Visual Studio 2017
Team Foundation Server 2017
Team Foundation Server 2018
Visual Studio Team Services

Class Requirements and Setup Guide

August 2018
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Class Setup Requirements

ALM2017: Application Lifecycle Management Using Visual Studio 2017
This class has the students working on their own or in pairs in Visual Studio and other client applications as they setup, configure, plan, track, and execute a software development effort using Team Foundation Server 2017.

Setup Requirements
- Microsoft VS 2017 ALM VM (see Visual Studio 2017 ALM VM Setup in the appendix)
- Fast, reliable Internet access

CDVSTS: DevOps: Continuous Delivery Using Visual Studio Team Services
This class has the students working as a team with various DevOps practices and tools to scale their agility, share and integrate their work, and deliver working software continuously in order to enable faster delivery of value and feedback. This class uses Visual Studio Team Services, Visual Studio 2017, and Azure.

Setup Requirements
- Modern version of Windows with local administrator permissions
- Google Chrome browser with fast, reliable Internet access
- Visual Studio 2017 Enterprise Edition (see Installing Visual Studio 2017 in the appendix)

Note: The Microsoft VS 2017 ALM VM meets the above requirements
- Students must have a Microsoft Account (see Microsoft Accounts in the appendix)
- Microsoft Azure subscription (see Azure Accounts and Subscriptions in the appendix)

MPVS2017: Managing Projects Using Visual Studio 2017 and Scrum
This class has the students working as a team to plan, track, and develop software using Visual Studio 2017 while following the Scrum framework. This class uses Visual Studio Team Services.

Setup Requirements
- Modern version of Windows with local administrator permissions
- Google Chrome browser with fast, reliable Internet access
- Visual Studio 2017 Enterprise Edition (see Installing Visual Studio 2017 in the appendix)

Note: The Microsoft VS 2017 ALM VM meets the above requirements
- Students must have a Microsoft Account (see Microsoft Accounts in the appendix)

MPVSTS: Managing Projects Using Visual Studio Team Services
This class has the students working as a team to plan and track work using Visual Studio Team Services.

Setup Requirements
- Students must have a Microsoft Account (see Microsoft Accounts in the appendix)
- Google Chrome browser with fast, reliable Internet access
This class has the students working in teams as they use Scrum, Visual Studio, and agile development practices to deliver improvements within a case study. This class uses Visual Studio Team Services.

Setup Requirements
- Modern version of Windows with local administrator permissions
- Google Chrome browser with fast, reliable Internet access
- Visual Studio 2017 Enterprise Edition (see Installing Visual Studio 2017 in the appendix)
  
  Note: The Microsoft VS 2017 ALM VM meets the above requirements
- Students must have a Microsoft Account (see Microsoft Accounts in the appendix)

This class has the students working as a team as they plan, track, and execute development, acceptance, and exploratory tests using Visual Studio 2017. This class uses Visual Studio Team Services.

Setup Requirements
- Modern version of Windows with local administrator permissions
- Google Chrome browser with fast, reliable Internet access
- Visual Studio 2017 Enterprise Edition (see Installing Visual Studio 2017 in the appendix)
  
  Note: The Microsoft VS 2017 ALM VM meets the above requirements
- Students must have a Microsoft Account (see Microsoft Accounts in the appendix)

TCM2017: Test Case Management Using Visual Studio 2017
This class has the students working on their own or in pairs using the web-based tools and extensions as they setup, plan, track, and execute manual and automated tests. This class uses Visual Studio Team Services.

Setup Requirements
- Modern version of Windows with local administrator permissions
- Google Chrome browser with fast, reliable Internet access
- Visual Studio 2017 Enterprise Edition (see Installing Visual Studio 2017 in the appendix)
  
  Note: The Microsoft VS 2017 ALM VM meets the above requirements
- Students must have a Microsoft Account (see Microsoft Accounts in the appendix)

TFS2017: Administering Team Foundation Server 2017
This class has the students working on their own or in pairs as they plan, install, configure, secure, and optimize Team Foundation Server 2017.

Setup Requirements
- Windows Server 2012R2 Evaluation VM (see Windows Server 2012 R2 Evaluation VM for TFS2017 in Appendix B)
- Fast, reliable Internet access
TFS2018: Administering Team Foundation Server 2018
This class has the students working on their own or in pairs as they plan, install, configure, secure, and optimize Team Foundation Server 2018.

Setup Requirements
- Windows Server 2012R2 Evaluation VM (see Windows Server 2012 R2 Evaluation VM for TFS2018 in Appendix C)
- Fast, reliable Internet access

TFSD2017: Team Foundation Server Developer Foundations (Git and TFVC)
This class has the students working on their own or in pairs in Visual Studio and other client applications as they setup, configure, plan, track, and execute a software development effort using Team Foundation Server 2017.

Setup Requirements
- Microsoft VS 2017 ALM VM (see Visual Studio 2017 ALM VM Setup in the appendix)
- Fast, reliable Internet access

UTVS2017: Unit Testing in Visual Studio 2017
This class has the students working on their own or in pairs in Visual Studio as they write and run unit tests in various ways.

