Creating an Automated Maintenance Routine

OBJECTIVES:

1. **Describe the importance of routine maintenance on desktop computers.**

2. **Configure a scheduled maintenance task to perform an automated disk cleanup.**

3. **Configure a scheduled maintenance task to a CHKDSK routine.**

4. **Configure a scheduled maintenance task to perform a hard drive defragmentation.**

Description:

Computers running the Windows XP operating system are fairly stable but still need routine "tune ups" to keep them running efficiently. Over time, data on hard disks get fragmented and the hard drive fills up with various temporary files. These temporary files are not needed, but when they accumulate they tend to make the system slow down as the operating system has to search through unneeded data to find what it is looking for. It is also important to perform periodic checks of hard disk media to ensure that cross-linked file entries are corrected, sectors that are going bad are marked, and data moved to safe locations.

Performing tune ups on only a few computers is not a difficult or time consuming task. In a large corporate environment, however, performing preventive maintenance tasks involves visiting and "touching" each and every computer. This can add up to having to visit hundreds of computers. In a large corporate environment with many remote users, such as those with sales people and other "field" users, getting to all of them is difficult because they are not always at the home office or even at a location with IT support.

Many preventive maintenance tasks for the Windows XP operating systems can be automated by using the **Scheduled Tasks** feature built into Windows. The **Scheduled Tasks** feature allows the IT technician to schedule several tasks to run automatically, without a need to visit every machine, and without the requirement for the end user to know how to run complicated tasks. **These instructions assume an intermediate to advanced knowledge of how to use the Windows XP Control Panel, Task Scheduler, write batch files, and perform system maintenance.**

What You Will Need:

1. Computer with Windows XP Home or Professional installed.
2. A local user account on the computer that has administrative credentials.

   Note: A separate maintenance account with a complex name and strong password is highly recommended.

Creating a maintenance user account:

Many of the maintenance tasks that will be configured will need to be run by a user with administrative credentials. Many times, corporate security policies prevent ordinary end-users from having administrative rights to their machines. It is possible to use the built in Windows administrator account for this purpose, but it is often considered a good practice to have another named account that can be used so that the account's log-in and other activities can be tracked. Although this user will be created with a password that does not expire, a sufficiently complex

username and password should be used to prevent attackers from guessing the account name or password.

Use the following procedures to create the maintenance account that will be used:

1. Right click on the **My Computer** icon on the desktop and select **Manage**.
2. Expand **Local Users and Groups** located under the **System Tools** tree.
3. Click on **Users** to highlight it.
4. Click on the **Action** menu item and select **New User…** from the menu list.
5. Create a user with the following attributes:
    a. User name: $ysmaint$
    b. Full name: System Maintenance
    c. Description: System Maintenance Account
    d. Password: d@rthV@d3r$$$
    e. Confirm: d@rthV@d3r$$$

    Note: This username and password are just an example - Choose any other username and password you wish (Remember – these instructions are in the public domain – if you use the same ones, then everyone will know your login information). For best security make sure they use upper and lower case letters, numbers, and special characters. The password example above is 13 characters – it would take a hacker literally billions of years to crack a password like this.

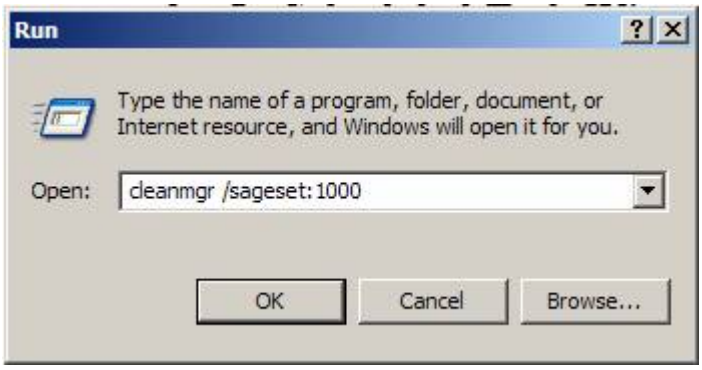
    f. User must change password at next login: Unchecked
    g. User cannot change password: Checked
    h. Password never expires: Checked
    i. Account is disabled: Unchecked
6. Click on **Groups** under **Local Users and Groups** to highlight it.
7. Double-click the **Administrators** group.
8. Click the Add button.
9. In the **Enter the object names** box, type in **$ysmaint$** and click the **Check Names** button.

