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## WHY THIS GUIDE?

SQL Server issues related to security, performance, and even recoverability are often due to installation and configuration choices. This guide is meant to help people make informed decisions when it comes to all the available options.

For the purposes of this document, we are going to install SQL Server 2014 onto a server that has had a fresh install of Windows Server 2012. Installation of SQL Server onto Server Core is outside the scope of this document.

## **PRE-INSTALLATION**

Before installation is started, review the hardware and software requirements for both SQL Server as well as for the application(s) that will be using the instance of SQL Server. It is a good idea to include any security, disaster recovery, and performance requirements at this time.

#### Hardware and Software Requirements

Details about the hardware and software requirements for SQL Server 2014 can be found at: https://msdn.microsoft.com/en-us/library/ms143506(v=sql.120). aspx#hwswr.

#### Installing Microsoft .NET Framework 3.5 SP1

When launching the SQL 2014 setup you are greeted with the screen as shown in Figure 1.

Everything you would need for the installation of SQL Server 2014 is contained on this screen. The hyperlinks o the right of the globe icons take you to MSDN articles. So, if you wanted to review the details for hardware and software requirements you can quickly do so.

There is also a system checker tool you can launch from this screen. It will perform a check of the server to make certain it is compatible. Running that first you should find a similar result screen to Figure 2.

The main screen also allows for you to install the SQL Server Upgrade Advisor (SSUA). We won't be covering the SSUA here, but for details on the SSUS you can go to: http://msdn.microsoft.com/en-us/library/ee210467.aspx

One often overlooked item for installing SQL Server is the requirement that the legacy .NET 3.5 framework must be installed on the server for any one of the following items:

- Database Engine
- Reporting Services
- Master Data Services
- Data Quality Services
- Replication
- SQL Server Management Studio

Even though the latest Windows Server 2012 O/S comes with .NET 4.0, SQL Server setup will not complete for any of the above features without .NET 3.5 SP1 being installed.



#### Installing .NET 3.5

To install the .NET 3.5 Service Pack 1 on Windows Server 2012 navigate to the Server Manager screen (Figure 1).



Click on 'Add roles and features' in the middle of the screen and a wizard will launch (Figure 2).

<b>B</b>	Add Roles and Features Wizard	-		x
Before you begin Before You Begin Installation Type Server Roles Features Confirmation Results	Add Roles and Features Wizard DEST This wizard helps you install roles, role services, or features. You determine which roles, r features to install based on the computing needs of your organization, such as sharing d hosting a website. To remove roles, role services, or features: Start the Remove Roles and Features Wizard Before you continue, verify that the following tasks have been completed: The Administrator account has a strong password Network settings, such as static IP addresses, are configured The most current security updates from Windows Update are installed If you must verify that any of the preceding prerequisites have been completed, close thi	NATION ole ser ocume	d,	R 4 Dr
	Complete the steps, and then run the wizard again. To continue, click Next. Skip this page by default			_
	< Previous Next > Install	0	ancel	

Figure 2



Click next and select the 'Role-based or Feature-based installation' option (Figure 3).



Figure 3

Click Next and select the server name from the server pool list. Here we have a single name in the pool. (Figure 4).

2	Ad	d Roles and Features	Wizard	_ <b>_</b> ×
Select destinati	on server			DESTINATION SERVER SQL2014
Before You Begin Installation Type Server Selection	Select a server or a <ul> <li>Select a server</li> <li>Select a virtual</li> </ul>	a virtual hard disk on which from the server pool hard disk	to install roles and features.	
Server Roles Features Confirmation	Server Pool			
Results	Name SQL2014	IP Address 192.168.1.128	Operating System Microsoft Windows Server 2	2012 Datacenter
	1 Computer(s) fou This page shows s Add Servers comm collection is still in	nd ervers that are running Wir nand in Server Manager. Of complete are not shown.	idows Server 2012, and that hav Tiline servers and newly-added :	ve been added by using the servers from which data
		< Pre	evious Next >	Install Cancel

Figure 4



Click Next and the Server Roles screen appears (Figure 5).

elect server roles		DESTINATION SERVER SQL2014
Before You Begin Installation Type	Select one or more roles to install on the selected server. Roles	Description
Server Selection Server Roles Features Confirmation Results	Active Directory Certificate Services     Active Directory Domain Services     Active Directory Federation Services     Active Directory Lightweight Directory Services     Active Directory Rights Management Services     Application Server     DHCP Server     DHCP Server     Fax Server     Instein And Storage Services (Installed)     Hyper-V     Network Policy and Access Services     Print and Document Services     Remote Access	Active Directory Certificate Services     (AD CS) is used to create     certification authorities and related     role services that allow you to issue     and manage certificates used in a     variety of applications.

Figure 5

We don't have a role to add for this exercise, so we click Next and advance to the Features screen (Figure 6).



Figure 6



We will select the .Net 3.5 framework and then click Next to advance to the Confirmation screen (Figure 7).

onfirm installa	ition selections	SQL201
Do you need to specify Before You Begin Installation Type Server Selection Server Roles	y an alternate source path? One or more installation selections an To install the following roles, role services, or features or Restart the destination server automatically if requir Optional features (such as administration tools) might by been selected automatically. If you do not want to install their check hores.	re missing source files on the destinati > a selected server, click Install. ed e displayed on this page because they have these optional features, click Previous to clea
Features Confirmation Results	.NET Framework 3.5 Features .NET Framework 3.5 (includes .NET 2.0 and 3.0)	
	Export configuration settings Specify an alternate source path	



We are being prompted to provide an alternate path to the source files for this installation. However, we can also allow for Windows Update to locate the necessary files for us. That is what we will do here, and we will get started by pressing the Install button. We then wait for the install to complete (Figure 8).

<b>B</b>	Add Roles and Features Wizard	_ <b>_</b> ×
Installation prog	ress	DESTINATION SERVER SQL2014
Before You Begin	View installation progress	
Server Selection Server Roles	Installation started on SQL2014	c
Features Confirmation	.NET Framework 3.5 Features .NET Framework 3.5 (includes .NET 2.0 and 3.0)	
Results		
	You can close this wizard without interrupting running tasks. View task p page again by clicking Notifications in the command bar, and then Task Export configuration settings	rogress or open this Details.
	< Previous Next >	lose Cancel

Figure 8

Once you have completed these steps, and verified your server meets all the other additional hardware and software requirements, you are ready to proceed with installing SQL Server.



## **INSTALLING SQL SERVER**

Locate the 'Setup' icon located in the root directory of the SQL Server installation media and double-click to get started.

