

# Infrastructure as Code- Walkthrough

PowerShell 7.x Remote Control



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A **walkthrough** is intended to bring you through a technical exercise. A walkthrough shows you how I completed a task in a particular context, on specific systems, at a point in time. The document is a good basic guide, but you should always confirm that the information is current and if a more recent best practice exists, you should make yourself aware of it.

## Introduction

This walkthrough is provided to give you some more progress with learning PowerShell. You have already installed and basically used PowerShell, and learned about normal programming variables, assignment, and loops. It is time to use all this now and begin to do remote server configuration.

## Deliverables

You will be required to keep a list of commands with notes as to why you are using them as well as results of any testing you have done. You may be asked to present these notes as evidence of work completed or as part of a lab book. Check with your lecturer!

## Prerequisites

1. These notes are abbreviated, you should already understand some basic programming terminology. You have already covered an introduction to Python.
2. Ensure you have read the accompanying lecture notes before you begin. You should have already installed PowerShell 7.
3. I will carry out my exercises using
  - a. A Windows 2019 VM Standard, Desktop Experience, running in Hyper-V.
  - b. A Windows Core 2019 VM
4. You should have already installed Visual Studio Code as per my notes.
5. You have an existing GitHub account and a basic ability to use it.
6. You have created a directory to keep example files in and you are ready to code.
  - a. On my VM, I am using **C:\Powershell**
  - b. At the end of each session, I copy the files to **OneDrive\Powershell**

## Environment

Some students will be working in university labs, and some may be working on the VDI. Either way, you do not have sufficient permissions on the local host for you to be able to run scripts.

If you are working on the VDI use Hyper-V and

- Build a W2019 VM with a Graphical User Interface
- Build a W2019 Core VM

If you are working in the University use VMWare Workstation and

- Build a W2019 VM with a Graphical User Interface
- Build a W2019 Core VM

If you are working on a home computer, build in a manner of your choice.

I am going to assume you are competent to do basic configuration tasks in Windows. All I am really providing here are the scripts!

## Setting up the Domain

### W2019-Desktop

In PowerShell run the script **Setup DC1.ps1**, one line at a time, checking the result.

### W2019-Core

In PowerShell run the script **Setup Server1.ps1**, one line at a time, checking the result.

### Test

In PowerShell on **dc-1**, run the script **Remote Server.ps1**, one line at a time, checking the result. We could use this script against any server to configure services.

### Create a second DC

We never build an infrastructure with a single domain controller. Normally, I would rename the server to dc-2 at this point, I'm not going to do so in this exercise.

Next, we will elevate **server-1** to become a domain controller. Run the script **Setup DC2.ps1**, one line at a time, checking the result.

You can also demote a DC and make it a server again, DO NOT DO THIS NOW! I have attached the script DemoteDC.ps1

### Check DNS

I need to verify each DNS. Carry out this test against both servers.

```
PS C:\PowerShell> Resolve-DnsName -Name dc-1 -Server 172.28.78.1 -Type A

Name                                     Type  TTL  Section  IPAddress
----                                     -
dc-1.ads.solarsubmaines.com             A      1200 Question 172.28.78.1

PS C:\PowerShell> Resolve-DnsName -Name server-1 -Server 172.28.78.1 -Type A

Name                                     Type  TTL  Section  IPAddress
----                                     -
server-1.ads.solarsubmaines.com          A      1200 Answer  172.28.78.2

PS C:\PowerShell> 
```

### Create users

In PowerShell on **dc-1**, run the script **CreateUsers.ps1**, one line at a time, checking the result. You need the associated **.csv** file.

There are a range of other PowerShell scripts included on VLE for everyday tasks. Review them but do not run, they are templates only.