



# Orchid Fusion VMS Installation Guide

21.12 — Last update: Feb 15, 2022

IPConfigure

# Table of Contents

<b>About the Orchid Fusion VMS Installation Guide .....</b>	<b>1</b>
<b>Working in Windows .....</b>	<b>2</b>
Installing Orchid Fusion VMS in Windows .....	3
How to Edit a Configuration File in Windows .....	7
How to Manage the Orchid Fusion VMS Services in Windows.....	10
Uninstalling Orchid Fusion VMS for Windows.....	12
<b>Working in Ubuntu 16.04 to 20.04.....</b>	<b>13</b>
Installing Orchid Fusion VMS on Ubuntu 16.04 to 20.04.....	14
How to Edit a Configuration File in Ubuntu 16.04 to 20.04.....	25
How to Manage the Orchid Fusion VMS Services Through the Command Line .....	28
Uninstalling Orchid Fusion VMS in Ubuntu 16.04 to 20.04.....	30
<b>Working in Red Hat .....</b>	<b>31</b>
Installing Orchid Fusion VMS in Red Hat Enterprise Linux 7 .....	32
How to Edit a Configuration File in Red Hat .....	36
How to Manage the Orchid Fusion VMS Services in Red Hat .....	38
Post-Installation Steps in Red Hat.....	40
Uninstalling the Orchid Fusion VMS Package in Red Hat .....	41
<b>Installation Support Topics .....</b>	<b>42</b>
Orchid Fusion VMS Configuration Settings.....	43
Java Versions Required for Orchid Fusion VMS .....	49
How to Edit the Java Options File in Linux .....	50
Orchid Fusion VMS Firewall/Ports Configuration .....	52
Enabling Google Authentication .....	54
Enabling Active Directory .....	56
Enabling Azure Active Directory .....	58
Detailed Steps for Configuring Azure Active Directory.....	60
Enabling FreeIPA Authentication.....	71
Enabling External Cloud Storage .....	73
Orchid Fusion VMS APPs .....	75
Creating a Superuser .....	77
Linux Tips & Tricks.....	79
Important Directories and Files .....	80

# About the Orchid Fusion VMS Installation Guide

---

The Orchid Fusion 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 assistance with editing configuration files, working with the Orchid Fusion VMS services, and uninstalling the Orchid Fusion VMS software.

This guide covers Orchid Fusion VMS installation and configuration topics for the following operating systems:

- Windows
- Ubuntu 16.04 to 20.04 (LTS versions) (Refer to Ubuntu 16.04 LTS)
- Red Hat Enterprise Linux 7 and 8, 64-bit (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 also includes general, helpful information in the *Installation Support Topics* section.

✿ Downgrading the Orchid Fusion VMS software is not supported.

✿ 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.)

✿ As of version 21.9, Orchid Fusion VMS no longer provides installers for Ubuntu 14.04.

✿ You may notice that there are very few mentions of Orchid Hybrid VMS in this guide (even though the Orchid Fusion VMS User Guide and Admin Guide cover both Fusion and Hybrid). Since Orchid Hybrid VMS is a managed system, IPConfigure will perform the Hybrid installation and the configuration that is required for some special features.

# Working in 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 Fusion VMS can only be installed on a 64-bit operating system; it is not compatible with 32-bit operating systems.



