

# imprivata® Product Documentation

## Imprivata Virtual Appliance Guide

Imprivata OneSign® 5.0 or Later

Imprivata Confirm ID™ 1.0 or Later

You can host and manage Imprivata virtual appliances using VMware virtualization software. An Imprivata virtual appliance is a self-contained software implementation of the Imprivata server that is functionally equivalent to an Imprivata hardware appliance.

Imprivata virtual appliances are formatted using the industry-standard Open Virtualization Format (OVF). You can deploy a heterogeneous enterprise with both virtual and hardware Imprivata appliances if allowed by your license.

Each Imprivata virtual appliance requires:

- VMware ESX or ESXi with vSphere 4.x or later
- 2 CPUs
- 250GB of disk space (thin provisioning allowed)
- 8GB of memory (RAM)

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# Configuring Imprivata Virtual Appliances

You can access the Imprivata virtual appliance from the VMware Virtual Machine console after configuration. After deploying a virtual appliance, you must configure it on your network from the Imprivata virtual appliance console by opening the virtual machine console in your VMware software. After the Imprivata Configuration Wizard, you can access other Imprivata appliance functions from the Imprivata virtual appliance menu.

## Configuring the Imprivata Virtual Appliance on the Network

The Imprivata virtual appliance runs initialization scripts that can take a varying amount of time. You can begin configuring the appliance when the Imprivata virtual appliance console opens. To configure the appliance:

1. Open the virtual machine console in your VMware host. The Imprivata virtual appliance console opens.



**NOTE:** Do not select the other options from the menu.

2. Select **Login** and press **Enter**. A login screen opens.
3. At the login prompt, enter **menu** and press **Enter**.
4. Enter the appliance IP address and press **Enter**.
5. Enter the appliance subnet mask and press **Enter**.



**NOTE:** Settings are not persisted. Do not shut down the virtual appliance until you finish the wizard.

The Imprivata virtual appliance menu opens.

Options in this menu are described in [Imprivata Virtual Appliance Menu Descriptions](#).

6. Press **6** and then **Enter** to return to the Imprivata virtual appliance menu.
7. You can now begin the Imprivata Configuration Wizard.

Open an Internet Explorer (V6.0 or later) browser window to:

**https://<Appliance IP address>:81/.**

## Accessing the Imprivata Virtual Appliance Functions Menu

You can access the virtual appliance function menu at any time from the Imprivata virtual appliance menu. Not all menu options are available until you complete the Imprivata Configuration Wizard.

To access the Imprivata virtual appliance menu:

1. Open the virtual machine console in your VMware host. The Imprivata virtual appliance console opens.
2. Select **Login** and press **Enter**.
3. At the login prompt, enter **menu** and press **Enter**. If prompted, enter the menu password and press **Enter**.  
The Imprivata virtual appliance functions menu opens.

## Menu Descriptions

You can change network settings, shutdown/restart the system, reset the Imprivata Appliance Console password, clear SSL information, reset the appliance, and modify the Imprivata virtual appliance menu password.

The virtual appliance menu options are:

- **Configure Network** — Lets you change the default gateway for the appliance. It is for installation only. Change this setting from the Network tab under the Network page of the Imprivata Appliance Console.
- **Reset SSL** — Clears all SSL information, including the optional SSL 2.0 setting.
- **Reset Administrator password for Imprivata Appliance Console** — Resets the Administrator password to *admin*. You cannot reset the Super Administrator password.
- **Modify Password for this menu** — Lets you set or clear the password for this menu.
- **Restage** — Resets the appliance to factory settings. Contact Imprivata Technical Support for assistance with restaging an appliance.
- **Restart** — Restarts the appliance. It is best to restart the appliance by clicking the Restart button in the Operations tab under the System page of the Imprivata Appliance Console unless the Imprivata Appliance Console is unreachable.
- **Shutdown** — Shuts down the appliance. The Virtual Machine is still deployed in the VMware host.
- **Quit** — Exits the menu.

# Deploying Imprivata Virtual Appliances

You can host and manage Imprivata virtual appliances using VMware ESX or Microsoft Hyper-V virtualization software.

## Deploying an Imprivata Virtual Appliance on VMware ESX

Each Imprivata virtual appliance hosted in a VMware ESX environment requires:

- VMware ESX or ESXi with vSphere 4.x or later
- 2 CPUs allocated
- 258GB of total disk space, including 8GB of allocated memory (thin provisioning allowed)

To deploy an Imprivata virtual appliance on an ESX or ESXi server:

1. Log into the vSphere Client.
2. Click **Inventory**. The Inventory screen opens.
3. Click **File > Deploy OVF Template**. The Deploy OVF Template window opens.
4. Select **Deploy from file** and open the .OVF file supplied by Imprivata.
5. Click **Next**. The OVF Template Details screen opens.
6. Review the information and click **Next**. The Name and Location screen opens.
7. Enter a name for the VMware Virtual Machine and click **Next**. The Ready to Complete screen opens.
8. Review the information and click **Finish** to deploy the Imprivata virtual appliance. A message is displayed that indicates the deployment is in progress in addition to a progress bar and a time remaining indicator.
9. After the Imprivata virtual appliance finishes deploying, power on the Virtual Machine. The vSphere Client screen Virtual Tab opens.

