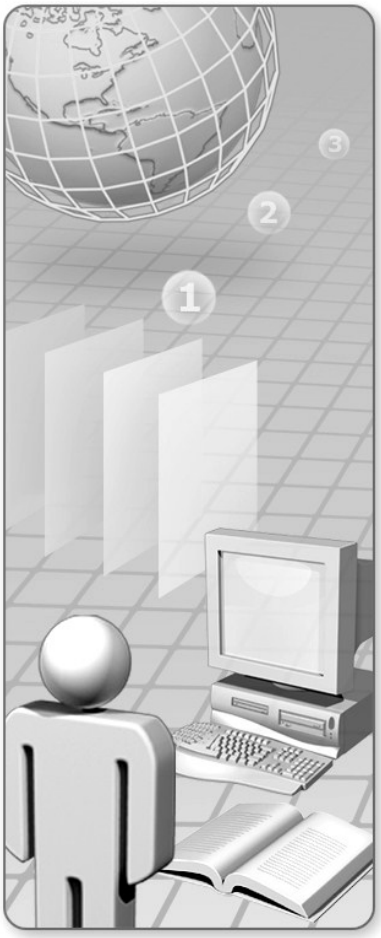
Microsoft

20480B: Programming in HTML5 with JavaScript and CSS3

Microsoft® Hyper-V® Classroom Setup Guide



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Product Number: 20480B

Introducing Microsoft Hyper-V

Important: This setup requires Windows Server® 2008 R2 SP1 with Hyper-V. To successfully import virtual machines into Windows Server 2008 R2 SP1 Hyper-V, you will have to run the VM-Pre-Import script that will create symbolic links to the Base/Middle-Tier images in the C:\Program Files\Microsoft Learning\Base \Drives\ folder and C:\Program Files\Microsoft Learning\Base\Drives\ folder.

This learning product is designed using Microsoft Hyper-V running Windows Server 2008 R2 SP1. Hyper-V is a virtualization technology that allows a single computer to act as a host for one or more virtual machines. The virtual machines use a set of virtual devices that might or might not map to the physical hardware of the host computer.

The software that is installed onto the virtual machine is unmodified, full-version, retail software that operates exactly as it does when it is installed onto physical hardware.

The following definitions will help you with the remainder of this document:

- **Hyper-V**: Hyper-V is a server application that enables users to run a broad range of operating systems simultaneously on a single physical server. Hyper-V is included with some versions of Windows Server 2008. Hyper-V can only be run on 64-bit version of Windows Server 2008 running on 64-bit hardware.
- **Host Computer**: The physical computer onto which an operating system and the Hyper-V server role have been installed.
- **Host Operating System**: The operating system that is running on the physical computer. With Hyper-V, the only supported host operating system is Windows Server 2008 R2 SP1.
- **Virtual Machine**: The computer that is running inside Hyper-V. In this document, "Hyper-V" refers to the application running on the host, while "virtual machine" refers to the guest operating system and any software that is running inside the Hyper-V application.
- **Guest Operating System**: The operating system that is running inside the virtual machine.

Note: Pressing Ctrl+Alt+Delete while working with a virtual machine will display the Windows Security dialog box for the host operating system. To close the dialog box, press Esc. To access the Windows Security dialog box for a guest operating system, press Ctrl+Alt+End. Other than this difference, software on a virtual machine behaves as it would behave on a physical computer.

You can configure virtual machines to communicate with the host computer, other virtual machines on the same host computer, other host computers, virtual machines on other host computers, other physical computers on the network, or any combination thereof.

The setup instructions that you will follow as part of this classroom setup guide configure Hyper-V and the virtual machines that run on the host. Changing any of the configuration settings may render the labs for this learning product unusable.

Setup Overview

The host computers must be set up with a 64 bit version of Windows Server 2008 R2 SP1 and must be running on 64 bit hardware. For more information on the supported hardware for Hyper-V, please see the following web site: http://www.microsoft.com/hyper-v.

For the purposes of this learning product, it is not necessary for the host computers to be able to communicate with another network. However, allowing them to communicate with each other is recommended to make setup easier. The setup procedures below assume that the host computers can communicate with each other for setup purposes. You should note the administrator's user name and password for the host computers and provide this information to the instructor.