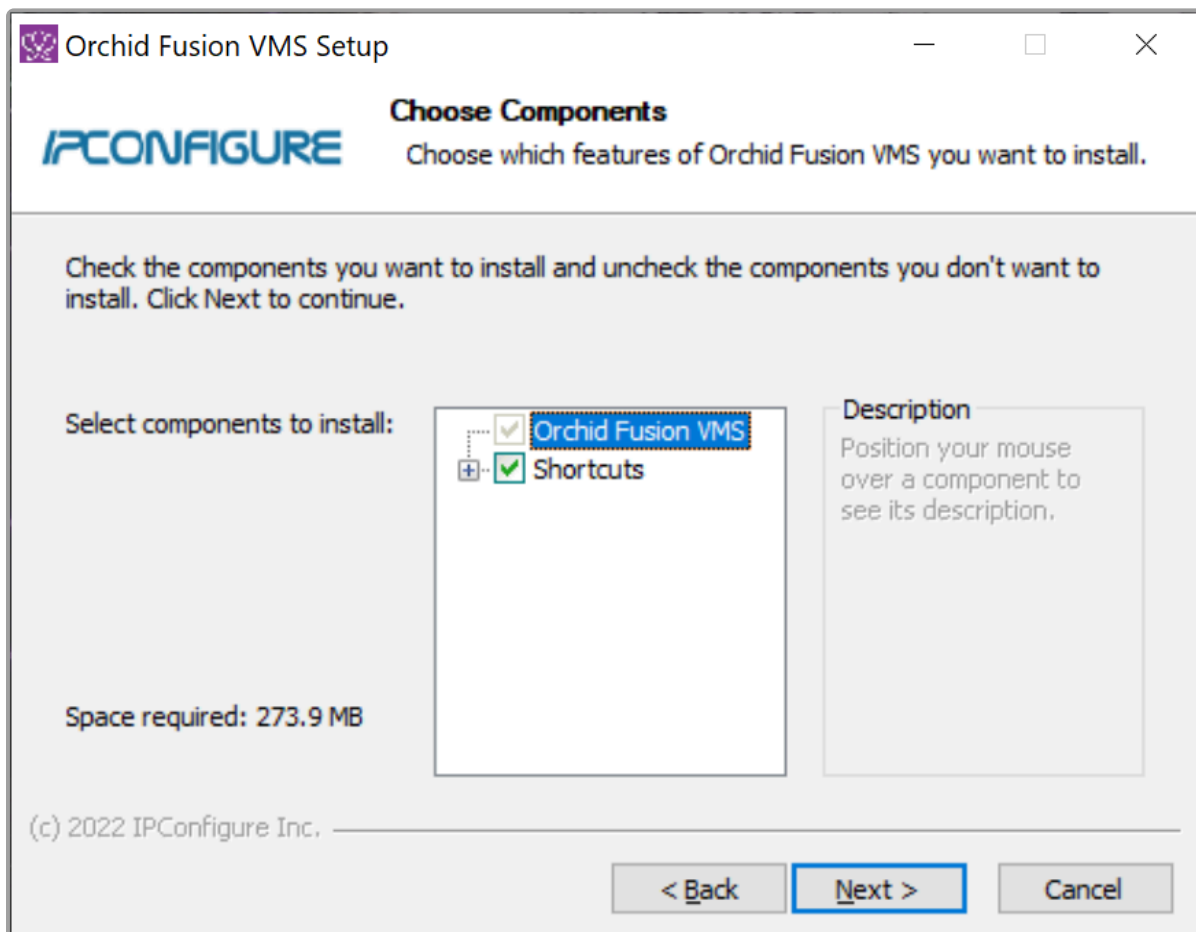
You must sign in to the computer as a user with administrative privileges.



Beginning with Orchid Fusion VMS version 2.10.0, if you are performing an upgrade of your Orchid Fusion VMS, you should check to make sure that all of the registered Orchid Core VMS servers are running, at minimum, Orchid Core VMS version 2.8.0. (You will receive a warning message during the installation if this is not the case.)

# Installing Orchid Fusion VMS in Windows

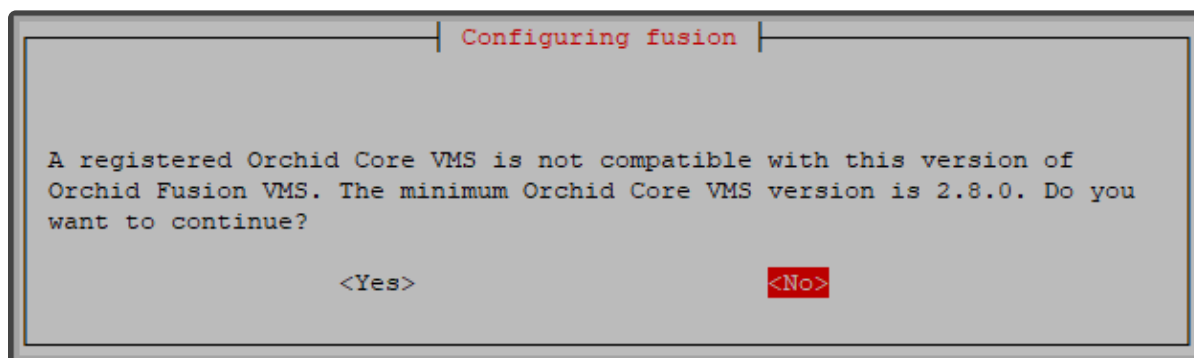
1. Download the Orchid Fusion VMS executable file. You can find the latest version of the Orchid Fusion VMS on IPConfigure's website at <http://www.ipconfigure.com/products/fusion#download>.
2. Open the Orchid Fusion VMS executable file. You will be asked to allow the installer to make changes to your 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 Fusion* and *Shortcuts* will already be checked.



