval for the match code.	Integer
MaxPublishedRules	Gets or sets the maximum	Integer

Name	Description	Data type
	number of published rules.	
PublishAsyncPollingInterval	Gets or sets the polling interval for the asynchronous job.	Integer
PublishPageSize	Gets or sets the page size for results.	Integer

EtmSettings

The following settings are available.

Name	Description	Data type
Enabled	Gets or sets whether Enterprise Transaction Monitor (ETM) is enabled.	Boolean
ThrottlingEnabled	Gets or sets whether Enterprise Transaction Monitor (ETM) throttling is enabled.	Boolean

IfdSettings

For an example of code you can use to update Internet-facing deployment (IFD) settings in your Microsoft Dynamics 365 deployment, see [Configure IFD settings](#). The following settings are available.

Name	Description	Data type
DiscoveryWebServiceRootDomain	Gets or sets the discovery web service domain.	String
Enabled	Gets or sets a value that indicates whether Internet-facing deployment (IFD) is enabled.	Boolean
ExternalDomain	Gets or sets the external domain value for Internet-facing deployment (IFD).	String
IntranetAccessEnabled	Gets or sets a value that indicates whether intranet access is enabled.	Boolean
OrganizationWebServiceRootDomain	Gets or sets the organization web service domain.	String
WebApplicationRootDomain	Gets or sets the web application server domain.	String

ImportSettings

The following settings are available.

Name	Description	Data type
BatchSize	Gets or sets the number of items to process in a batch.	Integer
ContentBufferSize	Gets or sets the size of the content buffer.	Integer
CountUpdateBatchSize	Gets or sets the batch size for import count updates.	Integer
MaxColumnsAllowed	Gets or sets the maximum number of columns in an import file.	Integer
MaxDataTruncationRetryCount	Gets or sets the maximum number of retries.	Integer
ParsedColumnDefaultSize	Gets or sets the default size of the parsed column.	Integer
PickListBatchSize	Gets or sets the batch size for picklist import.	Integer

MarketplaceSettings

The following settings are available.

Name	Description	Data type
InternetConnectionProxyEndpoint	Gets or sets the proxy server and port used for outgoing internet requests.	String
SolutionsMarketplaceEnabled	Gets or sets whether the solutions marketplace is enabled.	Boolean

MonitoringSettings

The following settings are available.

Name	Description	Data type
CertificateLifetimeNotificationThreshold	Gets or sets the threshold of the certificate lifetime remaining at which to begin reporting expiration notifications.	Integer

Name	Description	Data type
MonitoringOrganizationUniqueName	Gets or sets the unique name of the organization that will serve as the monitoring organization.	String
MonitoringOrganizationUserAccount	Gets or sets the user account to access that organization.	String
MonitoringOrganizationUserPassword	Gets or sets the password to access that organization.	PS-Credential
ResultsToKeep	Gets or sets the maximum number of results to keep as files from the monitoring.	Integer
ResultsToKeepInDatabase	Gets or sets the maximum number of results to keep in the database.	Integer
StoreResultsInDatabase	Gets or sets the results to store in the database as well as files.	Boolean

MultiEntityQuickFindSettings

The following settings are available.

Name	Description	Data type
MultiEntityQuickFindDegreeOfParallelism	Gets or sets the maximum degree of parallelism for multi-entity search queries.	Integer
MultiEntityQuickFindEntityLimit	Gets or sets the upper limit for the number of entities that can participate in a multi-entity search query.	Integer
MultiEntityQuickFindMaxRequestsPerOrgPerServer	Gets or sets the maximum number of concurrent QuickFind requests per organization per server.	Integer
MultiEntityQuickFindMaxRequestsPerServer	Gets or sets the maximum number of concurrent QuickFind requests per server	Integer

OAuthClaimsSettings

The following settings are available.

Name	Description	Data type
Enabled	Gets or sets whether or not claims is enabled.	Boolean
EncryptionCertificate	Gets or sets the encryption certificate name.	String
FederationMetadataUrl	Gets or sets the federation metadata URL.	String
FederationProviderType	Gets or sets the federation type provider.	Integer
SessionSecurityTokenLifetimeInHours	Gets or sets the security session token lifetime in hours.	Integer

QuickFindSettings

The following settings are available.

Name	Description	Data type
QuickFindEntityIndexLimit	Gets or sets the maximum number of the attributes used in the quick find search query, after which the QuickFind indexes are not created.	Integer
QuickFindRecordLimit	Gets or sets the maximum number of records that match the quick find query criteria before an exception error is thrown. This is needed for faster execution of the quick find searches.	Integer

SqmSettings

The following settings are available.

Name	Description	Data type
SqmEnabled	Gets or sets the value that indicates whether collection of information for the customer experience improvement program is enabled.	Boolean

TeamSettings

The following settings are available.

Name	Description	Data type
MaxAutoCreatedAccessTeamsPerEntity	Gets or sets the maximum number of auto created (system-managed) access teams per entity.	Integer
MaxEntitiesEnabledForAutoCreatedAccessTeams	Gets or sets the maximum number of entities that can be enabled for auto created (system-managed) access teams.	Integer

ThrottleSettings

The following settings are available.

Name	Description	Data type
ExecuteAsyncMaxConnectionsPerServer	Gets or sets the maximum number of concurrent asynchronous execute operations per organization.	Integer
ExecuteAsyncPerOrgMaxConnectionsPerServer	Gets or sets the maximum number of concurrent execute multiple operations per organization per server.	Integer
ExecuteMultipleMaxConnectionsPerServer	Gets or sets the maximum number of concurrent execute multiple operations per organization.	Integer
ExecuteMultiplePerOrgMaxConnectionsPerServer	Gets or sets the maximum number of concurrent execute multiple operations per organization per server.	Integer
FollowInYammerMaxConnectionsPerServer	For internal use only.	Integer

Name	Description	Data type
FollowInYammerPerOrgMaxConnectionsPerServer	For internal use only.	Integer
MapiSyncMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of MAPI sync operations.	Integer
MapiSyncPerOrgMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of MAPI sync operations per organization.	Integer
MaxBackgroundSendEmailRequestsPerOrgPerServer	Gets or sets the server setting to control the maximum number of background email send operations per organization.	Integer
MaxBackgroundSendEmailRequestsPerServer	Gets or sets the server setting to control the maximum number of background email send operations.	Integer
MaxSharepointThreadspersOrganisation	Gets or sets the maximum number of Microsoft SharePoint threads allowed per organization.	Integer
MaxSharepointThreadspersUser	Gets or sets the maximum number of Microsoft SharePoint threads allowed per user.	Integer
OfflineSyncMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of offline sync operations.	Integer
OfflineSyncPerOrgMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of offline sync operations per organization.	Integer
OutlookSyncMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of Dynamics 365 for	Integer

Name	Description	Data type
	Outlook sync operations.	
OutlookSyncPerOrgMaxConnectionsPerServer	Gets or sets the server setting to control the maximum number of Dynamics 365 for Outlook sync operations per organization.	Integer

TraceSettings

The following settings are available.

Name	Description	Data type
CallStack	Gets or sets whether to save the call stack.	Boolean
Categories	Gets or sets the categories to trace.	String
Directory	Gets or sets the directory for the trace files.	String
Enabled	Gets or sets whether tracing is enabled.	Boolean
FileSize	Gets or sets the trace file size limit (MB).	Integer

WebAddressSettings

For an example of code you can use to update web address settings in your Microsoft Dynamics 365 deployment, see [Configure web address settings](#). The following settings are available.

Name	Description	Data type
DeploymentSdkRootDomain	Gets or sets the root domain for the deployment web service (SDK).	String
DiscoveryRootDomain	Gets or sets the root domain for the discovery web service.	String
HelpServerUrl	Gets or sets the URL for help content server.	String
NlbEnabled	Gets or sets whether network load balancing (NLB) is enabled.	Boolean
RootDomainScheme	Gets or sets the root domain	String

Name	Description	
	scheme: http or https.	
SdkRootDomain	Gets or sets the root domain for the organization web service (SDK).	String
SslHeader	Gets or sets the secured sockets layer (SSL) header.	String
WebAppRootDomain	Gets or sets the root domain for the web application.	String

WorkflowSettings

The following settings are available.

Name	Description	Data type
MaxDepth	Gets or sets the maximum depth for a workflow.	Integer
MinInactiveSeconds	Gets or sets the maximum number of seconds a workflow can be inactive.	Integer

YammerSettings

The following settings are available.

Name	Description	Data type
ApplicationId	Gets or sets the application ID.	String
ApplicationSecret	Gets or sets the application secret.	String

See Also

[Administer the deployment using Windows PowerShell](#)
[Microsoft Dynamics CRM PowerShell Reference](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure claims settings

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Using the PowerShell **Get-CrmSetting** and **Set-CrmSetting** cmdlets you can update the settings in your Microsoft Dynamics 365 deployment. One of the types of settings you can change is the claims setting.

Requirements

To set up the Microsoft Dynamics 365 PowerShell cmdlets, see [Administer the deployment using Windows PowerShell](#).

Demonstrates

You can use the following script to enable or disable claims authentication. You must specify the following parameters:

Enabled - A **Boolean** that specifies whether claims authentication is enabled or disabled.

EncryptionCertificate – An encryption certificate.

FederationMetadataUrl – A URL for federation metadata.

Example

```
param
(
    #optional params
    [boolean]$Enabled,
    [string]$EncryptionCertificate,
    [string]$FederationMetadataUrl
)

$RemoveSnapInWhenDone = $False

if (-not (Get-PSSnapin -Name Microsoft.Crm.PowerShell -ErrorAction SilentlyContinue))
{
    Add-PSSnapin Microsoft.Crm.PowerShell
    $RemoveSnapInWhenDone = $True
}

$ClaimsSettings = Get-CrmSetting -SettingType ClaimsSettings

if ($PSBoundParameters.ContainsKey('Enabled')) {$ClaimsSettings.Enabled = $Enabled}
```

```
if($EncryptionCertificate) {$ClaimsSettings.EncryptionCertificate = $EncryptionCertificate}
if($FederationMetadataUrl) {$ClaimsSettings.FederationMetadataUrl = $FederationMetadataUrl}

Set-CrmSetting -Setting $ClaimsSettings

$ClaimsSettings

if($RemoveSnapInWhenDone)
{
    Remove-PSSnapin Microsoft.Crm.PowerShell
}
```

See Also

[Administer the deployment using Windows PowerShell](#)
[Update deployment configuration settings](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure IFD settings

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Using the PowerShell **Get-CrmSetting** and **Set-CrmSetting** cmdlets you can update the settings in your Microsoft Dynamics 365 deployment. One of the types of settings you can change is for an Internet-facing deployment (IFD).

Requirements

To set up the Microsoft Dynamics 365 PowerShell cmdlets, see [Administer the deployment using Windows PowerShell](#).

Demonstrates

You can use the following script to update settings for an Internet-facing deployment (IFD). You must specify the following parameters:

DiscoveryWebServiceRootDomain – The discovery Web service domain.

Enabled - A **Boolean** that indicates whether Internet-facing deployment (IFD) is enabled.

ExternalDomain - The external domain value for IFD.

OrganizationWebServiceRootDomain -The organization Web service domain.

WebApplicationRootDomain -The Web application server domain.

Example

```
param
(
    #optional params
    [string]$DiscoveryWebServiceRootDomain,
    [boolean]$Enabled,
    [string]$ExternalDomain,
    [string]$OrganizationWebServiceRootDomain,
    [string]$WebApplicationRootDomain
)

$RemoveSnapInWhenDone = $False

if (-not (Get-PSSnapin -Name Microsoft.Crm.PowerShell -ErrorAction SilentlyContinue))
{
    Add-PSSnapin Microsoft.Crm.PowerShell
    $RemoveSnapInWhenDone = $True
}

$IfdSettings = Get-CrmSetting -SettingType IfdSettings

if($DiscoveryWebServiceRootDomain) {$IfdSettings.DiscoveryWebServiceRootDomain =
$DiscoveryWebServiceRootDomain}

if($ExternalDomain) {$IfdSettings.ExternalDomain = $ExternalDomain}

if($PSBoundParameters.ContainsKey('Enabled')) {$IfdSettings.Enabled = $Enabled}

if($OrganizationWebServiceRootDomain) {$IfdSettings.OrganizationWebServiceRootDomain =
$OrganizationWebServiceRootDomain}

if($WebApplicationRootDomain) {$IfdSettings.WebApplicationRootDomain =
$WebApplicationRootDomain}

Set-CrmSetting -Setting $IfdSettings

$IfdSettings
```

```
if ($RemoveSnapInWhenDone)
{
    Remove-PSSnapin Microsoft.Crm.PowerShell
}
```

See Also

[Administer the deployment using Windows PowerShell](#)
[Update deployment configuration settings](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure web address settings

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Using the PowerShell **Get-CrmSetting** and **Set-CrmSetting** cmdlets you can update the settings in your Microsoft Dynamics 365 deployment. One of the types of settings you can change is the web address settings.

Requirements

To set up the Microsoft Dynamics 365 PowerShell cmdlets, see [Administer the deployment using Windows PowerShell](#).

Demonstrates

You can use the following script to update web address settings: partner-hosted (IFD). You must specify the following parameters:

RootDomainScheme: The root domain scheme: http or https.

DeploymentSdkRootDomain: The root domain for the deployment web service (SDK).

DiscoveryRootDomain: The root domain for the discovery web service.

NlbEnabled: A **Boolean** that specifies whether network load balancing (NLB) is enabled.

SdkRootDomain: The root domain for the organization web service (SDK).

SslHeader: The secured sockets layer (SSL) header.

WebAppRootDomain: The root domain for the Web application.

Example

```
param
(
```

```

#optional params
[string]$RootDomainScheme,
[string]$DeploymentSdkRootDomain,
[string]$DiscoveryRootDomain,
[boolean]$NlbEnabled,
[string]$SdkRootDomain,
[string]$SslHeader,
[string]$WebAppRootDomain
)

$RemoveSnapInWhenDone = $False

if (-not (Get-PSSnapin -Name Microsoft.Crm.PowerShell -ErrorAction SilentlyContinue))
{
    Add-PSSnapin Microsoft.Crm.PowerShell
    $RemoveSnapInWhenDone = $True
}

$WebAddressSettings = Get-CrmSetting -SettingType WebAddressSettings

if($DeploymentSdkRootDomain) {$WebAddressSettings.DeploymentSdkRootDomain =
$DeploymentSdkRootDomain}
if($DiscoveryRootDomain) {$WebAddressSettings.DiscoveryRootDomain = $DiscoveryRootDomain}
if($PSBoundParameters.ContainsKey('NlbEnabled')) {$WebAddressSettings.NlbEnabled = $NlbEnabled}
if($RootDomainScheme) {$WebAddressSettings.RootDomainScheme = $RootDomainScheme}
if($SdkRootDomain) {$WebAddressSettings.SdkRootDomain = $SdkRootDomain}
if($PSBoundParameters.ContainsKey('SslHeader')) {$WebAddressSettings.SslHeader = $SslHeader}
if($WebAppRootDomain) {$WebAddressSettings.WebAppRootDomain = $WebAppRootDomain}

Set-CrmSetting -Setting $WebAddressSettings

$WebAddressSettings

```

```
if ($RemoveSnapInWhenDone)
{
    Remove-PSSnapin Microsoft.Crm.PowerShell
}
```

See Also

[Administer the deployment using Windows PowerShell](#)
[Update deployment configuration settings](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Use Deployment Manager to manage the deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Microsoft Dynamics 365 Deployment Manager is a Microsoft Management Console (MMC) snap-in that system administrators and value-added resellers use to manage Deployment Administrator accounts, organizations, servers, and licenses for Microsoft Dynamics 365 deployments.

Note the following:

- To use Deployment Manager, you must have the Deployment Administrator role. During Microsoft Dynamics 365 Server Setup, the process automatically assigns that role to the user who is running Setup.

◆ Important

Make sure that at least two or three trusted people have the Deployment Administrator role. This avoids system lockout if the primary deployment administrator is unavailable.

- To create and manage Microsoft Dynamics 365 user accounts, you must use the Microsoft Dynamics 365 web client or Dynamics 365 for Outlook.
- The Deployment Administrator role is separate from the Microsoft Dynamics 365 user security role. A Deployment Administrator may or may not have a Microsoft Dynamics 365 user security role.

In this section

[Microsoft Dynamics 365 deployment properties](#)

[Change the product key](#)

[Using Windows PowerShell to perform Deployment Manager tasks](#)

[Configure claims-based authentication](#)

[Disable claims-based authentication](#)
[Configure an Internet-facing deployment](#)
[Disable an Internet-facing deployment](#)

See Also

[Deployment Administrators](#)
[Manage organizations](#)
[Manage servers](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 deployment properties

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Microsoft Dynamics 365 **Properties** dialog box displays information about the deployment and lets you specify settings for Web Address, License, and Usage Reporting.