Setup Requirements
- Modern version of Windows with local administrator permissions
- Google Chrome browser with fast, reliable Internet access
- Visual Studio 2017 Enterprise Edition (see Installing Visual Studio 2017 in the appendix)
- .NET Framework 3.5 (including .NET 2.0 and 3.0) used by Nunit and NCrunch

Note: The Microsoft VS 2017 ALM VM meets the above requirements

All Other Accentient and Scrum.org Classes
Unless previously mentioned, any other Accentient or Scrum.org class won't require computers, and thus won't have any specific setup requirements. That said, having laptops available with fast, reliable Internet access is always a good idea.

Room Configuration
If possible, configure the classroom as an open space, with movable tables that can accommodate 4-6 students per table. Square or round tables will work fine. Long rectangular tables can be put side by side to make a square.

Configuration in rows is not recommended, and will diminish the team-based learning experience. Laptops are ideal as they are lightweight and can be moved to another table as needed. For most classes, pairing is encouraged. This means there only needs to be one laptop for every two students. Power strips are preferred.

Please provide a table or podium for the instructor laptop as well as a projector to plug into. Plenty of whiteboards and/or flip charts make for a good learning experience as well. Visit https://bit.ly/2mR40cQ for more details and some examples.
Appendices

Appendix A: Visual Studio 2017 ALM VM Setup

For those classes that don’t require the VM, but suggest it as an alternative to installing the required software, please consider the student’s perspective. Having natively installed software running “on the metal” and not having a local instance of Team Foundation Server will provide a better learning experience.

Note: If you are setting up the Administering Team Foundation Server class, you will need to use a different VM. Please see Windows Server 2012 R2 Evaluation VM in the appendix.

System Requirements

The host computer running the VM can be a desktop or a laptop computer. It must be capable of running Microsoft Hyper-V or Oracle VirtualBox (free). For a Hyper-V implementation, please follow the default instructions as outlined on the Working with the Visual Studio 2017 ALM VM page. For Oracle VirtualBox implementation, please provide computers that meet the following criteria:

- Operating System: Windows 8, 8.1, 10 or Windows Server 2008 R2 or higher
- Processor: Fast Intel VT or AMD-V capable (SLAT-capable CPU required if using Windows 8)
- RAM: 8+ GB of free physical RAM (allows at least 6 GB to be assigned to the VM)
- Hard disk space: 80 GB (more if using snapshots), x 2 when converting VHD to VDI

Note: If your environment cannot support these requirements, or you want to avoid the hassle of setting up and configuring the environment, we can arrange hosted VMs as a service at an additional cost. Please contact us for more information.

Download the Virtual Machine

1. Download the Visual Studio ALM VM 2017 from http://aka.ms/almvm and extract to a known location.

   Note: Be sure to download the “previous” 2017 version. Those direct links can be found here. The download is ~18 GB. Consider using a download manager, such as Free Download Manager, and be sure to budget enough time before class to complete this and the rest of the steps.

2. If you are using Hyper-V, follow those specific instructions on this page, and don’t forget to enable Internet access. Otherwise, follow the rest of these instructions to configure the VM to run using Oracle VirtualBox.

Configure Oracle VirtualBox


   Note: These instructions were created using version 5.2.10. Newer versions should be compatible.

2. Use the vboxmanage command-line utility to convert the .vhd file to a .vdi formatted file.

   Here is an example command (with no break):

   "c:\program files\oracle\virtualbox\vboxmanage" clonehd c:\almvm\almvm.vhd c:\almvm\almvm.vdi --format vdi

   Note: The process can take a long time. Use separate drivers or SSDs for better performance.
3. Launch **VirtualBox**, create a new VM, give it a friendly name, and select **Windows 2016 (64-bit)** as the operating system.

Write down the friendly name you gave the VM ____________________________

![VirtualBox setup interface](image)

4. Give the VM adequate memory (at least 6 GB is recommended).

5. Select the **Use an existing virtual hard drive file** option, select the .vdi file, and click **Create**.

![VirtualBox hard drive selection](image)

6. In the **Oracle VM VirtualBox Manager**, select the new VM and click **Settings**.

7. On the **General** page > **Advanced** tab, set **Shared Clipboard** to **Bidirectional**.

8. On the **System** page > **Processor** tab, set the number of **CPUs** to **2** (or more) if possible.

![VirtualBox processor settings](image)

9. Click **OK** to save your settings.
Start VM, Activate and Configure Windows

1. Start the VM and sign in as Administrator using the password **P2ssw0rd**.

   To send the Ctrl + Alt + Delete key combination, hold down the Right Ctrl key (known as the “host” key) and press the Del key. The password contains an upper case “P”, the number “2”, and a zero “0”.

2. Confirm that Windows Firewall is Off for all profiles (public, private, etc.)

3. Run `gpedit.msc`, navigate to Computer Configuration > Administrative Templates > System > Server Manager, and enable the Do not display Server Manager automatically at logon policy.

4. Next, navigate to Computer Configuration > Administrative Templates > Windows Components > Windows PowerShell, enable the Turn on Script Execution policy, and select the Allow all scripts policy.

