

Dell Desktop Virtualization Solutions—Simplified 1020 Deployment Guide



Notes, Cautions, and Warnings



NOTE: A NOTE indicates important information that helps you make better use of your computer.



CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

© 2013 Dell Inc.

Trademarks used in this text: Dell™, the Dell logo, Dell Boomi™, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, Compellent™, KACE™, FlexAddress™, Force10™ and Vostro™ are trademarks of Dell Inc. Intel®, Pentium®, Xeon®, Core® and Celeron® are registered trademarks of Intel Corporation in the U.S. and other countries. AMD® is a registered trademark and AMD Opteron™, AMD Phenom™ and AMD Sempron™ are trademarks of Advanced Micro Devices, Inc. Microsoft®, Windows®, Windows Server®, Internet Explorer®, MS-DOS®, Windows Vista® and Active Directory® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat® and Red Hat® Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® and SUSE® are registered trademarks of Novell Inc. in the United States and other countries. Oracle® is a registered trademark of Oracle Corporation and/or its affiliates. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, vMotion®, vCenter®, vCenter SRM™ and vSphere® are registered trademarks or trademarks of VMware, Inc. in the United States or other countries. IBM® is a registered trademark of International Business Machines Corporation.

2013 – 09

Rev. A05

Contents

1 Introduction.....	5
System Requirements.....	6
Contacting Technical Support.....	6
2 Setting Up DVS Simplified 1020	9
Connecting And Configuring Physical Connections.....	9
Configuring The Hypervisor.....	10
Configuring The vdiManager.....	11
Determine The IP Address Of The vdiManager.....	11
Connecting To The vdiManager.....	13
Configuring A Grid.....	13
Creating A Windows Reference VM.....	15
Creating A Windows Reference VM Using Citrix XenServer.....	15
Creating A Windows Reference VM Using Microsoft Hyper-V.....	15
Creating A Windows Reference VM Using VMware ESXi.....	15
Generating a Base Desktop Image.....	16
NIC Bonding.....	16
Enabling NIC Bonding Using Citrix XenServer.....	16
Enabling NIC Bonding Using Microsoft Windows Server 2008 R2 SP1.....	17
Enabling NIC Bonding Using Microsoft Windows Server 2012.....	18
Enabling NIC Bonding Using VMware ESXi.....	18
3 Upgrading Citrix XenServer And VDI-in-a-Box.....	19
Upgrading Citrix XenServer.....	19
Upgrading VDI-in-a-Box.....	21
Upgrading the Existing Images.....	22
Refreshing The Desktops.....	23
4 Licensing Information.....	25
XenServer Licensing.....	25
Microsoft Hyper-V Licensing.....	25
VMware ESXi Licensing.....	25
Generating A License For VDI-in-a-Box.....	25
Applying A License To VDI-in-a-Box.....	26
KMS Licensing.....	26
Windows Activation.....	26
Microsoft Office 2010 Activation.....	27







5 Connecting Dell Wyse Thin Clients To A DVS Simplified Environment.....	29
Configuring The T10 Thin Client.....	29
Configuring The T10 Thin Client Using The Wyse Zero ToolBar.....	29
Configuring The T10 Thin Client Using DHCP.....	29
Configuring The Z50D Thin Client.....	31
Configuring The Z90D7 Thin Client.....	31

Introduction

The Dell Desktop Virtualization Solutions (DVS) Simplified 1020 is a Dell PowerEdge T620 system or a PowerEdge R720 system powered by Citrix VDI-in-a-Box (VIAB) and the hypervisor of your choice:

- Citrix XenServer
- Microsoft Hyper-V
- VMware vSphere ESXi

This document provides the necessary steps required to configure the Dell DVS Simplified 1020 appliance.

-  **NOTE:** If the Dell PowerEdge T620 or the PowerEdge R720 systems do not meet your requirements, choose from the list of supported Dell PowerEdge systems available in the Solution Guide at dell.com/support.
-  **NOTE:** The configuration must meet or exceed capabilities of the locked appliance solution. Although the platforms are compatible, performance and workload capabilities are dependent upon the CPU, memory, and hard drive specifications of the solution.
-  **NOTE:** If you choose from one of the supported systems, the Dell DVS Simplified 1020 software is not factory-installed.
-  **NOTE:** For more information, see the VDI-in-a-Box documentation at support.citrix.com/proddocs/topic/vdi/vdi-landing-page-53.html.
-  **NOTE:** For known issues, see the VDI-in-a-Box documentation at support.citrix.com/proddocs/topic/vdi-53/vdi-known-issues-53.html.
-  **NOTE:** For the latest VDI-in-a-Box updates, see the VDI-in-a-Box documentation at support.citrix.com/cms/kc/vdi-in-a-box.

The components of the single server solution architecture are illustrated in the following figure:

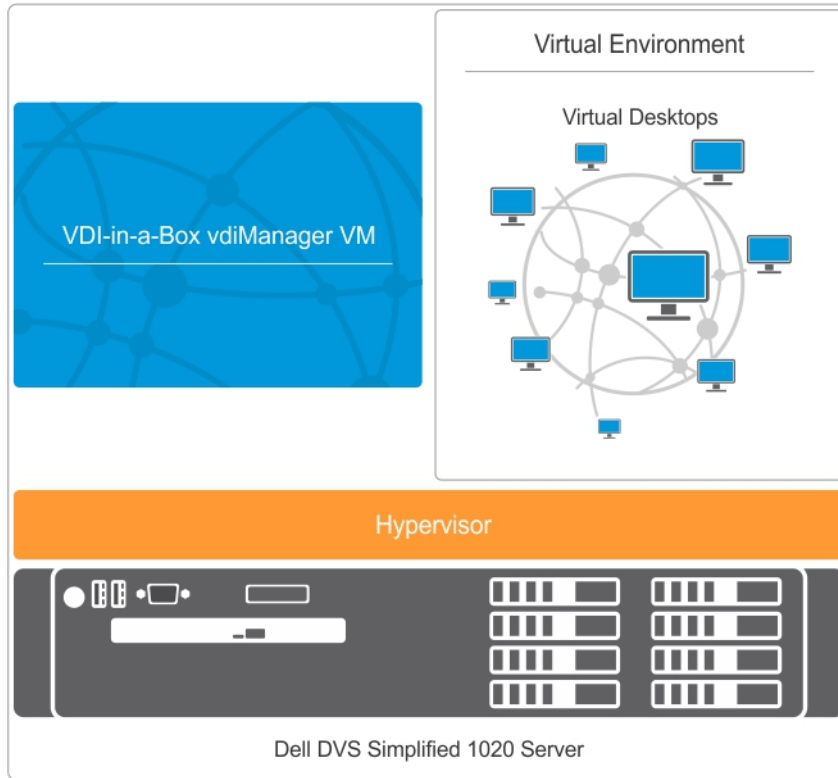


Figure 1. Single Server Architecture

System Requirements

Before you proceed with the configuration of Dell DVS Simplified 1020, ensure the following requirements:

- The Dynamic Host Configuration Protocol (DHCP) server is available in your environment.
- The appropriate Windows Volume Licensing is available for your virtual desktops.

For more information on supported virtual desktops and client systems, see the Compatibility Matrix in *Dell Desktop Virtualization Solutions—Simplified 1020 Solutions Guide* at dell.com/support/manuals.