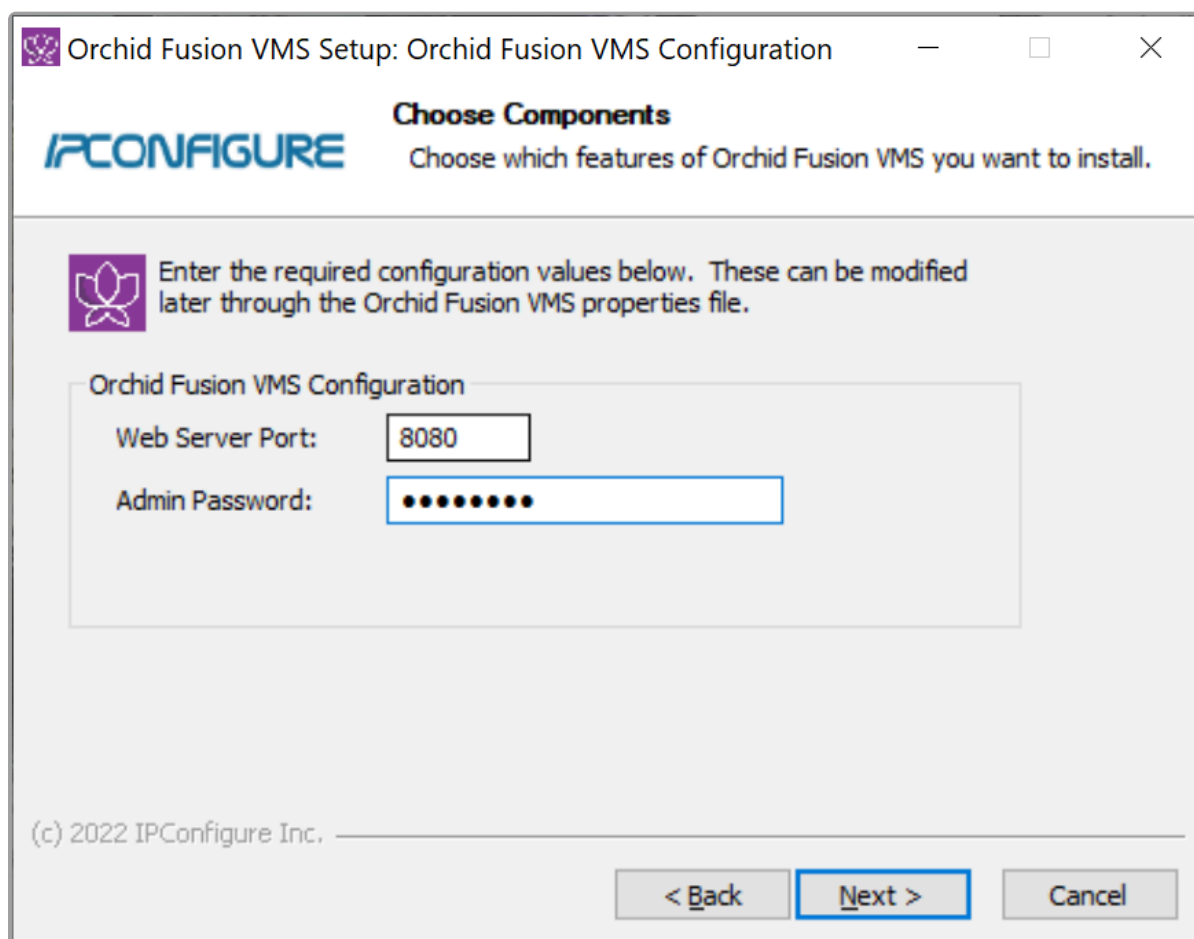
- **Orchid Fusion VMS:** This is the Orchid Fusion VMS application.
- **Orchid Fusion VMS Rclone Service:** This service (although not pictured here) is installed automatically. Orchid Fusion VMS uses this service to enable exporting *Library* files to an external cloud storage location, if configured to do so.
- **Shortcuts:** This installs shortcuts on the computer to open the Orchid Fusion VMS user interface in a web browser.

6. Click the **Next** button to proceed with the installation for all selected components.
7. Starting in Orchid Fusion VMS version 2.10, if you are performing an upgrade, and any of the

registered servers have an Orchid Core VMS version number older than 2.8.0, you will receive a warning message similar to the one pictured below.



