Mediant Virtual Edition (VE) SBC

Deployment in Microsoft Azure

Version 7.2
# Table of Contents

1. **Introduction** ......................................................................................................... 7  
2. **Deployment Methods** .......................................................................................... 9  
3. **Deploying Mediant VE through Azure Portal** .................................................. 11  
   3.1 Deleting the Mediant VE Deployment .................................................................... 17  
4. **Deploying Mediant VE through PowerShell CLI** ............................................... 19  
   4.1 Installing Azure PowerShell CLI ............................................................................. 19  
   4.2 Deploying a Mediant VE ......................................................................................... 19  
   4.3 Deleting a Deployed Mediant VE ........................................................................... 22  
5. **Changing Network Configuration After Deployment** ..................................... 23  
   5.1 Adding network interface ........................................................................................ 23  
   5.2 Deleting the Network Interface ............................................................................... 27  
6. **Licensing the Product** ....................................................................................... 29  
   6.1 Free Product Evaluation ......................................................................................... 29  
   6.2 Obtaining and Activating a Purchased License Key .............................................. 30  
   6.3 Installing the License Key ...................................................................................... 32  
   6.4 Product Key ............................................................................................................ 34
List of Figures

Figure 3-1: Azure Marketplace ............................................................................................................... 11
Figure 3-2: Basics Step .......................................................................................................................... 13
Figure 3-3: Virtual Machine Settings Step .............................................................................................. 14
Figure 3-4: Network Settings Step ......................................................................................................... 15
Figure 3-5: Network Settings Step – Creating Public IP Address .......................................................... 15
Figure 3-6: Summary Step ..................................................................................................................... 16
Figure 3-7: Buy Step ............................................................................................................................... 16
Figure 3-8: Determining Public IP Address ............................................................................................ 17
Figure 5-1: New Physical Ports Configuration Object ............................................................................ 24
Figure 5-2: New Ethernet Device (VLAN) Configuration ........................................................................ 25
Figure 5-3: New IP Interface Configuration ............................................................................................ 25
Figure 5-4: New Network Configuration ................................................................................................. 26
Figure 5-5: Remaining Network Configuration Objects .......................................................................... 28
Figure 5-6: Deleing Remaining IP Interface ........................................................................................... 28
Figure 5-7: Saving the updated configuration ........................................................................................ 28
Figure 6-1: Software License Activation Tool ......................................................................................... 30
Figure 6-2: Product Key in Order Confirmation E-mail........................................................................... 31
Figure 6-3: Apply New License Key Message ........................................................................................ 32
Figure 6-4: Reset in Progress for License Key ....................................................................................... 33
Figure 6-5: Reset and Save-to-Flash Success Message .......................................................................... 33
Figure 6-6: Viewing Product Key ............................................................................................................ 34
Figure 6-7: Empty Product Key Field ..................................................................................................... 34
Figure 6-6-8: Entering Product Key ........................................................................................................ 34
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Date Published: March-26-2019

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Related Documentation

<table>
<thead>
<tr>
<th>Manual Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediant Software SBC User's Manual</td>
</tr>
<tr>
<td>SBC-Gateway-MSBR Series Release Notes</td>
</tr>
</tbody>
</table>

Document Revision Record

<table>
<thead>
<tr>
<th>LTRT</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10825</td>
<td>Initial document release for Version 7.2</td>
</tr>
<tr>
<td>10829</td>
<td>Microsoft Azure installation updates</td>
</tr>
<tr>
<td>10830</td>
<td>Update to Section 'Deploying Mediant VE through Azure Portal'</td>
</tr>
</tbody>
</table>
Documentation Feedback

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1 Introduction

This document describes the deployment of AudioCodes' Mediant Virtual Edition (VE) Session Border Controller (SBC), hereafter referred to as Mediant VE, in a Microsoft Azure environment.

For detailed instructions on how to install Mediant VE in other virtual environments, for example, VMware, refer to the Mediant Virtual Edition SBC Installation Manual.

