



XenClient Engine Installation

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Install the Engine on a personal computer by first downloading the installation ISO file, then select a method of installation.

Note: Installing the Engine can remove the native operating system and any data. Before installing, back up any data from the computer that you want to preserve.

You can install the Engine initially through PXE Boot, a USB memory stick, or by installing from a CD or DVD.

To install XenClient Engine:

1. Download the Engine installation ISO file. In some cases it may be necessary to check the validity of the ISO file by verifying the MD5 checksum. A number of freeware tools are available for calculating and comparing MD5 files (click [here](#) for an example).
2. Use a utility to burn the ISO image file onto a bootable CD or DVD. Alternately, you can create a USB installer using UNetbootin.

Note: Verify the tool's settings to ensure that the CD or DVD is bootable.

Checking for Compatibility

XenClient Engine runs on a wide variety of personal computers. Hardware requirements include:

- ♦ Intel or AMD dual-core processor with Intel-VT (VT-x) or AMD-V hardware virtualization technology.

Note: Intel provides a tool to determine if the chip in your computer supports virtualization: <http://processorfinder.intel.com/>.

- ♦ 2 GB RAM; Citrix strongly recommends 4 GB to facilitate running multiple virtual machines simultaneously.
- ♦ 60 GB free disk space; running multiple operating systems may require significantly more disk space.

If you install onto the whole disk, the Engine uses the full hard drive, replacing any natively installed operating systems and files. The whole disk is available for the Engine and any virtual machines.

Download and run the compatibility checker

Citrix makes it easy to determine if your computer will work with the Engine. Access the [XenClient specifications page](#) on the Citrix Website to verify if your existing Windows machine supports the virtualization required to run the Engine. Click [here](#) for the hardware compatibility list.

BIOS Settings

To support the Engine, the system must support virtualization. BIOS settings must also be configured to match the following criteria:

- ◆ Virtualization: enabled (checked)
- ◆ VT: enabled (checked)
- ◆ Trusted Execution: off (unchecked)

For Lenovo computers:

- ◆ Timer wake with battery: enabled (checked)

Note: You need to restart the computer for BIOS changes to take effect. On some systems, it may be necessary to power-down the computer for a few minutes, then restart.

Engine Installation Options

When you install the Engine, there are two options that affect how the Engine operates. This topic provides information about these options and their effects. If you are not sure which option to select, consult your XenClient Administrator.

Installation options include:

- ◆ encrypted disk
- ◆ whole disk
- ◆ unallocated space

Encrypted Disk Installation

You can encrypt the hard drive. This installation options encrypts all data on the hard drive so that it cannot be accessed unless the registered owner's password is entered. The user's password needs to be entered before the Engine can start. Once the user logs in, the hard drive is accessible and the user experiences no difference due to the encryption.

Note: This is a strong security measure; the encrypted disk cannot be accessed without the proper authentication. The only cost is a very slight (few percent) increase in CPU use.

Whole Disk Installation

When installing the Engine onto the whole disk, the full hard drive is used; this replaces the native installed operating system and files. The whole disk is available for the Engine, and any virtual machines.

Unallocated Disk Installation

Engine installations into unallocated space on a partitioned disk require a disk partitioning tool to remove space from existing disk partitions. The Engine is installed into that unallocated space.

Note: The unallocated space must include enough space for the Engine and any expected virtual machines.

In this installation paradigm, the Engine co-exists with an operating system, instead of replacing it. However, only one operating system can be running at a time.

Installing the Engine using a CD or DVD

To install the Engine on a computer (replacing the operating system) using either a CD or DVD:

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1. Load the XenClient Enterprise installation media into the laptop CD or DVD drive.
 2. Read the first instruction screen and press Enter to begin the installation.
 3. Read the license agreement. Use the arrow keys to scroll through the document. Click **Accept** (or press Enter) to accept the license agreement (or Esc to decline and end the installation process).
 4. If this installation will use the whole disk drive, use the tab key to select **Entire Disk** (or click Stop to end the installation process) and press Enter.
 5. Use the up/down arrow keys to select a language (keyboard) for installation and press the Enter key.
 6. If you are installing over a previous Engine, you have the choice to **upgrade** the version or **replace** the previously installed version (includes replacing all user information and virtual machines). If you are replacing an existing Engine, the installation process restarts from the beginning after an old Engine version is removed.
 7. Enter the computer name, and click **Next** (or press Enter) to move to the next screen. This computer is identified on XenClient Synchronizer (the management component of XenClient Enterprise) primarily with this name.
 8. Enter the asset tag for the computer, click **Next** (or press Enter).
 9. Use the arrow keys to select whether to use disk encryption, click **Next** (or press the Enter).
 10. Your installation selections are displayed along with a warning that if you continue with a full disk installation, all data on the disk will be erased. If the summary is correct, enter yes and press the Enter key to install the Engine.