   ![Options]

   ![Execution Policy]
   Allow all scripts


6. Next, navigate to User Configuration > Administrative Templates > Windows Components > Attachment Manager, double-click Inclusion list for low file types, click Enable and enter these extensions: **.bat;.cmd;.exe;.msi;.ps1;.reg;.vbs** in Options.

   ![Options]

   ![Specify low risk extensions (include a leading period, e.g.,.bmp;.gif).

   .bat;.cmd;.exe;.msi;.ps1;.reg;.vbs

7. From the Control Panel navigate to System and Security > System.

   You can also get here by right-clicking on Computer and selecting Properties.

8. **Activate** Windows if it is not already activated.

   **Note**: Activation requires Internet connectivity. Activation begins a 180-day trial period. After the 180 days, you will need to stop using this VM.
9. Launch the **Command Prompt** as an **Administrator**.

You can do this by searching for the **Command Prompt** from the start screen, right-clicking on it, and selecting **Run as administrator**.

10. Run **sconfig**, select **5** and then **M** to disable automatic updates. Exit the command window when finished.

11. Set the **Time zone** and **Time** appropriately.

12. From **File Explorer**, choose to see **File name extensions**.

   **Install VirtualBox Guest Additions**
   1. On the VirtualBox console, select **Devices > Install Guest Additions CD image**.
   2. Using **File Explorer**, navigate to the newly-mounted CD Drive and run **VBoxWindowsAdditions.exe**.
   3. Install the additions using the default settings.
   4. Ensure that **Reboot now** is selected and click **Finish** to complete the installation.

   **Re-arm Microsoft Office**
   1. Sign in as **Administrator** using the password **P2ssw0rd**.
   2. Launch the **Command Prompt** as an **Administrator**.
   3. From the command line, execute these two commands:

      \( \Rightarrow \) cd c:\program files (x86)\microsoft office\office16
      \( \Rightarrow \) ospprearm.exe

   If you are running a different version of Excel, you’ll need to tweak the path accordingly. Executing the rearm command resets the 30 day trial usage. If prompted to activate any of the products, you can rerun this step up to a total of 5 times. For more information visit [http://bit.ly/1aXcdZo](http://bit.ly/1aXcdZo). This page is for Office 2013, but applies to the 2016 version as well.
Additional Setup

1. Launch **Internet Explorer**, delete all favorites, and set the home page to [www.google.com](http://www.google.com).

   **Note**: Although the students will primarily be using Chrome in class, there are some Internet Explorer tasks.

2. Download and install Google **Chrome**, making it the default browser.

3. Install any missing **Visual Studio 2017** components, such as **Test Manager**. (see *Installing Visual Studio 2017* in the appendix).

4. Using **File Explorer**, navigate to `C:\Users\Public\Public Desktop` and delete all folders and files.

5. Download/copy and save the corresponding `CoursewareFiles.exe` to the Public Desktop folder.

   The instructor should know where to obtain this file. Contact richard@accentient.com if you have any questions. Students can also do this on the first day of class, if the files are made available.

6. Delete the following user accounts: **Brian**, **Clemri**, **Deniz**, **Lan**, **Michael**, and **Sachin**.

7. Delete the following folders and their contents:
   - `C:\agent`
   - `C:\Bits`
   - `C:\FabrikamRM`
   - `C:\Headshots`
   - `C:\IntelliTrace`
   - `C:\LogFileLocation`
   - `C:\PartsUnlimitedDB`
   - `C:\PerfLogs`
   - `C:\Samples`
   - `C:\SymCache`

8. Shut down **Windows**.

Create a Snapshot (optional)

1. In the VM Manager, select the VM and select **Snapshots**.

2. Take a snapshot, providing an appropriate name and optional description, and click **OK**.

   Snapshots can be used to revert a VM to a previous configuration state, such as our initially configured and activated one. This will help if you plan on distributing the VM to various student machines and want to provide the ability to reset the VM to a known state to go through the labs.
Appendix B: Windows Server 2012 R2 Evaluation VM (for TFS2017)
The Administering Team Foundation Server course must use this VM. If you want to use another version or edition of Windows, you will need to do your own testing and be responsible for any drift in the lab steps.

Note: These steps are for setting up the TFS2017 class. If you are setting up TFS2018, then refer to Appendix C.

System Requirements
The host computer running the VM can be a desktop or a laptop computer. It must be capable of running Hyper-V or VirtualBox. Please provide computers that meet the following criteria:

- **Processor**: Fast Intel VT or AMD-V capable (SLAT-capable CPU required if using Windows 8)
- **RAM**: 8+ GB of free physical RAM (allows at least 6 GB to be assigned to the VM)
- **Hard disk space**: 40 GB (more if using snapshots), x 2 when converting VHD to VDI

Note: If your environment cannot support these requirements, or you want to avoid the hassle of setting up and configuring the environment, our partner ReadyTech can provide hosted VMs as a service at an additional cost. Please contact us for more information.

Download Software
   This step can take quite some time to complete, even using a fast computer on a fast Internet connection. Budget enough time before class to complete this and the rest of the steps.

2. Rename the .vhd file to a shorter, more manageable name like `W2012R2Eval.vhd`.

3. Follow the rest of these instructions to configure the VM to run using Oracle VirtualBox.
   - Note: Hyper-V, VMware, and other virtualization utilities are not supported. You are on your own.

