1 POWERSHELL SCRIPT BUILD GUIDE

REQUIREMENTS

You must be running Windows 8.1 or higher, or Server 2012 or higher.

Your PC needs:

- 100 GB of free space
- Over 12GB of memory
- A processor capable of Hyper-V
- You must be Administrator on your PC

SOFTWARE NEEDED

- Download the required **Lab Files** folder and **VM Build** folder (containing the PowerShell scripts) from **GitHub**
- ISO of Server2016 (Evaluation will work). Link provided below.

Navigate to the below link and download the installation file.

- **Server 2016** – https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2016


You will need to register in order to download the required ISO file.


IMPORTANT! *You will need to have the latest version of PowerShell (5.1) installed on your host machine. PowerShell 5.1 is installed by default on Server 2016 and Windows 10. If your host machine does not run either of these operating systems, you will need to install PowerShell 5.1 in order to execute these scripts. To download PowerShell 5.1, use the following link:* https://msdn.microsoft.com/en-us/powershell/wmf/5.1/install-configure.

DETAILED STEPS

VM BUILD

Hyper-V Setup and Create Virtual Machines

1. This first script will perform several tests, the first of which is for the presence of **Hyper-V** feature. If not found, this script will install the feature, then you will enter "Y" to restart the computer.

   
   After the reboot, you will need to re-run the script.

   
   If any hardware deficiencies are discovered, the script will notify you, and exit. These must be corrected before re-running the script.
2. In the downloaded folder named **VM Build**, locate the PowerShell Script named 00_RUNS FUNCTION_TESTS CREATES DIRECTORIES_DC_STUDENTSERVER_2SS & 1DC.PS1, then run it by right-clicking the script and clicking **Run with PowerShell**.
   a. If prompted to re-run as Administrator, click **Yes**.
   b. In the **User Account Control** dialog box, click **Yes**.

   c. Allow the script to run through to completion, which depending on your hardware, may take some time.
   d. It will create **StudentDC**, **StudentServer,** and **StudentServer2** virtual machines and their associated hard drives.
   e. Upon completion, switch to **Hyper-V Manager**, navigate to the pane on the left, and click to select your machine.
3. In **Hyper-V Manager**, you should now see three virtual machines.
4. Right-click on the **StudentDC** icon in **Hyper-V Manager**, and click **Settings**.
5. In the pane on the left, locate and click the **IDE Controller 1 | DVD Drive** icon.
6. In the now visible **Media** section, click the radio button to select **Image File**.
7. Click the corresponding **Browse** button, and navigate to your ISO (the one you downloaded using the previously provided link) of **Server2016**.
8. Double-click to attach the **Server2016** ISO.
9. In the **Settings** window, click **Apply**.
10. Click **OK**.
11. In **Hyper-V Manager**, right-click **StudentDC**, and click **Start**.

Wait a few seconds for it to start. You can monitor the progress within the thumbnail showing in the lower-left of Hyper-V Manager.

12. Right-click **StudentDC** again, and click **Connect**.
13. In the **Windows Server 2016** dialog box, click **Next**.
14. Click **Install now**.
15. In the setup box, click to select the second option, which is **Windows Server 2016 Standard Evaluation (Desktop Experience)**.

Your name will be slightly different depending on if you used evaluation or not.

16. Click **Next**.
17. Place a check in the **I accept the license terms** check box.
18. Click **Next**.
19. Click to select **Custom: Install Windows only (advanced)**.
20. In the **Where do you want to install Windows** dialog box, click **Next**.
21. Allow **Windows Server 2016** to install.
22. In the prompt asking you for your **Password**, enter and confirm `Passw0rd`.

In Passw0rd the 0 is numeric.

23. Click **Finish**.
24. At the log on screen, switch to **Hyper-V Manager**, then right-click the VM, and click **Shut Down**.
25. In the dialog box asking **Are you sure you want to shut down the operating system in the selected virtual machine**, click **Shut Down**.

Repeat steps 4-25 for the **StudentServer** and the **StudentServer2** virtual machines, using the same ISO file. Make sure that you use the correct **IDE Controller**, which is number **1**.

At this point, you have configured the base state of three VMs, and they should now be turned off.