The Engine is installed, with a progress bar displayed. Once installed, the computer reboots.

Installing XenClient Engine using a USB Memory Stick

This topic provides information about installing XenClient Engine using a USB memory stick. A memory stick with at least 2GB is required. In addition, you need to download the UNetbootin software from the Citrix website in order to use the instructions in this topic.

Creating a USB Installer

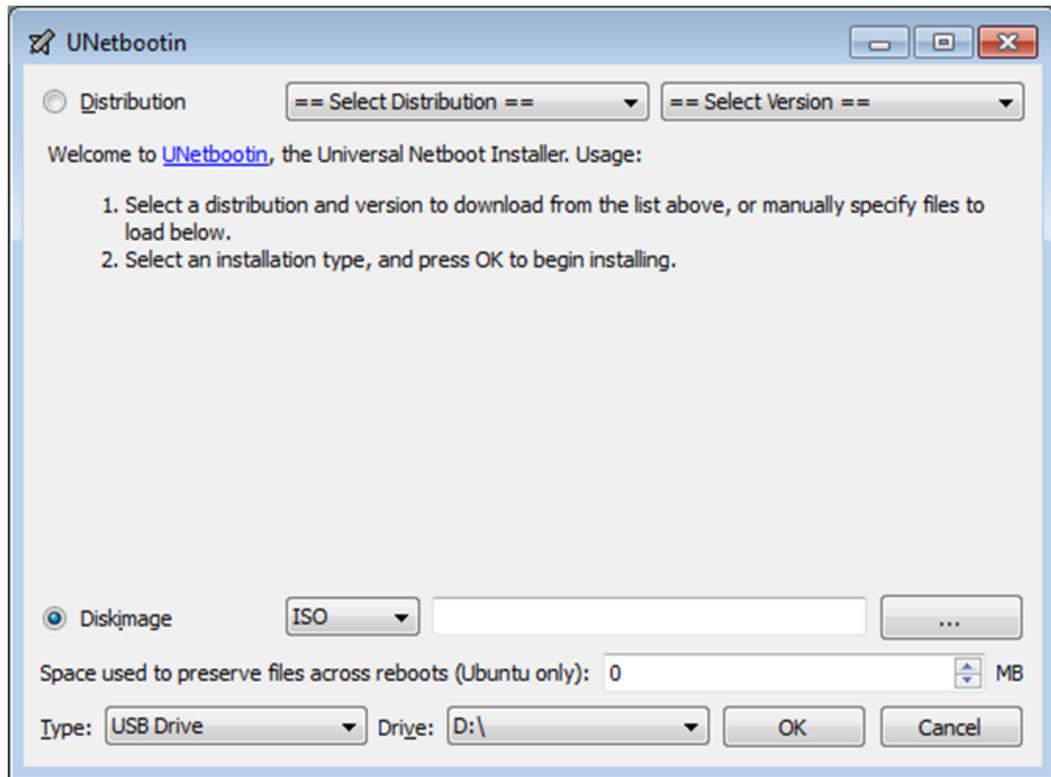
First, download the current Engine ISO and UNetbootin from the Citrix download portal; you will need to register on the Citrix Web site to gain access to the downloads page.

Note: If you retrieve the UNetbootin distribution from another location, ensure it is at least version 549 or newer.

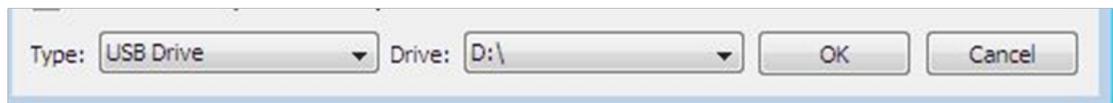
Once you have downloaded the ISO and UNetbootin you can begin the process of creating a USB installer.

