ITT565
Chapter 3
Managing Files Services

Managing File Services

- Notes on Windows installation
- Managing the files services (Windows)

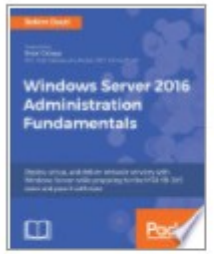
Notes on Windows installation

Understanding server installation (1)

Among a system administrator's day-to-day tasks, installing a new operating system quicken the pulse as few others can do. It is more than an installation, as it includes steps such as preparing for the installation, installing the OS, verifying the installation, and initial server configuration. Simply, everything starts from there! Although there might be rare situations when servers come with preloaded operating systems, in most cases it is a system administrator's responsibility to get the job done.

- **Installation of new operating system**
- **Verify the installation**
- **Initial server configuration**

Ref.



0 Reviews
Write review

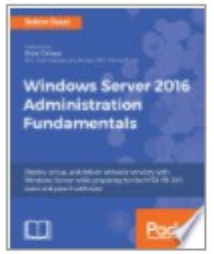
Windows Server 2016 Administration Fundamentals: Deploy, set up, and deliver ...

Understanding partition schemes (1.3.2)

The disk partition is a disk's logical division so that an operating system can manage data. In general, there are two partition schemes:

- **Master Boot Record** (**MBR**): This is an old partition scheme known today as a legacy boot option. It operates on a 512-byte disk sector with a maximum of four primary partitions, or three primary partitions and one extended partition. An extended partition can have up to 26 logical partitions. The MBR uses **logical block addressing** (**LBA**) to support disks up to 2 TB. The MBR, in the past and currently, has proven to be a very useful partition scheme for multiboot platforms.
- **GUID Partition Table** (**GPT**): This coexists with the MBR and is a new partition scheme that overcomes the limitations of the MBR. The **globally unique identifier** (**GUID**) in a GPT is a 128-bit number that Microsoft uses to identify resources. In a GPT, block sizes from 512 bytes and up are supported, where the most common default these days is 4K or 4,096 bytes, and the size of the partition entry is 128 bytes. The GPT is part of the **Unified Extensible Firmware Interface** (**UEFI**) standard that replaces the old **basic input/output system** (**BIOS**) to support modern hardware. By its nature, the GPT is fault tolerant and supports up to 18 EB disk storage, and up to 128 partitions on each disk.

Ref.



0 Reviews
Write review

Windows Server 2016 Administration Fundamentals: Deploy, set up, and deliver ...

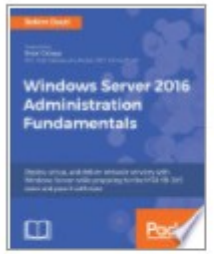
Understanding boot options

Depending on the manufacturer, different keys on a keyboard can be used to access the BIOS. The most frequently used keys are *Del* and *F2*. Upon entering the BIOS, there are several boot options available:

- **Installation media**: In most cases, there may be a DVD disk. Prior to accessing the BIOS, make sure to insert the bootable DVD disk into the DVD drive. Specify the DVD as a first boot option, and then save the changes and exit the BIOS.
- **USB flash drive:** The capacity of a USB flash drive must be a minimum of 8 GB. Plug in your *bootable USB flash drive* before you access the BIOS. Specify the USB flash drive as a first boot option, and then save the changes and exit the BIOS.
- **Network boot**: This occurs when installing Windows Server 2016 over the network. First things first, enable booting from the **local area network** (**LAN**) and then specify booting from the network as a first boot option. Save the changes and exit the BIOS.

Regardless of which option you are using, soon your computer will restart and attempt to boot from the specified boot option. *Figure 2.1* shows the boot from a DVD disk:

Ref.



0 Reviews
Write review

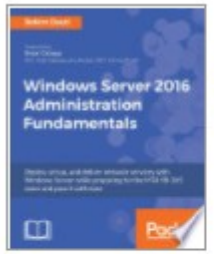
Windows Server 2016 Administration Fundamentals: Deploy, set up, and deliver ...

Desktop Experience versus Server Core versus Nano Server installation options (1.3.4)

Windows Server 2016 offers three installation options. However, the selected installation option affects the availability of roles and features, and therefore one should take the planning very seriously before choosing the desired installation option:

- **Desktop Experience**: This is an installation option that contains everything from Windows Server 2016, choosing **Desktop Experience** means that you have installed everything on Windows Server 2016. However, your hardware needs to exceed the minimum requirements specification in order to benefit from the full-featured **Graphical User Interface** (**GUI**).
- **Server Core**: This is an installation option recommended by Microsoft due to its minimal hardware resource consumption and higher security. The roles and features can be installed locally through Windows PowerShell, or remotely through Server Manager.
- **Nano Server**: This is a replacement for Server Core that takes up far fewer hardware resources, has fewer updates, and supports only 64-bit applications. It is administered remotely since it has no local login capabilities. In a few words, this installation option is best understood as *set it and forget it*.