NOTE: It is highly recommended to not install additional services, software, or virtual machines to the hypervisor running on your DVS Simplified server.

Contacting Technical Support

Your Dell DVS Simplified Appliance is entitled to Dell service and maintenance. Use the following table to contact the Technical Support team for your region:

Country	Contact Numbers	Extension
United States of America and Canada	1-877-459-7304	N/A
United Kingdom	0844 444 3844	3480157
France	0825 004 686	3250127

Country	Contact Numbers	Extension
Germany	069 9792 2064	3122046
Netherlands	0031 206 74 5914	3480158
Austria	82024058256	3122046 (German) 3480108 (English)
Switzerland	0848330092	3122048 (German) 3250121 (French)
Belgium	0248 28 690	3250124 (French) 3480159 (English)
Luxembourg	24871036	3250127
Ireland	1850964270	3480157
Australia	1300 662 370	N/A
New Zealand	800 703 355	N/A
China	800-858-0612 400-886-8617	N/A
Japan	0120 912738	N/A
India	1800 425 2070	N/A
Singapore	1800 395 7935	N/A
Hong Kong	29693187	N/A
Philippines	1800 1601 0061	N/A
Malaysia	1800 880 438	N/A
Vietnam	12060119	N/A
Taiwan	0800 160 1255	N/A

 **NOTE:** To ensure a faster service from your Technical Support representative, have the Service Tag Code for your product ready in advance. If you do not have the Service Tag Code, mention your product type as “Flex computing” or “part of a Flex solution”.

Setting Up DVS Simplified 1020

The following steps must be completed to set up the DVS Simplified 1020 before virtual desktops can be deployed:

1. [Connecting And Configuring Physical Connections.](#)
2. [Configuring The Hypervisor](#)
3. [Configuring The vdiManager.](#)
4. [Creating A Windows Reference VM.](#)
5. [Generating a Base Desktop Image.](#)

Connecting And Configuring Physical Connections

You can use the following types of network ports to configure your physical connections:

- Gb1 Network Connection—Used to access the vdiManager and virtual desktops.
 - ✎ **NOTE:** Gb1 network must reach Dynamic Host Configuration Protocol (DHCP) server as it dynamically assigns IP addresses to vdiManager and virtual desktops. This IP address is used to access the vdiManager after the appliance boots.
- Gb3 Network Connection—Used to manage and access the hypervisor and the host server.
- Integrated Dell Remote Access Controller (iDRAC)—Used for hardware management.

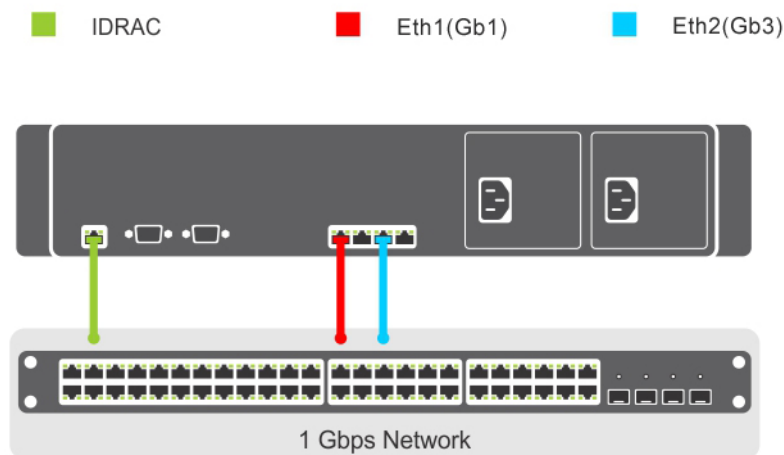



Figure 2. Physical Network Connections

Connect to the server console using one of the following options:

- iDRAC
- KVM switch (not included)

- Keyboard, mouse, and monitor (not included)

 **NOTE:** You can use the mouse for systems installed with Microsoft Windows Server 2008.

Configuring The Hypervisor


After all the connections are established and the system is powered on, follow the steps for your hypervisor.

Configuring The Hypervisor Using Citrix XenServer

1. Connect to the server console to configure the hypervisor. See the **Connecting and Configuring Physical Connections** section in this document.

After the server boots, the End User License Agreement (EULA) is displayed.

2. Select the checkbox to accept the EULA.
3. Enter the root password for the hypervisor.


 **NOTE:** Save the password to connect to the hypervisor at a later stage.

4. To assign an IP address for the XenServer hypervisor:
 - a) Select **Network and Management Interface**.
 - b) Select the **Configure Management** interface and enter the required credentials.
 - c) Select the **eth2** Gb3 network connection as the management interface.
 - d) Select **Static**.
 - e) Enter the **IP address**, **netmask**, and **hostname** of the hypervisor.

Configuring The Hypervisor Using Microsoft Hyper-V


1. Connect to the server console to configure the hypervisor. See the **Connecting and Configuring Physical Connections** section in this document.

2. When prompted, set the country, time, and keyboard layout and click **Next**.
3. Accept the license terms and click the **Start** button.
4. Press <Ctrl><Alt><Delete> to log on.
5. Select **Administrator** to log on as the administrator.

 **NOTE:** The kaviza account is a service account created by the VIAB software.

6. Change the administrator password when prompted.
7. Click the **Server Manager** icon on your desktop notification area to start the Server Manager.
8. In the Server Manager console, navigate to **Roles and Hyper-V** → **Hyper-V Manager** and select your server.
9. Under the **Action** tab, select **Virtual Network Manager**.
10. In the **Virtual Network Manager** window, click **HVSwitch1**.
11. Under **Connection type** in the right panel of the **Virtual Network Manager** window, note the NIC port assigned to the external network.


This network connection corresponds to Gb1 in the **Physical Network Connections** diagram.

 **NOTE:** The virtual switch binds to the first physical port. This may not follow the numerical order of the number assigned to the port by the operating system. For example, the first physical NIC port (Gb1) may be labeled Ethernet #2.

12. Open the **Initial Configuration Tasks** console and click the **Configure networking** to open the **Network Connections** window.


The first physical NIC port assigned to the external network is displayed here along with another network connection labeled as **HVInternalEthernetPort1**. Both these connections are applicable for Hyper-V.

An additional NIC is displayed as connected. This network connection corresponds to Gb3 in the **Physical Network Connections** diagram.


 **NOTE:** It is recommended that you configure this NIC with a static IP address and use it for managing your server.

13. In the **Initial Configuration Tasks** console, click the **Activate Windows** link and enter your product key.
14. Click **Next** and proceed through the activation process.
15. If required, add the host server to a domain.
The system reboots to complete this request.

If required, a Windows update can be performed on your server before you configure your grid and start the virtual desktops.

 **NOTE:** Ensure that you follow your company policy for applying updates. It is recommended not to allow updates to install automatically to prevent unexpected server reboots and issues with VIAB.

Configuring The Hypervisor Using VMware ESXi



1. Connect to the vdiManager server console to configure the hypervisor. See the **Connecting and Configuring Physical Connections** section.
2. Press F2 to customize the system.
3. Enter `root` for the login name and `dvssim11` for the password.
 **NOTE:** The root password is set during the factory installation process. It is highly recommended that you change the password using the **Configure Password** option on the **System Customization** window.
4. On the **System Customization** window, select **Configure Management Network** and press **Enter**.
5. Use the space bar to select **vmnic2** (Gb3 connection) and press **Enter**.
6. On the **Configure Management Network** window, select **IP Configuration** and press **Enter**.
7. Use the space bar to select **Set static IP address...** and enter the IP address, subnet mask, and default gateway for your hypervisor.

