

Orchid Core VMS Installation Guide

22.3 — Last update: May 09, 2022

IPConfigure

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About the Orchid Core VMS Installation Guide

The Orchid Core VMS Installation Guide is designed for IPConfigure dealers, integrators, or system administrators who are tasked with software installation. In addition to installation instructions, this guide provides procedures for optimizing the database, editing configuration files, working with the Orchid Core VMS services, and uninstalling the Orchid Core VMS software.

This guide covers Orchid Core VMS installation on the following operating systems:

- Windows
- Ubuntu 14.04 LTS
- Ubuntu 16.04 to 20.04 (LTS versions) (Refer to Ubuntu 16.04 LTS)
- Red Hat Enterprise Linux 7 and 8 (Refer to Red Hat Enterprise Linux 7)
- CentOS 7 and 8 (Refer to Red Hat Enterprise Linux 7)
- Debian Jessie (Refer to Ubuntu 16.04 LTS)
- Raspbian Jessie (Refer to Ubuntu 16.04 LTS)

This guide provides additional information on a variety of topics listed under *Installation Support Topics*.

Beginning with version 2.12, Orchid Core VMS now supports both 32-bit and 64-bit ARM devices.

As of March 2021, we have implemented a date-based software version numbering system. From this point forward, the software version number will represent the year and month in which the software was released. For example, version 21.3, the first release with the new numbering system, was released in March of 2021. (Version 2.16 was the last release under the old numbering system.)

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Installation

Orchid Core VMS is compatible with the following operating systems: Windows, Ubuntu 14.04 LTS, Ubuntu 16.04 to 20.04 (LTS versions), Red Hat Enterprise Linux 7 and 8 (64-bit), CentOS 7 and 8, Raspbian Jessie, and Debian Jessie.

For each of these operating systems, we are providing instructions for installation, database optimization, editing configuration files, managing services, and uninstalling Orchid Core VMS. Please refer to the section that corresponds to the operating system installed on your machine.

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Working in Windows

The following topics will describe how to install and maintain Orchid Core VMS on a Windows operating system.

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Installing Orchid Core VMS on Windows

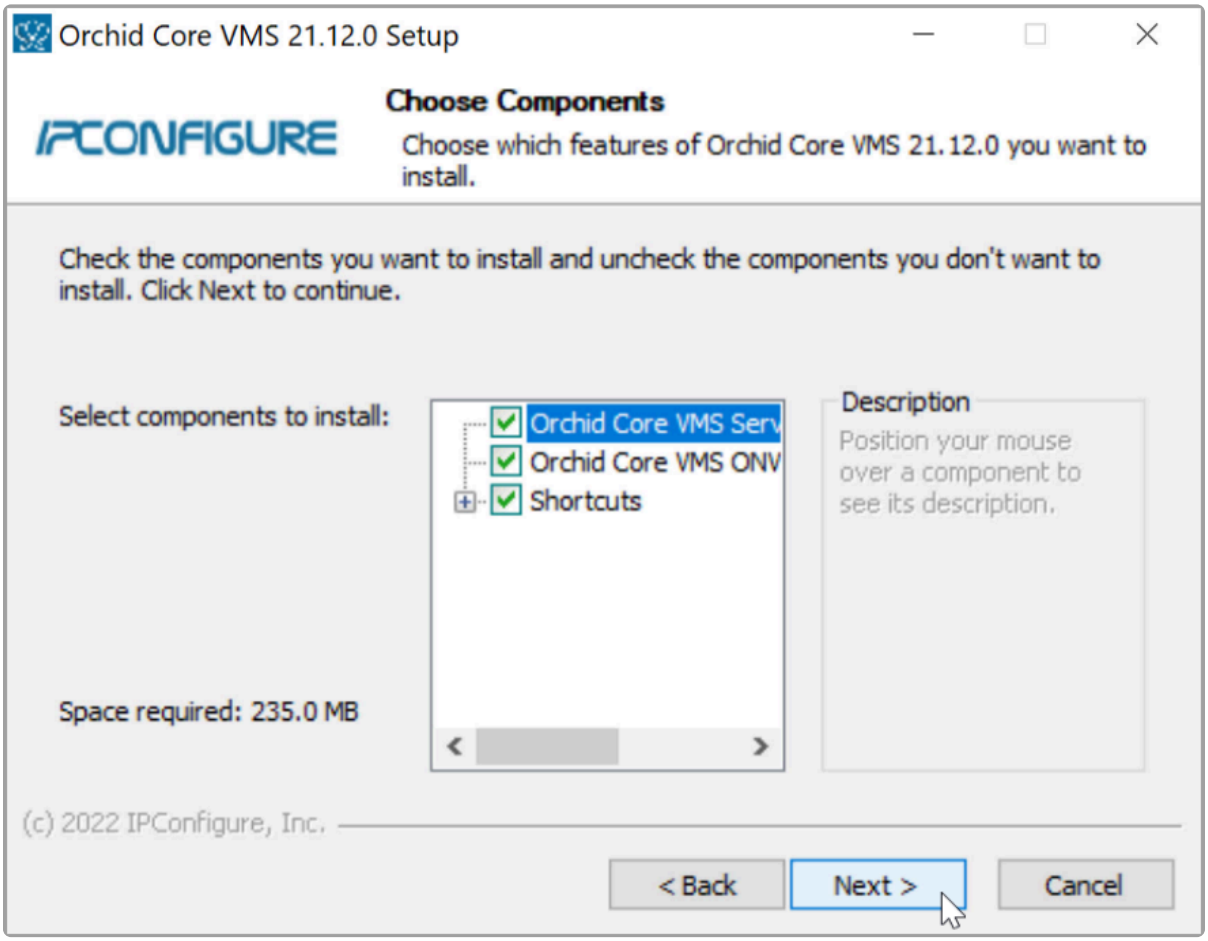
IPConfigure distributes a single Windows installer that is valid for all 64-bit versions of Windows 7 and up, as well as 64-bit Windows Server 2008 R2 and up.

> ✻ Orchid Core VMS can only be installed on a 64-bit Windows operating system; it is not compatible with 32-bit Windows operating systems.

> ✻ You must sign in to the computer as a user with administrative privileges.

1. Download the Orchid Core VMS executable file. You can find the latest version of the Orchid Core VMS on IPConfigure's website at https://www.ipconfigure.com/products/orchid#download.
2. Open the Orchid Core VMS executable file (ipc-orchid_21.12.0.exe, for example). You will be asked if you want to allow the installer to make changes to your computer. Click ***Yes*** to allow the installer to open.
3. Before proceeding with the installation, close all other applications, then click ***Next*** to continue.
4. You will be asked to accept the End-User License Agreement. After reading the agreement, click the ***I Agree*** button to accept it.
5. You will be asked to select the components you want to install. Orchid Service, Orchid ONVIF Discovery Service, and Shortcuts will already be checked.

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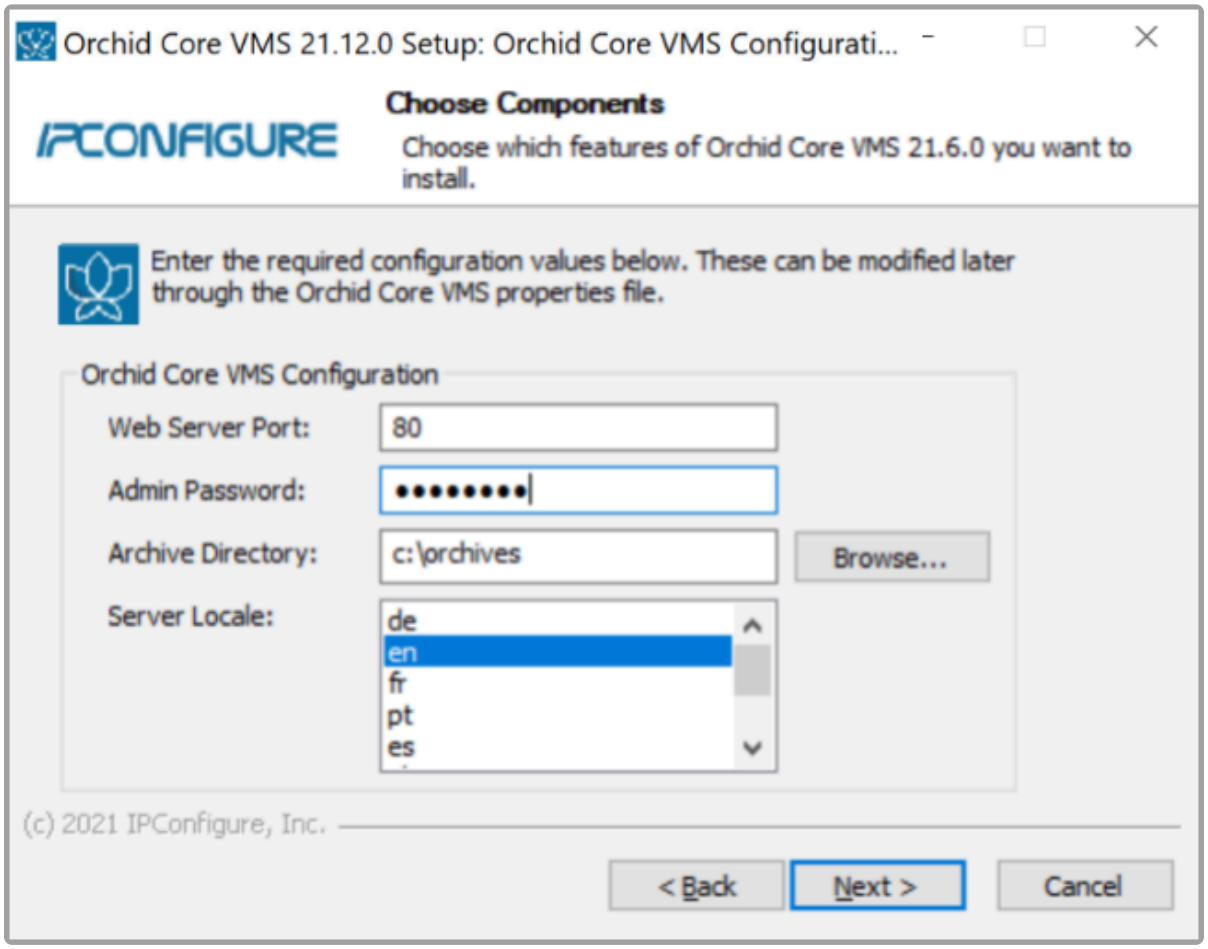


- **Orchid Core VMS Service:** This service is responsible for recording cameras, managing archives, and serving the web-based Orchid Core VMS user interface to your browser.
- **Orchid Core VMS ONVIF Autodiscovery:** This service is used by Orchid Core VMS to automatically discover ONVIF conformant cameras on your local network.
- **Shortcuts:** This installs a shortcut on the computer to open the Orchid Core VMS user interface in a web browser.

6. Click the ***Next*** button to continue.
7. If this is a new installation, the installer will ask you to set the Web Server Port, Admin Password, and the Archive Directory for storage. You will also have the opportunity to select the language for the user interface.
    a. By default, the web server port is set to port 80 (recommended for most installations). Update the port number only if Orchid Core VMS needs to use a port other than 80.
    b. Enter the password you would like to set for the default admin account in the *Admin Password* field.
    c. The default folder for video archives on Windows is *C:\orchives*. This can be changed to another directory, if needed.
    d. Use the *Server Locale* list to select one of the available languages. Current supported languages include the following: de (German), en (English), es (Spanish), fr (French), it (Italian), nl (Dutch), pt (Portuguese), and ru (Russian).

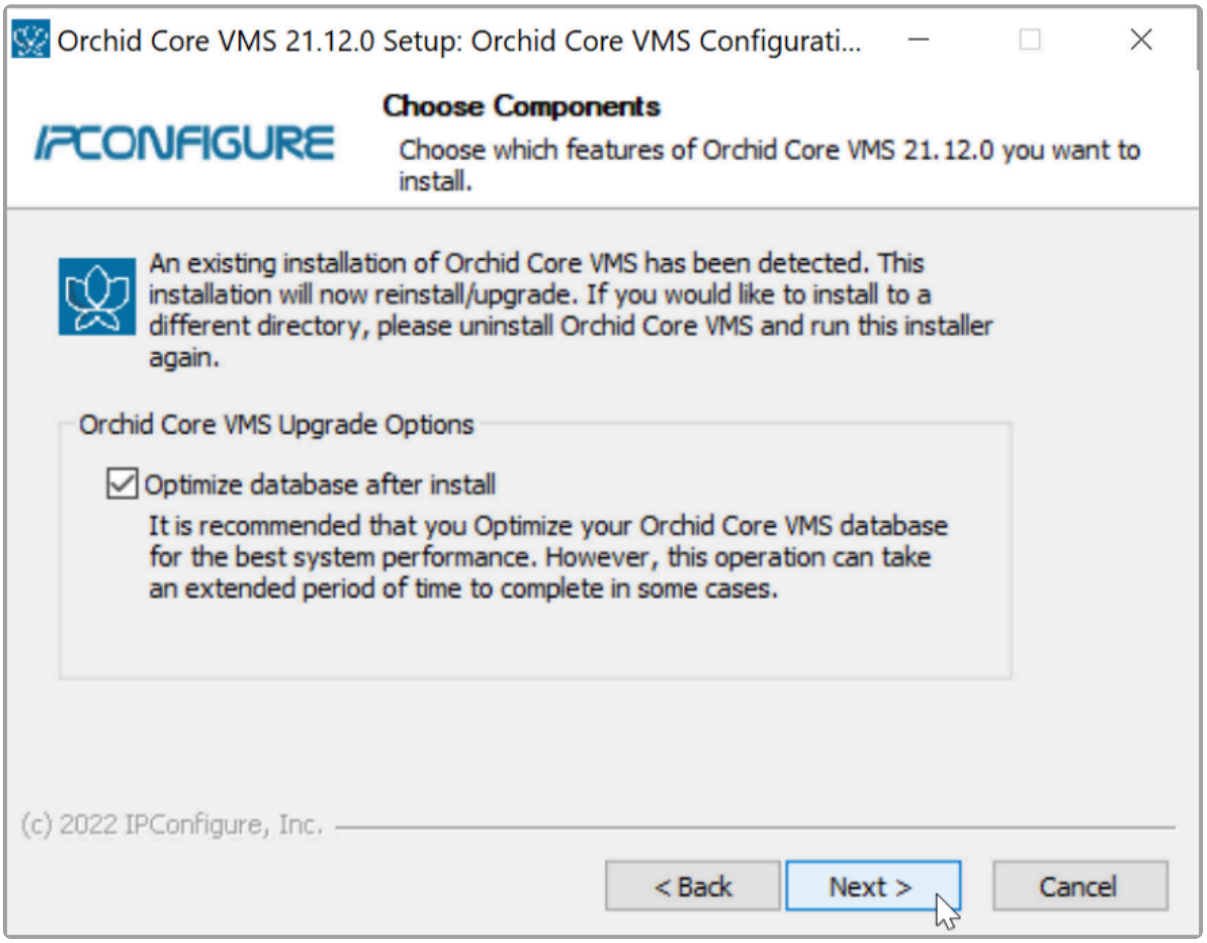
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If your system has a RAID volume, you may want to move the *orchives* folder to another drive (such as the D or E-drive). In this case, you may also want to change the **archivecleaner.usedspace.percentage** property to 99%. (Please refer to the section on How to Edit the Configuration Files for more details.)

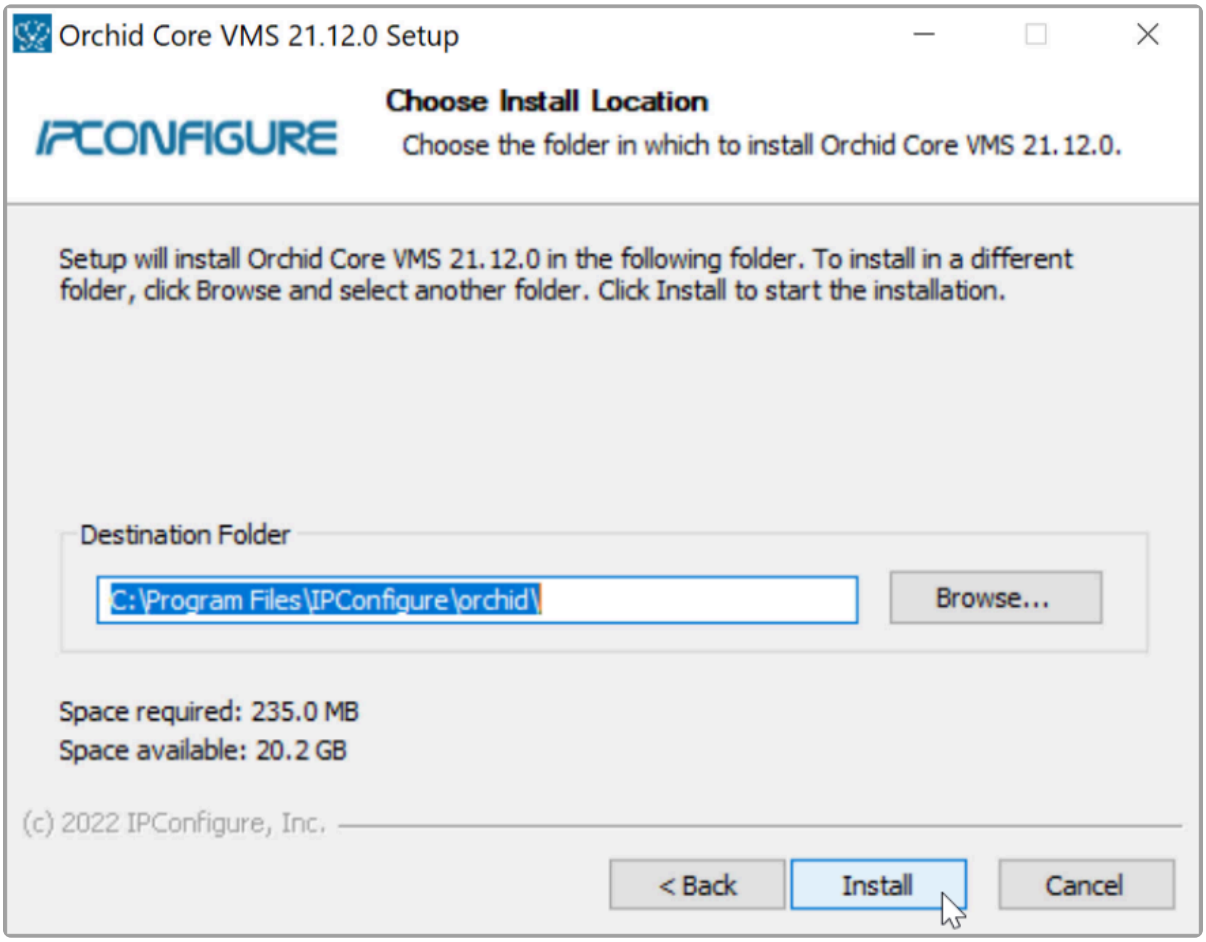


8. Click the ***Next*** button to continue. (Skip ahead to step 11.)
9. If this is a software upgrade, the next screen will give you the opportunity to optimize the database. Optimization is recommended (since it will improve the overall performance of the system, especially notable in larger systems with video retentions greater than 40 TB). Be aware, however, that the optimization process may take a while to complete (and Orchid Core VMS will be unavailable during this time).
    a. Mark the checkbox to optimize the database.

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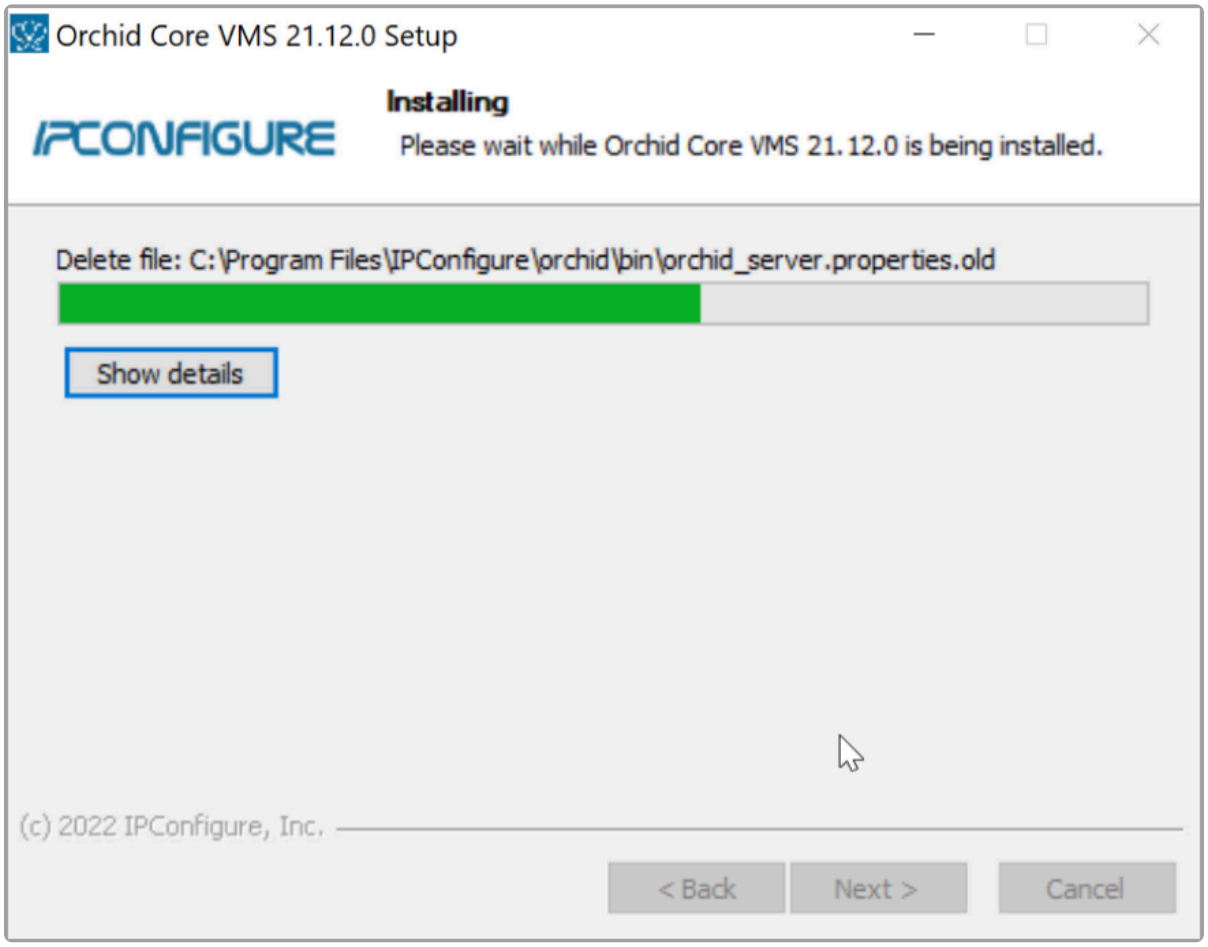


10. Click the ***Next*** button to continue.
11. The installer will ask you to confirm the installation folder. By default this is *C:\Program Files\IPConfigure\Orchid* and does not need to be changed. However, the installation directory can be updated, if needed.

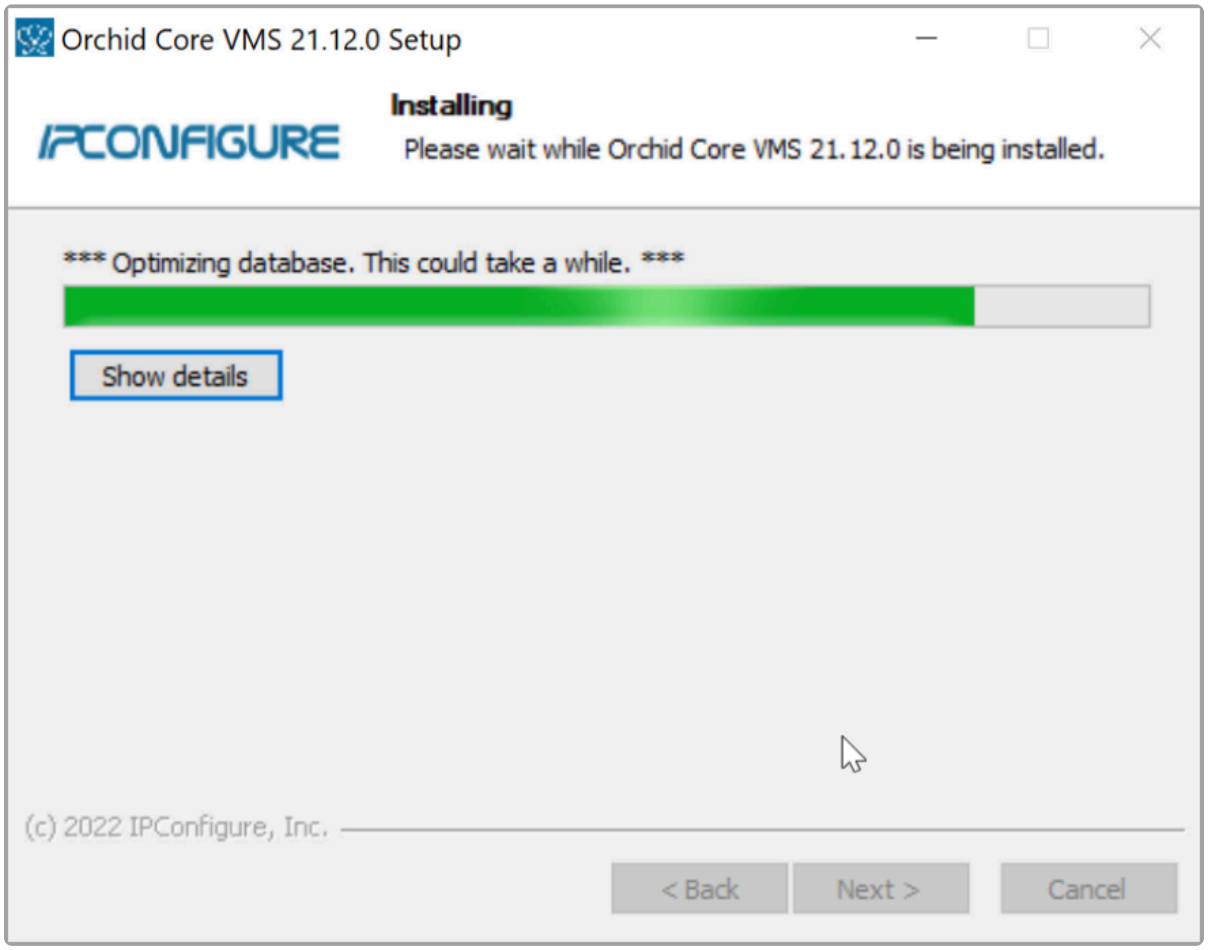


12. Click the ***Install*** button to proceed with the installation. The installation will complete automatically without any additional prompts. This process may take a few minutes (and perhaps longer if the optimization process was selected).