#### Launching The Setup

When launching the SQL 2014 setup we see the Planning screen as shown in Figure 9.





Everything needed for the installation of SQL Server 2014 is contained on this screen. The hyperlinks to the right of the globe icons redirect to MSDN articles allowing for quick access to review the details for hardware and software requirements if needed.



There is also a system checker tool on this screen (middle of the window, with the wrench and hammer icon). Launching this tool will perform a check of the server to make certain it is compatible for installing SQL Server. When completed the result should look similar to Figure 10.

12	SQL Server 2014 Setup	= <b>D</b> X
Global Rules Setup Global Rules identify proble corrected before Setup can continu	ms that might occur when you install SQL Server Setup support files. .e.	Failures must be
Global Rules C	Deration completed. Passed: 11. Failed 0. Warning 0. Skipped 0. Hide details << Fiew detailed report	Re-run
Г	Rule	Status
	Setup administrator	Passed
	Restart computer	Passed
-	Windows Management Instrumentation (WMI) service	Passed
-	Consistency validation for SQL Server registry keys	Passed
	Long path names to files on SQL Server installation media	Passed
	SQL Server Setup Product Incompatibility	Passed
	INET 2.0 and .NET 3.5 Service Pack 1 update for Windows 2008	Passed
	Previous releases of SQL Server 2008 Business Intelligence Devel	Passed
	Computer domain controller	Passed
	Microsoft .NET Application Security	Passed
	Edition WOW64 platform	Passed
		OK Cancel

Figure 10

The main screen also allows for you to install the SQL Server Upgrade Advisor (SSUA). We won't be covering the SSUA here, but for details on the SSUS you can go to: http://msdn.microsoft.com/en-us/library/ee210467.aspx

Lastly, there is a link to download the SQL Server Data Tools. We will discuss this and other components in a later section.

After verifying that the server meets the requirements for SQL Server 2014, click on the "Installation" link in the upper left of the window, as shown in Figure 11.



Figure 11

The remaining sections shown in Figure 11 (Maintenance, Tools, Resources, Advanced, Options) are beyond the scope of this paper.



#### Installation

After clicking on the "Installation" link (Figure 3) the screen shown in Figure 12 should appear.

8	SQL Server Installation Center
Planning Installation Maintenance Tools Resources Advanced Options	<ul> <li>New SQL Server stand-slove installation or add features to an existing installation         Lunch a wizard to install SQL Server 2014 in a non-clustered environment or to add features to an existing SQL Server 2014         instance.     </li> <li>New SQL Server failover cluster installation         Leunch a wizard to install a single-node SQL Server 2014 failover cluster.     <li>Add node to a SQL Server failover cluster         Leunch a wizard to add a node to an existing SQL Server 2014 failover cluster.</li> <li>Upgrade from SQL Server 2005, SQL Server 2008, SQL Server 2008 R2 or SQL Server 2012         Leunch a wizard to upgrade SQL Server 2008, SQL Server 2008, SQL Server 2008 R2 or SQL Server 2012 to SQL Server 2014.</li> </li></ul>
Microsoft SQL Server 2014	

Figure 12

To install SQL Server, click on the top most link as shown in Figure 13.

Doing so will initiate the installation wizard.



Figure 13



#### **Enter Product key**

Depending on how SQL Server 2014 was purchased (direct purchase, evaluation version, volume licensing) the product key may already be present. Figure 14 shows the Product Key screen.

3	SQL Server 2014 Setup
Product Key Specify the edition of SQI Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install	SQL Server 2014 Setup  Server 2014 to install.  Validate this instance of SQL Server 2014 by entering the 25-character key from the Microsoft certificate of authenticity or product packaging. You can also specify a free edition of SQL Server, such as Evaluation or Express. Evaluation has the largest set of SQL Server features, as documented in SQL Server Books Online, and is activated with a 180-day expiration. To upgrade from one edition to another, run the Edition Upgrade Wizard.  Server Books Online, and is activated with a 180-day expiration. To upgrade from one edition to another, run the Edition Upgrade Wizard.  Server Books Online, and is activated with a 180-day expiration. To upgrade from one edition to another, run the Edition Upgrade Wizard.  NOT A VALID KEY
Installation Progress Complete	< Back Next > Cancel

Figure 14

Enter the product key then click on the Next button in the lower right.

#### **Accept License**

The next screen is the Accept License page. Fairly intuitive, the license agreement must be checked in order to use the software (Figure 15).



Figure 15



The Customer Experience Improvement Program (CEIP) is entirely optional. Additional details on the CEIP can be found at: http://www.microsoft.com/ products/ceip/en-us/default.mspx

There is also a link here for to review Microsoft's Privacy Statement.

After making selections here, proceed by clicking the Next button in the lower right.

#### **Global Rules**

The Global Rules check is next. If no issues are found the install will skip to the next screen (named Microsoft Update). To see what the Global Rules performed checks for just click the Previous button in the lower right. The wizard returns to the Global Rules screen (Figure 16) and the rule check will run again.

1	SQL Server 2014 Setup	_ 🗆 X
Global Rules Setup Global Rules identify corrected before Setup can	problems that might occur when you install SQL Server Setup support files. Failures must be continue.	
Product Key License Terms Global Rules Microsoft Update Product Updates Install Rules Setup Role Feature Selection Feature Selection Feature Configuration Rules Ready to Install Installation Progress Complete	Operation completed. Passed: 9. Failed 0. Warning 0. Skipped 0. Show details >> View detailed report .	Re-run
	< Back Next >	Cancel

Figure 16

To see the details of what was checked, click on the Show Details button as shown in Figure 16. The install GUI will then display the full list of items that were checked (Figure 17).

1	SQL Server 2014 Setup	×
Global Rules Setup Global Rules identify pr corrected before Setup can co	roblems that might occur when you install SQL Server Setup support files ntinue.	. Failures must be
Product Key License Terms <b>Global Rules</b> Microsoft Update Product Updates	Operation completed. Passed: 9. Failed 0. Warning 0. Skipped 0. Hide details << <u>View detailed report</u>	Re-run
Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress Complete	Rule         Setup administrator         Setup account privileges         Restart computer         Windows Management Instrumentation (WMI) service         Consistency validation for SQL Server registry keys         Long path names to files on SQL Server installation media         SQL Server Setup Product Incompatibility         NRT 2.0 and .NET 3.5 Service Pack 1 update for Windows 2008         Edition WOW64 platform	Status Passed Pa
	< Back	Next > Cancel

Figure 17



Each hyperlink that says, "Passed" will display additional info on the rule that was checked. Furthermore, you can click on the "View Detailed Report" (highlighted in Figure 16 previously) to view even more information regarding the Global Rules. You will be brought to a web page as shown in Figure 18.