Configuring The vdiManager

Determine The IP Address Of The vdiManager


The IP address of the vdiManager is used to temporarily access the VIAB console until a static IP is configured. The procedure varies depending on your hypervisor.

Determining The IP Address Using Citrix XenServer

1. Using the IP address set in the topic **Configuring Your Hypervisor**, connect to your XenServer using the XenCenter client.
 **NOTE:** You can install the XenCenter client by browsing to <http://<XenServer IP ADDRESS>> or by downloading it from the Citrix website.
2. Select the VM **vdiManager_Xen**.
 **NOTE:** If vdiManager is not started, right-click on the VM and select **Start**.
3. Select the **Networking** tab to find the IP address of the vdiManager.


Determining The IP Address Using Microsoft Hyper-V

1. In the **Server Manager** console, expand **Roles and Hyper-V**→ **Hyper-V Manager** and select your server so that the vdiManager VM is displayed under **Virtual Machines**.
2. Right-click the vdiManager VM and select **Start**.
3. From the **Action** tab menu, select **Console** to access the VM.

 **NOTE:** A message with the IP address for the VIAB console is displayed.

Determining The IP Address Using VMware ESXi


1. Connect to your ESXi hypervisor using vSphere Client or VMware vCenter using the following credentials:
 - a. IP address: Enter the IP address noted during the procedure **Configuring Your Hypervisor**.
 - b. User name: Enter `root`.
 - c. Password: Enter your root password. The default is `dvssim11`.

 **NOTE:** You can install the vSphere client by browsing to `http://<IP ADDRESS>`, where IP ADDRESS is your vSphere hypervisor IP address.

2. If you receive a certificate security warning, select the checkbox next to “Install this certificate...” and click **Ignore**.


An evaluation notice appears until you enter your ESXi license information.

3. Click **OK** bypass the evaluation for now.


 **NOTE:** You must enter your license information within 60 days or the appliance ceases to function properly.

 **CAUTION:** Do not install a free license key as the APIs required for VIAB to work with the hypervisor close and the setup process ends.

4. To enter your license key, click **View** on the top menu and navigate to **Inventory**→ **Inventory**.
5. Click on the IP address of your ESXi host and select the **Configuration** tab.
6. Click the **Licensed Features** link under the Software table and then click the **Edit...** link near the top right of the screen.
7. Choose **Assign a new license...** and enter the license key.
8. Under the **Configuration** tab, click on the **Networking** link under the **Hardware** column to display the virtual switch.
9. Click the **Properties...** link next to vSwitch0.

 **NOTE:** By default, the VM Network and Management Network are configured to use the same virtual switch and physical network adapter. It is recommended that the VM Network be configured to use vmnic0 (Gb1 in the **Physical Network Connections** diagram).

10. In the **vSwitch0 Properties** window, select **VM Network** under the **Ports** tab and click on **Remove**.
11. Click **Yes** to confirm.
12. Click **Close** on the **vSwitch0 Properties** window.
13. Click the **Add Networking...** link next to vSwitch0.
14. In the **Add Network Wizard** window, select **Virtual Machine** as the connection type and click **Next**.
15. Select **vmnic0** as the virtual switch and click **Next**.

 **NOTE:** Ensure that the **Network Label** field is `VM Network` and the VLAN ID is set to `None`.

16. Click **Next** and then **Finish**.

The Management Network now appears on **vSwitch0/vmnic2** and the VM Network on **vSwitch1/vmnic0**.

17. In the Inventory view, click on the vdiManager_ESX VM and issue the Power On command indicated by a green arrow.

When the vdiManager_ESX VM completes booting, the IP address appears on the **Summary** tab. If it does not, you can determine the address by selecting the **Console** tab, clicking in the console area, and pressing any key to display a message showing the IP address of the VIAB console.

Connecting To The vdiManager

Before attempting to connect to the vdiManager, ensure that:

- Your user account has administrator or root privileges.
- JavaScript and cookies are enabled in your web browser.

Use the following procedure to connect to the vdiManager:

1. Open your web browser and enter the URL **http://<IP ADDRESS>/admin** to access vdiManager. Use the IP address of the vdiManager noted earlier.

A security warning about the website certificate is displayed.

2. Accept the certificate as trusted and continue.
3. Click **OK** on any additional warnings that are displayed.
4. Log in to the server console using the following credentials:

- User name: vdiadmin
- Password: kaviza

A welcome screen is displayed.

5. Click **Get Started**.

A window listing the steps and pre-requisites required to generate virtual desktops is displayed.

6. Click **Continue** on **Set up your Hypervisor and VDI-in-a-Box Grid**.

VDI-in-a-Box Initial Set up window is displayed.

7. In the Hypervisor section, enter the IP address, user name, and password noted in the **Configuring The Hypervisor** section, to connect to your hypervisor.



NOTE: Enter the IP address for your hypervisor host server and not the vdiManager VM.

8. In the **Datastore** section, select the local datastore for your hypervisor:

- XenServer: Select **Local storage**
- Hyper-V: Select **C:\ProgramData\Citrix\VIAB**
- vSphere ESXi: Select **datastore1**

9. In the **Network Label** section, select the Gb1 connection network for your virtual machines:

- XenServer: Select **Network 0**
- Hyper-V: Select **HVSwitch1**
- vSphere ESXi: Select **VM Network**

Configuring A Grid


When setting up a new VDI-in-a-Box environment, create a new grid and associate it with a database containing the users and groups who need to access the VIAB VMs. The database can be your Active Directory server or a locally stored database called a workgroup.

Join an existing grid when expanding a VIAB environment.

Creating A New Grid


Ensure the user account has domain administrator privileges.

1. In the **Grid** section, select **Create a new VDI-in-a-Box grid** radio button and click **Next**.
2. Select **Active Directory** to integrate VDI-in-a-Box desktops to the Active Directory domain or choose VDI-in-a-Box workgroup if using VIAB's local user database instead of Active Directory.
3. Click **Next**.

 **NOTE:** If **Microsoft Active Directory** is selected, the details such as IP address, Domain, User name, and Password must be provided to access the directory server. If you are using VMware vSphere ESXi using vCenter to manage the ESX infrastructure, specify details for vCenter at this step.


After the configuration, a pop-up window is displayed asking if vdiManager has a dedicated IP address.

4. Select Yes or No according to your requirement and click **Done**.

 **NOTE:** It is recommended to use a static IP address for the VIAB manager.

Joining An Existing Grid

 **CAUTION:** All servers in a grid must use the same type hypervisor. For example, a XenServer hypervisor can only join a grid with other XenServer servers.

 **NOTE:** Before adding a new server to the grid, it is recommended that you upgrade the servers in the existing grid to the same version hypervisor and VDI-in-a-Box as the new server.


1. In the **Grid** section, select **Join a VDI-in-a-Box** server on an existing grid radio button and click **Next**.
2. On the **Configuration** page, enter the following:
 - IP address of the vdiManager in the existing grid
 - The vdiManager console user name
 - The vdiManager console password

3. Click **Next**.

The grid configuration process is complete.