Note:

- The scope of this document does not fully cover security aspects for deploying the product in the Microsoft Azure cloud. Security measures should be done in accordance with Azure security policies and recommendations.
- For configuring the Mediant VE, refer to the Mediant Software SBC User's Manual.
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## Deployment Methods

You can deploy Mediant VE as a virtual machine in the Microsoft Azure cloud environment using one of the following methods:

- Microsoft Azure Portal – see Section 3 on page 11
- PowerShell CLI – see Section 4 on page 19

**Notes:**
- Mediant VE currently supports only standalone (non-HA) deployments on Microsoft Azure.
- Mediant VE currently supports only IPv4 addresses (not IPv6) on Microsoft Azure.
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3 Deploying Mediant VE through Azure Portal

This section describes the deployment of a standalone Mediant VE through the Azure portal. This deployment method provides graphical user interface and is therefore, most suited if you are not familiar with the Azure cloud environment.

To deploy a standalone Mediant VE through Azure portal:

2. Navigate to the Azure Marketplace (All services > Marketplace).
3. Search for the product "Mediant VE Session Border Controller (SBC)" published by AudioCodes.

4. Click the "Mediant VE Session Border Controller (SBC)" product; the Mediant VE Product overview screen appears.

![Figure 3-1: Azure Marketplace](image-url)
5. Click **Create** to start a new Mediant VE deployment; the Create AudioCodes Mediant VE SBC for Microsoft Azure dialog box appears. The dialog box contains multiple steps. Complete each step according to the description below.
6. In the Basics step, do the following:

**Figure 3-2: Basics Step**

- In the 'Virtual Machine name' field, enter a unique name for the new VM.
- In the 'Username' field, enter a username.
- For 'Authentication type', select the **Password** option.
- In the 'Password' field, enter a password. These credentials are used to connect to the management interface of the deployed Mediant VE (instead of the default **Admin/Admin** credentials, as used in other environments).

**Note:** Azure imposes some limitations on username and password. For example, it prohibits the use of "Admin" for username and requires the use of strong passwords that meet the following policy:

- A minimum of 12 characters
- Use of three out of four of the following: lowercase characters, uppercase characters, numbers, and symbols

- From the 'Subscription' drop-down list, select a proper subscription for your deployment.
- Under 'Resource group', select the **Create new** option and then enter a new Resource Group name for your deployment.
- From the 'Location' drop-down list, select a proper location for your deployment.
- Click **OK**.
7. In the **Virtual Machine Settings** step, do the following:
   a. Choose the virtual machine size. For a list of supported virtual machine sizes and corresponding capacity figures, refer to the *SBC-Gateway-MSBR Series Release Notes*.
   b. Choose whether to enable virtual machine’s boot diagnostics.
   c. Optionally, provide Mediant VE automatic configuration script (cloud-init file). For more information, refer to the *Automatic Provisioning of Mediant VE SBC via Cloud-Init Configuration Note*.
   d. Click **OK**.

![Virtual Machine Settings Step](image-url)

---

8. In the **Network Settings** step, do the following:
   a. Choose the number of network interfaces for the new virtual machine. Deployment via Azure Marketplace supports up to two network interfaces. If you need more interfaces, perform deployment via the PowerShell CLI, as described in Chapter 4.
   b. Configure the virtual network where the new VM will be deployed. You may either create a new virtual network or select an existing one. Azure virtual machine is always connected to a single virtual network, regardless of the number of its network interfaces.
   c. Configure the subnet for each network interface. You may either create a new subnet (for new virtual network) or select an existing one.
   
   ♦ If you choose two network interfaces, you must connect each interface to a different subnet. This is a limitation of Azure Marketplace UI and may be overcome by performing the deployment via the PowerShell CLI, as described in Chapter 4.
   
   ♦ If you choose two network interfaces, you will be able to access the SBC management interfaces (Web and SSH) via the 1st network interface only.
d. Configure the virtual machine’s Public IP Address. You may either create a new Public IP Address or select an existing one.
   ♦ If you create a new Public IP Address, select **Static Assignment**. This ensures that the IP address remains unchanged if you stop the virtual machine.
   ♦ If you choose two network interfaces, the public IP address will be attached to the 1st network interface.

e. Click **OK**

---

**Figure 3-4: Network Settings Step**

[Image of Network Settings step with options]

**Figure 3-5: Network Settings Step – Creating Public IP Address**

[Image of creating a public IP address with options]
9. In the **Summary** step, review the virtual machine configuration, and then click **OK**.