Important: It is recommended that you download and apply the following hotfix in order to successfully run Windows Server 2012\Windows 8 in a virtual machine running on a Windows Server 2008 R2 SP1 host.

http://support.microsoft.com/kb/2744129

Without the hotfix, you may experience one or more of the following issues:

- **The Windows 8/Server 2012 virtual machine may stop responding.**
- **The Windows Server 2008 R2 host computer may display a stop error message and restart automatically. This behavior brings down all other running virtual machines together with the host computer.**

Activating Windows 8 Virtual Machines

A new requirement exists that necessitates the activation of VMs that are based on Windows 8. Instructions for activating Windows 8 virtual machines can be found in **Appendix B**.

More information on this new requirement and steps on how to obtain product keys for activation can be found here: http://go.microsoft.com/fwlink/?LinkId=270851

Classroom Requirements

This learning product requires a classroom with a minimum of one computer for the instructor and one for each student. Before class begins, use the following information and instructions to install and configure all computers.

Hardware

The classroom computers require the following hardware and software configuration.

Hardware Level 7

- 64 bit Intel Virtualization Technology (Intel VT) or AMD Virtualization (AMD-V) processor (2.8 Ghz dual core or better recommended)
- Dual 500 GB hard disks 7200 RPM SATA or faster (striped). Note that the course can run using a single 120GB hard disk if dual 500BG disks are not available.
- 16GB RAM. Note that the course can run using 8GB RAM if machines with 16 GB are not available.
- DVD drive (dual layer recommended)
- Network adapter with Internet connectivity
- Dual SVGA monitors 17” or larger supporting 1440X900 minimum resolution
- Video adapter that supports 1440 x 900 resolution
- Microsoft Mouse or compatible pointing device
- Sound card with amplified speakers

In addition, the instructor computer must be connected to a projection display device that supports SVGA 1024 x 768 pixels, 16 bit colors.

Software

Please note that, unless otherwise indicated, this software is not included in the Trainer Materials disc. This learning product was developed and tested on supported Microsoft software, which is required for the classroom computers.

Also required, but not included in the Training Materials: Microsoft® Office PowerPoint® 2007 (instructor computer only).

Classroom Configuration

Each classroom computer will serve as the host for three virtual machines that will run in Hyper-V. Domain or workgroup membership does not matter. The network configuration of the host computers should provide access to the Internet. After completion of the setup, all computers will be configured to run the virtual machines named:

- 20480B-SEA-DEV11
- MSL-TMG1

Estimated Time to Set up the Classroom: 60 Minutes

Instructor Computer Checklist

- ☐ 1. Install the Hyper-V Server Role.
- ☐ 2. Set up the MSL-TMG1 Virtual Machine.
- ☐ 3. Install the Virtual Machine Files.
- ☐ 4. Create a Setup Share.
- ☐ 5. Copy the Virtual Machine Files to the Student Computer.
- ☐ 6. Run the VM-Pre-Import script (For Hyper-V R2 only).
- ☐ 7. Import the Virtual Machines on the Instructor Computer.
- ☐ 8. Configure the Virtual Machines on the Instructor Computer.
- ☐ 9. Install the PowerPoint Slides. (if needed).

Instructor Computer Setup

Use the instructions in the following section to set up the classroom manually. Before starting the installation of the instructor computer, a supported operating system and Microsoft Office PowerPoint 2007 must be installed on the computer.

Important: The operating systems installed on the virtual machines in this learning product have **not** been activated and each virtual machine is in the Notification state. There is no grace period for these virtual machines.

As stated earlier, Windows 8 client virtual machines **need** to be activated, as per the steps outlined in **Appendix B**.

You may be prompted to restart the computer when the virtual machine is started for the first time. This is because of the hardware differences on the Host computer. You can just click **Restart Later** to close the message.

1. Install the Hyper-V Server Role

Important: This course requires a Hyper-V host that is running Windows Server 2008 R2 SP1. Dynamic memory allocation for virtual machines is used in this course, and this feature is only available in Service Pack 1 for Windows Server 2008 R2. The host computer should, as a minimum, meet hardware level 6 standards with 8GB of memory – more than 8GB of memory is recommended.

In this task you will install the Hyper-V server role on a Windows Server 2008 R2 SP1 host computer.

Important: If Hyper-V is already installed, you can skip this procedure.

