



VistA Blood Establishment Computer Software (VBECS) 2.0.0

Template Creation Guide

September 2014

Department of Veterans Affairs
Product Development

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Revision History

Date	Revision	Description	Author
04-09-13	1.0	Initial Version	BBM Team
05-09-13	2.0	Global: Changed "wordpad" to "WordPad". Corrected the template names throughout the document including in figures. Create Server Templates from the Base Template section: Updated Step 3 by removing "build" and changing "SQL Server build 1.0" to "SQL Server 1.0, VBECS 2.0.0". Figure 4 caption: Changed "Tempate" to "Template". Customize the App Server: Added Copy Printer Drivers, Install HHActiveX DLL, Update the PowerShell Execution Policy, Enable ActiveX Controls, Copy NAnt Files and Update Audio Files sub-sections. Turn the VM into a Template, Step 68: Changed "APP Server build 1.0" to "APP Server 1.0, VBECS 2.0.0". Customize the SQL Server: Removed the existing Step 5, since it was redundant with Step 1, Deleted the section that detailed adding a second NIC, renamed the Disable port 25 section. Appendix A, Step 1: Changed "Vitual" to "Virtual". Appendix A, Step 14: Changed "Esport" to "Export".	BBM Team
12-02-13	3.0	Global: Changed version of templates to VBECS 2.0.0.3 Introduction: Added a reference to the Creating a Virtual Machine Template work instruction. Added a section called Install Fonts (DR 4819). Changed so that the user must use to create the template. Moved template naming instructions from the tracking log to Appendix A. Added instructions for exporting templates to E:\VBECS Virtual Machine Templates folder. (DR 4802) Updated screen captures to reflect new naming convention. Permissions section: Added. Delete Microsoft XPS Printer section: Added. Windows Services section: Added. Create Error Files section: Added. Add .NET Framework Version 3.5 section: Added.	BBM Team
05-27-14 (continued on next page) 05-27-14 (continued	4.0 4.0	Global: Changed "2.0.0.3" to "2.0.0.4". Customize the App Server: Removed Enable ActiveX Controls section. Removed SMTP installation section. Create a Validation Directory section: Step 1, changed step 9 to step 12. Add .NET Framework section: Step 8, removed framework folder. Step 9, added detail. Install HHActiveX DLL section: Step 12, added dll extension. Install Fonts section: Step 13, added fonts directory. Update Audio Files section: Step 26, added a note about Trusted Installer. Install Remote Desktop section: Mentioned the reboot. Deleted text about antivirus instructions. Add a Second Drive section: Rewrote section. Permissions section: Updated to reflect that service IDs will be added post installation. Deleted the creation of apatosaurus ID since this is done in the template. Delete Microsoft XPS printer section: Added more detailed instructions. Create Error Files section: Moved to after the Install VBECS section.	BBM Team BBM Team

Date	Revision	Description	Author
from previous page)		<p>Event Source Register Tool section: Rewrote. Added the following sections: Event Source Register Tool, Turn Off ClearType and Create Folders and Assign Permissions. Added instructions for adding a second processor.</p> <p>Customize the SQL Server: Add Users and Groups section: Changed group to HinesVbecsProdSqlSupport. Revised Step 6 under Create a Validation Directory and Document to Record Screen Captures section. Add .NET Framework Version 4.0 section: Eliminated framework folder. Deleted Windows Update step. Apply Hotfixes section: Noted that hotfixes folder has to be created. Added new sections: Apply AITC Fixes and KB2645410 sections. Revised Copy Installation Support Files section.</p> <p>Appendix A: Reworded the prerequisite. Added steps to join the domain.</p>	
06-09-14	5.0	<p>Customize the App Server: Added new sections: Install Audio Support (KB2495012) and Disable VBECS Services. Install Fonts section: Changed folder name from "Arial Fonts" to "Fonts". Create Error Files section: Corrected the path names. Create a Validation Directory section: Removed.</p>	BBM Team
06-27-14	6.0	<p>Customize the App Server, added new section: Disable Windows Defender.</p> <p>Customize the SQL Server, Copy SQL Fixes section, Step 27: Replaced all updates with SQLServer2012SP2-KB2958429-x64-ENU.</p> <p>Appendix A: Updated Step 1 by changing "Template Naming Conventions section of the log" to "Appendix A: Update a Template"</p>	BBM Team
09/15/14 09-15-14	7.0 (continued on next page) 7.0 (continued from previous page)	<p>Global: Updated document for the vSphere Web Client. Removed all references to the installer ID after it is removed in each section.</p> <p>App and SQL Server sections: Added the following sections: Adjust the Hard Drive, Configure IDs, Update the Registry for Security Issues, Rename and Adjust NICs, Install and Configure SNMP, Install Security Update for .NET Framework 3.5.1 (KB2898851) and Install SCCM.</p> <p>App Server section: Added the following sections: Add .NET Framework Version 3.5, Install Client Tools to App Server. Added installation of Attachmate Reflection</p> <p>SQL Server section: Added: Install Security Update for .NET Framework 4.0 (KB2938780)</p> <p>Added Appendix B for NIC and hard drive settings.</p>	BBM Team BBM Team

Date	Revision	Description	Author
		(DR 5060)	

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Introduction

This guide details the creation of the templates for the VBECS 2.0.0 system. It contains instructions for both the App and SQL Server. Creating the templates is a task that only needs to be executed once.

It will also be necessary to update the templates. Appendix A: Update a Template contains instructions for turning the templates into live Virtual Machines (VMs), where they can be updated and then changed back to a template.

Before executing this guide, the *Creating a Virtual Machine Template* work instruction must be executed to create the base template from which the VBECS templates will be created.

Prerequisites

The following tasks must have been completed before creating either template:

- The base template, **Windows Enterprise Server 2008 R2 (x64)**, must have been created using the *Creating a Virtual Machine Template* work instruction (WI).
- The template creator must have administrative access to the vSphere environment. Administrator access is granted by adding your normal user id (NMEA ID will not work) to the **HinesVBECSVMwareAdmins** group in active directory.

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Create the Server Templates

These instructions detail the process for creating the server templates. These steps apply to both the App and SQL Servers and must be executed by a vSphere administrator.

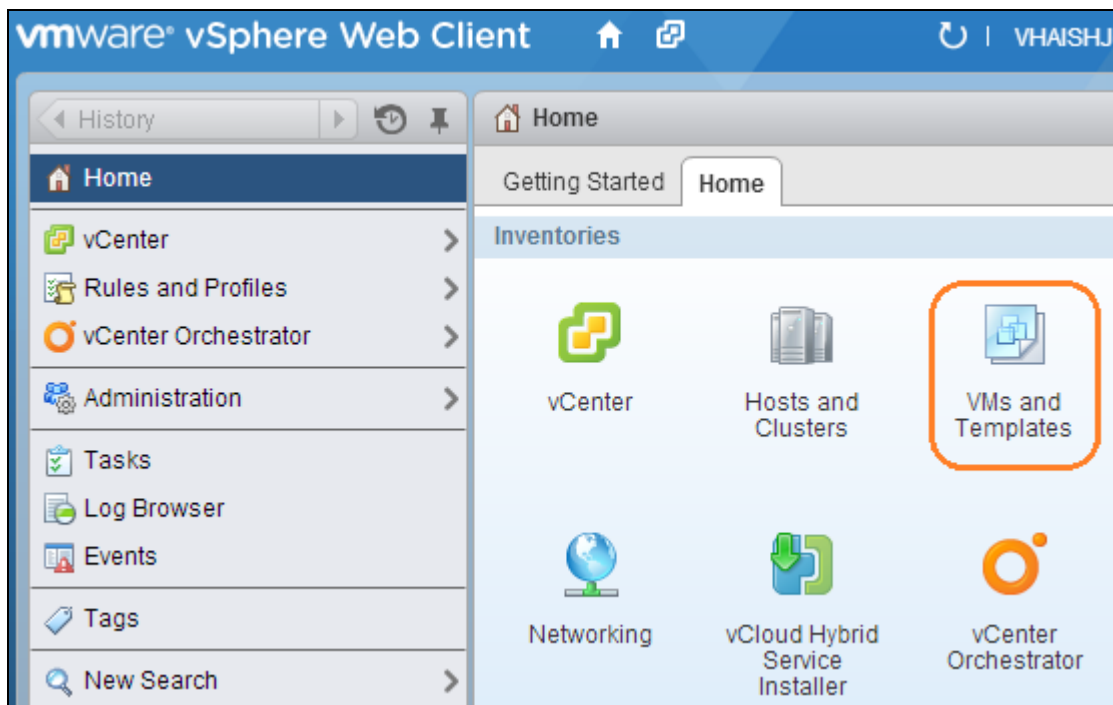
1 Create Server Templates from the Base Template

Prerequisite

Except when noted, these instructions must be executed from the **vSphere Web Client**. Navigate to <https://IPADDRESS:9443> in the browser and login with your normal (not NMEA) account. If you are warned about a security certificate, proceed to the site.

