

Week 2: Network and Infrastructure Services

Quiz: Managing Services in Windows

Learning Objectives

- Getting familiar with common system services on Windows
- Starting, stopping, and reloading services on Windows
- Managing features through the command line

Introduction

As a system administrator, you'll need to know how to look at the status of a running service, and how to stop, start, and restart running services. You'll also need to know how to configure services and fix problems you may encounter while running them. In this lab, we'll focus on how to do these actions on Windows.

What you'll do

You'll get to have a look at the list of services that are running on the machine and practice stopping and starting them.

Learning tip:

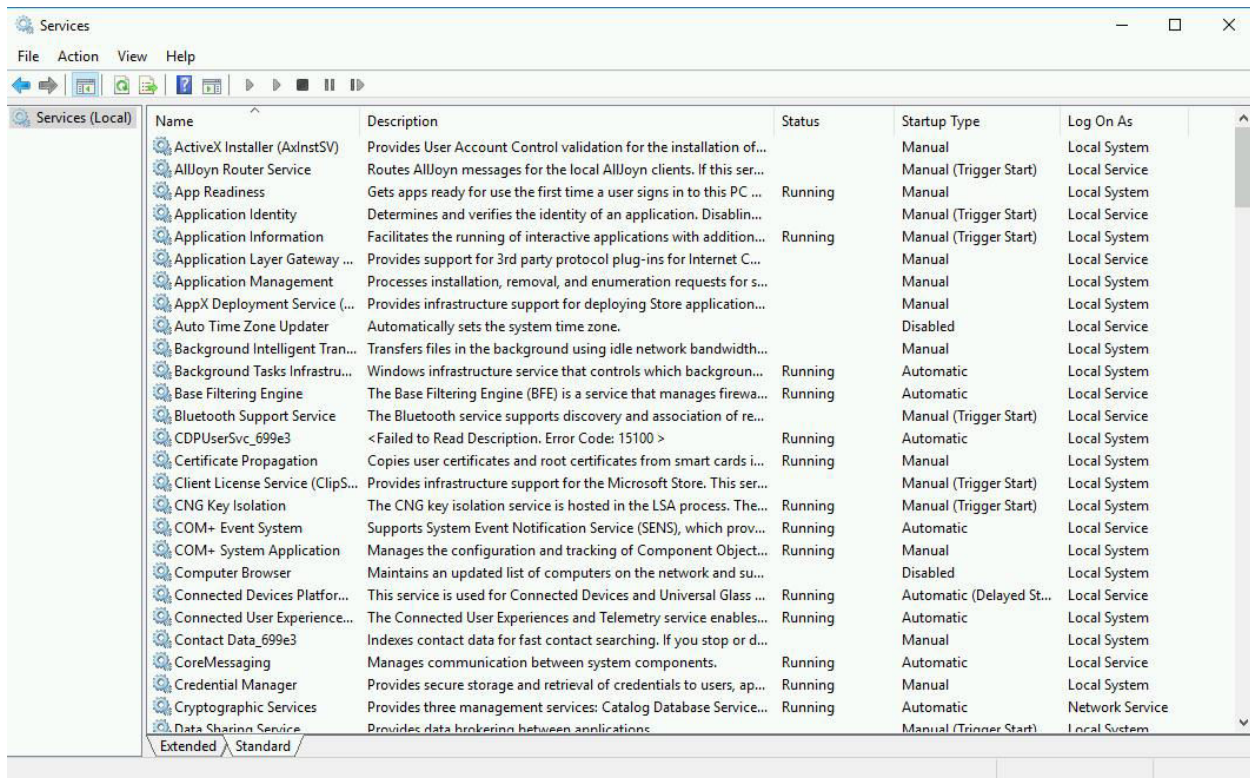
During this lab, we will show how to do certain tasks using graphical tools as well as using the command line with PowerShell. While you can copy and paste the commands that are presented throughout the lab, we recommend typing them out manually, to help with understanding and remembering these commands.

Listing system services

First, we will connect to the **Services** application that is provided by Windows as an administrative tool. In order to open this application,

you can either open the **Control Panel**, click on **System and Security**, then on **Administrative Tools** and finally on **Services**; or you can type "Services" into the Windows menu.

Once you open the application, make sure you make the columns wider so that you can see the actual descriptions of the services that are available in the system. You can click on one of the columns to change the order and, for example, see all services that have **"Running"** as their **Status** together.



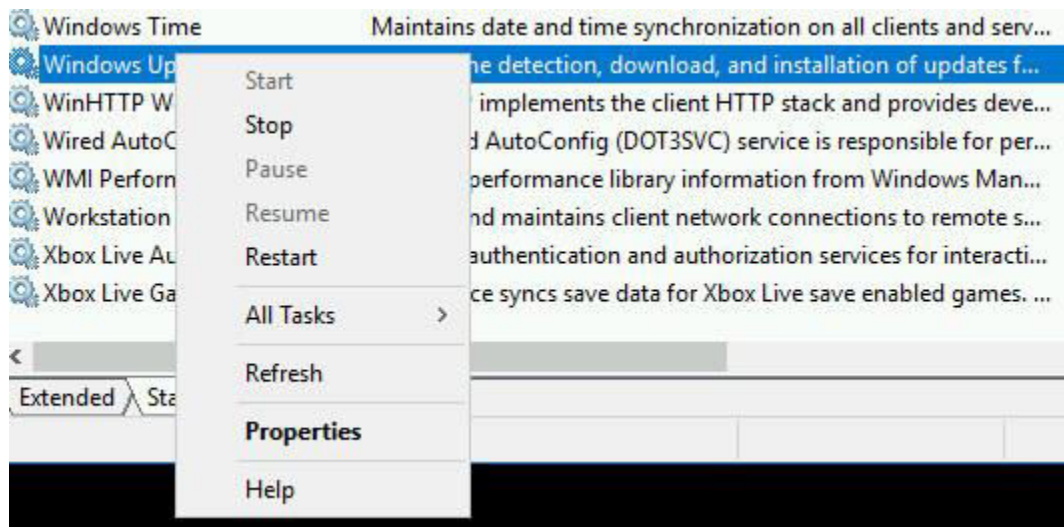
The screenshot shows the Windows Services console window. The title bar is "Services". The menu bar includes "File", "Action", "View", and "Help". The toolbar contains various icons for service management. The left pane shows "Services (Local)". The main pane displays a list of services with the following columns: Name, Description, Status, Startup Type, and Log On As. The services are sorted by Status, with "Running" services at the top.