To create a USB installer:

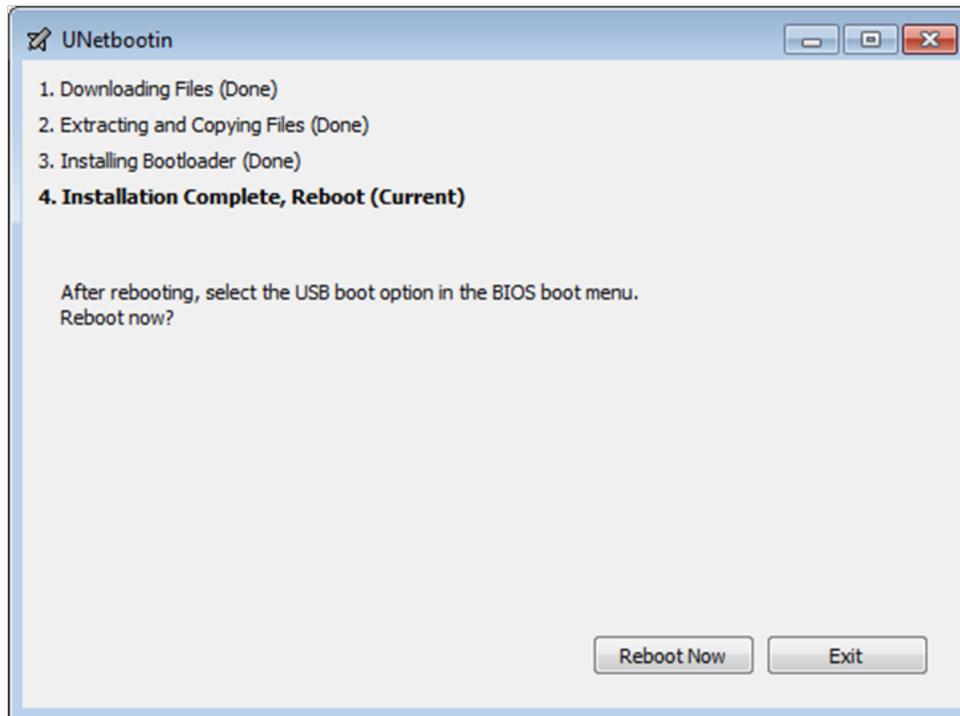
1. Launch UNetbootin and select **DiskImage**:



2. Select ISO from the drop-down menu, then browse to the location of the ISO file.
3. Once you have selected the ISO location, use the drop-down menu to select the drive letter of the USB stick on which you are going to create the installer:



4. Click **OK** to begin building the installer.
5. Once the build is complete, click **Exit**:



After completing the UNetbootin process, you can now choose USB from the boot menu on your desktop (or laptop) and it will install the Engine.

Installing the Engine using the USB installer

Consider the following when installing using a USB drive:

- ◆ Ensure that the computer's BIOS setting enables booting from USB-based media.
- ◆ You can set your computer's boot sequence so that it boots automatically from any installed USB device; in the BIOS>BOOT configuration section, move the USB drive above the local disk in the machine boot order.

Note: If you arrange the boot order so that the USB drive is the primary boot device, keep in mind that you must remove the USB stick containing the installer **before** you reboot the next time. Failure to do so may result in re-installing the Engine.

- ◆ If the boot order for the USB device is lower than the local disk, or if it's not specified, select the boot order menu key (usually F12).

To install the Engine using the USB installer:

1. Shut down the computer.
2. Plug the USB drive into an available slot.
3. Restart the computer.

Note: To boot from the USB drive, the boot order must be modified so that the local disk is below the USB drive upon booting the system.

4. Read and accept the end-user license agreement.
5. If this installation uses the whole drive, use the tab key to select Entire Disk and click **Next** (or press Enter).
6. Use the up/down arrows to select a language (keyboard) for installation and click **Next** (or press Enter).
7. If you are installing over an existing Engine installation, you have the choice to upgrade the version or replace the previously installed version, including all user information and virtual machines.
8. Enter the computer name, and click **Next** (or press Enter) to advance to the next screen. This computer name will be identified on Synchronizer primarily with this name.
9. Enter the asset tag for the computer, and click **Next** (or press Enter).
10. Use the arrow keys to select whether to use disk encryption; click **Next** (or press Enter) to advance to the next screen.
11. Your selections are displayed along with a warning that if you continue with a full disk installation, all data on the disk will be erased. If the summary is correct, enter **yes** and press Enter to install the Engine.

Note: A progress bar displays the state of the installation; once the installation is complete, the computer reboots.

12. After rebooting, enter the fully qualified domain name (FQDN). Ask your Administrator if you do not have this information.
13. Enter your username and password. This identifies you at the selected Synchronizer and registers the Engine.

Once the Engine is installed, it can be updated automatically. When the user logs in, Synchronizer sends down any virtual machines assigned to the user.

Dual Boot Engine Installations

Dual boot capability allows you to install the Engine as a second or third operating system on your computer. The Engine includes a mult-boot loader that allows a choice of starting a native operating system or the Engine; one of these must be a Windows OS. Access to non-Windows guests may not be available while the Engine is installed.