Adjusting The Core Scale Factor On The VIAB Console When Using VMware vSphere ESXi As Hypervisor

Due to the way vSphere APIs report processor cores, a capacity parameter has to be adjusted for the VDI-in-a-Box console to properly calculate capacity when vSphere is used as the hypervisor.

 **NOTE:** This procedure is only necessary if using a version of VDI-in-a-Box older than 5.2.

Follow this procedure for VMware vSphere ESXi only.


1. Select the **Servers** tab in the VIAB console.
2. Click the **Desktops** link in the row for the server.
3. Click the **Adjust** button next to the Capacity section.
4. Change the value next to **Core Scale Factor** to 8.0 and click **Save**.
5. Click **Close** on the notification window.
6. Click **Close** on the **Server Status** window.
7. Repeat for every server in your grid.

Creating A Windows Reference VM

After the vdiManager and grid are configured, the next step is to generate a base desktop image, or the first golden image, based on an existing Windows reference VM, which can be imported, converted, or created new on your hypervisor. Follow the steps to create a new Windows reference VM for your hypervisor.

While creating the Windows reference VM, ensure you meet the following requirements:

- The VM is installed with one of the following operating systems:
 - Windows XP Professional edition (32-bit)
 - Windows 7 Professional or Enterprise editions (32-bit or 64-bit)
- The local administrator account is enabled on the VM.
- Remote connections is enabled for your users.
- The Remote Desktop Connection (RDP) functionality is enabled.
- The VM has only one network interface card (NIC) and is assigned to Device 0.
- The VM has only one disk image.
- The VM is powered on and operational before you add it to the VDI-in-a-Box grid.
- The VM does not have any snapshots.
- At least 4 GB of space is available on the system.
- The VM is activated using a valid Microsoft Volume Activation key.
- The hypervisor client tools are installed on the VM. For example, if your hypervisor is XenServer, then the XenServer tools must be installed on the VM.
- Enable File and Printer Sharing in the firewall settings of the VM to allow remote desktop connections for all networks.
- If required, add the VM to a domain.

 **NOTE:** The VM can be a member of a workgroup.

Creating A Windows Reference VM Using Citrix XenServer

1. Use the IP address noted during the procedure **Configuring Your Hypervisor** to connect to your Citrix XenServer using the XenCenter client.
2. Right-click on your server and select **New VM**. Alternatively, you can click **VM** on the top menu and select **New VM**.
3. Select the appropriate Windows operating system template and proceed with creating the VM.

Creating A Windows Reference VM Using Microsoft Hyper-V

1. In the Server Manager console, navigate to **Roles and Hyper-V**→ **Hyper-V Manager** and select your server.
2. Right-click the name of your server and select the option **New**→ **Virtual Machine**. Alternatively, select the **Action** tab and select **New**→ **Virtual Machine**.
3. Use the wizard to complete the VM setup.

Creating A Windows Reference VM Using VMware ESXi

1. Connect to your ESXi hypervisor via vSphere Client.
2. In the **Inventory** view, right-click your server and select **New Virtual Machine**.
3. Use the wizard to complete the VM setup.


Generating a Base Desktop Image

Your first VIAB image must be imported from an existing Windows VM running on your hypervisor.

See the section [Creating A Windows Reference VM](#) for more information.

To successfully generate a base desktop image:


- Ensure that there is only one DHCP server within range.
- Sufficient DHCP addresses must be available.
- Ensure the DHCP lease time is adjusted for short release cycles.
- The Windows Reference VM must be powered on and running on the hypervisor to begin importing the image.


 **NOTE:** To connect to a Windows Active Directory domain, you must have credentials for an existing domain controller.

For detailed steps on importing and editing the image, see support.citrix.com/proddocs/topic/vdi-53/vdi-first-win-xen.html.

NIC Bonding


You can enable NIC bonding or teaming to implement redundancy. This involves creating two bonds or teams— one for the VIAB traffic and one for the hypervisor management. The procedure varies depending on your hypervisor.

 **NOTE:** NIC bonding must be enabled before the VIAB software is configured. If VIAB has already been configured, ensure the VIAB grid is shut down and the associated VMs have been powered off before enabling NIC bonding.

 **NOTE:** Configuring the bond/team for load balancing has not been tested at this time and is not described in this document.

Enabling NIC Bonding Using Citrix XenServer

1. Using the IP address set in the topic **Configuring Your Hypervisor**, connect to your XenServer using the XenCenter client.

 **NOTE:** You can install the XenCenter client by browsing to <http://<XenServer IP ADDRESS>> or by downloading it from the Citrix website.


2. Click on your server in the left pane and then select the **NICs** tab.
3. In the **Create Bond** window, with the NIC 2 and NIC 3 check boxes selected and the Bond Mode set to **Active-passive**, click **Create**.
4. Click the **Create bond anyway** button in the **Create Bond** notification window.
5. Click the **Networking** tab and verify that Bond 2+3 is configured for the management interface at the bottom of the window under **Management Interfaces**.
6. Repeat steps 2 and 3 using NIC 0 and NIC 1 to create the bond.


 **NOTE:** Ensure that you select the **Automatically add this network to new virtual machines** option for this bond.

7. Click the **vdiManager VM** in the resource pane and then click the **Networking** tab. Verify that Bond 0+1 is configured as the network interface for the VM.

For more information, see the help section within the XenCenter and Citrix article CTX124421 at support.citrix.com/article/CTX124421 and article CTX129320 at support.citrix.com/article/CTX129320.


Enabling NIC Bonding Using Microsoft Windows Server 2008 R2 SP1

 **NOTE:** You cannot create a team using a NIC configured for the Microsoft Hyper-V virtual network. You must first create a team using two available adapters and change the Hyper-V virtual network to use that team. Alternatively, use an available adapter that will not be part of the team you are creating. You can then create a team using the other two adapters.

 **NOTE:** This procedure is for Broadcom NICs only. Do NOT use with or add Intel NICs to the same team as Broadcom NICs.

1. Log on to your Windows 2008 R2 SP1 server and browse to the **C:\Install\BroadcomAdvanced** folder.
2. Launch the **BrcmSetup.exe** program to add an additional component needed for NIC teaming.
3. Click **Next** on the InstallShield Wizard, select **Modify**, and click **Next**.
4. Click on **CIM Provider** in the feature list, select the option **This feature, and all subfeatures...** and click **Next**.
5. On the **Ready to Modify** window, click **Install** and then click **Finish** when completed.
6. In the notification area of the taskbar, right-click the NIC icon, and select the **Launch BACS** option. Alternatively, you can navigate to **Start → All Programs → Broadcom → Broadcom Advanced Control Suite**.
7. Select the **Go to Team View** from the Teams menu in the Broadcom Advanced Control Suite (BACS) application.
8. The **Create Team** option is displayed under the **Teams** menu. Select **Create Team** to proceed.
9. Click **Next** in the Broadcom Teaming Wizard.
10. Enter a name for the team or accept the default that is displayed and click **Next**.
The **Team Type** window is displayed with the **Smart Load Balancing and Failover** option selected by default.
11. Select the **Enable HyperV Mode** radio button to turn this setting on and click **Next**.
Ensure that you enable HyperV Mode only on the team used for the Hyper-V virtual network.
12. Add the **Broadcom NetXtreme Gigabit Ethernet** adapter and "Broadcom NetXtreme Gigabit Ethernet #2" as team members and click **Next**.
13. With the **Use the following member as a standby member** option selected and the #2 adapter set as standby, click **Next** to continue.
14. In the **Configure LiveLink** window, select **No** and click **Next**.
15. In the **Configure VLAN Support** window, with the option **Skip Manage VLAN** selected, click **Next**.
16. Select the option **Commit change to system and Exit the wizard** and click **Next**.
A warning message is displayed.
17. Click **Yes**.
18. Click the Server Manager icon in the taskbar to open the console. .
19. In the Server Manager console, navigate to **Roles and Hyper-V → Hyper-V Manager** and click the name of your server.
20. Under the **Action** tab, select **Virtual Network Manager**.
21. In the **Virtual Network Manager** window, click **HVSwitch1**.
22. In the **Connection Type** panel, change the NIC port assigned to the external network to **BASP Virtual Adapter** from the dropdown menu and click **OK**.
23. Click **Yes** to apply network changes.
24. In the BACS application, click on the name of your server in the left panel under **Hosts**.
25. Repeat steps 7-17 using adapters #3 and #4 in the team and designating adapter #4 as the standby member.
26. Exit the BACS application.