Name	Description	Status	Startup Type	Log On As
ActiveX Installer (AxInstSV)	Provides User Account Control validation for the installation of...		Manual	Local System
Alloyn Router Service	Routes Alloyn messages for the local Alloyn clients. If this ser...		Manual (Trigger Start)	Local Service
App Readiness	Gets apps ready for use the first time a user signs in to this PC ...	Running	Manual	Local System
Application Identity	Determines and verifies the identity of an application. Disablin...		Manual (Trigger Start)	Local Service
Application Information	Facilitates the running of interactive applications with addition...	Running	Manual (Trigger Start)	Local System
Application Layer Gateway ...	Provides support for 3rd party protocol plug-ins for Internet C...		Manual	Local Service
Application Management	Processes installation, removal, and enumeration requests for s...		Manual	Local System
AppX Deployment Service (...)	Provides infrastructure support for deploying Store application...		Manual	Local System
Auto Time Zone Updater	Automatically sets the system time zone.		Disabled	Local Service
Background Intelligent Tran...	Transfers files in the background using idle network bandwidth...		Manual	Local System
Background Tasks Infrastru...	Windows infrastructure service that controls which backgroun...	Running	Automatic	Local System
Base Filtering Engine	The Base Filtering Engine (BFE) is a service that manages firewa...	Running	Automatic	Local Service
Bluetooth Support Service	The Bluetooth service supports discovery and association of re...		Manual (Trigger Start)	Local Service
CDPUserSvc_699e3	<Failed to Read Description. Error Code: 15100 >	Running	Automatic	Local System
Certificate Propagation	Copies user certificates and root certificates from smart cards i...	Running	Manual	Local System
Client License Service (ClipS...	Provides infrastructure support for the Microsoft Store. This ser...		Manual (Trigger Start)	Local System
CNG Key Isolation	The CNG key isolation service is hosted in the LSA process. The...	Running	Manual (Trigger Start)	Local System
COM+ Event System	Supports System Event Notification Service (SENS), which prov...	Running	Automatic	Local Service
COM+ System Application	Manages the configuration and tracking of Component Object...	Running	Manual	Local System
Computer Browser	Maintains an updated list of computers on the network and su...		Disabled	Local System
Connected Devices Platfor...	This service is used for Connected Devices and Universal Glass ...	Running	Automatic (Delayed St...	Local Service
Connected User Experience...	The Connected User Experiences and Telemetry service enables...	Running	Automatic	Local System
Contact Data_699e3	Indexes contact data for fast contact searching. If you stop or d...		Manual	Local System
CoreMessaging	Manages communication between system components.	Running	Automatic	Local Service
Credential Manager	Provides secure storage and retrieval of credentials to users, ap...	Running	Manual	Local System
Cryptographic Services	Provides three management services: Catalog Database Service...	Running	Automatic	Network Service
Data Sharing Service	Provides data brokering between applications		Manual (Trigger Start)	Local System

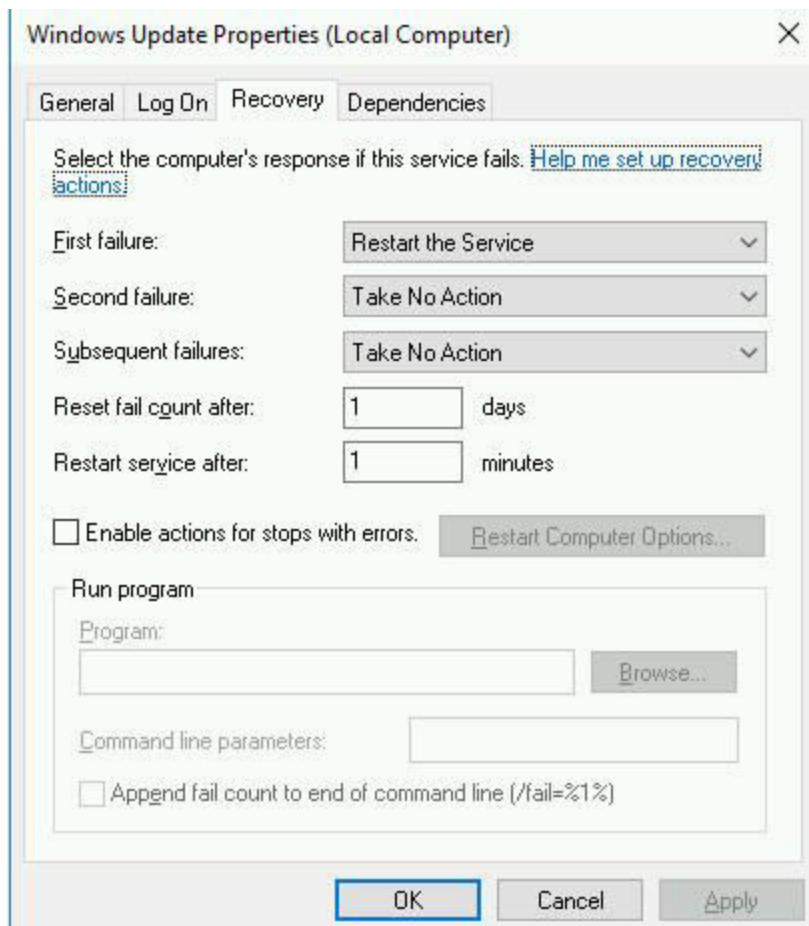
From this application, you can start and stop services that are running in the system. Caution: Keep in mind that some of the services that

are running may be critical to ensure that you stay connected to the machine. Pay attention to what the services do before you try stopping them.