1. On the host machine, click **Start**, point to **Administrative Tools**, and then click **Server Manager**.
2. In the **Server Manager** console, click **Roles**. In the **Details** pane, click **Add Roles**.
3. On the **Before You Begin** page, click **Next**.
4. On the **Select Server Roles** page, select the **Hyper-V** check box, and then click **Next**.
5. On the **Hyper-V** page, click **Next**.
6. On the **Create Virtual Networks** page, ensure that no networks are selected, and then click **Next**.
7. On the **Confirm Installation Selections** page, click **Install**. On the Installation Results page, click **Close**. When prompted to restart the computer, click **Yes**.
8. After the server restarts, log on using administrator credentials. When the installation finishes, click **Close**.

2. Set up the MSL-TMG1 Virtual Machine

The MSL-TMG1 virtual machine and its related setup guide can be downloaded from the MCT Download Center in the Base Virtual Hard Disks – Mid-Tiers (ENGLISH) folder. The TMG VM requires Base11A-WS08R2SP1.VHD which is also available on the DLC in the Base Virtual Hard Disks (ENGLISH) folder.

Important: You must follow the MSL-TMG1 setup guide to create the **Private Network** virtual network and deploy the virtual machine base image used by this course.

After completing the steps in the MSL-TMG1 setup guide, if the host computer has 8GB of memory or less, shut down the MSL-TMG1 virtual machine and in Hyper-V Manager, edit its settings to set its memory to the static value **1024** MB. Then start MSL-TMG1 and ensure that it is running for the remainder of the build process.

> **Important:** Make a note of the IP address of the DNS server used by the MSL-TMG1 virtual machine as this information is required when configuring the virtual machines for the course.
>
> To find the IP address of the DNS server, log on to the MSL-TMG1 virtual machine as **Administrator** with password **Pa$$word**, open a command prompt window, and type **ipconfig /all**

3. Install the Virtual Machine Files

After installing the Hyper-V server role, you will need to follow the following steps to copy the base images, middle tiers and virtual machine files to the server and then configure the virtual machines.

Extract the Course Images

To Extract the Base Image:

1. In the Courseware source files location, double-click **Base12B-W8.part01.exe**.
2. When the license agreement is displayed, click **Accept** to indicate that you accept the terms in the license agreement.
3. In the **WinRAR self-extracting archive** window, in the **Destination folder** box, ensure that **C:\Program Files\Microsoft Learning\Base** is listed, and then click **Extract**. Please wait while the base virtual hard disk file is extracted. This might take a few minutes.

To Extract the Middle Tier Images:

1. In the Courseware source files location, double-click **MT12-W8-CL1-Office2010SP1.part01.exe**.
2. When the license agreement is displayed, click **Accept** to indicate that you accept the terms in the license agreement.
3. In the WinRAR self-extracting archive window, in the **Destination folder** box, ensure that **C:\Program Files\Microsoft Learning\Base\Drives** is listed, and then click **Extract**.
4. Please wait while the middle tier virtual hard disk file is extracted. This might take a few minutes.
5. Repeat steps 1 through 4 for the following middle tier drives:
   - **MT12-SEA-DEV11.part01.exe**

To Extract the Virtual Machines: (If required for disk space, you can extract the course specific files to a different drive as long as the Base images and the Middle Tiers are located in the default path.)

1. In the Courseware source files location, double-click **20480B-SEA-DEV11.exe**.
2. When the license agreement is displayed, click **Accept** to indicate that you accept the terms in the license agreement.
3. In the **WinRAR self-extracting archive** window, in the **Destination folder** box, type **C:\Program Files\Microsoft Learning\20480\Drives**, and then click **Extract**. Please wait while the virtual machine file is extracted. This might take a few minutes.

Note: After completing the extraction of all of the classroom files, you should have the following files installed:

File	In Folder
Base12B-W8.vhd	C:\Program Files\Microsoft Learning\Base
MT12-W8-CL1-Office2010SP1.vhd	C:\Program Files\Microsoft Learning\Base\Drives
MT12-SEA-DEV11.vhd	C:\Program Files\Microsoft Learning\Base\Drives
VM-Pre-Import-20480-SEA-DEV11.bat	C:\Program Files\Microsoft Learning\20480\Drives \20480-SEA-DEV11
20480B-SEA-DEV11.vhd	C:\Program Files\Microsoft Learning\20480\Drives \20480-SEA-DEV11\Virtual Hard Disks
20480B-SEA-DEV11-Allfiles.vhd	C:\Program Files\Microsoft Learning\20480\Drives \20480-SEA-DEV11\Virtual Hard Disks
<GUID>.exp	C:\Program Files\Microsoft Learning\20480\Drives \20480B-SEA-DEV11\Virtual Machines

4. Create a Setup Share

In this task, you will share virtual machine files for copying to student computers.