Open the Microsoft Dynamics 365 Properties dialog box

You can open the Microsoft Dynamics 365 Properties dialog box in one of two ways:

- In the **Actions** pane, click **Properties**.
- In the console tree, right-click **Microsoft Dynamics 365**, and then click **Properties**.

Tip

You can implement some of the procedures described here by using a Windows PowerShell cmdlet. For more information, see [Administering Microsoft Dynamics CRM by using Windows PowerShell](#).

In This Topic

[General tab](#)
[Web Address tab](#)
[License tab](#)
[Usage Reporting tab](#)

General tab

The **General** tab shows information about the Microsoft Dynamics 365 deployment

Web Address tab

Use the **Web Address** tab to set the **Binding Type** and to specify information for the **Web Application Server**, **Organization Web Service**, **Discovery Web Service**, and **Deployment Web Service**.

Warning

If you enter incorrect values in these fields, some users might not be able to access Microsoft Dynamics 365.

Enter Web Address information

1. After opening the Microsoft Dynamics 365 **Properties** dialog box, click the **Web Address** tab.
2. Specify the **Binding Type**, either HTTP or HTTPS.

Note

- The **Binding Type** must be set to HTTPS to use claims-based authentication.
 - The Deployment Manager does not configure the Microsoft Dynamics 365 website site to use HTTPS. The website must already be configured for HTTPS. For information about how to configure a website to use HTTPS, see the Internet Information Services (IIS) Manager Help.
3. In the boxes provided, enter the domain paths.
For the domain paths, the values for the paths must be in the form:

`server:port`

or

`server.domain.tld:port`

where:

- `server` is the computer name
- `domain` is the complete sub domain path where the computer is located
- `tld` is the top level domain, such as com or org
- The `:port` designation is required if you are not using the standard http port (80) or https port (443)

Typically, in a Full Server or Front End Server role deployment, the path values are the same. However, if you deploy Microsoft Dynamics 365 on multiple servers with separate server roles, that is, where the **Web Application Server**, **Organization Web Service**, or **Discovery Web Service** server roles are located on different servers, these path values will be different:

- **Web Application Server.** `WebApplicationServerName.domain.tld:port`
- **Organization Web Service.** `OrganizationWebServiceServerName.domain.tld:port`
- **Discovery Web Service.** `DiscoveryWebServiceServerName.domain.tld:port`
- **Deployment Web Service.** `DeploymentWebServiceServerName.domain.tld:port`

For more information about web addresses, see [Install Microsoft Dynamics CRM Server on multiple computers](#) in the Microsoft Dynamics 365 Installing Guide.

Specify NLB and SSL header information

1. At the bottom of the **Web Address** tab, click **Advanced**.
2. In the **NLB and SSL Header Information** dialog box, specify if you are using network load-balancing (NLB) and the header for the Transport Layer Security (TLS) or Secure Sockets Layer (SSL) offloading system.

Selecting **The deployment uses an NLB** sets Microsoft Dynamics 365 to configure Windows Identity Foundation (WIF) to use the encryption certificate to encrypt, decrypt, and sign the Microsoft Dynamics 365 session authentication cookies. The encrypted cookies can then be processed by any server in the NLB cluster.

For information about procedures for loading and administering NLB on Windows Server, see the Network Load Balancing Manager Help on the Windows Server computer. For information about how to configure NLB in Windows Server 2008, see [Network Load Balancing Deployment Guide](#).

3. If you are using NLB, select **The deployment uses an NLB**.
4. If you are using SSL offloading, in the **SSL Header** box, type the SSL header for the SSL offloading system.

Note

The SSL header is not a URL or domain. It is an agreed-on header value for the HTTP request that is configured on the device that is handling the SSL offloading. Review the SSL offloading device documentation for the header value.

5. Click **OK**.

Configure domain names for IFD

To configure Microsoft Dynamics 365 for IFD, you must start Deployment Manager and run the Internet-Facing Deployment Configuration Wizard to add or revise the domain values. Depending on how you deployed the Microsoft Dynamics 365 Server role group or separate server role installation, and the configuration of each server in the NLB cluster, the **Web Application Server Domain**, **Organization Web Service Domain**, and **Discovery Web Service Domain** values use the NLB virtual cluster domain name. For example, if the Web Application Server is installed on an Internet-facing NLB cluster that has the FQDN virtual name *crmcluster.contoso.com*, enter **contoso.com** as the **Web Application Server Domain** value.

For more information about how to configure internal web address and external domain values, see [Configure IFD for Microsoft Dynamics CRM](#).

License tab

After opening the Microsoft Dynamics 365 **Properties** dialog box, click the **License** tab.

The **License** tab displays a summary of all Microsoft Dynamics 365 users that are configured in the deployment. For information about each of these client access license types, see [CRM purchase plans](#).

The following information for all Microsoft Dynamics 365 users and their respective client access license (CAL) types is displayed:

- **Administrative Users.** Shows the total number of Microsoft Dynamics 365 users configured as administrative users.
- **Professional CALs Required.** Shows the total number of Microsoft Dynamics 365 users configured with the Professional client access license (CAL) in the deployment.
- **Basic CALs Required.** Shows the total number of Microsoft Dynamics 365 users configured with the Basic CAL in the deployment.
- **Essential CALs Required.** Shows the total number of Microsoft Dynamics 365 users configured with the Essential CAL in the deployment.
- **Server Licenses Required.** Shows the total number of Microsoft Dynamics 365 Server licenses in the deployment.

The **License** tab also displays the product ID you can use to identify and validate your copy of Microsoft Dynamics 365 and a link to the **Change Product Key** dialog box. To change the product key, see [Change the product key](#).

If the Deployment Manager cannot access one or more organizations, the license counts are shown as "Unavailable."

Note

If a user is a member of multiple organizations and uses a different license in different organizations, the Deployment Manager reports that user as using the highest privilege level license. For example, if the user has a Full user license in one organization and a Limited license in another organization, that user is reported as using one Full license.

Users who have the Deployment Administrator role do not automatically become Microsoft Dynamics 365 users and do not consume a CAL.

Usage Reporting tab

On the Usage Reporting tab, indicate whether you want to allow organizations in the deployment to participate anonymously in the Customer Experience Improvement Program. If you accept, each organization in the deployment can be configured to send data to Microsoft. If you decline for the entire deployment, no organization is able to send data, regardless of the organization's usage reporting setting.

Allow usage reporting

1. After you open the Microsoft Dynamics 365 **Properties** dialog box, click the **Usage Reporting** tab.
2. Select the **Allow organizations to participate anonymously in the Customer Experience Improvement Program** option.

For information about the Customer Experience Improvement Program, see [Microsoft Customer Experience Improvement Program](#).

See Also

[Configure claims-based authentication](#)
[Configure an Internet-facing deployment](#)

[Change the product key](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Change the product key

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The **Change Product Key** dialog box lets you change the product key.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see [Administering Microsoft Dynamics CRM by using Windows PowerShell](#).

Change the product key

1. Open the **Change Product Key** dialog box in one of two ways:
 - In the **Actions** pane, click **Change Product Key**.
 - In the console tree, right-click **Microsoft Dynamics 365**, and then click **Change Product Key**.
2. Type the new product key into the **Enter the Microsoft Dynamics 365 product key** boxes.
3. Click **Apply**.

See Also

[Microsoft Dynamics 365 deployment properties](#)

[Using Windows PowerShell to perform Deployment Manager tasks](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Using Windows PowerShell to perform Deployment Manager tasks

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can use Windows PowerShell cmdlets to perform many of the tasks that can be performed by using the Deployment Manager user interface.

For more information about the Microsoft Dynamics 365 Windows PowerShell cmdlets, see [Administering Microsoft Dynamics CRM by using Windows PowerShell](#).

Register the Microsoft Dynamics 365 cmdlet

1. Sign in to the administrator account on your Microsoft Dynamics 365 server.
 2. Open a Windows PowerShell prompt.
 3. Add the Microsoft Dynamics 365 Windows PowerShell snap-in.
- This command adds the Microsoft Dynamics 365 Windows PowerShell snap-in to the current session. The snap-in is registered during installation and setup of the Microsoft Dynamics 365 server. Here's how to get a list of Microsoft Dynamics 365 cmdlets.

```
Get-Help *Crm*
```

For detailed help for a specific cmdlet, use `Get-Help CRMcmdlet -full`, such as the **Import-CRMOrganization** cmdlet.

```
Get-Help Import-CRMOrganization
```

See Also

[Use Deployment Manager to manage the deployment](#)
[Configure claims-based authentication](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The claims-based security model extends traditional authentication models to include other directory sources that contain information about users. This identity federation lets users from various sources—such as Active Directory Domain Services, customers through the Internet, or business partners—use Microsoft Dynamics 365.

◆ Important

Claims-based authentication is required for Microsoft Dynamics 365 Internet-facing deployment (IFD) access. However, claims-based authentication isn't required for intranet Microsoft Dynamics 365 access if Microsoft Dynamics 365 is deployed in the same domain where all Microsoft Dynamics 365 users are located, or users are in a trusted domain.

Before you run the Configure Claims-Based Authentication Wizard, a security token service (STS), such as Active Directory Federation Services (AD FS) must be available. For more information about Active Directory Federation Services (AD FS), see [Identity and Access Management](#).

Configure claims-based authentication

1. Start the Deployment Manager.
2. Set the **Binding Type** to HTTPS, as follows:
 - In the **Actions** pane, click **Properties**.

- Click the **Web Address** tab.
- Under **Binding Type**, select **HTTPS**.
- Click **OK**.

◆ Important

The **Binding Type** must be set to HTTPS to use claims-based authentication.

Verify that the web addresses are valid for your TLS/SSL certificate and the TLS/SSL port bound to the Microsoft Dynamics 365 website.

If Dynamics 365 for Outlook clients were configured using the old binding values, these clients will need to be configured with the new values.

3. Open the Configure Claims-Based Authentication Wizard in one of two ways:
 - In the **Actions** pane, click **Configure Claims-Based Authentication**.
 - In the Deployment Manager console tree, right-click **Microsoft Dynamics 365**, and then click **Configure Claims-Based Authentication**.
4. Click **Next**.
5. On the **Specify the security token service** page, enter the **Federation metadata URL**, such as `https://adfs.contoso.com/federationmetadata2007-06/federationmetadata.xml`.
This data is typically located on the website where the Active Directory Federation Services (AD FS) is running. To verify the correct URL, open an Internet browser by using the URL to view the federation metadata. Verify that no certificate-related warnings appear.
6. Click **Next**.
7. On the **Specify the encryption certificate** page, specify the encryption certificate in one of two ways:
 - In the **Certificate** box, type the name of the certificate. Type the complete common name (CN) of the certificate by using the format `CN=certificate_subject_name`.
 - Under **Certificate**, click **Select**, and then select a certificate.

This certificate is used to encrypt authentication security tokens that are sent to the Active Directory Federation Services (AD FS) security token service (STS).

📌 Note

The Microsoft Dynamics 365 service account must have Read permissions for the private key of the encryption certificate. See the following section [The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate](#).

8. Click **Next**.
The Configure Claims-Based Authentication Wizard verifies the token and certificate you specified.
9. On the **System Checks** page, review the results, fix any problems, and then click **Next**.
10. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.

11. Note the URL you must use to add the relying party to the security token service. View and save the log file for later reference.
12. Note the information on the page, and then click **Finish**.
13. Configure relying parties for claims-based authentication.

◆ Important

Claims-based authentication won't work until you create the relying parties in STS. For more information, see [Configure the AD FS server for claims-based authentication](#).

The CRMAppPool account and the Microsoft Dynamics CRM encryption certificate

Claims data sent from Microsoft Dynamics 365 to Active Directory Federation Services (AD FS) is encrypted using a certificate you specify in the Configure Claims-Based Authentication Wizard. The CRMAppPool account of each Microsoft Dynamics 365 web application must have Read permissions to the private key of the encryption certificate.

1. On the Microsoft Dynamics 365 Server, create a Microsoft Management Console (MMC) with the **Certificates** snap-in console that targets the **Local computer** certificate store.
2. In the console tree, expand the Certificates (**Local Computer**) node, expand the **Personal** store, and then click **Certificates**.
3. In the details pane, right-click the encryption certificate specified in the Configure Claims-Based Authentication Wizard, point to **All Tasks**, and then click **Manage Private Keys**.
4. Click **Add**, (or select the Network Service account if that is the account you used during setup) add the **CRMAppPool** account, and then grant Read permissions.

💡 Tip

You can use IIS Manager to determine what account was used during setup for the CRMAppPool account. In the **Connections** pane, click **Application Pools**, and then check the **Identity** value for CRMAppPool.

5. Click **OK**.

See Also

[Disable claims-based authentication](#)
[Configure an Internet-facing deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Disable claims-based authentication

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Use the following procedure to disable claims-based authentication.

Disable claims-based authentication

- Disable claims-based authentication one of two ways:
 - In the Deployment Manager **Actions** pane, click **Disable Claims-Based Authentication**.
 - In the Deployment Manager console tree, right-click **Microsoft Dynamics 365**, and then click **Disable Claims-Based Authentication**.

See Also

[Configure claims-based authentication](#)

[Configure an Internet-facing deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Configure an Internet-facing deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Configuring an Internet-facing deployment (IFD) lets users get to Microsoft Dynamics 365 from the Internet, outside the company firewall, without using a virtual private network (VPN). Microsoft Dynamics 365 configured for Internet access uses claims-based authentication to verify credentials of external users. When you configure Microsoft Dynamics 365 for Internet access, integrated Windows authentication must remain in place for users accessing Microsoft Dynamics 365 through your LAN or WAN.

◆ Important

Claims-based authentication is required for Microsoft Dynamics 365 Internet-facing deployment (IFD) access. If Microsoft Dynamics 365 is deployed in the same domain where all Microsoft Dynamics 365 users are located or users are located in a trusted domain, claims-based authentication is not required for intranet Microsoft Dynamics 365 access.

Before you run the Configure Claims-Based Authentication Wizard, a security token service (STS), such as Active Directory Federation Services (AD FS) must be available. For more information about Active Directory Federation Services (AD FS), see [Identity and Access Management](#).

Configure Internet-facing deployment

1. Start the Deployment Manager.
2. If you have not already done so, configure claims-based authentication.
See [Configure claims-based authentication](#).
3. Open the Internet-Facing Deployment Configuration Wizard in one of two ways:
 - In the **Actions** pane, click **Configure Internet-Facing Deployment**.
 - In the Deployment Manager console tree, right-click **Microsoft Dynamics 365**, and then click **Configure Internet-Facing Deployment**.
4. Review the page, and then click **Next**.
5. On the **Make Microsoft Dynamics 365 available to users who connect through the Internet** page, type the domains for the specified Microsoft Dynamics 365 Server roles, and then click **Next**.

Note

- Specify domains, not servers.
- If your deployment is on a single server or servers in the same domain, the **Web Application Server Domain** and **Organization Web Service Domain** will be identical.
- The **Discovery Web Service Domain** must be a subdomain of the **Web Application Server Domain**. By default, "dev." is pre-pended to the **Web Application Server Domain** to make the **Discovery Web Service Domain**.
- The domains must be valid for the Transport Layer Security (TLS) or Secure Sockets Layer (SSL) certificate's common name or names.

For more information about web addresses, see [Install Microsoft Dynamics CRM Server on multiple computers](#).

6. In the **Enter the external domain where your Internet-facing servers are located** box, type the external domain information where your Internet-facing Microsoft Dynamics 365 servers are located, and then click **Next**.
The domain you specify must be a subdomain of the **Web Application Server Domain** specified in the previous step. By default, "auth." is pre-pended to the **Web Application Server Domain**.
7. On the **System Checks** page, review the results, fix any problems, and then click **Next**.
8. On the **Review your selections and then click Apply** page, verify your selections, and then click **Apply**.
9. Click **Finish**.
10. If you experience issues connecting to Microsoft Dynamics 365 through an external address, reset Internet Information Services (IIS).
Restart Internet Information Services (IIS). To do this, click **Start**, click **Run**, type **IISRESET**, and then click **OK**.

11. Configure relying parties for IFD.

◆ **Important**

You must configure a relying party for IFD. For more information, see [Configure the AD FS server for IFD](#).

See Also

[Configure claims-based authentication](#)
[Disable an Internet-facing deployment](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Disable an Internet-facing deployment

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Disable an Internet-facing deployment

- Disable an Internet-facing deployment (IFD) in one of two ways:
 - In the Deployment Manager **Actions** pane, click **Disable Internet-Facing Deployment**.
 - In the Deployment Manager console tree, right-click **Microsoft Dynamics 365**, and then click **Disable Internet-Facing Deployment**.

See Also

[Configure an Internet-facing deployment](#)
[Configure claims-based authentication](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Deployment Administrators

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To run Deployment Manager, you must have the Deployment Administrator role. Deployment Administrators have unrestricted access to perform Deployment Manager tasks on all organizations and servers in a Microsoft Dynamics 365 deployment.

◆ **Important**

Make sure that at least two or three trusted people have the Deployment Administrator role. This

prevents system lockout if the primary deployment administrator is unavailable.