   **Figure 3-6: Summary Step**

10. In the **Buy** step, review the Mediant VE SBC terms of use, and then click **OK** to start the virtual machine deployment.

   **Figure 3-7: Buy Step**

11. Wait until the virtual machine deployment is complete, and then determine the public IP.
12. Use the public IP address to connect to the Mediant VE management interface (through Web or SSH). Log in to the management interface using the credentials that you configured during the virtual machine set up.

3.1 Deleting the Mediant VE Deployment

To delete the Mediant VE deployed through the Azure Portal, simply delete the corresponding Resource Group.
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4 Deploying Mediant VE through PowerShell CLI

This section describes the deployment of a standalone Mediant VE through the Azure PowerShell CLI. This deployment method provides maximum flexibility and is therefore, most suited for advanced Azure users who want to exercise full control over their deployment.

4.1 Installing Azure PowerShell CLI

Before you can use the Azure PowerShell CLI, you need to install it.

➢ To install Azure PowerShell CLI:
1. Run PowerShell with Administrator privileges.
2. Install Azure PowerShell CLI, using the following commands:

   ```powershell
   Install-Module PowerShellGet -Force
   Install-Module -Name AzureRM -AllowClobber
   ```

4.2 Deploying a Mediant VE

This section describes how to deploy a standalone Mediant VE.

➢ To deploy a Mediant VE:
1. Run PowerShell with Administrator privileges.
2. Set proper execution policy:

   ```powershell
   Set-ExecutionPolicy remoteSigned
   ```

3. Sign in to your Azure account:

   ```powershell
   Login-AzureRmAccount
   ```

4. Select the appropriate subscription if multiple subscriptions exist:

   ```powershell
   Select-AzureRmSubscription -SubscriptionName "<Name>"
   ```

5. Get the parameters of the pre-configured virtual network and subnet:

   ```powershell
   $VNetResourceGroupName = "Network1ResourceGroup"
   $VNetName = "Network1"
   $SubnetName = "Subnet1"

   $VNet = Get-AzureRmVirtualNetwork -Name $VNetName ` -ResourceGroupName $VNetResourceGroupName
   $Subnet = Get-AzureRmVirtualNetworkSubnetConfig -Name $SubnetName -VirtualNetwork $VNet
   ```
6. Create the new Resource Group:

```powershell
$VMName = "sbc1"
$Location = "WestEurope"

$ResourceGroupName = $VMName + "ResourceGroup"

New-AzureRmResourceGroup -Name $ResourceGroupName -Location $Location
```

7. Create the new virtual machine configuration:

```powershell
$VMSize = "Standard_DS1_v2"

$VM = New-AzureRmVMConfig -VMName $VMName -VMSize $VMSize
```

8. Create the new public IP address:

```powershell
$PublicIPName = $VMName + "PublicIP"

$PublicIP = New-AzureRmPublicIpAddress -Name $PublicIPName -ResourceGroupName $ResourceGroupName -Location $Location -AllocationMethod Static
```

9. Create the first network interface:

```powershell
$Interface1Name = $VMName + "NetworkInterface1"

$Interface1 = New-AzureRmNetworkInterface -Name $Interface1Name -ResourceGroupName $ResourceGroupName -Location $Location -SubnetId $Subnet.id -PublicIPAddressId $PublicIP.id
```

Add-AzureRmVMNetworkInterface -VM $VM -Id $Interface1.Id -Primary

10. Create the second network interface:

```powershell
$Interface2Name = $VMName + "NetworkInterface2"

$Interface2 = New-AzureRmNetworkInterface -Name $Interface2Name -ResourceGroupName $ResourceGroupName -Location $Location -SubnetId $Subnet.id
```

Add-AzureRmVMNetworkInterface -VM $VM -Id $Interface2.Id
11. Configure the source image:

```powershell
Set-AzureRmVMSourceImage -VM $VM -PublisherName audiocodes -Offer mediantsessionbordercontroller -Skus mediantsessionbordercontroller -Version latest

Set-AzureRmVMPlan -VM $VM -Name mediantsessionbordercontroller -Publisher audiocodes -Product mediantsessionbordercontroller
```