1. Share the **C:\Program Files\Microsoft Learning\Base** folder using the share name **Base_Drives**.
2. Share the **C:\Program Files\Microsoft Learning\20480\Drives** folder using the share name **20480_Drives**.

> **Note:** For information on how to set up a share in Windows Server 2008, see the topic “Share a Resource” in Windows Help and Support.

5. Copy the Virtual Machine Files to the Student Computer

> **Note:** You must perform the file copy before importing the virtual machines. After you have imported the virtual machines, you will not be able to import them again.

1. From the student computer, copy all of the files from the **Base_Drives** share on the instructor computer to **C:\Program Files\Microsoft Learning\Base**.
2. Copy all of the files from the **20480_Drives** share on the instructor computer to **C:\Program Files\Microsoft Learning\20480\Drives**.

> **Note:** Ensure that all files are copied.
>
> - C:\Program Files\Microsoft Learning\20480 and all included folders and files
> - C:\Program Files\Microsoft Learning\Base

3. Ensure that you have copied the files using a permission-retaining tool such as RoboCopy or XCopy.
4. Check that all permissions have been retained by looking at the directories above and making sure they are not Read Only.
5. Add the virtual machines to the Hyper-V management console. For detailed instructions on how to do this, see the instructor computer setup instructions.

6. Run the VM-Pre-Import Script (for Hyper-V R2 Only)

In this task you will run the VM-Pre-Import bat file. This script will create links to the Base and Middle Tier images in the import folder necessary for importing each virtual machine.

1. Double-click **VM-Pre-Import-20480B-SEA-DEV11.bat** (found in the **C:\Program Files\Microsoft Learning\20480\Drives\20480B-SEA-DEV11** folder).

2. Verify that the links are created in the following folder:

   - C:\Program Files\Microsoft Learning\20480\Drives\20480B-SEA-DEV11\Virtual Hard Disks

7. Import the Virtual Machine on the Instructor Computer

1. On the instructor computer, on the host machine, click **Start**, point to **Administrative Tools**, and then click **Hyper-V Manager**.
2. In the **Actions** pane, click **Import Virtual Machine**.
3. In the **Import Virtual Machine** dialog box, click **Browse**. Browse to **C:\Program Files\Microsoft Learning\20480\Drives**, click **20480B-SEA-DEV11**, and then click **Select Folder**.
4. Click **Import**.

8. Configure the Virtual Machine on the Instructor Computer

1. In Hyper-V Manager, right-click **20480B-SEA-DEV11**, and then click **Start**.
2. Right-click **20480B-SEA-DEV11**, and then click **Connect**.
3. Verify that the server starts. Log on as **Admin** using the password **Pa$$w0rd**. Verify that the logon is successful.
4. If Windows installs new hardware, and you are prompted to restart, click **Restart Now**. When the virtual machine restarts, log back in.

   Note: Complete the product activation instructions in **Appendix B** for the following Windows 8 Virtual Machines:

   - 20480B-SEA-DEV11
5. In the Windows 8 **Start** window, click the **Desktop** tile.
6. On the Windows desktop, in the Taskbar, click the Windows Explorer icon.
7. In Windows Explorer, right-click **Network** and then click **Properties**
8. In the Network and Sharing Center, click Change adapter settings
9. In the **Network Connections** window, right-click the local area connection adapter and click **Properties**
10. In the **Properties** window select **Internet Protocol Version 4 (TCP/IPv4)** and then click **Properties**.

