

6.2 BASICS and *batch*

```
17 string sInput;  
18 int iLength, iN;  
19 double dblTemp;  
20 bool again = true;  
21  
22 while (again) {  
23     iN = -1;  
24     again = false;  
25     getline(cin, sInput);  
26     system("cls");  
27     stringstream(sInput) >> dblTemp;  
28     iLength = sInput.length();  
29     if (iLength < 4) {  
30         again = true;  
31         continue;  
32     } else if (sInput[iLength - 3] != '.') {  
33         again = true;  
34         continue;  
35     } while (++iN < iLength) {  
36         if (isdigit(sInput[iN])) {  
37             continue;  
38         } else if (iN == (iLength - 3)) {  
39             continue;  
40         }  
41     }  
42 }
```

By Clement Chan

A man with short dark hair, wearing a red and black jacket, is focused on typing on a laptop. He has a name tag that says "Lorenzo Robinson" and "YADA YADA YADA". In the background, another person wearing a grey hoodie and a black cap is also working on a laptop. The scene is dimly lit with a warm, reddish-pink hue. A semi-transparent purple rectangle is overlaid on the image, containing the text "want good results? USE GOOD *scripts*".

want good results?
USE GOOD *scripts*



PROGRAMMING BASICS

An AP Computer Science A crash course



Programming is taking a common approach and refining it - its speed, its flexibility, its effectiveness - to produce a work of art.

-Clement Chan

Programming *Variables* and *Comments*

- ▶ Variables are things that can change
 - ▶ Marked in a special format, depending on language
- ▶ Comments are not executed
 - ▶ Usually designated by “#” or “//”
 - ▶ Used for documentation

```
$user = Jane
```

```
net user $user Password!123 /add #adds Jane
```

```
$user = Joe
```

```
net user $user Password!123 /add #adds Joe
```

- ▶ Statements can be **controlled** to execute conditionally or repeat

```
if (firewall off) {  
    turn on firewall  
}
```

```
for (user in userlist) {  
    set password  
}
```

```
while (points is not 100) {  
    gain points  
}
```



How would you make a users script? Use pseudocode.

Challenge yourself to think like a programmer!

Programming *User example*

```
// prior to, make a "myusers" and a "readmeusers" file
// this block of code configures users and their properties
for (user in myusers) {
    if (user not in readmeusers) {
        disable user
    } else {
        enable user
        set password
        set password expires
    }
}
```



You can program in different
fashions

Unique syntax

System.out.print("Hi");

print "Hi"

print("Hi")

printf("Hi");

echo Hi

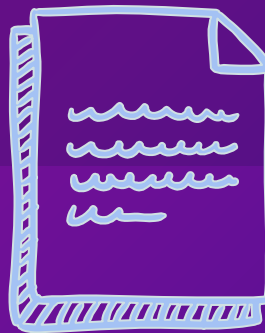
echo "Hi";