When you right-click on the line that shows a service, you get a menu of action options. The menu shows all actions, but the ones that are not currently available are grayed out. So, if the service is running, **"Start"** will be grayed out. If the service is not running, **"Stop"** will be grayed out.



You can also access the **Properties** menu, where you will see other data and configuration about the service. For example, in the Recovery tab, it will indicate what's the configured behavior in case of a service failing.

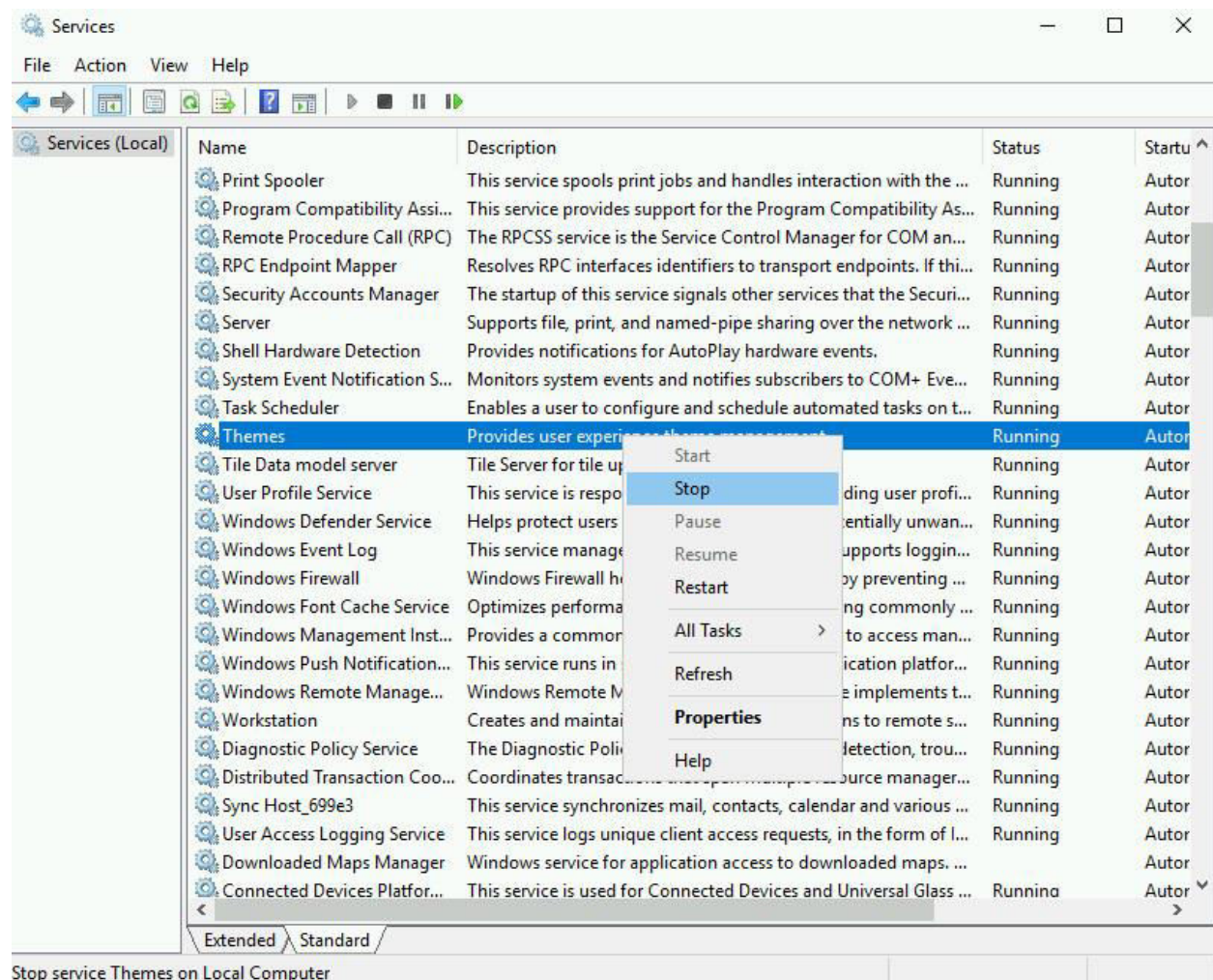


Stopping and starting services

Let's look at the **Themes** service. This service is in charge of managing the graphical themes applied to the machine. It's also in charge of managing certain features related to the video card. While you wouldn't want to stop it on your local physical machine as it might

cause problems with your graphical interface, it's fine to stop it for the purposes of this lab as it's a virtual machine with a virtualized video card.

So, go ahead and right-click on the **Themes** line and then click **Stop** in the pop-up menu. A window will appear showing the progress of stopping the service and once it's gone, the service will be stopped.