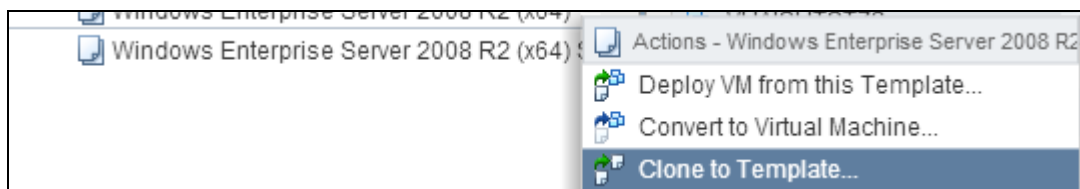
- 1) Select **VMs and Templates** to open the **VMs and Templates** view (Figure 1).

Figure 1: Example of vSphere Client



- 2) In the **Templates** folder, right-click on the **Windows Enterprise Server 2008 R2 (x64)** template and click **Clone to Template** (Figure 2).

Figure 2: Example of Template Folder



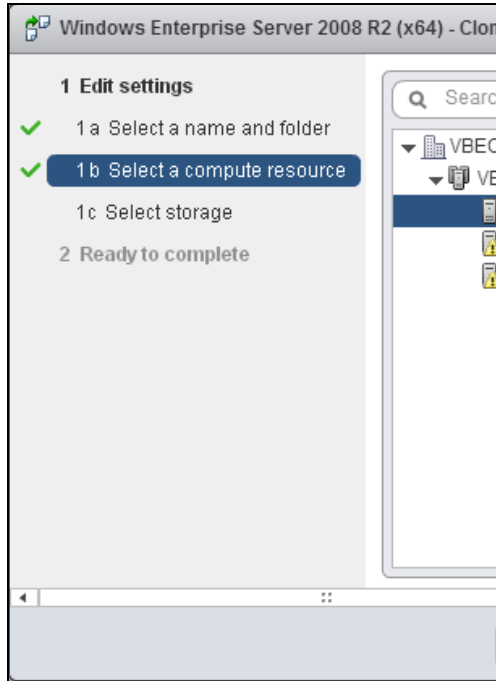
- 3) Enter **VBECS 2.n.n.n App Server n.n** (if creating the SQL template, enter **VBECS 2.n.n.n SQL Server n.n**) for the template name (Consult the *VBECS 2.0.0 Virtual Machine Template Device Master Index* to determine the name of the template). Select the **Templates** folder (Figure 3). Click **Next**.

Figure 3: Example of Clone Template To Template

Image Redacted

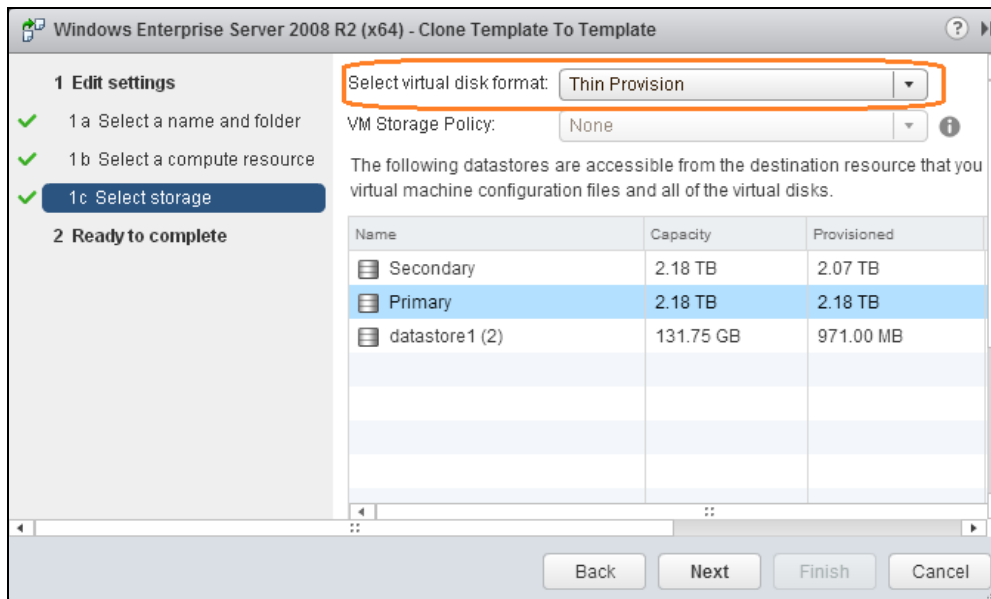
- 4) Expand **VBECSCluster** and select the **IPADDRESS** host (Figure 4). Click **Next**.

Figure 4: Example of Clone Template To Template



- 5) Change virtual disk format to **Thin Provision** (Figure 5). Click **Next**.

Figure 5: Example of Clone Template To Template



6) Click **Finish** (Figure 6).

Figure 6: Example of Clone Template To Template

Windows Enterprise Server 2008 R2 (x64) - Clone Template To Template

1 Edit settings

- ✓ 1 a Select a name and folder
- ✓ 1 b Select a compute resource
- ✓ 1 c Select storage
- ✓ **2 Ready to complete**

Provisioning type:	Clone template to template
Source template:	Windows Enterprise Server 2008 R2 (x64)
Template name:	VBECS 2.0.0.5 App Server 1.0
Folder:	Templates
Host:	10.3.7.100
Datastore:	Primary
Disk storage:	Thin Provision

Back Next Finish Cancel

2 Customize the App Server

Prerequisite

These instructions are for customizing the App Server. If customizing the SQL Server, go to Customize the SQL Server.

- 1) Execute Steps 1 through 9 from Appendix A: Update a Template to turn the App Server template into a VM and note the IP address. After you have the IP, remote into the App Server using the local administrator account.

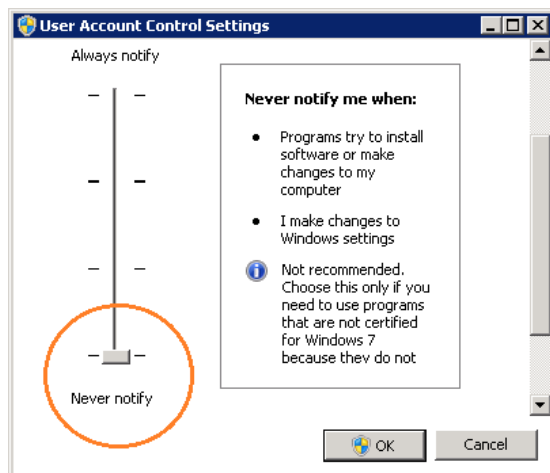
App Server Template Configuration

Follow these steps to configure Windows and software settings.

Disable User Access Control

- 2) Login to the App Server with the **Administrator ID**.
- 3) Click **Start**. In the search field, enter **UAC**.
- 4) Click **Change User Account Control Settings**.
- 5) Drag the slider down to **Never notify**. Click **OK** (Figure 7). Click **Yes** on the confirmation window that follows.

Figure 7: User Account Control Settings



Adjust the hard drive


- 6) Open **Administrative Tools, Computer Management, Disk Management**.
- 7) Right-click on the C: drive and choose **Extend Volume**.
- 8) Click **Next**.
- 9) Click **Next**.
- 10) Click **Finish**. The C: drive will now have a capacity of 79.90 GB. Leave **Computer Management** open for the next step.

Configure IDs

- 11) Open **Administrative Tools, Computer Management**.
- 12) Expand **Local Users and Groups** and select the **Users** folder.
- 13) Right-click on the apatosaurus ID and choose **Delete**. Click **Yes** to confirm. Click **OK** on the second confirmation.
- 14) Right-click on the installer ID and choose **Delete**. Click **Yes** to confirm. Click **Yes** to confirm. Click **OK** on the second confirmation.
- 15) Right-click on the Administrator ID and choose **Rename**.