Rule Name         Rule Description         Result         Message/Corrective Action           Image: SQL Server 2014 Setup configuration         This rule determines whether the compact has the required update package for ART Framework 2.2 or ART Framework 2.2 or ART Framework 2.3 or ART Framework 2.3 or ART Framework 2.0	av.	puter Name(5): SQL2014 ort Date/Time: 6/6/2014 1:24 PM ed to Directory: <u>C:\Program Files\Microsol</u>	ft SQL Server\120\Setup Bootstrap\Log\20140606_1322	1\SystemCo	nfigurationCheck_Report.htm
Note         Note <th< th=""><th>Clo</th><th>Rule Name</th><th>Rule Description</th><th>Result</th><th>Message/Corrective Action</th></th<>	Clo	Rule Name	Rule Description	Result	Message/Corrective Action
ServerCore64BICheck         Checks if this version of SQL Server is 64bit.         Not applicable         This rule does not apply to your system config applicable           ServerCoreFlatformCheck         Checks if this version of SQL is supported on the currently running Windows Server Core 05.         Not applicable         This rule does not apply to your system config applicable           AdPermissionsFacet         Checks if this version of SQL Server registry keys are consistent.         Passed         SQL Server registry keys are consistent and ca sport SQL Server registry keys are consistent.           FacetWOW64RIaformCheck         Checks if this version of SQL Server steps is supported on this operating system platform.         Passed         SQL Server Steps is supported on this operating system platform.           HesisecurityBackupAndDebupPrivilegesCheck         Checks whether the account that is running SQL Server Steps programs.         Passed         The account that is running SQL Server Steps programs.           HedlaPathLength         Checks whether the SQL Server installation media is too long.         Passed         The SQL Server installation media is not too lo accessful matching on the required update package for .NET Framework 2.5 SFIT that is need/of for accessful finalistion of Visual support server installation or Visual support server installation or update package         The SQL Server installation or Visual that is need/of for accessful finalistion or Visual support server installation or Update package         The SQL Server installation or Visual that is need/of for accessful finalistion or Visual supdate package for .NET Framework 2.5 SFIT that is ne	3	NoRebootPackageDownLevel	This rule determines whether the computer has the required update package for .NET Framework 2.0 or .NET Framework 3.5 SP1 that is needed for a successful installation of Visual Studio components that are included in SQL Server.	Not applicable	This rule does not apply to your system configuration.
ServerCorePlatformCheck         Chacks If this varian of SQL is supported on the currently applicable         Not apply to your system config           AdPermissionsFacet         Checks If the SQL Server rogistry keys are consistent.         Passed         SQL Server registry keys are consistent and ca consistent.           FacetWOW54PlatformCheck         Checks If the SQL Server rogistry keys are consistent.         Passed         SQL Server registry keys are consistent and ca consistent.           FacetWOW54PlatformCheck         Checks If the SQL Server registry keys are consistent.         Passed         SQL Server Stup is supported on this coperating system platform.           HassecurityBackupAndDebugPrivilegesCheck         Determines whether the concent that is running SQL Server Setup is supported on this coperating and directories, the right to back up files and directories, the right debug programs.         Passed         The SQL Server installation media is not too lo many accessition facilitation and las too long.         Passed         The SQL Server installation media is not too lo many accessition right and accessition running SQL or refer the start required update package           MediaPathLength         Checks whether the computer has the required update package         This rune defect and accessition running SQL or run running SQL Server installation media is too long.         Passed         The SQL Server installation media is not too lo many accessition running accessition running accessitio	0	ServerCore64BitCheck	Checks if this version of SQL Server is 64bit.	Not applicable	This rule does not apply to your system configuration.
AdPermissionsFacet         Checks if the SQL Server registry keys are consistent.         Passed         SQL Server installation or upprade.           Sective AdPermissionsFacet         Determines whether SQL Server Setup is supported on this upport SQL Server installation or upprade.         SQL Server Setup is supported on this upport SQL Server Setup is support SQL Server Setup is and inclusion and security log and the security log and the right to back up files and directories, the right to back up files and director setup into the setup is support SQL Server Setup in the setup into the setup into the setup into advect up files and director setup into the setup into advect up files and director setup into the setup into advect up files and director setup into the setup into advect up files and director setup into advect up files advect up files advect the right back.           MedlaPathLength         Checks whether the SQL Server installation media is too log.         Passed         The SQL Server installation media is not too log.           NoRebootPackage         Distat is needed for a	0	ServerCorePlatformCheck	Checks if this version of SQL is supported on the currently running Windows Server Core OS.	Not applicable	This rule does not apply to your system configuration.
FacetWOW64PtatformCheck: Determines whether SQL Server Setup is supported on this Passed SQL Server Setup is supported on this operating system platform.     HasSecurityBackupAndDebupPrivilegesCheck: Checks whether the account that is running SQL Server Setup has the right to back up files and directories, the right or and the right regression.     HedlaPathLength Checks Whether the SQL Server Installation media is too long.     Passed The SQL Server Installation media is not too lo 2.5 SPT that is needed for accessful right failt on effection for the SQL Server Installation media is not too lo 2.5 SPT that is needed for accessful right failt on effection for the SQL Server Installation for the SQL Server Insta	0	AclPermissionsFacet	Checks if the SQL Server registry keys are consistent.	Passed	SQL Server registry keys are consistent and can support SQL Server installation or upgrade.
<ul> <li>HasSecurityBackupAnDcbupPrivilegesCheck Chacke whether the account that is running 5QL Server Setup Pased That account that is running 5QL Server Setup (The Account Action is the first to back with the sand directions, the night to manage auditing and security log and the right pace action is and directions; the night to back with the sand security log and the right pace auditing and security log and the right pace audit pace audit pace audit pace audit pace audits and the security log and the required update pace audits pace audits and the required accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for accessible individuation of Voual 2, 3 5 FM that is needed for the accessible individuation of Voual 2, 3 FM that is needed for the second for accessible individuation of Voual 2, 3 FM that is needed for the accessible individuation of Voual 2, 3 FM that is needed for the needed for the second for the needed fore the needed for the needed for the needed for the needed for t</li></ul>	0	FacetWOW64PlatformCheck	Determines whether SQL Server Setup is supported on this operating system platform.	Passed	SQL Server Setup is supported on this operating system platform.
MedlaPathLength         Checks whether the SQL Server installation media is too long.         Passed         The SQL Server installation media is not too lo           Image: Straight of the stra	3	HasSecurityBackupAndDebugPrivilegesCheck	Checks whether the account that is running SQL Server Setup has the right to back up files and directories, the right to manage auditing and the security log and the right to debug programs.	Passed	The account that is running SQL Server Setup has the right to back up files and directories, the right to manage auditing and security log and the right to debug programs.
NoRebootPackage This rule determines whether the computer has the required update package for .RET Framework 2.5 SFN that is needed for accessful indiation of Voual is needed for accessful indiation of Voual is needed for accessful indiation of Voual is needed for the need	0	MediaPathLength	Checks whether the SQL Server installation media is too long.	Passed	The SQL Server installation media is not too long.
Stadio componenca diac di e medidada in Sqc Server.	0	NoRebootPackage	This rule determines whether the computer has the required update package for .NET Framework 2.0 or .NET Framework 3.5 SP1 that is needed for a successful installation of Visual Studio components that are included in SQL Server.	Passed	This computer has the required update package.