During Microsoft Dynamics 365 Server Setup, the user running Setup is automatically given the Deployment Administrator role. A Deployment Administrator can give the Deployment Administrator role to other users in Active Directory directory service.

Note

Users who have the Deployment Administrator role do not automatically become Microsoft Dynamics 365 users and do not consume a client access license (CAL).

The Deployment Administrator role cannot be managed in the Microsoft Dynamics 365 client applications.

See Also

[Add a new Deployment Administrator](#)

[Remove a Deployment Administrator](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Add a new Deployment Administrator

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can grant or remove the Deployment Administrator role in the **Deployment Administrators** node in Deployment Manager.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see [Administer the deployment using Windows PowerShell](#).

Add a Deployment Administrator

1. In the console tree, right-click **Deployment Administrators**, and then click **New Deployment Administrator**.
2. In the **Select User** dialog box, in the **Enter object name to select** box, type the name of a user, who must exist in Active Directory, and then click **Check Names**.
3. After the user name is accepted, click **OK**.

See Also

[Deployment Administrators](#)
[Remove a Deployment Administrator](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Remove a Deployment Administrator

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

In Microsoft Dynamics 365, you can remove a person from the Deployment Administrator role.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Remove-CrmDeploymentAdministrator command in the [Microsoft Dynamics CRM PowerShell Reference](#).

Remove a Deployment Administrator

1. In the Deployment Manager console tree, click **Deployment Administrators**.
2. In the **Name** list, right-click the name of the user to remove.
3. Click **Remove**, and then click **Yes**.

See Also

[Deployment Administrators](#)
[Add a new Deployment Administrator](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Manage organizations

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Use the **Organizations** page to view, change, add, enable, disable, and import organizations for Microsoft Dynamics 365.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see [Microsoft Dynamics CRM PowerShell Reference](#).

View the Organizations page

1. In the console tree, click **Organizations**.
2. In the details pane, the organizations are listed, and in the **Actions** pane, organization-related tasks are listed.

See Also

- [Edit an organization's attributes](#)
- [Disable or enable an organization](#)
- [Add a new organization](#)
- [Import an organization](#)
- [Delete an organization](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Edit an organization's attributes

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Before you can edit an organization, you must disable it. After you make the changes, re-enable the organization.

You can change the display name and SQL Server computer where the organization database is located. Also, you can change the Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services URL, which specifies where the Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services is installed.

You cannot change the name of the organization.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the `Disable-CrmOrganization` and `Edit-CrmOrganization` commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Edit an organization

1. In the console tree, click **Organizations**.
2. Right-click the organization you want to edit, click **Disable**, and then click **Yes**.
3. Right-click the organization again, and then click **Edit Organization**.
4. In the **Edit Organization Wizard**, change the following as necessary:
 - **Display Name**. Type a name for the organization.
 - **SQL Server**. Type the name of the SQL Server where the organization database is located. Be aware that, before you can change the SQL Server for an organization, the organization database must be located on the new SQL Server, attached, and available. The Edit

Organization Wizard does not move the database for you. For more information about how to move a database in SQL Server, see [MSDN: SQL Server Books Online](#).

- **SQL Server Reporting Services URL.** Type the URL of the computer that is running Microsoft SQL Server Reporting Services where the Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services is installed.
5. Click **Next**.
The **System Checks** page appears. This page is a summary of all system requirements to create new organization settings. Failed tests must be corrected and all errors resolved before the settings can be applied. If necessary, cancel the Edit Organization Wizard, fix the problem, and then try again.
 6. When no errors, or only warnings, appear, click **Next**.
 7. On the **Ready to Apply Changes** page, click **Apply**.
 8. On the **Edit Organization** page, click **Finish**.

See Also

[Manage organizations](#)
[Disable or enable a server](#)
[Manage servers](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Disable or enable an organization

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Use the **Organizations** page to disable or enable an organization. It is a best practice to disable an organization temporarily when you perform database maintenance.

◆ Important

When you disable an organization, users cannot access the Microsoft Dynamics 365 application for the organization.

💡 Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the Disable-CrmOrganization and Enable-CrmOrganization commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Disable or enable an organization

1. In the console tree, click **Organizations**. The list of organizations appears in the middle pane.

2. In the details pane, select the organization.
3. Right-click the organization, and:
 - If the organization is enabled, click **Disable**.
 - If the organization is disabled, click **Enable**.

See Also

[Manage organizations](#)

[Add a new organization](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Add a new organization

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can add a new organization in the Microsoft Dynamics 365 deployment in the Organizations node of Deployment Manager.

Note

- Not all versions of Microsoft Dynamics 365 allow you to add multiple organizations.
- To add an organization, you must be a member of the domain where Microsoft Dynamics 365 is installed. You cannot add an organization as a member of a child or a trusted domain.

Tip

The procedure described here can be implemented by using a Windows PowerShell cmdlet. For more information, see the New-CrmOrganization command in the [Microsoft Dynamics CRM PowerShell Reference](#).

1. In the Deployment Manager console tree, right-click **Organizations**, and then click **New Organization** to open the New Organization Wizard.
2. On the **Specify the Organization Settings** page, enter the following information:
 - In the **Display Name** box, type the name of your organization.
 - In the **Name** box, keep the name that is automatically generated or type a unique name. The name is limited to 30 characters. Spaces and extended characters are not allowed.

- Under **ISO currency code**, click **Browse**, select the ISO currency code for the base currency for the organization, and then click **OK**. You can change the currency's symbol, name, or precision.
 - In the **Base Language** list, select the base language for the organization. In Microsoft Dynamics 365, only the base language of the first organization is tied to the language of the server installation. All other organizations can have different base languages, but you must first install Microsoft Dynamics 365 Language Packs for the other language. For instructions about how to install Language Pack, see [Microsoft Dynamics CRM Language Pack Installation Instructions](#).
 - In the **SQL collation** list, keep the default selection or select a different collation that the organization database will use to sort and compare data characters.
 - The default SQL collation changes based on the base language selection. For more information, see [Collation and Unicode Support](#).
3. Click **Next**.

◆ Important

After the New Organization Wizard is finished, you cannot change the organization name, base ISO currency code, or SQL Server database collation.

4. On the **Help Us Improve the Customer Experience** page, select whether you want users in the new organization to be able to participate in the Customer Experience Improvement Program, and then click **Next**.
- For more information about the Customer Experience Improvement Program, see [Microsoft Customer Experience Improvement Program](#).
5. On the **Select SQL Server** page, type or select the computer that is running SQL Server that will be used for the Microsoft Dynamics 365 database, and then click **Next**.
6. On the **Specify Reporting Services Server** page, type the report server URL. (Make sure you use the Microsoft SQL Report Server URL, not the Report Manager URL.) Then, click **Next**.
7. The **System Checks** page validates your organization.
- Failed tests must be corrected before a new organization can be added. If necessary, cancel the New Organization Wizard, fix the problem, resolve all errors, and then start the New Organization Wizard again.
- If no errors, or only warnings, appear, click **Next**.
8. Review the **Ready to Create** page, and then click **Create**.
9. On the **New Organization** page, click **Finish**.

See Also

[Manage organizations](#)
[Import an organization](#)

Import an organization

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can import an existing Microsoft Dynamics 365 organization with the Import Organization Wizard. You can use this wizard when you move Microsoft Dynamics 365 Server to another computer. Use the Import Organization Wizard to import an organization from any domain in the Active Directory directory service forest.

Important

- Before you import, upgrade, or update a Microsoft Dynamics 365 organization, you should back up the configuration and organization databases.
- You cannot import a database that is already deployed in the target Microsoft Dynamics 365 deployment.
- Not all versions of Microsoft Dynamics 365 Server support multiple organizations in the deployment. When you import an organization into a version of Microsoft Dynamics 365 that only supports one organization and already has an organization in place, the existing organization will be replaced by the imported organization.
- If the Import Organization Wizard detects that the organization you are importing is from an earlier version of Microsoft Dynamics 365, the organization database will be upgraded to the new version.
- We recommend that for each organization you upgrade, the volume has free space that is at least three times the size of the organization database file and four times the size of the log file. That way, if a single organization database and log file are located on the same volume and are one gigabyte in total, you should have at least seven gigabytes of available disk space before you perform the upgrade.
- Before you can import an organization with the Import Organization Wizard, the organization database must be restored and attached to SQL Server. For more information about how to restore databases, see [MSDN: SQL Server Books Online](#).
- The encryption key is required to activate data encryption when you import an organization database into a new deployment; a deployment that has had the configuration database (MSCRM_CONFIG) re-created after the organization was encrypted; or a restore from an earlier backup that doesn't contain the encryption key. You can copy the original encryption key to Notepad and paste it into the Settings > Data Management > Data Encryption dialog after the organization import is completed. When you activate data encryption after redeployment, we recommend you use Internet Explorer to paste the encryption key into the Data Encryption dialog box. For more information about data encryption, see [Data encryption](#).

Tip

The procedure described here can be implemented by using a Windows PowerShell cmdlet. For more information, see the Import-CrmOrganization command in the [Microsoft Dynamics CRM PowerShell Reference](#).

Import an organization

1. In the Deployment Manager console tree, right-click **Organizations**, and then click **Import Organization** to open the Import Organization Wizard.
2. On the **Select SQL Server** page, in the SQL Server box, type or select the computer that is running SQL Server where the Microsoft Dynamics 365 organization database is located.
3. In the **Organization database** list, select the organization that you want to import.
4. Click **Next**.
5. On the **Specify the Organization Settings** page, accept the default **Display Name** for the imported organization or type a new **Display Name**.
6. Accept the default **Unique Database Name** for the imported organization or type a new **Unique Database Name**.
7. Click **Next**.
8. On the **Specify Reporting Services Server** page, accept the default entry or type the URL for the Microsoft SQL Report Server to be used by the organization you import.
9. On the **Select Method for Mapping Users** page, select one of the following options:
 - **Automatically Map Users**. This selection automatically maps the users' Active Directory account names to Microsoft Dynamics 365 accounts.
Users in the Active Directory domain are verified against the current domain user information. If the organization being imported has users added with their User Principal Name (UPN), the user information will be mapped across without any changes or validation.
 - **Select Custom Mapping Options**. This selection lets you specify custom user account matching options.
10. Click **Next**.
11. If you selected **Select Custom Mapping Options**, you'll see custom user mapping options. Select from the following options:
 - **Keep existing user mappings**. Select this option to keep the existing user mappings in the organization database. Typically, you select this option if you are importing an organization database that is located in the same Active Directory domain as the Microsoft Dynamics 365 Server where the organization is to be imported.
For users external to the Active Directory domain, who were added with their UPN, the user information will be mapped across without any changes or validation.

- **Manually map users.** Select this option to manually map each user, typing each user's ID into the mapping table.
- **Generate a new mapping file.** Select this option to create a sample XML mapping file. Then, you can exit the Import Organization Wizard, change the user mapping file to select how users are imported, and run the Import Organization Wizard again. The default behavior is to create the user mapping file in the folder <drive>:\Program Files\Microsoft Dynamics CRM\Tools.
- **Auto-map users.** Select this option to automatically map the user settings by selecting from the following options:
 - **Active Directory account name.** Select this option to use the user logon name that is set in Active Directory. Users in the Active Directory domain are verified against the current domain user information.
 - **Microsoft Dynamics 365 full name to Active Directory full name.** Select this option to use the display or full name that is set in Active Directory.
 - **Prefix.** Select this option to create a prefix, with an appended numeric value, for each user.
 - **Use existing mapping file.** Select this option if you have created a mapping file to import users. Then, type the full path and file name in the box provided, or click **Browse** to find and select the user mapping file.

 **Note**

In all the Auto-map methods, users entered with their UPNs are mapped across without any changes.

12. Click **Next** to open the **System Requirements** page.

This page shows a summary of all system requirements to create a new organization. Failed tests must be corrected before a new organization can be created. If necessary, cancel the Import Organization Wizard, fix the problem, resolve all errors, and then start the Import Organization Wizard again.

13. If no errors, or only warnings appear, click **Next**.
14. On the **Ready to Import** page, click **Import**.
15. On the **Import Organization** page, click **Finish**.

See Also

[Manage organizations](#)

[Troubleshoot organization import and upgrade issues](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Upgrade an organization

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can upgrade organizations from earlier versions of Microsoft Dynamics 365 on-premises by using Deployment Manager to import them into the new deployment.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the [Import-CrmOrganization](#) and [Update-CrmOrganization](#) commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Upgrade an organization by importing it

During the import process, the Import Organization Wizard detects the version and upgrades the organization automatically.

Important

Before you import, upgrade, or update a Microsoft Dynamics 365 organization, you should back up the configuration and organization databases.

Only Microsoft Dynamics CRM 2015 organizations are supported for importing with this version of Microsoft Dynamics 365. To upgrade earlier versions, see [Upgrade from Dynamics CRM Server 2013 or Dynamics Server 2011](#).

Upgrade an organization in-place

After you upgrade Microsoft Dynamics 365 Server, if the deployment contains additional organizations from the earlier version of Microsoft Dynamics 365, those organizations become disabled and aren't upgraded. You can upgrade those organizations by using the steps described here.

Use Deployment Manager to upgrade organizations

1. On the Deployment Manager home page, in the console tree, click **Organizations**.
2. In the details pane for each organization, review the **Version** column.
3. For each organization where the **Version** is earlier than the latest version installed, right-click the organization, and then click **Upgrade Organization**.

See Also

[Manage organizations](#)

[Import an organization](#)

[Update an organization](#)

[Troubleshoot organization import and upgrade issues](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Update an organization

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

When you update the organizations in your deployment, disabled organizations can't be updated until they are enabled. In the list of organizations in the details pane for the disabled organization, the **Update** column will show that an update is **Available**.

◆ Important

Before you import, upgrade, or update a Microsoft Dynamics 365 organization, you should back up the configuration and organization databases.

💡 Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the [Enable-CrmOrganization](#) and [Update-CrmOrganization](#) commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Update a disabled organization

1. To enable the organization, in the details pane, right-click the disabled organization, and then click **Enable**.
2. To update the organization, in the details pane, right-click the organization, and then click **Update**.

Update management

Microsoft Dynamics 365 updates include security, performance, and functional improvements. Making sure that your Microsoft Dynamics 365 applications have the latest updates helps make sure that your system is running as efficiently and reliably as it can.

For information about how to manage updates, see the following:

- [Windows Server Update Services](#)
- [Introduction to Software Updates in Configuration Manager](#)

See Also

[Manage organizations](#)

[Import an organization](#)

[Upgrade an organization](#)

[Troubleshoot organization import and upgrade issues](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Troubleshoot organization import and upgrade issues

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

If you encounter any issues during organization import and upgrade, here are some tips for troubleshooting them:

- Make sure that the user account that's running the import has administrative permissions for the instance of SQL Server. For more information about how to grant permissions in Microsoft SQL Server, see [Managing Logins, Users, and Schemas How-to Topics](#).
- View the DMSnapin log file located in the following folder:
<drive:>%appdata%\Microsoft\MSCRMLogs.

See Also

[Manage organizations](#)

[Import an organization](#)

[Upgrade an organization](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Delete an organization

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Before you can delete an organization, you must disable it.

Note

The ability to have multiple organizations in a single deployment of Microsoft Dynamics 365 isn't available in all Microsoft Dynamics 365 editions.

When you delete an organization, the SQL Server database is not deleted. Therefore, you can import the organization later.

Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the [Disable-CrmOrganization](#) and [Remove-CrmOrganization](#) commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Delete an organization

1. In the Deployment Manager console tree, click **Organizations**.

2. In the middle pane, right-click the organization that you want to delete, and then click **Disable**.
3. Click **Yes**.
4. Right-click the organization again, and then click **Delete**.
5. Click **Yes**.

See Also

[Manage organizations](#)

[Disable or enable an organization](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Manage servers

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can do the following actions in the **Servers** area of Deployment Manager:

- View a list of Microsoft Dynamics 365 servers.
- Enable or a disable a server.
- Delete a server.

You can customize the **Servers** area view to display the information that you want about the servers that are listed. Also, you can export a list of those servers and any displayed details to a text file.

See Also

[Microsoft Dynamics 365 server roles](#)

[Disable or enable a server](#)

[Delete \(remove\) a Microsoft Dynamics 365 Server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Disable or enable a server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

You can use the **Servers** area to disable or enable a Microsoft Dynamics 365 Server.

Warning

When you disable a server, users can't access the Microsoft Dynamics 365 application through the server. If the deployment contains only a single server that is running Microsoft Dynamics 365, users can't access the application.

Depending on the server roles that are installed, disabling a server stops the following services or server roles:

- Web Application Server
- Organization Web Service
- Help Server
- Discovery Web Service
- Deployment Web Service
- Asynchronous Processing Service
- Asynchronous Processing Service (maintenance)
- Sandbox Processing Service
- Microsoft Dynamics 365 VSS Writer service

Enabling a server that was disabled starts the server role service.

◆ Important

You can't disable the SQL Server and Microsoft Dynamics 365 Reporting Extensions server roles by using the Deployment Manager disable feature.