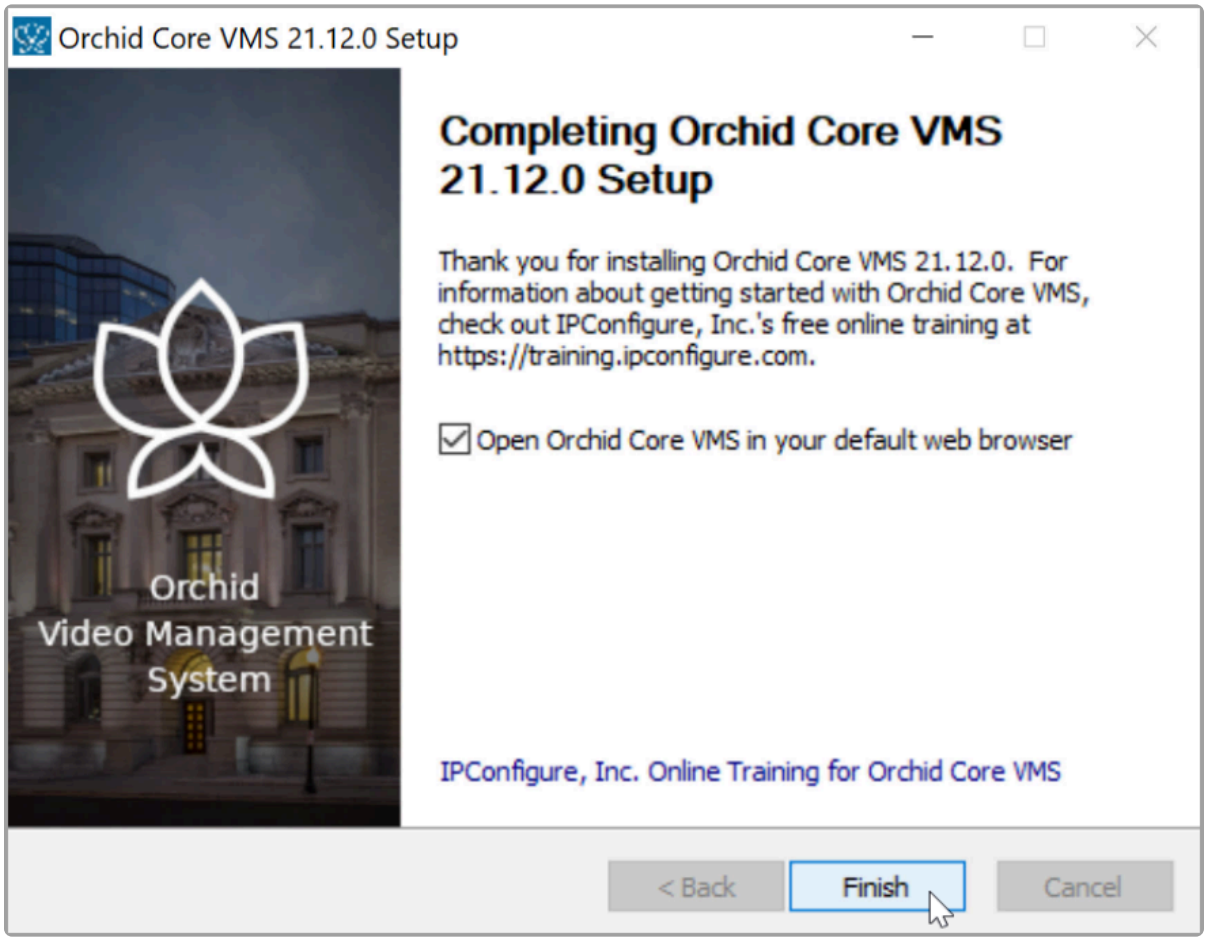
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13. Once the installer says "*Completing*" at the top of the window, mark the *Open Orchid VMS…* checkbox if you want to open Orchid Core VMS in your default web browser upon exit.



14. Click the ***Finish*** button to close the installer. Orchid Core VMS will automatically open in the computer's default web browser (if so marked).

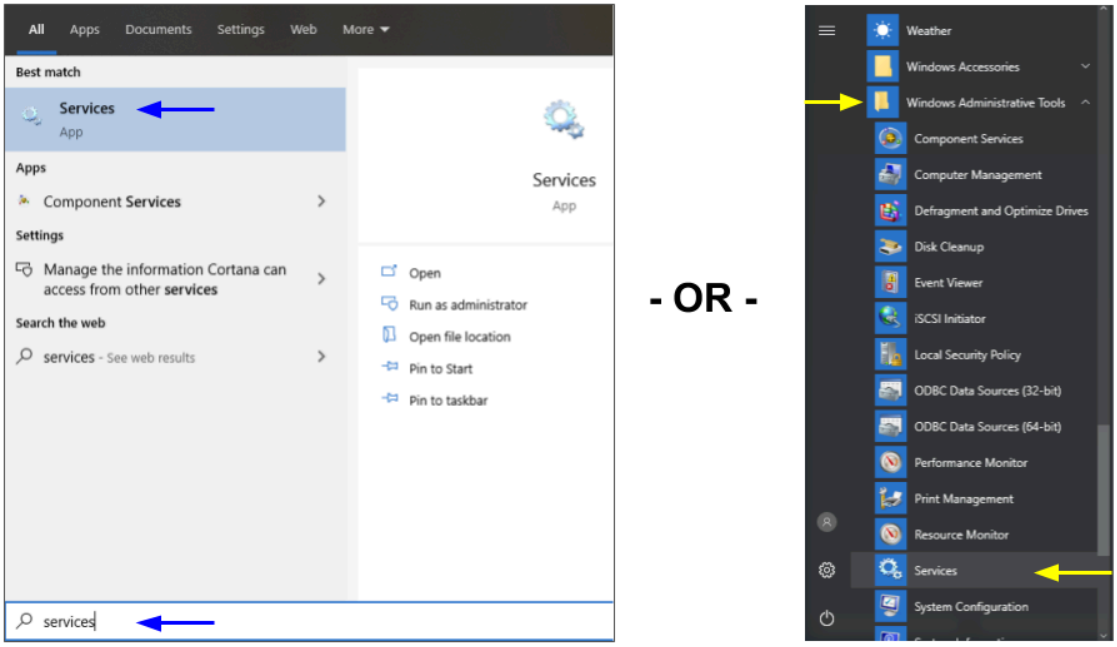
If Orchid Core VMS is being installed on *Windows Server*, there may be some complications that prevent Orchid Core VMS from starting. If this is the case, please review the following section.

Orchid Core VMS Not Starting In Windows Server

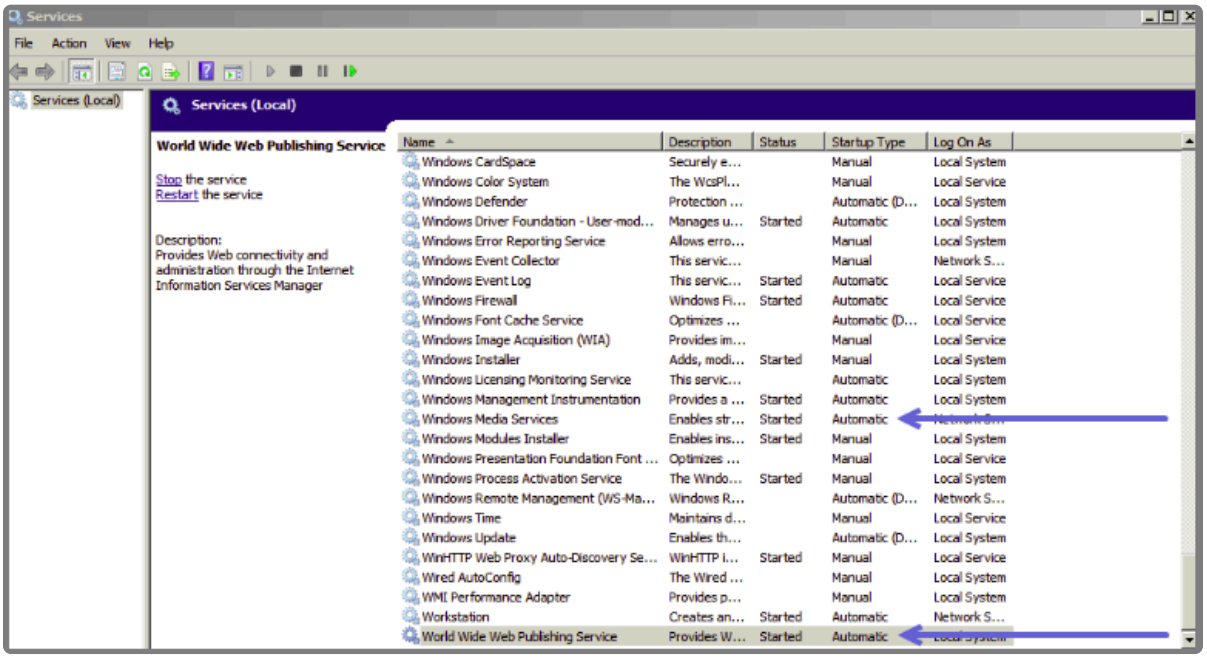
Unless changed during installation, Orchid Core VMS uses port 80 by default for its internal web server. This can cause problems in Windows Server and prevent Orchid Core VMS from starting. To remedy this, please follow the procedure below.

1. Open a web browser and go to *http://localhost*. If you receive a *directory forbidden* screen, or any screen that does not look like Orchid Core VMS, there is another program running that is using port 80.
2. Open the Windows Start Menu and type ***Services*** into the search bar, or select *Windows Administrative Tools*.

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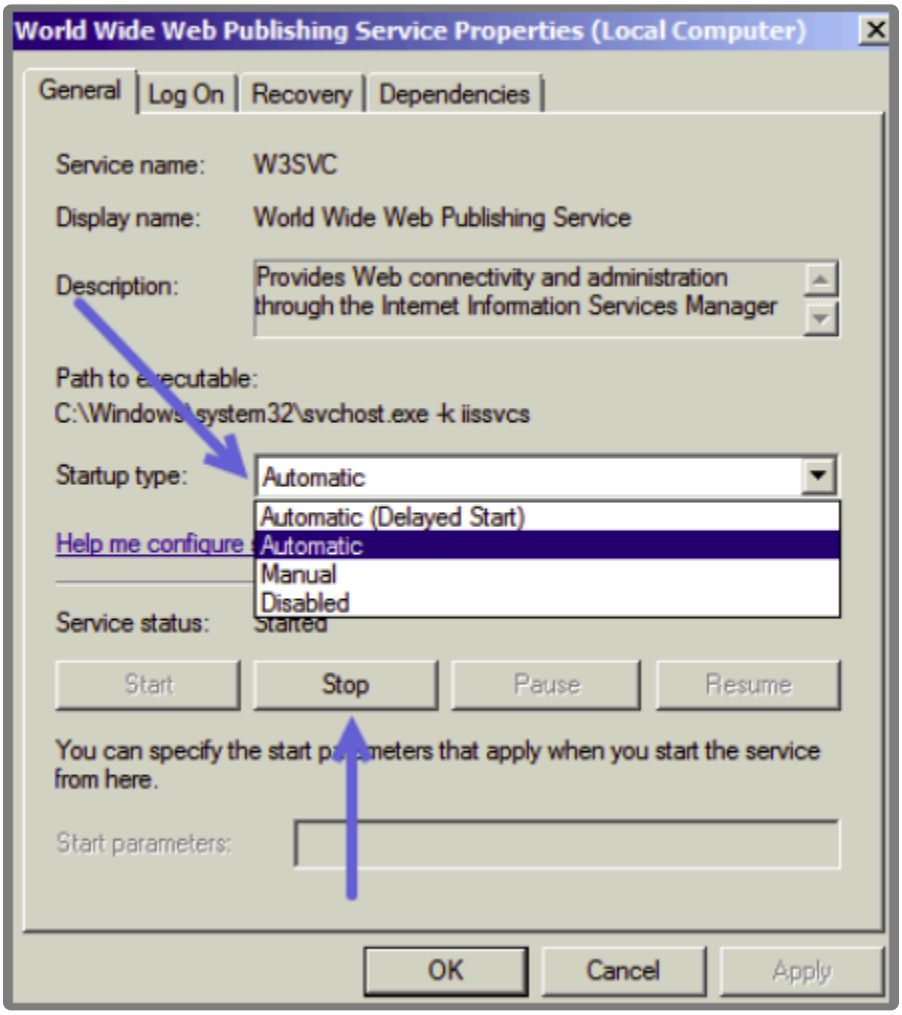


3. Click the ***Services*** icon to open the *Services Manager*.



4. Locate the service called *World Wide Web Publishing Service*.
5. Right-click on the service and click ***Properties*** to open the service's settings.

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6. Click the ***Stop*** button to stop the service.
7. Change the startup type to *Disabled* to stop the service from automatically starting at boot.
8. Click the ***OK*** button to save the new settings and close the window.
9. Repeat steps 4-8 for the *Windows Media Services* service. This service will not prevent Orchid Core VMS from starting, but it will prevent it from streaming live video through port 554.
10. Once both services have been stopped and disabled, locate the Orchid Server service. Right-click on it and select ***Start*** to start the Orchid Server service.

Orchid Core VMS will now be accessible through the browser and will be able to play and record video.

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How to Edit the Configuration Files in Windows

Beginning with version 2.10, some of the configuration settings can be edited from within the Orchid Core VMS software. (This is done using the *Advanced Settings* feature which is explained in the **Orchid Core VMS Administrator Guide**.) There are some settings, however, that will still need to be changed by editing the configuration file directly. These settings need to be protected from unauthorized changes because they are critical for program stability and reliability. These critical settings include the following:

• archives.dir	• streampipeline.decode.keyFramesOnly
• database.type	• streampipeline.filesplit.motionMode
• logger.dir	• streampipeline.filesplit.recordState
• orchid.admin.password	• streampipeline.filesplit.timePeriod
• orchid.lock_properties	• streampipeline.mode
• orchid.uuid	• streampipeline.motionReducer
• rtsp.protocol	• tls.certificate
• sqlite.filepath	• tls.key
• streampipeline.bgseg.boxArea	• webrtc.public_ip
• streampipeline.bgseg.dialate	• webserver.archives.rootpath
• streampipeline.bgseg.postErode	• webserver.html.rootpath
• streampipeline.bgseg.preErode	• webserver.protocol
• streampipeline.bgseg.threshold	

If it becomes necessary to change one of these critical settings, you can edit the Orchid Core VMS configuration files using a text editor like WordPad or Notepad.

In order to edit Orchid Core VMS's configuration files, you will need to be signed in as an Administrator.

The default locations for Orchid Core VMS's configuration files in Windows are:

- **Orchid Server Properties:** *C:\Program Files\IPConfigure\Orchid\bin\orchid_server.properties*
  - Stores all of the Orchid Core VMS settings and can be used to update things like the Orchid Core VMS port number, manually update the admin password, etc.
  - Settings entered in this file will override the default settings in the Orchid Server Default

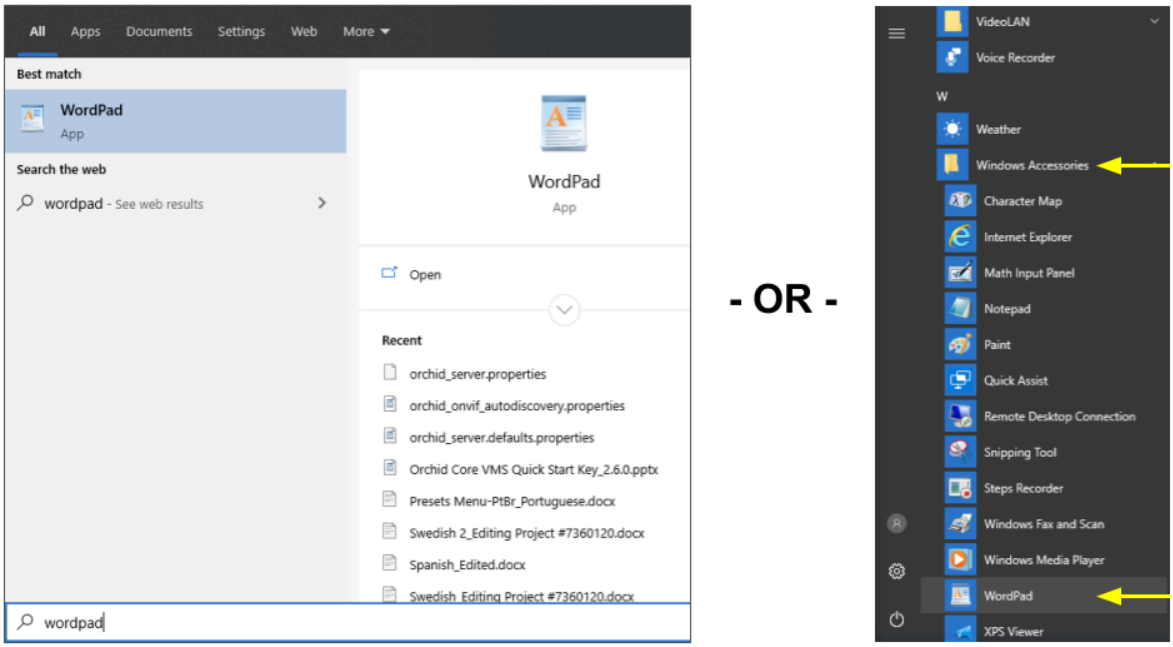
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Properties file (described below).

- **Orchid Server Default Properties:** *C:\Program Files\IPConfigure\Orchid\bin\orchid_server.defaults.properties*
  - Stores all of the Orchid Core VMS default settings and serves as a good reference. [While you may make changes in this file, settings will be overridden by the Orchid Server Properties file (described above).]
- **Orchid ONVIF Auto-Discovery:** *C:\Program Files\IPConfigure\Orchid\onvif_autodiscovery\orchid_onvif_autodiscovery.properties*
  - Used to edit the settings for the Orchid ONVIF Auto-Discovery service used by Orchid Core VMS.

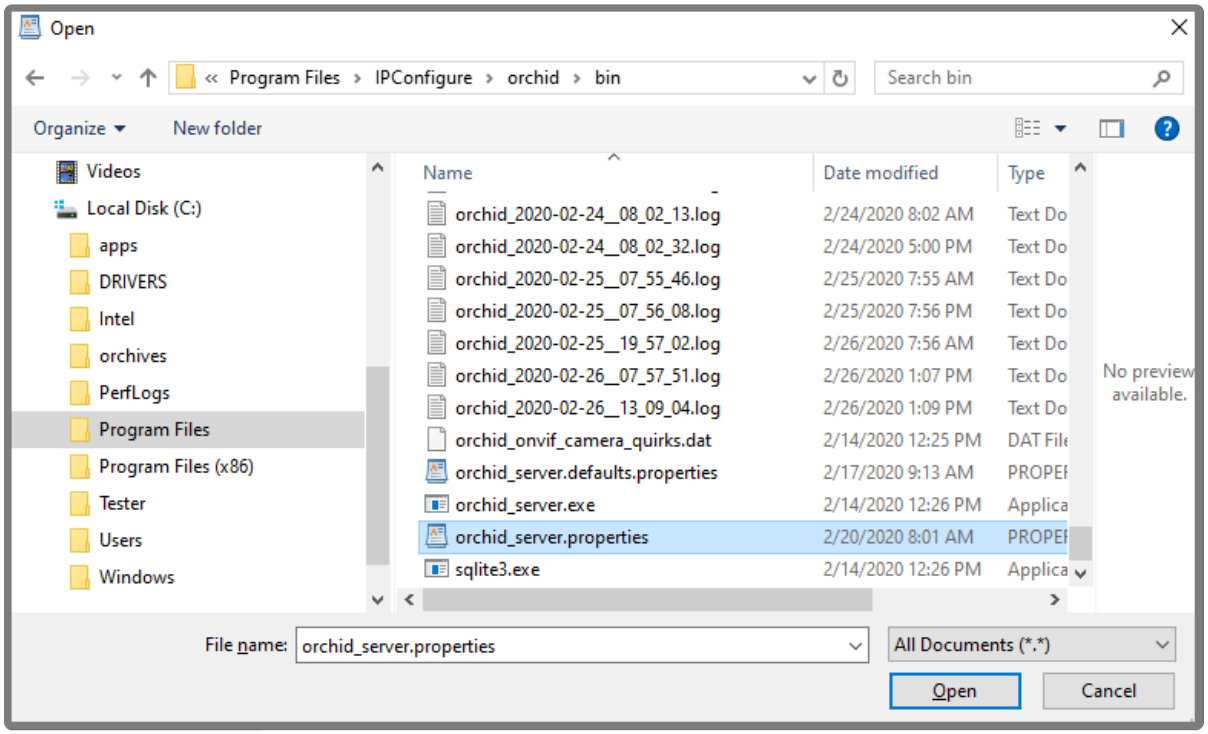
Refer to the *Installation Support Topics* section for a complete list of available properties.

1. Open the Windows start menu and type *Wordpad* into the search bar, or go to *Windows Accessories*

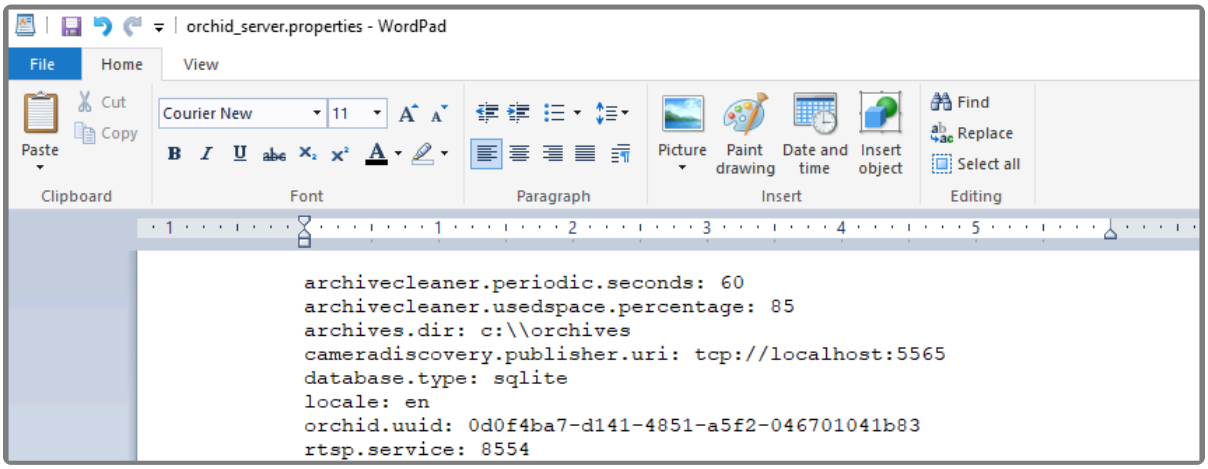


2. Right click on the ***WordPad*** icon and click *Run as administrator*.
3. Click the ***Yes*** button to let WordPad make changes to the computer.
4. Select ***File/Open***. When the window opens, navigate to the configuration file you need to edit. (If no files appear, ensure the *All Documents* option is selected.)

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5. Select the file you want to edit and click the ***Open*** button.
6. The file you selected will open in WordPad. Make setting changes as necessary.



7. When you are ready to save the file, select ***File/Save*** to save the configuration file.
8. You must restart the Orchid Server service in Windows to implement the new settings. (See next topic.)

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How to Manage the Orchid Core VMS Services in Windows

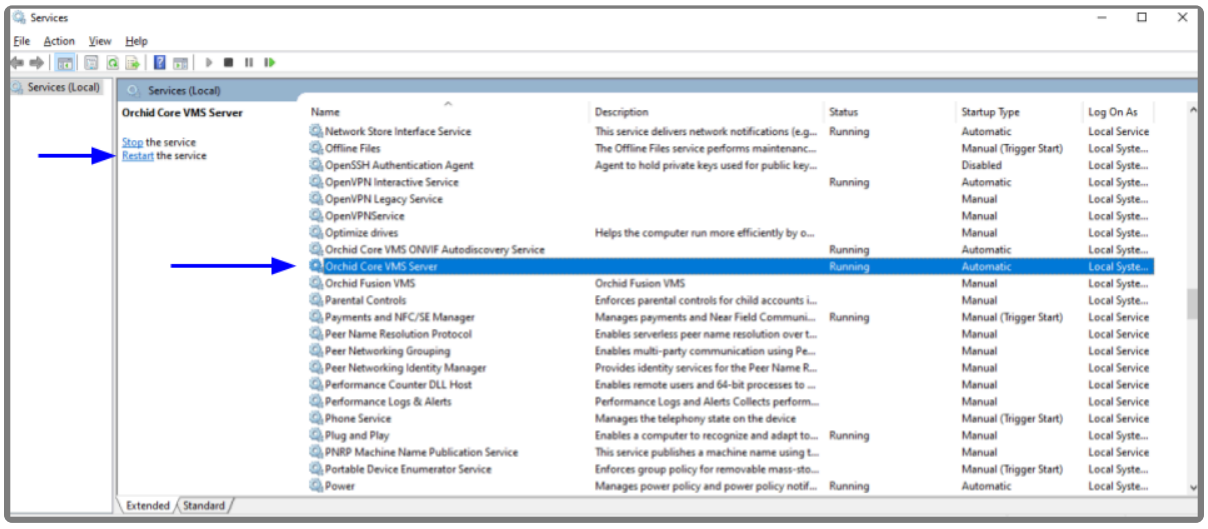
The two services listed below are used by Orchid Core VMS on Windows. If you need to check the status, start, or stop one of these services, you can do this through the *Services Manager* whenever necessary. (You will need to restart the appropriate service whenever a change has been made to one of Orchid Core VMS's configuration files.)

- **Orchid Server Service:** The main Orchid Core VMS service that records and archives video.
- **Orchid ONVIF Auto-Discovery Service:** Used by Orchid Core VMS to automatically find cameras that support ONVIF.

> You must be signed into the computer as a user with administrator privileges in order to use the *Services Manager*.

To manage an Orchid Core VMS service:

1. Open the Windows Start Menu and type *Services* into the search bar, or go to *Windows Administrative Tools*.
2. Click the ***Services*** icon to open the *Services Manager*. The *Services Manager* will display a list of all the services setup in Windows.

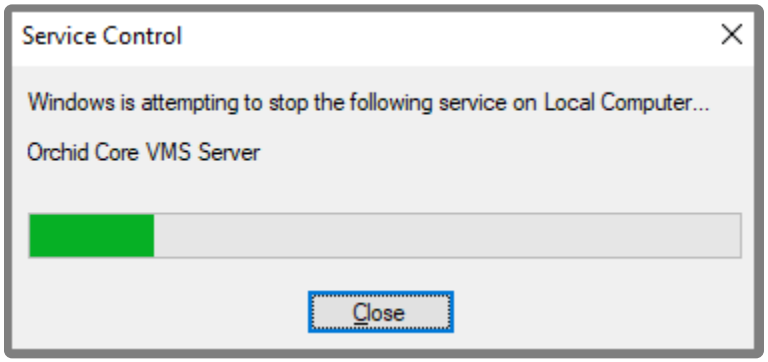


3. Scroll through the list and click on the service you need to restart. (Notice that the status of the service will appear in the *Status* column.)
4. Click the ***Restart the service*** button (at the left of the list of services). (Click the ***Stop the Service*** link if you need to stop the service.)

A status window will appear to show the progress of the restart. Once the service has restarted successfully, the software will return to the *Services Manager* window; the *Status* column will indicate that

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the service is *Running*.



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How to Uninstall Orchid Core VMS in Windows

To remove the Orchid Core VMS software, follow the steps below. (This will remove all files installed and created by Orchid Core VMS except the *C:\orchives* directory.)

1. To uninstall Orchid Core VMS, locate the uninstall file on the computer. The default location for this file is *C:\Program Files\IPConfigure\Orchid\uninstall.exe*.
2. Double-click on the *uninstall* file.
3. Click the ***Yes*** button to allow the application to make changes to the computer.
4. Click the ***Uninstall*** button to proceed with the uninstall process. This may take a moment.
5. Once the uninstall is complete, click the ***Close*** button to exit.

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Working in Ubuntu 14.04

The following topics will describe how to install and maintain Orchid Core VMS on the Ubuntu 14.04 operating system.

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Installing Orchid Core VMS on Ubuntu 14.04

IPConfigure distributes Orchid Core VMS for Ubuntu through debian package files (.deb files). The recommended method for installing the package file is through GDebi Package installer. GDebi can be used either through command line, or through the Graphical User Interface (GUI).

- Orchid Core VMS can only be installed on a 64-bit Ubuntu operating system. If you are currently running a 32-bit Ubuntu operating system, the installer will return an “Architecture not supported” error and Orchid Core VMS installation will fail.

- Orchid Core VMS requires Linux kernel 3.17.0 or greater.

- You must sign in to the computer as a user with “root” or “sudo” privileges.

- The Ubuntu 14.04 and 16.04 installers are different.