10. After the computername\$ysmaint$ user populates the box, click the **OK** button and ensure that the $ysmaint$ user is now part of the Administrators group.
11. Click **OK**, then closeout of the **Computer Management** console.

Creating the automated disk cleanup task:

Performing disk cleanup is normally performed through the graphical user interface (GUI) tool located in disk properties, and typically requires user interaction to run. The ability to run disk cleanup as a scheduled task relies on running it from the command line instead of the GUI, using a command called **cleanmgr**, and a pair of switches called **sageset** and **sagerun**. The **sageset** command will allow the IT technician to set up the most common parameters for disk cleanup by creating registry entries. Once these registry entries are in place, using **cleanmgr** with the **sagerun** switch will fetch those parameters and allow an automated recurring task to be created. Note that in the following procedure, when the **sageset** and **sagerun** parameters are used, they are assigned an identifying number, which can be any integer between 1 and 65535. The number used has no particular significance in itself, but it is important to note that the number used for sageset must match the number used in the sagerun command in order to run the correct disk cleanup routine.

1. On your computer, ensure you that have created a local user with administrative credentials to run this maintenance task.
2. Click **Start → Run** and enter **cleanmgr /sageset:1000** in the run box then click **OK**.



3. A **Disk Cleanup Settings** window will appear.
4. Select the appropriate items to be cleaned:
    a. Check Temp Setup files
    b. Uncheck Download Program Files

c. Check Temporary Internet Files
d. Check Old Chkdsk files
e. Check Recycle Bin
f. Check Temp Remote Desktop Files
g. Check Temporary Files.

Note: The above are examples, but choose any that you feel are appropriate.

5. Click **OK**
6. Create a disk cleanup scheduled task by navigating to the **Control Panel**, double-click on the **Scheduled Tasks** icon.
7. Double-click the **Add Scheduled Task** icon.
8. In **Scheduled Task Wizard** click **Next**.
9. Select **Disc Cleanup** in the Application list, click **Next**.
10. Change name to **DiskClean**.
11. Under **Perform this task**, click on **Daily**, click **Next**.
12. Set a start time that is during the class time for this lab class, perform this task **Every day**, then click **Next**.
13. Enter a username and password as follows (or as you created in a previous step above):
    a. Username: $ysmaint$
    b. Password: D@rthV@der$$$
14. Click **Next**
15. Place a checkmark in **Edit advanced properties for this task…** and click **Finish**.
16. Select the **Task** tab and edit the task as follows:
    a. Run: C**:\windows\system32\cleanmgr.exe /sagerun:1000**
    b. Start In: **c:\windows\system32**
17. Click on **Schedule** tab (schedule task runs at specified time) set to run weekly and select a time when the computer is likely to be turned on but not in use.
18. Click on **Settings** tab, Set Stop Task if it runs for more than 15 minutes, and also check Wake the Computer to run this task. Click OK, and re-enter the $ysmaint$ account password if prompted.

19. Bring up **Windows Task Manager,** monitor the **Applications** tab and take note of when the scheduled task runs.
20. Wait for the task to run, and then check the **Next Run Time**, **Last Run Time**, and **Status** columns in the **Scheduled Tasks** window to ensure that the task ran.

Creating the automated CHKDSK task:

Warning: Schedule this task only for hours when the computer is not being used to prevent unanticipated reboots or interruptions.