Write-Host Hi

Unique functionalities

Batch and Powershell can use direct commands

Java and Python are more general - need **libraries**




Import libraries for more functions to use


Search online for correct usage

python execute cmd

Web Images Videos News Maps Settings ▾

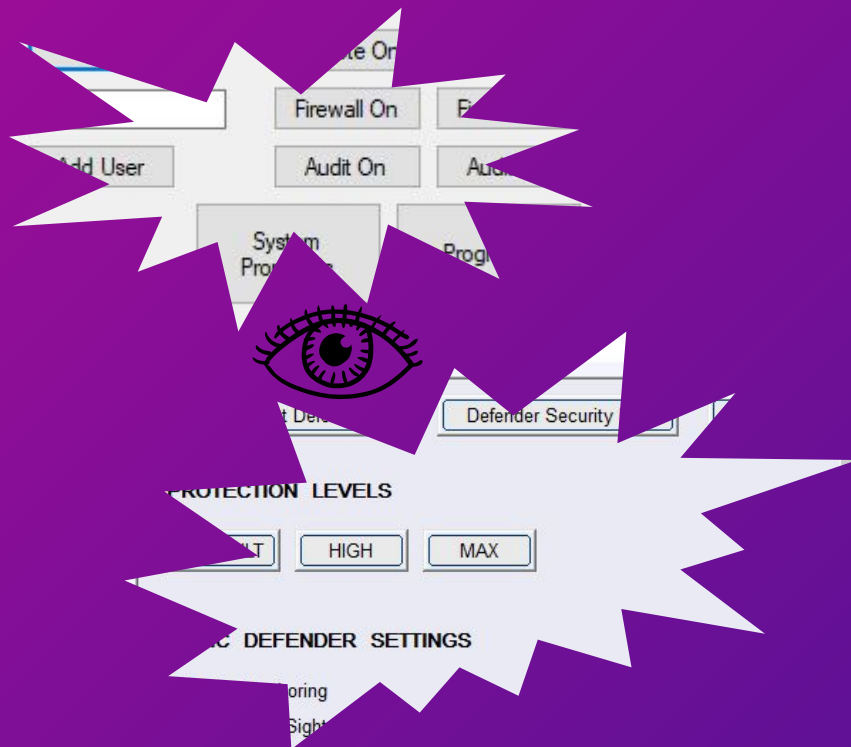
All Regions ▾ Safe Search: Moderate ▾ Any Time ▾

shell - Calling an external command in Python - Stack Overflow
 <https://stackoverflow.com/questions/89228/calling-an-external-command-in-python>
sh is a subprocess interface which lets you call programs as if they were functions. This is useful if you want to run a command multiple times. `sh.ls("-l")` # Run command normally
`ls_cmd = sh.Command("ls")` # Save command as a variable `ls_cmd()` # Run command as if it were a function
plumbum. plumbum is a library for "script-like" Python programs.

windows - How to execute a command prompt command from python...
 <https://stackoverflow.com/questions/5486725/how-to-execute-a-command-prompt-c...>
Why do you want to call `cmd.exe`? `cmd.exe` is a command line (shell). If you want to change directory, use `os.chdir("C:\\")`. Try not to call external commands if Python can provide it. In fact, most operating system commands are provide through the `os` module (and `sys`).

How To Execute Shell Command with Python - POFTUT

☞ A GUI IS *worth* A THOUSAND LINES



GUIs are difficult to make, but they are effective for quick access or conditional security practices

Batch Crash Course

Syntax in batch

Print a message

You can print variables or environment variables
variables - temporary
environment variables - global

echo Hello there!

echo %username%

```
C:\Users\Clement\Desktop>echo Hello there!  
Hello there!
```

```
C:\Users\Clement\Desktop>echo Clement  
Clement
```

```
C:\Users\Clement>echo %username%  
Clement
```

```
C:\Users\Clement\Desktop>pause  
Press any key to continue . . .
```

“set” is used to set variables

a space after the “=” means it will include a space
surround with ‘%’ to use a variable

```
set name=Clement  
echo %name%  
pause
```

```
C:\Users\Clement\Desktop>set name=Clement  
  
C:\Users\Clement\Desktop>echo Clement  
Clement  
  
C:\Users\Clement\Desktop>pause  
Press any key to continue . . .
```

Batch substituted the variable in before executing the statement

You can use “@echo off” to suppress command inputs

echo hi
@echo off
echo goodbye
pause

```
C:\Users\Clement\Desktop>echo hi
hi
goodbye
Press any key to continue . . .
```

Batch has the “GOTO” keyword to jump around

```
echo hi  
GOTO someMarker  
echo goodbye  
:someMarker  
pause
```

```
C:\Users\Clement\Desktop>echo hi  
hi  
  
C:\Users\Clement\Desktop>GOTO someMarker  
  
C:\Users\Clement\Desktop>pause  
Press any key to continue . . .
```

“goodbye” won’t be printed

The if statement uses () instead of the traditional {}
Supply a conditional - if it evaluates to true, the stuff inside runs

```
C:\Users\Clement>if %username% EQU Clement (echo hi)
hi

C:\Users\Clement>if %username% EQU clement (echo hi)

C:\Users\Clement>
```