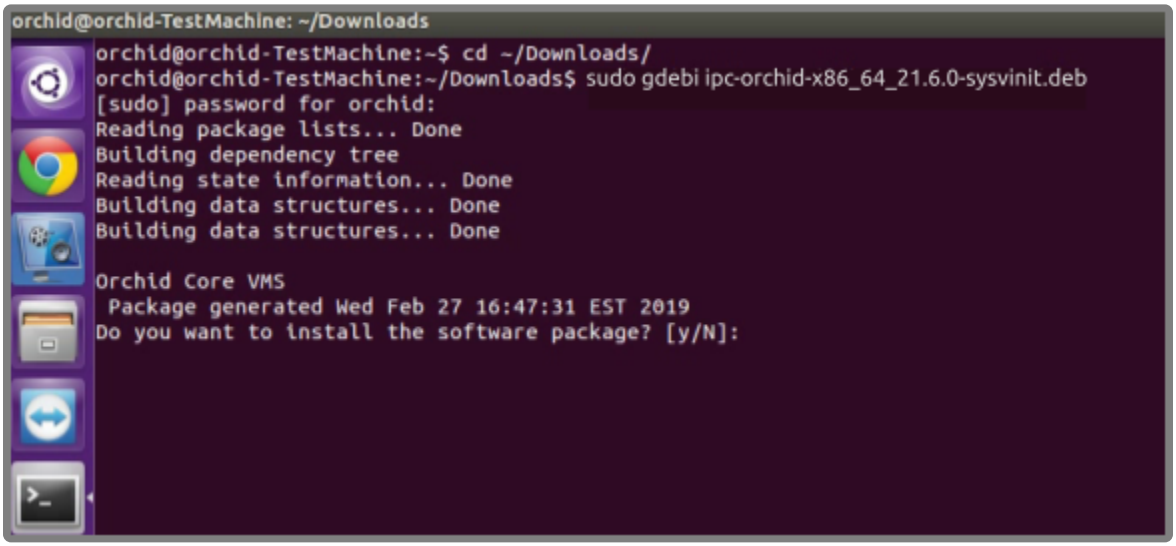
1. Download the Orchid .deb file. You can find the latest version of Orchid Core VMS on IPConfigure’s website at http://www.ipconfigure.com/products/orchid#download.
2. Once you’ve downloaded the Orchid Core VMS installation package, decide whether you want to perform the installation via the Command Line or the GUI.

Installing through the Command Line (Ubuntu Server)

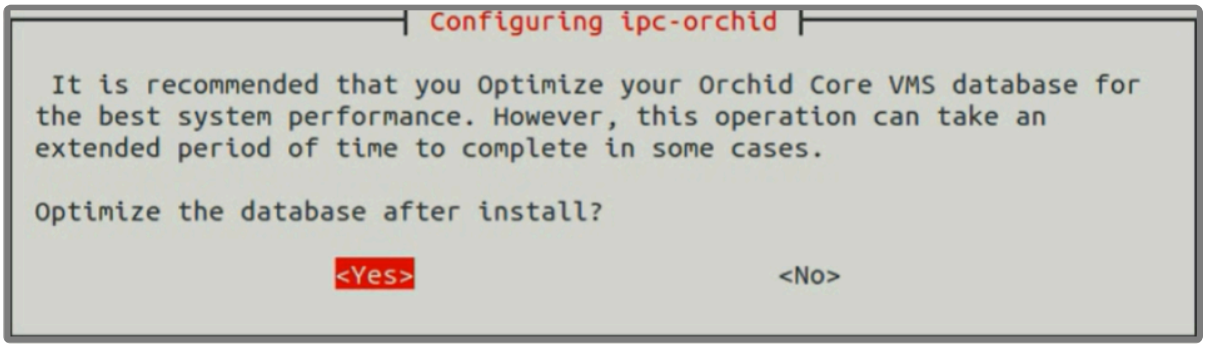
1. Open the *Terminal* program (***CTRL+ALT+T***) and navigate to the directory where you downloaded the Orchid Core VMS installation package. (The package is probably stored in the *Downloads* folder.)
2. Unless GDebi has been installed manually, it will need to be installed using the following command: `sudo apt-get install gdebi-core`
   It may take a few minutes for GDebi to install, depending on the speed of your system.

3. The GDebi command can now be used to install the Orchid Core VMS debian package. The syntax is `sudo gdebi (package-name).deb`. For example, if the name of the package is *ipc-orchid-x86_64_21.6.0-sysvinit.deb*, the following command would be used: `sudo gdebi ipc-orchid-x86_64_21.6.0-sysvinit.deb`

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4. The system may ask for your Ubuntu user password. Type in the password and press ***Enter***.
5. The system will then ask if you want to install the software. Enter ***Y*** for yes, and press ***Enter***.
6. If this is a software upgrade, the installer will give you the opportunity to optimize the database. Optimization is recommended (since it will improve the overall performance of the system, especially notable in larger systems with video archives greater than 40 TB). Be aware, however, that the optimization process may take a while to complete (and Orchid Core VMS will be unavailable during this time).
    a. To proceed with the optimization, use the ***Tab*** key to highlight *Yes*, and press ***Enter***. (Skip ahead to step 10.)



7. On a new installation, you will be asked to accept the End User License Agreement. After reading the agreement, press the ***Tab*** key to select *Ok*, then the ***Enter*** key to accept it.
8. You will then be asked to accept the agreement in a separate prompt. Use the ***Left Arrow*** or ***Tab*** key to select ***Yes***, and press ***Enter*** to accept it.
9. Next, the installer will ask you to set the Web Server Port, Admin Password, and the Archive Directory for storage. You will also have an opportunity to select the language for the user interface.
    a. By default, the web server port is set to port 80 (which is the recommended port for most installations). If Orchid Core VMS needs to use a different port, update the port, then press the ***Tab*** key to select *Ok*, and press ***Enter***.
    b. Enter the password you would like to set for the default admin account, then press the ***Tab*** key to select *Ok*, and press ***Enter***.
    c. Set the directory for video archives. The default folder is */orchives*. Enter a new archives

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location, if needed, then press the ***Tab*** key to select *Ok*, and press ***Enter***.

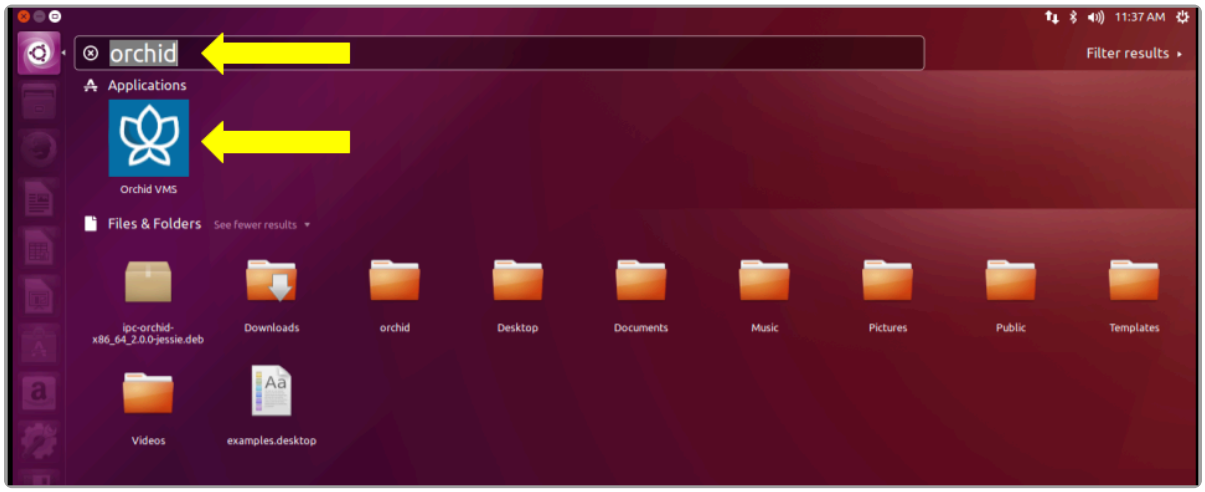
d. Use the *Orchid Core VMS server locale* drop-down list to select the language. Available selections include the following: *de* (German), *en* (English), *es* (Spanish), *fr* (French), *it* (Italian), *nl* (Dutch), *pt* (Portuguese), and *ru* (Russian). Press the ***Tab*** key to select *Ok*, and press ***Enter***.

The installation will complete automatically without any additional prompts. This process may take a few minutes (and perhaps longer if the optimization process was selected). The Orchid Core VMS services start automatically once the package installation is done, after which you can access the Orchid Core VMS user interface in your web browser. (Please refer to the *Sign in* topic in the **Orchid Core VMS Administrator Guide** for more details.)

10. You can automatically launch a browser to Orchid Core VMS using the link installed on your server:

- Click on the ***Launcher*** icon in the top left corner of the screen.
- Type **Orchid** in the search box, then click the ***Orchid VMS*** icon listed under *Applications*.





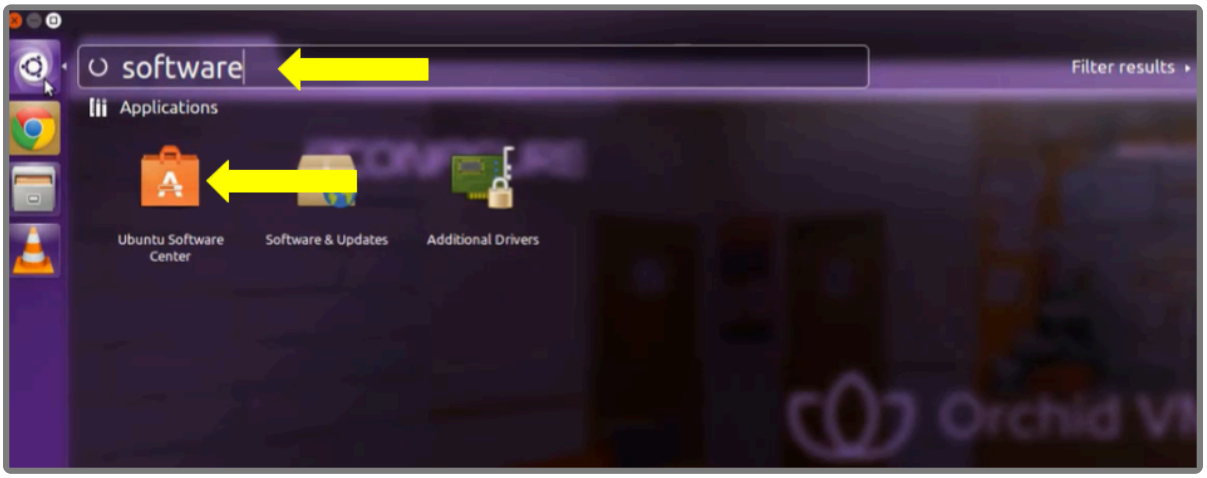
Installing through the GUI (Ubuntu Desktop)

1. Click on the ***Launcher*** icon and then type in **Software Center**.

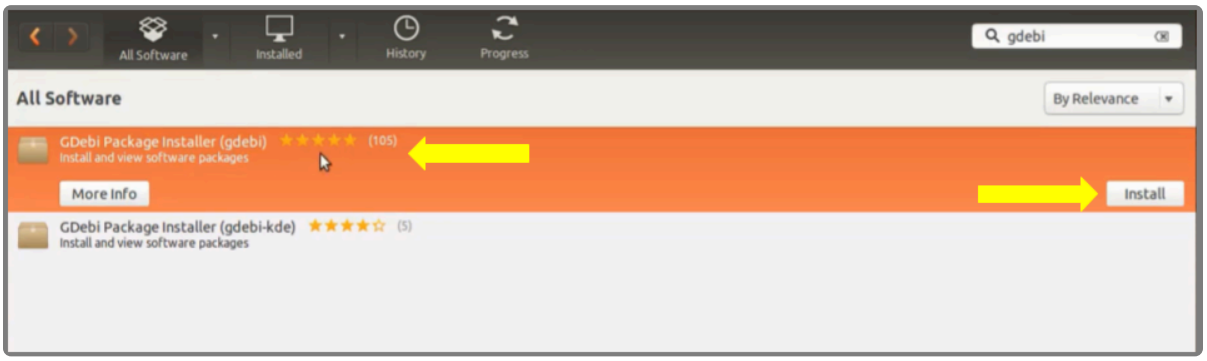


2. Click the ***Ubuntu Software Center*** icon to open it.

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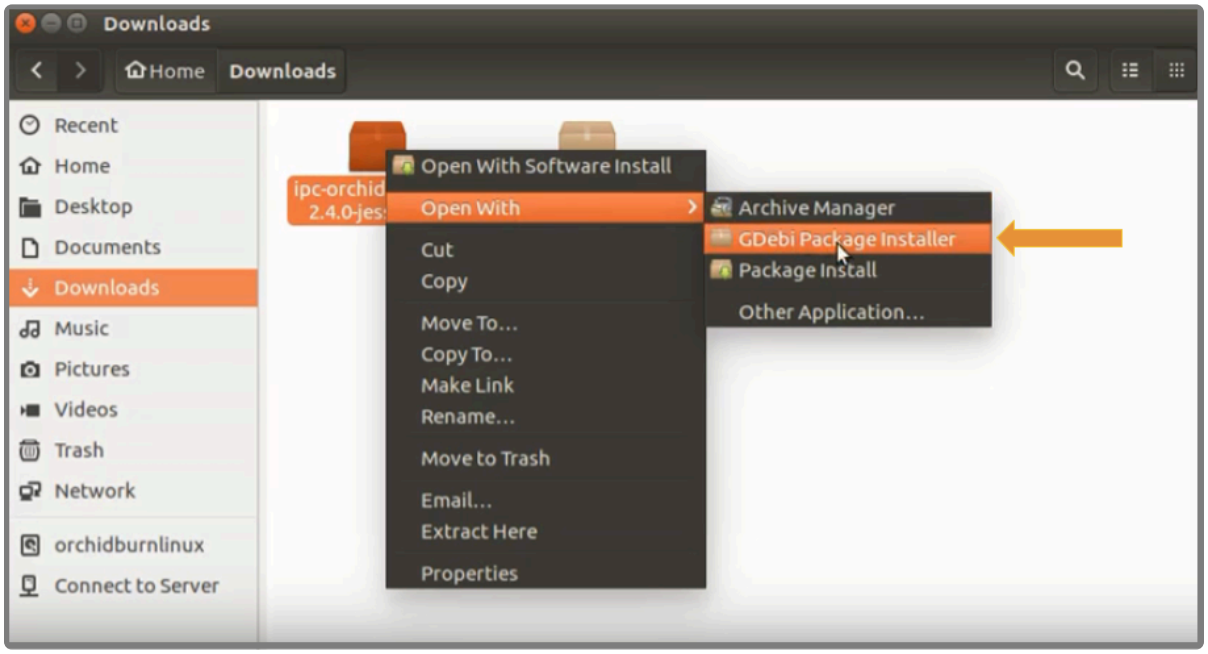


3. In the search bar in the top right-hand corner of the Software Center, type **gdebi**.
4. Select *GDebi Package Installer (gdebi)* (which should be the first result), and then click the ***Install*** button.



5. After GDebi has finished installing, click the ***Files*** icon to open the *Files Explorer*, then navigate to the folder storing your Orchid Core VMS package (.deb file). (The package is probably stored in the *Downloads* folder.)
6. Right-click on the Orchid Core VMS package, hover over *Open With* with the mouse, then select the ***GDebi Package Installer*** option.

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7. Once the GDebi package installer loads, click the ***Install Package*** button in the top right-hand corner of the window.
8. You may be asked for your system password. Type it in and click ***OK***.
9. If this is a software upgrade, the next screen will give you the opportunity to optimize the database. Optimization is recommended (since it will improve the overall performance of the system, especially notable in larger systems with video archives greater than 40 TB). Be aware, however, that the optimization process may take a while to complete (and Orchid Core VMS will be unavailable during this time).
    a. To proceed with optimization, mark the checkbox and click the ***Forward*** button. (Skip ahead to step 13.)

10. If this is a new installation, you will be asked to accept the End User License Agreement. After you read the agreement, mark the *Do you accept the terms of agreement* checkbox and click the ***Forward*** button.
11. Next, the installer will ask you to set the Web Server Port, Admin Password, and the Archive Directory for storage. You will also have an opportunity to select the language for the user interface.
    a. By default, the web server port is set to port 80, which is recommended for most installations. Update the port number only if Orchid Core VMS needs to use a port other than 80.
    b. Enter the password you would like to set for the default admin account.
    c. The default folder for video archives on Linux is */orchives*. Enter a new archives location, if needed.
    d. Use the *Orchid Core VMS server locale* list to select the language. Available selections include the following: *de* (German), *en* (English), *es* (Spanish), *fr* (French), *it* (Italian), *nl* (Dutch), *pt* (Portuguese), and *ru* (Russian).

12. When finished, click the ***Forward*** button.

The installation will complete automatically without any additional prompts. This may take a few minutes

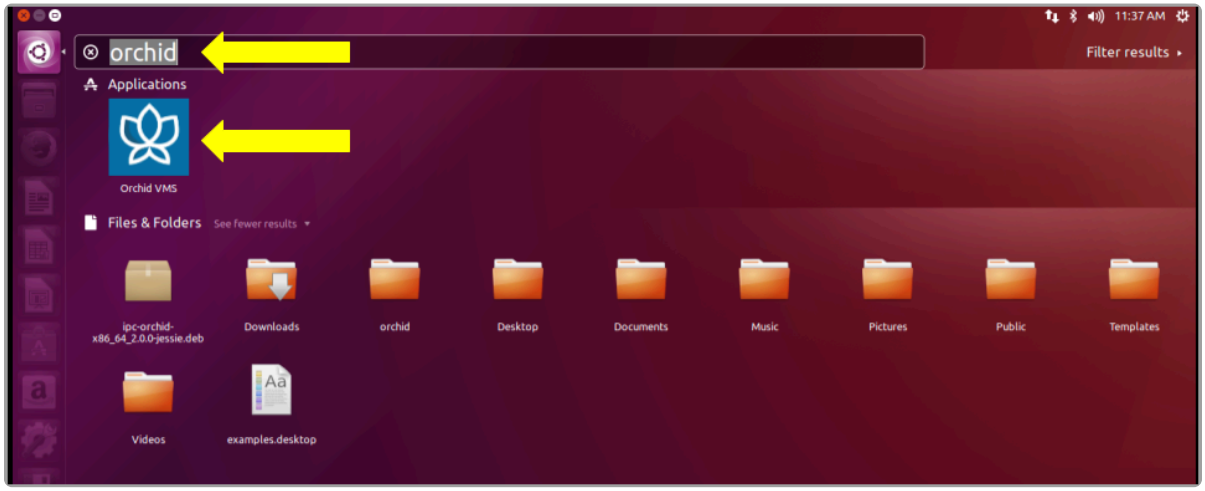
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(and perhaps longer if the optimization process was selected).

13. Once the package installer displays an “Installation Finished” message at the top of the screen, click the ***Close*** button to close the installer and complete the installation. The Orchid Core VMS services will start automatically once the package installation is done, after which you can access the Orchid Core VMS user interface in your web browser. (Please refer to the *Sign in* topic in the **Orchid Core VMS Administrator Guide** for more details.)

14. You can automatically launch a browser to Orchid Core VMS using the link installed on your server:
    a. Click on the ***Launcher*** icon in the top left corner of the screen.
    b. Type **Orchid** in the search box, then click the ***Orchid VMS*** icon listed under Applications.





How to Edit the Configuration Files in Ubuntu 14.04

Beginning with version 2.10, some of the configuration settings can be edited from within the Orchid Core VMS software. (This is done using the *Advanced Settings* feature which is explained in the **Orchid Core VMS Administrator Guide**.) There are some settings, however, that will still need to be changed by editing the configuration file directly. These settings need to be protected from unauthorized changes because they are critical for program stability and reliability. These critical settings include the following:

• archives.dir	• streampipeline.decode.keyFramesOnly
• database.type	• streampipeline.filesplit.motionMode
• logger.dir	• streampipeline.filesplit.recordState
• orchid.admin.password	• streampipeline.filesplit.timePeriod
• orchid.lock_properties	• streampipeline.mode
• orchid.uuid	• streampipeline.motionReducer
• rtsp.protocol	• tls.certificate
• sqlite.filepath	• tls.key
• streampipeline.bgseg.boxArea	• webrtc.public_ip
• streampipeline.bgseg.dialate	• webserver.archives.rootpath
• streampipeline.bgseg.postErode	• webserver.html.rootpath
• streampipeline.bgseg.preErode	• webserver.protocol
• streampipeline.bgseg.threshold	

If it becomes necessary to change one of these critical settings, you can edit the Orchid Core VMS configuration files using standard text editors in Linux. This section will describe two methods for editing the configuration files: using the Command Line and using the Graphical User Interface.

> ✻ In order to edit text files as the root user, you will need administrator access to the computer on which Orchid Core VMS is installed.

The default locations for Orchid Core VMS's configuration files in Linux are:

- **Orchid Server Properties:** */etc/opt/orchid_server.properties*
  - Stores all of the Orchid Core VMS settings and can be used to update things like the port number, manually update the admin password, etc.

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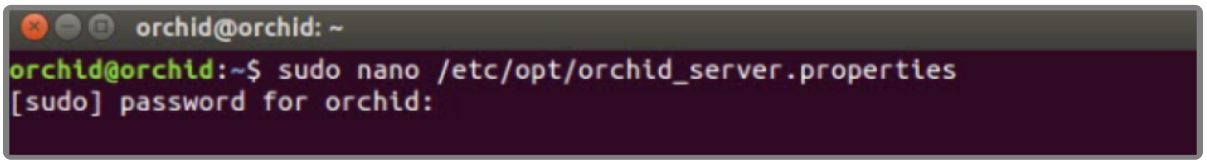
    - Settings entered in this file will override the default settings in the *Orchid Server Default Properties* file (described below).
- **Orchid Server Default Properties:** */etc/opt/orchid_server.properties.default*
    - Stores all of the Orchid Core VMS default settings and may serve as a good reference. [Any changes made to this file will be ignored.]
- **Orchid ONVIF Auto-Discovery:** */etc/opt/orchid_onvif_autodiscovery.properties*
    - Used to edit the default settings for the ONVIF auto-discovery service used by Orchid Core VMS.

Refer to the Installation Support Topics section for a complete list of available properties.

Editing Configuration Files through the Command Line:

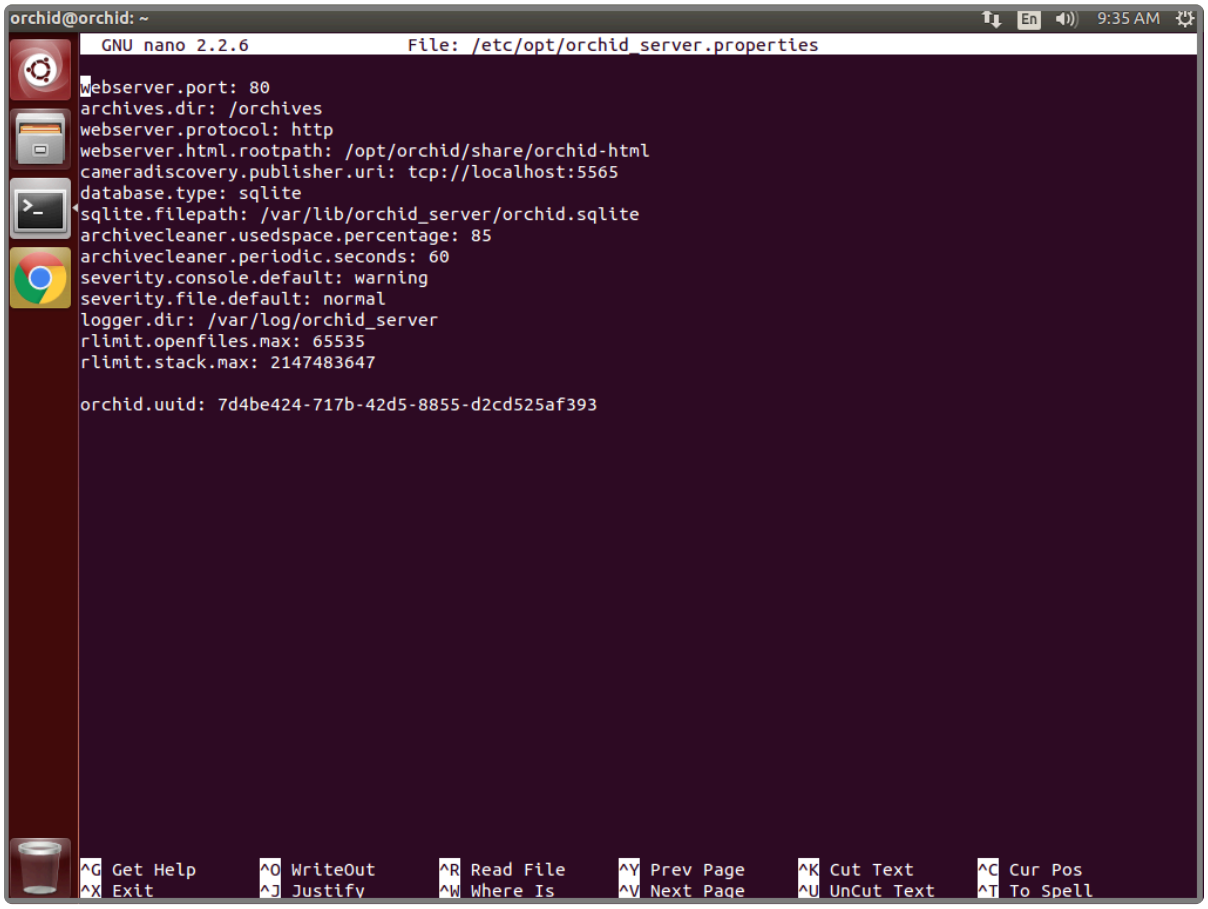
1. Open the *Terminal* program (***CTRL+ALT+T***) and open Orchid Core VMS's configuration file in the nano text editor by typing the following command: `sudo nano /etc/opt/orchid_server.properties`. Then press ***Enter***.

> If a different file needs to be edited, such as the Orchid ONVIF auto-discovery configuration file, change the filename in the command above, as needed.



2. After running that command, you will be prompted to enter the *[sudo] password* for your user. Type the password used to sign in to your computer, then press ***Enter***. The configuration file will open.

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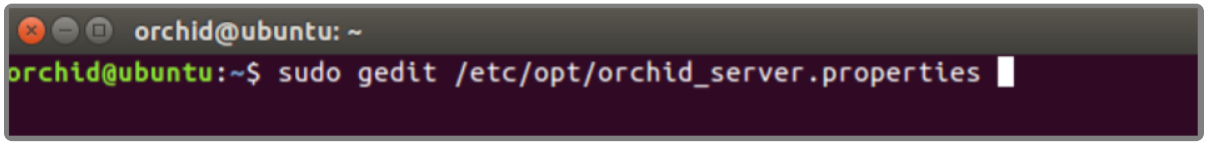


3. Use the arrow keys to move the cursor around the screen and update any default settings. You may also add new settings to the end of the file.
4. When you are ready to save the file, click ***CTRL+X*** on the keyboard, then type ***Y*** to save the file and close the text editor. If you do not want to save the file, type ***N*** (instead of *Y*) after typing ***CTRL+X***.
5. Restart the Orchid Server service in Linux to implement the new settings.