💡 Tip

You can implement the procedure described here by using a Windows PowerShell cmdlet. For more information, see the [Disable-CrmServer](#) and [Enable-CrmServer](#) commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Disable or enable a server

1. In the Deployment Manager console tree, click **Servers** to view the list of servers.
2. In the details pane, right-click the server, and then click **Disable** or **Enable**.

See Also

[Manage servers](#)

[Microsoft Dynamics 365 server roles](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Delete (remove) a Microsoft Dynamics 365 Server

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To delete a Microsoft Dynamics 365 Server from a deployment, use the **Servers** area. However, before you can delete a server, you must disable it.

Caution

After you delete a server, users may no longer be able to access or use the Microsoft Dynamics 365 application, or use certain features, such as reporting. To restore a deleted server, you must run Microsoft Dynamics 365 Server Setup and reinstall the server roles that were removed when the server was deleted.

Tip

The procedure described here can be implemented by using a Windows PowerShell cmdlet. For more information, see the [Disable-CrmServer](#) and [Remove-CrmServer](#) commands in the [Microsoft Dynamics CRM PowerShell Reference](#).

Delete a server

1. In the Deployment Manager console tree, click **Servers**.
2. In the details pane, right-click the server that you want to delete, and then click **Disable**.
3. Click **Yes**.
4. After the server is disabled, in the details pane, right-click the server that you want to delete, and then click **Delete**.
5. Click **Yes**.

See Also

[Manage servers](#)
[Disable or enable a server](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Troubleshooting and known issues for Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Administrators can use the information in this section to troubleshoot issues with Microsoft Dynamics 365.

In this section

[Monitor and troubleshoot Microsoft Dynamics 365](#)

Learn about:

- Creating trace files to troubleshoot error messages or other issues in Microsoft Dynamics 365.
- Using the System Center Monitoring Pack for Microsoft Dynamics 365 to administer the Microsoft Dynamics 365 application in Microsoft System Center Operations Manager.

See Also

[Referenced topic '55e7ba52-2f18-4eaf-8281-70cd639887f8' is only available online.](#)

[Operating Microsoft Dynamics 365](#)

[Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Monitor and troubleshoot Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

In Microsoft Dynamics 365, you can create trace files that monitor the actions that are performed by the server and client applications. Trace files are helpful when you have to troubleshoot error messages or other issues in Microsoft Dynamics 365.

To enable Microsoft Dynamics 365 Server tracing, you can use deployment-level tracing or server-level tracing. Choosing either method determines the range of server roles monitored, the degree of control, and how to enable tracing and the location of the trace files.

Additionally, Microsoft Dynamics 365 Reporting Extensions, Dynamics 365 for Outlook, and Microsoft Dynamics 365 for tablets can be enabled for tracing.

In This Topic

[Microsoft Dynamics 365 deployment-level tracing \(on-premises versions only\)](#)

[Microsoft Dynamics 365 server-level tracing \(on-premises versions only\)](#)

[Enable tracing for Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services \(on-premises versions only\)](#)

[Enable tracing for Microsoft Dynamics 365 for Outlook](#)

[Enable tracing for Microsoft Dynamics 365 Email Router](#)

[Enable tracing for Dynamics 365 for phones for Windows Phone](#)

[Enable tracing for Dynamics 365 for tablets](#)

[System Center Operations Manager management pack for Microsoft Dynamics 365 \(on-premises versions only\)](#)

Microsoft Dynamics 365 deployment-level tracing (on-premises versions only)

Deployment-level tracing monitors all Microsoft Dynamics 365 server roles and services, regardless of the server roles installed on the local computer. When deployment-level tracing is enabled, all server roles are monitored such as Asynchronous Service, Sandbox Processing Service, Unzip Service, Web application (w3wp), and Deployment Tools (mmc-Tools). Corresponding trace files are created.

Deployment-level tracing is set by using Windows PowerShell commands and is maintained in the MSCRM_CONFIG database. Deployment-level tracing can only be enabled from a computer that has the Microsoft Dynamics 365Deployment Tools server role.

The trace files are located in a folder on the computer where the Microsoft Dynamics 365Deployment Tools server role is running. By default, the location is C:\crmdrop\logs.

Caution

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give other people the ability to view the information in a trace file.

When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

Important

Before you run Microsoft Dynamics 365Windows PowerShell commands, the Microsoft.Crm.PowerShell snap-in must be registered by running the `Add-PSSnapin Microsoft.Crm.PowerShell` command.

For more information, see [Administer the deployment using Windows PowerShell](#).

Tip

To get a list of the registered Windows PowerShell snap-ins, run the `Get-PsSnapin -registered` command.

View the current deployment-wide trace settings

```
Get-CrmSetting TraceSettings
```

Enable deployment-wide tracing

To turn on deployment-wide trace settings that record the maximum amount of information, including detailed logging with callstack information, run the following commands, in the order provided, from the Windows PowerShell console on the computer where the Deployment Tools server role is running. To enable less detailed logging or to change the location of the log files, see [Optional parameters](#).

```
$Setting = Get-CrmSetting TraceSettings$Setting.Enabled = $True
$Setting.CallStack=$True$Setting.Categories="*:Verbose"Set-CrmSetting $Setting
```

Optional parameters

- **CallStack.** Records callstack information. For detailed troubleshooting, we recommend that you turn this on. By default, this is turned off.
- **Categories.** Indicates the level of detail to record.
 - **Error.** By default, the **Categories** value is **Error**, which is the least detailed and only records errors.
 - **Warning.** Includes warnings and errors.
 - **Info.** Includes warnings, errors, and additional information.
 - **Verbose.** Records the most detailed information.
- **Directory.** Specifies the location of the trace log file. By default, the location is c:\crmdrop\logs.
- **FileSize.** Specifies the maximum file size of the log file in megabytes before information in the trace file is overwritten.

Disable deployment-level tracing (on-premises versions only)

To disable tracing, run the following commands, in the order provided, from the Windows PowerShell console on the computer where the Deployment Tools server role is running.

```
$Setting = Get-CrmSetting TraceSettings$setting.Enabled = $FalseSet-CrmSetting $setting
```

Trace files aren't deleted when tracing is disabled. Additionally, services used by Microsoft Dynamics 365 Server lock open the trace files. Therefore, you may have to restart any Microsoft Dynamics 365 services and the World Wide Web Publishing Service if these services are running on the computer where you want to delete the trace files.

Microsoft Dynamics 365 server-level tracing (on-premises versions only)

Server-level tracing only monitors those Microsoft Dynamics 365 server roles that are running on the local computer where server-level tracing is enabled. When server-level tracing is enabled, trace files that are specific to the Microsoft Dynamics 365 server roles or services that are running on the local computer are created. Server-level tracing does not require the Deployment Tools role and can provide a greater degree of control where you can set specific trace values such as what Microsoft Dynamics 365 features to trace or the maximum trace file size.

For more information about setting server-level tracing properties in Microsoft Dynamics 365, see [How to enable tracing in Microsoft Dynamics CRM](#).

If both deployment-level and server-level tracing are enabled on the same computer, only server-level tracing will be used.

Server-level tracing must be manually set in the Windows registry on the computer where one or more Microsoft Dynamics 365 server roles are running.

The server-level tracing files are located in the **Traces** folder of the Microsoft Dynamics 365 installation folder. By default, the location is C:\Program Files\Microsoft Dynamics CRM\Trace.

Enable or disable server-level tracing

 **Caution**

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give other people the ability to view the information that a trace file contains. When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

 **Caution**

This task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure that you follow these steps carefully. For added protection, back up the registry before you modify it. Then, you can restore the registry if a problem occurs. For more information about how to back up and restore the registry, see: [How to back up and restore the registry in Windows](#).

On the Microsoft Dynamics 365 Server that you want to turn on server-level tracing, start RegEdit and locate the following registry location: `HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\MSCRM`

Create the following two required new values.

Value name	Type	Value
TraceEnabled	DWORD (32-bit)	0 or 1 If you use a value of 0, tracing is disabled. If you use a value of 1, tracing is enabled.
TraceRefresh	DWORD (32-bit)	A number between zero and 99 This value must change for Microsoft Dynamics 365 to detect a change to any of the other trace values in the Windows registry. For example, if the value is 2, you can set it to 1 so that other trace values changes, such as a change to TraceCategories, will be applied.

Enable tracing for Microsoft Dynamics 365 Reporting Extensions for SQL Server Reporting Services (on-premises versions only)

In Microsoft Dynamics 365, you can create trace files that monitor the actions that are performed by Microsoft Dynamics 365 Reporting Extensions. Trace files are helpful when you have to troubleshoot error messages or other issues in Microsoft Dynamics 365 Reporting Extensions.

Caution

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give others the ability to view the information that a trace file contains.

When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

You can enable tracing for Microsoft Dynamics 365 Reporting Extensions in two ways:

[Enable tracing using registry values](#)

[Enable tracing using deployment properties](#)

Important

Traces will not be generated if the folder specified in **TraceDirectory** does not exist.

Enable tracing using registry values

Caution

This task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure that you follow these steps carefully. For added protection, back up the registry before you modify it. Then, you can restore the registry if a problem occurs. For more information about how to back up and restore the registry, see: [How to back up and restore the registry in Windows](#).

1. On the computer where you have installed Microsoft Dynamics 365 Reporting Extensions, locate and then click the following registry subkey: `HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\MSCRM`
2. Set the following registry values:
 - TraceEnabled = 1
 - TraceDirectory = *<directory path where traces will be stored>*You can also set other row values like **TraceCategories**, but they already have defaults.
3. Restart Microsoft SQL Server Reporting Services.

Enable tracing using deployment properties

1. Go to the **DeploymentProperties** table in the Configuration Database.
2. Locate the row with the value "TraceEnabled" and set its "BitColumn" column's value to "True".
Other row values like **TraceCategories**, **TraceDirectory** already have default values, but you can change these values.
You'll start seeing the traces in the directory specified in the TraceDirectory row in the **DeploymentProperties** table.
3. Restart Microsoft SQL Server Reporting Services.

Registry settings take precedence over deployment properties. If there are any invalid entries in the registry, for example, and **TraceDirectory** does not exist, the deployment properties are used.

Enable tracing for Microsoft Dynamics 365 for Outlook

This section applies to Microsoft Dynamics 365 (online) and on-premises versions of Microsoft Dynamics 365. Dynamics 365 for Outlook tracing monitors the instance of Dynamics 365 for Outlook that is running on the local computer. If an issue is isolated to a particular user running Dynamics 365 for Outlook, enabling Dynamics 365 for Outlook tracing can help determine the cause.

The Dynamics 365 for Outlook tracing files are located in the C:\Users\

Caution

Trace files may contain sensitive or personal information. Use discretion when you send trace files to other people, or when you give other people the ability to view the information that a trace file contains. When you turn on tracing it can significantly affect performance of the application. We strongly recommend that you only turn on tracing for troubleshooting issues and turn off tracing after the issue is resolved.

Enable or disable tracing for Microsoft Dynamics 365 for Outlook

1. On the computer running Dynamics 365 for Outlook, click **Start**, click **All Programs**, click **Microsoft Dynamics 365**, and then click **Diagnostics**.
2. Click the **Advanced Troubleshooting** tab, and then select **Tracing** to enable or click to clear **Tracing** to disable.
3. Select a Tracking level from the drop-down list.
4. Click **Save**.

You can reduce the amount of information during the trace by setting the **TraceCategoriesWindows** registry value. For example, you can set the value so that only error messages are recorded. Reducing the amount of logging can be helpful when you troubleshoot specific issues, such as when you receive error messages going offline. To do this, follow these steps.

Caution

Turning on verbose tracing during process intense actions such as Outlook startup, or going online and offline with Dynamics 365 for Outlook, is not recommended and could result in stability issues with Dynamics 365 for Outlook.

This task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure that you follow these steps carefully. For added protection, back up the registry before you modify it. Then, you can restore the registry if a problem occurs. For more information about how to back up and restore the registry, see [How to back up and restore the registry in Windows](#).

Notice that tracing must already be enabled for the following steps to work.

1. On the computer where you have installed Dynamics 365 for Outlook start RegEdit and locate and then click the following registry subkey:
HKEY_CURRENT_USER\Software\Microsoft\MSCRMClient.
2. If the TraceCategories string value does not exist add it. To do this, right-click **MSCRMClient**, click **New**, click **String Value**, type **TraceCategories** and then press ENTER.
3. Right-click **TraceCategories**, click **Modify**, type **Application.Outlook:Error**, and then click **OK**.

For more information about the values available for TraceCategories, see [How to enable tracing in Microsoft Dynamics CRM](#).

Trace files are not deleted when tracing is disabled.

Enable tracing for Microsoft Dynamics 365 Email Router

This section applies to Microsoft Dynamics 365 (online) and on-premises versions of Microsoft Dynamics 365. Microsoft Dynamics CRM Email Router tracing monitors the Email Router service that is running on the local computer.

Enable or disable tracing for Microsoft Dynamics 365 Email Router

1. On the computer where the Microsoft Dynamics CRM Email Router service (Microsoft Dynamics 365 Email Router) is running, open Microsoft.Crm.Tools.EmailAgent.xml using an XML or text editor. By default, Microsoft.Crm.Tools.EmailAgent.xml is located in the <drive>:\Program Files\Microsoft CRM Email\Service folder.
2. Add the following entries between the **<SystemConfiguration>** parent elements:

<LogLevel>Level</LogLevel>

Specifies the logging level. Acceptable values for *Level* are 0, 1, 2, or 3.

- 0. No logging. By default, logging is set to 0.
- 1. Error logging only.
- 2. Detailed information logging at the mailbox level.
- 3. Very detailed information logging at the message level.

<LogFile>Path\Logfilename</LogFile>

Specifies the full path of the location to the log file.

3. Restart the Email Router service.

Sample Microsoft.Crm.Tools.EmailAgent.xml

The following Microsoft.Crm.Tools.EmailAgent.xml file sets the logging at level 1 and places the log file at c:\emailRouterLog.txt.

<?


```

    xml
    version
    ="1.0"
    encoding
    ="utf-8"
    ?>

<Configuration>
<SystemConfiguration>
<MaxThreads>50</MaxThreads>
<MaxThreadExecution>60000</MaxThreadExecution>
<SchedulingPeriod>1000</SchedulingPeriod>
<ConfigRefreshPeriod>5000</ConfigRefreshPeriod>
<ConfigUpdatePeriod>3600000</ConfigUpdatePeriod>
<LogLevel>1</LogLevel>
<LogFile>c:\emailRouterLog.txt</LogFile>
<ProviderOverrides>
<CacheCapacity>1024</CacheCapacity>
<PendingStatusDelay>300000</PendingStatusDelay>
<SendingStatusDelay>1800000</SendingStatusDelay>
<MaximumDeliveryAttempts>10</MaximumDeliveryAttempts>
<EWSRetrieveMessageCount>10</EWSRetrieveMessageCount>
<BatchSize>5</BatchSize>
<RequestBatchSize>5</RequestBatchSize>
</ProviderOverrides>
</SystemConfiguration>
</Configuration>

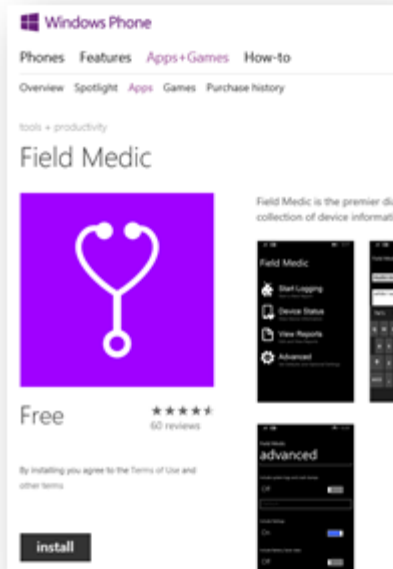
```

Enable tracing for Dynamics 365 for phones for Windows Phone

To help with troubleshooting, follow these steps to capture and view logs on your Windows Phone.

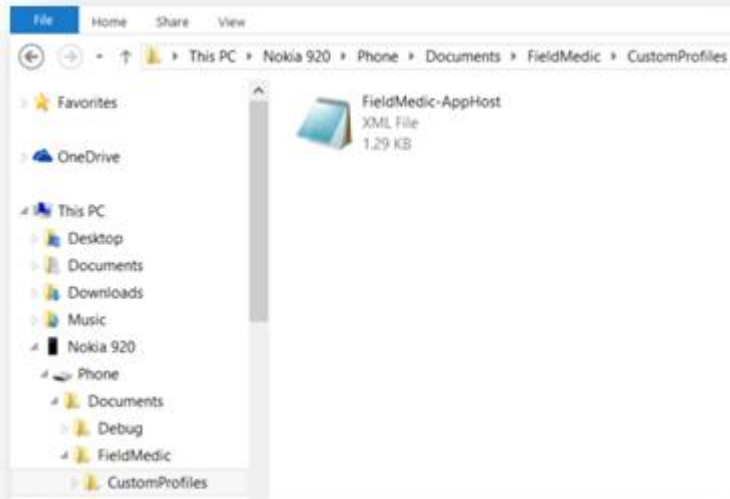
Install the Field Medic app

1. Install the Field Medic app from the [Windows Phone store](#).



Create a custom profile for AppHost logging

1. Connect your Windows Phone to your computer via USB.
2. Create the file FieldMedic-AppHost.xml in the following folder: `computer\<windows phone>\Phone\Documents\FieldMedic`. Create the folder structure if it doesn't exist already. You can create the file using Notepad and save as FieldMedic-AppHost.xml.