Install and Configure Oracle VirtualBox
   - Note: These instructions were created using version 5.1.30. Newer versions should be compatible.

2. Use the `vboxmanage` command-line utility to convert the .vhd file to a .vdi formatted file.
   - Here is an example command (with no break):
   ```bash
   "c:\program files\oracle\virtualbox\vboxmanage" clonehd c:\downloads\w2012r2eval.vhd c:\vm\w2012r2eval.vdi --format vdi
   ```
   - Note: The process can take a long time. Use separate drivers or SSDs for better performance.
3. Use the **vboxmanage** command-line utility to increase the size of the .vdi file.

Here is an example command (with no break):

```
"c:\program files\oracle\virtualbox\vboxmanage" modifyhd
c:\vm\w2012r2eval.vdi --resize 80000
```

4. Launch **VirtualBox**, create a new VM, give it a friendly name, and select **Windows 2012 (64 bit)** as the operating system.

Write down the friendly name you gave the VM ________________________________________.

5. Give the VM adequate memory (at least 6 GB is recommended).

6. Select the **Do not add a virtual hard disk** option and click **Create**.

7. Click **Continue** when prompted.

8. In the **Oracle VM VirtualBox Manager**, select the new VM and click **Settings**.

9. On the **General** page > **Advanced** tab, set **Shared Clipboard** to **Bidirectional**.

10. On the **System** page > **Processor** tab, set the number of **CPUs** to **2** (or more) if possible.
11. In the **Storage** section, right-click on the **Controller: SATA** and select **Add Hard Disk**.

![Image of Storage section with Controller: SATA and Add Hard Disk highlighted]

12. Select **Choose existing disk**, navigate to the .vdi file you cloned and resized earlier, and select it.

13. Click **OK** to save your settings.

---

**Start VM, Activate, and Configure Windows**

1. Start the VM.

2. Confirm the settings, accept the license terms, and enter **P2ssw0rd** for the password.

3. Sign in to the VM as **Administrator** using the password **P2ssw0rd**.

   To send the Ctrl + Alt + Delete key combination, hold down the *Right Ctrl* key (known as the “host” key) and press the *Del* key. The password contains an upper case “P”, the number “2”, and a zero “0”.

4. From **Server Manager**, select **Local Server** and confirm that **IE Enhanced Security Configuration** is **Off** for both Administrators and Users.

![Image of Server Manager with Local Server selected]

5. Configure **Server Manager** to **not start automatically at logon** and then exit Server Manager.

6. From the **Control Panel** navigate to **System and Security > System**.

   You can also get here by right-clicking on **Computer** and selecting **Properties**.
7. If Windows is not activated, click the View details in Windows Activation link at the bottom of the window and then click Activate on the next screen.

   Note: It might take a few moments for the first link to appear. Activation requires Internet connectivity. Activation begins a 180-day trial period. After the 180 days, you will need to stop using this VM.


9. Click Change and change the computer name to vsalm and reboot.

10. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.

11. From Control Panel > System and Security > System ...
    a. Click Remote settings and allow remote connections even from computers without NLA.
    b. Click Windows Update and change settings to Never check for updates.

12. From Control Panel > System and Security navigate to Action Center and set User Access Control (UAC) to Never notify by dragging the slider all the way to the bottom.

13. Launch Computer Management and set the Administrator password to never expire.

14. From Server Manager > Local Server add the following features (and related features):
    a. .NET Framework 3.5 Features
    b. SMTP Server
    c. User Interfaces and Infrastructure > Desktop Experience
    d. XPS Viewer

15. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.

16. Launch Computer Management and go to Disk Management.

17. Right-click on the drive C: volume and choose Extend Volume, click Next twice and then click Finish.

18. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.


20. Download and install Google Chrome, making it the default browser.

21. Download and install the latest version of WinRAR.

22. Using File Explorer, delete the C:\PerfLogs folder.
Install VirtualBox Guest Additions
1. On the VirtualBox console, select Install Guest Additions CD image.

   You may have to press the right Ctrl key to release mouse and keyboard control from the virtual machine. After a moment, the AutoPlay dialog will appear. If the dialog doesn't automatically appear, open Windows Explorer, navigate to D: and double click VBoxWindowsAdditions.exe manually.

2. Click Run VBoxWindowsAdditions.exe.
3. Click Next twice, accepting the default settings, and Install the additions.

   When prompted, check the box to Always trust software from “Oracle Corporation” and click Install.

4. Ensure that Reboot now is selected and click Finish to complete the installation.

Download and Install SQL Server 2016
1. Sign in to the VM as Administrator using the password P2ssw0rd.

2. Create a SQLSERVICE “SQL Server Service Account” user account with a password P2ssw0rd (never expires).


5. Restart windows and sign in as Administrator using the password P2ssw0rd.

6. Download SQL Server 2016 (iso or exe) with the latest service pack from http://bit.ly/1MDNxsK.

   Note: You may have to download and install the service pack separately.