Enable Enhanced Mode in Hyper-V

1. In **Hyper-V Manager**, navigate to the pane on the left, right-click the name of the local computer, and click **Hyper-V Settings**.
2. When **Hyper-V Settings** opens, move to the pane on the left, locate the **Server** section and click to select **Enhanced Session Mode Policy**.
3. Verify there is a check in the **Allow enhanced session mode** check box.
4. If changes were made, click **Apply**.
5. Move to the pane on the left, locate the **User** section and click to select **Enhanced Session Mode Policy**.
6. Verify there is a check in the **Use enhanced session mode** check box.
7. If changes were made, click **Apply**.
8. Click **OK**.

Enable Guest Services on Each of the Virtual Machines

The below steps need to be completed on all three virtual machines, and should be performed in the following order:

- StudentDC
- StudentServer
- StudentServer2

1. In **Hyper-V Manager**, click to select the virtual machine, then right-click the virtual machine and select **Settings…**.
2. Move to the pane on the left, then locate and click to select **Integration Services** tab.
3. Verify there is a check in the **Guest services** check box.
4. If changes were made, click **Apply**.
5. Click **OK**.

Configure Switches

1. Switch to the host machine, and navigate back to the **VM Build** folder of downloaded files.
2. Within the **VM Build** folder, execute the following scripts in the corresponding order:
    a. 01 ADD EXTERNAL SWITCH TO THE STUDENTDC.PS1.
    b. 02 ADD EXTERNAL SWITCH TO THE STUDENTSERVER.PS1.
    c. 03 ADD EXTERNAL SWITCH TO THE STUDENTSERVER2.PS1.

Configure the StudentDC

1. Right-click **StudentDC** VM, and click **Start**.
2. Right-click **StudentDC** VM, and click **Connect**.
3. In the **Display configuration** dialog box, move the slide bar to full screen, then click **Connect**.

    
    If you do not encounter the Display configuration dialog box, proceed with logging into the virtual machine, then use Hyper-V Manager to shut down and restart StudentDC.
4. Log on as **Administrator**, with the password of Passw0rd.

    
    In Passw0rd the 0 is numeric.
5. You will see a prompt on the right asking **Do you want to allow your PC to be discoverable by other PCs and devices on this network**, click **Yes**.
6. Allow **Server Manager** to start, then open **File Explorer** by clicking on the icon in the task bar, or the key combination of the **Windows + E**.
7. Double-click the **C:** drive.
8. Move to your host, open **File Explorer** and locate the downloaded folder, and within it the subfolder named **UnattendDC**. Note, you cannot use drag and drop.
9. Right-click on the **UnattendDC** folder, then click **Copy**.

10. Move back to your **StudentDC** VM, and click **Paste** within **File Explorer**.
11. In **StudentDC** within the **C:** drive in **File Explorer**, double-click to open the **UnattendDC** folder. You will see four scripts numbered **00** through **03**.
12. Right-click 00 RENAME TO STUDENT DC.PS1, and click **Run with PowerShell**.

     *If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.*
13. Allow the VM to loop until it stabilizes, then log back on.
14. Allow **Server Manager** to start.
15. Click to select the **Local Server** tab on the left.
16. In the **Computer name**, you will see the VM is now named **StudentDC**. (Don't confuse the name of the VM in **Hyper-V** with the actual computer name, as they are independent).
17. In **StudentDC** within the **C:** drive in **File Explorer**, double-click to open the **UnattendDC** folder.
18. Right-click 01 SET NETWORK ADAPTER ON STUDENTDC.PS1, and click **Run with PowerShell**.

     *If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.*
19. Right-click 02 INSTALL AD-SVC_FORREST.PS1, and click **Run with PowerShell**.
20. **StudentDC** VM should reboot and you will wait, then log on as **Administrator**.

     *If you notice that you have a yellow warning icon on the network icon in the task bar, this is by design to get the domain working.*
21. After logging on, switch to **Server Manager**, click to select the **Local Server** tab, and note that you now are in a domain.
22. In **StudentDC** within the **C:** drive in **File Explorer**, double-click to open the **UnattendDC** folder.
23. Right-click 03 CREATE STUDENT AS DOMAIN ADMISTRATOR.PS1, and click **Run with PowerShell**.

     *If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.*
24. Switch to **Hyper-V Manager** in your host, and shut down **StudentDC.**
25. Restart **StudentDC** VM, and click **Other user** in the lower-left corner of the logon screen.
26. Log on as `Student`, NOT Administrator. The password is Passw0rd.

     *In Passw0rd the 0 is numeric.*

    Student Domain Controller is now complete, and so is your Forrest, Domain, and DNS services.
27. Minimize **StudentDC** VM.