- Using Notepad, add the following code to the FieldMedic-AppHost.xml file.

```
<?xml version="1.0" encoding="utf-8" standalone='yes'?>

<WindowsPerformanceRecorder Version="1.0" Author="CXE Ecosystem SATT" Team="CXE
Ecosystem SATT" Comments="FieldMedic ETW profiles" Company="Microsoft Corporation"
Copyright="Microsoft Corporation" Tag="FieldMedic">

  <Profiles>

    <!-- Event Collectors -->

    <EventCollector Id="EventCollector_AppHost" Name="FieldMedic AppHost Category
Event Collector" Private="false" ProcessPrivate="false" Secure="false"
Realtime="false">

      <BufferSize Value="128"/>

      <Buffers Value="40"/>

      <MaximumFileSize Value="5" FileMode="Circular"/>

      <FileMax Value="3"/>

    </EventCollector>

    <!-- Event Providers -->

    <EventProvider Id="EventProvider_Microsoft-Windows-AppHost" Name="98e0765d-8c42-
44a3-a57b-760d7f93225a" Level="5"/>
```

```
<!-- Profiles -->

<Profile Id="AppHost.Verbose.File" LoggingMode="File" Name="AppHost"
DetailLevel="Verbose" Description="FieldMedic AppHost category profile">

  <Collectors>

    <EventCollectorId Value="EventCollector_AppHost">

      <EventProviders>

        <EventProviderId Value="EventProvider_Microsoft-Windows-AppHost"/>

      </EventProviders>

    </EventCollectorId>

  </Collectors>

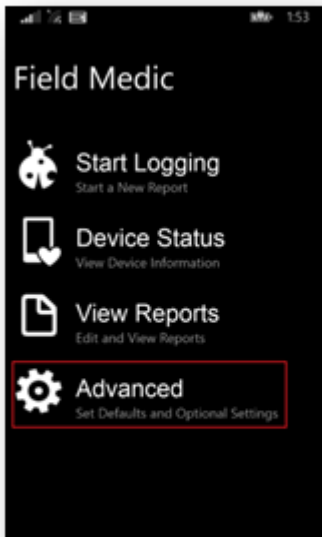
</Profile>

</Profiles>

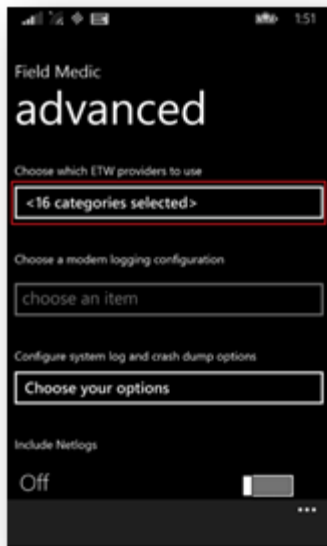
</WindowsPerformanceRecorder>
```

Enable logging

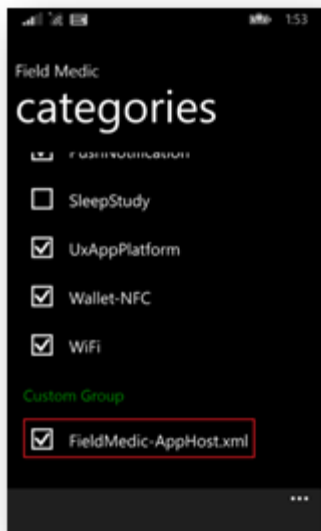
1. Open the Field Medic app.
2. Tap **Advanced**.



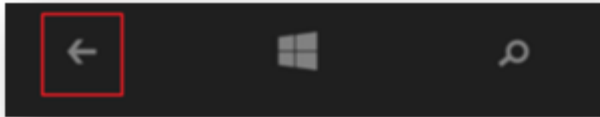
3. Tap **Choose which ETW providers to use**.



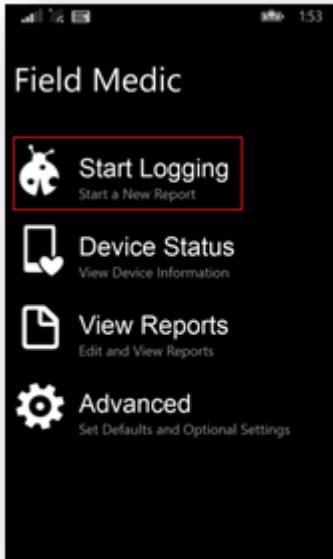
4. Swipe up to locate the **Custom Group** section and then select the checkbox for **FieldMedic-AppHost.xml**.



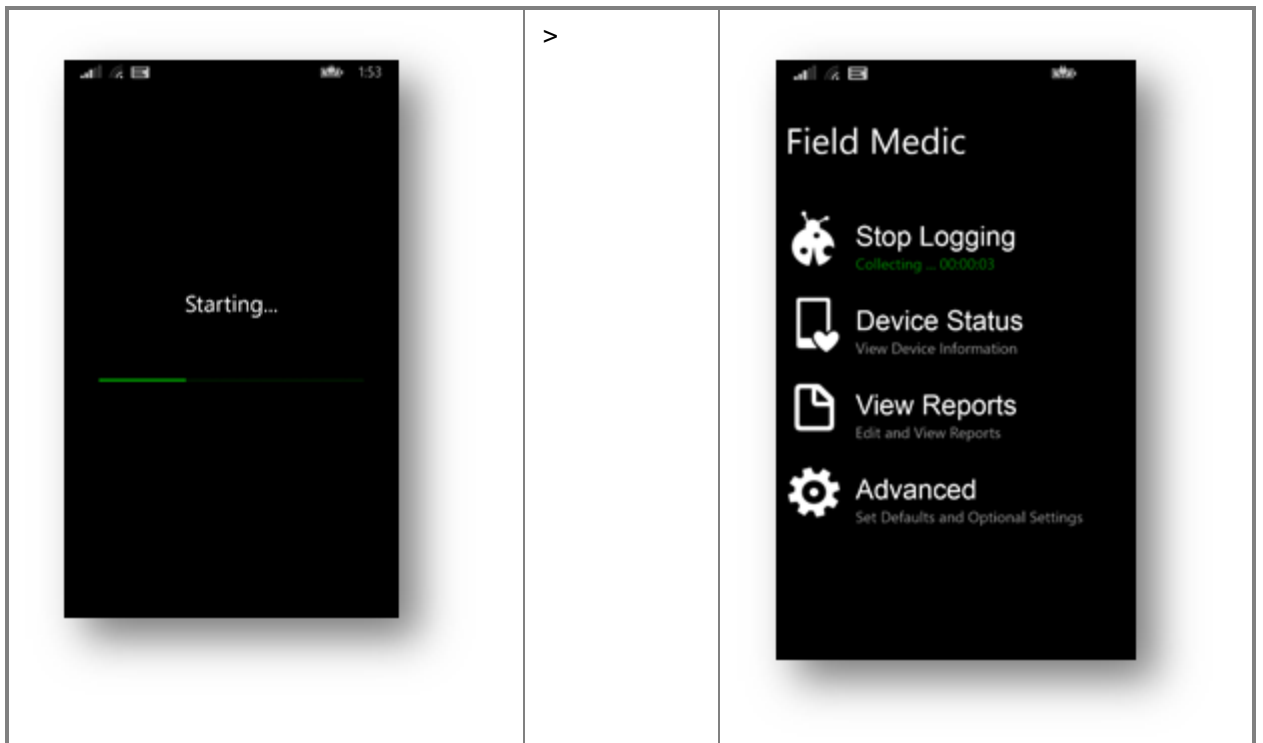
5. Tap the back button twice.



6. Tap **Start Logging**.



The following will appear.

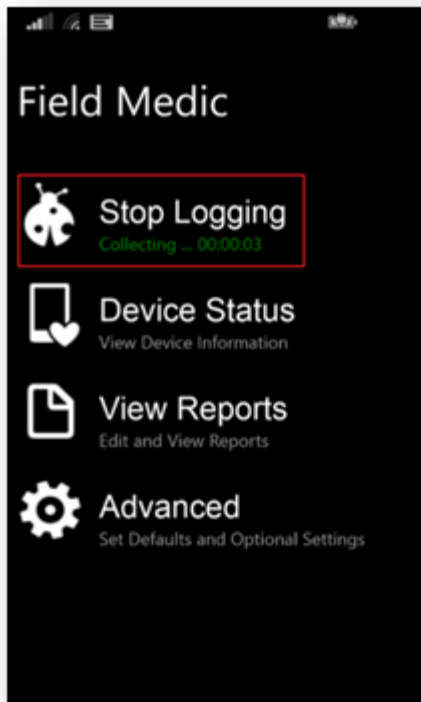


Reproduce your issue

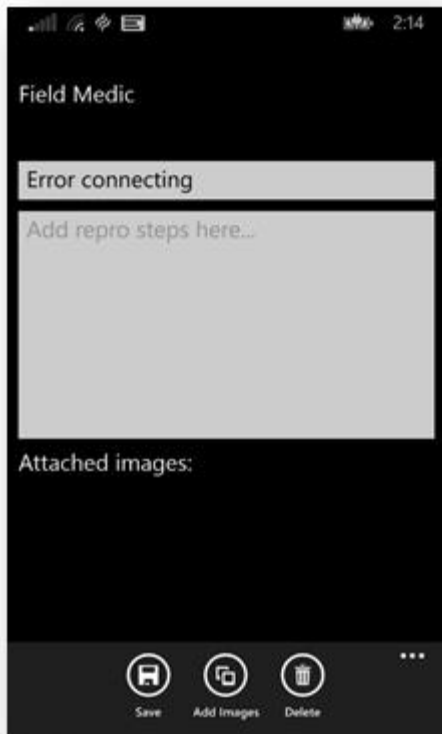
1. Switch to the Dynamics 365 for phones app.
2. Reproduce your issue.

Stop logging

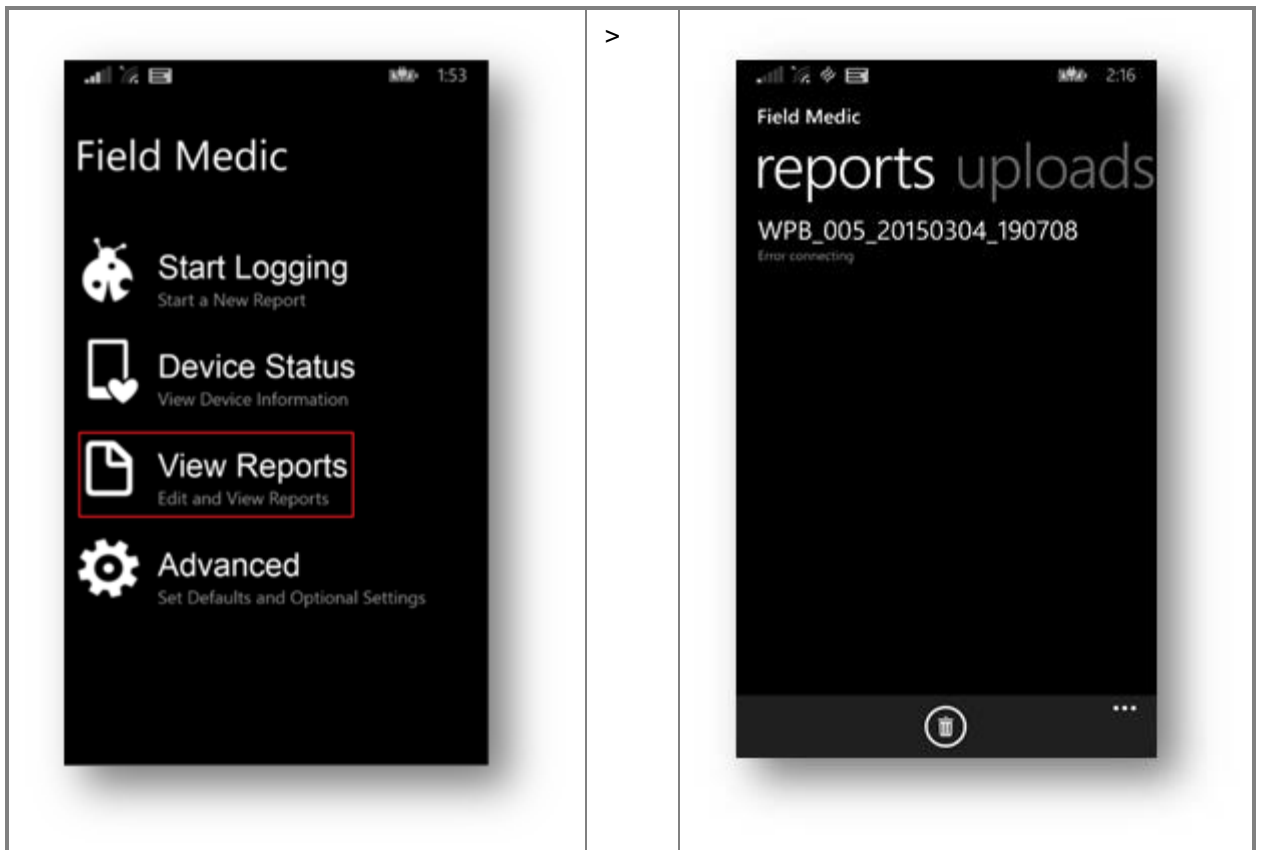
1. Switch to the Field Medic app.
2. Tap **Stop Logging**.



3. Provide a title for the logs and then tap **Save**.

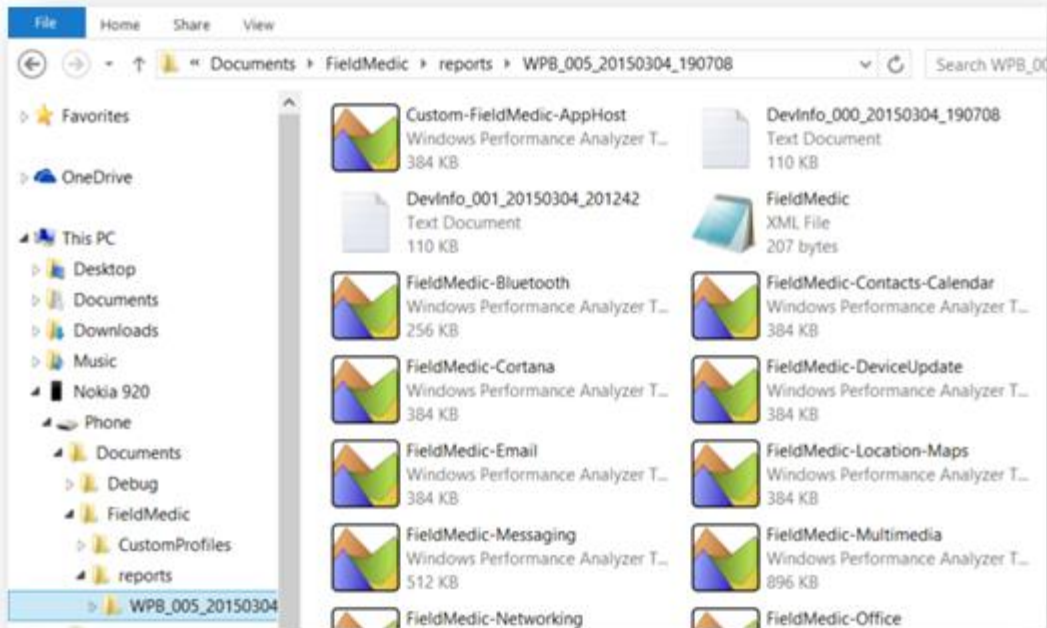


4. Tap **View Reports** to confirm you logs were successfully saved.



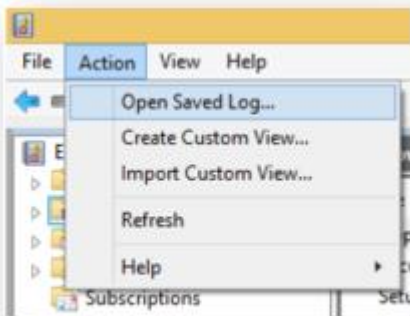
Locate the log files

1. Disconnect and reconnect the USB cable to your Windows Phone. This will ensure the latest files appear.
2. On your computer, navigate to: `computer\<windows phone>\Phone\Documents\FieldMedic\reports`
3. Copy the contents of this folder to your computer.