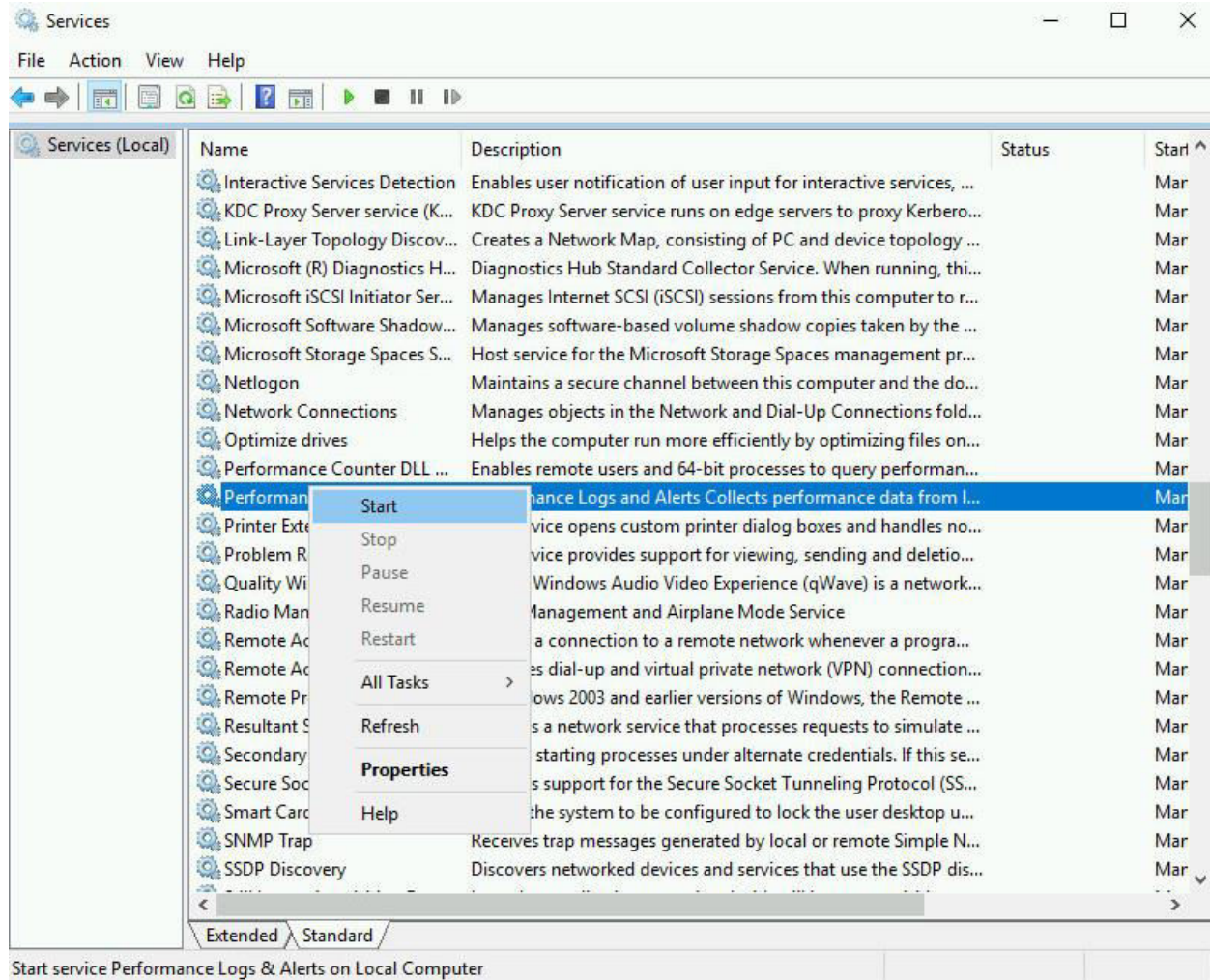
Click Check my progress to verify the objective.

Stop the "Themes" Service

Check my progress

Let's now look at the **Performance Logs & Alerts** service. This service is not running by default. It can be used to collect logs related to the performance of the machine and to setup alerts that will trigger when certain thresholds are passed. The data collected by this service can be configured and visualized in the Server Manager application.

Let's now start this service: right-click on the **Performance Logs & Alerts** line and then click **Start** in the pop-up menu. A similar window as before will appear, showing the progress and once it's gone, the service will be started.



Click Check my progress to verify the objective.