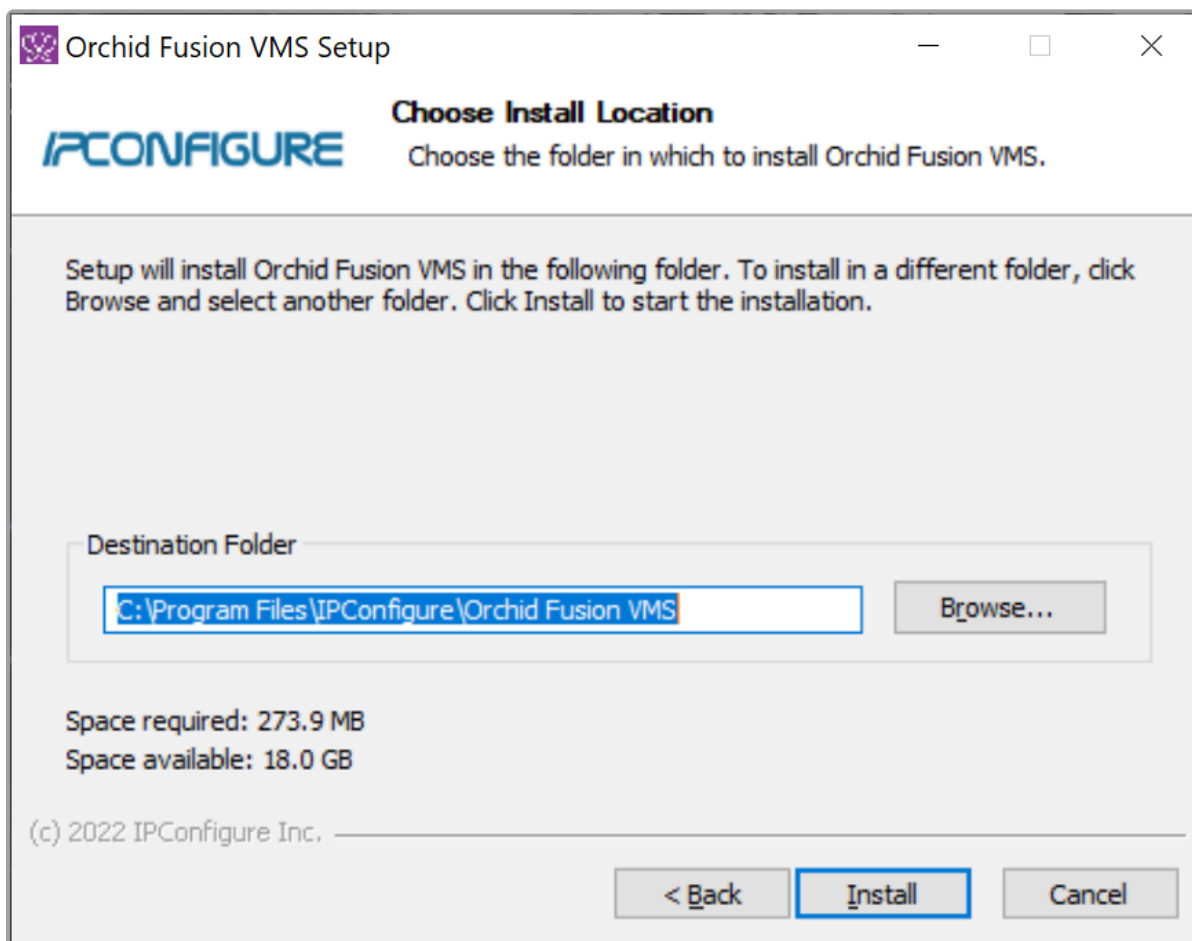
- You will need to upgrade older Orchid Core VMS servers before they will work in this new version of Orchid Fusion VMS.
  - Click the **OK** button to acknowledge this warning. The software installation will begin. (Proceed to step 12.)
8. If this is a first-time installation, the installer will ask you to set the Web Server Port and the Admin Password.



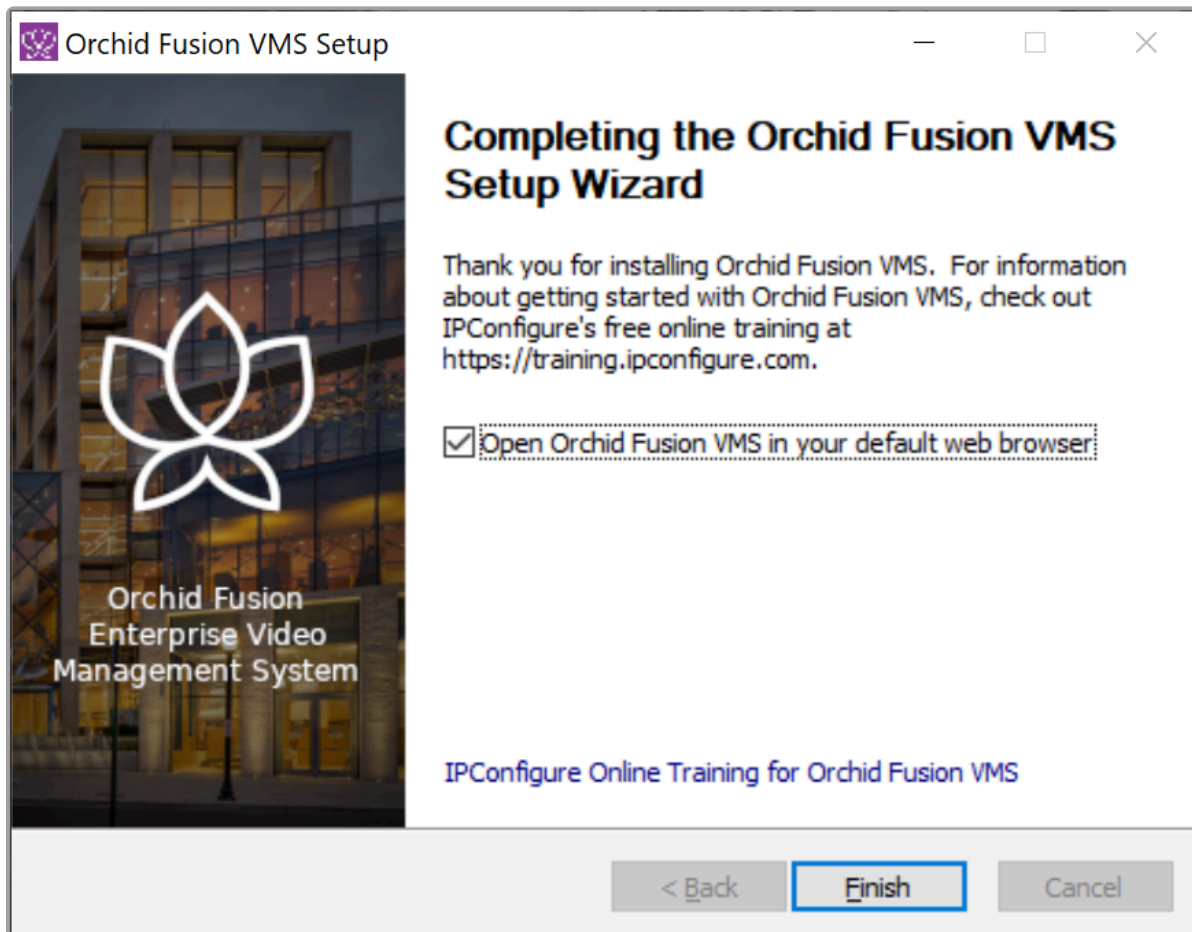
- By default, the web server port is set to port 8080 (recommended for most installations). Update the