For more information, use the **Help** tab in the BACS application or see the **Using Broadcom Advanced Control Suite** section in the *Broadcom NetXtreme II™ Network Adapter User Guide* at dell.com/support/manuals.


 **NOTE:** Ensure you are using the team with HyperV Mode enabled for the Hyper-V virtual network. For example, if you enabled HyperV Mode on the "BASP Virtual Adapter #2", set this as the external network connection for HVSwitch1.

Enabling NIC Bonding Using Microsoft Windows Server 2012

To configure NIC bonding using Microsoft Windows Server 2012, see the *Windows Server 2012 NIC Teaming (LBFO) Deployment and Management* document at microsoft.com/en-us/download/details.aspx?id=30160.

Enabling NIC Bonding Using VMware ESXi

1. Connect to your ESXi hypervisor using vSphere Client or VMware vCenter using the following credentials:
 - a. IP address: Enter the IP address noted during the procedure **Configuring Your Hypervisor**.
 - b. User name: Enter `root`.
 - c. Password: Enter your root password. The default is `dvssim11`.

 **NOTE:** You can install the vSphere client by browsing to <http://<ESXi IP ADDRESS>>.


2. To enter your license key, click **View** on the top menu and select **Inventory** → **Inventory**.
3. Click on the IP address of your ESXi host and select the **Configuration** tab.
4. Under the **Configuration** tab, click on the **Networking** link under the **Hardware** column to display the virtual switch.
5. Click the **Properties...** link next to vSwitch0.
6. Click the **Network Adapters** tab and click **Add**.
The **Add Adapter Wizard** window appears.
7. Select **vmnic3** under Unclaimed Adapters and click **Next**.
8. Ensure **vmnic2** and **vmnic3** appear under Active Adapters, click **Next** and then **Finish**.
9. In the **Virtual Switch Properties** window, navigate to the **Ports** tab and select **Management Network**.
10. Click the **Edit** button.
11. Click the **NIC Teaming** tab and change the **Load Balancing** setting to **Use explicit failover order**.
12. Click to select **vmnic3** under Active Adapters and click the **Move Down** button to place it under Standby Adapters.
13. Click **OK** and then click **Close** on the **Switch Properties** window.
14. To create a team for the VM Network, repeat steps 4 – 10 above using the properties for vSwitch1 (VM Network) and extra adapter vmnic1.


For more information, please see the VMware KB article 1004088 at kb.vmware.com/kb/1004088.

Upgrading Citrix XenServer And VDI-in-a-Box

Upgrading Citrix XenServer

You can upgrade Citrix XenServer from XenCenter by using the **Rolling Pool Upgrade** wizard in automatic mode. The VDI-in-a-Box does not support XenServers in a pool but the **Rolling Pool Upgrade** wizard can be used to upgrade stand alone servers. You must perform the following steps before upgrading XenServer:

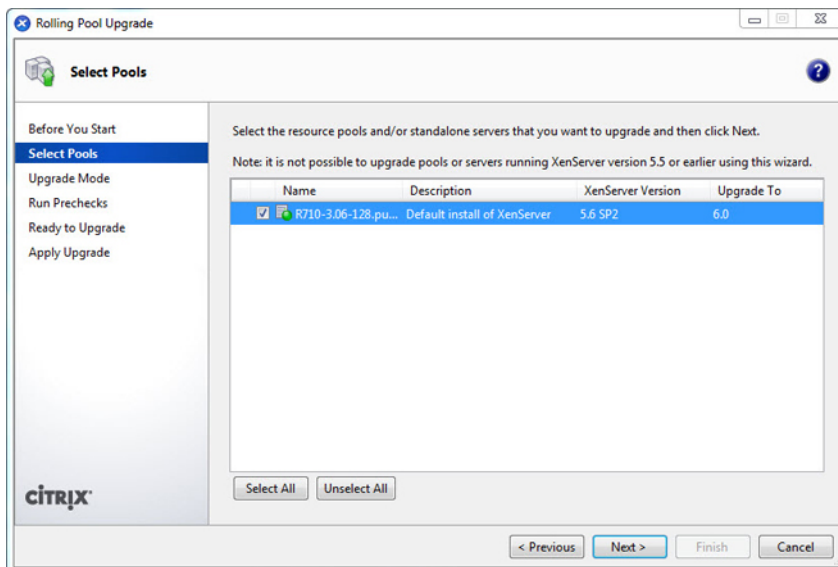
 **NOTE:** You must install the same hotfix updates or upgrade version of XenServer to all hosts in your grid at the same time to ensure that all hosts are at the same version level.

 **NOTE:** It is strongly recommended that you backup your servers before upgrading.

1. Download the latest XenServer installation package.
2. Download and install the latest version of XenCenter.
3. Log in to XenCenter and connect to each server in your grid with the local root account.
4. All users must be logged out of their virtual desktops.
5. Copy the new XenServer installation files to an accessible HTTP, NFS, or FTP server.
6. Remove any bootable media from the optical drive on each host.
7. The VDI-in-a-Box grid must be shut down before upgrading. Log in to your VIAB console and perform the following:
 - a. Enable the maintenance mode on the grid: From the **Admin** tab, click **Grid Maintenance**, and then click **OK**.
 - b. After all users log out, deactivate all servers in the grid: From the **Servers** tab, select the server, click **Deactivate**, and then click **Confirm**. Deactivating a server deletes all desktops, including those in use, and immediately shuts down the server so that it no longer provisions desktops. Only the personal desktops remain, with a status of "On Hold."
 - c. Use XenCenter, not the VIAB console, to power off the personal desktop virtual machines if applicable. To identify those desktop sessions within the VIAB console, navigate to **Desktops** → **User Sessions** and note the "On Hold" entries in the **Status** column.
 - d. Shut down the vdiManager virtual machines: From the **Servers** tab in the VIAB console, select the server, click **Shutdown**. Repeat for each server if you have multiple servers in your grid. The servers are now ready for the upgrade. Use XenCenter to verify that the vdiManager VMs are powered off.

To upgrade XenServer:

1. On the **Tools** menu within XenCenter, select **Rolling Pool Upgrade**.
The **Rolling Pool Upgrade** window is displayed.
2. Read the **Before You Start** information, and click **Next**.
The **Select Pools** information is displayed.




3. Select the hosts in your grid and click **Next**.

The **Upgrade Mode** information is displayed.