- 16) Rename the ID **vaaacnimda** and close **Computer Management**. From this point on, remember to log into the App Server Template with the **vaaacnimda** id instead of Administrator.

Update the PowerShell Execution Policy

- 17) Launch **PowerShell (x64)** by clicking the icon () in the Task Bar.
18) Run the following command: **set-executionpolicy unrestricted**.
19) When prompted, enter **Y**. Close the window.
20) Click **Start** and in the **Search programs and files** search, type **Windows PowerShell (x86)** and press **Enter**.
21) Run the following command: **set-executionpolicy unrestricted**.
22) When prompted, enter **Y**. Close the window.

Update Audio Files

- 23) In Windows Explorer, navigate to **c:\Windows\Media**.
24) Rename the **Windows Exclamation.wav** file **Windows Critical Stop.wav** and vice versa. Add permissions from Trusted Installer if prompted.

Enable Port 25

- 25) Click **Start, All Programs, McAfee, VirusScan Console**.
26) Double-click **Access Protection**.
27) Select Anti-virus Standard Protection.
28) Deselect Prevent mass-mailing worms from sending mail in both the Block and Report categories.

Update the Registry for Security Issues

- 29) At the run prompt, type **regedit** and click **OK**.
30) Navigate to **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ac.sharedstore**.
31) Double-click on **ImagePath**.
32) Put double quotes around the Value data so the entry looks like this: **"C:\Program Files\Common Files\ActivIdentity\ac.sharedstore.exe"**
33) Click **OK** to save.
34) Navigate to **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager**.
35) Right-click on **Session Manager** and select **New, DWORD (32-bit) Value**.
36) Name the new value **CWDIllegalInDllSearch**.
37) Right-click and select **Modify**.
38) Enter **1** and click **OK** to save. Close the Registry Editor.

Rename and Adjust NICs

- 39) Open **Control Panel, Network and Internet, Network and Sharing Center, Change Adapter Settings**.
40) Rename Local Area Connection #2 **GSS** and Local Area Connection #3 **Backup**.
41) Right-click on the Backup NIC and choose **Properties**.
42) Uncheck everything except for **IPv4** and **IPv6**. Click **OK**.
43) Right-click on the **Backup** NIC and choose **Properties, Configure, Advanced** tab.
44) There are four **Checksum Offload** properties, two for IPv4 and two for IPv6. Disable them all. Click **OK** to save and close the network configuration windows.

Add a Second Drive

- 45) In the vSphere Web Client, right-click the template and select **Edit Settings**.
46) In the **New device** control, select **New Hard Disk**.
47) Click **Add**.
48) In the **Hardware** tab, click **Add**.
49) Change the disk size to 10 GB and provision as thin (**Thin provision** setting).

- 50) Click **OK** to save. Restart the App Server.
- 51) Login to the App Server with the local Administrator ID.
- 52) Launch the command prompt.
- 53) Type **diskpart** and press **Enter**.
- 54) Type select **disk 1** and press **Enter**.
- 55) Type **attributes disk clear readonly** and press **Enter**.
- 56) Type **online disk** and press **Enter**.
- 57) Click **Start, Administrative Tools, Computer Management, Disk Management**.
- 58) The **Initialize Disk** dialog automatically launches. (If it doesn't launch, right-click and choose **Bring Online**. Then, right-click and choose **Initialize**.) Click **OK**.
- 59) Right-click on the disk and choose **New Simple Volume**.
- 60) In the **Welcome** window, click **Next**.
- 61) In the **Specify Volume Size** window, click **Next**.
- 62) In the **Assign Drive Letter or Path** window, click **Next**.
- 63) In the **Format Partition** window, change the **Volume label** to **Reports**. Click **Next**.
- 64) Click **Finish** to create the drive and close the window.

Permissions

- 65) Open **Control Panel, System and Security, System**.
- 66) Click **Change settings**.
- 67) Click **Change**.
- 68) Enter **VBECSAPPTMPLATE** for the computer name.
- 69) Select the domain radio button and enter **vha.domain.ext**. Click **OK**. Restart to join the domain.
- 70) Navigate to **Administrative Tools, Computer Management, Local Users and Groups, Groups**.
- 71) Open the local **Administrators** group.
- 72) Add the group. The service IDs will be manually added post-installation. Close the Window.

Turn Off ClearType

- 73) Click **Start**.
- 74) In the **Search programs and files** text box, enter **clear type**.
- 75) Click on **Adjust ClearType text**. The **ClearType Text Tuner** window launches.
- 76) Deselect **Turn on ClearType**.
- 77) Click **Next** 5 times and then **Finish**.

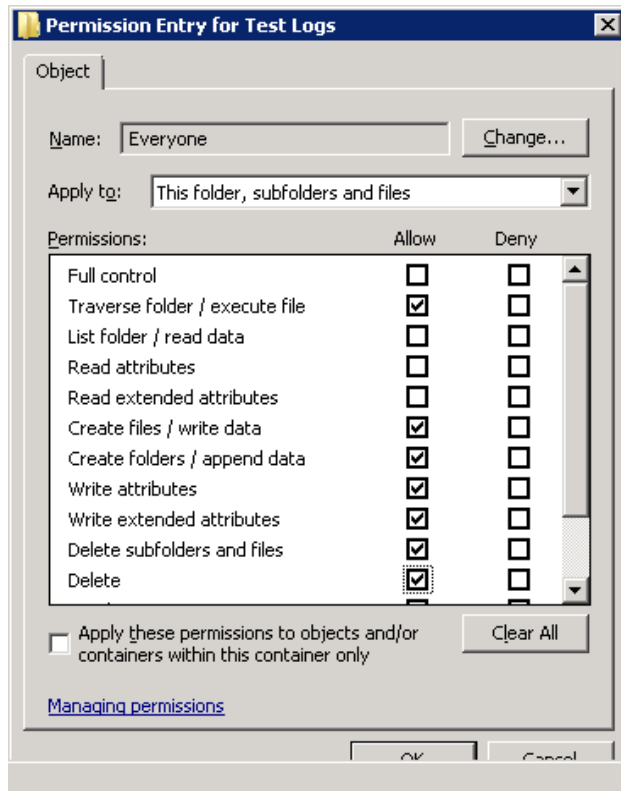
Create Folders and Assign Permissions

78) Navigate to **D:** and create the following folders:

- **VBECReports**
- **Prod Logs**
- **Test Logs**

For the **Prod Logs** and **Test Logs** folders, grant the permissions detailed in Figure 8 to the **Everyone** group. Note that the **Read** permission (cannot be seen in figure) should also be **Allowed**.

Figure 8: Permissions



Delete Microsoft XPS printer

79) Open **Devices and Printers** and delete the **Microsoft XPS Document Writer** printer (right-click and select **Remove Device**).


Windows Services

80) Open **Services** and set the **Startup Type** on the **Windows Audio** service to **Automatic**.

Software Installation

Follow these configuration steps to install software.

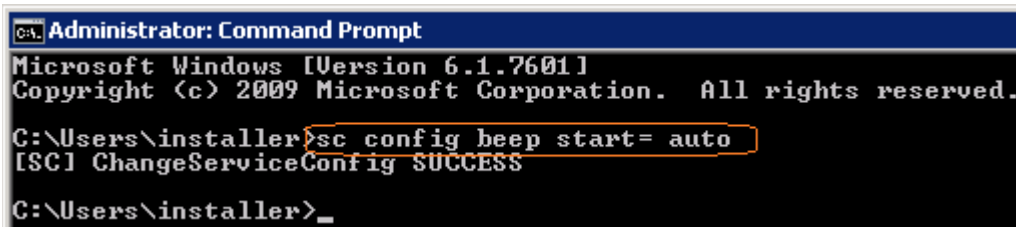
Install and Configure SNMP

- 1) Open **Server Manager** and click **Features**, Add **Features**.
- 2) Select **SNMP Services** which will automatically select the two sub features. Click **Next**.
- 3) Click **Install**.
- 4) Click **Close**.
- 5) Copy the \\CDimages_software_VBECS 2.0\Both\SNMP scripts folder to **C:\temp**.
- 6) Launch **PowerShell (x64)** by clicking the icon () in the Task Bar.
- 7) Run the following command: “**c:\temp\SNMP script\updatesnmp**”
- 8) Close the PowerShell console.
- 9) In **c:\temp\SNMP scripts**, double-click **SNMP-config** to run the registry edit.
- 10) A warning will appear, click **Yes** followed by **OK** on the confirmation message.