Use these when comparing two things in batch

EQU

NEQ

LSS

LEQ

GTR

GEQ

Evaluate the following:

"1 EQU 3" is false

"2 LSS 3" is true

"3 LEQ 3" is true

SYNTAX:

for [parameter] %%parameter in (set) do command

parameters for the “for” command are a bit confusing

check out ss64.com/nt/for.html

“for /L” iterates
numbers

for /L %%parameter
in (start,step,end) do
command

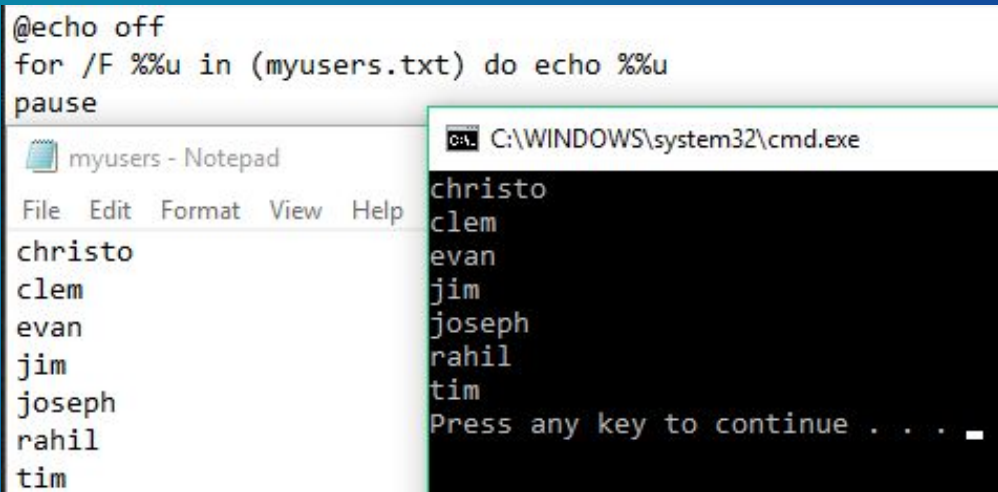
**for /L %%x in (1,2,10)
do echo %%x**

```
C:\Users\Clement\Desktop>for /L %x in (1 2 10) do echo %x  
  
C:\Users\Clement\Desktop>echo 1  
1  
  
C:\Users\Clement\Desktop>echo 3  
3  
  
C:\Users\Clement\Desktop>echo 5  
5  
  
C:\Users\Clement\Desktop>echo 7  
7  
  
C:\Users\Clement\Desktop>echo 9  
9  
  
C:\Users\Clement\Desktop>pause  
Press any key to continue . . .
```

"for /F" iterates in a list

for /F %%parameter in (filename) do command

for /F %%parameter in ('command') do command



The screenshot shows a Windows command prompt window titled "C:\WINDOWS\system32\cmd.exe" and a Notepad window titled "myusers - Notepad". The command prompt contains the following commands:

```
@echo off
for /F %%u in (myusers.txt) do echo %%u
pause
```

The Notepad window displays the contents of the file "myusers.txt", which lists the following names:

```
christo
clem
evan
jim
joseph
rahil
tim
```

The command prompt shows the output of the command, displaying the names listed in the file:

```
christo
clem
evan
jim
joseph
rahil
tim
Press any key to continue . . .
```



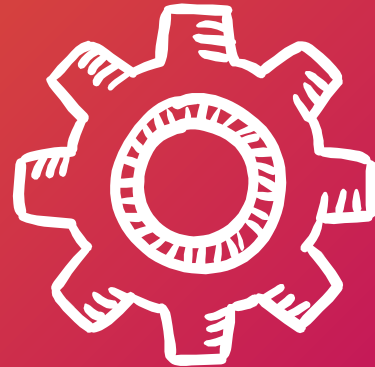

Plan out what you
want it to do

TEST, TEST, TEST

Write the code

Generic Scripting Example

Batching up a script





Planning - let's have our script:

- ▷ Auto open GUIs for you
- ▷ Set some settings



Batching up a Script

Coding - auto open GUIs

Opening GUIs can be done by simply supplying the command

```
appwiz.cpl
```

```
fsmgmt.msc
```