Start the "Performance Logs & Alerts" Service

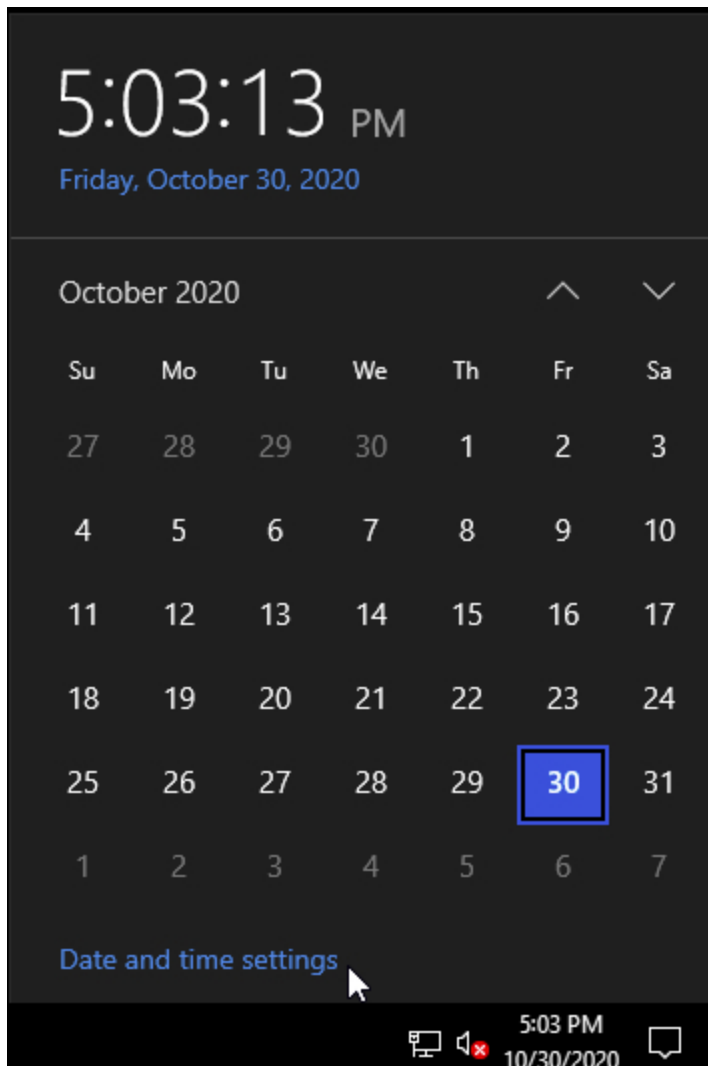
Check my progress

Many of these services can also be started or stopped through other tools in the system. For example, the service called **Auto Time Zone Updater** is used to set the timezone of the running system from the data obtained through the network. This service can be enabled from

the Service console, but it can also be enabled from the **Date and Time settings**.

If you look at the **Auto Time Zone Updater** service now, it's disabled. Let's enable it through the **Date and Time settings** window.

If you left click on the clock shown in the lower right corner, you'll get a pop-up with the time, date, calendar and a link to **Date and Time settings**.



If you click on that link, the settings window for all configuration related to the Date and Time will appear, including the "**Set time zone automatically**" setting. This setting is directly related to the **Auto Time Zone Updater service**. Click on the slider to enable the setting, go back to the Services application, click Refresh in the right-click menu, and you'll see that the service is now enabled.