Note: There are numerous disk partition tools. For example, for Windows 7, use the native Disk Manager to create a partition. In general, partition fundamentals are similar

between Windows 7/8. Click [here](#) for specific information about creating a partition for Windows 8.

The following instructions for setting up dual boot have been tested on Windows 7 operating systems. The dual boot installation consists of two phases:

- ◆ In phase 1, you resize the partitions on the hard drive to create unallocated space (minimum 60 GB).

Note: It may be necessary to perform a disk defrag before re-partitioning a system that has been in use for an extended period of time. Failure to do so may result in the OS being unable to free up enough space to shrink the volume due to a lack of contiguous free space.

- ◆ In phase 2, you install the Engine to the unallocated space on the hard drive created in phase 1. The Engine can be installed from CD, DVD, USB storage device, or from a PXE server.

After installing, the user can select to boot either a native Windows operating system or the Engine each time the system is powered up.

Note: The Engine and any virtual machines you plan to include need to fit in the unallocated space, so select the space accordingly.

Using PXE Boot for XenClient Engine Installations

The Preboot eXecution Environment (PXE, or 'pixie) is an environment to boot computers using a network interface independent of available local data storage devices (like hard disks) or installed operating systems. In basic terms, PXE allows a computer to boot from a network server instead of the local hard disk.

When used by Citrix's XenClient implementation, a computer can download an updated Engine from a server, and boot that updated version. The new version is treated as an update, and retains information and virtual machines from the registered user. This topic addresses procedures for using PXE boot on the Engine.

Note: For PXE boot procedures involving a virtual machine (i.e., a personal virtual machine) ensure that the NIC is in bridge mode so that the personal VM's DHCP service is used rather than the Engine's DHCP service in NAT mode.

The process described in this topic illustrates how to setup a PXE boot service to download and install the Engine.

Installing a PXE Boot Server

Install a PXE server on a computer with a Web Server. There are several PXE boot servers available such as Windows RIS (Remote Installation Service), Redhat Linux PXE

Boot service, and FOG Server. The example described below is for a Linux-based server, but all PXE boot services use a similar configuration.

1. Download the current Engine installer ISO.
2. Create a `xenclient-VERSION NUMBER` directory under the Web document root and copy the downloaded Engine ISO to it. Rename the file `xenclientengine.iso`.
3. Extract the following four files:
 - ◆ `initrd.img`
 - ◆ `vmlinuz`
 - ◆ `mboot.c32`
 - ◆ `xen.gz`
4. Copy the files to the PXE server.
 - ◆ Copy `mboot.c32` to the `tftpboot` root directory.
 - ◆ Create an Engine directory for the `tftpboot` root directory and copy the rest of the three files (`initrd.img`, `vmlinuz` and `xen.gz`) to the directory.
5. Optionally create a list of clients to receive the Engine automatically, and add it in an INI file called `client.ini` in the same Web document location as the `xenclientengine.iso` file (for example, `$WEB_ROOT/xenclient-5.0`).

Note: A sample `client.ini` file is provided in an appendix at the end of this document.

6. Add the following three lines to the `/prelinux.cfg/default` file to boot the installer (`xenclient-[version number]`) so that it appears as an option:

```
LABEL xenclient-<VERSION NUMBER>

kernel mboot.c32

append xenclient-<VERSION NUMBER>/xen.gz dom0_mem=2048M ---
xenclient-<VERSION NUMBER> /vmlinuz boot=casper

webboot=http://<IP_address>/dom0/xenclientengine.iso ro quiet
console=tty8 vc_config=http://<IP_address>/client.ini ---
xenclient-<VERSION NUMBER>/initrd.img ---
```

where `IP_address` is the IP address of the PXE server containing the `xenclientengine.iso` (and `client.ini` file if used).

Unattended Engine Installation

You can optionally supply a list of computers that should receive and install the Engine ISO when they a computer is powered-on and joins the network. The PXE boot server recognizes their MAC addresses and sends them the ISO to install. The list of these client computers is stored in a CSV file named `client_list` that is stored with the Engine ISO.

A sample, annotated `client.ini` file can be found on the install media in `extra/ms-client.in`. This file is formatted into multiple `.INI` sections:

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- ♦ [GLOBAL] - Settings in this section will apply to all machines connecting, regardless of their MAC address.
 - ♦ [XX:XX:XX:XX:XX] (MAC address) - Settings in this section override those set in GLOBAL.

Note: The required parameters for **autoinstallation** and **autoregistration** are separate. You may do an auto install without and auto registration.