Ref.



0 Reviews
Write review

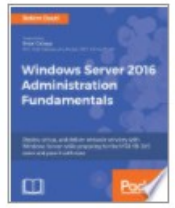
Windows Server 2016 Administration Fundamentals: Deploy, set up, and deliver ...

Understanding server installation options (1.3)

When it comes to installing Windows Server, there are many methods. So, depending on the environment in which you will deploy Windows Server 2016, you can choose from the following:

- Clean installation
- Installation over a network using WDS
- Unattended installation
- Upgrade
- Migration

Ref.



0 Reviews
Write review

Windows Server 2016 Administration Fundamentals: Deploy, set up, and deliver ...

Performing a clean installation (1.3.5)

Whether you are installing Windows Server 2016 on a new hard disk or on an existing disk, the *clean installation* overwrites the existing operating system on a hard disk. Be aware, that the clean option requires user interactivity, although that might be more limited than the upgrade option. Turn on your computer, depending on the selected boot option, and wait for the boot prompt on the screen. The message on the screen requires user confirmation to boot the system from a DVD, USB flash drive, or network boot.

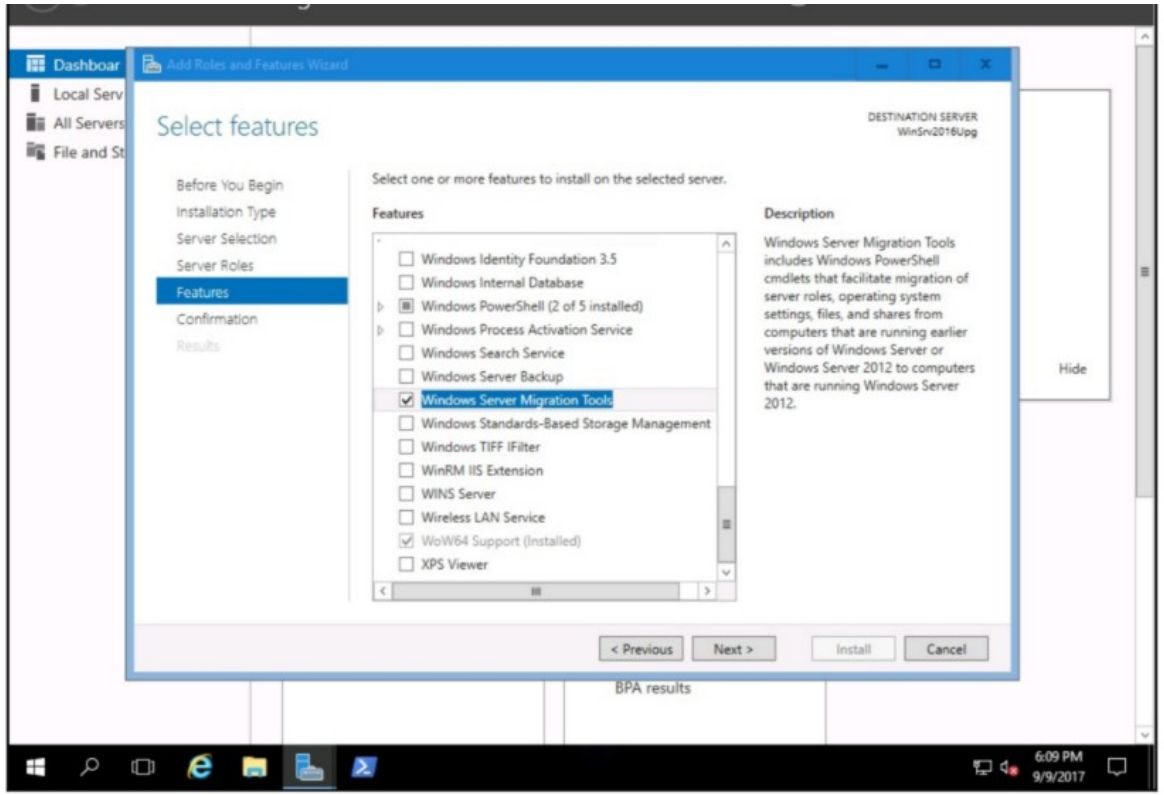
Windows Deployment Services(WDS) is a server role that gives administrators the ability to deploy Windows operating systems remotely.
WDS can be used for network-based installations to set up new computers so administrators do not have to directly **install** each operating system (OS).