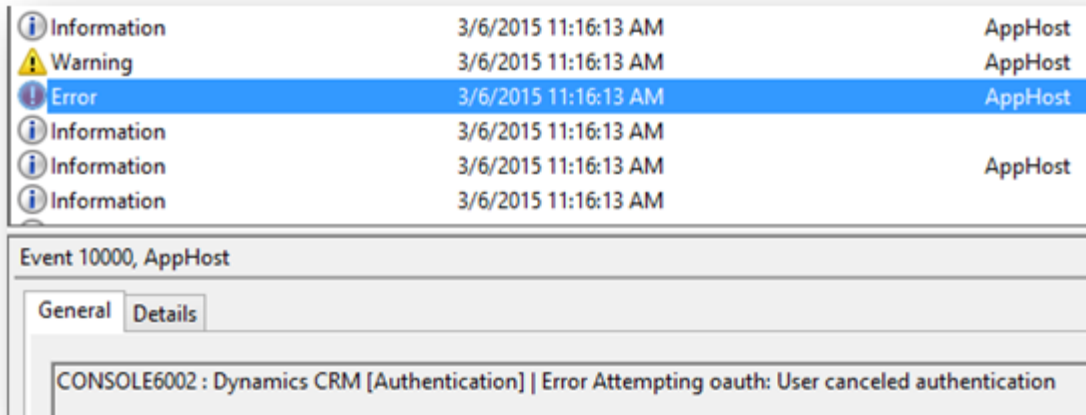
View logs using Event Viewer

1. Open Event Viewer on your computer.
2. Click **Action > Open Saved Log...**



3. Navigate to: `computer\<windows phone>\Phone\Documents\FieldMedic\reports` or wherever you copied the log files from your Windows Phone.

4. Select and open the Custom-FieldMedic-AppHost file.
5. If prompted to open the log in the new event log format, click **Yes**, and then click **OK**.
6. Review the event log entries for any errors.



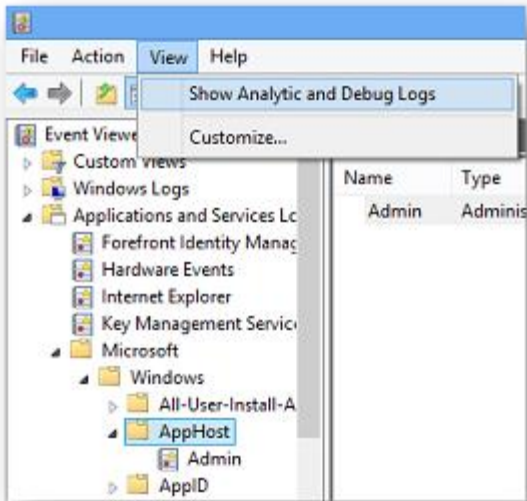
Enable tracing for Dynamics 365 for tablets

You can enable tracing in the Microsoft Dynamics 365 for tablets app to diagnose issues. When you enable tracing, verbose information is recorded on the device. This information can be analyzed to help identify the source of an issue. The way to enable and view tracing differs depending on the tablet operating system.

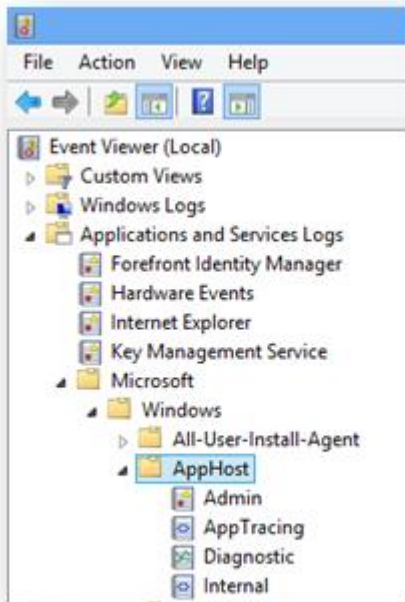
Windows

Follow these steps to view events. Tracing is enabled by default.

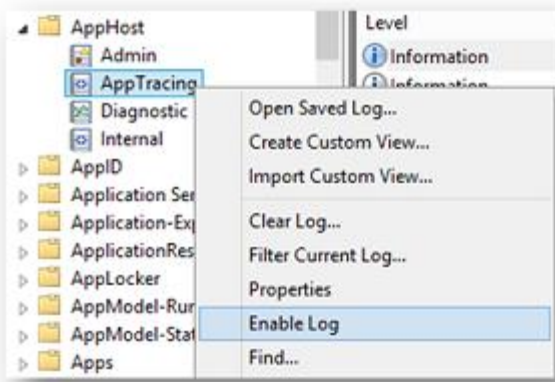
1. Open the Event Viewer. To do this, go to the Start screen, type **Run**, and then press or tap **ENTER**. In the Run box type **eventvwr**, and then press or tap **ENTER**.
2. Select the **AppHost** folder under Application And Services Logs\Microsoft\Windows
3. From the **View** menu, click or tap **Show Analytic and Debug Logs**.



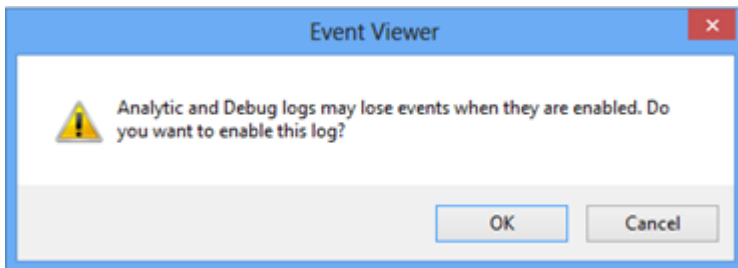
4. Additional nodes will appear under the **AppHost** folder.



5. Right-click (press and hold) the **AppTracing** node and then click or tap **Enable Log**.



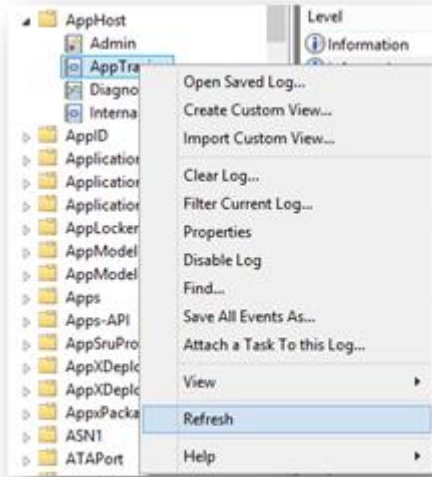
6. Click or tap **OK** to agree to the following warning.



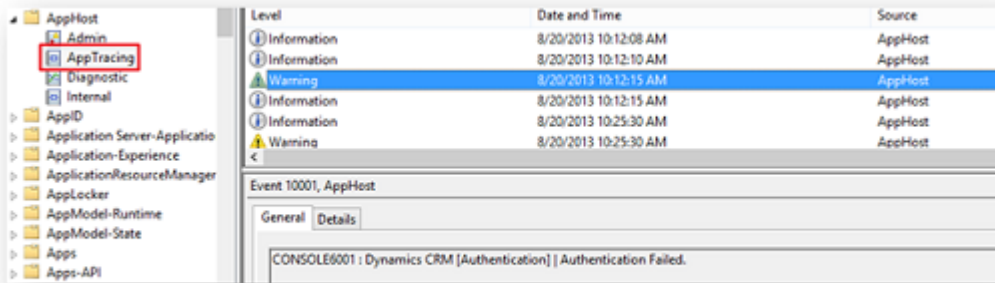
7. After reproducing the issue, right-click (press and hold) **AppTracing** and then click or tap **Disable Log**.



- Refresh the Event Viewer to view log events. You can use **F5** or right-click (press and hold) **AppTracing** and then click or tap **Refresh**.



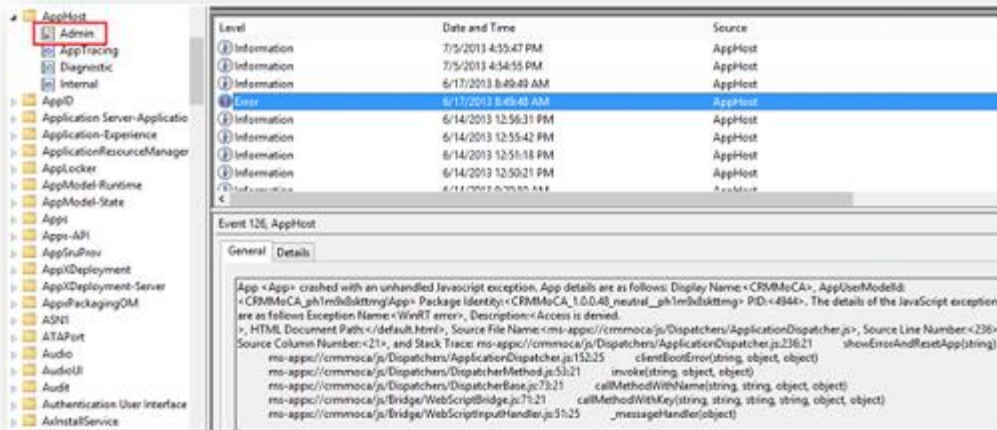
- Review the details of events that are logged. Look for entries containing "Dynamics 365" in the field under the **General** tab.



Tip

You can right-click (press and hold) **AppTracing** and then click or tap **Find** to initiate a find. Then search for any events containing a word such as "Dynamics 365." Ctrl + F is the keyboard shortcut.

- Also check the events logged under **Admin**.
To save an event log, right-click (press and hold) the log and select **Save All Events As**. Specify the directory where you want to save the log file.



iPad

Follow these steps to set up and view logging on the iPad.

Enable logging on the iPad

1. Open **Settings**.



2. Select **Dynamics 365** from the Settings list.



3. The **Enable Logging** option is set to **OFF** by default. Toggle this option to switch the setting to **ON**.

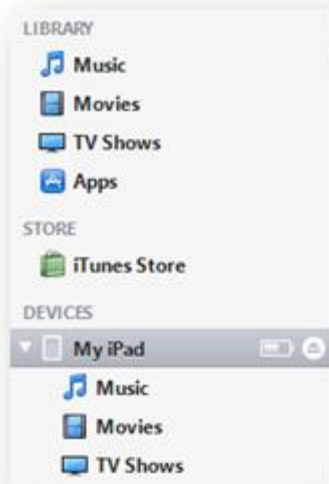


4. After reproducing the issue, toggle the **Enable Logging** setting to **OFF**.

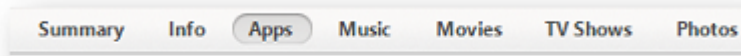


View the iPad log files

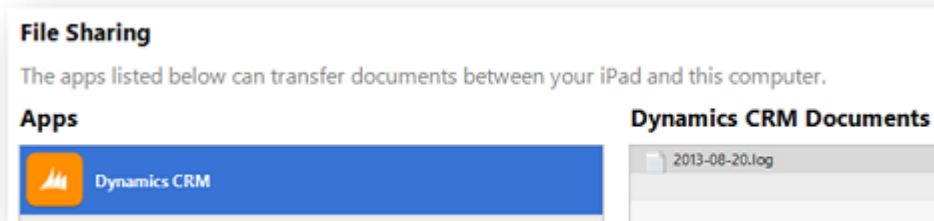
1. Connect your iPad to your computer.
2. Open iTunes.
3. Select your device from the Devices section.

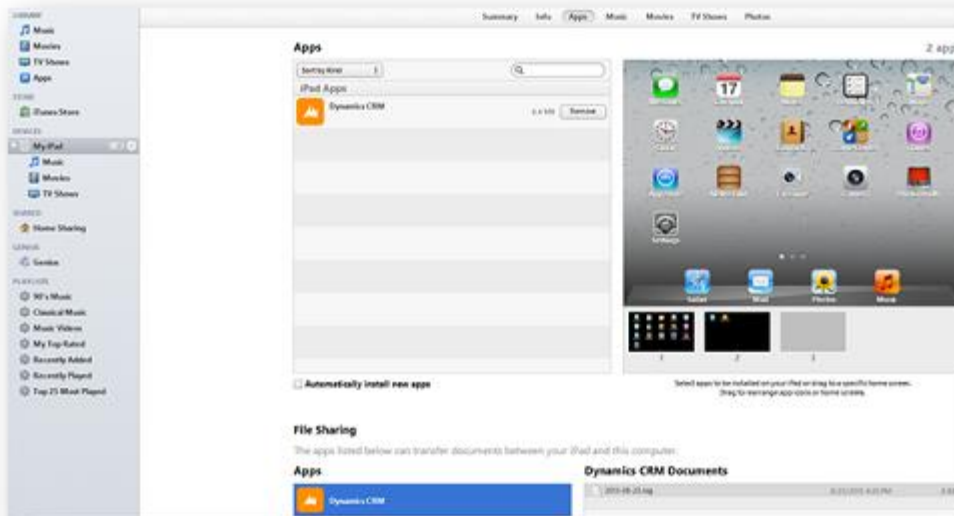


4. Select the Apps area from the header.



5. Locate the File Sharing section and select the Dynamics 365 app.





- On the right-side column you should see a list of log files if logging was enabled for the app. Select a log file, press **Save to**, and then choose a location to save the log file.



- Locate the log file you saved and open it to view the log details.

Android

On an Android device, you can enable logging during or after configuration.

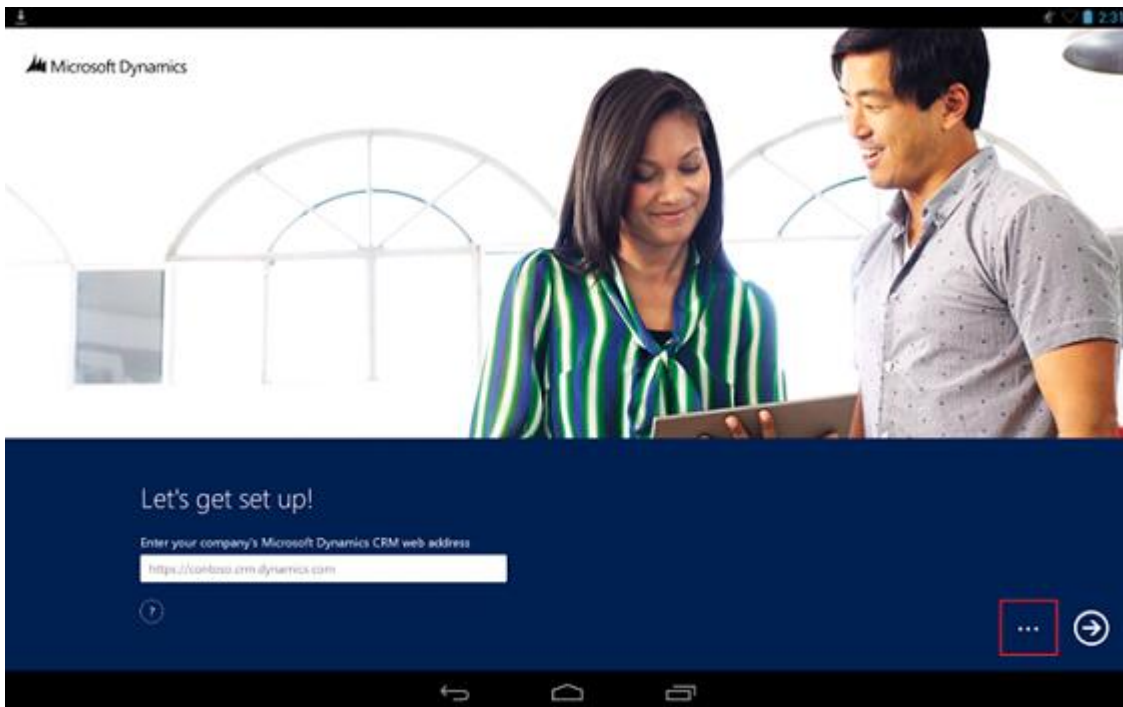
- If you're setting up Dynamics 365 for tablets, see **Enable logging on the setup page**.
- If you have already configured Dynamics 365 for tablets and encounter an error post configuration, you need to sign out or reconfigure to enable logging. See **Enable logging after configuration**.

Note

By default, logging is disabled. If you enable logging and close and reopen Dynamics 365, logging will be disabled.