Date & time

Date and time

5:19 PM, Friday, October 30, 2020

Set time automatically

☒ On

Set time zone automatically

☒ On

Change date and time

Change

Time zone

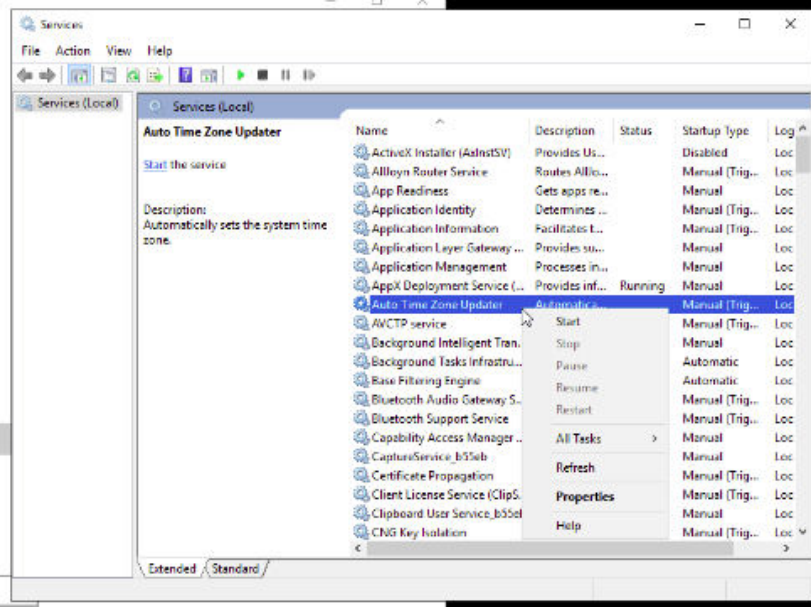
(UTC+00:00) Monrovia, Reykjavik

Adjust for daylight saving time automatically

☐ Off

Show additional calendars in the taskbar

Don't show additional calendars

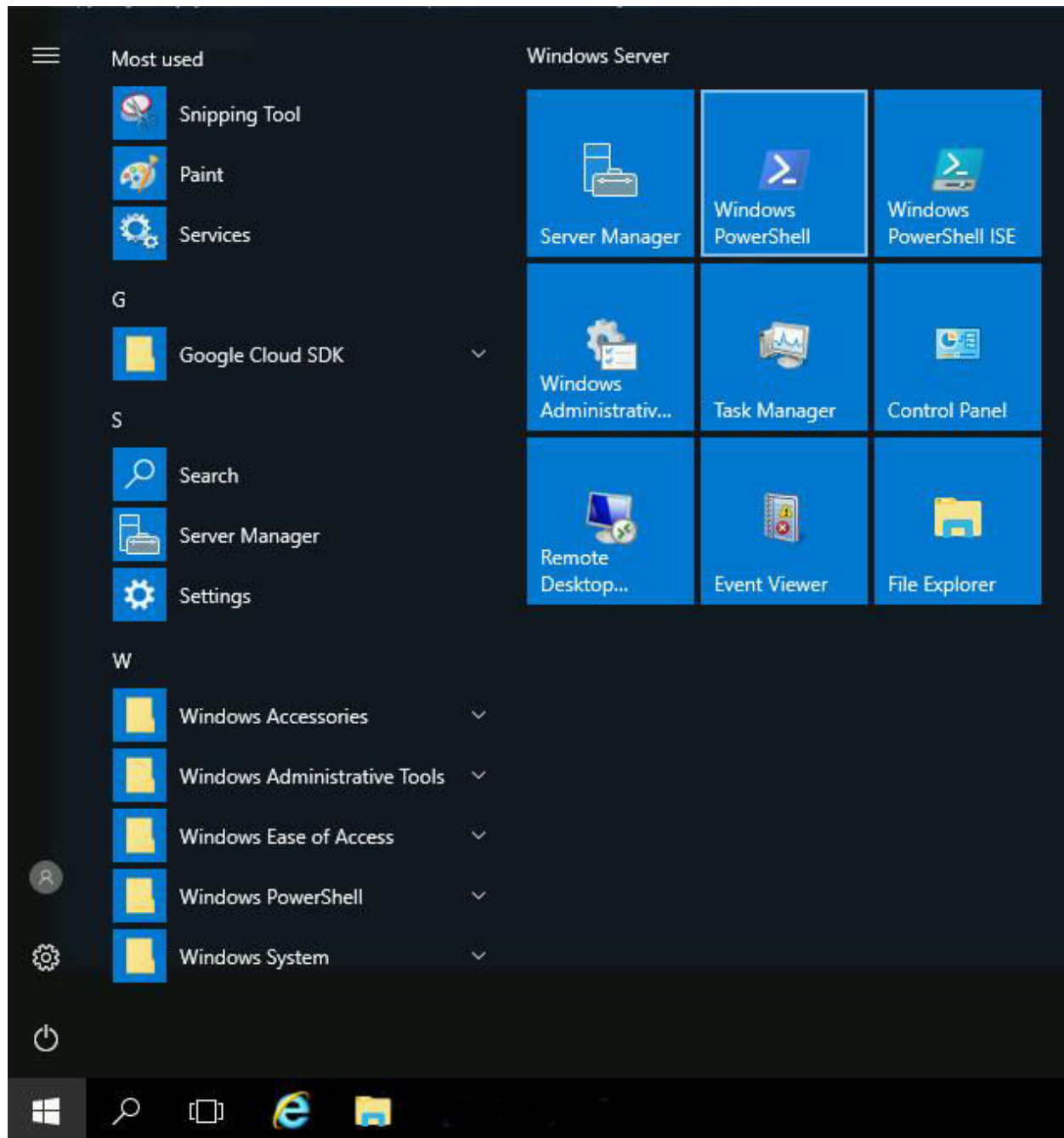


Interacting with services through PowerShell

While as a user it's common to use Graphical User Interfaces (or GUIs) to interact with the system, as a system administrator you will usually want to automate the tasks that you do, and for that you will be using the command line.

Let's see how to perform these same tasks through the command line. Go ahead and open the **Windows PowerShell** application, by

clicking on the Start menu and then selecting it from the list of applications.



In this shell, we can use the `Get-Service` command to list all the available services.

`Get-Service`

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Stopped	VSS	Volume Shadow Copy
Running	w32time	Windows Time
Stopped	WaaSMedicSvc	Windows Update Medic Service
Stopped	WalletService	WalletService
Stopped	WarpJITSvc	WarpJITSvc
Stopped	WbioSrv	Windows Biometric Service
Running	Wcmsvc	Windows Connection Manager
Stopped	WdiServiceHost	Diagnostic Service Host
Stopped	WdiSystemHost	Diagnostic System Host
Running	WdNisSvc	Windows Defender Antivirus Network ...
Stopped	Wecsvc	Windows Event Collector
Stopped	WEPHOSTSVC	Windows Encryption Provider Host Se...
Stopped	wercplsupport	Problem Reports and Solutions Contr...
Stopped	WerSvc	Windows Error Reporting Service
Stopped	WiaRpc	Still Image Acquisition Events
Running	WinDefend	Windows Defender Antivirus Service
Running	WinHttpAutoProx...	WinHTTP Web Proxy Auto-Discovery Se...
Running	Winmgmt	Windows Management Instrumentation
Running	WinRM	Windows Remote Management (WS-Manag...
Stopped	wisvc	Windows Insider Service
Stopped	wlidsvc	Microsoft Account Sign-in Assistant
Stopped	wmiApSrv	WMI Performance Adapter
Stopped	WMPNetworkSvc	Windows Media Player Network Sharin...
Stopped	WPDBusEnum	Portable Device Enumerator Service
Running	WpnService	Windows Push Notifications System S...
Running	WpnUserService_...	Windows Push Notifications User Ser...
Stopped	WSearch	Windows Search
Stopped	wuauerv	Windows Update

This is a long list. You can scroll up using PgUp/PgDown, or with the mouse wheel. This list includes the status of the service, the Name and the DisplayName. The Name is short and is the one used to get information of a specific service, the DisplayName is a more descriptive and longer name.

For example, we can get information of the `wisvc` service:

```
Get-Service wisvc
```

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Status	Name	DisplayName
Stopped	wisvc	Windows Insider Service

This tells us that `wisvc` is the short name of the **Windows Insider Service**. This is the service allows you to test out the latest OS builds and Apps from Microsoft. We can get more information for the service, using the Format-List command.

```
Get-Service wisvc | Format-List *
```

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Name	: wisvc
RequiredServices	: {rpcss}
CanPauseAndContinue	: False


```

CanShutdown      : False
CanStop          : False
DisplayName       : Windows Insider Service
DependentServices : {}
MachineName      : .
ServiceName       : wisvc
ServicesDependedOn : {rpcss}
ServiceHandle     : SafeServiceHandle
Status           : Stopped
ServiceType       : Win32ShareProcess
StartType         : Manual
Site              :
Container         :

```

Stopping and starting services

Now, we can start the Windows Insider Service, using the `Start-Service` command:

```
Start-Service wisvc
```

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This command doesn't give any output. To verify that it worked, let's get the status again, using `Get-Service`:

```
Get-Service wisvc
```

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Status	Name	DisplayName
-----	----	-----

The service is now started. But this is an important service, we don't want it to stay started, let's stop it using the `Stop-Service` command.

```
Stop-Service wisvc
```

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Again, this doesn't give any output if it succeeds, let's use `Get-Service` to see if it worked.

```
Get-Service wisvc
```

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Yes, it's stopped again.