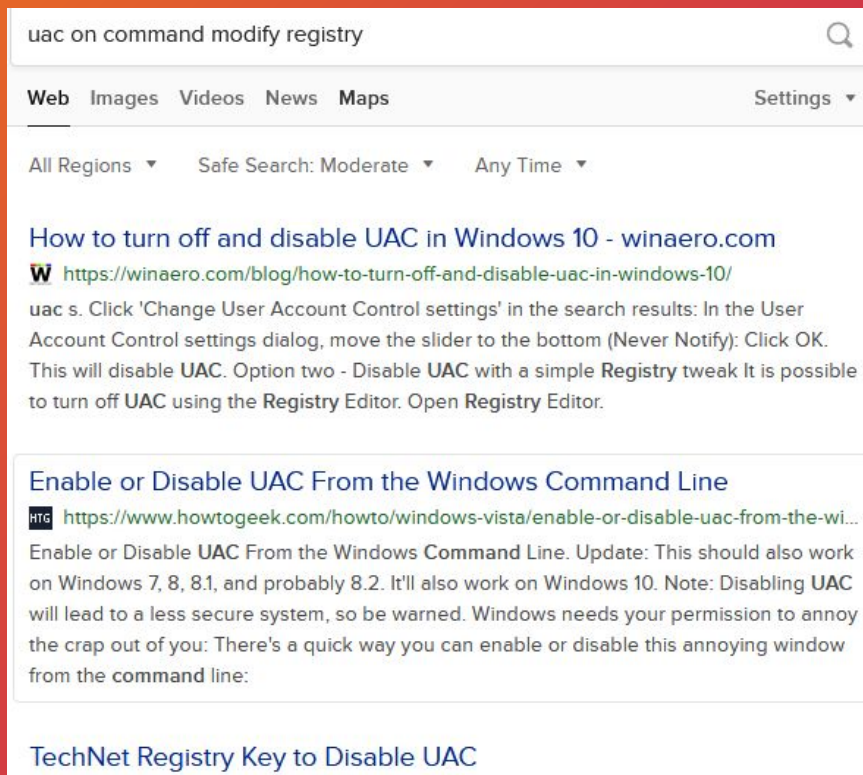
```
pause
```

This will open the uninstall wizard and shares GUIs for you,
then pause until you hit Enter

Coding - set some settings

Most settings can be set simply by modifying a registry key

Use the search engines to your advantage!



uac on command modify registry

Web Images Videos News Maps Settings

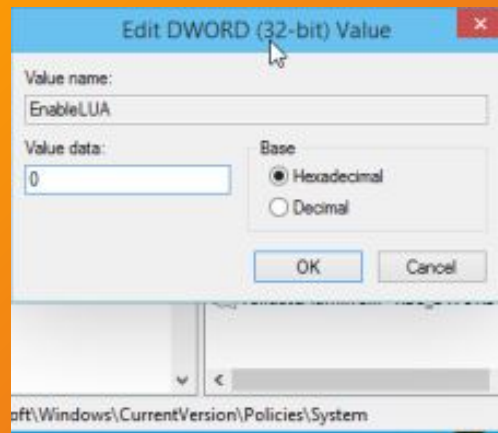
All Regions Safe Search: Moderate Any Time

How to turn off and disable UAC in Windows 10 - winaero.com
W <https://winaero.com/blog/how-to-turn-off-and-disable-uac-in-windows-10/>
uac s. Click 'Change User Account Control settings' in the search results: In the User Account Control settings dialog, move the slider to the bottom (Never Notify): Click OK. This will disable **UAC**. Option two - Disable **UAC** with a simple Registry tweak It is possible to turn off **UAC** using the Registry Editor. Open Registry Editor.