Enable logging on the setup page

1. On the setup page for Dynamics 365 for tablets, tap the ellipses (...) to display the option to enable logging.



2. Tap the **Enable Logging** checkbox.

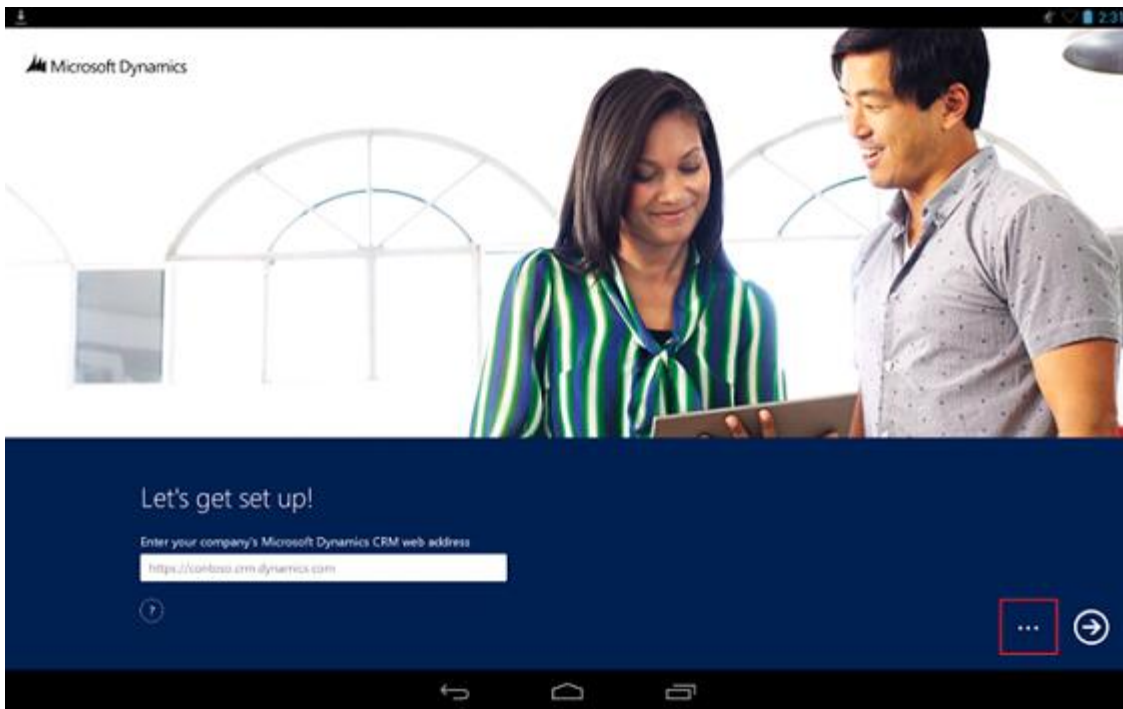
Enable logging after configuration

1. Open the Dynamics 365 for Android app.
2. While on the dashboard, tap the ellipses (...) in the bottom-right corner to display the command bar.



3. Tap **Settings**, and then tap **Sign out**.

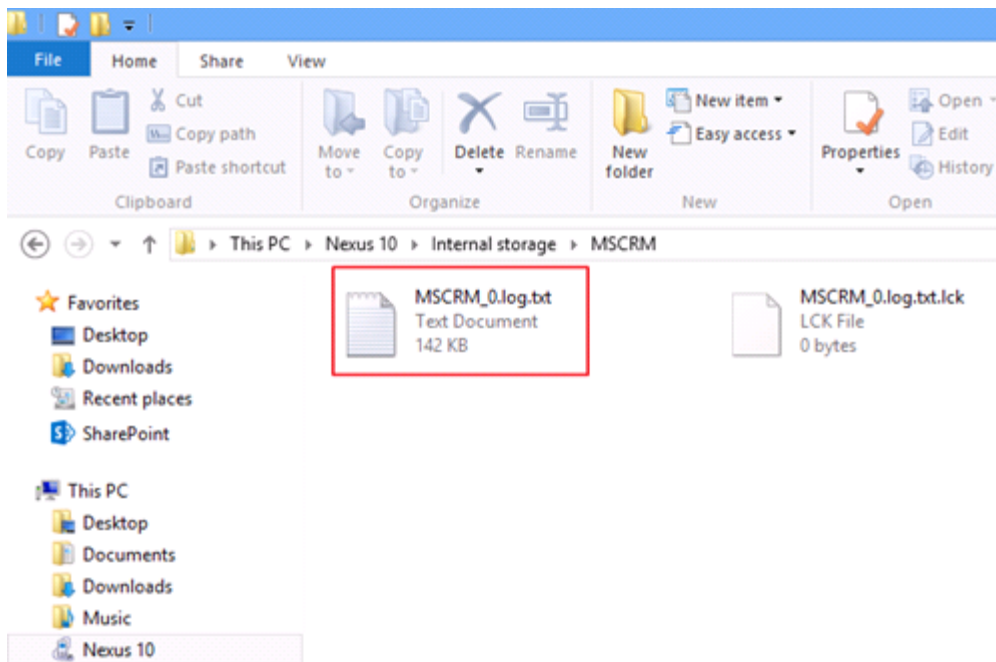
4. On the sign-in page, tap the back button to go to the set up page.
5. On the setup page for Dynamics 365 for tablets, tap the ellipses (...) to display the option to enable logging.



6. Tap the **Enable Logging** check box.

View the Android log files

1. Logging is written to a log file in the MSCRM folder in the root directory of your device. You can connect your tablet to your computer with USB to browse the file system. You can also use other company's Android apps to view the file system.
2. Open the MSCRM folder, then select and view the log file.



Sample log

The following example shows you what you might see in a log file.

```

2013-08-20 15:33:23 +0000 [INFO]: Unique install id | 5FDD3711-9E89-4D8B-B835-88B2C7C51703
2013-08-20 15:33:23 +0000 [INFO]: Application activated 2013-08-20 15:33:24 +0000 [INFO]:
Application resume 2013-08-20 15:33:25 +0000 [ERROR]: App WebView Load failed | -1003 2013-08-
20 15:33:32 +0000 [INFO]: [PAL] | Authentication: Starting 2013-08-20 15:33:32 +0000 [INFO]: [PAL] |
Authentication: Starting authorization 2013-08-20 15:33:32 +0000 [INFO]: [PAL] | Authentication:
Authorization error: -2147093999 2013-08-20 15:33:39 +0000 [INFO]: [PAL] | Authentication: Starting
2013-08-20 15:33:39 +0000 [INFO]: [PAL] | Authentication: Starting authorization 2013-08-20 15:33:39
+0000 [INFO]: [PAL] | Authentication: Authorization error: -2147093999 2013-08-20 15:33:42 +0000
[INFO]: Application Pause 2013-08-20 15:34:27 +0000 [INFO]: Unique install id | 5FDD3711-9E89-
4D8B-B835-88B2C7C51703 2013-08-20 15:34:27 +0000 [INFO]: Application activated 2013-08-20
15:34:27 +0000 [INFO]: Application resume 2013-08-20 15:34:27 +0000 [INFO]: [PAL] | Authentication:
Failed - cookie setup 2013-08-20 15:34:28 +0000 [INFO]: [PAL] | Authentication: Complete 2013-08-20
15:34:30 +0000 [INFO]: [PAL] | Authentication: Starting 2013-08-20 15:34:30 +0000 [INFO]: [PAL] |
Authentication: Starting authorization 2013-08-20 15:34:30 +0000 [INFO]: [PAL] | Authentication:
Authorization complete 2013-08-20 15:34:30 +0000 [INFO]: [PAL] | Authentication: Complete 2013-08-
20 15:34:31 +0000 [INFO]: [PAL] | Error Messages: 1: Principal user (Id=d0961fb9-0f09-e311-b8aa-
00155d05381a, type=8) is missing prvReadAccount privilege (Id=886b280c-6396-4d56-a0a3-
2c1b0a50ceb0)2: Principal user (Id=d0961fb9-0f09-e311-b8aa-00155d05381a, type=8) is missing

```


System Center Operations Manager management pack for Microsoft Dynamics 365 (on-premises versions only)

The Operations Manager management pack for CRM enables you to monitor Microsoft Dynamics 365 (on-premises) in Microsoft System Center Operations Manager.

You can download the Microsoft System Center Operations Manager management pack for Microsoft Dynamics CRM 2016 [here](#).

See Also

[Operating Microsoft Dynamics 365](#)

[Microsoft Dynamics 365 data protection and recovery](#)

[Referenced topic '55e7ba52-2f18-4eaf-8281-70cd639887f8' is only available online.](#)

[Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Monitoring Service

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Microsoft Dynamics 365 Monitoring Service is an NT-style service that monitors all Microsoft Dynamics 365 Server roles running on the local computer. The monitoring service doesn't transmit information outside the computer where the service is running. The monitoring service is installed with the installation of any Microsoft Dynamics 365 Server role.

The monitoring service validates the health of the server roles that are running on the local computer by running a series of tests. By default, monitoring occurs every 15 minutes and 10 records are maintained before the earliest record is replaced. Some tests performed by the monitoring service require that the organization be set for monitoring. For more information, see [Change monitoring settings](#) later in this topic.

View monitoring results

Events are recorded under the **MSCRMMonitoringServerRole** source in the Application area of Event Viewer.

By default, detailed monitoring results are saved as XML files located in C:\Program Files\Microsoft Dynamics CRM\Monitoring\results.

 **Tip**

Use a web browser to view the monitoring logs. To do this in Internet Explorer, right-click the monitoring XML file, select **Open with**, and then select Internet Explorer.

Additionally, you can record monitoring results to the configuration database as described later in this topic. Then you can use a SQL statement such as the following to view monitoring information for the deployment.

```
USE MSCRM_CONFIG SELECT * FROM MonitoringResults ORDER BY EndTime
```

Change monitoring settings

The following PowerShell commands perform these operations.

- Displays the current monitoring settings.
- Sets the monitoring service to record a maximum of 10 results to the MonitoringResults table in the configuration database (**MSCRM_CONFIG**) in addition to recording to XML files in a file folder.
Sets the *testorg* organization for organization-level monitoring, and sets the monitoring organization user account and password.
- Displays the current monitoring settings, again.

Note

Although this example configures two separate options, you don't have to configure both options together. The first option is to store monitoring records in the configuration database, and the second option is to set the monitoring organization, account, and password.

```
Add-PSSnapin Microsoft.Crm.PowerShell

Get-CrmSetting -SettingType MonitoringSettings

$set =Get-CrmSetting -SettingType MonitoringSettings

$set.StoreResultsInDatabase = "true"

$set.ResultsToKeepInDatabase = "10"

$set.MonitoringOrganizationUniqueName ="testorg"

$set.MonitoringOrganizationUserAccount = "contoso\administrator"

$set.MonitoringOrganizationUserPassword = "password"

Set-CrmSetting -Setting $set

Get-CrmSetting -SettingType MonitoringSettings
```

Important

After you make a change to the monitoring service settings, you may need to restart the Microsoft Dynamics 365 Monitoring Service to incorporate the change.

See Also

[Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#)
[Operating on-premises Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Update Microsoft Dynamics 365

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

With Microsoft Dynamics 365, you have several options that help make your deployment run optimally, reliably, and securely. In most situations where Microsoft Dynamics 365 is running in a production environment, we recommend that you apply the latest update for all Dynamics 365 applications shortly after the update becomes available.

On-premises versions of Microsoft Dynamics 365 use two kinds of update technology:

- **Setup updates**, which can be applied as part of the Setup process.
- **Application updates**, which are provided as an update package that can be automatically installed by using Microsoft Update.

In this topic

[What is Dynamics 365 and how do I get it?](#)

[Microsoft Dynamics 365 Setup update](#)

[Microsoft Dynamics 365 application updates](#)

What is Dynamics 365 and how do I get it?

Dynamics 365 unifies CRM and ERP capabilities into applications that work seamlessly together across sales, customer service, field service, operations, financials, marketing, and project service automation. Start with what you need, add applications as your business grows.

To stay up to date with the current release, customers of Microsoft Dynamics CRM 2016 (on-premises) should download and apply the [December 2016 Service Pack for Microsoft Dynamics 365 \(on-premises\)](#) when it becomes available.

For information about the features available with Dynamics 365, see [Dynamics 365: What's new](#) and [Referenced topic '4a79d1b6-0745-4858-9cca-17ec161d60d7' is only available online..](#)

For more information about the Dynamics 365 release, see [Microsoft Dynamics 365 – Now generally available.](#)

Microsoft Dynamics 365 Setup update

Microsoft Dynamics 365 Setup update, also known as self-healing Setup, makes sure that you have the latest version of Setup. By using this feature, you can update the Setup program, before it installs anything on the computer, for the following Dynamics 365 applications:

- Microsoft Dynamics 365 Server

- Microsoft Dynamics 365 Reporting Extensions
- Microsoft Dynamics 365 Report Authoring Extension
- Microsoft Dynamics CRM Email Router

To use Setup update, select **Get updates for Microsoft Dynamics 365** during Setup. For Microsoft Dynamics 365 for Outlook, Setup update applies the latest published update package at the end of Setup.

Microsoft Dynamics 365 application updates

Microsoft Dynamics 365 regularly publishes updates in a package format that is a collection of software updates. Microsoft fully tests and supports installing any published update for Microsoft Dynamics 365 at the time of its release. Get the latest Microsoft Dynamics 365 application updates [KB: Microsoft Dynamics CRM 2016 updates and hotfixes](#).

Distribution and application of Microsoft Dynamics 365 updates

Microsoft Dynamics 365 (on-premises) is engineered to use Microsoft Update, a service that can automatically download and install updates to Microsoft applications, such as Microsoft Dynamics 365 Server, Microsoft Dynamics 365 Reporting Extensions, Microsoft Dynamics 365 Report Authoring Extension, Microsoft Dynamics 365 for Outlook, Microsoft Dynamics 365 Language Pack, and Microsoft Dynamics CRM Email Router.

During installation or upgrade of a Microsoft Dynamics 365 application, Setup asks whether you want to opt in, which sets Microsoft Update to apply automatic updates. If you don't want to apply automatic updates during Setup, you can enable this feature later by turning on automatic updates in the Windows Update area of Control Panel. More information: [Turn automatic updating on or off](#) and [Change how Windows installs or notifies you about updates](#).

When you enable Microsoft Update, updates are automatically downloaded for Microsoft Dynamics 365 and for any other Microsoft applications that are enabled to use Microsoft Update.

If you don't want to use Microsoft Update, you can still download updates from the Microsoft Download Center and manually install them or push them out to the appropriate computers by using Windows Server Update Services (WSUS). More information: [Windows Server Update Services](#).

Update requirements

An update may require updates to required components, such as the Microsoft .NET Framework or even an earlier Microsoft Dynamics 365 update. For more information about such requirements, see the Microsoft Knowledge Base (KB) article for the update.

See Also

[Operating Microsoft Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 database maintenance

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

A Microsoft Dynamics 365 deployment consists of the following databases:

- **MSCRM_CONFIG**. A single database that contains Microsoft Dynamics 365 metadata, such as configuration and location information that is specific to each organization database.
- **OrganizationName_MSCRM**. One or more organization databases. This is the database where Microsoft Dynamics 365 data is stored, such as all records and activities, and metadata details like entity relationships.

Database maintenance for the Dynamics 365 databases should include regular backups, frequent security patch evaluation, and health check monitoring.

◆ Important

Database maintenance or repair operations that can result in data loss, such as DBCC CHECKDB WITH REPAIR_ALLOW_DATA_LOSS, are not supported.

In this section

[Dynamics 365 organization database indexes](#)

See Also

[Back up the Microsoft Dynamics 365 System](#)
[Update Microsoft Dynamics 365](#)
[Overview of SQL Server Servicing Installation](#)
[Server Performance and Activity Monitoring](#)

Dynamics 365 organization database indexes

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The indexes that are created in a Microsoft Dynamics 365 organization database are designed to provide fast retrieval of commonly requested data from tables and views stored on a Microsoft SQL Server. Here are a few characteristics for the indexes that are created in a Microsoft Dynamics 365 organization database.

- Depending on the version and update applied, a Microsoft Dynamics 365 organization database without any customizations or installed solutions (out-of-box database) has between 1,000 and 1,600 total indexes.
- Later versions of Microsoft Dynamics 365 have more features and, subsequently, more database objects such as tables and indexes.

- At least five new indexes are created whenever you create a new entity or reference a new column in a quick find.
- Installing a solution increases the number of total indexes.

How to get a list of all indexes stored in an organization database

To get a list of all indexes, run the following sample SQL query against the organization database.

```
SELECT s.name +'.'+t.name AS 'table_name',i.name,i.index_id
FROM sys.schemas s JOIN sys.tables t ON s.schema_id=t.schema_id
JOIN sys.indexes i ON t.object_id=i.object_id LEFT OUTER JOIN sys.objects o
ON o.parent_object_id=t.object_id AND i.name=o.name
WHERE i.name is not null
```

For an approximation of the out-of-box indexes in an organization database that corresponds to a specific version of Microsoft Dynamics 365, select from these links to download Microsoft Office Excel worksheets that contain lists of indexes.

- [Microsoft Download Center: List of Dynamics CRM 2016 RTM out-of-box indexes](#)
- [Microsoft Download Center: List of Dynamics CRM 2015 Update 0.2 out-of-box indexes](#)
- [Microsoft Download Center: List of Dynamics CRM 2013 Service Pack 1 out-of-box indexes](#)
- [Microsoft Download Center: List of Dynamics CRM 2011Update Rollup 18 out-of-box indexes](#)

For more information about SQL Server indexes, see [SQL Server Index Design Guide](#).

See Also

[Operating Microsoft Dynamics 365](#)

[Microsoft Dynamics 365 data protection and recovery](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 data protection and recovery

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

This section explains the options available and provides instructions for data back up and failure recovery.