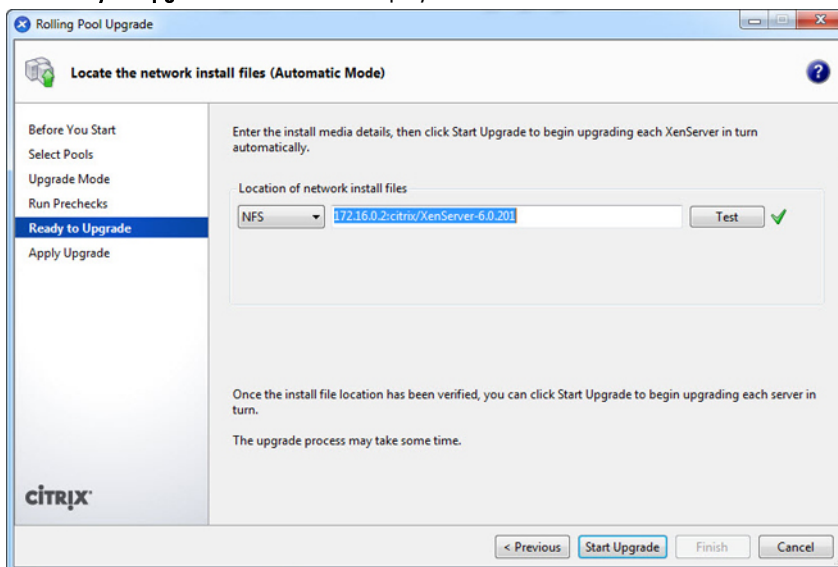
4. Select **Automatic Mode** (recommended mode).

5. Click **Run Prechecks**.


 **NOTE:** If any prechecks fail, follow the on-screen instructions to resolve them. Click **Resolve All** for XenCenter to automatically resolve all failed prechecks.

6. Click **Next**.

The **Ready to Upgrade** information is displayed.




7. In **Location of network install files**, specify the location of the installation media files and the FTP, HTTP, or NFS protocol used to access the files.

 **NOTE:** If you have configured security credentials for the network file source, enter those credentials and not the username/password for the XenServer hosts.

8. Click **Test** to verify that XenCenter can connect to the installation files.
9. Click **Start Upgrade** to proceed.
The wizard prompts you if any actions are required during the upgrade of each host. Once completed, a summary is displayed.
10. Click **Finish** to exit the wizard.
11. Use XenCenter to power on all vdiManager virtual machines.
12. When all vdiManagers are running, log on to the vdiManager console and take the grid out of maintenance mode.
From the **Admin** tab, click **Grid Maintenance**, and click **OK**. On the **Servers** tab, the **Recent Tasks and Events** section should display the message "Server checks out fine" for each server.
13. Activate each server by selecting the server from the **Servers** tab and then clicking **Activate**.


Upgrade your images with the latest XenServer tools.

Upgrading VDI-in-a-Box

 **NOTE:** If your current VIAB version is lower than 5.2, you must migrate to 5.3 instead of performing an upgrade. To migrate from VDI-in-a-Box versions 5.1.x and lower, follow the steps for the required upgrade/migrate path at support.citrix.com/proddocs/topic/vdi-53/vdi-upgrade-migrate-wrapper.html.

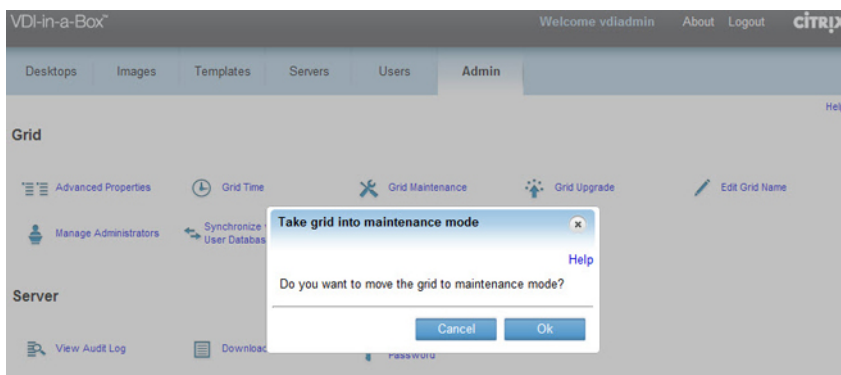
You must perform the following steps to download the VDI-in-a-Box installation package before you upgrade Citrix VDI-in-a-Box:


1. Go to www.citrix.com and ensure you are logged in to My Citrix.
2. Click **Downloads**.
3. Click **VDI-in-a-Box** in the **Products** list.
4. From the download type list, select **Product Software**.
5. Click **Find**. The VDI-in-a-Box product software page appears.
6. Select the latest version of the VIAB software.
7. Scroll down the page until you see the **Upgrade** link and click to expand it.
8. From the **Upgrade** section, click the **Download** button to download the latest upgrade file. The End-User License Agreement (EULA) is displayed.
9. Accept the EULA. The **Download Manager** window opens.
10. Click **Download Now**.
11. Navigate to a location to download the tar upgrade file and click **Save**.
12. Log out of VDI-in-a-Box desktops before performing the upgrade.

 **NOTE:** The upgrade is automatically applied to all servers in the grid. The upgrade installation package cannot be rolled back after it is installed.

To upgrade Citrix VDI-in-a-Box:




1. Log in to the **vdiManager** console.
2. Click **Admin** → **Grid Maintenance**.
The **Take grid into maintenance mode** window is displayed.



3. Click **OK**.
A message is displayed at the top of the screen indicating that the grid is in maintenance mode.
 4. Click **Grid Upgrade** on the **Admin** page.
The **Grid Upgrade** window is displayed.
 5. Click **Choose File** and select the upgrade file that you had downloaded.
 6. Click **Submit**.
Follow the onscreen instructions to upgrade all the servers in the grid. A progress box displays the upload and upgrade progress.
 7. Refresh the browser screen if the login window is not displayed and log in to the vdiManager console again.
 8. Navigate to **Admin** → **Grid Maintenance** → **OK** to take the grid out of maintenance.
Log in to the vdiManager console again to verify that the grid is not in maintenance mode and it has been upgraded.
-  **NOTE:** Click **About** at the top of the console to verify that the upgrade is complete.

Upgrading the Existing Images

After upgrading VIAB, the existing images need to be updated. On the VIAB console, a caution icon is displayed on the status of these images on the **Images** page. Point your cursor over the caution icon to check for a message indicating if the image is out of date. To upgrade the images, use the following procedure:

-  **NOTE:** Ensure the user account has domain administrator privileges.
1. On the **Images** page, select the image to be upgraded.
 2. Click on **Edit**.
A confirmation message stating that a new draft image is about to be created is displayed.
 3. Click **Confirm**.
A new draft image is started.
-  **NOTE:** Wait for the status of the new draft image to change to **Running** before proceeding.
4. In the row for the new draft image, click **Edit**.
The **Specify Administrator Credentials** dialog box is displayed.
 5. Select whether to provide credentials for an administrator or a local user with administrator privileges.
-  **NOTE:** If using a local user account, disable UAC.
6. Type the user name and password and click **OK**.
The installation of the new Desktop Agent begins and a status page showing the progress is displayed. The **Edit Image** page of the wizard is displayed.