Editing Configuration Files through the Graphical User Interface (GUI):

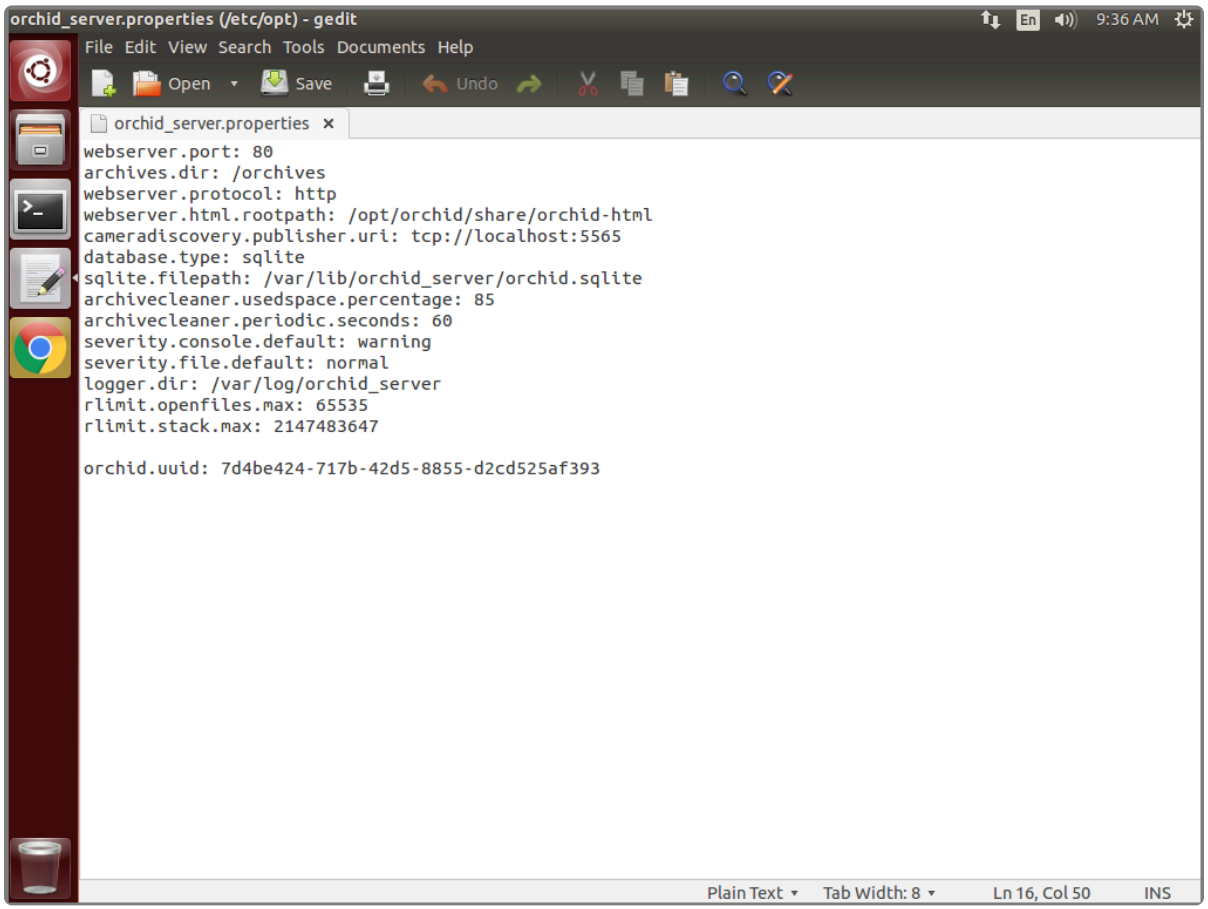
1. Open the *Terminal* program (***CTRL+ALT+T***) and open Orchid Core VMS's configuration file by typing the following command: `sudo gedit /etc/opt/orchid_server.properties`. Then press ***Enter***.

> If a different file needs to be edited, such as the Orchid ONVIF auto-discovery configuration file, change the filename in the command above, as needed.



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2. After running that command, you will be prompted to enter your password to perform administrative tasks. Type the same password you use to sign in to your computer, then press ***Enter***.
3. A text editor will open in a new window allowing you to edit the configuration file. Update default settings as needed. You may also add new settings to the end of the file.



4. When you are ready to save the file, click ***File/Save*** to save the configuration file.
5. You must restart the Orchid Server service in Linux to implement the new settings.

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How to Manage the Orchid Core VMS Services in Ubuntu 14.04

Orchid Core VMS runs on Linux as a service. If you need to check the status, start, or stop one of these services, you can do this from the command line or the GUI.

There are two main services used by Orchid Core VMS on Linux:

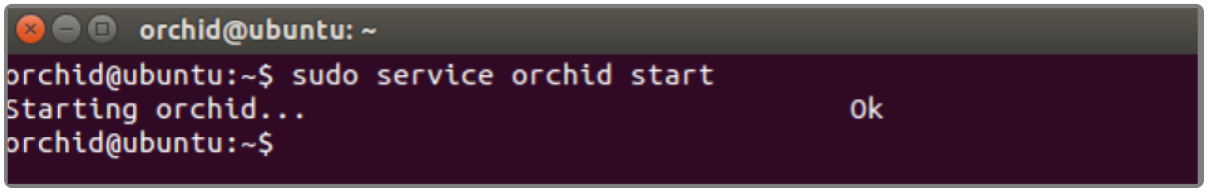
- **Orchid Server Service:** The main Orchid Core VMS service that records and archives video.
- **Orchid ONVIF Auto-Discovery Service:** Used by Orchid Core VMS to automatically find cameras that support ONVIF.

Tips

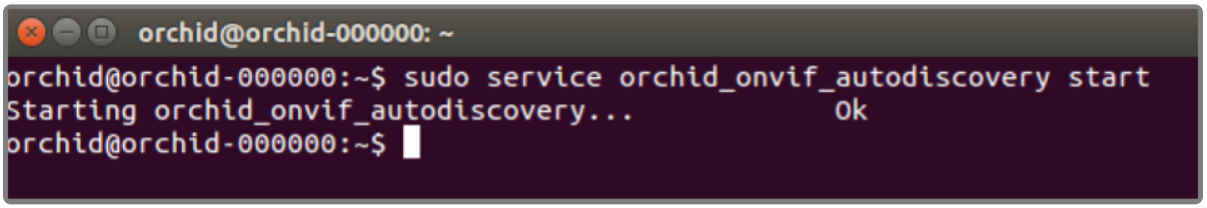
- After you've configured your Orchid Core VMS properties and started the services, you should check the status of both services to verify Orchid Core VMS is running.
- You will need to restart the services whenever a change has been made to the Orchid Core VMS configuration files.

How to Manage the Orchid Core VMS Services Through the Command Line

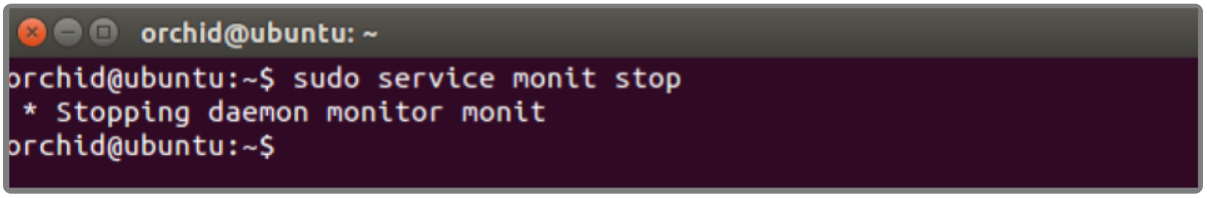
1. Open the *Terminal* program (***CTRL+ALT+T***).
2. Type the following command: `sudo service orchid (command)` (where the *command* is `start`, `stop`, `restart`, or `status`). Then press ***Enter***.



This set of commands will only manage the Orchid Server service. If you need to manage the Orchid ONVIF Auto-Discovery Service, replace `orchid` with `orchid_onvif_autodiscovery` in the command line as in the example below.



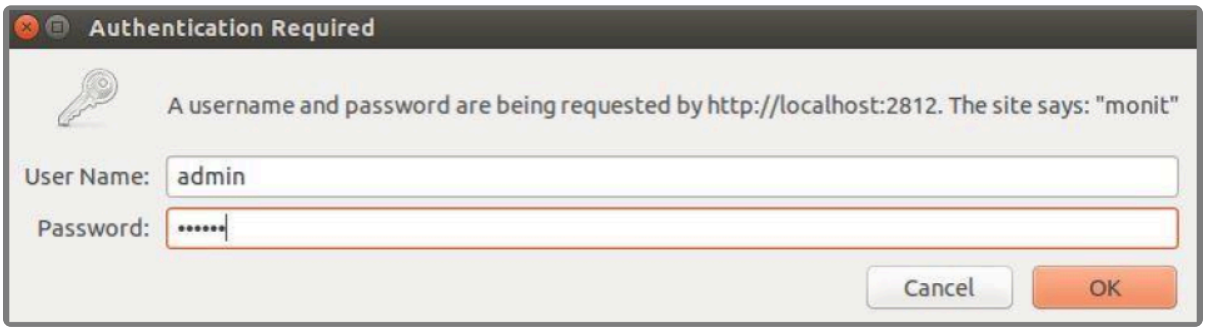
As a fail-safe measure, the Monit Service Manager will restart the Orchid Server and Orchid ONVIF Auto-Discovery services if they go down. In order to stop these services, the Monit Service Manager should be stopped first (using the command in the example below).



How to Manage the Orchid Core VMS Services Through the GUI

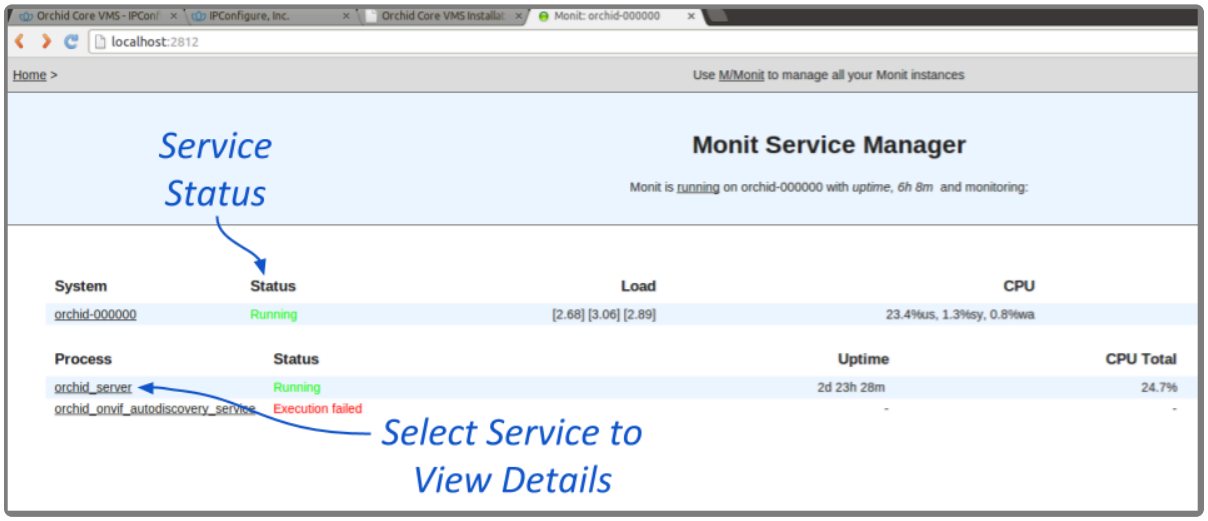
To manage the Orchid Core VMS services from a web browser running on the same computer as the service:

1. Open a web browser and type *http://localhost:2812* into the address bar to access Monit (Orchid Core VMS's process monitor).
2. You will be asked for a username and password. The username is *admin* and the password is *0rc#1d* (unless it was manually changed through Monit's configuration file).

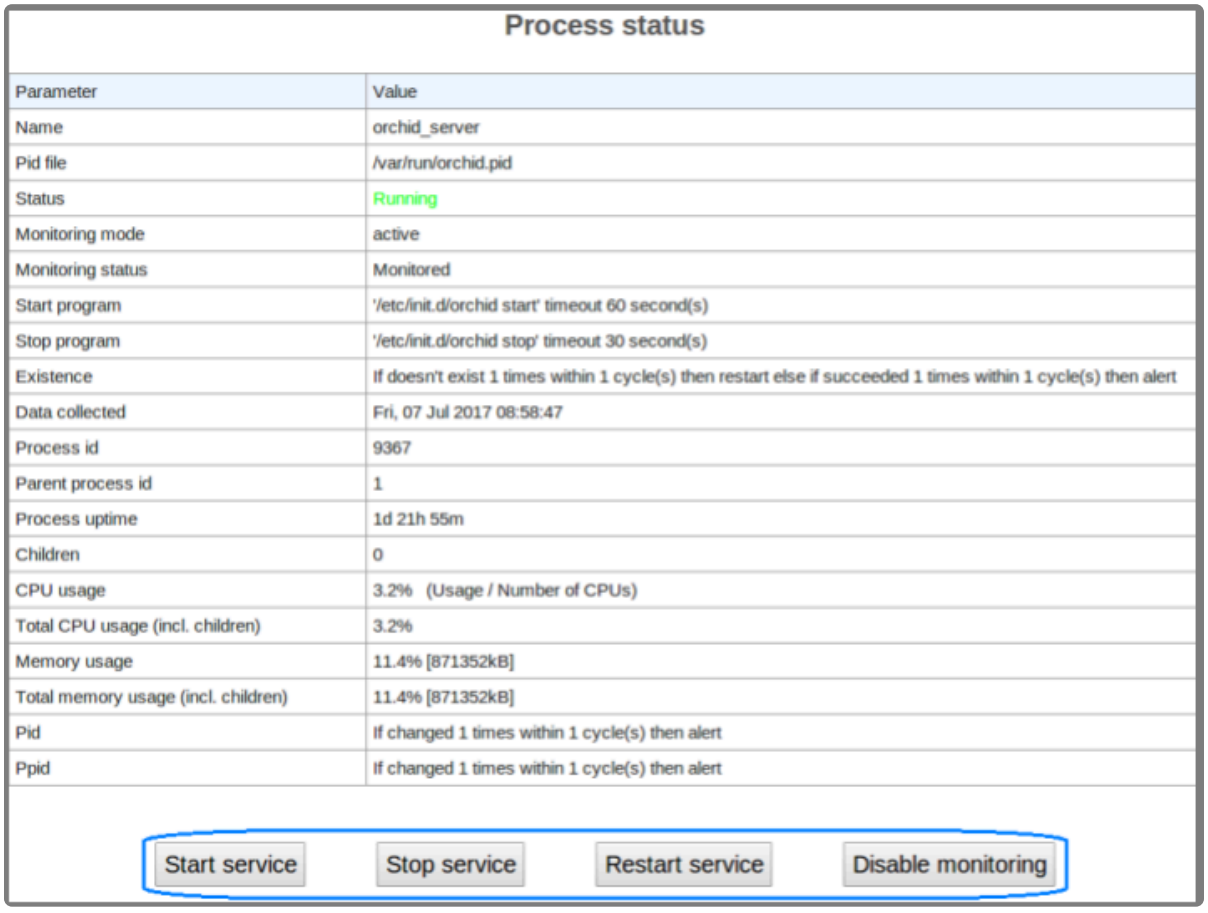


A list of the services setup with Monit will appear, which will include *orchid_server* and *orchid_onvif_autodiscovery_service*. The status of each service is listed in the *Status* column.

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3. Click the name of the service you need to stop, start, or restart. A detailed information screen for the monitored service you selected will appear.



4. Click the ***Stop Service*** button to stop the selected service. This action will keep the service off until the ***Start Service*** button is clicked.
5. Click the ***Start Service*** button at the bottom of the screen to start the selected service.
6. Click the ***Restart Service*** button to restart the service. The status of the service will update from *Running* to *Running-restart pending*. Once the service has restarted successfully, the status will return to *Running*.

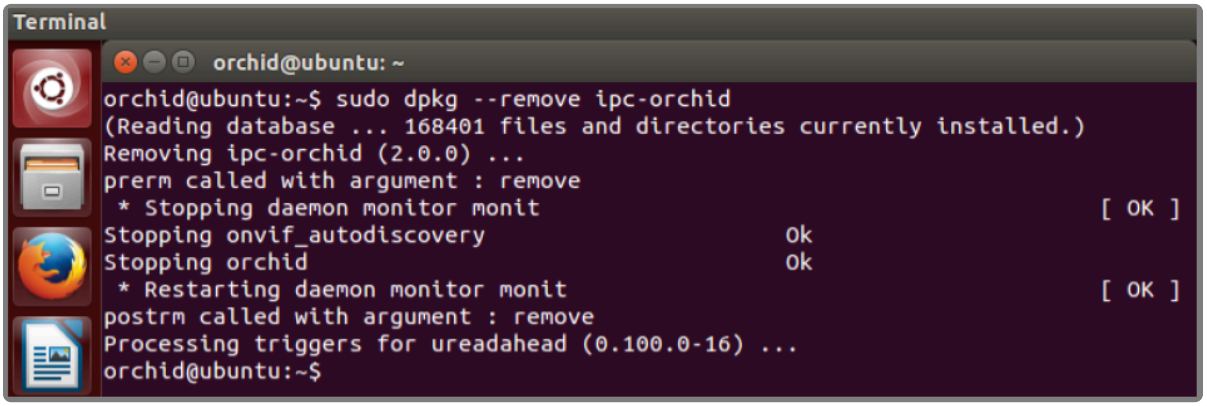
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How to Uninstall Orchid Core VMS in Ubuntu 14.04

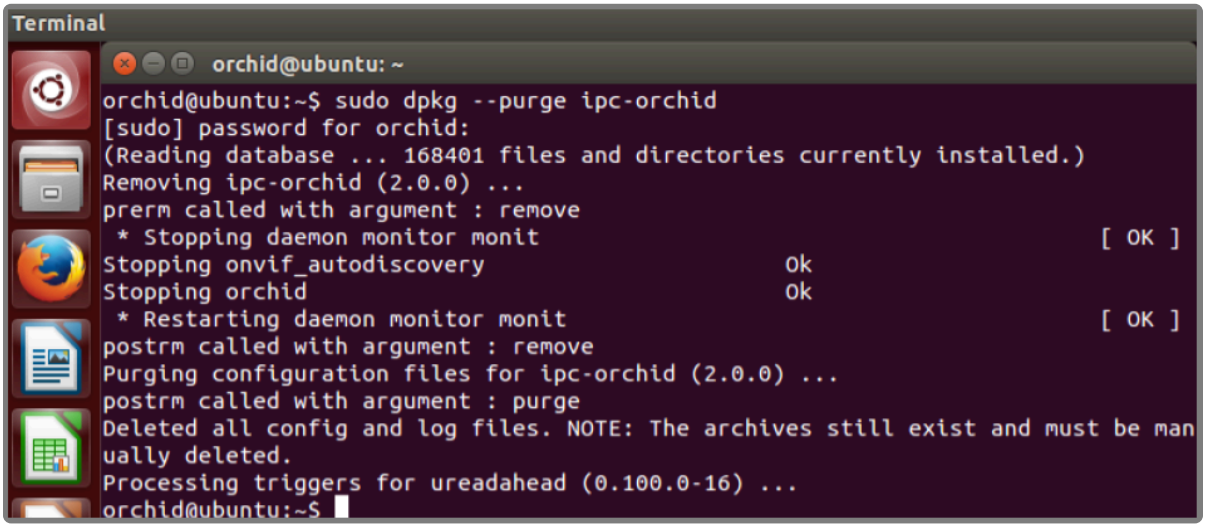
There are a couple of options for removing the Orchid Core VMS software. The *Remove* command will uninstall all files installed and created by Orchid Core VMS except the configuration files and the */orchives* directory. The *Purge* command will uninstall all files installed and created by Orchid Core VMS except the */orchives* directory.

1. Open the *Terminal* program (***CTRL+ALT+T***).
2. To uninstall Orchid Core VMS, do either of the following:

- To uninstall Orchid Core VMS (while keeping the configuration files and the archives), type the following command, then press ***Enter***, and enter the password when prompted to do so: `sudo dpkg --remove ipc-orchid`



- To uninstall Orchid Core VMS (keeping only the archives), type the following command, then press ***Enter***, and enter the password when prompted to do so: `sudo dpkg --purge ipc-orchid`



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Working in Ubuntu 16.04 to 20.04

Topics in this section will describe how to install and maintain Orchid Core VMS on the following platforms:

- Ubuntu 16.04 LTS
- Ubuntu 18.04 LTS
- Ubuntu 20.04 LTS
- Debian for ARMv7 (armhf) processors
- Debian for 64-bit ARM (aarch64) processors

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Installing Orchid Core VMS on Ubuntu 16.04 to 20.04 (LTS versions)

IPConfigure distributes Orchid Core VMS for Ubuntu through debian package files (.deb files). The recommended method for installing the package file is through GDebi Package installer. GDebi can be used either through command line, or through the Graphical User Interface (GUI).

The installation instructions provided for Ubuntu 16.04 LTS also apply to Ubuntu 18.04, Ubuntu 20.04, Debian for ARMv7 (armhf) processors, and Debian for 64-bit ARM (aarch64) processors. Please note, however, that there are different installation package files for Ubuntu, Debian (armhf), and Debian (aarch64).

- Orchid Core VMS can only be installed on a 64-bit Ubuntu operating system. If you are currently running a 32-bit Ubuntu operating system, the installer will return an “Architecture not supported” error and Orchid Core VMS installation will fail.

- Beginning with version 2.12, Orchid Core VMS now supports both 32-bit and 64-bit ARM devices.

- Orchid Core VMS requires Linux kernel 3.17.0 or greater.

- You must sign in to the computer as a user with “root” or “sudo” privileges.

- The Ubuntu 14.04 and 16.04 installers are different.

1. Download the Orchid .deb file. You can find the latest version of Orchid Core VMS for Ubuntu 16.04, Ubuntu 18.04, Ubuntu 20.04, Debian (armhf), and Debian (aarch64) on IPConfigure’s website at http://www.ipconfigure.com/products/orchid#download.
2. Once you’ve downloaded the Orchid Core VMS installation package, decide whether you want to perform the installation via the Command Line or the GUI.

Installing through the Command Line (Ubuntu Server)

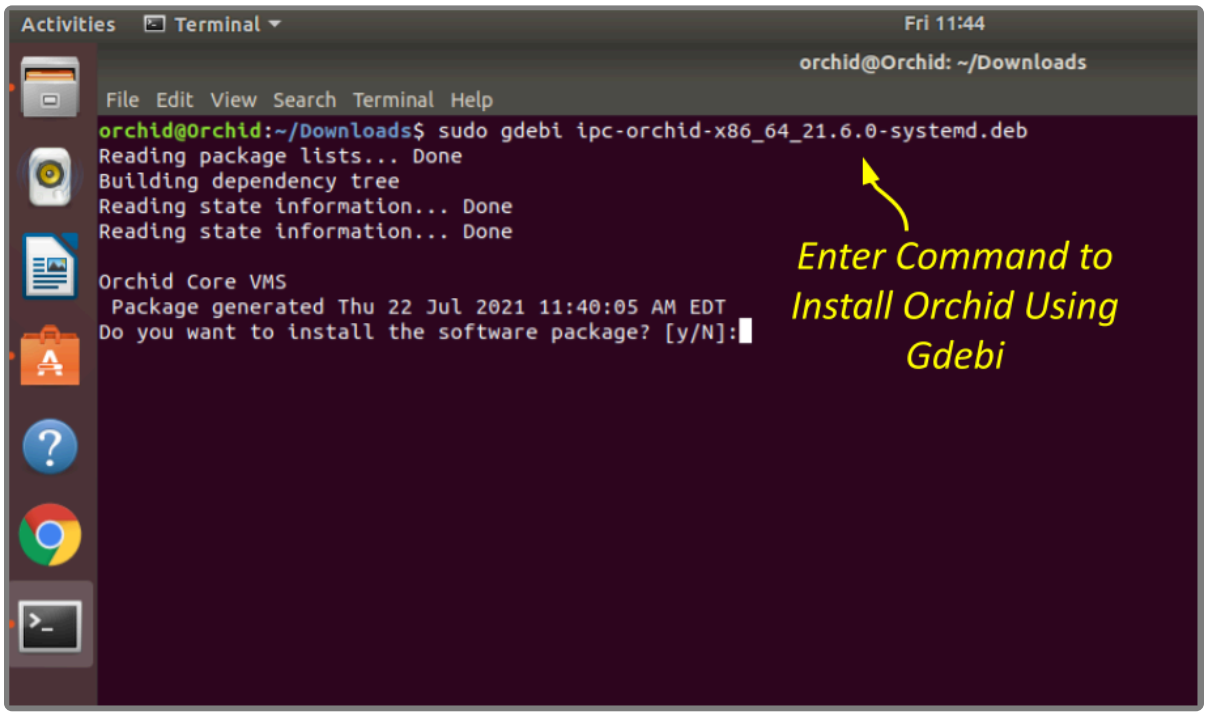
1. Open the *Terminal* program (***CTRL+ALT+T***) and navigate to the directory where you downloaded the Orchid Core VMS installation package. (The package is probably stored in the *Downloads* folder.)
2. Unless GDebi has been installed manually, it will need to be installed by typing the following

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command: `sudo apt-get install gdebi-core`. Then press ***Enter***.

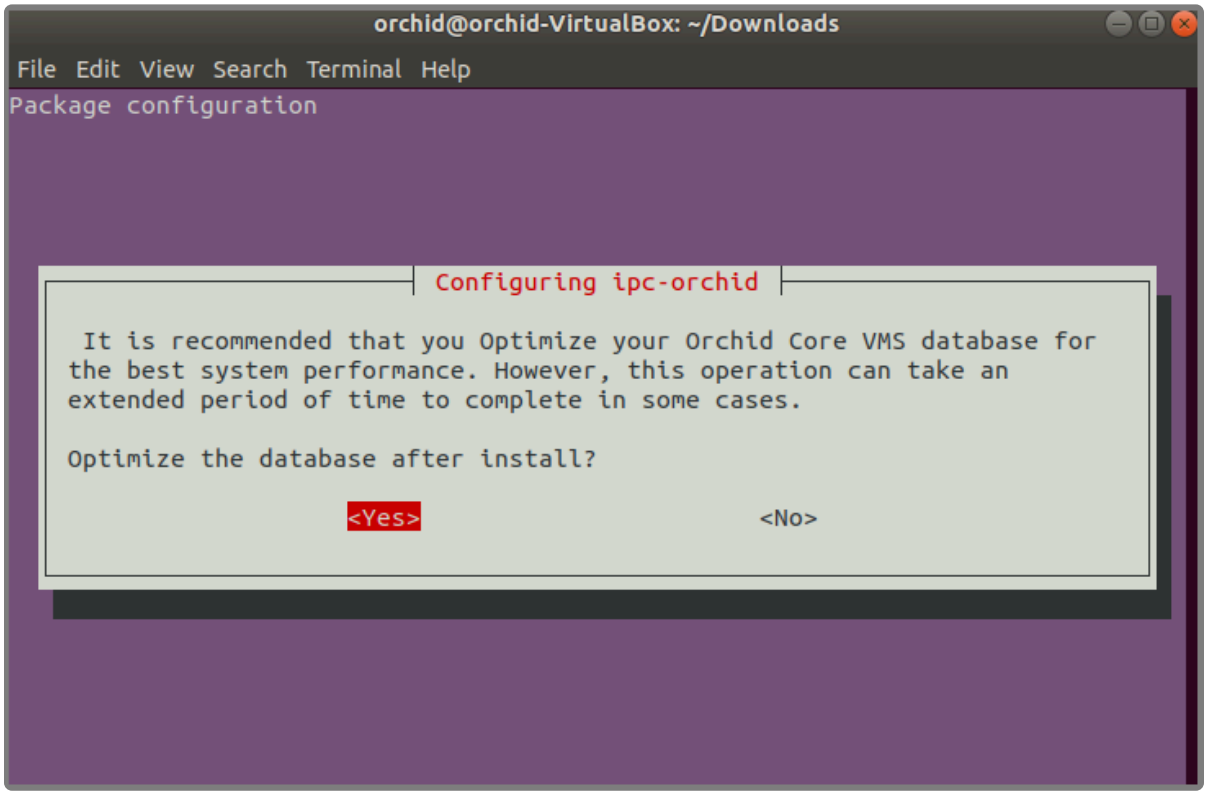
It may take a few minutes for GDebi to install, depending on the speed of your system.

3. The GDebi command can now be used to install the Orchid Core VMS debian package. The syntax is `sudo gdebi (_package-name_).deb`. For example, if the name of the package is *ipc-orchid-x86_64_21.6.0-systemd.deb*, type the following command: `sudo gdebi ipc-orchid-x86_64_21.6.0-systemd.deb`. Then press ***Enter***.