11. Verify that the connection is configured to use the following settings, and then click **OK** (*Note: You will probably need to change the IP address of the preferred DNS server to be the same address as the DNS server used by the MSL-TMG1 virtual machine*)
    - IP address: 10.10.0.11
    - Subnet mask: 255.255.0.0
    - Default gateway: 10.10.0.1
    - Preferred DNS server: Specify the IP address of the DNS server used by the MSL-TMG virtual machine acting as the gateway
12. Close the **Network Connections window**.
13. Close the **Network and Sharing Center**
14. If the MSL-TMG1 virtual machine has been configured to use an **External Network** virtual network with Internet connectivity, in the SEA-DEV11 virtual machine, start Internet Explorer and verify that you can open a web site such as www.bing.com. If not, verify that you have configured the MSL-TMG1 server networking settings and enabled the appropriate firewall rules in MSL-TMG1 as specified in the MSL-TMG1 setup guide.
15. Shut down the **20480B-SEA-DEV11** virtual machine.
16. In Hyper-V Manager, under **Virtual Machines**. perform the following steps for each virtual machine:
    a. Right-click the virtual machine and click **Snapshot**.
    b. Wait for the snapshot process to finish.
    c. In the Snapshots pane, right-click the snapshot name, click **Rename**.
    d. Type **StartingImage**; and then press Enter.

9. Install the PowerPoint Slides

1. In this task, you will install the PowerPoint slides for the learning product by extracting 20480B-ENU-PowerPoint.exe.
2. In the Trainer Materials disc, in the \TrainerFiles folder, extract 20480B-ENU-PowerPoint.exe.

Student Computer Checklist

- ☐ 1. Install the Hyper-V Server Role.
- ☐ 2. Install the Base Image/Virtual Machine Files.

Student Computer Setup

Use the instructions in the following section to set up the classroom manually. Before starting the installation of the student computer, a supported operating system must be installed on the computer.

Caution: These instructions assume network connectivity between the instructor computer and the student computers. If you do not have connectivity, Microsoft Learning recommends copying the activated virtual machines to the student computers by means of a manually created DVD or universal serial bus (USB) drive.

1. Install the Hyper-V Server Role

Note: If Hyper-V is already installed, you can skip this procedure.

For detailed instructions see the Instructor Computer Setup instructions.

2. Install the Base Image/Virtual Machine Files

Note: Ensure that all extracted courseware virtual machine files were copied from the instructor computer during the instructor computer setup process. The following directories and shortcuts will be needed to ensure that the student has all necessary files to add the virtual machines.

- C:\Program Files\Microsoft Learning\20480 and all included folders and files
- C:\Program Files\Microsoft Learning\Base

1. Check that all permissions have been retained, by looking at the directories above and making sure they are not Read Only.
2. Run the VM-Pre-Import script (For Hyper-V R2 only). For detailed instructions see the Instructor Computer Setup instructions.
3. Add the virtual machines to the Hyper-V management console and configure them. For detailed instructions see the Instructor Computer Setup instructions.

Appendix A

The virtual machines were developed using the English (United States) layout shown below.

If your physical keyboard doesn't match the above layout, you may need to refer to the above layout for the character positions used to logon. For future logons and usage throughout the labs, you may want to install your keyboard layout in the virtual machine.

Appendix B – Activating Windows 8 Virtual Machines

Obtaining Product Keys for Activation
To receive product keys that you will use to activate the Windows 8 virtual machines accompanying this course, please follow the guidelines described here:
http://go.microsoft.com/fwlink/?LinkId=270851

Activating a Windows 8 Virtual Machine
You must first ensure that the TMG virtual machine and any domain controller (if required for the course) have been started and that the TMG virtual machine has internet connectivity. Then perform the following steps to activate the Windows 8 Virtual Machine:

1. On the Windows start page, type **cmd**.
2. Right-click **Command Prompt**, and then click **Run as administrator**.
3. If prompted, click **Yes** on the **User Account Control** dialog box.
4. On the command prompt, type **slmgr /ipk <product key>**, and press **ENTER**.
5. Click **OK** on the dialog box.
6. On the command prompt, type **slmgr /ato**, and press **ENTER**.
7. **Note:** In order for you to be able to activate the virtual machine successfully, the virtual machine must have internet connectivity.
8. Click **OK** on the dialog box.

Appendix C – Activating Office 2010

1. On the Windows start page, type **cmd**.
2. Right-click **Command Prompt**, and then click **Run as administrator**.
3. If prompted, click **Yes** on the **User Account Control** dialog box.
4. On the command prompt, type **cd C:\Program Files (x86)\Common Files\Microsoft Shared\OfficeSoftwareProtectionPlatform**, and press **ENTER**.
5. On the command prompt, type **osppreparm.exe**, and press **ENTER**.
6. When the message that states success appears, close the Command Prompt.