See [Configuring Imprivata Virtual Appliances](#) to continue configuring the virtual appliance. For additional information about hosting Virtual Machines, refer to the documentation for your VMware product.

See also: [Using the Imprivata Virtual Appliance in a VMware ESX Thin-Provisioned Environment](#)

## Deploying an Imprivata Virtual Appliance on Microsoft Hyper-V

Each Imprivata virtual appliance hosted in a Microsoft Hyper-V environment requires:

- Microsoft Hyper-V x64 or later
- Microsoft Windows Server 2012 R2 or later
- Imprivata OneSign 4.9 or later
- 2 CPUs allocated
- 258 GB of total disk space, including 8GB of allocated memory (thin provisioning allowed)

## Import the Virtual Machine

1. Log into the Hyper-V Manager.
2. Go to **Actions > Import Virtual Machine**.
3. Browse to the virtual machine folder that contains the following three sub-directories:
  - Snapshots
  - Virtual Hard Disks
  - Virtual Machines
4. Select the folder that contains these three sub-directories and click **Next**. In **Select Virtual Machine**, the virtual machine to import is displayed (this is the VHD file in the **Virtual Hard Disks** folder).

## Choose Import Type

1. In the Choose Import Type window, choose the type of import to perform:
  - **Register** – You have an environment where you have already put all of the virtual machine files exactly where you want them, and you only need Hyper-V to begin using the virtual machine as is.
  - **Restore** – Your virtual machine files are stored on a file share, or removable drive, for example, and you want Hyper-V to move the files to the appropriate location for you, and then register the virtual machine.
  - **Copy** – You have a set of virtual machine files that you want to import multiple times (such as using them as a template for new virtual machines). This selection will copy the files to an appropriate location, give the virtual machine a new unique ID, and then register the virtual machine.
2. Click **Next**.

## Choose Folders

1. In the Choose Folders for Virtual Machine Files window, select **Store the virtual machines in a different location**.
2. The **Virtual machine configuration**, **Checkpoint store**, and **Smart paging** folders must all be located in one new folder. Create this folder and enter the location in all three fields. Click **Next**.
3. In the Choose Folders to Store Virtual Hard Disks window, select the same folder again as in Step 2. Click **Next**.
4. Review the Summary, and click **Finish**.

See [Configuring Imprivata Virtual Appliances](#) to continue configuring the virtual appliance.

# Using the Imprivata Virtual Appliance in a VMware ESX Thin-Provisioned Environment

Imprivata virtual appliances can be deployed using VMware ESX thin-provisioning. Thin-provisioned virtual appliances have the same performance as thick-provisioned virtual appliances, as determined by the ESX infrastructure. Disk provisioning selection does not impact memory, CPU, and other Imprivata virtual appliance allocations; see [Deploying Imprivata Virtual Appliances](#).



**NOTE:** Thin-provisioned virtual appliances never shrink in size once space is allocated by the hypervisor. This is a limitation of ESX Thin Provisioning, and is not limited to the Imprivata virtual appliance. You may see significant increases in Imprivata virtual appliance disk sizes if an appliance is unreachable for replication traffic in a problem situation. The only way to recover disk space is to replace appliances (see [Replacing Imprivata Virtual Appliances with Thin-Provisioned Virtual Appliances](#)).

## Managing Thin-Provisioned Virtual Appliances

When your Imprivata appliances are thin-provisioned, you must carefully monitor the space where the virtual appliance is deployed, for both the hypervisor (datastore) and the storage device (local disk, SAN, NFS, and so forth). The initial thin-provisioned size of the virtual appliance is about 20 GB. The maximum thin-provisioned virtual appliance disk usage is 250 GB plus 8 GB of memory, the same as a thick-provisioned virtual appliance. The virtual appliance guest assumes it has a 250 GB disk available. If the storage device or datastore runs out of space, then the virtual appliance fails at the first event that requires more disk space. You can monitor virtual appliance disk usage in ESX, in the Imprivata Appliance Console **System** page **Operations** tab, or in the appliance logs.



**WARNING:** There are no notifications or warnings if the hypervisor cannot allocate more disk space for the Imprivata virtual appliance. The host and Imprivata continue to operate normally *without warning/notification* until disk space runs out, and then unpredictable problems occur. Assume that, in this case, Imprivata OneSign shuts down and does not provide service to users.