Performing an unattended installation (1.3.6)

In contrast to a clean installation, an *unattended* installation involves little interactivity during the installation. In conjunction with WDS, it is known as an *automated installation* and is used to deploy a large number of servers in enterprises. Part of the unattended installation is the *answer file*. This is an XML file that stores the answers for an installation prompt. You can use *Notepad* to create an answer file from scratch, or you can download sample answer files from the internet. Additionally, Microsoft provides several tools for automating the installation. Apart from WDS, explained in a previous section, tools like the **Windows Assessment and Deployment Kit** (**Windows ADK**) and the **Microsoft Deployment Toolkit** (**MDT**) provide the unique platform for automating desktop and server deployments. Both tools are available for download.

Upgrade and migration overview (1.3.8)

Upgrade replaces your existing OS with a new one. This means that you retain your files and settings. This is often called an *in-place upgrade* because it happens in place on a machine with an OS already installed. It is recommended to make a backup of Windows state, files, and folders before running an upgrade. You can upgrade to Windows Server 2016 if your existing server runs Windows Server 2012 or Windows Server 2012 R2, but you cannot upgrade from the following:



File services (Windows)

- File Services role not only configures settings to optimize the system for file sharing, but also enables the administrator to choose which file server options as well as which tools for managing the file system will be installed.
- A file server is a **central server** in a computer network that provides file systems or at least parts of a file system to connected clients.
- File servers therefore offer users a central storage place for files on internal data media, which is accessible to all authorized clients.

Role description of File and Storage Services.

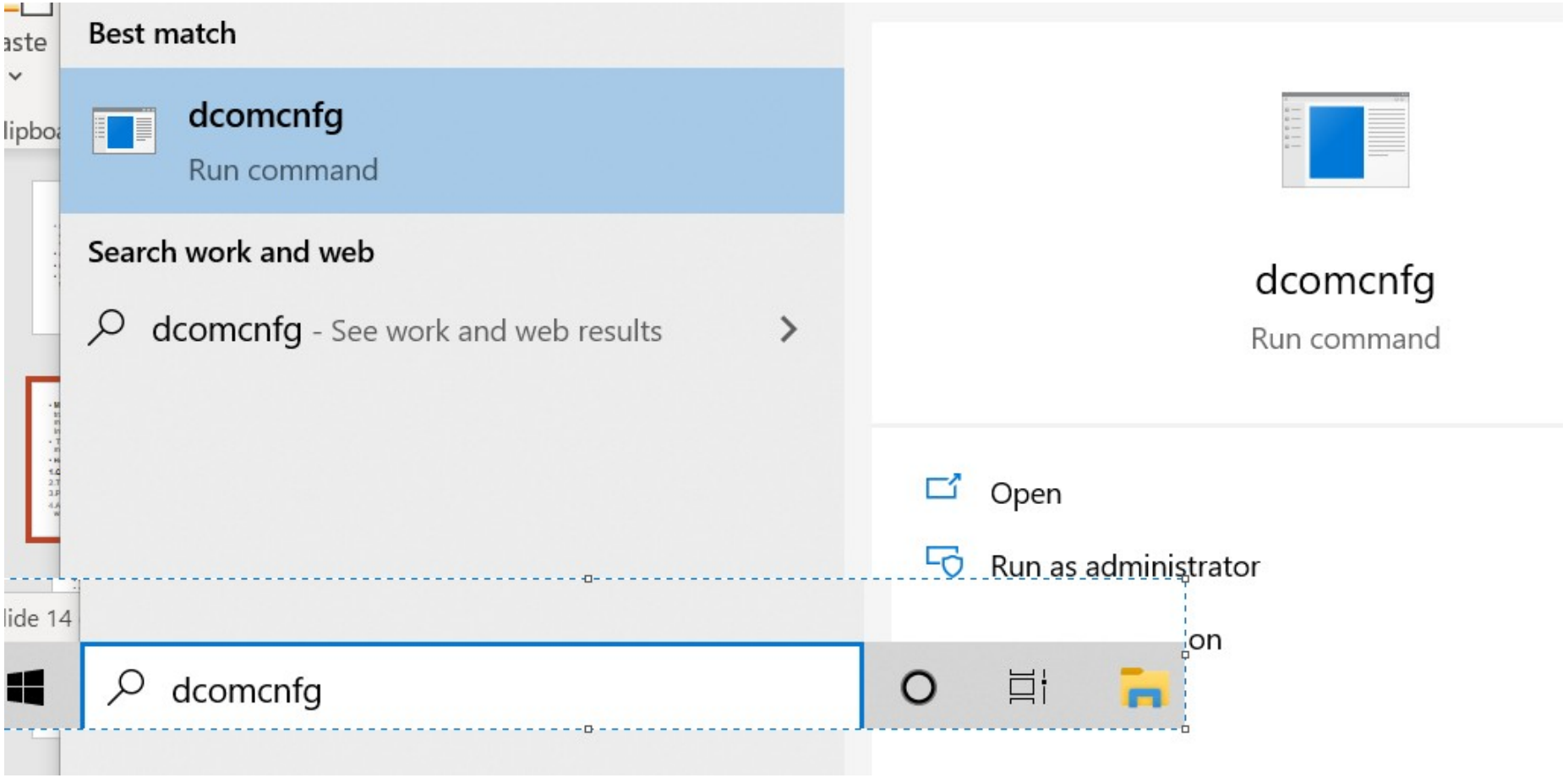
- **File and Storage Services includes technologies that help you set up and manage one or more file servers, which are servers that provide central locations on your network where you can store files and share them with users.**