12. Configure the managed disk:

```powershell
$DiskSize = "10"
$DiskName = $VMName + "Disk"

Set-AzureRmVMOSDisk -VM $VM -Name $DiskName -DiskSizeInGB $DiskSize -CreateOption fromImage -Linux
```

13. Configure the Admin user credentials:

```powershell
$AdminUsername = "sbcadmin"
$AdminPassword = "Admin#123456"

$Credential = New-Object PSCredential $AdminUsername, ($AdminPassword | ConvertTo-SecureString -AsPlainText -Force)

Set-AzureRmVMOperatingSystem -VM $VM -Linux
-ComputerName $VMName -Credential $Credential
```

14. Create the new virtual machine:

```powershell
New-AzureRMVM -ResourceGroupName $ResourceGroupName -Location $Location -VM $VM
```

15. Find the public IP address of the new Mediant VE instance:

```powershell
Get-AzureRmPublicIpAddress -Name $PublicIPName -ResourceGroupName $ResourceGroupName
```

16. Use this IP address to connect to the Mediant VE’s management interface through the Web or SSH.
4.3 Deleting a Deployed Mediant VE

To delete the Mediant VE deployed through the PowerShell CLI, simply delete the corresponding Resource Group:

```
Remove-AzureRmResourceGroup -Name $ResourceGroupName
```
5 Changing Network Configuration After Deployment

During the initial deployment Mediant VE automatically discovers all network interfaces and public IP addresses attached to it and populates corresponding network configuration tables accordingly.

If network configuration is changed after the deployment (during normal Mediant VE operation) corresponding Mediant VE network configuration tables must be manually updated by user to match the updated Azure configuration.

The following chapters describe most common network configuration changes to the deployed Mediant VE instance and provide detailed instructions on how to perform them. We use Azure PowerShell CLI to perform the changes, however the same actions may be performed via the Azure portal as well.

Note: Mediant VE’s “write factory” CLI command restores configuration to factory settings and triggers automatic network discovery upon the following reboot. It may be used as an alternative to online network configuration, as described below, in cases where you do not care about losing current Mediant VE configuration.

5.1 Adding network interface

1. Stop the virtual machine:

```powershell
$VMName = "sbc1"
$ResourceGroupName = $VMName + "ResourceGroup"

Stop-AzureRmVM -Name $VMName -ResourceGroupName $ResourceGroupName
```

2. Get parameters of pre-configured virtual network and subnet:

```powershell
$VNetResourceGroupName = "Network1ResourceGroup"
$VNetName = "Network1"
$SubnetName = "Subnet1"

$VNet = Get-AzureRMVirtualNetwork -Name $VNetName -ResourceGroupName $VNetResourceGroupName
$Subnet = Get-AzureRMVirtualNetworkSubnetConfig -Name $SubnetName -VirtualNetwork $VNet
```

3. Create the new network interface and attach it to the virtual machine:

```powershell
$InterfaceName = $VMName + "NetworkInterface2"

$Interface = New-AzureRmNetworkInterface -Name $InterfaceName -ResourceGroupName $ResourceGroupName -Location $Location -SubnetId $Subnet.id
```
4. Start the virtual machine:
   ```powershell
   Start-AzureRmVM -Name $VMName `-ResourceGroupName $ResourceGroupName
   ```

5. Find the IP address of the created network interface
   ```powershell
   $Interface.IpConfigurations.PrivateIpAddress
   ```

6. Connect to the Mediant VE management interface through Web

7. Navigate to **SETUP > IP NETWORK**.

8. Note that Mediant VE detected new network interface and created corresponding Physical Ports configuration object. The object is already attached to the corresponding Ethernet Group. However, Ethernet Device (VLAN) and IP Interface configuration is missing and must be manually created.

   ![Figure 5-1: New Physical Ports Configuration Object](image)

9. Click the **Add Vlan** link to create a new Ethernet Device (VLAN) configuration object; configure it as follows:
   - Configure 'VLAN ID' as the next unused VLAN number.
   - Configure "Tagging" as **Untagged**.
- Configure 'Name' with some unique value (e.g., \texttt{vlan <VLAN ID>})
- Configure 'Underlying Interface' to reference the Ethernet Group associated with the new physical port.