Install Audio Support ([KB2495012](#))

- 11) Open **Server Manager** and click **Features**, Add **Features**.
- 12) Select **Desktop Experience**.
- 13) The **Add Features Wizard** launches. Click **Add Required Features**.
- 14) Click **Next**.
- 15) Click **Install**.
- 16) Click **Close** and restart the server when prompted.
- 17) The server will take a bit longer than usual to restart. Once it restarts and you log back in, the installation will continue. You will see a **Resume Configuration Wizard**. When complete, click **Close**.
- 18) Open a command prompt and type: **sc config beep start= auto** (Figure 9). Press **Enter**.

Figure 9: Beep Service Configuration



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\installer>sc config beep start= auto
[SC] ChangeServiceConfig SUCCESS

C:\Users\installer>_
```

- 19) Click **Start**, **Administrative Tools**, **Task Scheduler**. The **Task Scheduler** launches.
- 20) Navigate to **Task Scheduler Library**, **Microsoft**, **Windows**, **Multimedia**. Right-click on **SystemSoundService** and select **Enable**.
- 21) Close the **Task Scheduler**.

Disable and Delete Windows Defender Service

- 22) Navigate to **Control Panel** and open **Windows Defender**.
- 23) Click **Tools**, **Options**.
- 24) In the left pane, click **Administrator**. In the right pane, uncheck **Use this program**. Click **Save**.
- 25) You will see a window confirming that Windows Defender is turned off. Click **Close**.
- 26) Close **Control Panel**.
- 27) Navigate to **Administrative Tools** and open the **Services**.
- 28) Right-click on **Windows Defender** and click **Properties**.
- 29) Change the **Startup type** to **Disabled**. Click **OK**.
- 30) Close the **Services** console and **Administrative Tools**.

31) Open a command prompt and type **sc delete windefend** (Figure 10). Press **Enter**.

Figure 10: Delete Windows Defender

Image Redacted

Copy Printer Drivers

32) The printer drivers are located on the \\CDimages_software_VBECS 2.0\App Server\share.
Copy the **HP9040 PCL6 Driver** folder to **C:\temp**.

Add .NET Framework Version 3.5

33) Open **Server Manager** and click **Features**, Add **Features**.
34) Select **.NET Framework 3.5.1 Features**.
35) The **Add Features Wizard** launches. Click **Add Required Role Services**.
36) Click **Next**.
37) Click **Next**.
38) Click **Next**.
39) Click **Install**.
40) Click **Close** when complete.

Add .NET Framework Version 4.5

41) Copy the \\CDimages_software_VBECS 2.0\App Server\4.5 Framework folder to **c:\temp** and install.
42) After installation is complete, reapply all critical Windows Updates. Do not install any new versions of Internet Explorer.

Install Security Update for .NET Framework 4 (KB2898851)

43) Copy the \\CDimages_software_VBECS 2.0\Both\KB2898851 folder to **C:\temp**.
44) Double-click on **Windows6.0-KB2898851-x64** to start the installation.
45) Click **Yes** to proceed with the installation.
46) Click **Close**.

Install SQL Client Tools

47) Copy the \\CDimages_software_VBECS 2.0\App Server\SQLCMD folder to **c:\temp**.
48) Double-click **sqlncli** to start the installation.
49) Click **Next**.
50) Accept the license and click **Next**.
51) Click **Next**.
52) Click **Install**.
53) Click **Finish**.
54) Double-click **SqlCmdLnUtils** to start the installation.
55) Click **Next**.
56) Accept the license and click **Next**.
57) Click **Install**.
58) Click **Finish**.

Install Attachmate Reflection

59) Copy the \\CDimages_software\Attachmate folder to **c:\temp**.
60) Double-click on **Reflection1404BaseInstall.bat** to install.

Install Hotfix for Report Support

61) Copy the \\CDimages_software_VBECS 2.0\App Server\Report Hotfix folder to **c:\temp** and install.

Install HHActiveX DLL

62) Copy the \\CDimages_software_VBECS 2.0\App Server\ folder to **c:\Windows\ SysWOW64**.

- 63) Open a command prompt and execute the following command: **regsvr32**
c:\Windows\SysWOW64\HHActiveX\HHActiveX.dll

Install Fonts

- 64) The fonts for VBECS are located on the \\CDImages_software_VBECS 2.0\App Server\share. Copy the contents of the **Fonts** folder over to the **Fonts** folder in **Control Panel** (Control Panel, Appearance, Fonts).

Copy NAnt Files

- 65) Copy the \\CDImages_software_VBECS 2.0\App Server\nant-0.92 folder to **c:\Program Files**.

Add Audio Support for VMware

- 66) Click **Start, Run**. Type **mmc** and click **OK**.
67) Click **File/Add Remove Snap-in**. Add the **Group Policy Object Editor** snap-in. Click **OK**.
68) Navigate to **Local Computer Policy, Computer Configuration, Administrative Templates, Windows Components, Remote Desktop Services, Remote Desktop Session Host**.