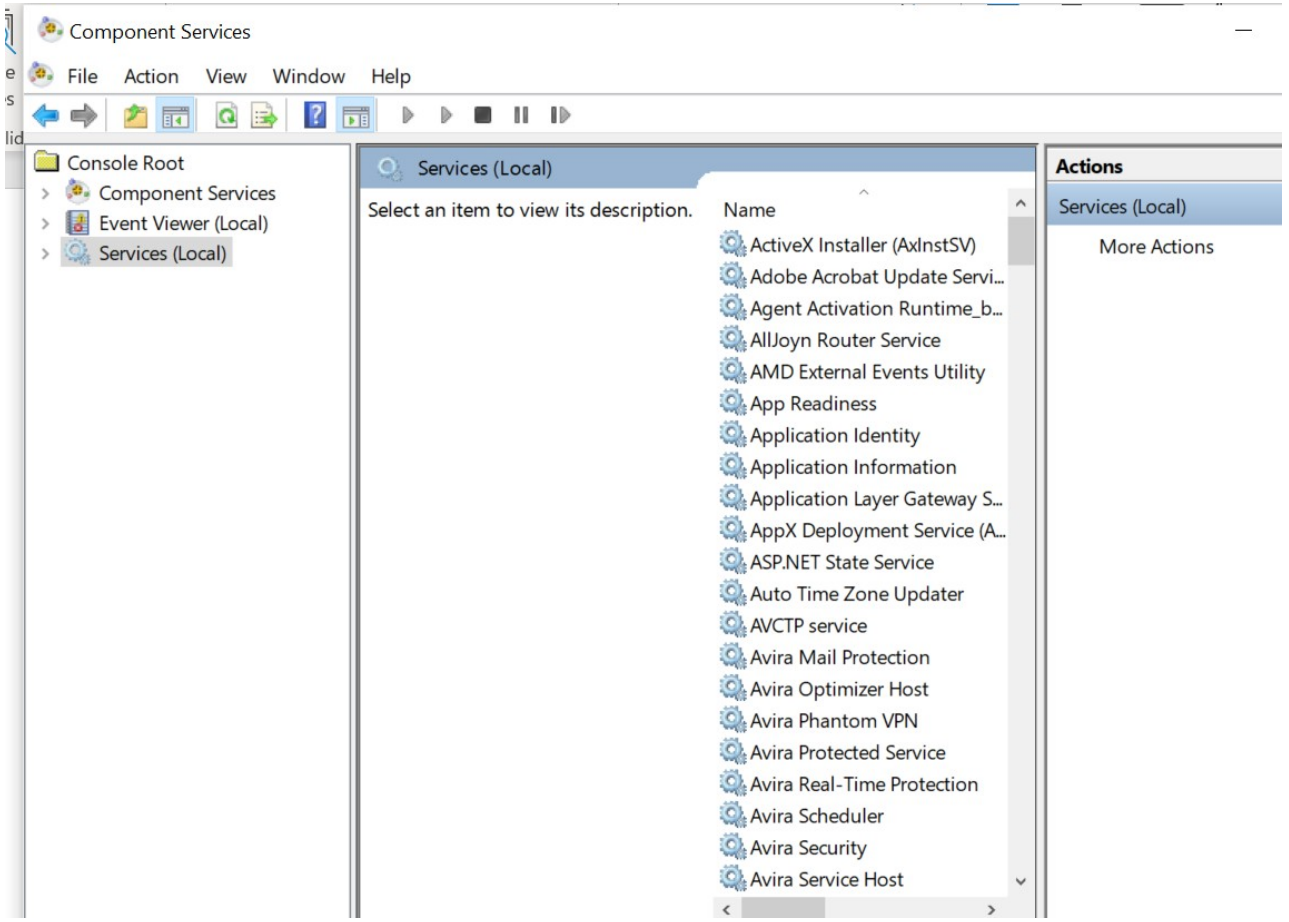
File Server

- **A file server provides a central location on your network where you can store files and share them with users across your network. When users require an important file that is intended to be accessed by many users, such as a project plan, they can access the file remotely on the file server instead of having to pass the file between their separate computers.**
- **If your network users need access to the same files and applications, or if centralized backup and file management are important to your organization, you should configure this computer as a file server by adding the File Services role.**