Enabling services

We can stop and start any services that are already enabled in the system, but not services that are disabled. Let's look at one example of a service that is currently disabled. We will use the `ScardSvr` or **Smart Card** service. This service is used to read smart cards and it's currently disabled because it's not needed. We can see that it's disabled, by using the `Get-Service` plus `Format-List` commands:

```
Get-Service ScardSvr | Format-List *
```

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```
Name           : ScardSvr
RequiredServices : {}
CanPauseAndContinue : False
CanShutdown     : False
CanStop         : False
DisplayName     : Smart Card
DependentServices : {}
MachineName     : .
ServiceName     : ScardSvr
ServicesDependedOn : {}
ServiceHandle   :
Status          : Stopped
ServiceType     : Win32ShareProcess
StartType       : Disabled
Site            :
Container       :
```

The `StartType` field says that this service is `Disabled`. This means that it can't be started until it's enabled. Let's see what happens if we try to start it anyway:

```
Start-Service ScardSvr
```

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```
Start-Service : Service 'Smart Card (ScardSvr)' cannot be started due to
the following error: Cannot start service
ScardSvr on computer '.'.
At line:1 char:1
+ Start-Service ScardSvr
```

```
+ ~~~~~  
+ CategoryInfo          : OpenError:  
(System.ServiceProcess.ServiceController:ServiceController) [Start-  
Service],  
ServiceCommandException  
+ FullyQualifiedErrorId :  
CouldNotStartService,Microsoft.PowerShell.Commands.StartServiceCommand
```

Instead of the usual empty output, we get an error message. The error says that the service couldn't be started. To change that, we will use the `Set-Service` command, which allows us to modify some of the properties of the service

```
Set-Service ScardSvr -StartupType Manual
```

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This won't generate any output, but if we now try to start the service, it will succeed.

```
Start-Service ScardSvr
```

Copied!

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This time we got no output, which means that there were no errors.

Let's check the status one last time:

```
Get-Service ScardSvr
```

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Status	Name	DisplayName
-----	----	-----
Running	ScardSvr	Smart Card

Well done! We have enabled and started the service.

Enabling additional features

There are a number of features that are available in a Windows system that are not enabled by default. This is so that the system administrator only has to manage the features that are actually in use, instead of all the possible features out there.

We can use the `Install-WindowsFeature` command to enable these features. For example, let's run this command to enable the few more web serving features in the system:

```
Install-WindowsFeature Web-WebServer,Web-Mgmt-Tools -IncludeAllSubFeature
```

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```
Collecting data...
 10%
[0000000000000000]
```

Be patient, this will take a few minutes to run, as it's downloading additional components and then installing them on the system. You

will see a progress bar on the console, although not necessarily at the cursor.

Note: If Windows is stuck and automatically disconnected, please go back to the lab page and again click on "Open Windows VM". When the progress bar disappears, it should tell you that it succeeded in installing the service which is now running.

Success	Restart Needed	Exit Code	Feature Result
True	No	Success	{ .NET Framework 3.5 (includes .NET 2.0 and...

There are a number of new services that were added when enabling this feature. For example, **IISADMIN** is the service used to publish websites on the machine.

```
Get-Service IISADMIN
```

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Status	Name	DisplayName
Running	IISADMIN	IIS Admin Service

With this service running, you'll be able to use the web serving functionality on the machine.

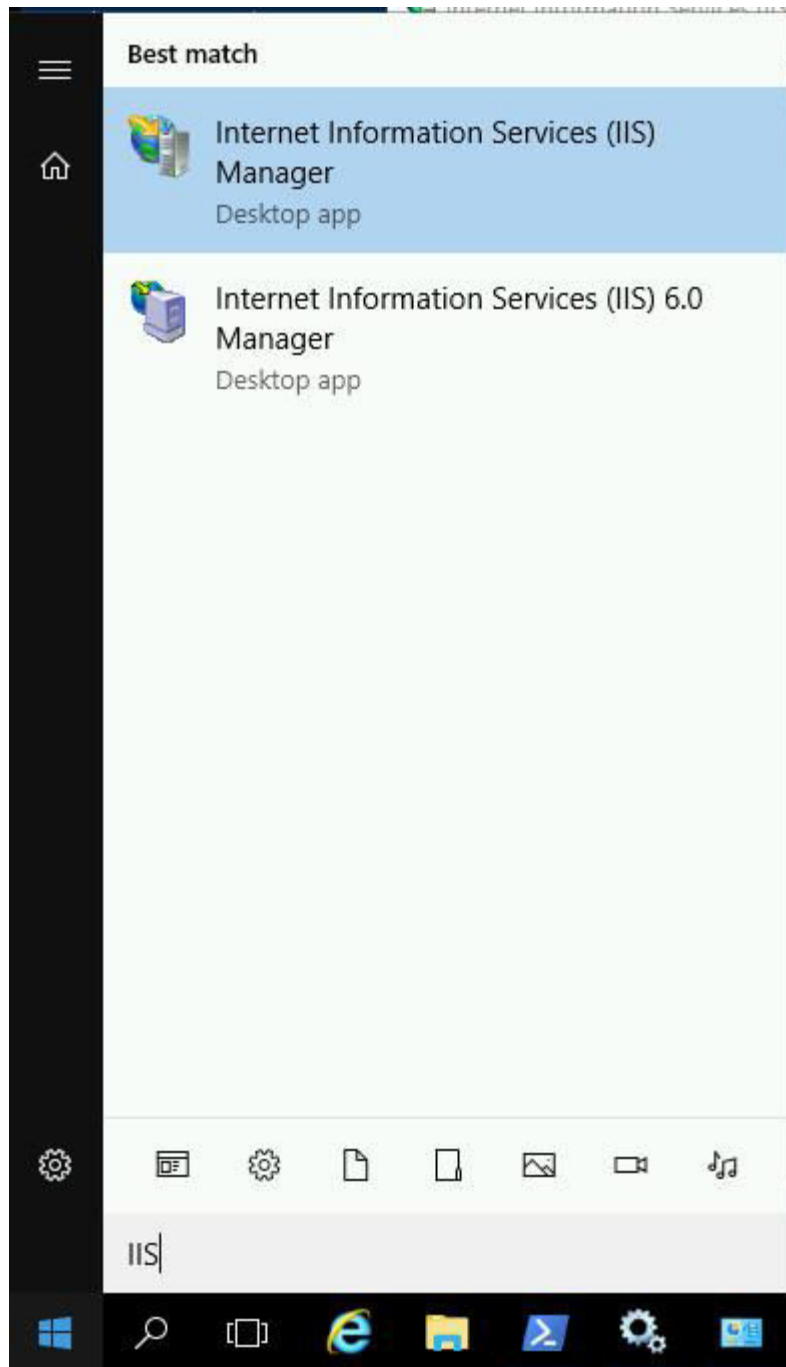
Click Check my progress to verify the objective.