69) In **Device and Resource Redirection**, change **Allow audio and video playback redirection** to **Enable**. Save and close.

Install Remote Desktop

- 70) Open **Server Manager**.
71) Click **Roles, Add Roles**.
72) Click **Next**.
73) Select **Remote Desktop Services**. Click **Next**.
74) Click **Next**.
75) Select **Remote Desktop Session Host**. Click **Next**.
76) Click **Next**.
77) Select **Do not require Network Level Authentication**. Click **Next**.
78) Select **Per Device**. Click **Next**.
79) Click **Next**.
80) Click **Next**.
81) Click **Install**. You will be prompted to reboot upon completion. Reboot.

Install Reporting Support Files

- 82) Copy the \\CDImages_software\ReportViewer folder to c:\temp
83) Double-click the **SQLSysClrTypes.msi** file to install. When done, double-click the **ReportViewer.msi** file to install.

Install SCCM

- 84) Copy the \\CDImages_software_VBECS 2.0\Both\SCCM scripts folder to c:\temp.
85) Double-click on **IsolatedSystemClientInstall.bat** (in the **Client** folder) to install SCCM. The installation takes about 30 seconds.
86) From the command line, execute the following command: **net stop ccmexec**. You will see a message stating that the **SMS Agent Host service** has stopped successfully.
87) Open Windows Services and set the **SMS Agent Host** service **Startup type** to **Disabled**.
88) Click **Start, Run**. In the **Run** box, type **MMC** and press **OK**.
89) Click **File, Add/Remove Snap-in...**
90) Select **Certificates** and click **Add**.
91) Select **Computer account** and click **Next**.
92) Select **Local Computer** and click **Finish**.
93) Click **OK** to close the **Add or Remove** window.
94) Expand the **Certificates, SMS**. Delete both certificates.
95) Close the console.

Event Source Register Tool

- 96) Copy the **EventRegister.exe** and **sources.xml** files to **C:\temp**. They found in **VSS Dev, Source Event XML, Compiled**.
- 97) Double-click on **EventRegister.exe** to launch the application.
- 98) Click **Enter All**.
- 99) Close the application.

Install VBECS

- 100) Follow the instructions from the VBECS 2.0.0 Installation Guide to install both the test and production versions of VBECS.

Disable VBECS Services

- 101) Click Start, Administrative Tools, Services.
- 102) Right-click each of the following listed services (both **Prod** and **Test**) and select **Properties**. Set the **Startup type** to **Disabled** and click **Apply**:
 - **VBECS <Environment> HL7 Dispatcher**
 - **VBECS <Environment> HL7 Listener**
 - **VBECS <Environment> Report Scheduler**
 - **VBECS <Environment> VistALink Listener**

Create Error Files

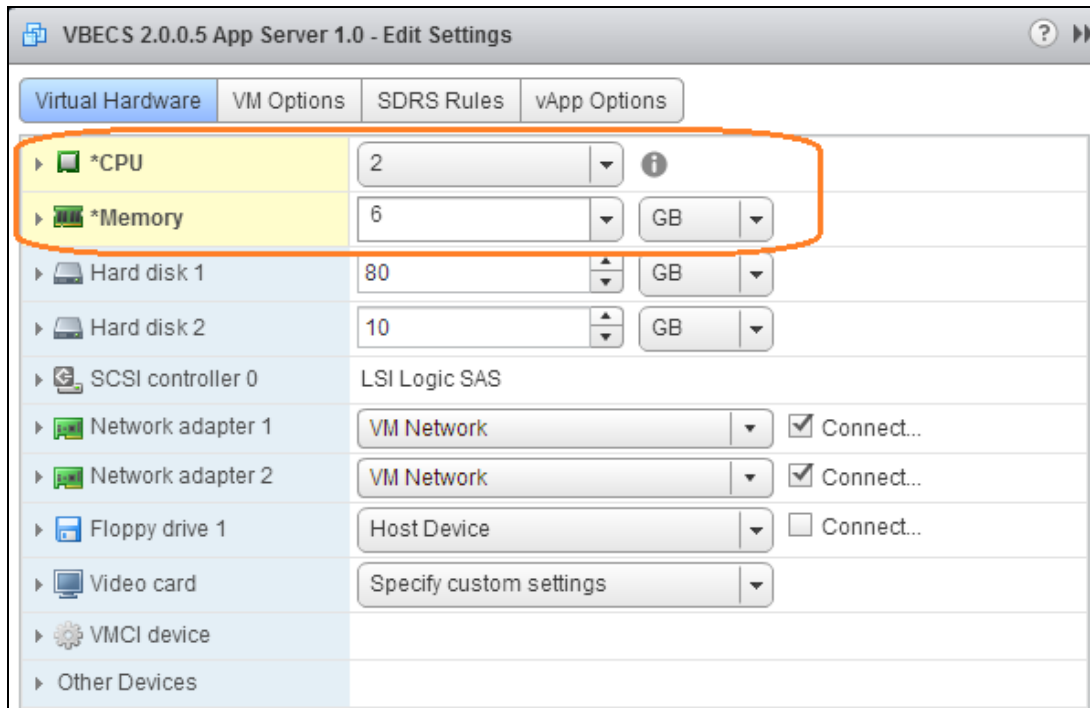
- 103) Navigate to **C:\Program Files\Vista\VBECS Prod** folder.
- 104) Create a file named **vbcserror.log**
- 105) Assign the local **Users** group **Full control** permissions.
- 106) Navigate to **C:\Program Files\ Vista\VBECS Test** folder and repeat above steps to create a log file in the test folder.

Adjust Memory and Add Second Processor in vSphere

- 107) Shut down the virtual machine.
- 108) In the vSphere Client, navigate to the **VMs and Templates** view.

109) Right-click on the VM and click **Edit Settings**. Change the Memory Size to **6 GB** (6144 MB). Click on **CPU** and change the **CPUs** to 2. Click **OK** to close (Figure 11).

Figure 11: Example of App Server



Turn the VM into a Template

110) Right-click on the VM and choose **Template, Convert to Template**. Consult the *VBECS 2.0.0 Virtual Machine Template Device Master Index* to determine the name of the template.

111) Continue with Appendix A: Update a Template, Step 12.

3 Customize the SQL Server

Prerequisite

These instructions are for customizing the SQL Server. If working on the App Server, go to Customize the App Server.

- 1) Execute Steps 1 through 9 from Appendix A: Update a Template to turn the SQL Server template into a VM and note the IP address. After you have the IP, remote into the SQL Server using the local administrator account.

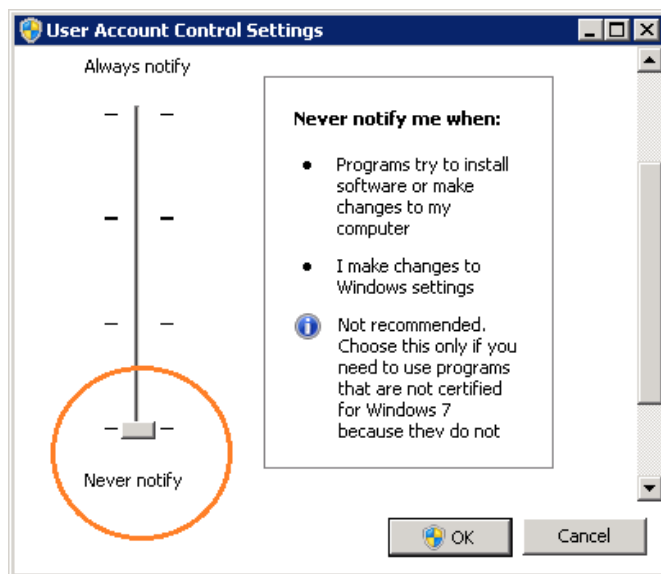
SQL Server Template Configuration

Follow these steps to configure Windows and software settings.

Disable User Access Control

- 2) Click **Start**. In the search field, enter **UAC**.
- 3) Click **Change User Account Control Settings**.
- 4) Drag the slider down to **Never notify**. Click **OK** (Figure 12). Click **Yes** on the confirmation window that follows.

Figure 12: User Account Control Settings



Adjust the hard drive

- 5) Open **Administrative Tools, Disk Management**.
- 6) Right-click on the C: drive and choose **Extend Volume**.
- 7) Click **Next**.