7. Mount the .iso file (or run the .exe file) and begin a new SQL Server stand-alone installation.

   • Don’t use Microsoft Update but do install any critical updates (may require a restart)
   • Install these features:
      - Database Engine Services
      - Full-Text and Semantic Extractions for Search
      - Analysis Services
      - Reporting Services – Native
      - Client Tools Connectivity
      - Client Tools Backwards Compatibility
      - Client Tools SDK
      - Documentation Components
      - SQL Client Connectivity SDK
Continue installing SQL Server with these settings:

- SQL Server Agent set to automatic startup
- All automatic services running under SQLSERVICE with P2ssw0rd password
- Mixed mode: SA password is P2ssw0rd
- Add current user as SQL Administrator
- Enabled FILESTREAM with defaults
- Add current user as Analysis Services Administrator


10. If necessary, install the SQL Server service pack and restart Windows.

Download and Install SharePoint Foundation 2013

1. Sign in to the VM as Administrator using the password P2ssw0rd.

2. Create a SPSERVICE “SharePoint Service Account“ user account with a password P2ssw0rd (never expires).


4. Launch the SharePoint.exe installer and install the software prerequisites.

   **Note:** If prompted, select the Microsoft (R) HTML Application host to open the file.

5. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.

6. Press Finish when the installer completes the installation of the prerequisites.


8. Launch the SharePoint.exe installer, perform a Complete install of SharePoint Foundation, don’t run the Configuration Wizard, but restart instead and sign in as Administrator using the password P2ssw0rd.


   - DatabaseName: SharePoint_Config
   - DatabaseServer: vsalm
   - FarmCredentials: vsalm\SPSERVICE and P2ssw0rd
   - Passphrase: P2ssw0rd

   **Note:** It takes a few moments to create the new configuration database.
10. Exit the Management (Power) Shell.

11. Run the **SharePoint Products Configuration Wizard**.

   - Use the existing server farm settings (as previously configured).
   - Specify a port number of **17012** and ensure NTLM authentication is selected
   - Close the browser when the wizard is done

12. In **Internet Explorer** add `http://vsalm` and `http://localhost` to **local intranet** zone.

   This will keep the browser from prompting for credentials in the next step.

13. From the browser, navigate to `http://vsalm:17012` (SharePoint 2013 Central Administration).

14. Create a new **Web Application** using all default settings except …

   - Use an existing IIS web site: **Default Web Site**

15. Restart Windows and sign in to the VM as **Administrator** using the password **P2ssw0rd**.

**Prepare the Public (Shared) Desktop**

1. Using **File Explorer**, navigate to `C:\Users\Public\Public Desktop`.

   **Note**: This is a hidden folder, so you may have to type the address in directly. You can also just type `C:\Users\Public\Desktop` which resolves to the same folder.

2. Download/copy and save the corresponding `CoursewareFiles.exe` to the Public Desktop folder.

   The instructor should know where to obtain this file. Contact richard@accentient.com if you have any questions. Students can also do this on the first day of class, is the files are made available.

Create a Snapshot (optional)

1. In the VM Manager, select the VM and click the **Snapshots** icon in the upper-right corner of the console.

2. Right-click in the **Current State** entry and select **Take Snapshot**.

   **Note**: you can also click the toolbar icon, or use the keyboard combination: Ctrl + Shift + S.

3. Provide an appropriate **Snapshot Name** and **Snapshot Description** and click **OK**.

Snapshots can be used to revert a VM to a previous configuration state, such as our initially configured and activated one. This will help when distributing the VM to various student machines and the ability to reset the VM to a known state to go through the hands-on-labs.
Download Files Used in the Labs

1. Download and copy to each student’s host computer the following software products:

<table>
<thead>
<tr>
<th>Product</th>
<th>Size</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Foundation Server 2017 Update 1 ISO</td>
<td>~420 MB</td>
<td><a href="http://my.visualstudio.com">http://my.visualstudio.com</a></td>
</tr>
<tr>
<td>Note: Download from my.visualstudio.com to obtain this version</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Studio Professional 2017 RTM</td>
<td>~1.6 GB</td>
<td><a href="http://my.visualstudio.com">http://my.visualstudio.com</a></td>
</tr>
<tr>
<td>Note: Download from my.visualstudio.com to obtain this version</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Professional Trial</td>
<td>Varies</td>
<td><a href="http://bit.ly/1lnENPm">http://bit.ly/1lnENPm</a></td>
</tr>
<tr>
<td>Note: See below for registration and activation notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle Server JRE for Windows x64 (latest version)</td>
<td>~48 MB</td>
<td><a href="http://bit.ly/1AdNSKH">http://bit.ly/1AdNSKH</a></td>
</tr>
</tbody>
</table>


Since ISO files are no longer available, you must create an offline installation prior to class. Refer to the guidance here: http://bit.ly/2f8tN8p, and execute the following (1 line) command:

```
vs_professional.exe --layout c:\vs2017offline --add
Microsoft.VisualStudio.Workload.ManagedDesktop
```

Depending on your connection speed, the above can take an hour or more to run. After it is finished, you can use a variety of tools (e.g. BurnAware) to create an ISO to be used during class.

**Tip:** Save the Visual Studio layout to make the setup for your next class easier, also in case Microsoft stops making that specific version of Visual Studio available in the future.