Figure 18

This screen also lists the directory for where the installation logs are being kept. In the example here, that directory is C:\Program Files\Microsoft SQL Server\120\Setup Bootstrap\Log

After reviewing the details, return to the install GUI and click Next to return to the Microsoft Update screen.

#### Microsoft Update

Here we decide whether if we want to allow for the automatic updates (Figure 19).

1	SQL Server 2014 Setup
Microsoft Update to check Use Microsoft Update to check Product Key License Terms Global Rules Microsoft Update Install Setup Files Install Rules Setup Role Feature Selection Feature Configuration Rules Ready to Install Installation Progress Complete	for important updates Microsoft Update offers security and other important updates for Windows and other Microsoft software, including SQL Server 2014. Updates are delivered using Automatic Updates, or you can visit the Microsoft Update website.  ✓ Use Microsoft Update to check for updates (recommended) Microsoft Update FAQ Microsoft Update Privacy Statement
	< Back Next > Cancel

Figure 19



Unlike the license terms checkbox, this checkbox does not need to be enabled in order to continue with the installation. However, as indicated, it is recommend.

The hyperlinks underneath the checkbox provide more information about what enabling this option means, as well as details on the Microsoft Update Privacy Statement.

If you have already enabled automatic updating with Windows Update then by enabling the checkbox on this screen you will continue to receive updates according to whatever preference you have configured for the server operating system (install automatically, download but let user decode when to install, check but do not download, and never check).

If automatic updates are not enabled for the server then enabling the checkbox on this screen will do that for you. Windows will download and install updates for you automatically.

If it is preferred to manually install updates, then after the installation is complete go into the Control Panel and customize the settings for Windows Update.

After making selections for Microsoft Updates on this screen click Next in the lower right corner.

#### **Product Updates**

The Product Updates screen is next. This check for product updates here and in the next section (Install Setup Files) were added in SQL Server 2012 as a "smart install" enhancement. The idea is that if a user is installing SQL Server many months (or years) after it has been released, it would be a good idea to also prompt to download any critical updates now, to avoid there being issues with the instance after the install was completed.

If no SQL Server product updates are detected, the install will skip to the Install Setup Files screen.

#### **Install Setup Files**

The Install Setup Files screen is next. If there are no Setup updates found, this screen (Figure 20) will complete and skip to the next screen, Install Rules.

1	SQL Server 2014	4 Setup	- • ×
Install Setup Files If an update for SQL Server Se	etup is found and specified to be included, th	ne update will be installed.	
Product Key			
License Terms			
Global Rules	Task	Status	
Product Updates	Scan for product updates	Completed	
Install Setup Files	Download Setup files	Skipped	
Install Rules	Extract Setup files	Skipped	
Setup Role	Install Setup files	Not started	
Feature Selection			
Feature Rules			
Feature Configuration Rules			
Ready to Install			
Installation Progress			
Complete			
		< Back Nei	kt > Cancel

Figure 20

You can see the 'Scan for product updates' was completed. This is different than the previous Product Updates screen. This screen is looking specifically for updates to the installation setup files only. Since it found none, the next two ('Download Setup files', 'Extract Setup files') are skipped. At that point the setup files are installed and the install GUI skips to the next screen, Install Rules.



#### **Install Rules**

The Install Rules screen runs some additional checks and reports back the status. Any failures at this point must be corrected. In Figure 21 we see there is a warning for this server.



Issues flagged as warning do not need to be corrected before continuing. However, it is a good idea to understand more about the issue(s). More details are available by either viewing the detailed report (as we did previously) or by clicking on the "Warning" hyperlink in the Status column. In this case we see the result in Figure 22.





This server is currently using the default Windows Firewall settings. The installer wants to make it clear that the firewall could present connectivity issues later, but it is not a critical issue that should stop the installation from being completed.

For this specific warning, enabling the correct ports will not cause this message to disappear upon a re-run of the rules. Only disabling the Firewall will cause this warning to disappear as shown in Figure 23. Please note that it is not recommended to disable Windows Firewall.

3	SQL Server 2014 Setup	
Install Rules Setup rules identify potential pro can continue.	lems that might occur while running Setup. Failures must be correct	ed before Setup
Product Key License Terms Global Rules Microsoft Update Product Updates	Dperation completed. Passed: 7. Failed 0. Warning 0. Skipped 0. Hide details << /iew detailed report	Re-run
Install setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress Complete	Rule         Fusion Active Template Library (ATL)         Previous releases of SQL Server 2008 Business Intelligence Devel         Consistency validation for SQL Server registry keys         Computer domain controller         Microsoft .NET Application Security         Windows Firewall         Block install when Microsoft SQL Server 2014 CTP1 is present.	Status Passed Pa
	< Back Next >	Cancel Help

Figure 23

Click Next and advance to the Setup Role screen.

#### **Setup Role**

The Setup Role screen is shown in Figure 24.

1	SQL Server 2014 Setup
Setup Role Click the SQL Server Feature feature role to install a speci Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules	SQL Server 2014 Setup  Installation option to individually select which feature components to install, or click a fic configuration.  SQL Server Feature Installation Install SQL Server Database Engine Services, Analysis Services, Reporting Services, Integration Services, and other features.  SQL Server PowerPivot for SharePoint Install PowerPivot for SharePoint on a new or existing SharePoint server to support PowerPivot data access in the farm. Optionally, add the SQL Server relational database engine to use as the new farm's database server.  Add SQL Server Database Relational Engine Services to this installation.  All Features With Defaults Install all features using default values for the service accounts.
Ready to Install Installation Progress Complete	< Back Next > Cancel Help

Figure 24



There are three options listed, the first is the SQL Server Feature Installation. This is the standard installation and will be the focus for this document. The second option is SQL Server PowerPivot for SharePoint, and is outside the scope of this paper. The third option is to install everything using default values for all service accounts.

