**Assignment 5: Networking, Shares and Device Management**

Folder structure and security, windows shares, effective permissions, printing and Performance monitoring and tuning.

**Required Resources**

* Windows 10 workstation created in Assignment 1.

**Additional Information**

Professional Documentation - All documentation must be done in a **professional style**. It must include:

* Title page
* Updateable Table of Contents
* Document introduction
* Section introductions and summary (description)
* Graphics or screenshots must include introduction and descriptions
* Document summary
* ALL sources and graphics used MUST be properly cited (APA) or credited.
* **NO** embedded, zipped or compressed files. **1 Professional Document ONLY.**

\*\* All scripts must be converted to text before including them in your documentation. \*\*

*NB: Citations – Remember that citations MUST be provided for any code, script, test or image copied from another source or used as a resource. Not attributing appropriately (Plagiarism) or using illegal or unlicensed copies (copy write breach) are serious academic offenses. If you have any doubt as to when or how to cite, consult with your instructor and the resources provided by the college.*

<http://www.nscc.ca/docs/about-nscc/policies-procedures/policy-studentcodeofconduct.pdf>

**Evaluation:**

This assignment is worth a total of **60 Marks** as per the Rubric on Brightspace (marks will be deducted for deviating from Requirements). You may be asked to demonstrate some of your assignment to show your comprehension of the material.

**Marking and Assignment Notes:**

* **In Class** **marking** **(Task 1 part 1, Task 2 part 1, & Task 3)** MUST be completed on the due date assigned during the scheduled class.
* **Documentation (Task 1 part 2, Task 2 part 2)** must be submitted to Brightspace by 5pm on the due date assigned in Brightspace
* **Automatic mark of 0 - Assignment not submitted or work not original.**
* **Rubric** can be found on Brightspace at the bottom right of the assignment page under ‘Assessment’ or via Assessments 🡪 Rubrics

**Task 1 – Design and Implement Shared Folders**

Modify the Company Inc. folder structure we created in Assignment 3 to create a shared folder structure with your Management, Sales and Marketing groups. Evaluate the new Shared versus NTFS permissions assignments to determine Effective Rights for each of your groups. You will use the Share Folders snap-in from your Custom Console1 MMC to create and view the shares and permissions assigned.

\*\*Before proceeding with the task, it will greatly help in your ability to calculate the permissions if you ensure your folder permissions are configured as requested in assignment 3\*\*

**Part 1 (In-Class Marking)**

Using **Advanced Sharing** set your **Share** permissions for each of your departmental folder as required below:

* CompanyInc\Management folder.
  + Set Share Name to Management$
  + Management Group - Share with **Full Control** permissions
  + Marketing Group - Share with **Read** permissions
  + Sales Group - Share with **Read** permissions
  + Remove ‘Everyone’ from the Share Permissions
* CompanyInc\Marketing folder
  + Set Share Name to Marketing$
  + Management Group - Share with **Full Control** permissions
  + Marketing Group - Share with **Change** permissions
  + Sales Group - Share with **Read** permissions
  + Remove ‘Everyone’ from the Share Permissions
* CompanyInc\Sales folder
  + Set Share Name to Sales$
  + Management Group - Share with **Full Control** permissions
  + Marketing Group - Share with **Read** permissions
  + Sales Group - Share with **Change** permissions
  + Remove ‘Everyone’ from the Share Permissions
* Add the ‘**Shared Folders**’ snap-in for the Local Computer to your ‘Custom Console’. Open the ‘Custom Console’, open the ‘Shared Folders’ snap-in, Select the **View All** option for your snap-in.
* In an elevated PowerShell console, use a single line of command to create a report called ‘PowerShellNTFSReport.txt’ that shows the **NTFS** permissions for **ALL** your folders in CompanyInc (Hint: look for a switch that ‘recurses’ the command through all the folders). Save the report to your C:\Scripts folder.
* Using a single line command, create a report called ‘PowerShellShareReport.txt’ that shows the Share permissions for the “Management$”, “Sales$” and “Marketing$” shares. Save the report to your C:\Scripts folder.
* Create a professional style document (details on page 1), add a copy of your new PowerShell reports into your documentation.