\textbf{Figure 5-2: New Ethernet Device (VLAN) Configuration}

10. Click the \textbf{Add IP Interface} link to create a new IP Interface configuration object and configure it as follows:
- Configure 'IP Address' with the IP address of the created network interface (as determined in step 5).
- Configure 'Prefix Length' with the prefix length of the corresponding subnet.
- Configure 'Default Gateway' with the corresponding default gateway.
- Configure 'Name' with some unique value (e.g., \texttt{eth<id>}).
- Configure 'Application Type' as \textbf{Media + Control}.
- Configure 'Ethernet Device' to reference the Ethernet Device (VLAN) created in the previous step.

\textbf{Figure 5-3: New IP Interface Configuration}
11. Review the updated network configuration.

**Figure 5-4: New Network Configuration**

12. Click the **Save** button located on the toolbar to save the updated configuration.
5.2 Deleting the Network Interface

1. Stop the virtual machine:
   ```
   $VMName = "sbc1"
   $ResourceGroupName = $VMName + "ResourceGroup"
   Stop-AzureRmVM -Name $VMName -ResourceGroupName $ResourceGroupName
   ```

2. Detach the network interface from the virtual machine and delete it:
   ```
   $InterfaceName = $VMName + "NetworkInterface2"

   $Interface = Get-AzureRmNetworkInterface -Name $InterfaceName -ResourceGroupName $ResourceGroupName
   $VM = Get-AzureRmVM -Name $VMName -ResourceGroupName $ResourceGroupName
   Remove-AzureRmVMNetworkInterface -VM $VM -Id $Interface.Id
   Update-AzureRmVM -ResourceGroupName $ResourceGroupName -VM $VM
   Remove-AzureRmNetworkInterface -Name $InterfaceName -ResourceGroupName $ResourceGroupName
   ```

3. Start the virtual machine:
   ```
   Start-AzureRmVM -Name $VMName -ResourceGroupName $ResourceGroupName
   ```

4. Connect to the Mediant VE management interface through the Web interface.
5. Navigate to SETUP > IP NETWORK.
6. Locate the remaining network configuration objects that correspond to the deleted network interface.
In the above example, the remaining network configuration objects include:

- IP Interface #1 [eth1]
- VLAN #1 [vlan 2]

7. Delete the remaining configuration objects -- first the IP interface and then the VLAN -- by clicking them and then from the shortcut menu, choosing **Delete**.

8. Click the **Save** button located on the toolbar to save the updated configuration.
6 Licensing the Product

Once you have successfully completed the Mediant VE deployment, you can operate the product with one of the following license options:

- Free product evaluation license, providing limited functionality (see Section 6.1).
- Purchased product license, providing ordered capabilities (see Section 6.2).

6.1 Free Product Evaluation

By default, the product software installation provides you with a free license for a maximum of three concurrent sessions (signaling and media) and three user registrations (far-end users). This allows you to evaluate the product prior to purchasing it with your required capacity and features.

Note that if you want to evaluate the product’s transcoding capabilities, you need to do the following:

1. Use the Standard_DS2_v2 VM size.
2. Once installation is complete, install the following License Key, as described in Section 6.3:

```
jAQ9r5tovwYyaQRvix1Ru6B55kwjco1c3MNseh8tfkMKaRt5gNMwbdPMq37LPO9b30w0mxcsf4Qwal176QgBa3Yj5QUjcO1c3MNsehcsdAAwam1OgxQBa20c64Yt
fjp0zUNsehcsu0AvalNegNMBa20c5QUjcO1c60h6Y6hcsfMwalNegNMBa20c112eHy1c3MNsehcsfAYwalNegNMCaNQN5QUgc21c3MNsehcsfkMwalNegNMBa20c
5QUjeO1c3MNsehcsfkMQa5Zdh1CIEi0c5QUjcOpfy01l@ts0
```
6.2 Obtaining and Activating a Purchased License Key

For the product to provide you with all your capacity and feature requirements, you need to purchase a new License Key that allows these capabilities. The following procedure describes how to obtain and activate your purchased License Key.