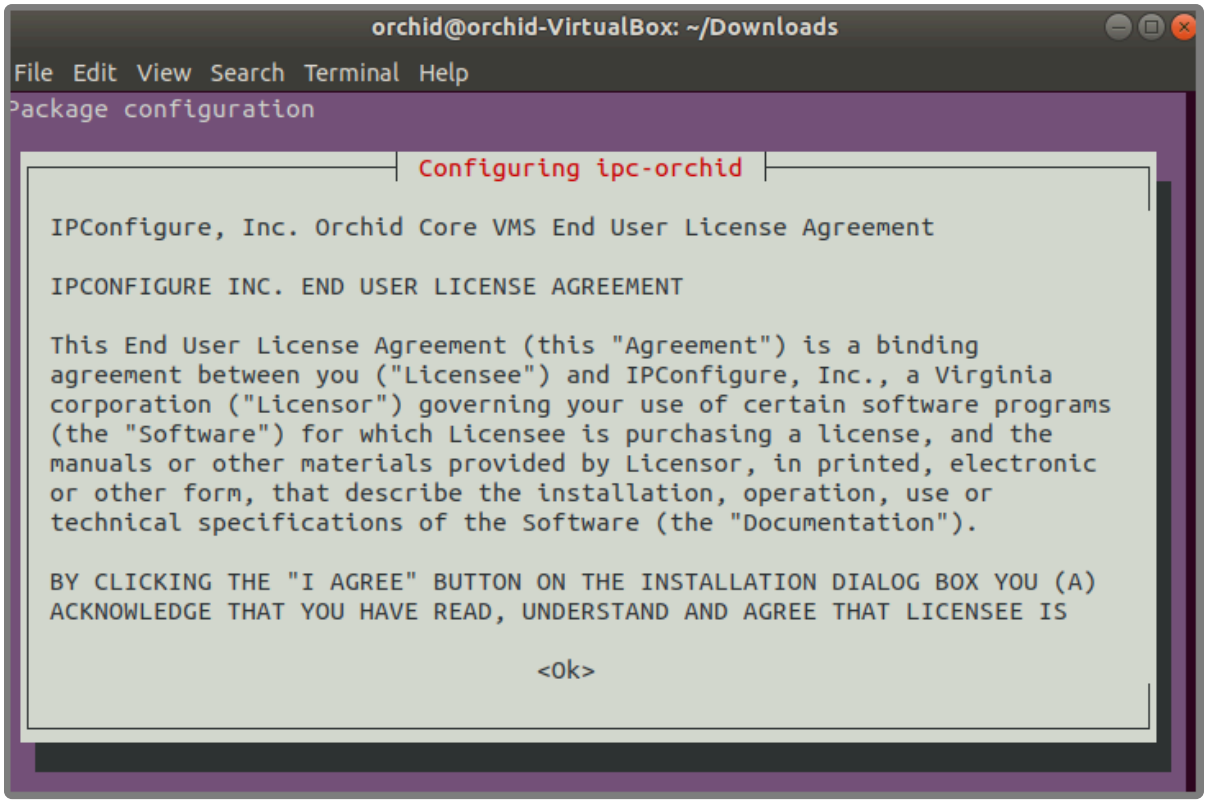


4. The system may ask for your Ubuntu user password. Type in the password and press ***Enter***.
5. The system will then ask if you want to install the software. Enter ***Y*** for yes, and press ***Enter***.
6. If this is a software upgrade, you will be given the opportunity to optimize the database. Optimization is recommended (since it will improve the overall performance of the system, especially notable in larger systems with video archives greater than 40 TB). Be aware, however, that the optimization process may take a while to complete (and Orchid Core VMS will be unavailable during this time).
    a. To approve the optimization, use the ***Tab*** key to highlight *Yes*, then press ***Enter***. The installation should proceed, followed by the optimization. (Skip ahead to step 13.)

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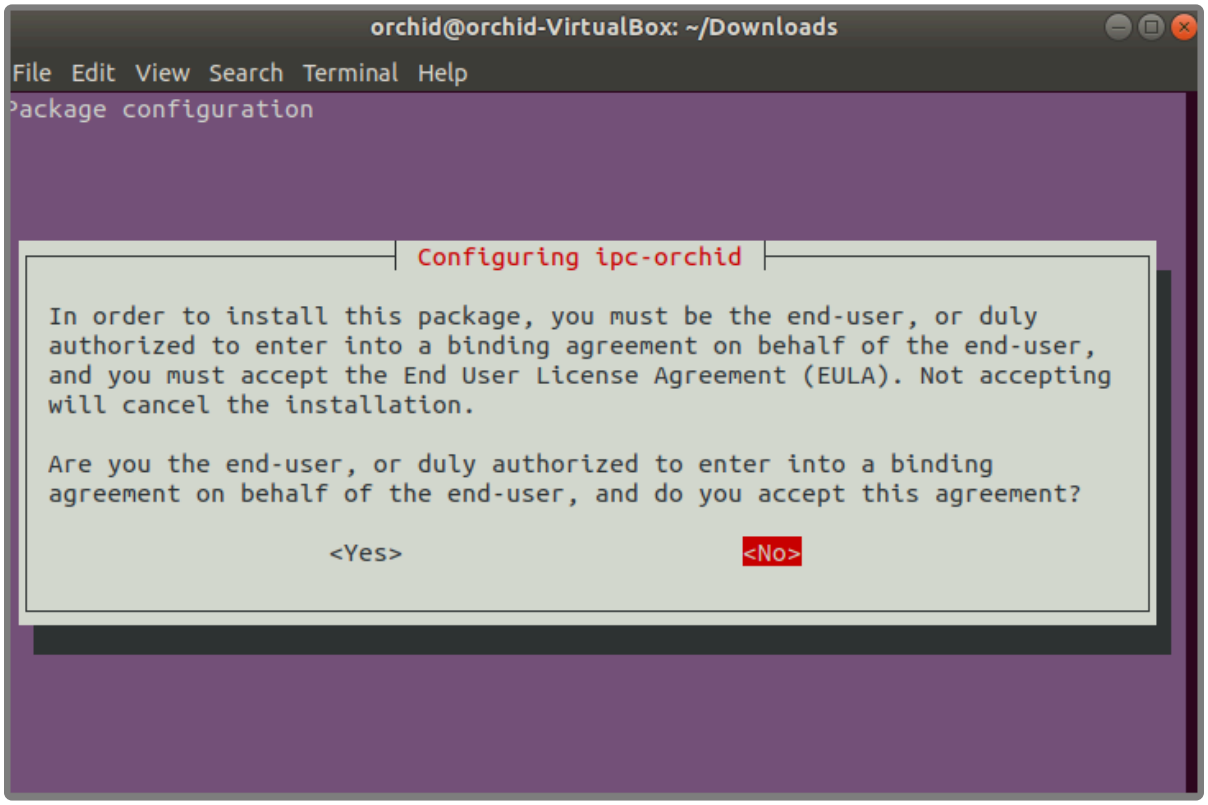


7. If this is a new installation, you will be asked to accept the End User License Agreement. After reading the agreement, use the ***Tab*** key to highlight *Ok*, then press ***Enter***.

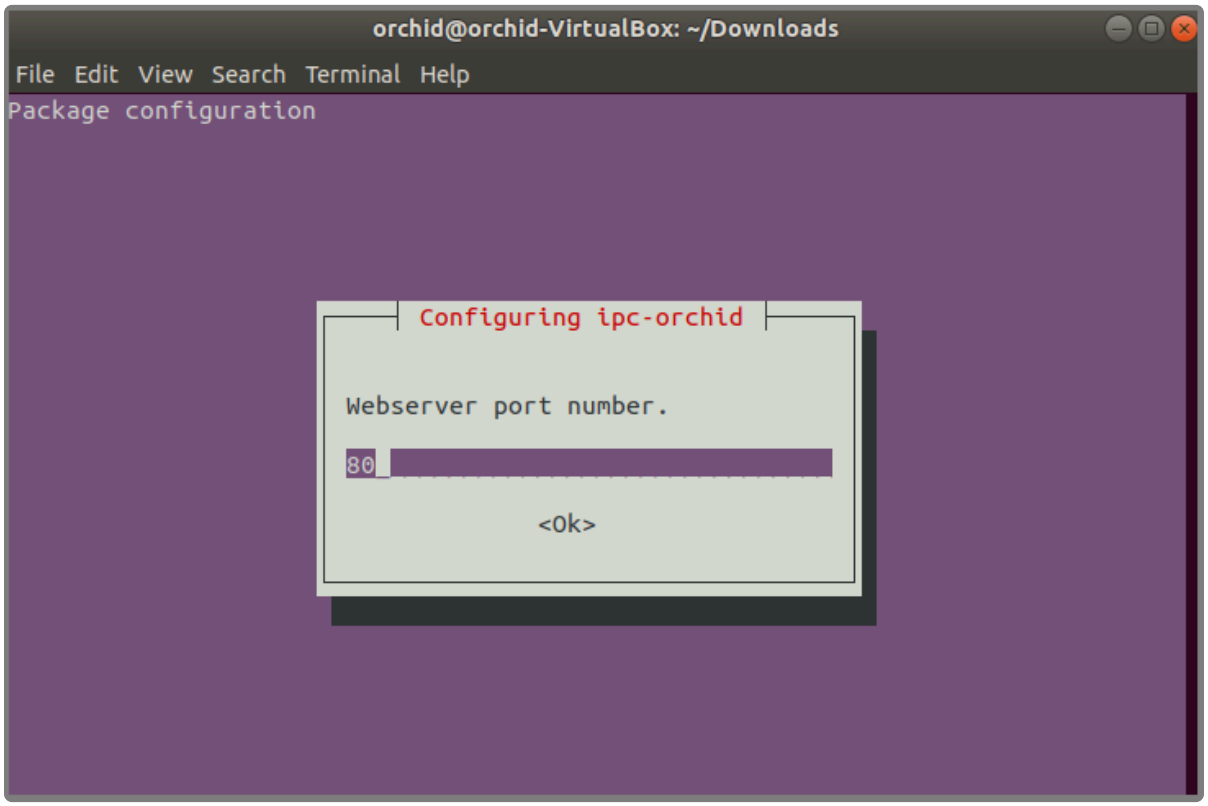


8. Next, the installer will ask you to confirm that you are the end-user and authorized to accept the License Agreement. Use the ***Tab*** key to highlight *Yes*, then press ***Enter***.

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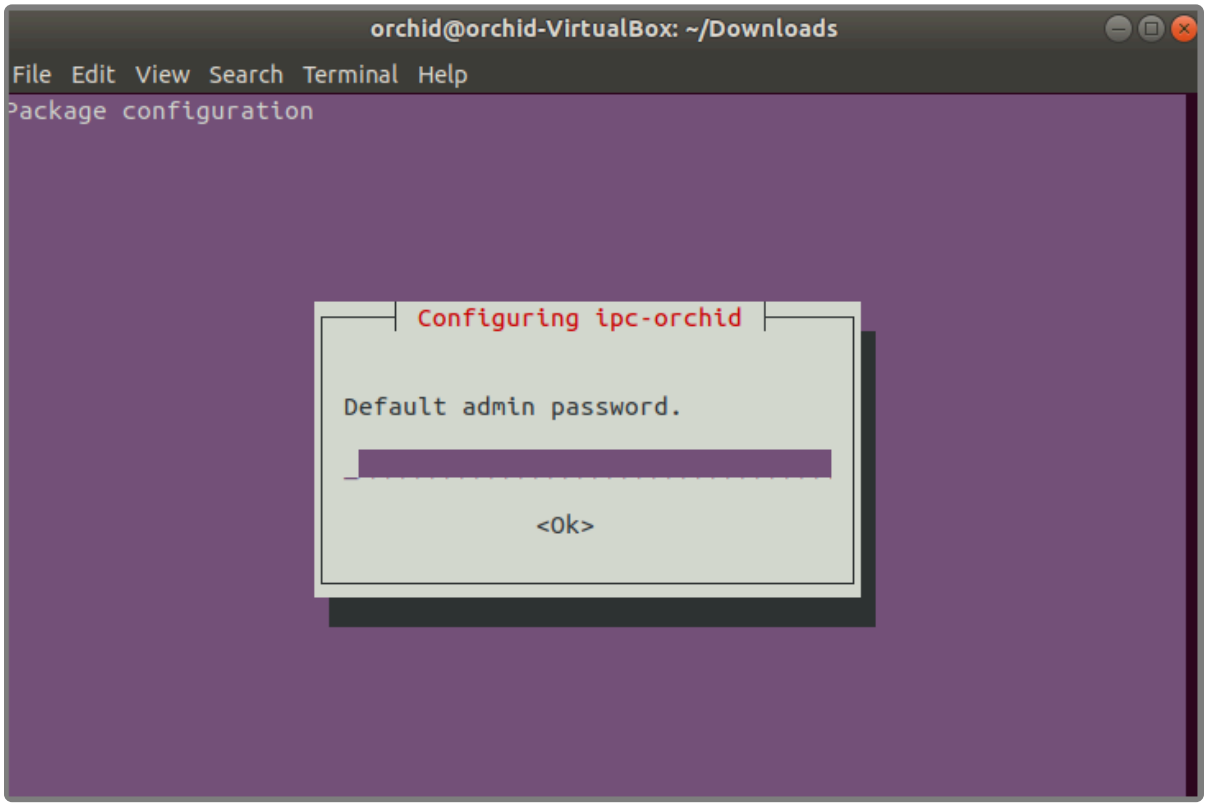


9. Next, the installer will ask you to enter several software settings. First, set the Web Server Port number. By default, the web server port is set to port 80 (which is the recommended port for most installations). If Orchid Core VMS needs to use a different port, enter a new setting. Use the ***Tab*** key to highlight *Ok*, then press ***Enter***.



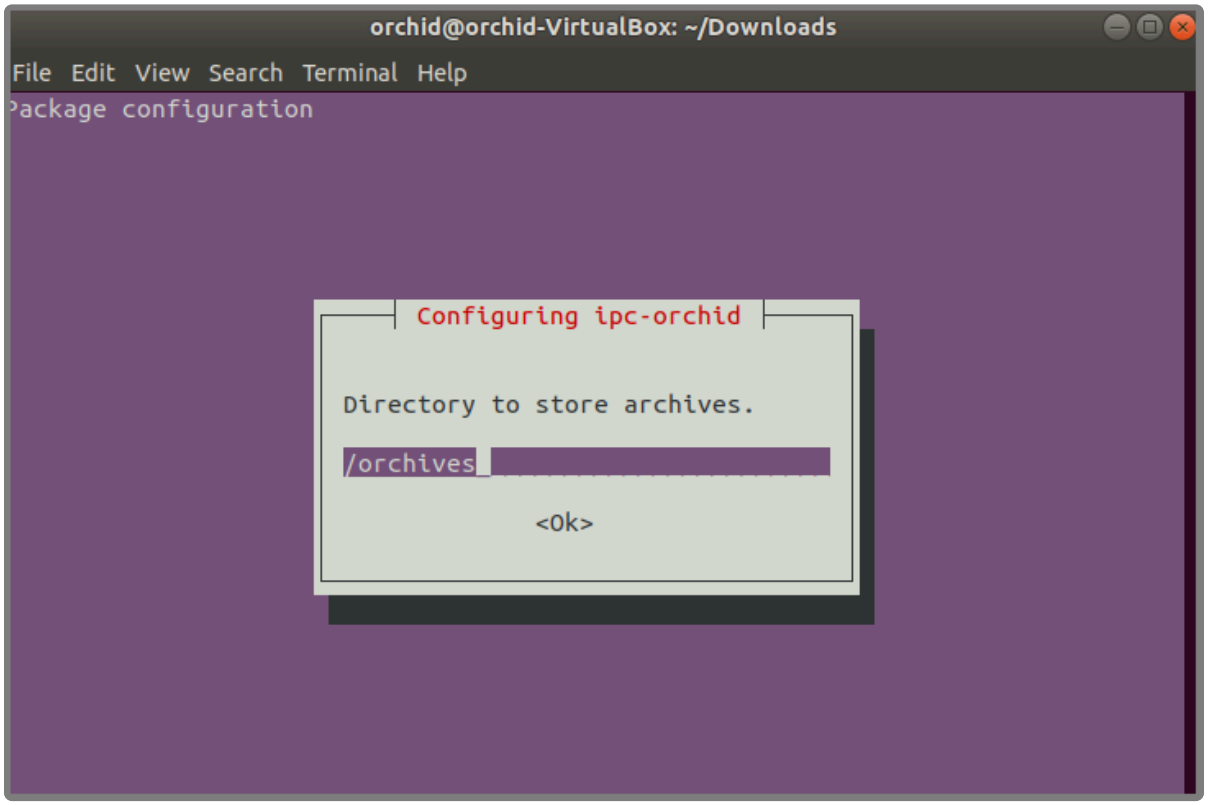
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10. Now enter the password you would like to set for the default admin account. Use the ***Tab*** key to highlight *Ok*, then press ***Enter***.

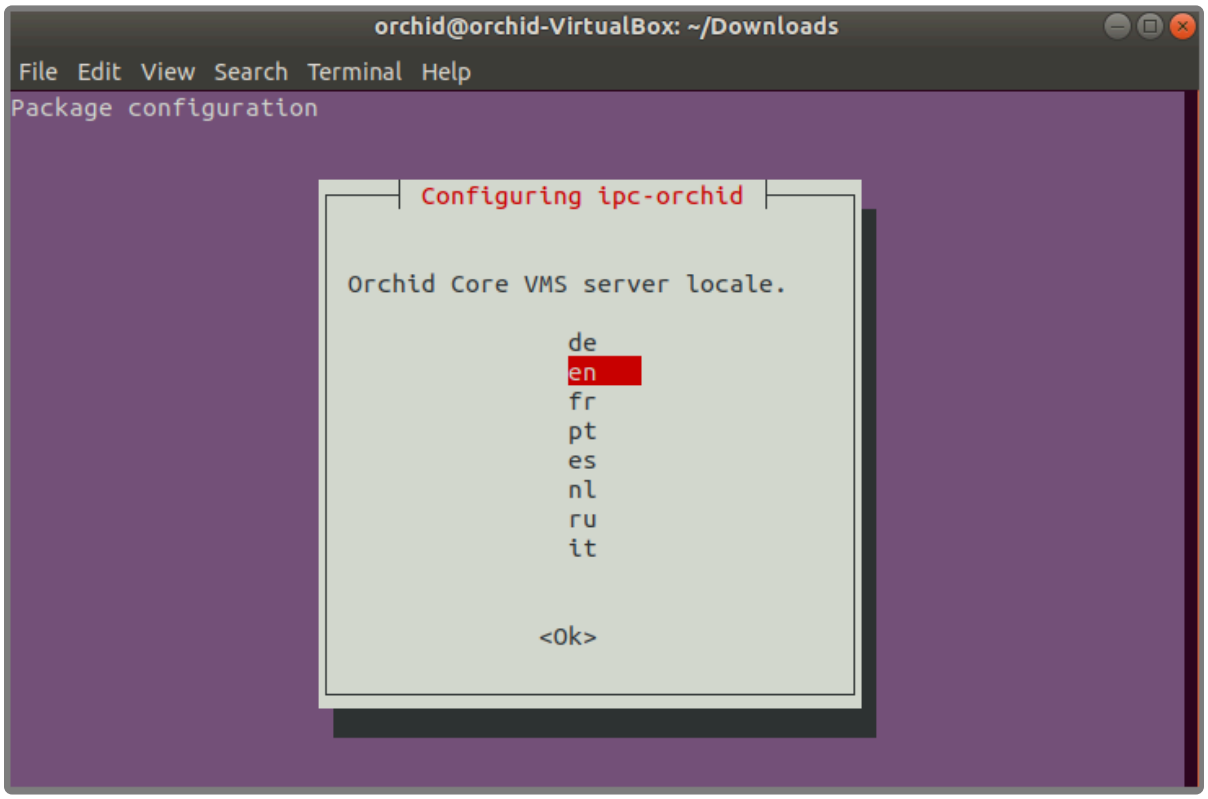


11. Now set the directory for video archives. The default folder is */orchives*. Enter a new archives location, if needed. Use the ***Tab*** key to highlight *Ok*, then press ***Enter***.

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12. Use the *Orchid Core VMS server locale* list to select the language. Available selections include the following: *de* (German), *en* (English), *es* (Spanish), *fr* (French), *it* (Italian), *nl* (Dutch), *pt* (Portuguese), and *ru* (Russian). Use the up and down arrow keys to highlight your selection. Then use the ***Tab*** key to highlight *Ok*, then press ***Enter***.



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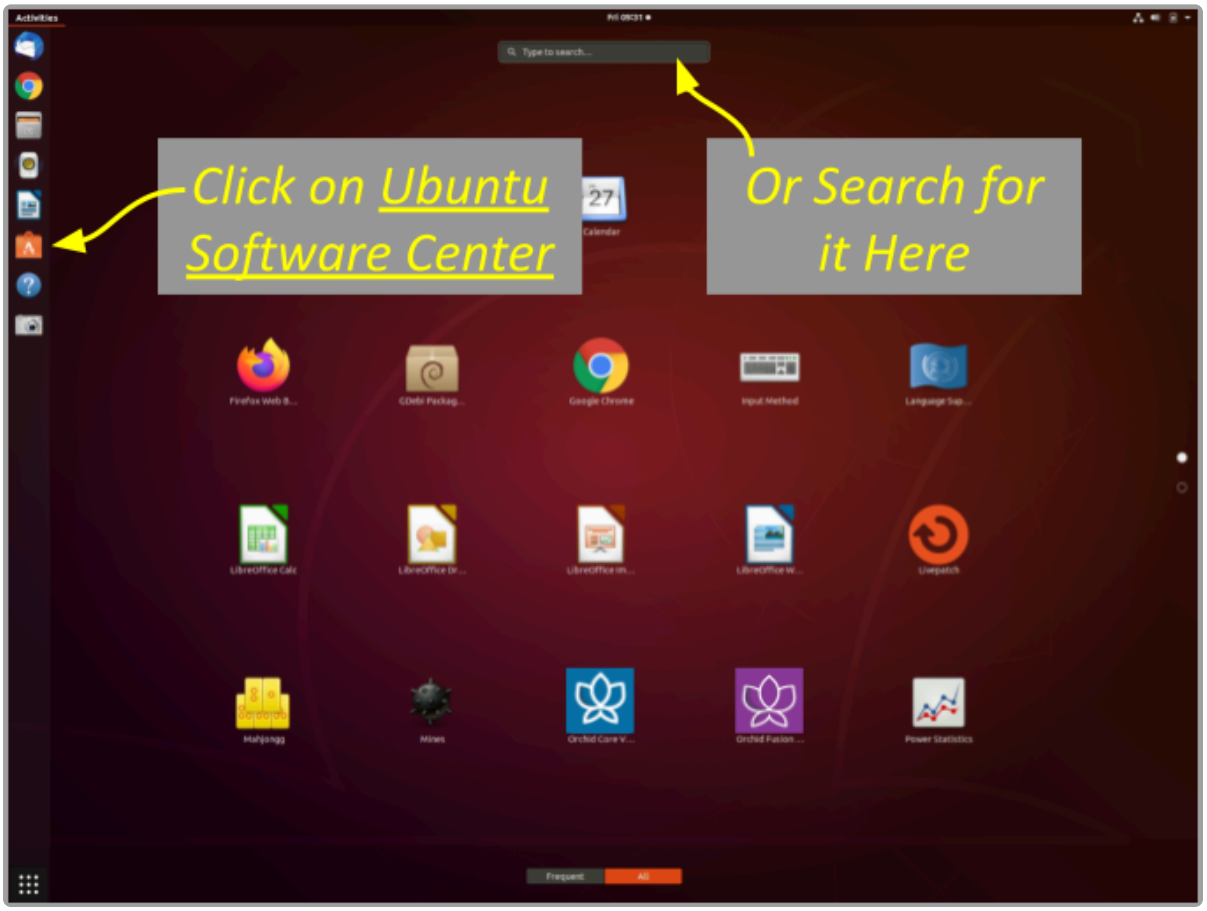
13. The installation will complete automatically without any additional prompts. This process may take a few minutes (and perhaps longer if the optimization process was selected). The Orchid Core VMS services start automatically once the package installation is done, after which you can access the Orchid Core VMS user interface in your web browser. (Please refer to the *Sign in* topic in the **Orchid Core VMS Administrator Guide** for more details.)

14. You can automatically launch a browser to Orchid Core VMS using the link installed on your server:
    a. Click on the ***Applications*** icon in the lower-left corner of the screen.
    b. Click the ***Orchid Core VMS*** icon listed under Applications. (If you don't see it, use the *Search* box and type *Orchid*.)

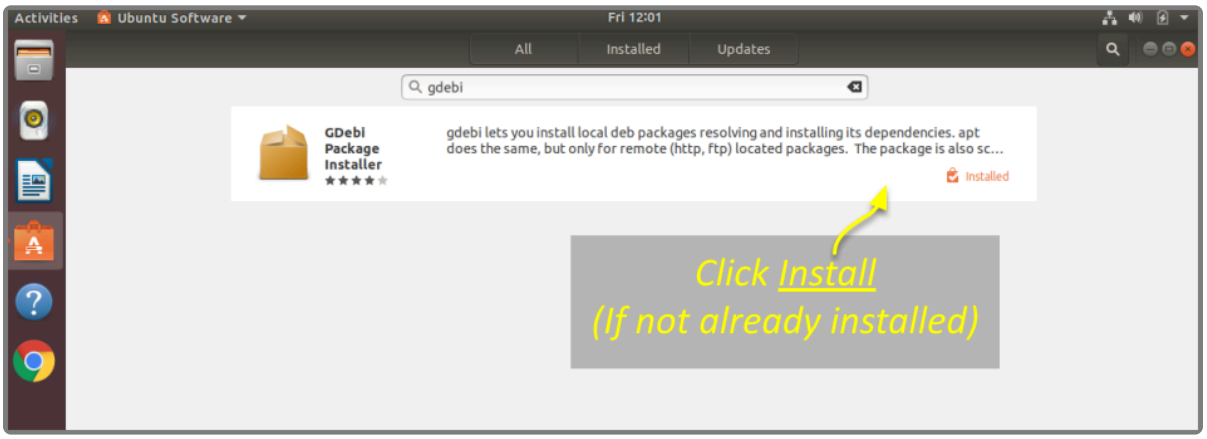


Installing through the GUI (Ubuntu Desktop)

1. Click on the ***Ubuntu Software Center*** icon, or use the *Applications* screen to search for it, then open it.



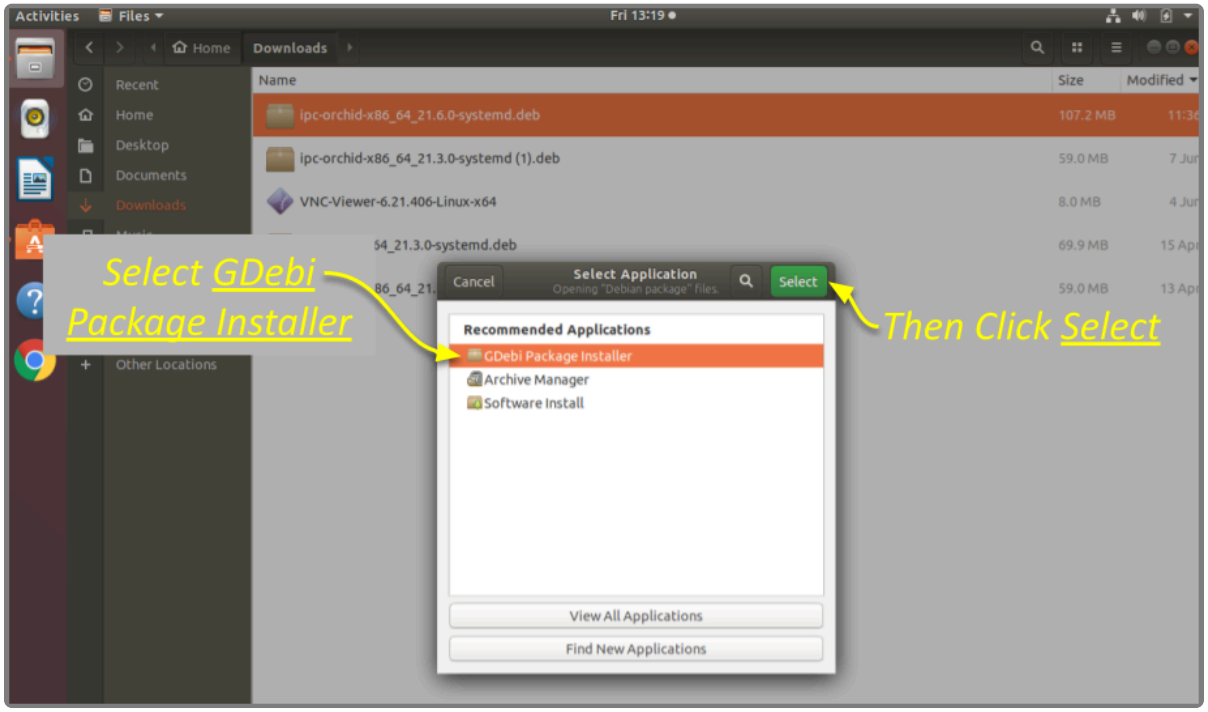
2. In the search bar in the top right-hand corner of the Software Center, type **gdebi**.
3. Select *GDebi Package Installer (gdebi)* (which should be the first result), and then click the ***Install*** button (if it is not already installed).