Enable or Disable UAC From the Windows Command Line
HTG <https://www.howtogeek.com/howto/windows-vista/enable-or-disable-uac-from-the-wi...>
Enable or Disable **UAC** From the Windows Command Line. Update: This should also work on Windows 7, 8, 8.1, and probably 8.2. It'll also work on Windows 10. Note: Disabling **UAC** will lead to a less secure system, so be warned. Windows needs your permission to annoy the crap out of you: There's a quick way you can enable or disable this annoying window from the command line:

TechNet Registry Key to Disable UAC

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System



Enable UAC

```
C:\Windows\System32\cmd.exe /k %windir%\System32\reg.exe ADD  
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System /v  
EnableLUA /t REG_DWORD /d 1 /f
```

After you enable or disable UAC, you will have to reboot your computer for the changes to take effect.

Coding - set some settings

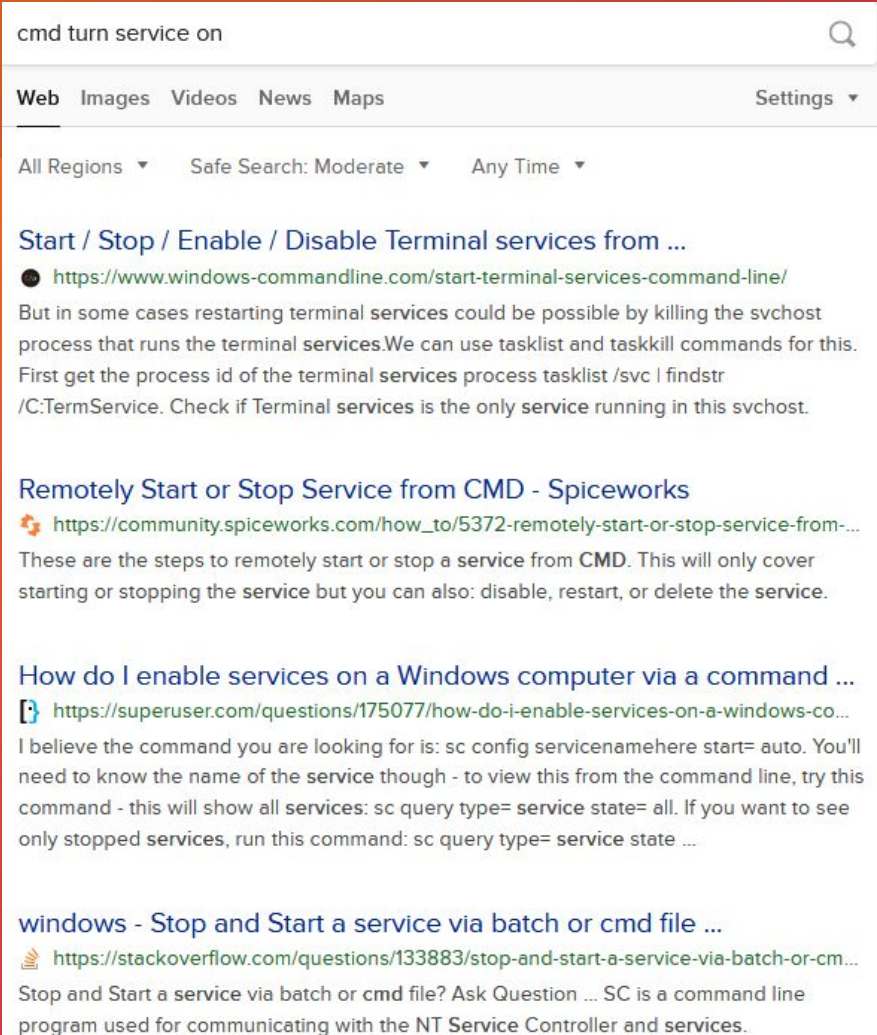
```
reg add HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System  
/v EnableLUA /t REG_DWORD /d 1 /f  
reg add HKLM\SOFTWARE\Microsoft\...  
reg add HKCU\SYSTEM\...  
...
```

You can line up as many registry tweaks as you wish
This makes for effective scripting

Batching up a Script

Coding - set some settings

Some settings can also be set with a simple command



cmd turn service on

Web Images Videos News Maps Settings ▾

All Regions ▾ Safe Search: Moderate ▾ Any Time ▾

Start / Stop / Enable / Disable Terminal services from ...
● <https://www.windows-commandline.com/start-terminal-services-command-line/>
But in some cases restarting terminal services could be possible by killing the svchost process that runs the terminal services. We can use tasklist and taskkill commands for this. First get the process id of the terminal services process tasklist /svc | findstr /C:TermService. Check if Terminal services is the only service running in this svchost.