- 8) Click **Next**.
- 9) Click **Finish**. The C: drive will now have a capacity of 80 GB.

Configure IDs

- 10) Open **Administrative Tools, Computer Management**.
- 11) Expand **Local Users and Groups** and select the **Users** folder.
- 12) Right-click on the apatosaurus ID and choose **Delete**.
- 13) Right-click on the installer ID and choose **Delete**.
- 14) Right-click on the Administrator ID and choose **Rename**.

- 15) Rename the ID **vaaacnimda** and close **Computer Management**. From this point on, remember to log into the App Server Template with the **vaaacnimda** id instead of Administrator.

Enable Port 25

- 16) Click **Start, All Programs, McAfee, VirusScan Console**.
17) Double-click **Access Protection**.
18) Select Anti-virus Standard Protection.
19) Deselect Prevent mass-mailing worms from sending mail in both the Block and Report categories.

Update the Registry for Security Issues

- 20) At the run prompt, type **regedit** and click **OK**.
21) Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ac.sharedstore.
22) Double-click on **ImagePath**.
23) Put double quotes around the Value data so the entry looks like this: "**C:\Program Files\Common Files\ActivIdentity\ac.sharedstore.exe**"
24) Click **OK** to save.
25) Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager.
26) Right-click on **Session Manager** and select **New, DWORD (32-bit) Value**.
27) Name the new value **CWDIllegalInDllSearch**.
28) Right-click and select **Modify**.
29) Enter **1** and click **OK** to save.

Rename and Adjust NICs

- 30) Open **Control Panel, Network and Internet, Network Connections**.
31) Rename adapter #1 **GSS** and adapter #2 **Backup**.
32) Right-click on the Backup NIC and choose **Properties**.
33) Uncheck everything except for **IPv4** and **IPv6**. Click **OK**.
34) Right-click on the **Backup** NIC and choose **Properties, Configure, Advanced** tab.
35) There are four **Checksum Offload** properties, two for IPv4 and two for IPv6. Disable them all. Click **OK** to save.

Permissions

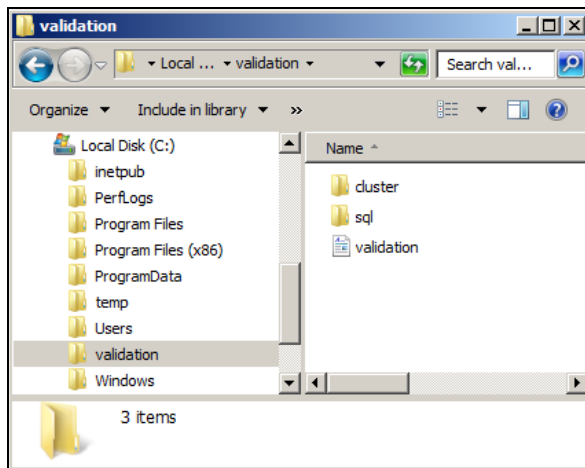
- 36) Open **Control Panel, System and Security, System**.
37) Click **Change settings**.
38) Click **Change**.
39) Enter **VBECSSQLTMPLATE** for the computer name.
40) Select the domain radio button and enter **vha.domain.ext**. Click **OK**. Restart to join the domain.
41) Navigate to **Administrative Tools, Computer Management, Local Users and Groups, Groups**.
42) Open the local Administrators group.
43) Add the **HinesVbecsProdSqlSupport** group.

Create a Validation Directory and Document to Record Screen Captures

- 44) On the C: drive, create a folder named **validation**.
45) In the **validation** folder, create subfolders named **cluster** and **sql**.

- 46) The **validation.rtf** file is located at in **VSS Dev, SQL 2012 Install**. Copy it to the **validation** folder (Figure 13).


Figure 13: Validation Folders



SQL Server Software Installation

Follow these configuration steps to install software.

Install and Configure SNMP

- 47) Open **Server Manager** and click **Features, Add Features**.
- 48) Select **SNMP Services** which will automatically select the two sub features. Click **Next**.
- 49) Click **Install**.
- 50) Click **Close**.
- 51) Copy the `\\CDimages_software_VBECS 2.0\Both\SNMP scripts` folder to **C:\temp**.
- 52) Launch **PowerShell (x64)** by clicking the icon () in the Task Bar.
- 53) Run the following command: **“c:\temp\SNMP script\supdatesnmp”**
- 54) Close the PowerShell console.
- 55) In `c:\temp\SNMP scripts`, double-click **SNMP-config** to run the registry edit.
- 56) A warning will appear, click **Yes** followed by **OK** on the confirmation message.

Add .NET Framework Version 4.0

- 57) The Version 4.0 framework is located on the `\\CDimages_software_VBECS 2.0\SQL Server\4.0 Framework` share. Copy it to **C:\temp** and install.

Install Security Update for .NET Framework 3.5.1 (KB2898851)

- 58) Copy the `\\CDimages_software_VBECS 2.0\Both\KB2898851` folder to **C:\temp**.
- 59) Double-click on **Windows6.0-KB2898851-x64** to start the installation.
- 60) Click **Yes** to proceed with the installation.
- 61) Click **Close**.

Install Security Update for .NET Framework 4.0 (KB2938780)

- 62) Copy the `\\CDimages_software_VBECS 2.0\SQL Server\KB2938780` folder to **C:\temp**.
- 63) Double-click on **NPD40-KB2938780-x64** to start the installation.
- 64) Click **Next**.
- 65) Accept the license and click **Next**.
- 66) Click **Finish** to complete the installation.

Apply Hotfixes

67) The hotfixes are located on the \\CDimages_software_VBECS 2.0\SQL Server**Hot Fixes** share. Copy them to **C:\temp\hotfixes** (create this folder) and install. After installation is complete, reapply Windows Updates. Do not install any new version of Internet Explorer.