**Part 2 (submit on Brightspace)**

Considering both **NTFS and Share** permissions, copy or create and complete the following summary table and add it to your documentation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Folder** | **User or Group** | **NTFS Permissions** | **Share Permissions** | **Effective Permissions** |
| Management Folder | Management Group | Modify | Full Control |  |
| Sales Group | Read | Read |  |
| Marketing Group | Read+Execute | Read |  |
|  |  |  |  |  |
| Marketing Folder | Management Group | Read+Write | Full Control |  |
| Sales Group | Read+Write | Change |  |
| Marketing Group | Modify | Read |  |
|  |  |  |  |  |
| Sales Folder | Management Group | Read+Write | Full Control |  |
| Sales Group | Modify | Read |  |
| Marketing Group | Read+Write | Change |  |
|  |  |  |  |  |
| Ad Campaign Folder | Management Group | Read+Write | Full Control |  |
| Sales Group | Read | Change |  |
| Marketing Group | Modify | Read |  |
|  |  |  |  |  |
| Collateral Folder | Management Group | Read+Write | Full Control |  |
| Sales Group | Read | Change |  |
| Marketing Group | Modify | Read |  |
|  |  |  |  |  |
| Quarterly Folder | Management Group | Read+Write | Full Control |  |
| Sales Group | Modify | Read |  |
| Marketing Group | Read+Write | Change |  |
|  |  |  |  |  |

**Task 2 – Network Printing and Printing Components**

**Part 1 (In-Class Marking)**

The Windows 10 Professional operating system is composed of several modular pieces working together to provide power and flexibility, it has numerous runtime environments which support applications built for various Windows platforms, in addition, ensuring compatible operation of multiple applications on a single machine.

*Device drivers* are programs that provide user applications access to hardware devices, and *Services* are executables that perform specific functions, usually in the background (i.e. without user intervention). This task serves to assist in your understanding of how these components interact, and their role in the system architecture is a key component to your understanding of operating systems.

Complete the following steps to set up a new printer on your workstation.

* Create a folder on the root of C: called “Printer Drivers”.
* Get a copy of HP Universal printer driver package (Assignment 5 Printer Driver) from your Course Resources folder and place in your Printer Driver folder.
* Un-compress the ‘Assignment 5 Printer Driver’ zip file in the Printer Drivers folder.
* Run the executable file which will prompt for another un-compress/extraction – extract into your Printer Drivers folder.
* Once the executable extracts the required files, it will start you into an install wizard. EXIT the wizard.

Now we will setup a new printer.

* Open your MMC console and add the ‘Print Management’ snap-in
* Select ‘Add the Local Server’ then ‘Finish’
* Navigate to your Print Servers and your Local Print Server (Hostname).
* Right click on the ‘Drivers’ and select ‘Add Driver’
* Click ‘Next’
* Select ‘x64’ then click ‘Next’
* Select ‘Have Disk’ then browse to your C:\PrinterDriver folder and select the hpcu230u driver, then ‘Open’
* Confirm the driver is now listed in the ‘Drivers’ window
* We will need to add a **port** for our printer to connect to
  + Open your Ports and add a new “Standard TCP/IP Port”
  + Give your new port the IP “192.168.208.99”
  + Leave the port name the same as the IP
  + Select the standard “Generic Network Card” as your Device Type
* Now it’s time to add our new printer
  + Select Printers and “Add a printer…”
  + Use the existing port you just created
  + Use the existing driver we installed earlier
  + Name your Printer OSYS1200\_Printer1
  + Do **NOT** share your printer

**Part 2 (submit on Brightspace)**

Answer the following questions about printing **in your words** (Do NOT copy and paste) and add to your documentation. **Failure to answer in your own words may result in a mark of 0 for this section.**

1. What is a Print Spooler and how does it work?
2. Explain “how a document page gets from your computer to the printer on the other side of the room?”

**Task 3 (In-Class Marking) – Performance Tuning**

Requirements: Create a performance baseline of your virtual machine and then adjust specified system parameters and observe the performance changes.

* Add the Performance Monitor snap-in to your Custom Console1
* Check the status of our computer by running a System Diagnostics test
  + Expand Data Collector Sets > System > Right-click System Diagnostics > Start.
  + When complete (green arrow disappears from System Diagnostics icon), go to **Latest Report** in the right Actions.
  + Confirm your workstation has passed all Basic Systems Checks, if you have failed any Basic System Check do not proceed, you must correct the failure first.

Let’s create a new Data Collector Set to monitor our system performance.

* Data Collector Sets 🡪 User Defined 🡪 Right Click 🡪 New 🡪 Data Collector Set
  + Set a name and ‘Create Manually’
  + Select ‘Create data logs’ and ‘Performance Counter’
  + Memory: Available KBytes,
  + Memory: Page Faults/sec.
  + Paging File: % Usage and
  + Paging File: % Usage Peak
  + Physical Disk: % Disk Read Time
  + Accept default settings for everything else
  + Save to default location
* Run the Data Collector Set for at least 1 minute
* Right click on the graph 🡪 Save Data As 🡪 Text File (Comma delimited)\*.csv
* Demonstrate the updated graph using your saved CSV document during in class marking
* Include a copy of your Performance Monitor CSV document in your Professional Documentation

It is important to keep an up to date record of all changes and modifications made to your server and have a reliable copy available as backup.

* Take a final snapshot of your server in the **OFF** state
* Create a “**Gold**” copy of your server on your portable drive
* Complete the Install section of your Change Management Log to reflect all changes performed in this assignment.
* Update your Change Management Log as required throughout this assignment