Remotely Start or Stop Service from CMD - Spiceworks
🔧 https://community.spiceworks.com/how_to/5372-remotely-start-or-stop-service-from-...
These are the steps to remotely start or stop a service from CMD. This will only cover starting or stopping the service but you can also: disable, restart, or delete the service.

How do I enable services on a Windows computer via a command ...
[🔗] <https://superuser.com/questions/175077/how-do-i-enable-services-on-a-windows-co...>
I believe the command you are looking for is: sc config servicenamehere start= auto. You'll need to know the name of the service though - to view this from the command line, try this command - this will show all services: sc query type= service state= all. If you want to see only stopped services, run this command: sc query type= service state ...

windows - Stop and Start a service via batch or cmd file ...
🔥 <https://stackoverflow.com/questions/133883/stop-and-start-a-service-via-batch-or-cm...>
Stop and Start a service via batch or cmd file? Ask Question ... SC is a command line program used for communicating with the NT Service Controller and services.

Testing

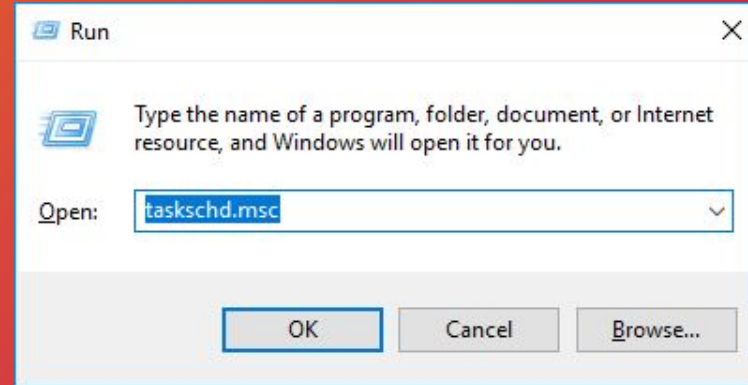
- ▶ Test several times with an image
- ▶ The last thing you want to do is break your image - make sure other tasks aren't affected

Task Scheduler

wow so cool

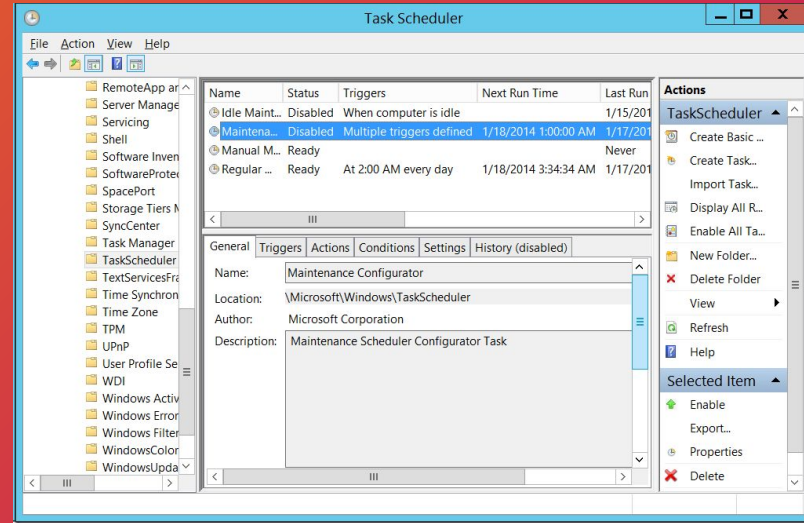
How to get to task Scheduler

- ▶ taskschd.msc
- ▶ mmc and add the snap in
- ▶ search task scheduler
- ▶ control panel -> system and security -> Administrative tools -> Schedule task