Click Next and advance to the Feature Selection screen.

#### **Feature Selection**

This screen in the install process requires more attention to detail (Figure 25) than previous screens. It is here that services and features of SQL Server will be selected to be installed.

2	Add Roles and Features Wizard
Select installatic Before You Begin Installation Type Server Selection	DESTINATION SERVER SQL2014 Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).
Server Roles	Configure a single server by adding roles, role services, and features. Remote Desktop Services installation
Confirmation	Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.
	< Previous Next > Install Cancel

Figure 25

While the screen looks busy, it's not too difficult to understand what is being communicated by breaking it down into sections. First, there is the section that displays the entire list of features (Figure 26).

Feature Selection	to install.		
Product Key License Terms Giobal Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress	Features: Database Engine Services SQL Server Repiration Data Quality Services Analysis Services Reporting Services - Shar Reporting Services - Shar Reporting Services Add-i Data Quality Client Client Tools Connectivity Integration Services K	: n ic Extractions for Sea ≡ ve ePoint for SharePoint Proc ✓ ✓ ✓	Hature description: The configuration and operation of each istance feature of a SQL Server instance is olated from other SQL Server instances, SQL enver instances can operate side-by-side on Prerequisites for selected features: Disk Space Requirements
	Select All Unselect All Instance root directory: Shared feature directory: Shared feature directory (x86):	C:\Program Files\Micr C:\Program Files\Micr C:\Program Files (x86)	osoft SQL Server\

Figure 26



The list is broken down into two sections: Instance Features and Shared Features. The Instance Features section contains items like the core database engine (what is usually referred to as 'SQL Server'), Analysis Services (SSAS), and Reporting Services (SSRS).

The Shared Features section lists all the features that the Instance Features will be sharing. For example, one of the shared features would be SQL Server Management Studio (SSMS), which is included within the 'Management Tools' checkbox.

We know SSMS is included with that checkbox because the installer helps by providing details inside the 'Features description section' about what was selected (Figure 27).

1	SQL Server	2014 Setup	_ <b>_</b> X
Feature Selection Select the Enterprise features to	o install.		Feature description
Conduct Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress Complete	Client Tools Connectivity     Client Tools Backwards Con     Client Tools Backwards Con     Client Tools SDK     Documentation Componen     Management Tools - Basic     Management Tools - Consectivity SDR     Distributed Replay Client     SQL Client Connectivity SDR     Master Data Services     Redistributable Features     C     III     Select All     Unselect All     Instance root directory:     Shared feature directory (x86):	Ipatibility s mplete r : Ct\Program Files\Mice Ct\Program Files\Mice Ct\Program Files\Mice	Presure description:         Adds the following components to the basic management tools installation: Management Studie support for Reporting Services, Analysis versions, and Integration Services         Prerequisites for selected features         Disk Space Requirements         Original Services         rosoft SQL Server\         witcrosoft SQL Server\
		< Back	Next > Cancel Help

Figure 27

In Figure 27 only the 'Management Tools – Complete' option is selected and the Feature description has changed to display the details. The checkbox does not need to be checked, just that line needs to be selected for the Feature description to be shown.

Below the Feature description section in the right column of the screen there are two other sections. The middle section lists the prerequisites for the selected option. The bottom section shows the disk space requirements. In Figure 27 these are blank, because these two sections are only populated when the checkbox is enabled (Figure 28).

<b>1</b>	SQL Serve	er 2014 Setup	_ <b>D</b> X
Feature Selection Select the Enterprise features	to install.		
Product Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role <b>Feature Selection</b> Feature Configuration Rules Ready to Install Installation Progress Complete	Features:         □ Client Tools Connectivity         □ Client Tools Backwards C         □ Client Tools SDK         □ Documentation Compon         ✓ Management Tools - Bas         ✓ Master Data Services         K = Master Data Services <th>C:\Program Files\Mi C:\Program Files\Mi</th> <th>Feature description:         Adds the following components to the basic management tools installation: Management Studio support for Reporting Services, Analysis Services, and Integration Services         Prerequisites for selected features:         Already installed:         -Windows PowerShell 2.0         Windows PowerShell 2.0         Windows PowerShell 2.0         Usits Space Requirements         Drive C: 1314 MB required, 8560 MB available         crosoft SQL Server\        </th>	C:\Program Files\Mi C:\Program Files\Mi	Feature description:         Adds the following components to the basic management tools installation: Management Studio support for Reporting Services, Analysis Services, and Integration Services         Prerequisites for selected features:         Already installed:         -Windows PowerShell 2.0         Windows PowerShell 2.0         Windows PowerShell 2.0         Usits Space Requirements         Drive C: 1314 MB required, 8560 MB available         crosoft SQL Server\
		< Back	Next > Cancel Help

Figure 28



By selecting the checkbox you can see the sections are populated in Figure 28.

The section at the bottom of the screen allows for selecting the file location for the instance, the shared features, and the shared feature x86 directory. You will notice that in Figure 28 the instance root directory is greyed out. This is because no instance features have been selected. Once an instance feature is selected the instance root directory will be enabled as seen in Figure 29.





For your server, place the SQL Server installation files (i.e., the 'binaries') to a different drive other than the OS drive. Please note that these file locations are only for the binary executable files at this time; the option to place data and log file locations will come later.

Figure 29 does not show the entire list of selections, the complete list is here:

- Database Engine Services
  - o SQL Server Replication
  - o Full-Text and Semantic Extractions for Search
- Client Tools Connectivity
- Integration Services
- Client Tools Backwards Compatibility
- Client Tools SDK
- Documentation Components
- Management Tools Basic
  - o Management Tools Complete
- SQL Client Connectivity SDK

Those options were chosen as a basic example of a database engine install for this paper, not something that should be deployed to every production server without question.

Click Next and advance to the Feature Rules screen.



#### **Feature Rules**

The Feature Rules screen runs more checks, this time for rules that are tied to the features chosen in the previous screen. If the check is successful then the wizard should show something similar to Figure 30.

5	SQL Server 2014 Set	up	_ <b>_</b> X
Feature Rules	ermine if the installation process will be blocked. For more information	, click Help.	
Product Key License Terms	Operation completed. Passed: 2. Failed 0. Warning 0. Skipped I	),	_
Global Rules			
Microsoft Update	Hide details <<		Re-run
Product Updates Install Setup Files	View detailed report		
Install Rules	Rule	Status	
Setup Role	Prior Visual Studio 2010 instances requiring update.	Passed	
Feature Selection	Microsoft .NET Framework 3.5 Service Pack 1 is required	Passed	
Feature Rules			
Instance Configuration			
Server Configuration			
Database Engine Configuration			
Feature Configuration Rules			
Ready to Install			
Installation Progress			
Complete			
		(Park Next) (	ancel Help
		N DOLK IVEX( >	nelp

Figure 30

Now we will click Next and advance to the Instance Configuration screen.