**Note:**
- License activation is intended only for first-time software activation upon product purchase (or if your License Key is "lost", due to whatever reason). For subsequent software feature upgrades, the License Key file is e-mailed to you after your Purchase Order has been processed.
- For HA, each unit has its own Serial Number, Product Key and License Key. Therefore, the instructions in this section must be done for each unit.

➢ To obtain and activate the License Key:


   ![Figure 6-1: Software License Activation Tool](image)

   - **License Activation**
     - Product Key*
     - Fingerprint*
     - Email*
     - Validation

   Please enter the characters shown in the image. To refresh the image, click here.

   ![Validation Image](image)
2. Enter the following information:

- **Product Key**: The Product Key identifies your specific Mediant VE SBC purchase for the purpose of subsequent communication with AudioCodes (for example, for support and software upgrades). The Product Key is provided in the Order Confirmation e-mail sent to you by AudioCodes upon your purchase, as shown in the example below:

![Figure 6-2: Product Key in Order Confirmation E-mail](image)

- **Fingerprint**: The fingerprint is the Mediant VE SBC's Serial Number. The Serial Number uniquely identifies the software installation. The Serial Number is displayed in the 'Serial Number' field on the Device Information page (Monitor menu > Monitor menu > Summary tab > Device Information).

- **Email**: Provide one or more e-mail addresses to where you want the License Key to be sent.

3. Click Send to submit your license activation request.

4. Once AudioCodes processes and completes your license activation, you will receive an e-mail notification with the License Key file attached. Open the file with any text-based program (such as Notepad) and make sure that the serial number ("S/N") in the License Key is correct and reflects the Serial Number of your Mediant VE SBC.

**Warning**: Do not modify the contents of the License Key file.
6.3 Installing the License Key

**Note:** The License Key installation process includes a device reset and is therefore, traffic-affecting. To minimize the disruption of current calls, it is recommended to perform this procedure during periods of low traffic.

To install a License Key file for standalone devices through Web interface:

1. Open the License Key page (**Setup** menu > **Administration** tab > **Maintenance** folder > **License Key**).
2. Back up the currently installed License Key, as a precaution. If the new License Key does not comply with your requirements, you can re-load this backed-up License Key to restore the device's original capabilities. To back up the License Key, click ![Backup](backup_icon) and save it as file on your PC.
3. Click the **Load By File** button, navigate to the License Key file on your computer, and then select the file to load to the device; the **Apply New License Key** button appears. The License Key page uses color-coded icons to indicate the changes between the previous License Key and the newly loaded License Key.

**Note:** If want to cancel installation, reset the device without a save to flash. For more information, see Resetting the Device.

4. Click **Apply New License Key**; the following message box appears:

![Message Box](message_box_icon)
5. Click **Reset**; the device begins to save the file to flash memory with a reset and the following progress message box appears:

**Figure 6-4: Reset in Progress for License Key**

When installation completes, the following message box appears:

**Figure 6-5: Reset and Save-to-Flash Success Message**

6. Click **Close** to close the message box; you are logged out of the Web interface and prompted to log in again. The features and capabilities displayed on the License Key page now reflect the newly installed License Key.
6.4 **Product Key**

The Product Key identifies a specific purchase of your device installation for the purpose of subsequent communication with AudioCodes (e.g., for support and software upgrades). The Product Key is provided in the order-confirmation email sent to you upon your product purchase and is used for activating your license through AudioCodes Software License Activation tool.

The Product Key is included in the License Key. Once the License Key is installed, you can view the Product Key in the following Web pages:

- License Key page ([Setup menu > Administration tab > Maintenance folder > License Key](#)). The Product Key is displayed in the read-only 'Product Key' field, as shown in the example below:

![Figure 6-6: Viewing Product Key](#)

- Device Information page.

If your License Key was purchased in an earlier version (for example, 7.0), the 'Product Key' field may appear empty. In such a scenario, request the Product Key from your AudioCodes sales representative. Once received, do the following:

1. Open the License Key page.
2. Locate the Product Key group:

   ![Figure 6-7: Empty Product Key Field](#)

3. Click "empty"; the following appears:

   ![Figure 6-6-8: Entering Product Key](#)

4. In the field, enter the Product Key, and then click **Submit** (or **Cancel** to discard your entry).
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