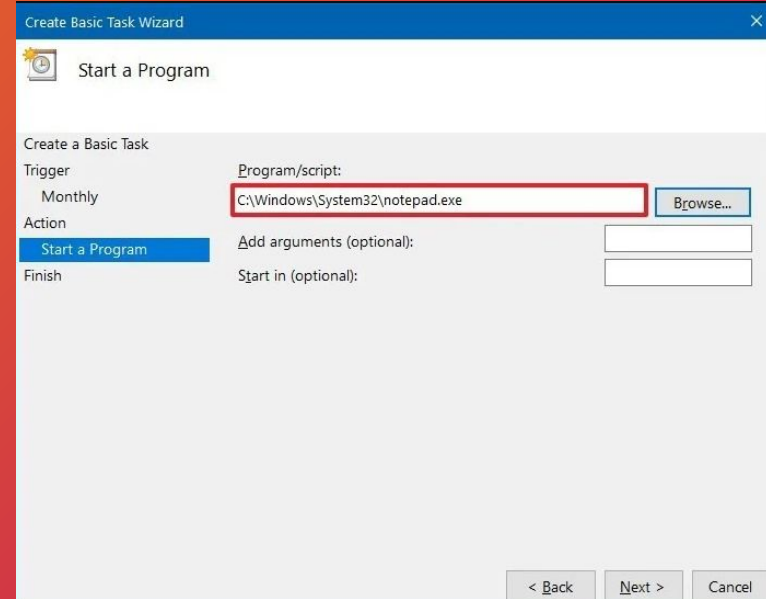


What is task scheduler

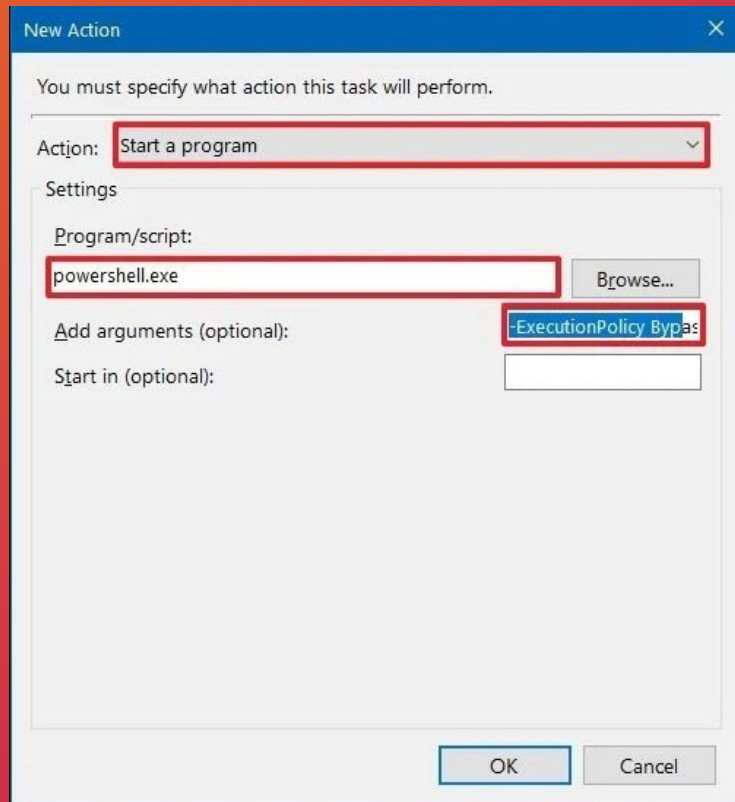
- ▶ where you schedule and view tasks
- ▶ can schedule programs to run after a trigger or timer
- ▶ runs .exe programs
- ▶ send an email
- ▶ display a message

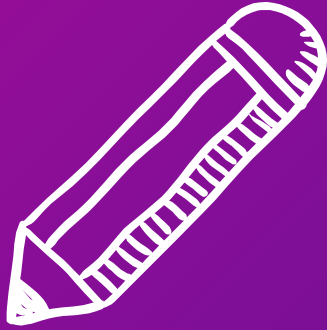


- ▶ right click and click create basic task
- ▶ can run .exe programs
 - ▶ by finding .exe file
 - ▶ like notepad.exe
- ▶ display message
 - ▶ will show message when triggered