4. After GDebi has finished installing, click the ***Files*** icon to open the *Files Explorer*, then navigate to the folder storing your Orchid Core VMS package (.deb file). (The package is probably stored in the *Downloads* folder.)
5. Right-click on the Orchid Core VMS package, and click *Open With Other Application*. Then click on the ***GDebi Package Installer*** option and click the ***Select*** button.

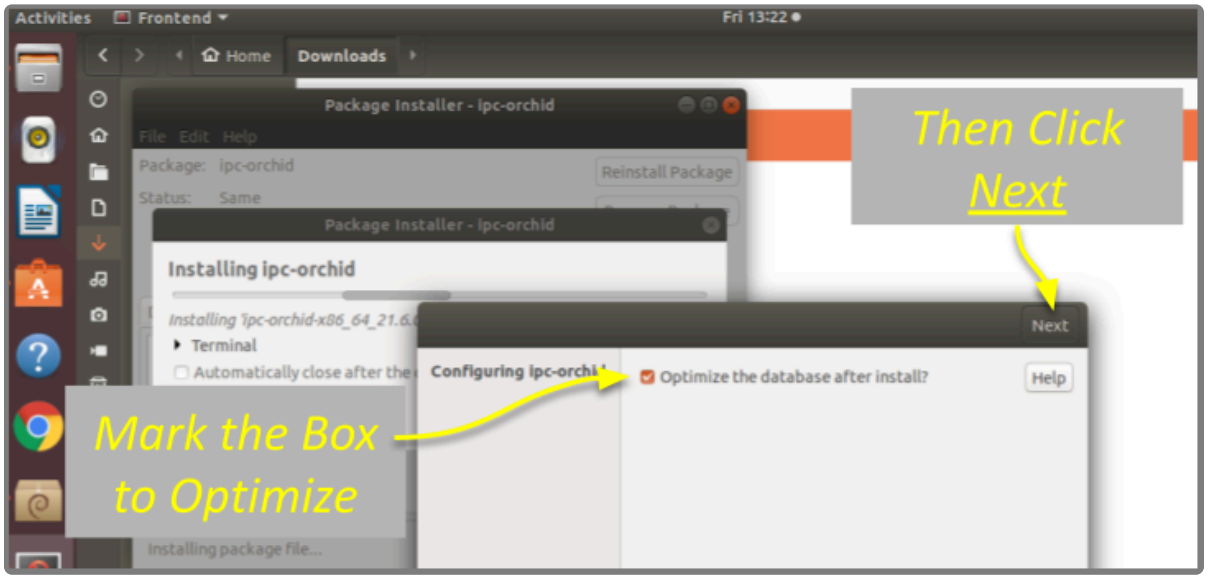
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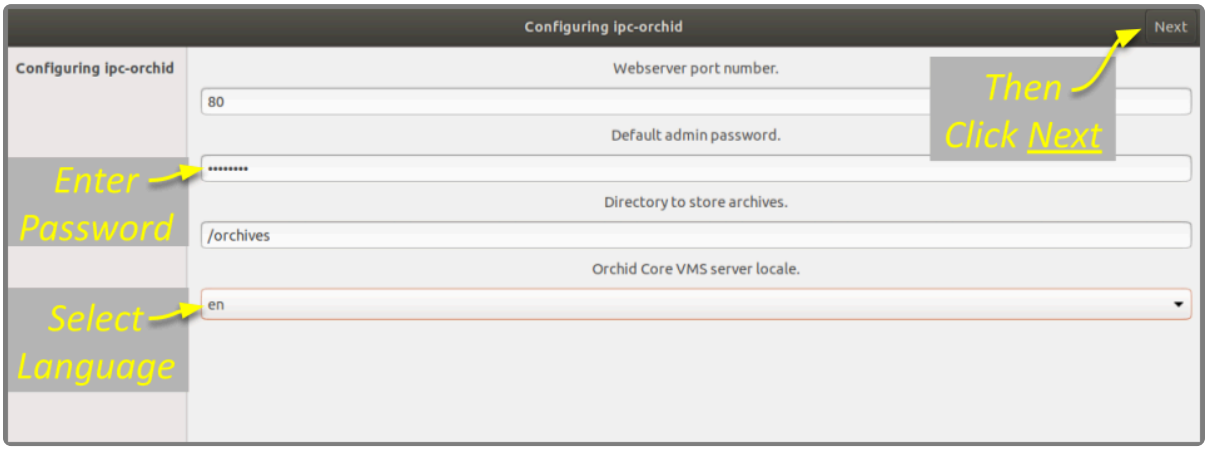


6. Once the GDebi package installer loads, click the ***Install Package*** button in the top right-hand corner of the window.
7. You may be asked for your system password. Type it in, then click ***OK***.
8. If this is a software upgrade, the next screen will give you the opportunity to optimize the database. Optimization is recommended (since it will improve the overall performance of the system, especially notable in larger systems with video archives greater than 40 TB). Be aware, however, that the optimization process may take a while to complete (and Orchid Core VMS will be unavailable during this time).
    a. To proceed with the optimization, mark the checkbox, then click ***Next***. The installation will complete automatically without any additional prompts. This may take a few minutes. (Skip ahead to step 11.)

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9. If this is a new installation, you will be asked to accept the End User License Agreement. After you read the agreement, mark the *Are you the end-user* checkbox and click the ***Next*** button.
10. Next, the installer will ask you to set the Web Server Port, default Admin Password, and the Archive Directory for storage. You will also have an opportunity to select the language for the user interface.
    a. By default, the web server port is set to port 80 (which is the recommended port for most installations). Update the port number only if Orchid Core VMS needs to use a different port.
    b. Enter the password you would like to set for the default admin account.
    c. The default folder for video archives on Linux is */orchives*. Enter a new archives location, if needed.
    d. Use the *Orchid Core VMS server locale* drop-down list to select the language. Available selections include the following: *de* (German), *en* (English), *es* (Spanish), *fr* (French), *it* (Italian), *nl* (Dutch), *pt* (Portuguese), and *ru* (Russian).
    e. Click ***Next*** to continue. The installation will complete automatically without any additional prompts. This may take a few minutes.



11. Once the package installer displays an “Installation Finished” message at the top of the screen, click the ***Close*** button to close the installer and complete the installation. The Orchid Core VMS services will start automatically once the package installation is done, after which you can access the Orchid Core VMS user interface in your web browser. (Please refer to the *Sign in* topic in the **Orchid Core**

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[VMS Administrator Guide] for more details.)

12. You can automatically launch a browser to Orchid Core VMS using the link installed on your server:
    a. Click on the ***Applications*** icon in the lower-left corner of the screen.
    b. Click the ***Orchid Core VMS*** icon listed under Applications. (If you don't see it, use the *Search* box and type *Orchid*.)



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How to Edit the Configuration Files in Ubuntu 16.04 to 20.04 (LTS versions)

Beginning with version 2.10, some of the configuration settings can be edited from within the Orchid Core VMS software. (This is done using the *Advanced Settings* feature which is explained in the **Orchid Core VMS Administrator Guide**.) There are some settings, however, that will still need to be changed by editing the configuration file directly. These settings need to be protected from unauthorized changes because they are critical for program stability and reliability. These critical settings include the following:

• archives.dir	• streampipeline.decode.keyFramesOnly
• database.type	• streampipeline.filesplit.motionMode
• logger.dir	• streampipeline.filesplit.recordState
• orchid.admin.password	• streampipeline.filesplit.timePeriod
• orchid.lock_properties	• streampipeline.mode
• orchid.uuid	• streampipeline.motionReducer
• rtsp.protocol	• tls.certificate
• sqlite.filepath	• tls.key
• streampipeline.bgseg.boxArea	• webrtc.public_ip
• streampipeline.bgseg.dialate	• webserver.archives.rootpath
• streampipeline.bgseg.postErode	• webserver.html.rootpath
• streampipeline.bgseg.preErode	• webserver.protocol
• streampipeline.bgseg.threshold	

If it becomes necessary to change one of these critical settings, you can edit the Orchid Core VMS configuration files using standard text editors in Linux. This section will describe two methods for editing the configuration files: using the Command Line and using the Graphical User Interface.

> ✻ In order to edit text files as the root user, you will need administrator access to the computer on which Orchid Core VMS is installed.

The default locations for Orchid Core VMS's configuration files in Linux are:

- **Orchid Server Properties:** */etc/opt/orchid_server.properties*
  - Stores all of the Orchid Core VMS settings and can be used to update things like the port number, manually update the admin password, etc.

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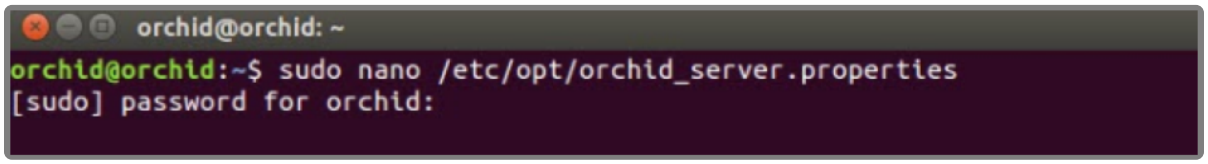
    - Settings entered in this file will override the default settings in the *Orchid Server Default Properties* file (described below).
- **Orchid Server Default Properties:** */etc/opt/orchid_server.properties.default*
    - Stores all of the Orchid Core VMS default settings and may serve as a good reference. [Any changes made to this file will be ignored.]
- **Orchid ONVIF Auto-Discovery:** */etc/opt/orchid_onvif_autodiscovery.properties*
    - Used to edit the default settings for the Orchid ONVIF auto-discovery service used by Orchid Core VMS.

Refer to the Installation Support Topics section for a complete list of available properties.

Editing Configuration Files Through the Command Line

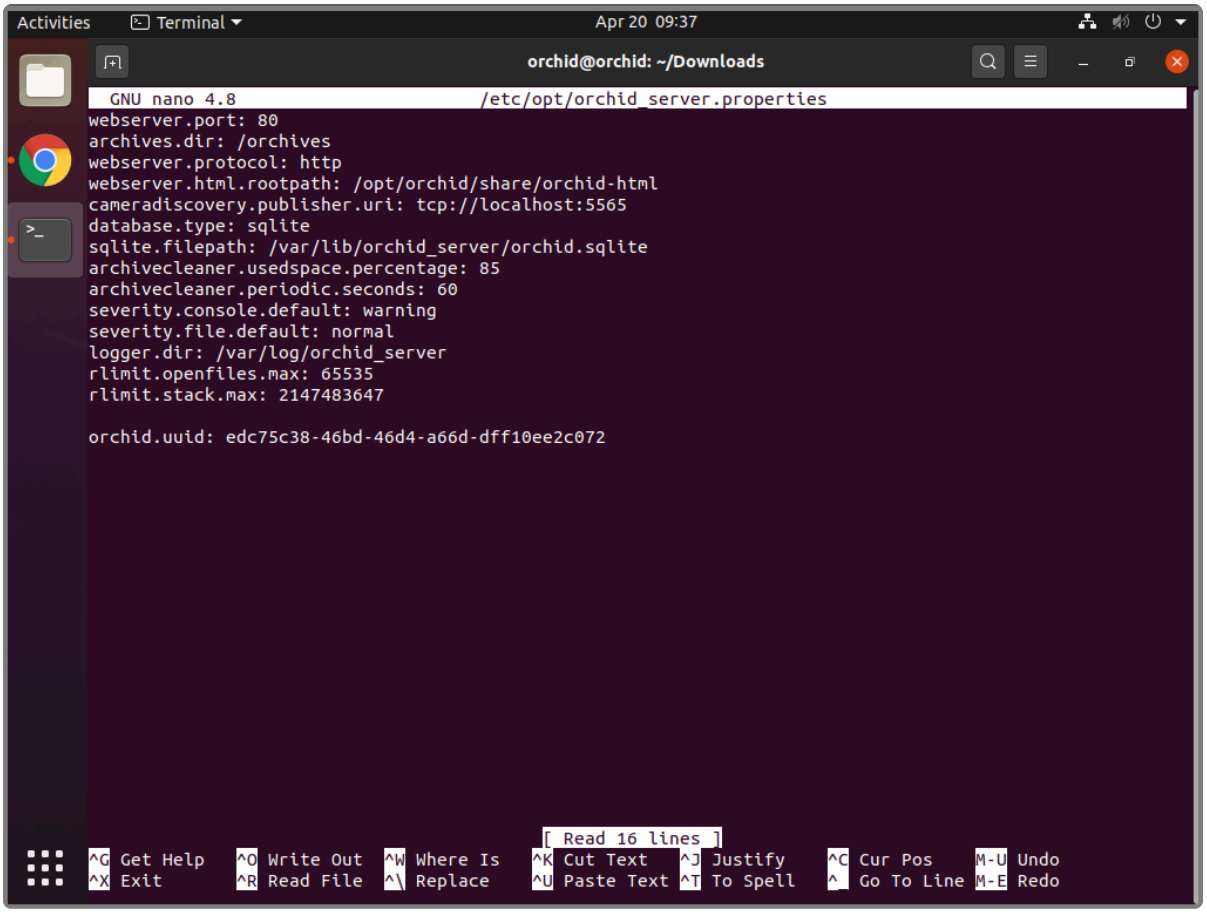
1. Open the *Terminal* program (***CTRL+ALT+T***) and open Orchid Core VMS's configuration file in the nano text editor by typing the following command: `sudo nano /etc/opt/orchid_server.properties`. Then press ***Enter***.

> If a different file needs to be edited, such as the Orchid ONVIF auto-discovery configuration file, change the filename in the command above, as needed.



2. After running that command, you will be prompted to enter the *[sudo]* password for your user. Type the password used to sign in to your computer, then press ***Enter***. The configuration file will open.

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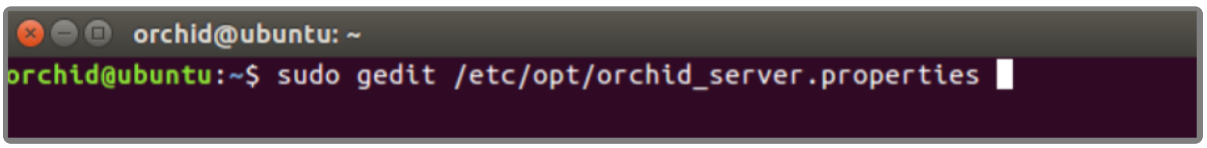


3. Use the arrow keys to move the cursor around the screen and update any default settings. You may also add new settings to the end of the file.
4. When you are ready to save the file, click ***CTRL+X*** on the keyboard, then type ***Y*** to save the file and close the text editor. If you do not want to save the file, type ***N*** (instead of *Y*) after typing ***CTRL+X***.
5. Restart the Orchid Server service in Linux to implement the new settings.

Editing Configuration Files Through the GUI

1. Open the *Terminal* program (***CTRL+ALT+T***) and open Orchid Core VMS's configuration file by typing the following command: `sudo gedit /etc/opt/orchid_server.properties`. Then press ***Enter***.

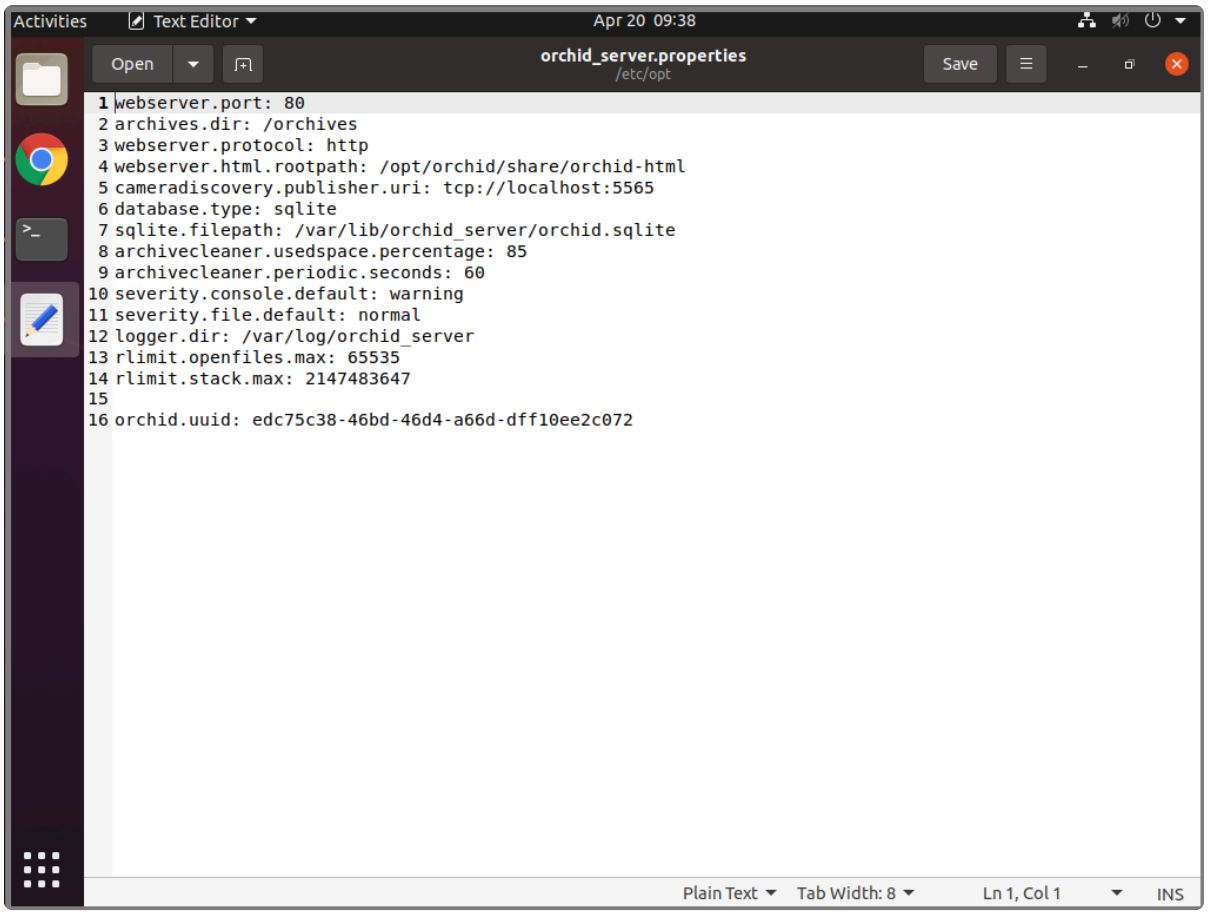
> If a different file needs to be edited, such as the Orchid ONVIF auto-discovery configuration file, change the filename in the command above, as needed.



2. After running that command, you will be prompted to enter your password to perform administrative tasks. Type the same password you use to sign in to your computer, then press ***Enter***.

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3. A text editor will open in a new window allowing you to edit the configuration file. Update default settings as needed. You may also add new settings to the end of the file.



4. When you are ready to save the file, click ***File/Save*** to save the configuration file.
5. You must restart the Orchid Server service in Linux to implement the new settings.

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How to Manage the Orchid Core VMS Services in Ubuntu 16.04 to 20.04 (LTS versions)

Orchid Core VMS runs on Linux as a service. If you need to check the status, start, or stop one of these services, you can do this using the appropriate command at the command line.

There are two main services used by Orchid Core VMS on Linux:

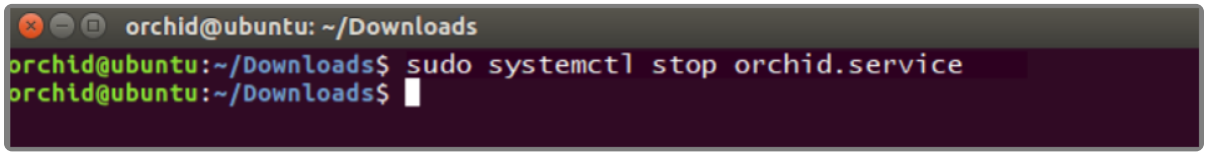
- **Orchid Server Service:** The main Orchid Core VMS service that records and archives video.
- **Orchid ONVIF Auto-Discovery Service:** Used by Orchid Core VMS to automatically find cameras that support ONVIF.

Tips

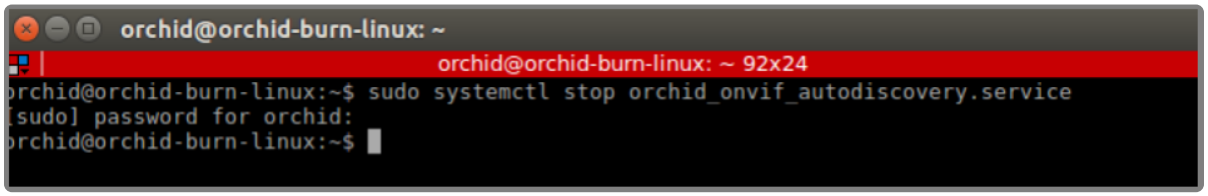
- After you've configured your Orchid Core VMS properties and started the services, you should check the status of both services to verify Orchid Core VMS is running.
- You will need to restart the services whenever a change has been made to the Orchid Core VMS configuration file.

To manage the Orchid Server service from the command line:

1. Open the *Terminal* program (***CTRL+ALT+T***).
2. Type the following command: `sudo systemctl (_command_) orchid.service` (where the ***command*** is `start`, `stop`, `restart`, or `status`). Then press ***Enter***.



This set of commands will only manage the Orchid Server service. If you need to manage the Orchid ONVIF Auto-Discovery Service, replace `orchid` with `orchid_onvif_autodiscovery` in the command line as in the example below.



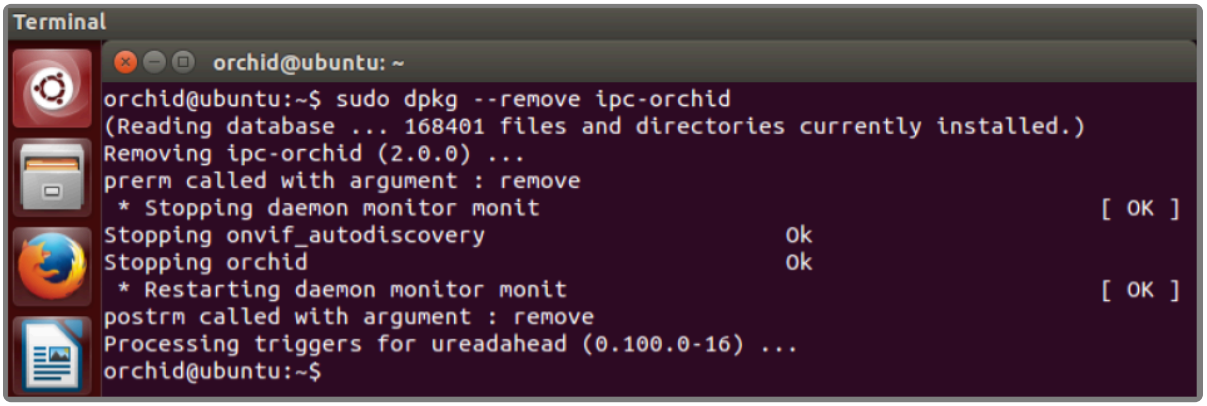
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How to Uninstall Orchid Core VMS in Ubuntu 16.04 to 20.04 (LTS versions)

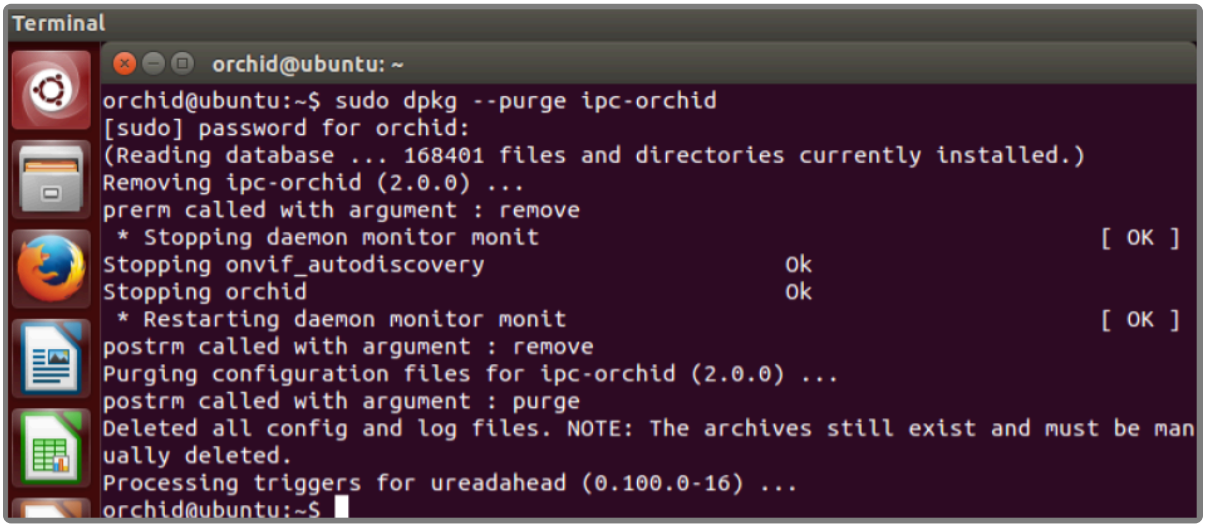
There are a couple of options for removing the Orchid Core VMS software. The *Remove* command will uninstall all files installed and created by Orchid Core VMS except the configuration files and the */orchives* directory. The *Purge* command will uninstall all files installed and created by Orchid Core VMS except the */orchives* directory.

1. Open the *Terminal* program (***CTRL+ALT+T***).
2. To uninstall Orchid Core VMS, do either of the following:

- To uninstall Orchid Core VMS (while keeping the configuration files and the archives), enter the following command (then enter the password when prompted to do so): `sudo dpkg --remove ipc-orchid`



- To uninstall Orchid Core VMS (keeping only the archives), enter the following command (then enter the password when prompted to do so): `sudo dpkg --purge ipc-orchid`



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Working in Red Hat

The following topics will describe how to install and maintain Orchid Core VMS on the Red Hat Enterprise Linux 7 and 8, and CentOS 7 and 8 operating systems.