7. On the **Edit Image** page, make any additional edits to the image that you require, such as adding new applications, and click **Next**.
8. Complete the **Prepare Image** and **Test Image** pages. For instructions for these steps, see the relevant topics for your hypervisor and image operating system at support.citrix.com/proddocs/topic/vdi/vdi-landing-page-53.html.
9. On the **Test Image** page, click **Save**.
10. Click **Confirm**.

The upgraded image is published and ready to be deployed based on your refresh policies.


Refreshing The Desktops

After upgrading VDI-in-a-Box, refresh the desktops created using older versions of VDI-in-a-Box. After upgrading your images, refresh the desktops from the VIAB console:

1. On the Servers page, select the old system and click **Deactivate**.
2. Click **Confirm** to remove the old system.
3. On the Servers page, select the new system and click **Activate**.
4. Click **Confirm** to activate the new system.

Licensing Information

XenServer Licensing

 **NOTE:** Applying your license for VDI-in-a-Box 5.0.2 and higher automatically upgrades and licenses XenServer 6.0 and higher to Citrix XenServer for XenDesktop edition, even if you have previously activated a free XenServer license.

Click **Tools** on the XenCenter menu and select **License Manager** to confirm if your XenServer license has been upgraded.

Microsoft Hyper-V Licensing

1. Click the **Activate Windows** link on the **Initial Configuration Tasks** console.
2. Enter the license key.
3. Click **Next** and proceed through the activation process.

The activation screen can also be accessed from **Control Panel** → **System and Security** → **System** → **Windows activation**.

VMware ESXi Licensing

1. Use the vSphere Client to connect to your hypervisor host.
2. Select the **View** tab at the top of the menu and navigate to **Inventory** → **Inventory**.
3. Click on the IP address of your ESXi host and select the **Configuration** tab.
4. Click on the **Licensed Features** link under the Software table.
5. Click on the **Edit** link near the top right corner of the vSphere window.
6. Select **Assign a new license...** and enter the license key.

Generating A License For VDI-in-a-Box

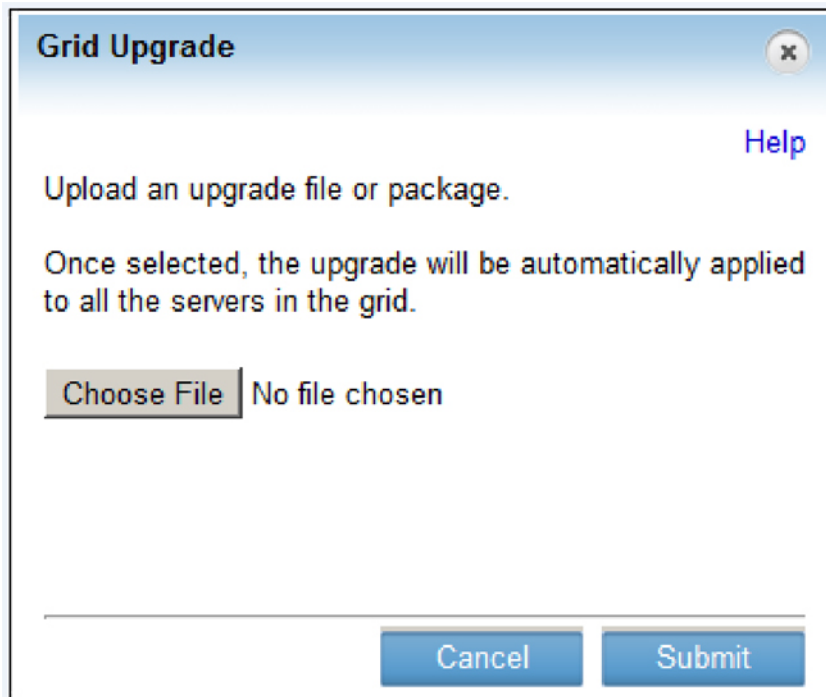
To get VDI-in-a-Box license from Citrix:

1. Log on to **MyCitrix.com** using the credentials given by Citrix.
2. Navigate to **MyTools** → **Choose a Toolbox** → **Manage Licenses**.
3. Select **Allocate**.
4. Select the Citrix VDI-in-a-Box license pertaining to your order and click **Continue**.
5. In **Quantity**, enter the quantity of licenses to allocate and click **Continue**.
6. Click **Confirm** to complete the license allocation and generate the license.
A message prompts you to download the license file(s).
7. Click **OK** and download the license file(s).

Applying A License To VDI-in-a-Box

After receiving the license from Citrix, apply the license to VDI-in-a-Box. Before applying the license, put the grid in maintenance mode.

1. Go to **Admin Tab** → **Click Grid Maintenance** and click **OK**.
2. On the **Admin page**, click **Grid Upgrade**.
The **Grid Upgrade** dialog box is displayed.



3. Click **Choose File**, browse to the upgrade or license file, and click **OK**.
4. Click **Submit**.
When the upgrade completes, the server status changes to **Success**.
5. Log on to vdiManager when prompted.
6. Go to **Admin Tab** → **Click Grid Maintenance** and click **OK**.
After applying the license, take the grid out of maintenance mode.
For more information, see support.citrix.com/proddocs.

KMS Licensing

Windows Activation

VDI-in-a-Box 5.x supports both KMS and MAK Volume Licensing for Windows 7 desktops.

Volume Activation methods were introduced with Windows 7 and do not apply to Windows XP. VIAB only supports Volume Licensed versions of Windows XP, which do not require activation with Microsoft. KMS activation is the preferred method for most customers that have at least 25 unique Windows activations across both physical and virtual

VIAB machines every 30 days. KMS allows for unlimited number of activations, can be easily managed by a KMS host and VAMT, and usually requires no change to the golden image.

VIAB 5.1 offers a new setting at the template level to reset the KMS activation timer. Leaving this unchecked implies that the image's activation clock is not rearmed during preparation. Checking the box implies that the image activation clock is rearmed during preparation, decrementing the activation count. If the image's activation clock is rearmed more than three times before the image is activated by KMS, the image cannot be prepared because the generalize step fails. If your environment is already using a KMS Host, the only thing an administrator needs to do is ensure the DNS SRV records are available to the VDI-in-a-Box virtual desktops. The administrator can also configure the golden image to contact a KMS Host manually. For these details and more information on Windows KMS activation, please refer to *VDI-in-a-Box Best Practices for Windows Activation* at support.citrix.com/article/CTX134349

Microsoft Office 2010 Activation


Microsoft Office 2010 can be activated using the same KMS Host used by the Windows machines using KMS activations. Unlike Windows 7 activations, which require at least 25 requests to be activated, Office 2010 only requires five requests to get activated when using KMS. Using KMS for both Microsoft Windows and Microsoft Office typically requires no modification of the Office installation. However, it is important to trigger the activation on the golden image before publishing it.

Follow the steps below to trigger the activation:


1. Edit and log in to the VDI-in-a-Box golden image.
2. Install Office 2010 and install the updates.
3. Open the Command Prompt and browse to **C:\Program Files\Microsoft Office\Office14**.

 **NOTE:** For 64-bit machines the path is **C:\Program Files (x86)\Microsoft Office\Office14**.

4. Specify KMS Host: Enter `cscript ospp.vbs /sethst:<KMS_Host>`.
Example: `cscript ospp.vbs /sethst:kms01.company.com`.
5. Trigger MS Office activation: Enter `cscript ospp.vbs /act`.
6. Confirm licensing status: Enter `cscript ospp.vbs /dstatus`.
7. Save the gold image.