- ▶ adding powershell scripts to a task
- ▶ click on create task
 - ▶ schedule and name it
 - ▶ powershell.exe
 - ▶ put the pathing to your powershell script
 - ▶ set up conditions





CREATING an *image*

Use iso files to create a virtual machine



New Virtual Machine Wizard


×

Welcome to the New Virtual Machine Wizard

A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

Install from:


☐ Installer disc:

 DVD RW Drive (H:) ▾

☒ Installer disc image file (iso):

len_windows_10_education_version_1703_updated_n ▾

Browse...

 Windows 10 x64 detected.

This operating system will use Easy Install. [\(What's this?\)](#)

☐ I will install the operating system later.

The virtual machine will be created with a blank hard disk.

Help

< Back

Next >

Cancel

New Virtual Machine Wizard

×

Easy Install Information

This is used to install Windows 10 x64.

Windows product key

- - - -

Version of Windows to install

Windows 10 Pro ▾

Personalize Windows

Full name:

Clement

Password:

●●●●●●●●●●

(optional)

Confirm:

●●●●●●●●●●

☒ Log on automatically (requires a password)

Help

< Back

Next >

Cancel

39

New Virtual Machine Wizard

×

Name the Virtual Machine
What name would you like to use for this virtual machine?

Virtual machine name:

testing scripts

Location:

C:\Users\Clement\Documents\Virtual Machines\testing scripts

Browse...

< Back

Next >

Cancel

New Virtual Machine Wizard

×

Specify Disk Capacity
How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

50.0

Recommended size for Windows 10 x64: 60 GB

☐ Store virtual disk as a single file

☒ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help

< Back

Next >

Cancel

New Virtual Machine Wizard

Ready to Create Virtual Machine

Click Finish to create the virtual machine and start installing Windows 10 x64 and then VMware Tools.

The virtual machine will be created with the following settings:

Name: testing scripts
 Location: C:\Users\Clement\Documents\Virtual Machines\testin...
 Version: Workstation 14.x
 Operating System: Windows 10 x64

Hard Disk: 60 GB, Split
 Memory: 2048 MB
 Network Adapter: NAT
 Other Devices: CD/DVD, USB Controller, Printer, Sound Card

Customize Hardware...

☒ Power on this virtual machine after creation

< Back

Finish

Cancel

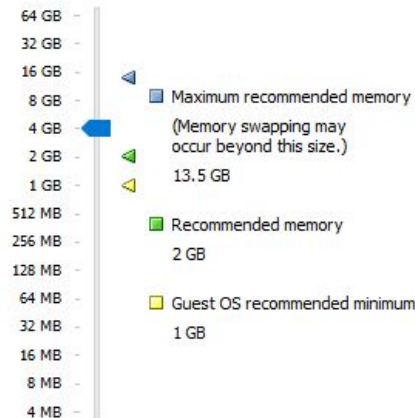
Hardware

Device	Summary
Memory	4 GB
Processors	2
New CD/DVD (SATA)	Using file C:\Users\Clement\...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine: 4096 MB



The virtual machine will use up to 1 GB of this memory for graphics memory. You can change this amount in the Display settings page.

Add...

Remove

Close

Help

The machine is now ready to boot and be set up

Follow through the instructions and wait for it to finish.



Script on!
ANY QUESTIONS?

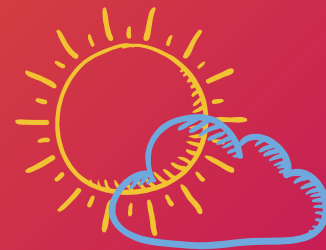
You can find more help at:
Google
StackOverflow
and more!

HACKERMAN



These icons are editable shapes.

Examples:



Special thanks to all the people who made and released these awesome resources for free:

- ▷ Presentation template by [SlidesCarnival](#)
- ▷ Photographs by [Unsplash](#)