Performing CHKDSK requires exclusive access to the hard drive and file system in order to run. In a production environment, this would mean that users would be interrupted from their work in order for this task to run during their normal working hours. To avoid this problem, this procedure will create a task that will cause the CHKDSK routine to run during off-hours when a user is not at the computer. However, since this is a lab environment, you will want to configure this task so that it runs during the lab class so that it can be observed.

1. On your computer, ensure you that have created a local user with administrative credentials to run this maintenance task.
2. Create a folder under **c:\windows** named **maintenance**.
3. Create a batch file named: **chkdsk.bat** in **c:\windows\maintenance** with the following commands:

```
echo y|c:\windows\system32\chkdsk.exe c: /f /x /r
shutdown –r –t 00
```

Note: The first line starts with "echo y|" syntax. The "|" character is usually the one on the same key as the "\" – using the shift key. This character is used because the rest of that command requires a "Y" answer to complete. The "echo y|" pipes in a "Y" answer to complete the task. Remember: This is an automated task – there will be nobody there to answer "Y" when it runs!

Note: If you don't want to write the batch file yourself, you can download it from:

http://www.wflinn.com/computers/documents/chkdsk.bat

4. Create a **Scheduled Task** using the same procedure used previously to start the **Scheduled Task Wizard**.

5. When the wizard starts, instead of selecting a program from the list, click the **Browse** button and browse to **c:\windows\maintenance** and select **chkdsk.bat**.
6. Name the task **Checkdisk**.
7. Under **Perform this task**, click on **Monthly**, click **Next**.
8. Set a start time that occurs at a time when the computer is likely to be left on but not being used, perform this task **Monthly**, then click **Next**.
9. Enter a username and password as follows (or as you created in a previous step above):
    c. Username: $ysmaint$
    d. Password: D@rthV@der$$$
10. Click **Next**
11. Place a checkmark in **Open advanced properties for this task…** and click **Finish**.
12. Select the **Task** tab and verify the task settings as follows:
    a. Run: C:\windows\maintenance\chkdsk.bat
    b. Start In: C:\windows\maintenance
13. Check **Enabled** (scheduled task to run at specified time)
14. Click on the **Schedule** tab. Schedule the task to run monthly, at a time that will occur when your computer is left on but not being used.
15. Click on **Settings** tab, check **Stop Task if it runs for more than 2 hours**, and also check **Wake the Computer to run this task**. Click **OK**, and re-enter the $ysmaint$ account password if prompted.

Creating the automated disk defragmenter task:

Running the disk defragmenter routine typically requires a user with administrative credentials to run. The workaround for this is to schedule a maintenance task with credentials using the maintenance user created in a previous step. On your computer, ensure you that have created a local user with administrative credentials to run this maintenance task.

1. Using what you have learned in the previous sections about creating a scheduled task, create a scheduled task using the following parameters.
    - Browse to c:\windows\system32 and select defrag.exe.
    - Name the task **Defrag**

- Schedule it to run weekly at a time that will occur when your computer is likely to be left on, but not being used.
- Edit the run command line to read **c:\windows\system32\defrag.exe c: /f**
- Start in: c:\windows\system32

Final Testing:

It is desirable to force the tasks to run after creating them to make sure that they run properly. This is particularly important if you are building a disk image that will have these tasks already configured before installing on production computers.

1. Open **Task Scheduler** from **Control Panel.**
2. Run each task one at a time, by right clicking each task, and select run. The tasks should be executed in the order in which they were intended. Test them in the following order:
   a. Chkdsk
   b. Diskclean
   c. Defrag.

   Note: Even though you didn't create the tasks in this order, they will run in the correct order on your computer if you schedule them to run on days and times that will cause each task to run before the next required task. The proper order is as listed in a, b, and c above.
3. If any of these tasks fail, you must correct the task and ensure it works before moving on with the next test.