Apply AITC Fixes

68) The hotfixes are located on the \\CDimages_software_VBECS 2.0\SQL Server\AITC Updates share. Copy them to **C:\temp\hotfixes** and install. After installation is complete, reapply Windows Updates. Do not install any new versions of Internet Explorer.

Copy KB2645410

69) Copy the \\CDimages_software_VBECS 2.0\SQL Server**KB2645410** folder to **C:\temp**.

Copy SQL Server Installation Files

70) The SQL installation files are located on the \\CDimages_software\SQL2012_Ent share. Copy the contents of the **en_sql_server_2012_enterprise_edition_x86_x64_dvd_813294** folder to **C:\temp\SQL 2012**.

Copy Installation Support Files

71) The installation support files are located in VSS Dev in the **SQL 2012 Install** folder. Copy the contents of the folder to **C:\temp\SQL 2012**.

Copy SQL Fixes

72) The SQL fixes are located on the \\CDimages_software_VBECS 2.0\SQL Server\SQL Fixes share. Copy the following file to **C:\temp\SQL2012Updates**.

- SQLServer2012SP2-KB2958429-x64-ENU

Install SCCM

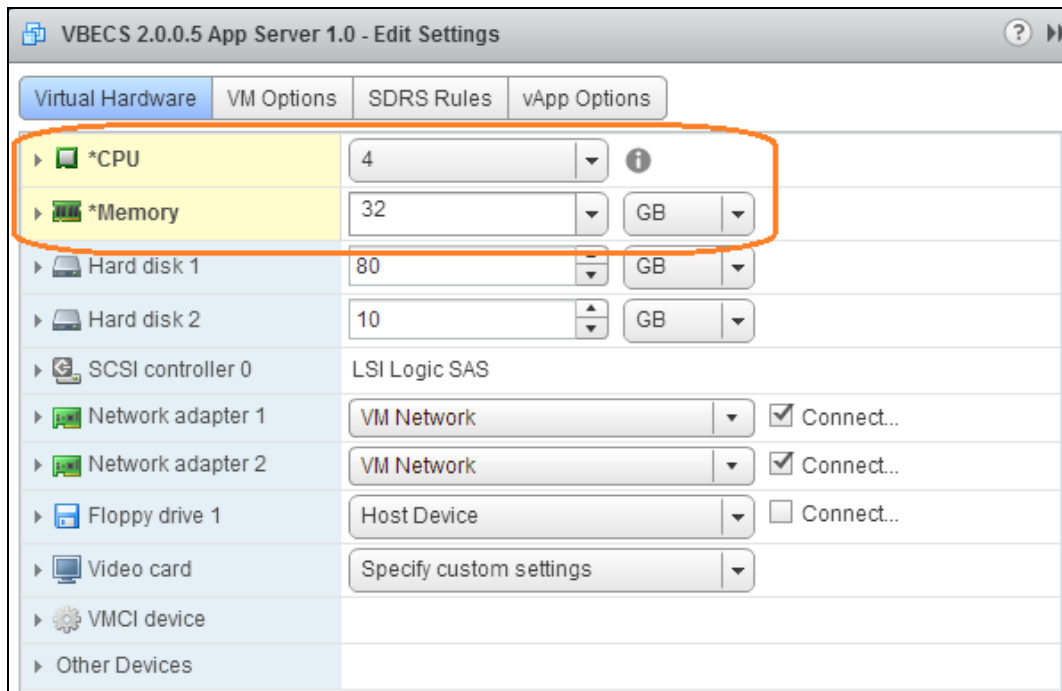
- 73) Copy the \\CDimages_software_VBECS 2.0\Both\SCCM scripts folder to c:\temp.
- 74) Double-click on **IsolatedSystemClientInstall.bat** (in the **Client** folder) to install SCCM. The installation takes about 30 seconds.
- 75) From the command line, execute the following command: **net stop ccmexec**. You will see a message stating that the **SMS Agent Host service** has stopped successfully.
- 76) Open Windows Services and set the **SMS Agent Host** service **Startup type** to **Disabled**.
- 77) Click **Start, Run**. In the Run box, type MMC and press **OK**.
- 78) Click **File, Add/Remove Snap-in...**
- 79) Select **Certificates** and click **Add**.
- 80) Select **Computer account** and click **Next**.
- 81) Select **Local Computer** and click **Finish**.
- 82) Click **OK** to close the **Add or Remove** window.
- 83) Expand the **Certificates, SMS**. Delete both certificates.
- 84) Close the console.

Adjust Memory and Central Processing Unit

- 85) Shut down the virtual machine.
- 86) In the vSphere Client, navigate to the **VMs and Templates** view.

- 87) Right-click on the VM and click **Edit Settings**. Change the Memory Size to **32 GB** (32768 MB). Click on **CPU** and change the **CPUs** to 4. Click **OK** to close (Figure 14).

Figure 14: Example of Virtual Machine Properties



Turn the VM into a Template

- 88) Right-click on the VM and choose **Template, Convert to Template**.
89) Continue with Appendix A: Update a Template, Step 12.

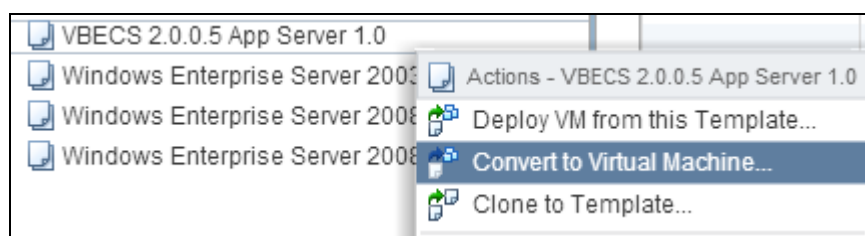
Appendix A: Update a Template

These steps must be executed by a vSphere Administrator.

Prerequisites

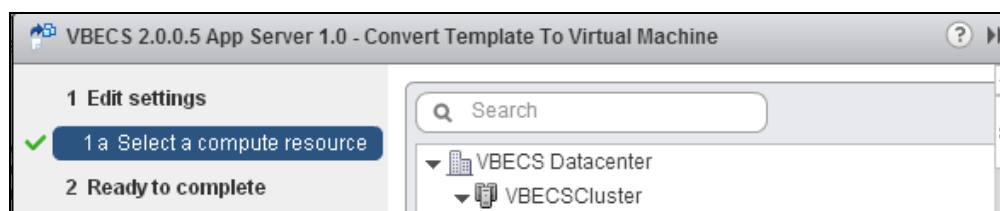
- The server VM is online.
- 1) Determine the name of the template by viewing the *VBECS 2.0.0 Virtual Machine Template Device Master Index, Table 1*.
 - 2) Open the vSphere console with administrative privileges and navigate to the **VMs and Templates** view. Right-click on the template that you wish to modify and select **Convert to Virtual Machine** (Figure 15).

Figure 15: Example of vSphere Web Client



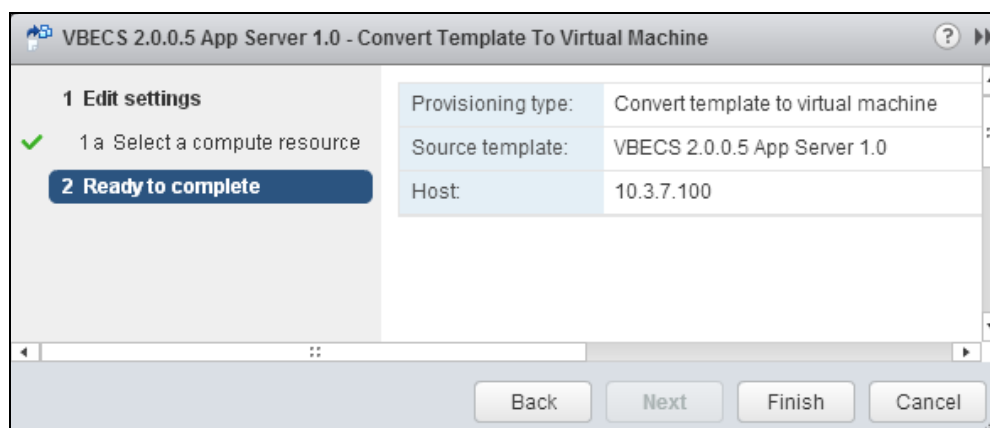
- 3) Expand **VBECSCluster** and select **IPADDRESS** . Click **Next** (Figure 16).

Figure 16: Example of Convert Template to Virtual Machine



- 4) Click **Finish** (Figure 17).

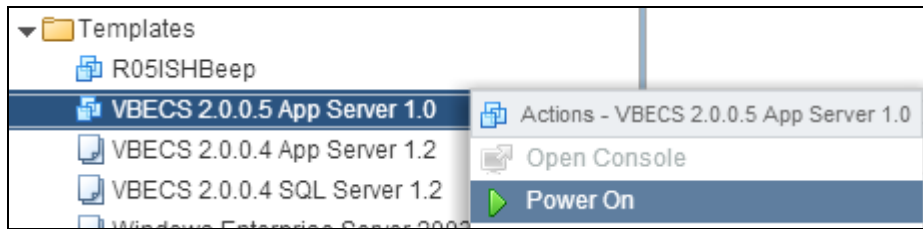
Figure 17: Example of Convert Template to Virtual Machine



- 5) If creating the template for the first time, execute Appendix B: Updating NIC and Hard Drive Settings.

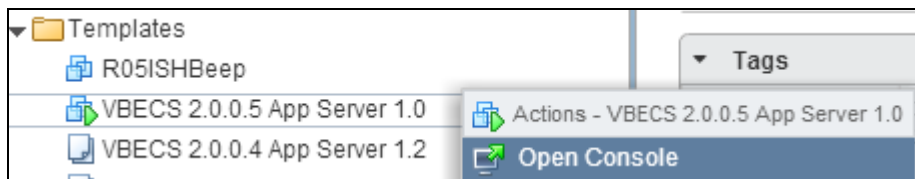
- 6) The template has now been turned into a server. Right-click the server and click **Power On** (Figure 18).

Figure 18: Example of vSphere Web Client



- 7) Before you can remote into the VM, you must assign an IP address. Right-click on the VM and click **Open Console** (Figure 19).

Figure 19: Example of vSphere Client



- 8) The console window appears (Figure 20). Press **Ctrl-Alt-Insert** (not **Delete**) to login. Use the local administrator account.

Figure 20: Example of a Template



- 9) Open a command prompt and type **ipconfig**. Note the **IPv4 Address** (Figure 21). If the server doesn't have an IP address, assign one to **Local Area Connection 2** in **Control Panel**. At this point, you can continue to use the console or establish a connection with the server via Remote Desktop. Accessing through the console is extremely slow, so accessing through RDC is recommended.

Figure 21: Example of Command Prompt