3. Register Microsoft Office (if necessary).

Some Office editions/versions require registration using a Microsoft Account. After registration, you will be given a product key used to activate the evaluation copy. This key will need to be provided to the instructor and students during class.
Appendix C: Windows Server 2012 R2 Evaluation VM (for TFS2018)

The Administering Team Foundation Server course must use this VM. If you want to use another version or edition of Windows, you will need to do your own testing and be responsible for any drift in the lab steps.

**Note:** These steps are for setting up the TFS2018 class. If you are setting up TFS2017, then refer to Appendix B.

System Requirements

The host computer running the VM can be a desktop or a laptop computer. It must be capable of running Hyper-V or VirtualBox. Please provide computers that meet the following criteria:

- **Processor:** Fast Intel VT or AMD-V capable (SLAT-capable CPU required if using Windows 8)
- **RAM:** 8+ GB of free physical RAM (allows at least 6 GB to be assigned to the VM)
- **Hard disk space:** 40 GB (more if using snapshots), x 2 when converting VHD to VDI

**Note:** If your environment cannot support these requirements, or you want to avoid the hassle of setting up and configuring the environment, we can arrange hosted VMs as a service at an additional cost. Please contact us for more information.

Download Software

   
   This step can take quite some time to complete, even using a fast computer on a fast Internet connection. Budget enough time before class to complete this and the rest of the steps.

2. Rename the .vhd file to a shorter, more manageable name like `W2012R2Eval.vhd`.

3. Follow the rest of these instructions to configure the VM to run using Oracle VirtualBox.

   **Note:** Hyper-V, VMware, and other virtualization utilities are not supported.

Install and Configure Oracle VirtualBox


   **Note:** These instructions were created using version 5.2.10. Newer versions should be compatible.

2. Use the `vboxmanage` command-line utility to convert the .vhd file to a .vdi formatted file.

   Here is an example command (with no break):

   ```
   "c:\program files\oracle\virtualbox\vboxmanage" clonehd
   c:\downloads\w2012r2eval.vhd c:\vm\w2012r2eval.vdi --format vdi
   
   **Note:** The process can take a long time. Use separate drivers or SSDs for better performance.
   ```
3. Use the `vboxmanage` command-line utility to increase the size of the .vdi file.

   Here is an example command (with no break):

   "c:\program files\oracle\virtualbox\vboxmanage" modifyhd
c:\vm\w2012r2eval.vdi --resize 80000

4. Launch VirtualBox, create a new VM, give it a friendly name, and select Windows 2012 (64 bit) as the operating system.

   Write down the friendly name you gave the VM ________________________________________.

5. Give the VM adequate memory (at least 6 GB is recommended).

6. Select the Do not add a virtual hard disk option and click Create.

7. Click Continue when prompted.

8. In the Oracle VM VirtualBox Manager, select the new VM and click Settings.


10. On the System page > Processor tab, set the number of CPUs to 2 (or more) if possible.
11. In the Storage section, right-click on the Controller: SATA and select Add Hard Disk.

12. Select Choose existing disk, navigate to the .vdi file you cloned and resized earlier, and select it.

13. Click OK to save your settings.

Start VM, Activate, and Configure Windows
1. Start the VM.

2. Confirm the settings, accept the license terms, and enter P2ssw0rd for the password.

3. Sign in to the VM as Administrator using the password P2ssw0rd.

   To send the Ctrl + Alt + Delete key combination, hold down the Right Ctrl key (known as the “host” key) and press the Del key. The password contains an upper case “P”, the number “2”, and a zero “0”.

4. From Server Manager, select Local Server and confirm that IE Enhanced Security Configuration is Off for both Administrators and Users.

5. Configure Server Manager to not start automatically at logon and then exit Server Manager.

6. From the Control Panel navigate to System and Security > System.

   You can also get here by right-clicking on Computer and selecting Properties.
7. If Windows is not activated, click the View details in Windows Activation link at the bottom of the window and then click Activate on the next screen.

Note: It might take a few moments for the first link to appear. Activation requires Internet connectivity. Activation begins a 180-day trial period. After the 180 days, you will need to stop using this VM.


9. Click Change and change the computer name to vsalm and reboot.

10. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.

11. From Control Panel > System and Security > System ...
   a. Click Remote settings and allow remote connections even from computers without NLA.
   b. Click Windows Update and change settings to Never check for updates.

12. From Control Panel > System and Security navigate to Action Center and set User Account Control (UAC) to Never notify by dragging the slider all the way to the bottom.

13. Launch Computer Management and set the Administrator password to never expire.

14. From Server Manager > Local Server add the following features (and related features):
   a. SMTP Server
   b. User Interfaces and Infrastructure > Desktop Experience
   c. XPS Viewer

15. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.