port number only if Orchid Fusion VMS needs to use a port other than 8080.

- Enter the password you would like to set for the default admin account in the *Admin Password* field.
9. Click the **Next** button to continue.
  10. The installer will ask you to confirm the installation folder. By default this is *C:\Program Files\IPConfigure\Orchid Fusion VMS* and does not need to be changed. However, the installation directory can be updated, if needed.



11. 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.
12. Once the installer says "Completing" at the top of the window, mark the *Open Orchid Fusion...* checkbox if you want to open Orchid Fusion VMS in your default web browser upon exit.



13. Click the **Finish** button to close the installer. Orchid Fusion VMS will automatically open in the computer's default web browser (if so marked). (For more details on signing in, please refer to the *Enabling ...* topics included in the [Installation Support Topics](#) section, and the *Sign In* topic in the [Orchid Fusion VMS Administrator Guide](#).)



# How to Edit a Configuration File in Windows

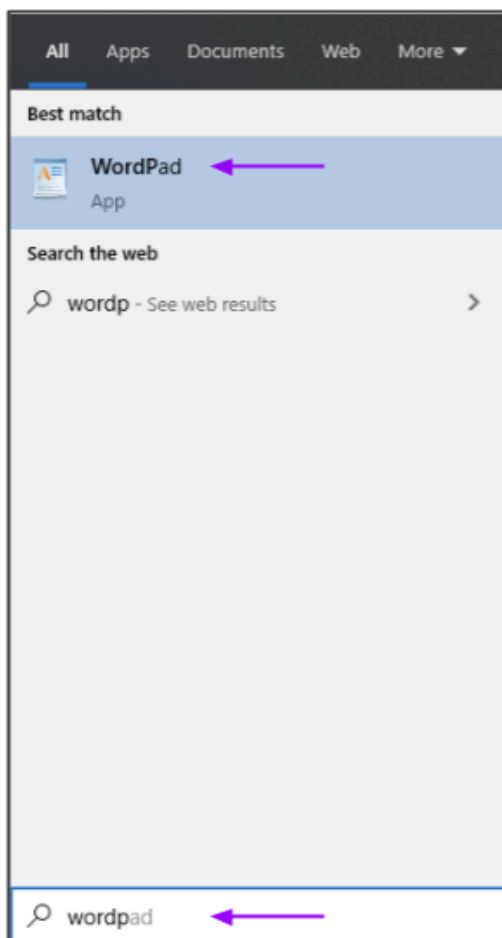
The default location for the Orchid Fusion VMS configuration file in Windows is:

- *C:\Program Files\IPConfigure\Orchid Fusion VMS\conf\fusion.properties*
  - Stores all of the Orchid Fusion VMS default settings and can be used to update things like the Orchid Fusion VMS port number, manually update the admin password, etc.