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Installing Orchid Core VMS on Red Hat Enterprise Linux 7 and 8

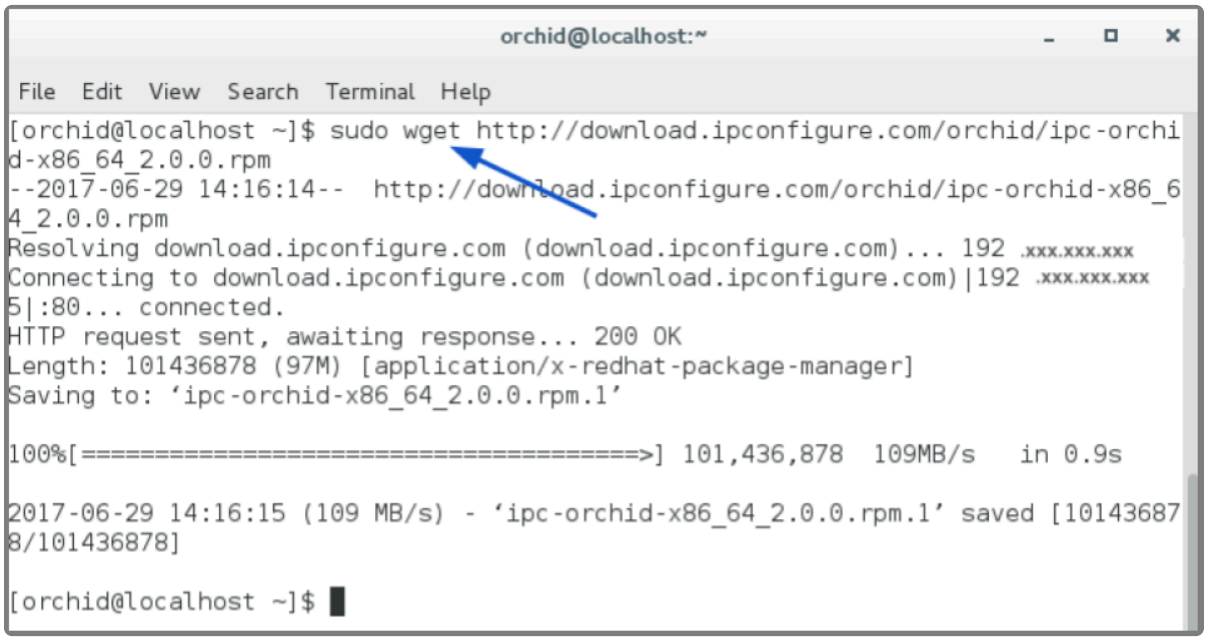
IPConfigure distributes Orchid Core VMS for Red Hat using an .rpm file. Use this file to install Orchid Core VMS on systems running Red Hat Enterprise Linux versions 7 and 8, and CentOS versions 7 and 8.

The following installation instructions provided for Red Hat Enterprise Linux 7 and 8 also apply to CentOS 7 and 8.

✻ Orchid Core VMS requires Linux kernel 3.17.0 or greater.

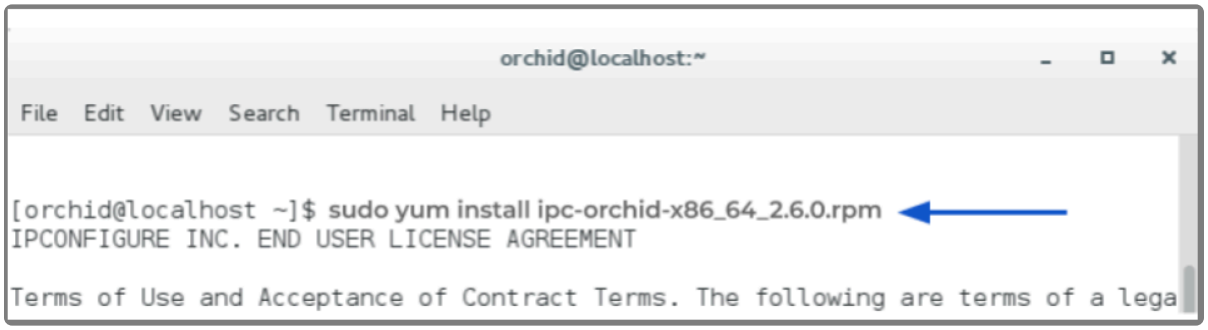
✻ You must sign in to the computer as a user with “root” access.

1. Download the Orchid Core VMS installation package (.rpm file) with a web browser, or from the command line by typing the following command: `sudo wget http://download.ipconfigure.com/orchid/ipc-orchid-x86_64_(VERSION).rpm`. Then press ***Enter***.



2. Install some additional packages for Enterprise Linux by typing the following command: `sudo yum install epel-release`. Then press ***Enter***.
3. Install Orchid Core VMS by typing the following command: `sudo yum install ipc-orchid-x86_64_(VERSION).rpm`. Then press ***Enter***.

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This will install all necessary files for the Orchid Server service and Orchid ONVIF_autodiscovery service. By default, these programs will not be started.

4. Press the ***Y*** key to accept the EULA, or ***N*** to decline.
5. After the installation is complete:
    a. You must set the **admin password** and the **archive directory**. (Refer to the next topic for details.)
    b. If this was an upgrade, you should consider optimizing the database. (For more details and instructions, refer to the *Post-Installation Steps* topic.

How to Edit Configuration Files in Red Hat

Beginning with version 2.10, some of the configuration settings can be edited from within the Orchid Core VMS software. (This is done using the *Advanced Settings* feature which is explained in the **Orchid Core VMS Administrator Guide**.) There are some settings, however, that will still need to be changed by editing the configuration file directly. These settings need to be protected from unauthorized changes because they are critical for program stability and reliability. These critical settings include the following:

• archives.dir	• streampipeline.decode.keyFramesOnly
• database.type	• streampipeline.filesplit.motionMode
• logger.dir	• streampipeline.filesplit.recordState
• orchid.admin.password	• streampipeline.filesplit.timePeriod
• orchid.lock_properties	• streampipeline.mode
• orchid.uuid	• streampipeline.motionReducer
• rtsp.protocol	• tls.certificate
• sqlite.filepath	• tls.key
• streampipeline.bgseg.boxArea	• webrtc.public_ip
• streampipeline.bgseg.dialate	• webserver.archives.rootpath
• streampipeline.bgseg.postErode	• webserver.html.rootpath
• streampipeline.bgseg.preErode	• webserver.protocol
• streampipeline.bgseg.threshold	

Immediately after installation, and if it becomes necessary to change one of these critical settings later, you can edit the Orchid Core VMS configuration files using your favorite text editor. (If you don't have a favorite, try nano.)

You must sign in to the computer as a user with "root" access.

The default locations for Orchid Core VMS's configuration files in Linux are:

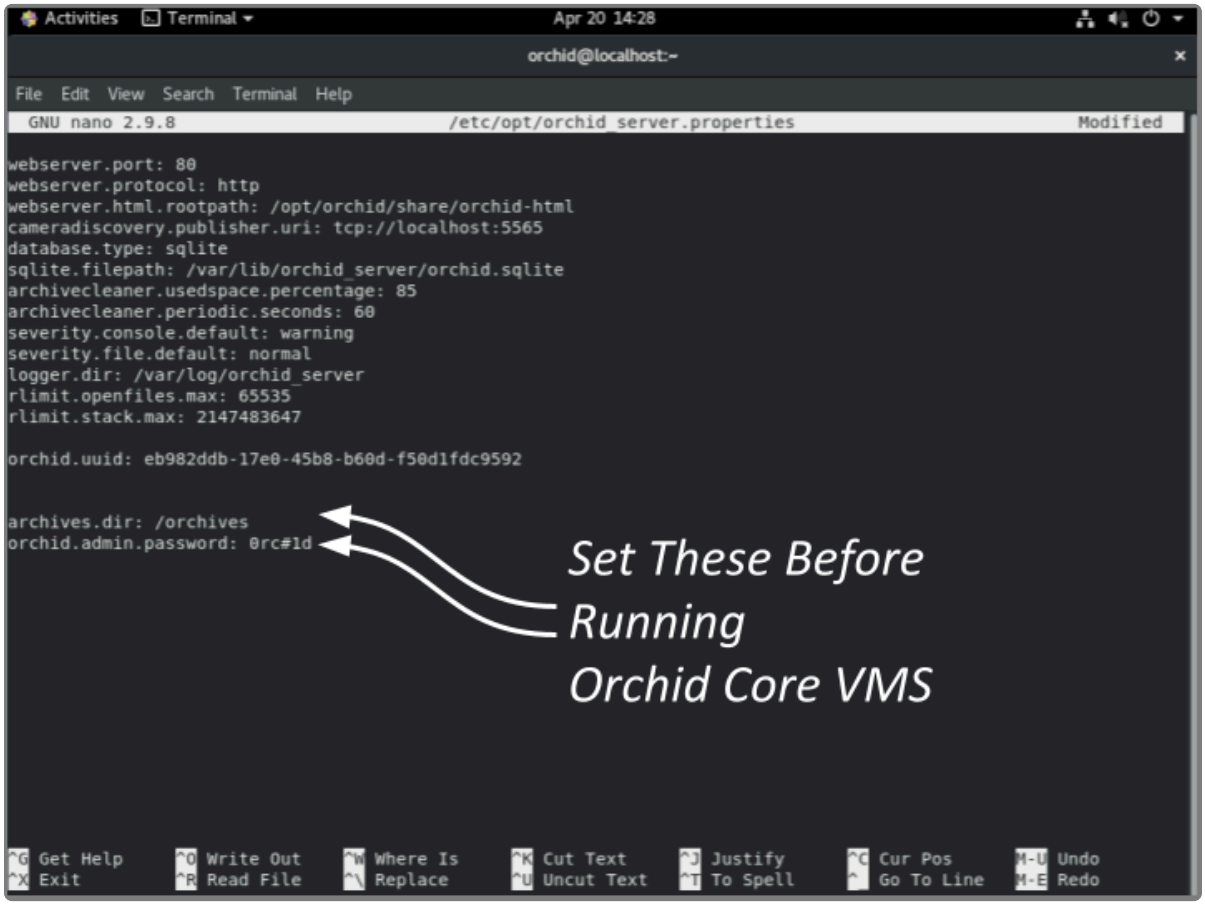
- **Orchid Server Properties:** */etc/opt/orchid_server.properties*
  - Stores all of the Orchid Core VMS settings and can be used to update things like the Orchid Core VMS port number, manually update the admin password, etc.
  - Settings entered in this file will override the default settings in the *Orchid Server Default Properties* file (described below).

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- **Orchid Server Default Properties:** */etc/opt/orchid_server.properties.default*
  - Stores all of the Orchid Core VMS default settings and may serve as a good reference. [Any changes made to this file will be ignored.]
- **Orchid ONVIF Auto-Discovery:** */etc/opt/orchid_onvif_autodiscovery.properties*
  - Used to edit the default settings for the Orchid ONVIF auto-discovery service used by Orchid Core VMS.

Refer to the Installation Support Topics section for a complete list of available properties.

1. Open the configuration file in a text editor by typing the following command: `nano /etc/opt/orchid_server.properties`. Then press ***Enter***.



2. Set the two parameters below. They take effect only when Orchid Core VMS is started for the first time [typically meaning that the Orchid Core VMS database (at */var/lib/orchid_server/orchid.sqlite*) does not exist when Orchid Core VMS starts].

orchid.admin.password
Sets the admin password used upon first signing in. After the first sign in, the admin password can be configured via the user interface.

archives.dir
Specifies the directory to which video files are saved. After the first sign in, this property can be changed by

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editing the configuration file.

> You must set the administrator password and the archive directory **before** you start running Orchid Core VMS.

The following parameters may be changed at any time and take effect upon restarting Orchid Core VMS.

webserver.port
Controls the port on which the Orchid Core VMS user interface is accessed. The default port is *80*, but if your RHEL system is running an HTTP server such as Apache or Nginx, you will likely need to change this value.

archivecleaner.usedspace.percentage
Controls the percentage of disk space Orchid Core VMS will use to store video archives. The default is 85%. Find the video archives on the volume specified in *archives.dir*.

locale
Sets the language for Orchid Core VMS. The default is *en* (English).

If, during the course of your modifications, the properties file becomes malformed, Orchid Core VMS may fail to start. If this happens, check the Orchid Core VMS logs (at */var/log/orchid_server/*) for error details.

3. After you edit the configuration file, you must enable and start the Orchid Core VMS services. (Refer to the next topic for instructions.)

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How to Manage the Orchid Core VMS Services in Red Hat

The two main services used by Orchid Core VMS are listed below. If you need to enable, check the status, start, or stop either service, you can do this from the command line.

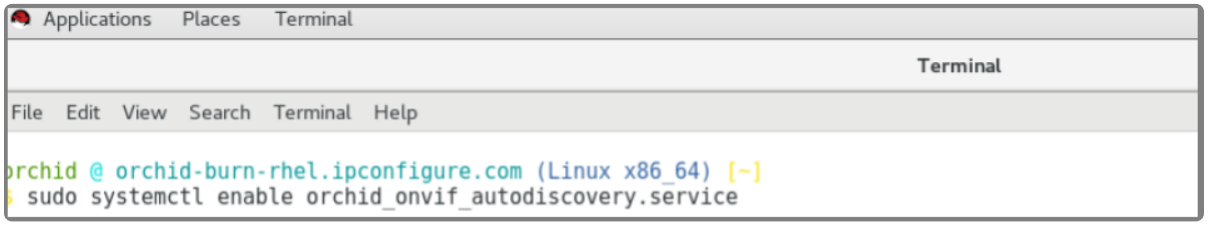
- **Orchid Server Service:** The main Orchid Core VMS service that records and archives video.
- **Orchid ONVIF Auto-Discovery Service:** Used by Orchid Core VMS to automatically find cameras that support ONVIF.

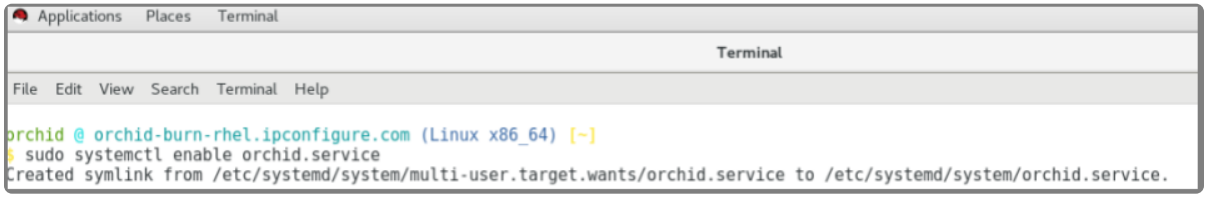
Tips

- In Red Hat, you have to enable the Orchid Core VMS services. This will allow the services to automatically start on bootup and restart in the case of failure.
- After you start the services, you should configure the firewall.
- After you've configured your Orchid Core VMS properties and started the services, you should check the status of both services to verify they are running.
- You will need to restart the services whenever a change has been made to the Orchid Core VMS configuration file.

To enable the Orchid Core VMS services:

1. Type each of the following two commands:
   a. `sudo systemctl enable orchid_onvif_autodiscovery.service`. Press ***Enter***.
   b. `sudo systemctl enable orchid.service`. Press ***Enter***.





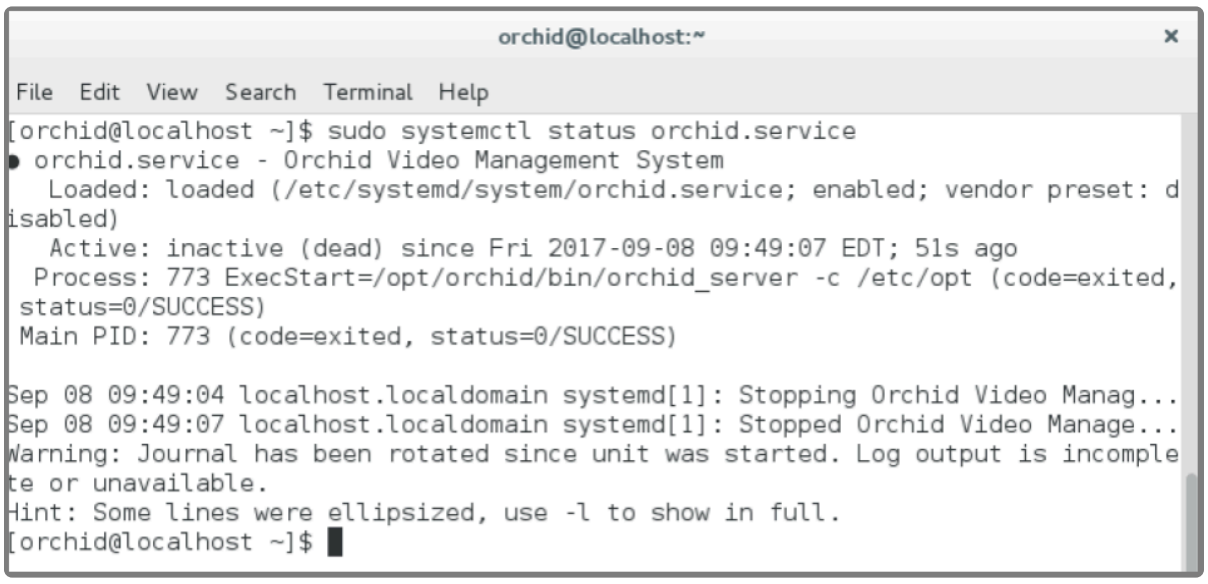
To manage the Orchid Core VMS service:

1. Type the following command: `sudo systemctl (command) orchid.service` (where the *command* is `start`, `stop`, or `status`). Press ***Enter***.

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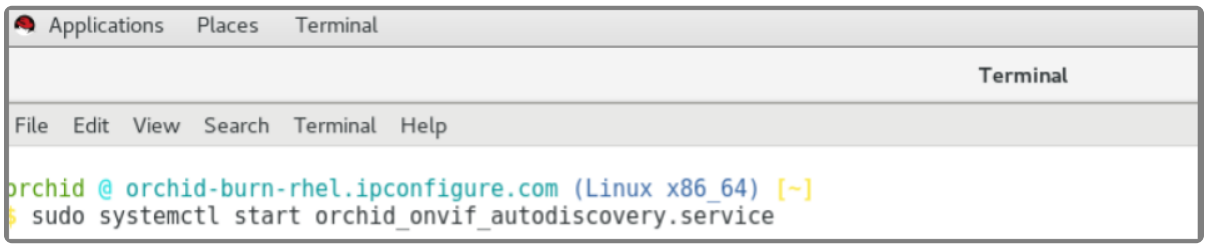


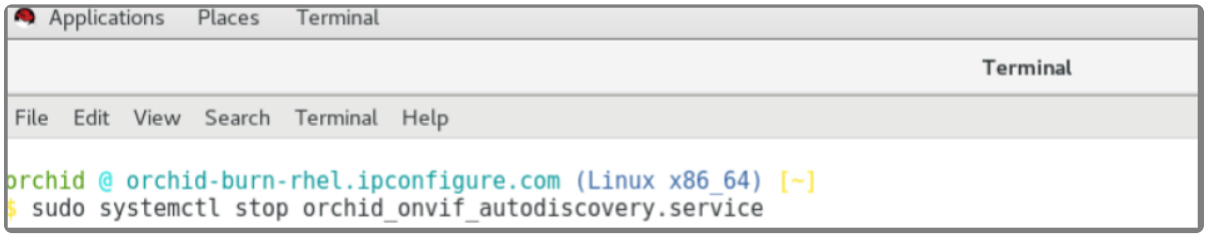


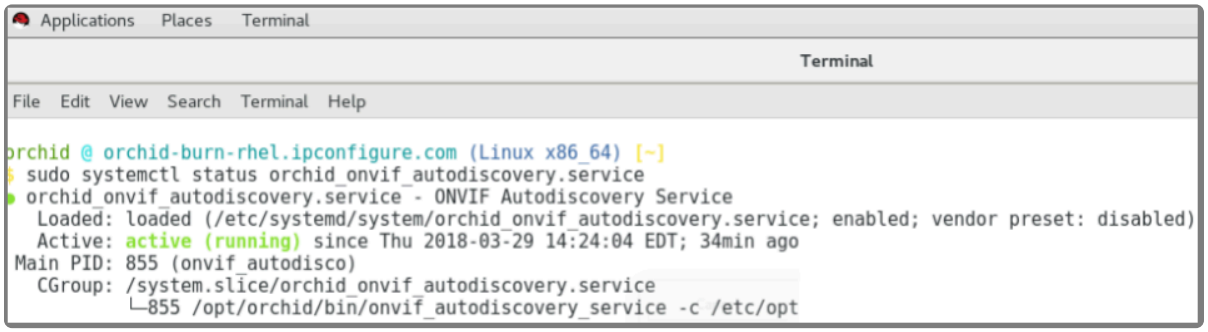


To manage the Orchid ONVIF Autodiscovery service:

1. Type the following command: `sudo systemctl (command) orchid_onvif_autodiscovery.service` (where the *command* is `start`, `stop`, or `status`). Then press ***Enter***.




Applications Places Terminal
Terminal
File Edit View Search Terminal Help
orchid @ orchid-burn-rhel.ipconfigure.com (Linux x86_64) [~]
$ sudo systemctl stop orchid_onvif_autodiscovery.service


Applications Places Terminal
Terminal
File Edit View Search Terminal Help
orchid @ orchid-burn-rhel.ipconfigure.com (Linux x86_64) [~]
$ sudo systemctl status orchid_onvif_autodiscovery.service
orchid_onvif_autodiscovery.service - ONVIF Autodiscovery Service
Loaded: loaded (/etc/systemd/system/orchid_onvif_autodiscovery.service; enabled; vendor preset: disabled)
Active: active (running) since Thu 2018-03-29 14:24:04 EDT; 34min ago
Main PID: 855 (onvif_autodisco)
CGroup: /system.slice/orchid_onvif_autodiscovery.service
└─855 /opt/orchid/bin/onvif_autodiscovery_service -c /etc/opt

Post-Installation Steps in Red Hat

How to Optimize the Database in Red Hat

Although the Red Hat installer does not prompt users to optimize the database, optimization is recommended after a software upgrade. This process will improve the overall performance of the system, especially notable in larger systems with video archives greater than 40 TB.

Be aware that the optimization process may take a while to complete (and Orchid Core VMS will be unavailable during this time).

1. First stop the Orchid Core VMS server service. Type the following command: `sudo systemctl stop orchid.service`. Then press **Enter**.
2. To run the optimization, type the following command: `sudo /opt/orchid/bin/orchid_server --optimize-database`. Then press ***Enter***.
3. When the optimization is complete, start the Orchid Core VMS service. Type the following command: `sudo systemctl start orchid.service`. Then press ***Enter***.

Configure the Firewall

By default, the *firewalld* service will block access to Orchid Core VMS. Refer to the *Installation Support Topics* section for a list of the ports used by Orchid Core VMS, and consult your RHEL 7 documentation for configuring *firewalld*. The following example will open default ports used by Orchid Core VMS, but you should understand the security implications of modifying your firewall settings before proceeding.

```
sudo firewall-cmd --zone=public --add-port=80/tcp --permanent
sudo firewall-cmd --zone=public --add-port=554/tcp --permanent
sudo firewall-cmd --zone=public --add-port=40000-50000/udp --permanent
sudo firewall-cmd --zone=public --add-port=5565/tcp --permanent
sudo firewall-cmd --reload
```

How to Sign in to Orchid Core VMS in Red Hat

Sign in to Orchid Core VMS using a web browser pointed to your server's IP address at the port specified above (default is 80). Unless changed during the configuration process, the default sign in credentials are *admin* and *password*.

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How to Uninstall Orchid Core VMS in Red Hat

Uninstalling the Orchid Core VMS Package in RedHat

1. To remove the Orchid Core VMS package, use the following command: `rpm -e ipc-orchid-(version).x86_64`.
   (This will remove all files installed and created by Orchid Core VMS except the */orchives* directory specified at **archives.dir** in the properties file.)

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Installation Support Topics

The Orchid Core VMS configuration file contains settings that determine how Orchid Core will operate. Most of these settings don’t need to be changed, but some of them may help you to customize the Orchid Core VMS system to better meet your needs. This section will provide an overview of the available configuration settings, instructions on how to change some of the most commonly edited settings, plus additional tips for working with Orchid Core VMS.

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Orchid Core VMS Configuration Settings

Orchid Core VMS uses two properties files to configure the system: *orchid_server.properties* and *orchid_server.defaults.properties*. These files contain settings that don't change on a regular basis, and are reserved for those with administrator access. Both files can be used to configure all of the Orchid Core VMS properties, but the *orchid_server.properties* file has priority over the other file.

Beginning with version 2.10, some of the configuration settings can be edited from within the Orchid Core VMS software. (This is done using the *Advanced Settings* feature which is described in the **Orchid Core VMS Administrator Guide**.) There are some settings, however, that will still need to be changed by editing the configuration file directly. These settings need to be protected from unauthorized changes because they are critical for program stability and reliability.

If you need to make a change to any of the protected configuration settings, please refer back to the instructions provided for your operating system.

Orchid Core VMS's configuration settings are listed below.

> The settings displayed in **blue** are protected, and must be changed by editing the configuration file directly.

Web Server Settings

webserver.protocol
Possible values include *http* and *https*. (The tls.key and tls.certificate also need to be set. See *TLS Settings* discussed later in this topic.)

webserver.port
Port number of the web server.

webserver.html.rootpath
Root path to the Orchid Core VMS HTML files.

webserver.maxthreads
Maximum number of threads used by the web server to handle requests. (Default: 16)

webserver.maxqueued
Maximum number of queued connections. (Default: 100)

webserver.sessions.user.max_age
Maximum age (seconds) of user session. (Default: 1 year)

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webserver.sessions.remote.max_age
Maximum age (seconds) of remote session. (Default: 1 day)

webserver.ssl.ciphers
Enable/disable SSL/TLS ciphers (openssl cipher list format)

Archive Properties

archives.dir
Full path for the desired storage location of media archives. This takes the place of the **webserver.archives.rootpath** setting from previous versions. Unlike the old property, this one can be changed after installation and properly updates the archives to link to the new storage directory. Anytime you change this property, a new *orchid-device.tag* file will be created and saved in the new storage directory.

WebRTC Properties

webrtc.stun.host
IP address of the STUN server. (Note: If the **host** is set, the **port** must also be set. STUN can be disabled by setting **host** to “None” and not specifying a port. If **host** is not set, the STUN server defaults to **stun.ipconfigure.com:3478**.)

webrtc.stun.port
Port of the STUN server.

webrtc.turn.host
IP address of the TURN server.

webrtc.turn.password
Password of the TURN server.

webrtc.turn.port
Port of the TURN server.

webrtc.turn.type
Relay type of the TURN server.

webrtc.turn.username
Username of the TURN server.

webrtc.process_mdns
This setting enables the processing of remote ICE candidates with mDNS hostnames. (Default: False)

webrtc.public_ip

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This is used to set the static, public IP address of the Orchid Core VMS server. If set, all of the ICE host candidates will be replaced with this address. This option can speed up WebRTC connection times when Orchid Core VMS is behind a 1:1 NAT, such as in a cloud environment. (If the address supplied is incorrect, WebRTC will not work.)

RTSP Server Settings

rtsp.protocol
Protocol of the RTSP server. Note that the RTSP server transport (UDP/TCP/HTTP) is dynamically chosen by the client, while the encryption RTSP v. RTSPS is set by the server.

- **rtsp**
  Default – Orchid Core VMS UI will access the streams via UDP.

- **rtspt**
  Orchid Core VMS UI will access the streams via TCP-interleaved.

- **rtsps**
  Orchid Core VMS UI will access the streams via UDP SRTP.

- **rtspst**
  Orchid Core VMS UI will access the streams via TCP-interleaved TLS.

rtsp.service
Configure RTSP server to accept connections on the given service. This should be a string containing the service name or a string containing a port number between 1 and 65535. When service is set to **0**, the server will listen on a random free port.

rtsp.session_cleanup_period
Number of seconds between checking to cleanup inactive sessions.

rtsp.server_backlog
The maximum amount of queued requests for the server.

rtsp.max_threads
The maximum threads used by the pool to handle client requests. A value of **0** will use the pool mainloop; a value of **-1** will use an unlimited number of threads.

rtsp.max_sessions
The maximum allowed number of sessions. A value of **0** means there is an unlimited number of sessions.

rtsp.rtp_port_range.min
Sets the minimum RTP port range.