16. Launch Computer Management and go to Disk Management.

17. Right-click on the drive C: volume and choose Extend Volume, click Next twice and then click Finish.

18. Restart Windows and sign in to the VM as Administrator using the password P2ssw0rd.


20. Download and install Google Chrome, making it the default browser.

21. Download and install the latest version of WinRAR.

22. Using File Explorer, delete the C:\PerfLogs folder.
Install VirtualBox Guest Additions

1. On the VirtualBox console, select **Install Guest Additions CD image**.
   
   You may have to press the right Ctrl key to release mouse and keyboard control from the virtual machine. After a moment, the AutoPlay dialog will appear. If the dialog doesn’t automatically appear, open Windows Explorer, navigate to D: and double click VBoxWindowsAdditions.exe manually.

2. Click **Run VBoxWindowsAdditions.exe**.

3. Click **Next** twice, accepting the default settings, and **Install** the additions.
   
   When prompted, check the box to **Always trust software from “Oracle Corporation”** and click **Install**.

4. Ensure that **Reboot now** is selected and click **Finish** to complete the installation.

Download and Install SQL Server 2017

1. Sign in to the VM as **Administrator** using the password **P2ssw0rd**.

2. Create a **SQLSERVICE “SQL Server Service Account” user account with a password P2ssw0rd (never expires)**.


5. Restart windows and sign in as **Administrator** using the password **P2ssw0rd**.

   
   **Note**: You may have to download and install the service pack separately.

7. Mount the .iso file (or run the .exe file) and begin a new SQL Server stand-alone installation.
   
   - Don’t use Microsoft Update but **do** install any critical updates (may require a restart)
   - **Install** these features:
     - Database Engine Services
     - Full-Text and Semantic Extractions for Search
     - Analysis Services
     - Client Tools Connectivity
     - Client Tools Backwards Compatibility
     - Client Tools SDK
     - SQL Client Connectivity SDK
Continue installing SQL Server with these settings:

- SQL Server Agent set to automatic startup
- All automatic services running under SQLSERVICE with P2ssw0rd password
- Mixed mode: SA password is P2ssw0rd
- Add current user as SQL Administrator
- Enabled FILESTREAM with defaults
- Select Analysis Services *Multidimensional and Data Mining Mode* (not Tabular mode)
- Add current user as Analysis Services Administrator


9. Download and install **SQL Server 2017 Reporting Services**.

   **Note:** You may need to obtain the product key from the SQL Server installation utility.

10. Run the **Reporting Services Configuration Manager** and connect to the **SSRS** instance on **VSALM**.

11. Go to the **Web Service URL** page and click **Apply**.

12. Go to the **Database** page, click **Change Database**, and use the wizard to create a new database with defaults.

13. Go to the **Web Portal URL** page and click **Apply**.

14. Exit the **Reporting Services Configuration Manager**.

15. Download and install the latest **SQL Server Management Tools**.


17. If necessary, install the latest SQL Server service pack and restart Windows again.

**Prepare the Public (Shared) Desktop**

1. Sign in to the VM as **Administrator** using the password **P2ssw0rd**.

2. Using **File Explorer**, navigate to **C:\Users\Public\Public Desktop**.

   **Note:** This is a hidden folder, so you may have to type the address in directly. You can also just type **C:\Users\Public\Desktop** which resolves to the same folder.

3. Download/copy and save the corresponding **CoursewareFiles.exe** to the Public Desktop folder.

   The instructor should know where to obtain this file. Contact **richard@accentient.com** if you have any questions. Students can also do this on the first day of class, if the files are made available.

4. Shut down Windows.
Create a Snapshot (optional)

1. In the VM Manager, select the VM and click the Snapshots icon in the upper-right corner of the console.

![Oracle VM VirtualBox Manager](image)

2. Right-click in the Current State entry and select Take Snapshot.

   **Note:** you can also click the toolbar icon, or use the keyboard combination: Ctrl + Shift + S.

3. Provide an appropriate **Snapshot Name** and **Snapshot Description** and click OK.

![Take Snapshot of Virtual Machine](image)

Snapshots can be used to revert a VM to a previous configuration state, such as our initially configured and activated one. This will help when distributing the VM to various student machines and the ability to reset the VM to a known state to go through the hands-on-labs.
Download Files Used in the Labs
These files will need to be downloaded and made available to the students prior to class.

<table>
<thead>
<tr>
<th>Product</th>
<th>Size</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Team Foundation Server 2018 Update 2 ISO</strong></td>
<td>~640 MB</td>
<td><a href="http://my.visualstudio.com">http://my.visualstudio.com</a></td>
</tr>
<tr>
<td><strong>Note</strong>: Download from <a href="http://my.visualstudio.com">my.visualstudio.com</a> to obtain this version.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>: The free trial version is fine, but you may need to download from <a href="http://my.visualstudio.com">my.visualstudio.com</a> to obtain the 2017 version. Also, see below about creating an offline installation ISO.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>: Some Office editions/versions require registration using a Microsoft Account. After registration, you will be given a product key used to activate the evaluation copy. This key will need to be provided to the instructor and students during class.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Java Server JRE (latest Windows version, x64)</strong></td>
<td>~54 MB</td>
<td><a href="https://bit.ly/1iOZIrD">https://bit.ly/1iOZIrD</a></td>
</tr>
<tr>
<td><strong>Java JRE (latest Windows version, exe not jar)</strong></td>
<td>~100 MB</td>
<td><a href="https://bit.ly/1iOZIrD">https://bit.ly/1iOZIrD</a></td>
</tr>
</tbody>
</table>