#### **Instance Configuration**

The Instance Configuration screen configures a default instance or a named instance of SQL Server (Figure 31).

12		SQL Server	2014 Setup		×
Instance Configuration Specify the name and instance	ID for the instance of S	QL Server, Instance ID becomes p	art of the installation path.		
Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files	Default instance     Named instance:     Instance ID:	MSSQLSERVER			
Install Rules Setup Role Feature Selection	SQL Server directory: Installed instances:	C:\Program Files\Microsoft SQL	Server\MSSQL12.MSSQLSERVE	R	
Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Instance Name	Instance (D	Features	Edition	Version
				Back Next >	Cancel Help

Figure 31



Choosing a default instance installation will mean that any client wishing to connect to this instance will be able to do so by using the name of the server only. By choosing a named instance clients will need to connect using both the server name and the name of the instance. For example, SERVERNAME\ INSTANCENAME.

If choosing a named instance, then the SQL Browser will be enabled and running after the install is complete. The SQL Browser is a service that helps to redirect client connections to the correct named instance. For default instance installs, the SQL Browser service is installed but left disabled.

By default, SQL Server will install as a default (or, unnamed) instance. However, for SQL Server Express installs, the default is to install as a named instance SERVERNAME\SQLEXPRESS.

More details about these options is available at: http://msdn.microsoft.com/en-us/library/ms143531.aspx

The middle of this screen is a section that shows the location for the SQL Server directory. You cannot edit this location on this screen; it is taking the 'instance root directory' location selected back on the Feature Selection screen (Figure 29). If changes here are necessary, go back to the Feature Selection screen and make edits there.

Lastly, the bottom window shows the currently installed instances on the server. This is a new installation on a new server, so nothing is listed here in this example.

We are going to assign a name (SQL2014) to this instance (Figure 32).

1		SQL Server 2014	Setup		X
Instance Configuration Specify the name and instance	<b>n</b> e ID for the instance of Si	QL Server. Instance	ID becomes part of t	the installation path.	
Product Key License Terms Global Rules	<ul> <li>Default instance</li> <li>Named instance:</li> </ul>	SQL2014			
Product Updates Install Setup Files Install Rules Satur Role	Instance ID:	SQL2014			
Feature Selection Feature Rules Instance Configuration	SQL Server directory: Installed instances:	C:\Program Files\I	Microsoft SQL Server	\MSSQL12.SQL2014	
Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Instance Name	Instance ID	Features	Edition	Version
		[	< Back	Next > Cancel	Help

Figure 32

After entering in the name SQL2014 the Instance ID field is populated. It is possible to have different names for the instance name and the instance ID. The instance name is what clients will use to connect to this instance. The instance ID is used in the file directory structure, seen in Figure 31.

Click Next and move to the Server Configuration screen.



#### Server Configuration

- - X SQL Server 2014 Setup Server Configuration Specify the service accounts and collation configuration Product Key Service Accounts Collation License Terms Microsoft recommends that you use a separate account for each SQL Server service Global Rules Microsoft Update Service Account Name NT Service\SQLSERVERAGENT Startup Type Product Updates Manual SQL Server Database Engine NT Service\MSSOLSERVER Automatic Install Setup Files SQL Server Integration Services 12.0 NT Service\MsDtsServer120 Install Rules SQL Full-text Filter Daemon Launcher NT Service\MSSOLEDLaunche Manual Setup Role Feature Selection SQL Server Browser NT AUTHORITY\LOCAL SERVICE Feature Rules Instance Configuration Server Configuration Database Engine Configu Feature Configuration Rules Ready to Install Installation Progress Complete < Back Next > Cancel Help

The Server Configuration screen has two tabs, one for Service Accounts and another for Collation (Figure 33).



Let's start with the Service Accounts tab. Listed in Figure 33 are the five services that are going to be installed based upon the features selected. The services are:

- SQL Server Agent
- SQL Server Database Engine
- SQL Server Integration Services 12.0
- SQL Full-text Filter Daemon Launcher
- SQL Server Browser

As noted before, the SQL Server Browser is installed regardless this is a default or named instance. If installing a default instance the SQL Browser service would be set to 'Disabled' for the Startup Type. With a named instance, the Startup Type for the SQL Browser service is set to Automatic. For those that require a hardened SQL Server installation, the SQL Server Browser service should be left disabled. Clients can still connect to SQL Server by specifying the port number the instance uses. For example, if SERVERNAME\INSTANCENAME is using port 8123, then clients would connect by using: SERVERNAME\INSTANCENAME, 8123

There are five default Account Names assigned by the installer. They are, in order:

- NT Service\SQLAgent\$SQL2014
- NT Service\MSSQL\$SQL2014
- NT Service\MsDtsServer120
- NT Service\MSSQLFDLauncher\$SQL2014
- NT AUTHORITY\LOCAL SERVICE

If choosing a named instance (our example is 'SQL2014' as the instance name), the string 'SQL2014' is found in three of the above account names. For default instance installations, the account names would have a different format. More details about the default service accounts used by SQL Server 2014 can be found at http://msdn.microsoft.com/en-us/library/ms143504.aspx

It is a common security recommendation that dedicated and distinct domain accounts are used for the services being installed, and to not rely on the default accounts. If domain accounts are not available during install the accounts can be updated later using SQL Server Configuration Manager (SSCM).



Note that the account names for the SQL Full-text Filter Daemon Launcher and SQL Server Browser cannot be changed at this time. If needed they can also be changed later using SSCM. More details on all possible the service account configurations can be found at: http://msdn.microsoft.com/en-us/library/cc281953.aspx

If using domain accounts at this time the Password textbox will be enabled. Enter the correct password in order to proceed with the installation. Next, let's look at the Collation tab (Figure 34).

1	SQL Server 2014 Setup	×
Server Configuration Specify the service accounts an	d collation configuration.	
Specify the service accounts an Product Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install	Service Accounts         Collation           Database Engine:         SQL_Latin1_General_CP1_CI_AS           Latin1-General_case-insensitive, accent-sensitive, kanatype-insensitive, width-insensitive for Unicode Data, SQL Server Sort Order 52 on Code Page 1252 for non-Unicode Data	Customize
Complete	< Back Next > Cancel	) Help

Figure 34

This is where the default collation for the instance is configured.