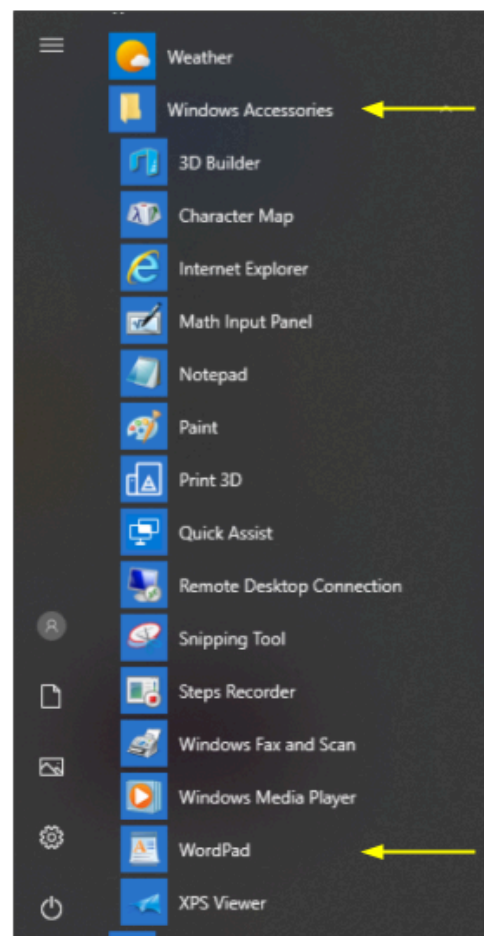
Refer to the [Installation Support Topics](#) section for a list of available properties.

✿ In order to edit the Orchid Fusion VMS configuration file, you will need to be signed in as a user with administrative privileges.

1. Open the Windows Start Menu and type **Wordpad** into the search bar, or go to *Windows Accessories*, then select *WordPad*.