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rtsp.rtp_port_range.max
Sets the maximum RTP port range.

capture.latency
Sets the maximum allowed latency/delay in milliseconds of an RTSP stream coming in to Orchid. A setting of **100** ms (the default) means that any media frames received by Orchid that are older than **100** ms will be ignored. (Increasing this setting may be useful when recording from cameras that are not on the same local network as the Orchid Core VMS server.)

TLS Settings

tls.certificate
Full path to the PEM encoded TLS certificate file. This can include a chain of certificates.

tls.key
Full path to the PEM encoded TLS key file.

Camera Discovery Settings

cameradiscovery.publisher.uri
URI to the auto-discovery service. This allows you to connect to another ONVIF Auto-discovery service on another subnet. Usually this is set to **tcp://127.0.0.1:5565**.

Database Settings

sqlite.filepath
Full path (with filename) for the desired location of the sqlite database file.

sqlite.wal
To enable sqlite WAL mode, set to **true**. (Default: **true**.)

sqlite.busy.timeout
Set the sqlite PRAGMA busy_timeout (milliseconds).

sqlite.optimize.interval
Sets the interval (in minutes) at which the database will be optimized. A value of 0 or less disables periodic optimization. (Default: 60 minutes)

database.timeout.seconds
Database write lock timeout (seconds).

database.type
Database type to be configured by ODB.

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Orchid Core VMS Server Settings

orchid.admin.password
Orchid Core VMS default administrator user password.

orchid.uuid
Server ID. Changing this value will disassociate all currently saved Orchid Core VMS settings and video archives with the Orchid Core VMS server.

orchid.max_player_count
Maximum number of allowed Players on the *Stage* per client.

orchid.max_export_hours
Maximum number of hours allowed for video export. (Default: **1** hour.)

orchid.disable_generic_rtsp_driver
Disables the Generic RTSP camera driver. When set to **true**, only the ONVIF cameras can be added. If this is set to **true**, and there are Generic RTSP cameras already registered, Orchid Core VMS will not start. (Default: **false**.)

orchid.disable_onvif_event_whitelist
Used to override the camera vendor check that restricts which cameras are permitted to use camera-based motion detection. (Camera-based motion detection is currently permitted only on Axis, Hanwha, and Vivotek cameras.) When set to **true**, an Administrator may attempt to configure camera-based motion detection on an unapproved camera type. (This attempt is not likely to succeed.) (Default: **false**.)

orchid.lock_properties
Prevents one or more specified properties from being modified through the *Advanced Settings* feature. Use a comma-separated list to identify properties to be locked. (Default: **“”**) (ie. **orchid.lock_properties: locale, rlimit.openfiles.max**)

clockwatcher.skew.threshold.seconds
The maximum amount of time (in seconds) the clock is allowed to skew before the Orchid Core VMS server is shut down.

RLIMIT/ULIMIT/Limits.conf (Linux Only) Settings

rlimit.core.max
Maximum core size. Equivalent to **ulimit -c**. **-1** for unlimited.

rlimit.openfiles.max
Maximum number of open files. Equivalent to **ulimit -n**.

rlimit.stack.max

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Maximum stack size. Equivalent to **ulimit -s**.

Logging Settings

severity.file.default
File logging level. The Orchid Core VMS logging system uses the levels below to determine what information will be logged. These levels are listed in order of ascending severity (but descending detail). For example, if you set this to *trace*, the system will keep very detailed logging. If you set this to *critical*, the system will log fewer details, including only those events that are critical. (Keep in mind that increasing the amount of detail in the log file will reduce the total amount of time that the logs will cover.)

- **trace**
- **debug**
- **normal** – Recommended
- **notice**
- **warning**
- **error**
- **critical**

logger.dir
Log file location.

severity.console.default
Console logging level.

severity.syslog.default
Syslog logging level.

severity.console.channel
Console channel log levels (ie. **Gst_Logger:trace**, **filesplit:debug**)

severity.file.channel
File channel log levels.

severity.syslog.channel
Syslog channel log levels.

gst.debug
Gstreamer Debugging levels (ie. **rtspclient:5**, **filesrc:3**).

logs.file_size
Maximum size of a single log file in MB.

logs.split_time

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Maximum duration of a single log file in minutes.

logs.total_size
Maximum size of all log files (in MB) until cleanup occurs.

syslog.address
Hostname of syslog server.

syslog.port
Port of syslog server.

Archive Cleaner Settings

archivecleaner.usedspace.percentage
Maximum disk usage percentage before the archive cleaner will start deleting archives.

archivecleaner.delete.percentage
Percentage of additional space to delete when overflow detected.

archivecleaner.periodic.seconds
Archive cleaner check period in seconds.

Low-bandwidth Playback Settings

playback.maxpipelines
Maximum number of allowed playback pipelines. (Default: **16**)

framepuller.timeout
Number of seconds to wait before closing playback pipeline if no additional frames are requested. (Default: **10**)

framepuller.threadpool.count
Number of threads for handling playback pipeline construction. (Default: **12**)

framepuller.threadpool.maxtasks
Maximum number of playback pipeline construction requests before dropping new requests. (Default: **1024**)

framepuller.websocket.base64simd
Overrides the default SIMD instructions for encoding JPEG frames to base64. (Note: If the platform does not support the SIMD instruction set specified, low bandwidth mode will not work and may crash the Orchid Core VMS server.)

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Video Archive Writer Settings

filewriter.max.finalize.duration
Sets the maximum duration in milliseconds for the file writer to finalize a file before abandoning the file and entering failover mode. (Default: **500**)

filewriter.max.op.duration
Set the maximum duration in milliseconds that an individual file operation is permitted to take. (Default: **30000**)

filewriter.max.threads
Maximum number of filewriter threads per stream. (Default: **2**)

Language Property

locale
Sets the language for Orchid Core VMS. This can be set during the initial software installation (if installing on Windows or Ubuntu), and may be changed by editing the *Advanced Settings*, or by editing the configuration file directly.

Available settings currently include the following:

- **de** – German
- **en** – English (Default)
- **es** – Spanish
- **fr** – French
- **it** – Italian
- **nl** – Dutch
- **pt** – Portuguese
- **ru** – Russian

Camera Stream Settings

The settings listed below should *never* need to be changed. Changes should only be performed by those with highly advanced knowledge of the software.

streampipeline.bgseg.boxArea
Minimum motion region size to report.

streampipeline.bgseg.dialate
Size of square structuring element for dilation.

streampipeline.bgseg.postErode

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Size of square structuring element for second erosion.

streampipeline.bgseg.preErode
Size of square structuring element for first erosion.

streampipeline.bgseg.threshold
Minimum threshold in difference image to classify motion.

streampipeline.decode.keyFramesOnly
For H264 streams, set whether to decode all frames or key frames only. Note this affects motion detection and low-bandwidth live view.

streampipeline.filesplit.motionMode
Set the motion mode of the filesplit element.

streampipeline.filesplit.recordState
Set the record state of the filesplit element.

streampipeline.filesplit.timePeriod
Set the split time of the archived files (in seconds).

streampipeline.mode
Default stream pipeline mode.

streampipeline.motionReducer
Enable h264reducer. This will only take effect if the stream is H264 and motion detection is enabled. This will install an h264drop element before filesaver and detect motion events (on the gstreamer bus) to enable and disable the dropper. Motion will record at the full framerate, while non-Motion will drop non-keyframes.

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Orchid Core VMS Firewall/Ports Configuration

This topic describes all of the network ports used by Orchid Core VMS and which configuration properties allow you to change each port.

Required External Ports

This port is *required* to access Orchid Core VMS in any configuration.

- Web server TCP port
  - Default: 80
  - Configuration property: **webserver.port** (number between 1 and 65535)

Optional External Ports

Orchid Core VMS's RTSP server ports may be configured with the optional parameters below. The RTSP server is not used by the Orchid Core VMS or Orchid Fusion/Hybrid VMS user interfaces, but may be used by certain third-party integrations or other applications.

- RTSP TCP port
  - Default: 554
  - Configuration property: **rtsp.service** (number between 1 and 65535)

- RTP UDP port range
  - Default: None (chosen dynamically; if manually specified, 40000 – 50000 is recommended)
  - Configuration properties: **rtsp.rtp_port_range.min** and **rtsp.rtp_port_range.max** (numbers between 1 and 65535)

Optional Internal Ports

If a software firewall is running directly on your Orchid Core VMS server itself, the following port needs to be open (for localhost) for Orchid Core VMS to communicate with its Orchid ONVIF Auto-Discovery Service.

- Orchid ONVIF Auto-Discovery URI
  - Default: tcp://127.0.0.1:5565
  - Orchid Core VMS Configuration Property: **cameradiscovery.publisher.uri** (a full URI string, as above)
- Orchid ONVIF Auto-Discovery Server Port (configured in autodiscovery.properties)
  - Default: 5565
  - Orchid ONVIF Auto-Discovery Configuration Property: **port** (number between 1 and 65535)

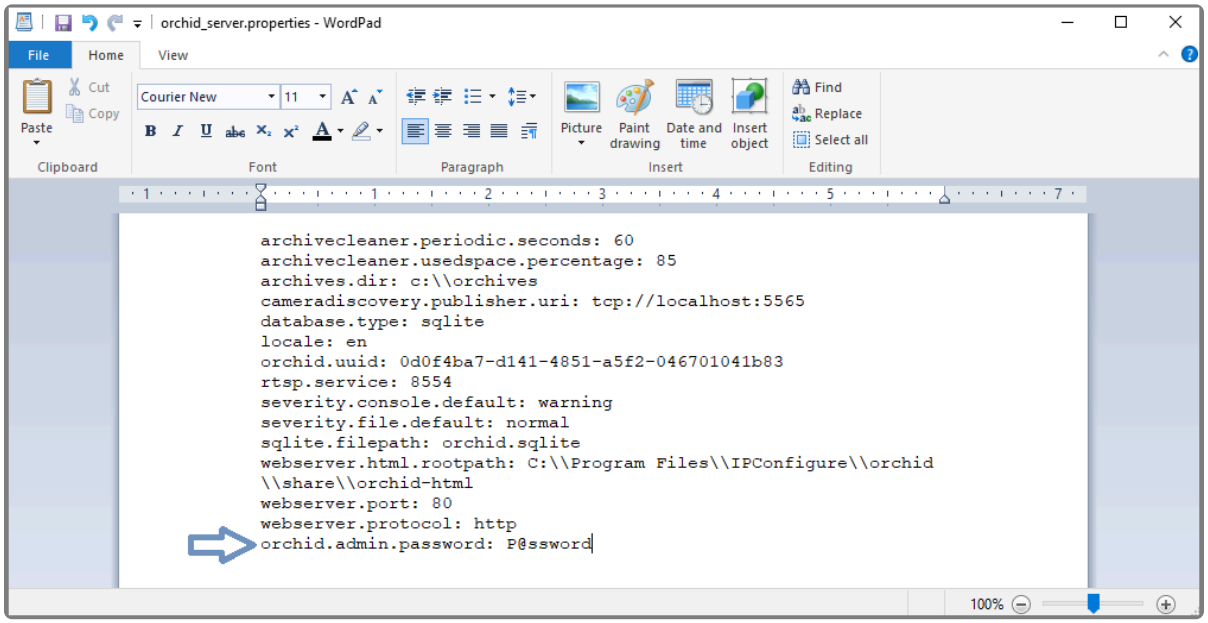
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Changing the Orchid Core VMS Administrator Password

You may change the password for the default Administrator account any time after installation. You can do this in Orchid Core VMS through the *Users* menu (as described in the **Orchid Core VMS Administrator Guide**), or you can change it by modifying the Orchid Core VMS properties file (as described below).

> In order to perform this change, you need to be signed in as an Administrator.

1. Open the Orchid Core VMS properties file. (If you need extra help, refer back to the *How to Edit a Configuration File* section that corresponds to the operating system you are using.)
2. Change the **orchid.admin.password** property to implement a new setting.



3. Save and close the file.
4. After you update the Orchid Core VMS properties file, you must restart the Orchid Core VMS services. (If you need extra help, refer back to the *How to Manage the Orchid Core VMS Services* section that corresponds to the operating system you are using.)
5. Once the restart is complete, you can sign into Orchid Core VMS.

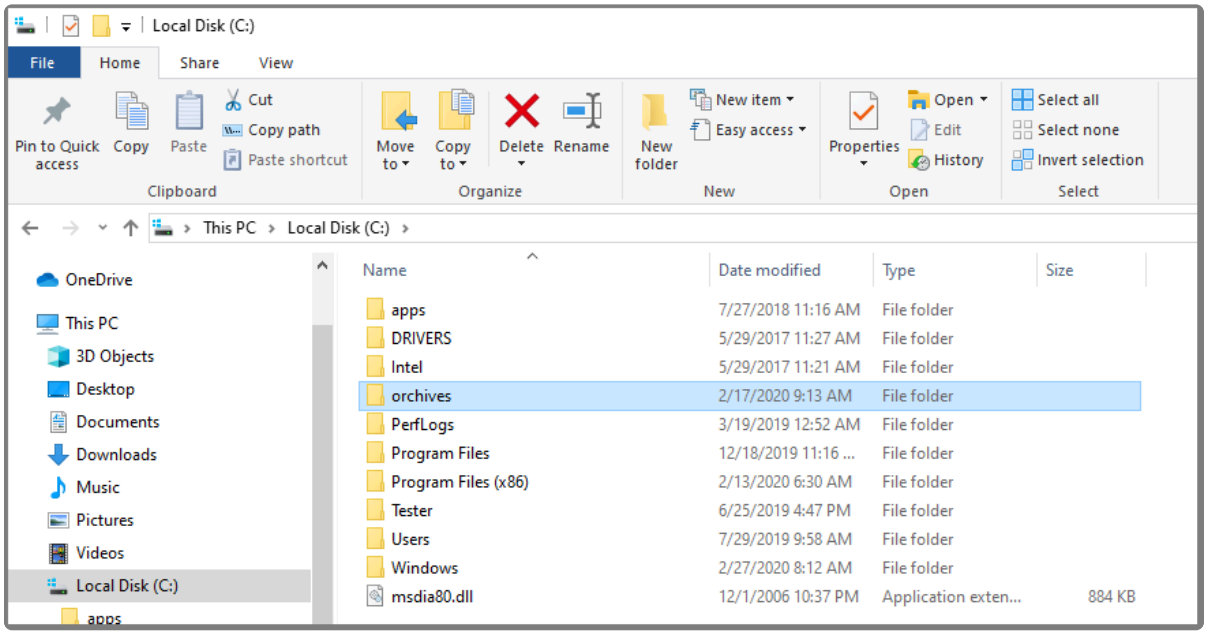
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Changing the Orchid Core VMS Archives Storage Location

If, some time after installation, you need to move the Orchid Core VMS archives to a new location, please follow the procedure below.

> In order to perform this change, you will need to be signed in as an Administrator.

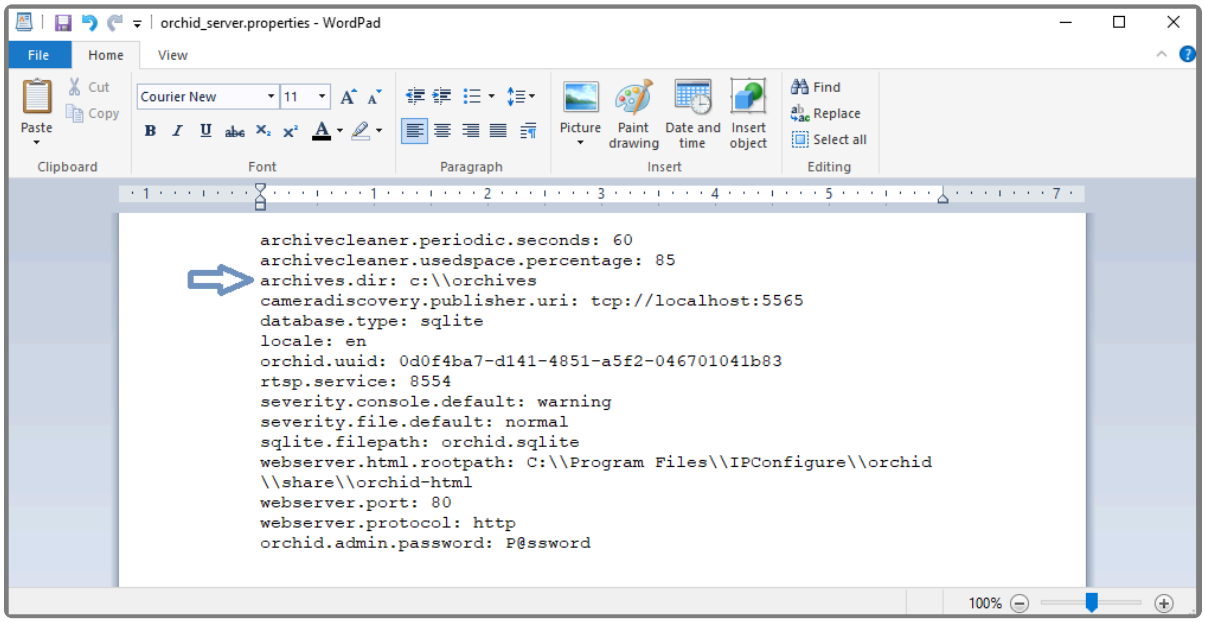
1. Sign out of the Orchid Core VMS application, and then stop both of the associated services (Orchid Core VMS Server service, and Orchid Core VMS ONVIF Autodiscovery service). (If you need extra help, refer back to the *How to Manage the Orchid Core VMS Services* section that corresponds to the operating system you are using.)
2. Move all of your archive files (including the parent directory) from the old location to the new location. For example, in the image below, you would move the *orchives* folder (and all of its contents) to a new location.



3. After you physically move the files, you'll need to update the Orchid Core VMS configuration file. Change the **archives.dir** property (shown in the image below) to reflect the new program storage location. (If you need extra help, refer back to the *How to Edit a Configuration File* section that corresponds to the operating system you are using.)

> Anytime you change this property, a new *orchid-device.tag* file will be created and saved in the new storage directory.

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4. Save and close the file.
5. After you update the Orchid Core VMS configuration file, you can restart the Orchid Core VMS services. (If you need extra help, refer back to the *How to Manage the Orchid Core VMS Services* section that corresponds to the operating system you are using.)
6. Once the restart is complete, you can sign into Orchid Core VMS.

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Changing the Orchid Core VMS Archives Retention Percentage

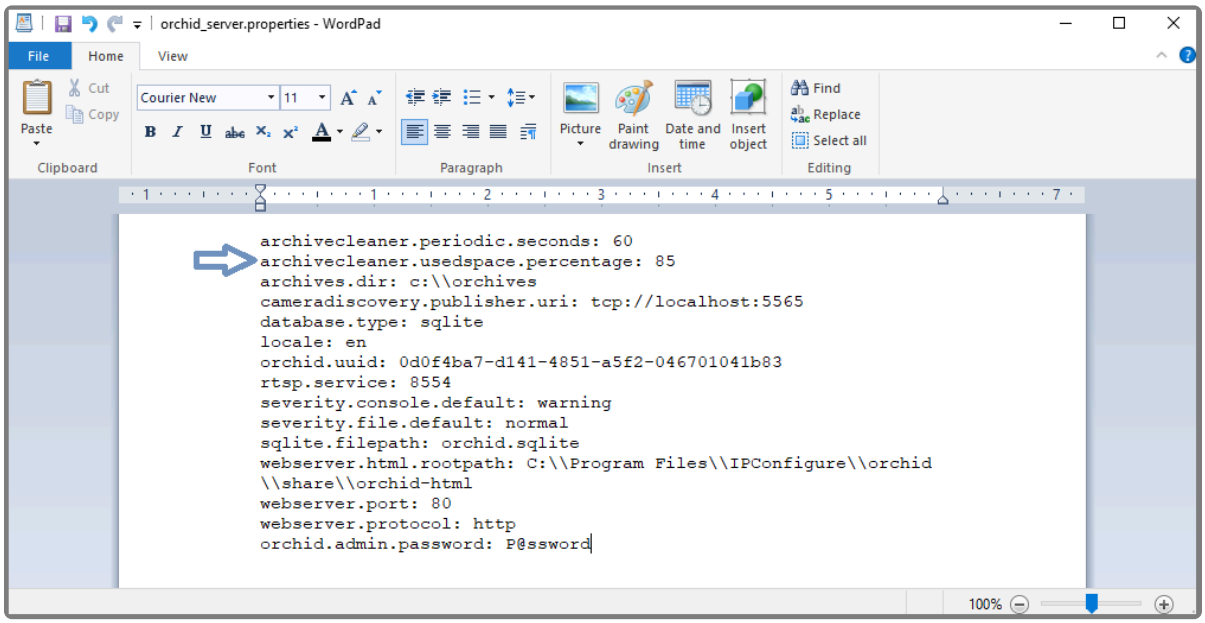
In an effort to maintain a certain amount of free space on the hard disk, Orchid Core VMS has a self-imposed limit for saving video archive files. Once this limit is reached, the system will begin to delete the oldest video archive files to make room for new ones.

The default setting for this limit is 85%, but you can change it using either of the following methods:

- You can use the *Advanced Settings* feature in the software (which is described in the **Orchid Core VMS Administrator Guide**).
- You can modify the Orchid Core VMS properties file (as described below).

> In order to perform this change, you will need to be signed in as an Administrator.

1. Open the Orchid Core VMS properties file. (If you need extra help, refer back to the *How to Edit a Configuration File* section that corresponds to the operating system you are using.)
2. Change the **archivecleaner.usedspace.percentage** property to implement a new setting.



3. Save and close the file.
4. After you update the Orchid Core VMS properties file, you must restart the Orchid Core VMS services. (If you need extra help, refer back to the *How to Manage the Orchid Core VMS Services* section that corresponds to the operating system you are using.)
5. Once the restart is complete, you can sign into Orchid Core VMS.

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Enabling a STUN Server for WebRTC Mode

If your Orchid Core VMS server has access to the internet, it will use **stun.ipconfigure.com** as a STUN server by default, and no additional configuration will be required. If your Orchid Core VMS server is on a private network, or if you prefer to use a different STUN server, see the following instructions.

To set up the STUN server, first identify servers that you can use, then you'll need to set the **webrtc.stun.host** and **webrtc.stun.port** settings. You may use either of the following methods:

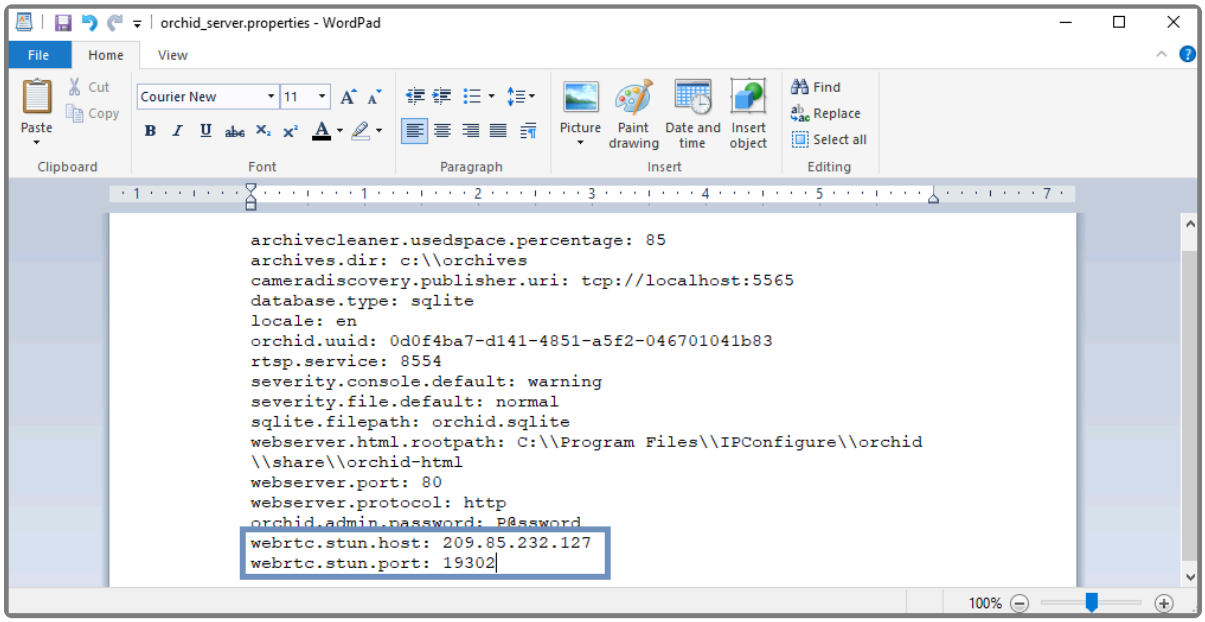
- You can use the *Advanced Settings* feature in the software (which is described in the **Orchid Core VMS Administrator Guide**).
- You can modify the Orchid Core VMS properties file (as described below).

For more details on these properties, please refer back to *Orchid Core VMS Configuration Settings*.

> In order to edit the configuration file, sign in as an Administrator.

> For more details about Orchid Core VMS and WebRTC, please refer to the **Orchid Core VMS Administrator Guide**.

1. Open the Orchid Core VMS properties file. (If you need help, refer back to the *How to Edit a Configuration File* section that corresponds to your operating system.)
2. To setup a STUN server, add the following properties to the configuration file:
   a. Webrtc.stun.host
   b. Webrtc.stun.port



3. When all changes are complete, save and close the file.
4. After you update the Orchid Core VMS properties file, you must restart the Orchid Core VMS services. (If you need extra help, refer back to the *How to Manage the Orchid Core VMS Services* section that corresponds to the operating system you are using.)
5. Once the restart is complete, you can sign into Orchid Core VMS.

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Linux Tips & Tricks

If you are using Orchid Core VMS with Linux, these tips will help you navigate the system so that you can perform tasks and find files faster.

Open a Terminal:

1. Access a Linux command line terminal to perform system administration tasks by pressing ***Ctrl-Alt-T***.

Navigate the filesystem using a few simple commands:

`pwd`
Show the working (current) directory

`ls`
List the contents of the working directory

`ls -lh --color`
List detailed contents of the working directory

`cd directory` (where ***directory*** is the name of a directory)
Change to a new working directory

`cd ..`
Go up one directory

`mv src dst` (where ***src*** is the source and ***dst*** is the destination)
Move a file or directory

`cp src dst` (where ***src*** is the source and ***dst*** is the destination)
Copy a file

`nano file` (where ***file*** is the file you want to edit)
Edit a text file

`sudo cmd` (where ***cmd*** is the command you want to run)
Run any command (editing a file, for example) as the superuser (root/Administrator).

`sudo gedit`
Open a graphical text editor with superuser permission

Commands, files, and directories can be auto-completed by tapping the ***Tab*** key—use it

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liberally, it makes things much easier!

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Important Directories and Files

Important Directories and Files

Orchid Core VMS stores video, logs, configuration files, and a variety of other data in different directories. The default locations are as follows:

Directory/File	In Windows	In Linux
Installation directory	C:\Program Files\IPConfigure\orchid	/opt/orchid
Executable files	C:\Program Files\ IPConfigure\orchid\bin	/opt/orchid/bin
Library files	C:\Program Files\ IPConfigure\orchid\lib	/opt/orchid/lib
Video archive files	C:\orchives	/orchives
Log file	C:\Program Files\ IPConfigure\orchid\bin	/var/log/orchid_server
Database file	C:\Program Files\ IPConfigure\orchid\bin\ orchid.sqlite	/var/lib/orchid_server/ orchid.sqlite
Configuration file	C:\Program Files\ IPConfigure\orchid\bin\ orchid_server.properties	/etc/opt/ orchid_server. properties
Uninstall file	C:\Program Files\ IPConfigure\orchid\ uninstall.exe	N/A
Downloads (Exported video)	User's Downloads folder	~/Downloads

For additional help with Orchid Core VMS, please visit our training site at training.ipconfigure.com.

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