In This Section

[Microsoft Dynamics 365 VSS writer service](#)

[Back up the Microsoft Dynamics 365 System](#)

[Exporting and importing customizations and solutions](#)

[Microsoft Dynamics 365 failure recovery](#)

See Also

[Operating on-premises Dynamics 365](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 VSS writer service

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Microsoft Dynamics 365 Volume Shadow Copy Service (VSS) Writer Service provides added functionality for backing up and restoring Microsoft Dynamics 365 databases through the VSS framework.

VSS is a set of Component Object Model (COM) application programming interfaces (APIs) that provides standardized interfaces, enabling backup and restoration software, such as Systems Center Data Protection Manager, to centrally manage the backup and restore operations on a variety of applications. VSS also implements a framework that enables volume backups to be performed while applications on a system continue to write to the volumes.

In this topic

[Dependencies](#)

[Permissions required](#)

[Features](#)

[Steps required to use with System Center Data Protection Manager](#)

Dependencies

- System Center 2012 Data Protection Manager (DPM)
- SQL Server VSS Writer. The SQL Server VSS Writer service, which is available with Microsoft SQL Server, must be started for the Microsoft Dynamics 365 VSS Writer service to work correctly.

◆ Important

Earlier versions of System Center DPM aren't supported.

Permissions required

The Microsoft Dynamics 365 VSS Writer runs as a service and can be run either under Network Service or a domain user account. For information about the required permissions, see [Minimum permissions required for Microsoft Dynamics 365 Setup and services](#).

Features

The Microsoft Dynamics 365 VSS Writer supports:

- Backup and restore of the configuration (MSCRM_CONFIG) and multiple organization (*organizationName_MSCRM*) databases.
- The Microsoft Dynamics 365 application doesn't need to be offline while databases are backed up.
- During a database restore, the application is automatically taken offline, and after successful restoration, brought back online again.

The Microsoft Dynamics 365 VSS Writer doesn't support:

- Backup and restore of Microsoft SharePoint databases that are integrated with Microsoft Dynamics 365. For these databases, use the [SharePoint VSS Writer](#).
- Backup and restore of Microsoft SQL Server Reporting Services databases that are used for Microsoft Dynamics 365 reporting. For these databases, use the [SQL Server VSS Writer](#).

Steps required to use with System Center Data Protection Manager

The following command needs to be executed in the DPM Management Shell on the computer where System Center 2012 DPM is running so that Data Protection Manager can recognize the Microsoft Dynamics 365 VSS Writer. The user running the command must be a member of the administrators group on the local computer.

```
Set-DPMGlobalproperty -dpmservername DPM_SRVR_NAME -registeredwriters APPS_VSS_WRITER_ID
```

DPM_SRVR_NAME is the name of the computer where System Center 2012 DPM is running.

APPS_VSS_WRITER_ID is the unique identifier of the Microsoft Dynamics 365 VSS Writer service, which is always 74bf91e0-e0fa-4ba9-9258-48f4fd1d0445.

See Also

[Microsoft Dynamics 365 data protection and recovery](#)

[Back up the Microsoft Dynamics 365 System](#)

[MSDN: Volume Shadow Copy Service](#)

[Data Protection Manager](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Back up the Microsoft Dynamics 365 System

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To recover from any scenario, you must back up all needed information and store a copy off site. A backup plan should be created and rehearsed for all Microsoft Dynamics 365 components and services to make sure that, if a disk or other failure occurs, the maximum amount of data is recoverable.

In This Topic

[Backup requirements summary](#)

[Selecting a backup technology and type](#)

[Backing up Windows Server](#)

[Backing up Active Directory](#)

[Backing up SQL Server, including Reporting Services](#)

[Backing up Microsoft Dynamics 365 Server](#)

Backup requirements summary

Backup requirements vary according to the servers involved. The following table is a summary of what to back up for Microsoft Dynamics 365.

Server	What to back up	Comments
Domain controller	Full System State	None.
SQL Server	MSCRM_CONFIG OrganizationName_MSCRM master msdb <i>ReportServer</i> <i>ReportServertempdb</i>	The OrganizationName_MSCRM and <i>ReportServer</i> databases should have full database backups and transaction log backups. For databases that are rarely updated, such as msdb, you may select only full database backup. Backups of the master and msdb databases aren't required by Microsoft Dynamics 365 but should be part of an overall backup strategy.
SharePoint	Backup recommended if SharePoint integration is enabled.	If you have enabled SharePoint document management, we recommend that you back up the SharePoint databases. For more

Server	What to back up	Comments
		information, see the SharePoint documentation.
Exchange Server	Backup not required by Microsoft Dynamics 365.	Backup may be required for Exchange Server. For more information, see Backup, restore and disaster recovery .
Microsoft Dynamics 365 Server	web.config (Default location: c:\Program Files\Microsoft Dynamics CRM\CRMWeb) Windows registry: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM	The web.config file is required only if the file has been changed from the default settings. Windows registry subkey.

Selecting a backup technology and type

Microsoft Dynamics 365 Server includes Volume Shadow Copy Service (VSS) support that can be used in conjunction with System Center Data Protection Manager to centrally manage the backup and restore operations for Microsoft Dynamics 365. For more information, see [Microsoft Dynamics 365 VSS writer service](#) and [Data Protection Manager](#).

Windows Server Backup in Windows Server 2012 supports external and internal hard disks, optical media drives, removable media drives, and Hyper-V virtual machines for local storage. Additionally, Windows Server 2012 supports online backup by using Microsoft Azure Online Backup. More information: [Azure Backup](#)

To perform a scheduled backup, as a best practice, use an external hard disk that supports at least USB 2.0 or IEEE 1394.

In Windows Server 2012, you can perform three types of backup:

- System state backup, which includes all the files that are required to recover Active Directory.
- Critical-volumes backup, which includes all the volumes that contain system state files.
- Full server backup, which includes all volumes on the server.

Backing up Windows Server

Windows Server has backup tools that let you back up important company data to disk, removable media, or cloud. The scheduling capability found in the Backup and Restore Wizard provides data backup for the server itself and workstations in the small business network. The data backed up includes security information, file and share permissions, and registry data. For data security, only a member of the Administrators or Backup Operators group can perform a backup. Individual files and directories on the server can be restored by using the Backup and Restore Wizard.

Backing up Active Directory

You can use Windows Server Backup to protect your operating system state, volumes, files, and application data. For instructions about how to back up Active Directory, see [Windows Server Backup Feature Overview](#) and [Windows Server 2012: Planning for Active Directory Forest Recovery](#).

Although we recommend that you back up Active Directory, the only way to avoid data loss is to have multiple Active Directory domain controllers. Then, if a domain controller fails, the other domain controllers will have a complete copy of the directory. With a backup, you have data only as recent as your last backup.

Backing up SQL Server, including Reporting Services

Windows Server Backup in Windows Server 2012 uses Volume Shadow Copy Services (VSS) to protect Microsoft SQL Server application data. An alternative solution that can be used while SQL Server runs is the built-in backup features of Microsoft SQL Server.

If you use SQL Server Management Studio to create a backup of the SQL Server databases, you can run a backup job from the Backup and Restore Wizard to include database backups that Reporting Services created. Schedule the backup routing in Reporting Services to run first, followed by a backup job run in the Backup and Restore Wizard. More information: [Backing Up and Restoring Databases in SQL Server](#)

Microsoft Dynamics 365 creates at least two Microsoft Dynamics 365-specific databases on SQL Server. In addition, Microsoft Dynamics 365 requires the default master and msdbSQL Server databases for database services and the default report server SQL Server databases for Reporting Services. The databases that make up a Dynamics 365 system on SQL Server are as follows:

- OrganizationName_MSCRM
- MSCRM_CONFIG
- ReportServer
- ReportServertempdb
- master
- msdb

Note

For multitenant deployments, your Microsoft Dynamics 365 deployment will include more than one *OrganizationName_MSCRM* database.

The SQL Server backup plan should address each of these databases to make sure that Microsoft Dynamics 365 could recover if one, or all, databases fail. If your organization already has SQL Server or another database application, your database administrator may have a database backup strategy. However, if this is the first database application in your organization, you can create and maintain scheduled jobs to perform the necessary backups by using the Maintenance Plan Wizard in SQL Server Management Studio. To start the Maintenance Plan Wizard, in Reporting Services, expand the server, expand the **Management** folder, right-click the **Maintenance Plans** folder, and then click **Maintenance Plan Wizard**.

Your backup plan for the Microsoft Dynamics 365 databases provides you a backup set that includes a full database backup and some number of transaction log backups, depending on the Microsoft

Dynamics 365 installation and the frequency with which you determine whether you must have backups. For more information, see [Back Up and Restore of SQL Server Databases](#).

For databases that are updated infrequently, such as the msdb database, you might perform only full database backups. The *OrganizationName_MSCRM*, *MSCRM_CONFIG*, and *ReportServer* databases should have both full database and transaction-log backups.

Databases on which transaction log backups will be performed must have the Full recovery model database property set. You can set this property through SQL Server Management Studio. For more information, see [Recovery Models](#).

Schedule full database backups frequently enough to reduce the number of restores after a failure. For example, if one day's data loss is acceptable, you can back up the transaction log one time per day, and back up the database one time per week. If only one hour's maximum data loss is acceptable, you can back up the transaction log one time per hour. To reduce the number of restores, back up the database one time per day.

To create a database maintenance plan for scheduled backups, run the Maintenance Plan Wizard from SQL Server Management Studio. Select the option to back up the database as part of the maintenance plan for a full database backup. Select the option to back up the transaction log as part of the maintenance plan for a transaction log backup.

Your computer that is running SQL Server should also be designed with a level of fault-tolerance that is correct for a database server. This includes a RAID-5 disk array for your databases and a RAID-1 (mirror) for your transaction logs. With the correct level of hardware fault-tolerance, restoring from backup should be a very uncommon occurrence.

More information:

[Backing Up and Restoring Databases in the SQL Server](#)

Backing up Microsoft Dynamics 365 Server

Backing up and restoring the Microsoft Dynamics 365 Server basically involves the following data:

- Microsoft Dynamics 365 Server database files (explained previously)
- Microsoft Dynamics 365 Server program files
- Microsoft Dynamics 365 website files

For information about how to back up solutions and customizations that have been implemented outside of the Microsoft Dynamics 365 application, contact your solution vendor.

Note

We recommend that you keep a record of your current Microsoft Dynamics 365 update version. Therefore, if failure recovery is required, the appropriate update can be reapplied.

By default, all Microsoft Dynamics 365 program files are located in the following folders:

- C:\Program Files\Microsoft Dynamics CRM\
- C:\Program Files\Microsoft Dynamics 365 Reporting Extensions\

By default, the Microsoft Dynamics 365 website files are located in the following folder:

- C:\Program Files\Microsoft Dynamics CRM\CRMWeb

See Also

[Microsoft Dynamics 365 data protection and recovery](#)
[Exporting and importing customizations and solutions](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Exporting and importing customizations and solutions

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

The Solutions feature can be used to export all unmanaged solution customizations such as modified forms, views, and mappings. Later, the solution customization can be imported to the same organization or a different organization. For example, you can export a solution from an on-premises deployment of Microsoft Dynamics 365 and then import it into a Microsoft Dynamics 365 (online) organization.

The Solutions feature is located in the **Customizations** area of the **Settings** area in the Microsoft Dynamics 365 web application. It is a good practice to export your customizations before you make changes so that they can be imported back if there is unexpected behavior. More information:

[Referenced topic 'f993c4ed-1fc3-4e47-bef1-d38695ddb11a' is only available online.](#)

See Also

[Microsoft Dynamics 365 data protection and recovery](#)
[Microsoft Dynamics 365 failure recovery](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 failure recovery

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

To understand failure recovery, you must examine different scenarios to learn how restoration occurs in each case. For each scenario in this section, total server failure is assumed. The following scenarios contain information that shows the steps to ensure successful recovery of Microsoft Dynamics 365 Server:

- [SQL Server failure recovery](#)
- [Microsoft Dynamics 365 Server failure recovery](#)

See Also

[Referenced topic 'fb14fa58-89e9-49a6-b94c-61de90d58a54' is only available online.](#)
[Microsoft Dynamics 365 data protection and recovery](#)
[Exporting and importing customizations and solutions](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

SQL Server failure recovery

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

If the computer that is running Microsoft SQL Server fails, you must restore the databases from backup, and then reassociate them with the Microsoft Dynamics 365 deployment.

1. Install Microsoft Windows Server and make sure that the computer is in the same domain as the Microsoft Dynamics 365 Server or Microsoft Dynamics 365 Server roles. In addition, you should use the same database name and disk structure. If you change either of these, you must take additional steps to correctly restore the SQL Server databases.
2. Install SQL Server. For supported versions, see [SQL Server editions](#).
3. If you have a valid backup of the master database, restore that backup. For more information, see [MSDN: Back Up and Restore of System Databases](#) in SQL Server Books Online.
4. Restore the msdb database. For more information, see [MSDN: Back Up and Restore of System Databases](#) in SQL Server Books Online.
5. Restore the MSCRM_CONFIG and *OrganizationName_MSCRM* databases. For more information about how to restore SQL Server databases, see [MSDN: Back Up and Restore of SQL Server Databases](#).
6. If Microsoft SQL Server Reporting Services and the Microsoft Dynamics 365 Reporting Extensions are also installed on the instance of SQL Server, restore the ReportServer and ReportServerTempDB databases. For more information about how to restore databases, see [MSDN: Backup and Restore of SQL Server Databases](#).
7. If you restored the MSCRM_CONFIG database, you must run Microsoft Dynamics 365 Server Setup and use the **Connect to existing databases** option on the **Specify Deployment Options** page. If you didn't restore the MSCRM_CONFIG database and the database is functioning correctly, you can reconnect the organization database to the system. To do this, run the **Disable-CrmOrganization** and **Edit-CrmOrganization** Windows PowerShell commands. More information: [Administer the deployment using Windows PowerShell](#). Alternatively, in Deployment Manager right-click the organization and select **Disable**, right-click the organization again, click **Edit**

Organization, and then change the **SQL Server** value in the wizard. For more information about how to edit an organization, see [Edit an organization's attributes](#).

This scenario is a worst-case situation, that is, a total failure of the computer that is running SQL Server. In other circumstances, such as the failure of a disk, you may only have to restore a single database to recover the environment.

For more information about high availability and disaster recovery using SQL Server availability groups, see [AlwaysOn Availability Groups \(SQL Server\)](#) and [Set configuration and organization databases for SQL Server AlwaysOn failover](#).

See Also

[Microsoft Dynamics 365 failure recovery](#)

[Microsoft Dynamics 365 Server failure recovery](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Microsoft Dynamics 365 Server failure recovery

Applies To: Dynamics 365 (on-premises), Dynamics CRM 2016

Most of the Microsoft Dynamics 365 configuration information is stored on the computer that's running SQL Server. Therefore, the information can be recovered if all, or part, of Microsoft Dynamics 365 Server fails. Windows registry entries on Microsoft Dynamics 365 Server are recovered when you run the repair program or reinstall processes for Microsoft Dynamics 365 Server and Microsoft Dynamics 365 Reporting Extensions.

We recommend that you keep a record of your current Dynamics 365 update level. Then, if failure recovery is required, the appropriate update can be reapplied.

1. Install the operating system on another server and join the same Active Directory Domain Services (AD DS) domain as the computer that is running SQL Server.
2. Install Microsoft Dynamics 365 Server. During Setup, select **Connect to, and if necessary, upgrade an existing deployment** when prompted. If Microsoft Dynamics 365 Reporting Extensions was also installed on the computer that failed, install the Microsoft Dynamics 365 Reporting Extensions after Microsoft Dynamics 365 Server is completed.
3. If the ISV.config or web.config files have been changed from their default settings, restore these files from backup.
4. Publish all customizations. More information: [Referenced topic 'ece68f5f-ad40-4bfa-975a-3e5bafb854aa' is only available online](#).

See Also

[Microsoft Dynamics 365 failure recovery](#)

[Referenced topic 'fda07fd1-42d2-47b1-aecf-ed3dc4ab35d3' is only available online.](#)

© 2016 Microsoft. All rights reserved. [Copyright](#)

Copyright

This document is provided "as-is". Information and views expressed in this document, including URL and other Internet Web site references, may change without notice.

Some examples depicted herein are provided for illustration only and are fictitious. No real association or connection is intended or should be inferred.

This document does not provide you with any legal rights to any intellectual property in any Microsoft product. You may copy and use this document for your internal, reference purposes.

The videos and eBooks might be in English only. Also, if you click the links, you may be redirected to a U.S. website whose content is in English.

© 2016 Microsoft. All rights reserved.

Microsoft, Active Directory, Azure, Bing, Cortana, Delve, Dynamics, Excel, Hyper-V, Internet Explorer, Microsoft Dynamics, Microsoft Edge, Microsoft Intune, MSDN, Office 365, OneDrive, OneNote, Outlook, Power BI, PowerPoint, PowerShell, PowerApps, SharePoint, Skype, SQL Server, Visual Studio, Windows, Windows PowerShell, and Windows Server are trademarks of the Microsoft group of companies. All other trademarks are property of their respective owners.