Create a Visual Studio ISO
Follow these steps to create an offline/standalone Visual Studio installer. Visual Studio will be installed as part of

1. Rename the downloaded Visual Studio Professional 2017 exe to **vs_professional.exe**.


Since ISO files are no longer available, you must create an offline installation prior to class. Refer to the guidance here: [http://bit.ly/2f8tN8p](http://bit.ly/2f8tN8p), and execute the following (1 line) command:

```
vs_professional.exe --layout c:\vs2017offline --add
Microsoft.VisualStudio.Workload.ManagedDesktop
```

Depending on your connection speed, the above can take an hour or more to run. After it is finished, you can use a variety of tools (e.g. BurnAware) to create an ISO to be used during class.

**Tip**: Save the Visual Studio layout to make the setup for your next class easier, also in case Microsoft stops making that specific version of Visual Studio available in the future.
Appendix D: Installing Visual Studio 2017

With Visual Studio 2017, Microsoft has completely changed the installer and installation process. Overall, it is for the better because installation and update times are much shorter. Unfortunately, more prescriptive steps are required to install the workload and components required by Accentient’s classes.

1. Download and install Visual Studio 2017 Enterprise edition (trial is fine).

   Unless otherwise directed, you should download the most recent version/update of Visual Studio. This is done automatically when you download from here: https://www.visualstudio.com/downloads. If you want to download a specific version/update, you’ll need access to a Visual Studio subscription and can download those versionsUpdates here: https://my.visualstudio.com.

2. Click Cancel if prompted to update Visual Studio to a new version (e.g. 15.3.5).

3. Select Modify from the dropdown on the next screen:

   ![Modify dropdown](image)

4. Ensure the following Workloads are selected at a minimum:
   - .NET desktop development (include Architecture and analysis tools, SQL Server Express 2016 LocalDB)
   - ASP.NET and web development (include ASP.NET MVC 4, Web performance and load testing tools)
   - Azure development (include PowerShell tools)

5. Ensure the following Individual components are selected at a minimum:

<table>
<thead>
<tr>
<th>Code tools</th>
<th>Class Designer, Code Clone, Code Map, Live Dependency Validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debugging and testing</td>
<td>Coded UI test, Microsoft Feedback Client, Microsoft Test Manager, Testing tools core features, Web performance and load testing tools</td>
</tr>
</tbody>
</table>

The above workloads and components will require > 9 gb of disk space and can take several minutes to install.
Appendix E: Microsoft Accounts

Some Accentient courses require each student to have a Microsoft Account (formerly known as a Live ID) to create and access various Microsoft services, such as Visual Studio Team Services and Azure.

If the student doesn’t have a Microsoft Account or wants to create a new, “throwaway” one, they can visit https://signup.live.com and provide the required information, which includes name, username, password, and other details. They will also need to provide a phone number or other method in order to reset a forgotten password. Be aware that there is a daily limit to the number of Microsoft Accounts that can be created from a public IP address. Please allow enough time to create the Microsoft Accounts (or use multiple IPs).

A downside to using a throwaway Microsoft Account for training, is that it won’t be associated to a Visual Studio subscription (formerly known as an MSDN subscription). Should the student join a team using the throwaway Microsoft Account, they may have more limited capability than normal.

AAD-Backed Microsoft Accounts

A Microsoft Account that is backed by Azure Active Directory (AAD), cannot be used unless everyone on the student’s classroom team also has AAD-backed accounts. In other words, a Visual Studio Team Services account cannot contain a mix of AAD-backed MAs and regular/personal MAs. It is possible to create/associate a new Microsoft Account with your AAD-backed account, with similar passwords for the sake of using an existing Visual Studio subscription. The signup process is similar to the above steps for first-time Microsoft Account creation. If this is the plan, everyone on the classroom team should to use their personal Microsoft Accounts, rather than their work one, when doing the hands-on activities. For more information, view this FAQ.

Appendix F: Visual Studio Team Services (VSTS) Accounts

Some Accentient courses will have students creating and using a VSTS account during class. VSTS is free for small teams of five or less. Teams formed during class that have more than five students can use VSTS effectively, so long as ...

- The extra students have a Visual Studio subscription (and are using that Microsoft Account)
- The extra students don’t mind being a stakeholder
- The extra students don’t mind going without a keyboard (and pairing with another student instead)

As an option for speeding up class, the instructor could create generically-named VSTS accounts ahead of time, and even add the student Microsoft Accounts (if they are known ahead of time) as team members of those accounts. Examples: https://cdvststeam1.visualstudio.com, https://teamfoo.visualstudio.com, etc.

Appendix G: Azure Accounts and Subscriptions

Some Accentient courses require an Azure account with an active subscription. As these accounts typically require extra validation and financial details, these services should be provisioned ahead of time by the training company or group sponsoring the class. Free/promotional subscriptions have time/credit limits.

If Azure Free Accounts will be used, then please keep in mind that the Microsoft Account must not have been used to create a trial account before. Visit http://bit.ly/2wnXSHA for more information.

Important: After class is over, remove any resources created during class so as not to incur ongoing expense.