 **NOTE:** Do not open any office application before you save the image. This causes duplicate Office CMIDs to be present on all virtual desktops generated from the image. You can however open office applications when testing the candidate image since any resulting CMID generated in the candidate is not saved.

8. Enable **Fast Desktop Refresh** for the image.
ViaB 5.1 has this item configured at template level.
9. Log in to a desktop and confirm Office 2010 is activated by confirming the license status as specified in Step 6. Optionally, you can also check the activation status by opening any Office 2010 application and navigating to **File**→**Help**.

 **NOTE:** For more information, refer to the article *VDI-in-a-Box Best Practices for Microsoft Office Activation* at support.citrix.com/article/CTX134351.

Connecting Dell Wyse Thin Clients To A DVS Simplified Environment

The Dell Wyse T10, Z50D, and Z90D7 thin clients are recommended for seamless connectivity to a DVS Simplified virtual environment. These thin clients have been tested with VDI-in-a-Box, and are certified for both Citrix Ready and Citrix HDX Ready standards. Citrix Ready is a product verification program that allows customers and users to find partner products and solutions trusted to enhance Citrix offerings. The Citrix HDX Ready certification is reserved for devices that have been verified to work with all Citrix HDX features.

 **NOTE:** This document does not cover detailed system configurations and options for the Dell Wyse thin clients. For more information on network setup, see the *Administrators Guide* that came with the product.

Ensure the following before you proceed with the configuration of Thin Client settings:

- Note the IP address of the vdiManager using the **Networking** tab on the vdiManager.
- Configure the Dell Wyse thin client to use DHCP or a static IP address.
- The thin client must be able to communicate with the vdiManager over your network.

Configuring The T10 Thin Client

You can configure the T10 Thin Client using one of the following options:

- The Wyse Zero ToolBar (recommended)
- Dynamic Host Configuration Protocol (DHCP)

Configuring The T10 Thin Client Using The Wyse Zero ToolBar

1. Click the **Systems Settings** icon on the Wyse Zero Toolbar and open the **Remote Connections** option.
2. Select the **Broker Setup** tab and configure the following:
 - a) Select **Citrix Xen** as broker.
 - b) In the **Broker Server** field, enter the URL to access the config.xml file using the IP address of your vdiManager. For example: `http://172.16.0.135/dt/PNAgent/config.xml`
 - c) Click **OK** and allow the device to restart when prompted. After the T10 thin client restarts, a **Login** dialog box is displayed.
 - d) Enter the user name, password, and domain, as applicable, for your virtual desktop and click **Login**. If you are assigned to more than one desktop template, you can choose the desktop that you want to connect to. Else, you are logged in to your assigned desktop.

Configuring The T10 Thin Client Using DHCP


You can configure and use the custom DHCP **Scope Option** to automate the connection to the vdiManager in case of the following conditions:

- The T10 thin client is configured for DHCP.

- The Windows 2003 or Windows 2008 DHCP server is available.


Configuring The T10 Thin Client Using Windows 2008 DHCP Server

1. Right-click My Computer and select **Manage**.
2. In the DHCP window, expand your DHCP server option, right-click on IPv4, and click **Set Predefined Options**. The **Predefined Options and Values** window is displayed.
3. Click the **Add** button.
4. Enter the following details in the **Option Type** window:
 - **Name:** Enter a name for the server. For example, `vdiManager`.
 - **Data type:** Enter `String`
 - **Code:** Enter `181`
 - **Description:** Enter a description for the server.
5. Click **OK**.
6. On the **Predefined Options and Values** window, scroll down to verify that the new option tag 181 has been added and press **Cancel** to return to the DHCP window.
7. On the left pane, right-click on **Scope Options** under your scope and select **Configure Options...**
8. Scroll down and select Option 181.
9. Enter the URL to access the config.xml file using the IP address of your vdiManager. For example: `http://172.16.0.135/dt/PNAgent/config.xml`

 **NOTE:** If you have more than one vdiManager in your grid, you can enter URL for each separated by semi-colons. For example: `http://172.16.0.135/dt/PNAgent/config.xml; http://172.16.0.136/dt/PNAgent/config.xml`
10. Click **OK**.
Your Windows 2008 DHCP server is now configured with option tag 181.
11. Configure the T10 Thin Client for DHCP and restart the device. For more information, see the *Wyse ThinOS Getting Started Guide* that shipped with you system.

Configuring The T10 Thin Client Using Windows 2003 DHCP Server

1. Right-click My Computer and select **Manage**.
2. In the Computer Management console, expand **Services and Applications**.
3. Highlight DHCP and click **Set Predefined Options**. The **Predefined Options and Values** window is displayed.
4. Click the **Add** button.
5. Enter the following details in the **Option Type** window:
 - **Name:** Enter a name for the server. For example, `vdiManager`.
 - **Data type:** Enter `String`
 - **Code:** Enter `181`
 - **Description:** Enter a description for the server.
6. Click **OK**.
7. On the **Predefined Options and Values** window, scroll down to verify that the new option tag 181 has been added and press **Cancel** to return to the Computer Management console.
8. On the left pane, right-click on **Scope Options** under your scope and select **Configure Options...**
9. Scroll down and select Option 181.
10. Enter the URL to access the config.xml file using the IP address of your vdiManager. For example: `http://172.16.0.135/dt/PNAgent/config.xml`

 **NOTE:** If you have more than one vdiManager in your grid, you can enter URL for each separated by semi-colons. For example: `http://172.16.0.135/dt/PNAgent/config.xml; http://172.16.0.136/dt/PNAgent/config.xml`

11. Click **OK**.

Your Windows 2003 DHCP server is now configured with option tag 181.

12. Configure the T10 Thin Client for DHCP and restart the device. For more information, see the *Wyse ThinOS Getting Started Guide* that shipped with you system.

Configuring The Z50D Thin Client


1. Click the **Computer** icon on the Wyse Zero Toolbar and launch the **Connection Manager** application.
2. Click **Add**.
3. Enter the following details in the **Option Type** window:
 - **Connection type:** Select **BROWSER**
 - **Description:** Enter a description for the server, such as VIAB.
 - **URL:** Enter the URL which in this case is **http://<ip of your VIAB server>**. For example: **http://172.16.0.135/**
 - **Auto Connect:** Check the box for Auto Connect if required.
4. Click **OK**.
5. Click on the VIAB browser connection in the **Connection Manager** application.
6. Click **Connect** to launch the browser.

The URL opens to a login page for Citrix Receiver.
7. Enter your login credentials for the domain so that VDI-in-a-Box can assign you to a desktop.
8. Save this connection to create a shortcut on the desktop that you can launch later.

Configuring The Z90D7 Thin Client

1. Click the **Receiver** icon on thin client desktop to launch the application.
2. Click **I Will Enter the URL Now**.
3. Enter the URL which in this case is **http://<ip of your VIAB server>**. For example: **http://172.16.0.135/**.
4. Enter the domain or username and password as appropriate for your virtual desktop and click **Log On**.

You are not required to re-enter the URL during login the next time onward, until you logoff or reboot the thin client.

 **NOTE:** For more information on logging in as an administrator, using the **File Based Write Filter Utility** to enable changes to the system, and to retrieve your settings after reboot of a thin client, see the *Wyse WES7 Administrator's Guide*.