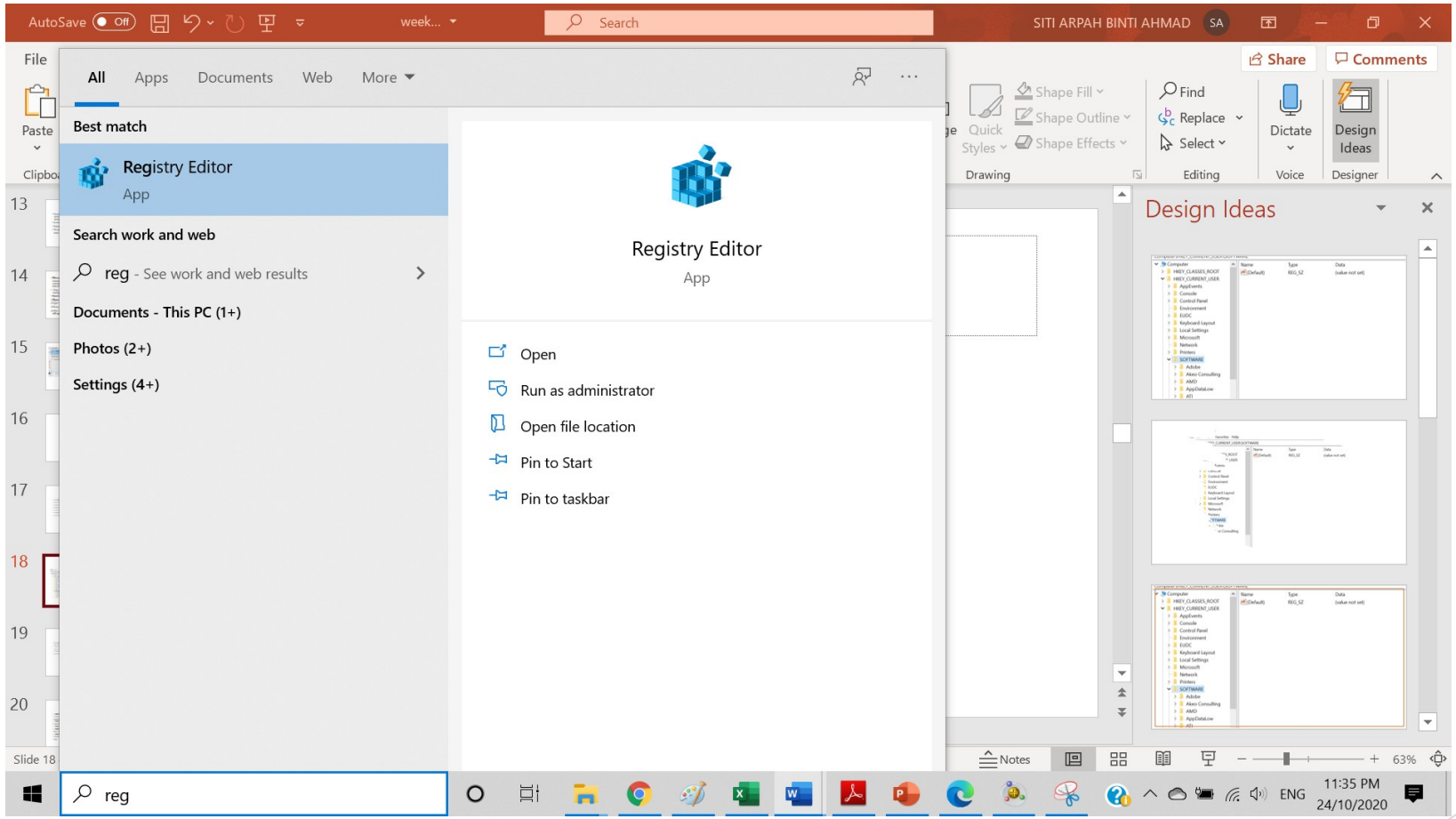
- **Service is a program, routine or process that perform a specific system function to support other programs or to provide a network service.**
- **A service run in the background without user interface.**
- **Example of services are web serving , event logging and file serving.**
- **To manage services, use service console located under Administrative tools**.