Start IIS

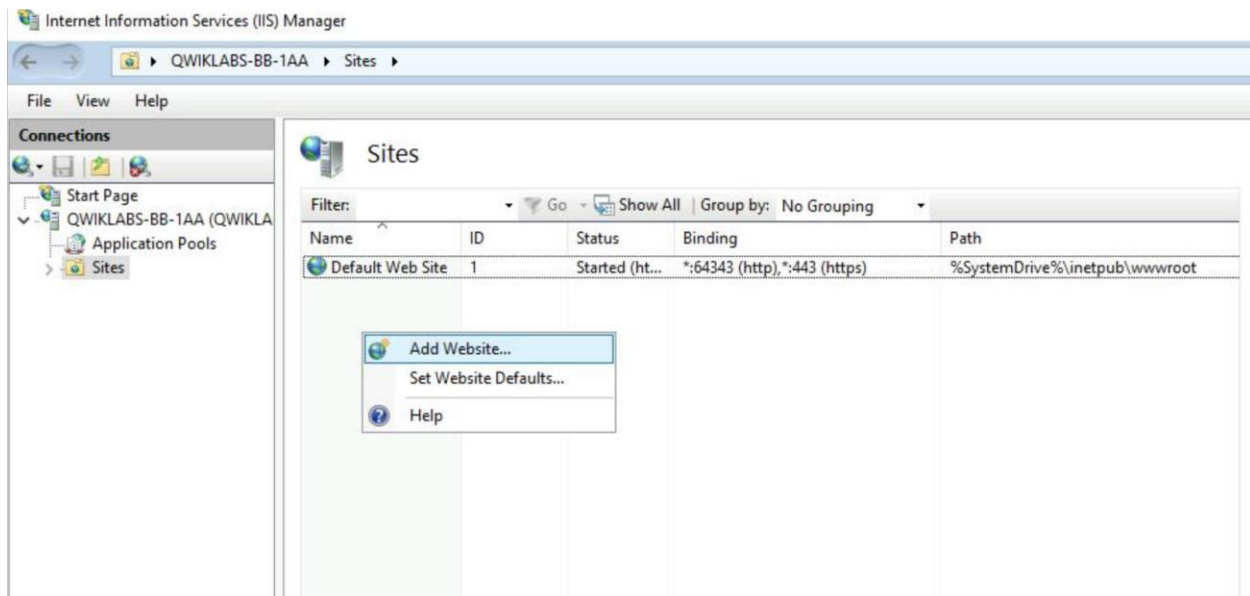
Check my progress

Serving web pages

Let's configure our newly installed web server to serve our own website. In order to do this, you'll need to open the **Internet Information Services (IIS) Manager** program. To do that, type "IIS" into the Windows menu.



Once the application opens, expand the **QWIKLABS-BB-XXX** option, and click on the **Sites** option. This shows a list of available sites, currently only showing the Default Website.



Let's add a new site, by right-clicking on the list and selecting **Add Website**. This will pop up a window with some fields that need to be filled in. Naming the site enables you to identify it from others. You can call it whatever you want. The physical path of the website is the location where the files are located in the computer. In this case, the files are located in `C:\Users\qwiklabs\amazingsite`, so select that folder as the path.

Add Website ? X

Site name: Example Application pool: Example Select...

Content Directory

Physical path: C:\Users\qwiklabs\amazingsite ...

Pass-through authentication

Connect as... Test Settings...

Binding

Type: http IP address: All Unassigned Port: 80

Host name:

Example: www.contoso.com or marketing.contoso.com

☒ Start Website immediately

OK Cancel

Click **OK** after filling all the provided details, then you will see that your website was created and running on port 80. Now you can verify the new website by pointing your browser to the External IP address shown in the Connection Details Panel.

Amazing Results

This website shows that it's possible to have amazing results and share them with others.

WooHoo!

Click [Check my progress](#) to verify the objective.

Serve the New Website in IIS

[Check my progress](#)

Conclusion

Congrats! You've successfully listed all the services that are available on the machine, practiced stopping and starting some of these services, and checked their status. You also configured the machine to serve web pages by enabling an additional system feature, and then customized this to serve a different website.

These are important skills that are essential to your future work as a system administrator. Keep it up!