Click Next and advance to the Database Engine Configuration screen.

#### **Database Engine Configuration**

The Database Engine Configuration screen has three tabs (Figure 35). One for Server Configuration, another for Data Directories, and a third for Filestream.

1	SQL Server 2014 Setup	_ <b>_</b> X
Database Engine Confi Specify Database Engine auther	guration ntication security mode, administrators and data directories.	
Product Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Server Configuration       Data Directories       FILESTREAM         Specify the authentication mode and administrators for the Database Engine.         Authentication Mode	QL Server administrators ave unrestricted access o the Database Engine.
	< Back Next > (	Cancel Help

Figure 35

On the Server Configuration tab the Authentication Mode for the instance is configured. The options are Windows Authentication mode or Mixed Mode (which allows for both Windows Authentication and SQL Server logins).

The recommended setting is to use Windows Authentication mode. However, that requires all users to be a member of the same domain (or trusted domains). For some companies with outward facing applications this is not possible. Therefore, Mixed Mode is the choice they prefer. You can read more details about these options at: http://msdn.microsoft.com/en-us/library/cc281849.aspx

If the Mixed Mode option on this screen is enabled then a password for the 'sa' account must be chosen. The password must be more than 8 characters in length and satisfy at least three of the following four criteria:

- · It must contain uppercase letters.
- It must contain lowercase letters.
- · It must contain numbers.
- It must contain non-alphanumeric characters; for example, #, %, or ^.



At least one Windows account must be specified as an administrator for this instance before you are allowed to advance to the next screen. In previous versions of SQL Server the local Administrators group was given access here by including the BUILTIN\ADMINISTRATORS group by default. That is no longer the case. We are currently logged in with the Administrator account, which is a bad thing and you shouldn't repeat what we did here (Figure 36).

1	SQL Server 2014 Setup	_ <b>_</b> X
Database Engine Conf Specify Database Engine auth	iguration entication security mode, administrators and data directories.	
Product Key License Terms Global Rules Microsoft Ugdate Product Ugdates Install Schup Files Install Rules Satup Role Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Server Configuration       Data Directorier       FILESTREAM         Specify the authentication mode and administrators for the Database Engine.       Authentication Mode         O Windows authentication mode       Mixed Mode (SQL Server authentication and Windows authentication)         Specify the password for the SQL Server system administrator (sa) account.       Enter password:         Enter password:       Second         Specify SQL Server administrators       SQL Server administrators         Sold Momentator (Administrator)       SQL Server administrators         Sold Momentator (Administrator)       SQL Server administrator         Add Current User       Add         Remove       Second Sec	Iministrators have unrestricted Database Engine.
	< Back Next >	Cancel Help

Figure 36

The Data Directories tab is where the default data and log file directories are configured for new databases created on this instance (Figure 37).

1		SQL Server 2014 Setup	x
Database Engine Confi Specify Database Engine auther	guration	ators and data directories.	
Product Key License Terms Global Rules Microsoft Update Install Setup Files Install Rules Setup Role Feature Stection Feature Stection Database Engine Configuration Server Configuration Rules Ready to Install Installation Progress Complete	Server Configuration Data Di Data root directory: System database directory: User database log directory: User database log directory: Temp D8 directory: Temp D8 log directory: Backup directory:	ectories   FILESTREAM   C(-Program Files/Microsoft SQL Server/. C(-Program Files/Microsoft SQL Server/.MSSQL12.MSSQLSER/ER/.MSSQL\Data C(-Program Files/.Microsoft SQL Server/.MSSQL12.MSSQLSER/ER/.MSSQL\Data	
		< Back Next > Cancel	Help

Figure 37

Figure 36, shows that the user database data files, user database log files, tempdb data files, and tempdb log files are all defaulted to the same directory. Further, the system databases are set to place both their data and log files in the same directory (and this cannot be changed at this time). The default backup location, however, is a different location, but it's to the same drive.



It's well documented that for purposes of Disaster Recovery (DR) you want to have your data, log, and backup files on distinct storage devices. The last tab is for Filestream (Figure 38).

8	SQL Server 2014 Setup	X
Database Engine Confi Specify Database Engine auther	guration atication security mode, administrators and data directories.	
Product Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Selection Server Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Server Configuration       Data Directories       FILESTREAM         Enable FILESTREAM for Transact-SQL access         Enable FILESTREAM for file I/O access         Windows share name:       SQL2014         Allow remote clients access to FILESTREAM data	
	< Back Next > Cancel H	elp

#### Figure 38

Here we can configure this instance to use Filestream, if desired. You can read more about Filestream at http://msdn.microsoft.com/en-us/library/gg471497.aspx. You can also enable Filestream later using SSCM.

After having reviewed all three tabs, click Next and advance to the Feature Configuration Rules screen.

### **Feature Configuration Rules**

Unless there is an error in the rules being checked, this screen will skip ahead. Click on the Previous button to go back and review the rules that were run (Figure 39).

5	SQL Server 2014 Setup	_ <b>_</b> ×
Feature Configuration Setup is running rules to deter	Rules ine if the installation process will be blocked. For mo	re information, click Help.
Product Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration <b>Feature Configuration Rules</b> Ready to Install Installation Progress Complete	Operation completed. Passed: 4. Failed 0. Warning Hide details << <u>View detailed report</u>	g 0. Skipped 0. Re-run
	Rule         Image: FAT32 File System         Image: Existing clustered or cluster-prepared instance         Image: Cross language installation         Image: Same architecture installation	Status Passed Passed Passed Passed
	< Back	: Next > Cancel Help

Figure 39

The details of what was checked can be reviewed by clicking one the View Detailed Report link.

Click Next and you will be taken to the Ready to Install screen.

#### **Ready to Install**

The Ready To Install screen shows a summary of the features and options selected (Figure 40).