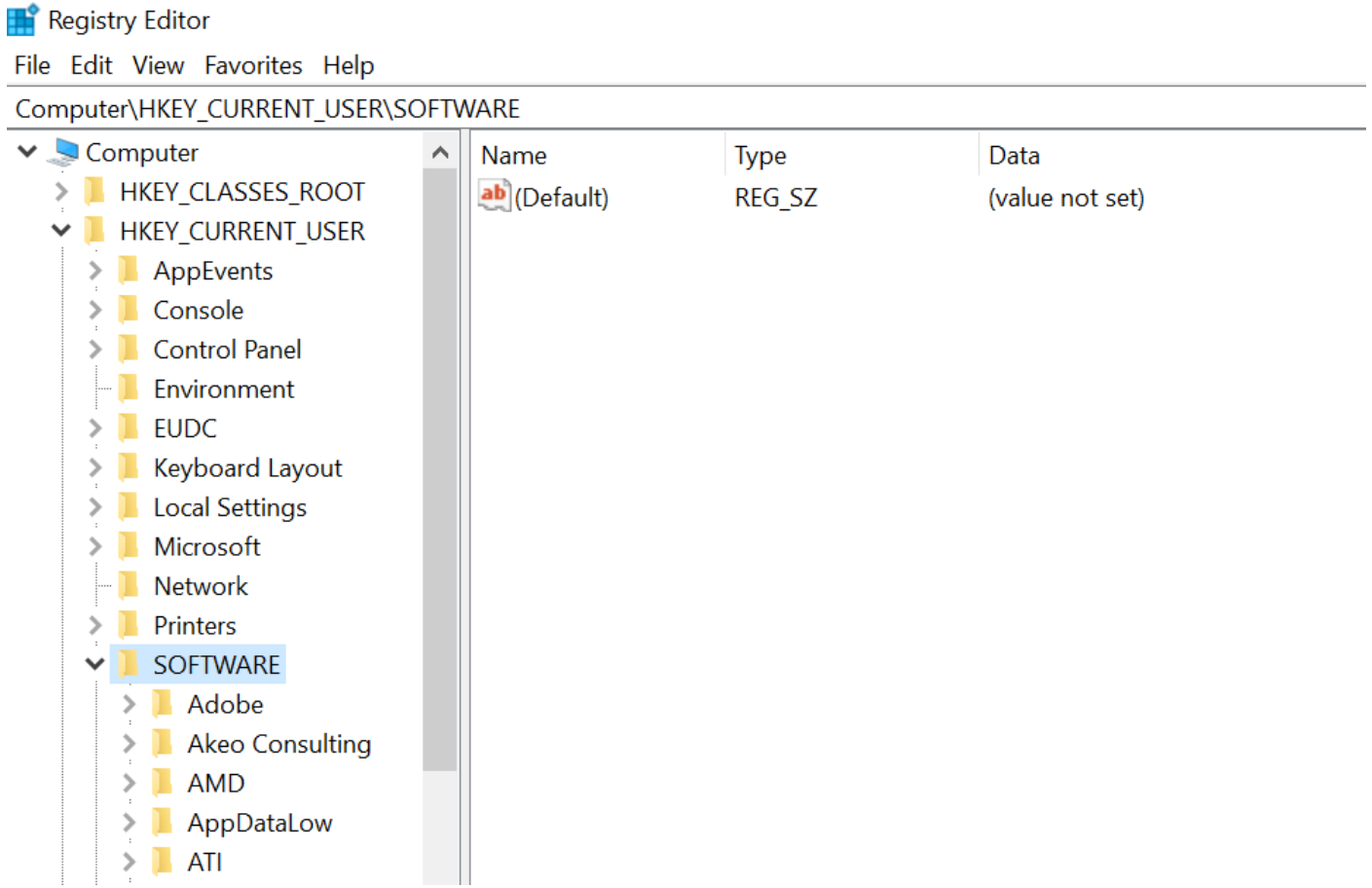
- Microsoft COM+, also known as **Component Services**, provides a transaction processing system for developing, deploying, and managing high performance, scalable, and robust enterprise, Internet, and intranet server applications.
- They also provide a run-time infrastructure for deploying and managing these applications.
- DCOM (Distributed Component Object Model) is a proprietary Microsoft software component that allows COM objects to communicate with each other over the network.
- How to open Component Services through Run Command in windows
  1. Open Run by pressing Windowskey+R.
  2. Type "dcomcnfg"
  3. Press Enter key or Click on Ok.
  4. After that you will see another window will open with Component Services.