Configure StudentServer and Join the Domain

1. In **Hyper-V Manager**, right-click **StudentServer** virtual machine and click **Start**.
2. Double-click **StudentServer** to connect.
3. In the **Display configuration** dialog box, move the slide bar to full screen, then click **Connect**.

    *If you do not encounter the Display configuration dialog box, use Hyper-V Manager to shut down and then restart StudentServer.*

4. Log on as **Administrator**.


In Passw0rd the 0 is numeric.

5. You will see a prompt on the right asking **Do you want to allow your PC to be discoverable by other PCs and devices on this network**, click **Yes**.
6. In the same manner as **StudentDC**, copy and paste the **UnattendStudentServer** folder to the **C:** drive on **StudentServer**.
7. Double-click to open **UnattendStudentServer**.
8. Right-click 00 RENAME TO STUDENTSERVER.PS1, and click **Run with PowerShell**.


If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.

9. Restart **StudentServer** using **Hyper-V Manager**.
10. Connect and log on.
11. In **Server Manager**, click to select the **Local Server** tab, and note the name change.
12. In **StudentServer** within the **C:** drive in **File Explorer**, double-click to open the **UnattendStudentServer** folder.
13. Right-click 01 SET NETWORK ADAPTER ON STUDENTSERVER.PS1, and click **Run with PowerShell**.


If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.

14. Right-click 02 INSTALL WINDOWS FEATURES.PS1, and click **Run with PowerShell**.
15. Right-click 03 JOIN DOMAINSTUDENTSERVER.PS1, and click **Run with PowerShell**.
16. You will be prompted for credentials. Enter `Passw0rd` and click **OK**.


In Passw0rd the 0 is numeric.

28. The VM will reboot.
29. Click **Other user** in the lower-left corner of the logon screen.
30. Log on as `Student`, NOT Administrator. The password is Passw0rd.


In Passw0rd the 0 is numeric.

17. In **Server Manager**, click to select the **Local Server** tab, and note you are now in a domain named **RonsNotes.training.local**.
18. Minimize **StudentServer** VM.

Configure StudentServer2 and Join the Domain

1. In **Hyper-V Manager**, right-click **StudentServer2** virtual machine and click **Start**.
2. Double-click **StudentServer2** to connect.
3. In the **Display configuration** dialog box, move the slide bar to full screen, then click **Connect**.


If you do not encounter the Display configuration dialog box, proceed with logging into the virtual machine, then use Hyper-V Manager to shut down and restart StudentServer2.

4. Log on as **Administrator**.


In Passw0rd the 0 is numeric.

5. You will see a prompt on the right asking **Do you want to allow your PC to be discoverable by other PCs and devices on this network**, click **Yes**.

6. In the same manner as **StudentServer**, copy and paste the **UnattendStudentServer2** folder to the **C:** drive on **StudentServer2**.
7. Double-click to open **UnattendStudentServer2**.
8. Right-click 00_RENAME_TO_STUDENTSERVER2.PS1, and click **Run with PowerShell**.

    *If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.*

   a. Restart **StudentServer2** using **Hyper-V Manager**.
   b. Connect and log in.
   c. In **Server Manager**, click to select the **Local Server** tab, and note the name change.
9. In **StudentServer2** within the **C:** drive in **File Explorer**, double-click to open the **UnattendStudentServer2** folder.
10. Right-click 01_SET_NETWORK_ADAPTER_ON_STUDENTSERVER2.PS1, and click **Run with PowerShell**.

     *If you encounter an Execution Policy Change prompt asking if you want to change the execution policy, enter y and press enter.*
11. Right-click 02_INSTALL_WINDOWS_FEATURES.PS1, and click **Run with PowerShell**.
12. Right-click 03_JOIN_DOMAINSTUDENTSERVER2.PS1, and click **Run with PowerShell**.
13. You will be prompted for credentials. Enter `Passw0rd` and click **OK**.

     *In Passw0rd the 0 is numeric.*
14. The VM will reboot.
15. Click **Other user** in the lower-left corner of the logon screen.
16. Log on as `Student`, NOT Administrator. The password is Passw0rd.

     *In Passw0rd the 0 is numeric.*
17. In **Server Manager**, click to select the **Local Server** tab, and note you are now in a domain named **RonsNotes.training.local**.

At this point, all three machines should be running and connected to the domain.

18. Right-click and **Shut Down** all three VMs using **Hyper-V Manager**.

LAB FILES

- On the **StudentServer2** VM, copy the provided **Lab Files** folder to **C:**.