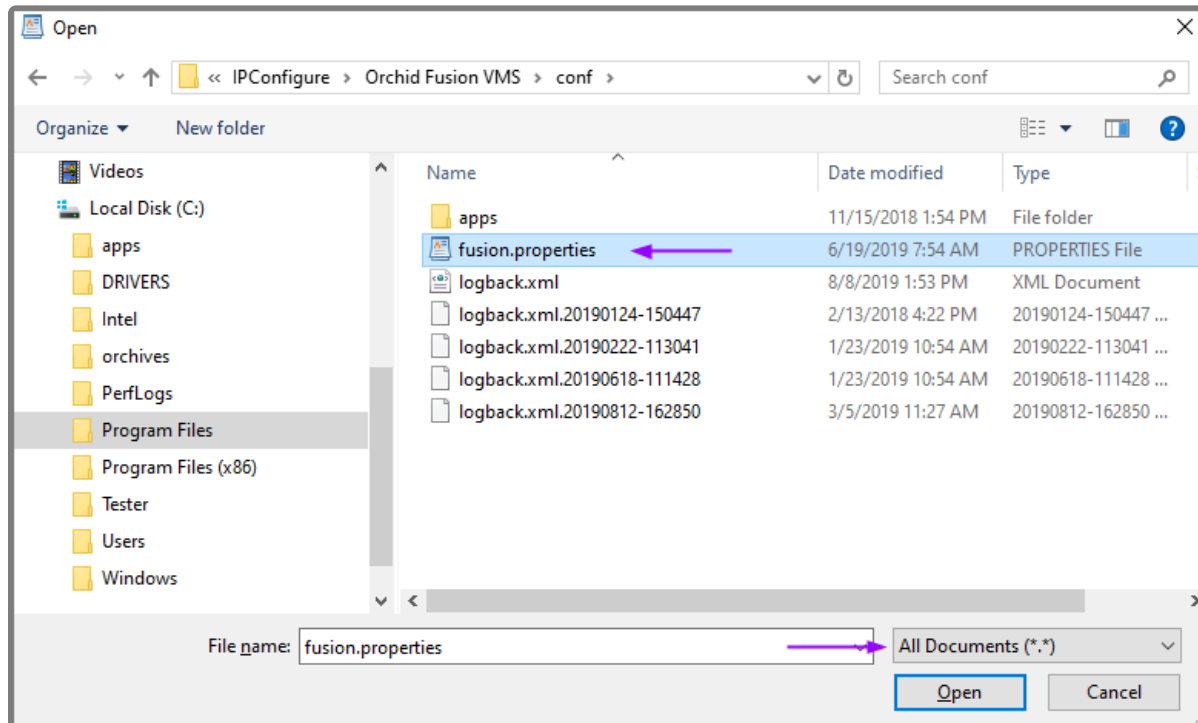


OR

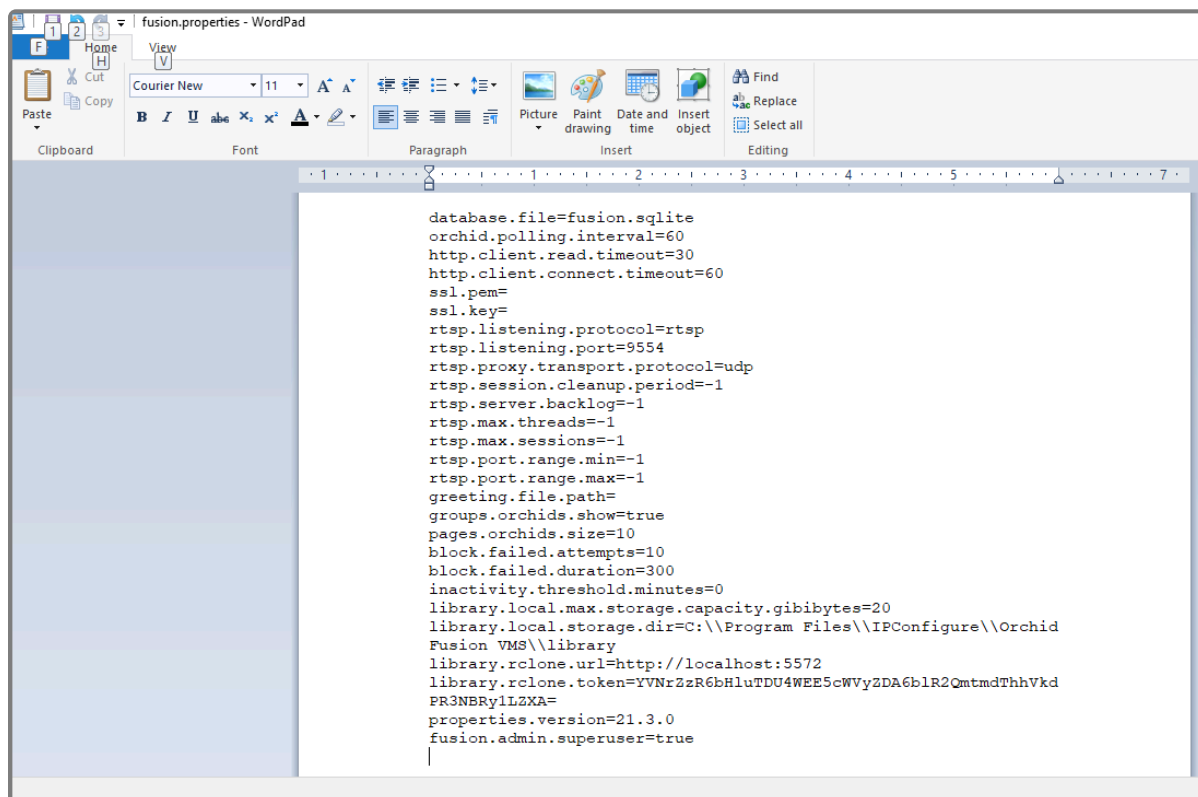


2. Right click on the **WordPad** icon and click Run as administrator.
3. Click the **Yes** button to let WordPad make changes to the computer.
4. Select **File/Open**, then navigate to the *fusion.properties* file. (If no files appear, ensure the *All*

*Documents* option is selected.)



5. Select the file and click the **Open** button.
6. The file 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 Fusion VMS service in Windows to implement the new settings.

- \* Beginning with version 2.10, some of the Orchid Core VMS configuration settings can be edited from within the Orchid Fusion VMS user interface. (This is done using the *Advanced Settings* feature which is explained in the [Orchid Fusion VMS Administrator Guide](#).) To edit the Orchid Core VMS configuration file using standard text editors, please refer to the [Orchid Core VMS Installation Guide](#).

# How to Manage the Orchid Fusion VMS Services in Windows

---

The following services are used by Orchid Fusion VMS in Windows. If you need to check the status, start, or stop the service, you can do this through the *Services Manager* whenever necessary.