Best match
dcomcnfg
Run command
Search work and web
dcomcnfg - See work and web results
dcomcnfg
Run command
Open
Run as administrator
dcomcnfg


Component Services
File Action View Window Help
Console Root
Component Services
Event Viewer (Local)
Services (Local)
Services (Local)
Select an item to view its description.
Name
ActiveX Installer (AxInstSV)
Adobe Acrobat Update Servi...
Agent Activation Runtime_b...
AllJoyn Router Service
AMD External Events Utility
App Readiness
Application Identity
Application Information
Application Layer Gateway S...
AppX Deployment Service (A...
ASP.NET State Service
Auto Time Zone Updater
AVCTP service
Avira Mail Protection
Avira Optimizer Host
Avira Phantom VPN
Avira Protected Service
Avira Real-Time Protection
Avira Scheduler
Avira Security
Avira Service Host
Actions
Services (Local)
More Actions

- The *registry* is a central, secure database in which Windows stores all hardware configuration information, software configuration information, and system security policies.
- Components that use the registry include the Windows kernel, device drivers, setup programs, hardware profiles, and user profiles.
- To view and manually change the registry, you use the Registry Editor (Regedit.exe), which can be executed from the command prompt, Start Search box, or Run box.


AutoSave
Search
SITI ARPAH BINTI AHMAD
File
Share
Comments
All
Apps
Documents
Web
More
Best match
Registry Editor
App
Search work and web
reg - See work and web results
Documents - This PC (1+)
Photos (2+)
Settings (4+)
Registry Editor
App
Open
Run as administrator
Open file location
Pin to Start
Pin to taskbar
Design Ideas
Shape Fill
Shape Outline
Shape Effects
Find
Replace
Select
Dictate
Design Ideas
Drawing
Editing
Voice
Designer
Notes
63%
Slide 18
reg
ENG
11:35 PM
24/10/2020


Registry Editor
File Edit View Favorites Help
Computer\HKEY_CURRENT_USER\SOFTWARE
Computer
HKEY_CLASSES_ROOT
HKEY_CURRENT_USER
AppEvents
Console
Control Panel
Environment
EUDC
Keyboard Layout
Local Settings
Microsoft
Network
Printers
SOFTWARE
Adobe
Akeo Consulting
AMD
AppDataLow
ATI
Name
Type
Data
(Default)
REG_SZ
(value not set)

- The Registry is split into several logical sections, often referred to as hives, which are generally named by their Windows API definitions.
- The hives begin with HKEY and are often abbreviated to a three- or four-letter short name starting with “HK.” For example, HKCU is HKEY_
- CURRENT_USER and HKLM is HKEY_LOCAL_MACHINE.
- Windows Server 2008 R2 has five Root Keys/HKEYs:

- Application Programming Interface (API)
  - is a software intermediary that allows two applications to talk to each other.
- Each time you use an app like Facebook, send an instant message, or check the weather on your phone, you're using an API.
- The Windows API (application programming interface) allows user-written programs to interact with Windows.

- **HKEY_CLASSES_ROOT: Stores information about registered applications, such as the file association that tells which default program opens a file with a certain extension.**
- **HKEY_CURRENT_USER: Stores settings that are specific to the currently logged-in user. When a user logs off, the HKEY_CURRENT_USER is saved to HKEY_USERS.**
- **HKEY_LOCAL_MACHINE: Stores settings that are specific to the local computer.**
- **HKEY_USERS: Contains subkeys corresponding to the HKEY_CURRENT_USER keys for each user profile actively loaded on the machine.**
- **HKEY_CURRENT_CONFIG: Contains information gathered at run time.**

Information stored in this key is not permanently stored on disk, but rather regenerated at the boot time.

- Registry keys are similar to folders, which can contain values or subkeys.
- The keys within the registry follow a syntax similar to a Windows folder or file path using backslashes to separate each level.
- example:
- HKEY_LOCAL_MACHINE\Software\Microsoft\Windows
- refers to the subkey “Windows” of the subkey “Microsoft” of the subkey “Software” of the HKEY_LOCAL_MACHINE key.

Table 2-2

Common Registry key types

Name	Datatype	Description
Binary value	REG_BINARY	Raw binary data. Most hardware component information is stored as binary data and is displayed in Registry Editor in hexadecimal format.
DWORD value	REG_DWORD	Data represented by a number that is 4 bytes long (a 32-bit integer). Many parameters for device drivers and services are this type and are displayed in Registry Editor in binary, hexadecimal, or decimal format.
Expandable string value	REG_EXPAND_SZ	A variable-length data string. This datatype includes variables that are resolved when a program or service uses the data.
Multi-string value	REG_MULTI_SZ	A multiple string. Values that contain lists or multiple values in a form that people can read are generally this type. Entries are separated by spaces, commas, or other marks.
String value	REG_SZ	A fixed-length text string.
QWORD value	REG_QWORD	Data represented by a number that is a 64-bit integer. This data is displayed in Registry Editor as a binary value, and it was introduced in Windows 2000.