<b>X</b>	SQL Server 2014 Setup			
Ready to Install				
Verify the SQL Server 2014 fea	tures to be installed.			
Product Key	Ready to install SQL Server 2014:			
icense Terms	P-Summary			
lobal Rules	Edition: Enterprise			
Aicrosoft Update	- Action: Install (Product Update)			
roduct Undates	Prerequisites			
induct opulates	😓 Already installed:			
istali Setup Files	Windows PowerShell 2.0			
istall Rules	Microsoft .NET Framework 4.0			
etup Role	To be installed from media:			
eature Selection	<ul> <li>Microsoft Visual Studio 2010 Redistributables</li> </ul>			
eature Rules	- Microsoft Visual Studio 2010 Shell			
nstance Configuration	Concert visual studio i bois for Applications 5.0			
erver Configuration	E. Features			
Intribuce Engine Configuration	Database Engine Services			
atabase Engine Configuration	- SQL Server Replication			
eature Configuration Rules				
eady to Install	- Client Tools Connectivity			
nstallation Progress	- Integration Services			
Complete	- Client Tools Backwards Compatibility			
	- Client Tools SDK			
	- Documentation Components			
	Management Tools - Basic			
	- Management Tools - Complete			
	- SQL Client Connectivity SDK			
	Instance Configuration			
	- Instance ID: MSSOI SERVER			
	R-Instance IDs			
	SQL Database Engine: MSSQL12.MSSQLSERVER			
	Instance Directory: C:\Program Files\Microsoft SQL Server\			
	Bared component root directory			
	- Shared feature directory: C:\Program Files\Microsoft SQL Server\			
	Error and Usage Reporting			
	Usage Reporting: True			
	Error Keporting: True			
	- Float Date			
	- Undate Shingree Mil			
	Configuration file path:			
	C:\Program Files\Microsoft SQL Server\120\Setup Bootstrap\Log\20140417_193611\ConfigurationFile.ini			
	< Back Install Cancel	Help		

Figure 40



Here every choice that we made in the previous screens is listed. Review every detail such as instance name, instance ID, service accounts, features, and data file directories to make sure they are as expected.

This screen also shows the configuration file path, where the configuration.ini file is stored. Some of the contents of this file are displayed in Figure 41.



Figure 41

The configuration.ini file not only shows what has been selected, it also details the other options that were available. Use a configuration.ini file to standardize installations, if desired. More information on the use of this file is available at <a href="http://msdn.microsoft.com/en-us/library/dd239405.aspx">http://msdn.microsoft.com/en-us/library/dd239405.aspx</a>.

Click Install to start the installation process.

#### **Installation Progress**

The duration of the installation process will vary from server to server. Track the progress of the install if desired (Figure 42), or go get yourself a cup of bacon while you wait.

1	SQL Server 2014 Setup		x
Installation Progress			
Product Key License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install <b>Installation Progress</b> Complete	Install_sql_ssms_loc_Cpu64_1033_Action : Write_sqlLocalServers_64. Registering local serven	5	
	Next > Cancel	Hel	p

Figure 42

At some point the installation will complete and the installer will proceed to the final screen.



#### Complete

Congrats! The install of SQL Server 2014 is complete! A screen similar to Figure 43 should appear.

1	SQL Servi	_ 🗆 X	
Complete Your SQL Server 2014 installat	ion completed successfully with product updates.		
Your SQL Server 2014 Installar Product Vey License Terms Global Roles Microsoft Update Product U	Inic completed successfully with product updates.	ttep:	By default, the Help Viewer fit to download pdate databases and sample ever sample databases and sample
			Close Help

Figure 43

Every feature selected should be listed as a line item in the top section along with a status of 'Succeeded'.

The Details section provides information regarding product documentation. Review those details which include:

- Link to the Books Online
- Details on setting up Microsoft Update
- Link to sample databases, including ones for Hekaton
- A readme file
- Link to .NET 3.5 SP1
- Details on the Surface Area Configuration

There is also a link to the Summary Log file (Figure 44). For this install it was located at C:\Program Files\Microsoft SQL Server\120\Setup Bootstrap\ Log\20140611\_194105\ Summary\_SQL2014\_20140611\_194105.txt

Summary_SQL2014_20140611_194105 - Notepad				×		
File Edit Format View Help						
Dverall summary:						1
Final result:	Passed					- 12
Exit code (Decimal):	0					
Start time:	2014-06-11 19:41:06					
End time:	2014-06-12 18:09:44					7
Requested action:	Install					
Machine Properties:						
Machine name:	S0L2014					- 8
Machine processor count:	1					
OS version:	Windows Server 2012					
OS service pack:						
OS region:	United States					
OS language:	English (United States)					
OS architecture:	x64					
Process architecture:	64 Bit					
OS clustered:	No					
Product features discovered:						
Product Instance	Instance ID	Feature	Language	Edition	Version	1
Package properties:						
Description:	Microsoft SOL Server 2014					
ProductName:	SOL Server 2014					
Type:	RTM					
Version:	12					
SPLevel:	0					
Installation location:	E:\x64\setup\					
Installation edition:	Enterprise					
Product Update Status:						
None discovered.						
User Input Settings:						
ACTION:	Install					
ADDCURRENTUSERASSQLADMIN:	false					
AGTSVCACCOUNT:	NT Service\SQLAgent\$SQL2014					
<						>

Figure 44

At this point the install is complete, and we can select the Close button on the installer.



# **POST INSTALLATION**

After the installation has finished, and before the instance is turned over to users, there are additional tasks to complete.

### Configuration

Review the configuration options listed in sys.configurations. Some of these options need to be adjusted depending upon your workload. Here is a partial list of things to review and set as needed:

- min and max memory settings
- cost threshold for parallelism
- max degree of parallelism
- optimize for ad-hoc workloads
- backup compression

#### Maintenance

Configure maintenance for this instance, either by using a Maintenance Plan, custom scripts, or a 3rd party product. The number one job for any DBA is to be able to recover data, so make certain backups are running and that you have a proper recovery plan in place.

Index maintenance is another item that needs to be configured, along with the updating of statistics.

#### Monitoring

Use Database Performance Analyzer (DPA) to capture details pertaining to performance monitoring and metrics.

## RESOURCES

For more information on installing and configuring SQL Server:

- Planning SQL Server installs: msdn.microsoft.com/en-us/library/bb500442(v=sql.120).aspx
- "Configuring SQL Server For Performance Like a Microsoft Certified Master", a free webinar with Tom LaRock and Tim Chapman
- 8 Tips for Faster SQL Server Performance infographic: solarwinds.com/resources/infographics/8-tips-faster-sql-server-performance.aspx
- · "Have No Fear! Virtualize Your Database Environment with Confidence", a free webinar with Janis Griffin and Robert Mandeville



## HOW CAN DATABASE PERFORMANCE ANALYZER HELP?

Database Performance Analyzer (DPA) from SolarWinds (NYSE: SWI) provides the fastest way to identify and resolve database performance issues. DPA is part of the SolarWinds family of powerful and affordable IT solutions that eliminate the complexity in IT management software. DPA's unique Multi-dimensional Database Performance Analysis enables you to quickly get to the root of database problems that impact application performance with continuous monitoring of SQL Server, Oracle, SAP ASE and DB2 databases on physical, Cloud-based and VMware servers.



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