```
Administrator: Command Prompt
C:\Users\installer>ipconfig

Windows IP Configuration

Ethernet adapter AlwaysOn:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : 
    Autoconfiguration IPv4 Address. . : 
    Subnet Mask . . . . . : 
    Default Gateway . . . . . : 

Ethernet adapter Public:

    Connection-specific DNS Suffix  . :
```

- 10) Make any changes you need to make to the server. When done, shut down the server.
- 11) Open the vSphere Console and right-click on server and click All vCenter Actions, **Convert to Template** (Figure 22).

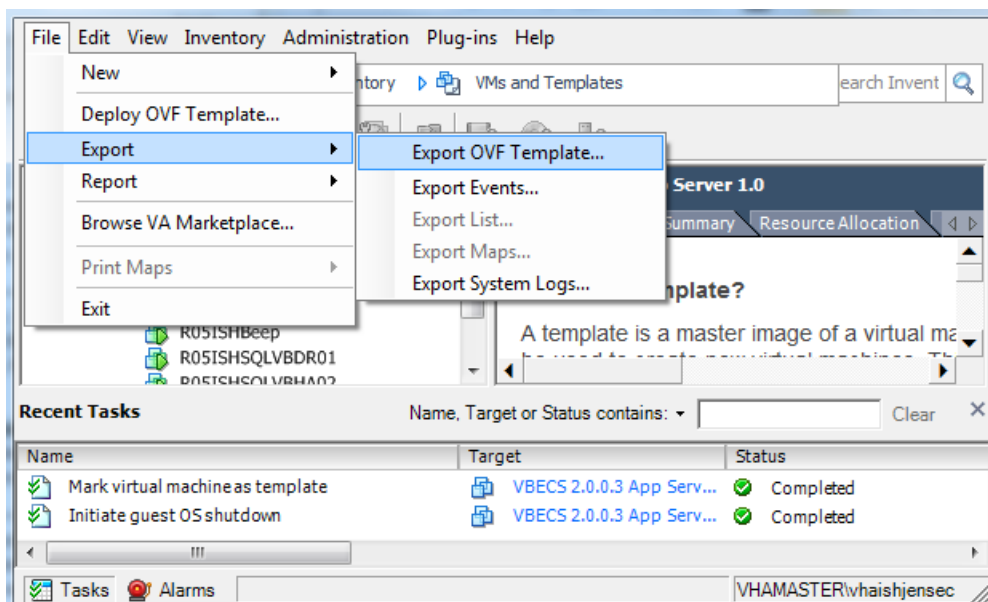
Figure 22: Example of Convert to Template



Note: The vSphere Web Client does not yet support all features that the traditional client does. To execute the rest of these steps, run the vSphere Client on .

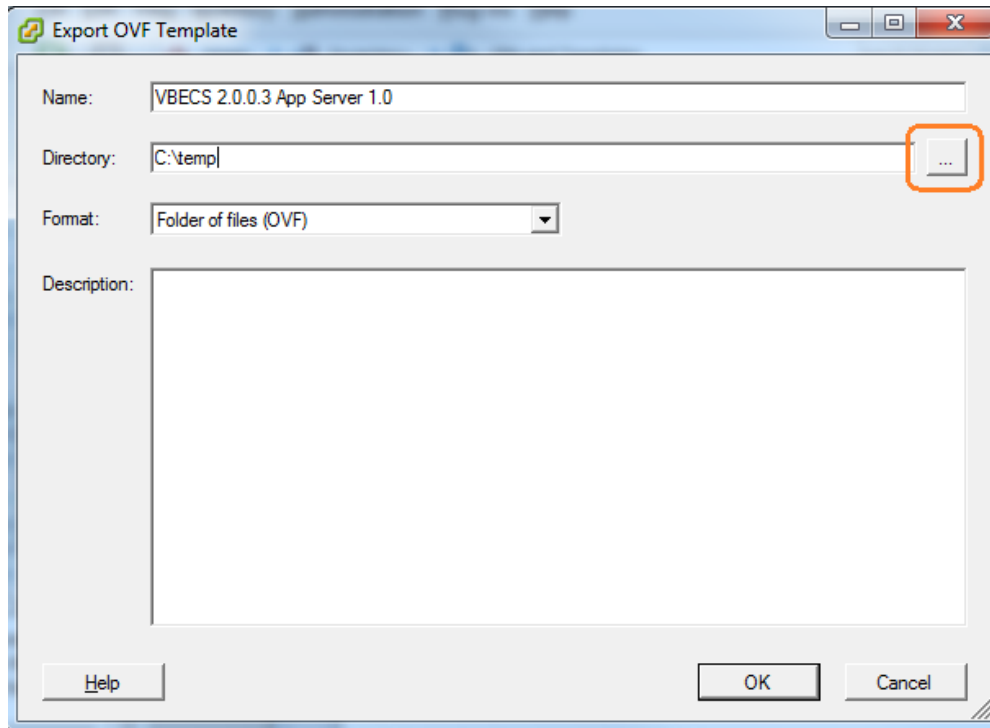
- 12) To export the template, select it and click **File, Export, Export OVF Template** (Figure 23).

Figure 23: Create a Template



- 13) Click the ellipsis and specify the **E:\VBECS Virtual Machine Templates** folder. Click **OK** (Figure 24). The template will then be exported.

Figure 24: Example of Export OVF Template



- 14) If this was a template update, update the *VBECS 2.0.0 Virtual Machine Template Tracking Log*, following the steps in **Error! Reference source not found.**

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Appendix B: Updating NIC and Hard Drive Settings

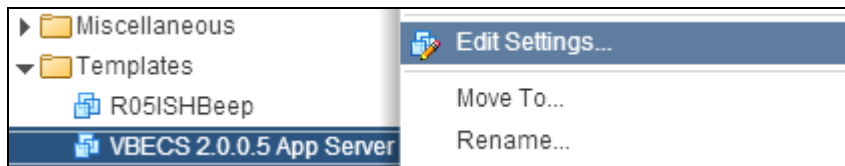
These steps must be executed by a vSphere Administrator.

Prerequisites

- The server VM is online.

- 1) Right-click on the template and select **Edit Settings** (Figure 25).

Figure 25: Edit Settings



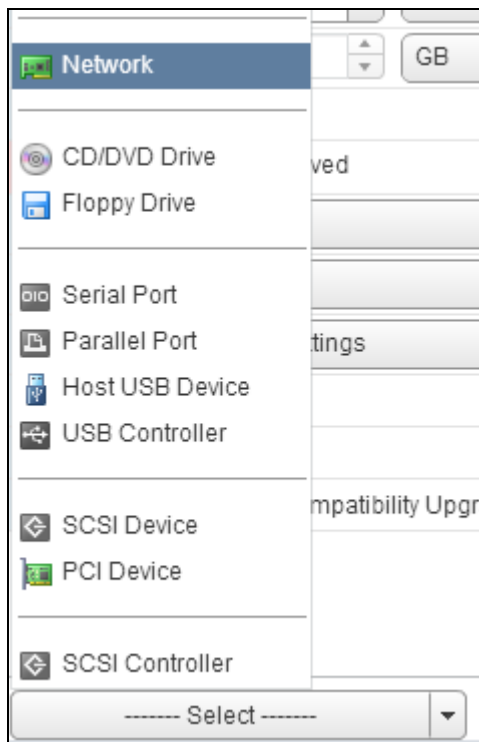
- 2) In the Network adapter row, click the **X** to remove **Network adapter 1** (Figure 26).

Figure 26: Remove Network Adapter



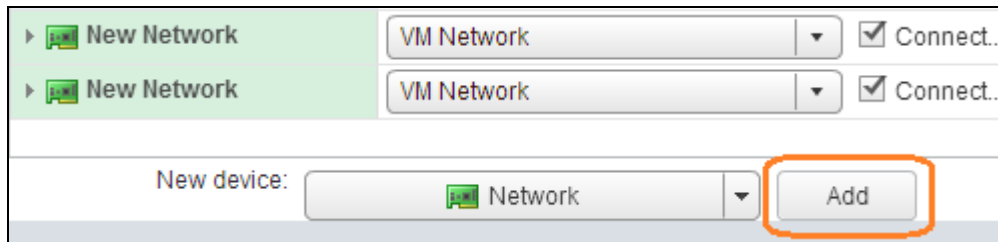
- 3) Click **Select** and choose **Network** (Figure 27).

Figure 27: Network



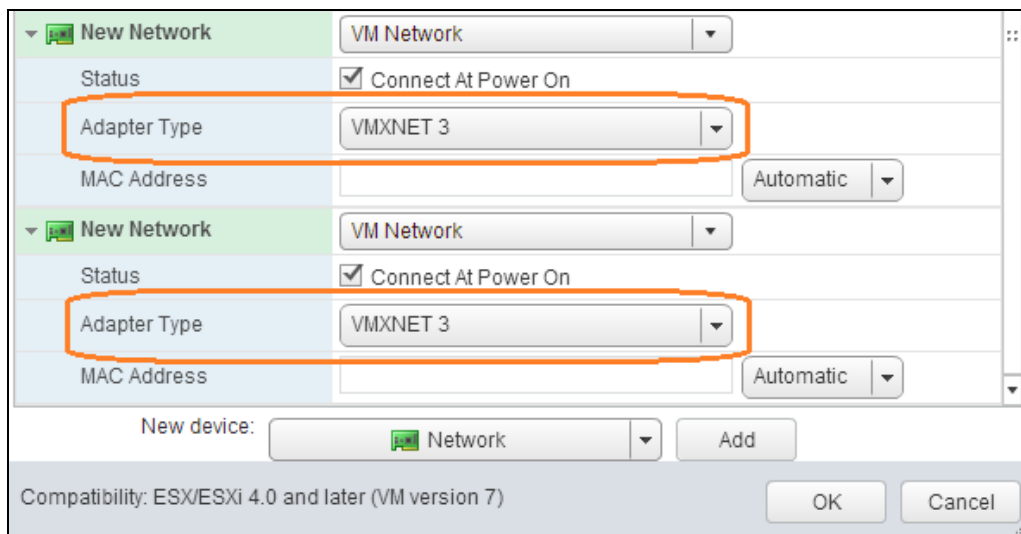
- 4) Click **Add** twice to add two NICs. The screen will look like Figure 28 when done.

Figure 28: Two NICs



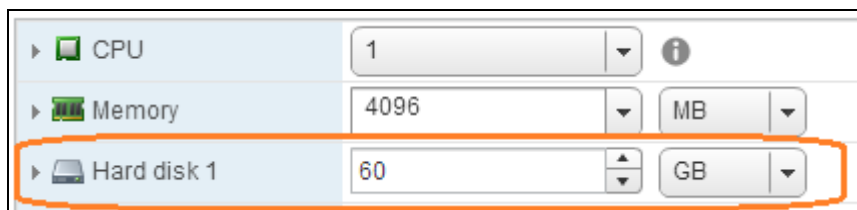
- 5) Change the adapter type to **VMXNET 3** for both adapters (Figure 29).

Figure 29: Adapter settings



- 6) Change the size of **Hard disk 1** to 80 GB (Figure 30).

Figure 30: Hard disk 1



- 7) In the CD/DVD drive row, click the **X** to remove the drive. Click **OK** to save changes.

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This is the last page of *VistA Blood Establishment Computer Software (VBECS) 2.0.0 Template Creation Guide*.