- Reg files (also known as Registration entries) are text files used for storing portions of the registry.
- They have a.reg filename extension.
  - If you double-click a reg file, it will add the registry entries into the registry.
  - You can export any registry subkey by right-clicking the subkey and choosing Export.
  - You can back up the entire registry to a reg file by right-clicking
- Computer at the top of Regedit and selecting export, or you can back up the system state with Windows Backup.

Authentication

- In computing, authentication is the process of verifying the identity of a person or device.
- A common example is entering a username and password when you log in to a website.
- a username/password combination is a common way to authenticate your identity, many other types of authentication exist.

- An authentication server provides a network service that applications use to authenticate the credentials, usually account names and passwords, of their users.
- When a client submits a valid set of credentials, it receives a cryptographic ticket that it can subsequently use to access various services.

Windows Server authentication

- Windows Authentication is used to verify that the information comes from a trusted source, whether from a person or computer object, such as another computer.

What is file service

- Network File Service (NFS) A set of protocols that run over an Ethernet network and offer support for file transfer and access, and for paging.

- In computer operating systems, paging is a memory management scheme by which a computer stores and retrieves data from secondary storage for use in main memory.
- In this scheme, the operating system retrieves data from secondary storage in same-size blocks called pages.
- A paging file is a hidden, optional system storage file on a hard disk. Only one is installed on each hard disk, although more can be added.
- The paging file can support system crashes and expand the amount of system-committed memory, or virtual memory, that a system can back

File Server Resource Manager

- File Server Resource Manager (FSRM) is a role service in Windows Server that enables you to manage and classify data stored on file servers.
- You can use File Server Resource Manager to:

  1- automatically classify files,

  2- perform tasks based on these classifications

  3- set quotas on folders,

  4-create reports monitoring storage usage.

Ref:
https://docs.microsoft.com/en-us/windows-server/storage/fsrm/fsrm-overview

File Server Resource Manager Features

- File Server Resource Manager includes the following features:
  1. Quota management
  2. File Classification Infrastructure
  3. File Management Tasks
  4. File screening management
  5. Storage reports

The features included with File Server Resource Manager can be configured and managed by using the File Server Resource Manager app or by using Windows PowerShell.

- **PowerShell is a task automation and configuration management framework from Microsoft, consisting of a command-line shell and the associated scripting language.**
- **https://www.tutorialspoint.com/powershell/powershell_environment.htm**

- **File Server Resource Manager includes the following features:**

- **Quota management allows you to limit the space that is allowed for a volume or folder, and they can be automatically applied to new folders that are created on a volume. You can also define quota templates that can be applied to new volumes or folders.**
- **File Classification Infrastructure provides insight into your data by automating classification processes so that you can manage your data more effectively. You can classify files and apply policies based on this classification. Example policies include dynamic access control for restricting access to files, file encryption, and file expiration. Files can be classified automatically by using file classification rules or manually by modifying the properties of a selected file or folder.**
- **File Management Tasks enables you to apply a conditional policy or action to files based on their classification. The conditions of a file management task include the file location, the classification properties, the date the file was created, the last modified date of the file, or the last time the file was accessed. The actions that a file management task can take include the ability to expire files, encrypt files, or run a custom command.**
- **File screening management helps you control the types of files that user can store on a file server. You can limit the extension that can be stored on your shared files. For example, you can create a file screen that does not allow files with an MP3 extension to be stored in personal shared folders on a file server.**
- **Storage reports help you identify trends in disk usage and how your data is classified. You can also monitor a selected group of users for attempts to save unauthorized files.**

- **The features included with File Server Resource Manager can be configured and managed by using the File Server Resource Manager app or by using Windows PowerShell.**

Practical applications

- Some practical applications for File Server Resource Manager include:
- Use File Classification Infrastructure with the Dynamic Access Control scenario to create a policy that grants access to files and folders based on the way files are classified on the file server.
- Create a file classification rule that tags any file that contains at least 10 social security numbers as having personally identifiable information.
- Expire any file that has not been modified in the last 10 years.
- Create a 200 megabyte quota for each user's home directory and notify them when they are using 180 megabytes.
- Do not allow any music files to be stored in personal shared folders.
- Schedule a report that runs every Sunday night at midnight that generates a list of the most recently accessed files from the previous two days.
- This can help you determine the weekend storage activity and plan your server downtime accordingly.

The End

TASBIH KIFARAH

Ucapan doa pada akhir majlis:

سُبْحَانَكَ اللَّهُمَّ وَبِحَمْدِكَ

اَشْهَدُ اَنْ لاَ اِلَهَ اِلاَّ اَنْتَ

اَسْتَغْفِرُكَ وَاَتُوْبُ اِلَيْكَ

Maha Suci Engkau, ya Allah, dan dengan memuji Mu,
aku bersaksi bahawa tiada Tuhan yang berhak disembah melainkan Engkau,
aku meminta ampun dan bertaubat kepada Mu