## Replacing Existing Imprivata Virtual Appliances with Thin-Provisioned Imprivata Virtual Appliances

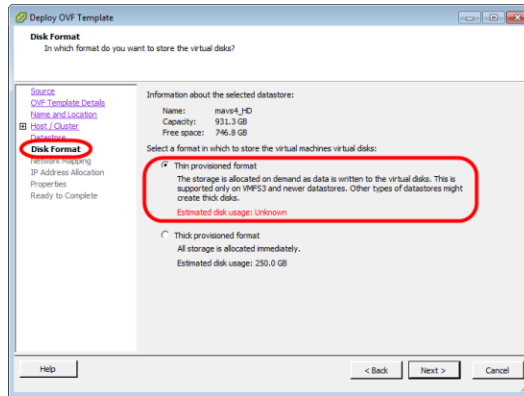
To replace existing virtual appliances with thin-provisioned virtual appliances:

1. Remove the thick-provisioned Imprivata virtual appliance from the enterprise. Confirm that the virtual appliance is powered off.
2. Deploy the new thin-provisioned Imprivata virtual appliance.
3. Synchronize the enterprise database from the Imprivata Appliance Console **System** page > **Operations** tab.
4. Add the thin-provisioned virtual appliance to the enterprise.
5. Delete the thick-provisioned virtual appliance.

## Deploying a Thin-Provisioned Imprivata Virtual Appliance

To deploy a virtual appliance to a thin-provisioned ESX disk:

1. Log into VMware vSphere Client and **Create a new virtual machine** as you would for a thick-provisioned VM, but for **Disk Format**, select **Thin provisioned format** instead as shown in the following image:



2. Complete the process and deploy as you would for a thick-provisioned VM.



**NOTE:** As with all thin-provisioned VMs, the Used Storage grows over time and never diminishes of its own accord.

As the SAN fills up, you may want to recover some of that space. See [Replacing Existing Imprivata Virtual Appliances with Thin-Provisioned Imprivata Virtual Appliances](#)



# Replacing Hardware Appliances with Virtual Appliances

This topic contains best practices for replacing Imprivata hardware appliances with virtual appliances with no or minimal server downtime.



**NOTE:** The following sections only provide a high-level overview of this process to outline general best practices. Refer to [Adding an Appliance to the Enterprise](#) for more information.

## Preparing to Replace Your Hardware Appliances

Perform the following steps before adding or removing any appliances:

1. Consult with Imprivata Professional Services if you are working with a large enterprise.
2. Purchase licenses for your new virtual appliances.
3. Back up your current enterprise database.
4. Delete audit records if possible to decrease the size of the database. See "Managing and Maintaining Audit Records" in the Imprivata Online Help for more information.
5. Back up your current enterprise database again.

## Single-Site Enterprise

The following steps are recommended best practices for replacing hardware appliances with virtual appliances in a *single-site enterprise* with no server downtime.

### Scenario #1: the New Virtual Appliances Have Different IP Addresses Than the Deleted Hardware Appliances

This scenario applies to a typical enterprise configuration in which two hardware appliances are being replaced by two virtual appliances. The virtual appliances will have different IP addresses than the deleted hardware appliances.

To replace two Imprivata hardware appliances with two Imprivata virtual appliances:

1. Add the two virtual appliances to your enterprise while the hardware appliances are still running.
2. Make sure that the replication status of the new appliances is green (**Up**) on the **Sites** tab of the **Properties** page in the Imprivata Admin Console.
3. Shut down and delete the two hardware appliances from the enterprise.



**NOTE:** You can change the IP addresses of the virtual appliances in the virtual machine console; however, keep in mind that this will result in some server downtime.

## Scenario #2: the New Virtual Appliances Have the Same IP Addresses as the Deleted Hardware Appliances

This scenario applies to a typical enterprise configuration in which two hardware appliances (**SSO1** and **SSO2**) are being replaced by two virtual appliances (**OVA1** and **OVA2**). The virtual appliances will have the same IP addresses as the deleted hardware appliances.

To replace two Imprivata hardware appliances with two Imprivata virtual appliances:

1. From **SSO2**, delete **SSO1** from the enterprise.
2. From **SSO2**, add **OVA1** to the enterprise. **OVA1** must be configured with the same settings as **SSO1**.
3. From **OVA1**, delete **SSO2** from the enterprise.
4. From **OVA1**, add **OVA2** to the enterprise. **OVA2** must be configured with the same settings as **SSO2**.

## Multi-Site Enterprise

The following steps are best practices for switching from hardware appliances to virtual appliances in a *multi-site enterprise*.

To replace Imprivata hardware appliances with Imprivata virtual appliances in a multi-site enterprise:

1. Add one Imprivata virtual appliance per site while the hardware appliances are still running. For example, if you have two sites, **Site 1** and **Site 2**, that each contain one hardware appliance, then add one virtual appliance to **Site 1** and one virtual appliance to **Site 2**.
2. Make sure that the replication status for the new virtual appliances is green (**Up**) on the **Sites** tab of the Properties page in the Imprivata Admin Console.
3. One site at a time, shut down and delete each hardware appliance you want to remove. For example, if you added one virtual appliance each to **Site 1** and **Site 2**, then delete one hardware appliance from **Site 1** and one hardware appliance from **Site 2**.
4. *Optional* — If you want the virtual appliances to have the same IP addresses as the removed hardware appliances, then change the IP addresses in the virtual appliance console. This step will result in a brief period of server downtime (typically a few minutes). If you do not want any server downtime, then only perform steps 1-3.