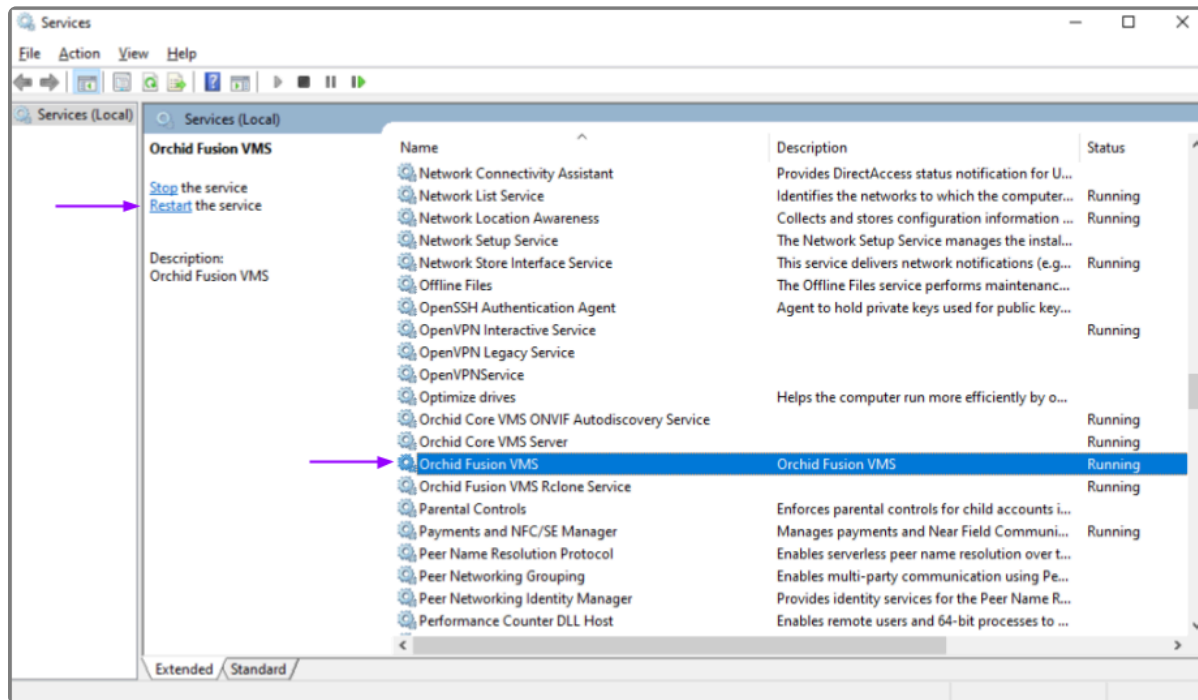
- **Orchid Fusion VMS:** This service supports the Orchid Fusion VMS server that manages registered Orchid Core VMS servers and provides access to video from those servers.
  - You will need to restart this service whenever a change has been made to the Orchid Fusion VMS configuration file.
- **Orchid Fusion VMS Rclone Service:** This service supports Fusion's ability to export video files to an external cloud storage location, via the Rclone open-source library.
  - You will need to restart this service if you re-run the Rclone executable.



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

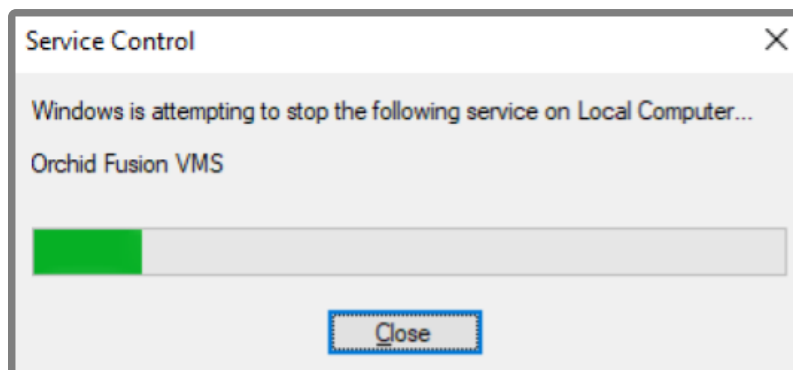
To manage the Orchid Fusion VMS service:

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 work on: the *Orchid Fusion VMS* service or the *Orchid Fusion VMS Rclone Service*. (Notice that the status of the service will appear in the *Status* column.)
4. Click the **Restart the service** button/link (at the left of the list of services) to restart the service. (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 the service is *Running*.



# Uninstalling Orchid Fusion VMS for Windows

---

To remove the Orchid Fusion VMS software, follow the steps below. (This will remove all files installed and created by Orchid Fusion VMS.)

1. To uninstall Orchid Fusion VMS, locate the uninstall file on the computer. The default location for this file is *C:\Program Files\IPConfigure\Orchid Fusion VMS\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.

# Working in Ubuntu 16.04 to 20.04

---

IPConfigure distributes Orchid Fusion 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 LTS, Ubuntu 20.04 LTS, Debian Jessie and Raspbian Jessie. Ubuntu 16.04, Ubuntu 18.04, and Ubuntu 20.04 will use the same installation package file. Debian Jessie and Raspbian Jessie will each have a different installation package file.

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

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

\* Beginning with Orchid Fusion VMS version 2.10.0, if you are performing an upgrade of your Orchid Fusion VMS, you should check to make sure that all of the registered Orchid Core VMS servers are running, at minimum, Orchid Core VMS version 2.8.0. (You will receive a warning message during the installation if this is not the case.)

\* Beginning with Orchid Fusion VMS version 21.9, Ubuntu 14.04 is no longer supported. The 16.04 installer cannot be used to install Fusion on a system running Ubuntu 14.04.

# Installing Orchid Fusion VMS on Ubuntu 16.04 to 20.04

---

There are a few steps you will need to perform to prepare to install Orchid Fusion VMS.

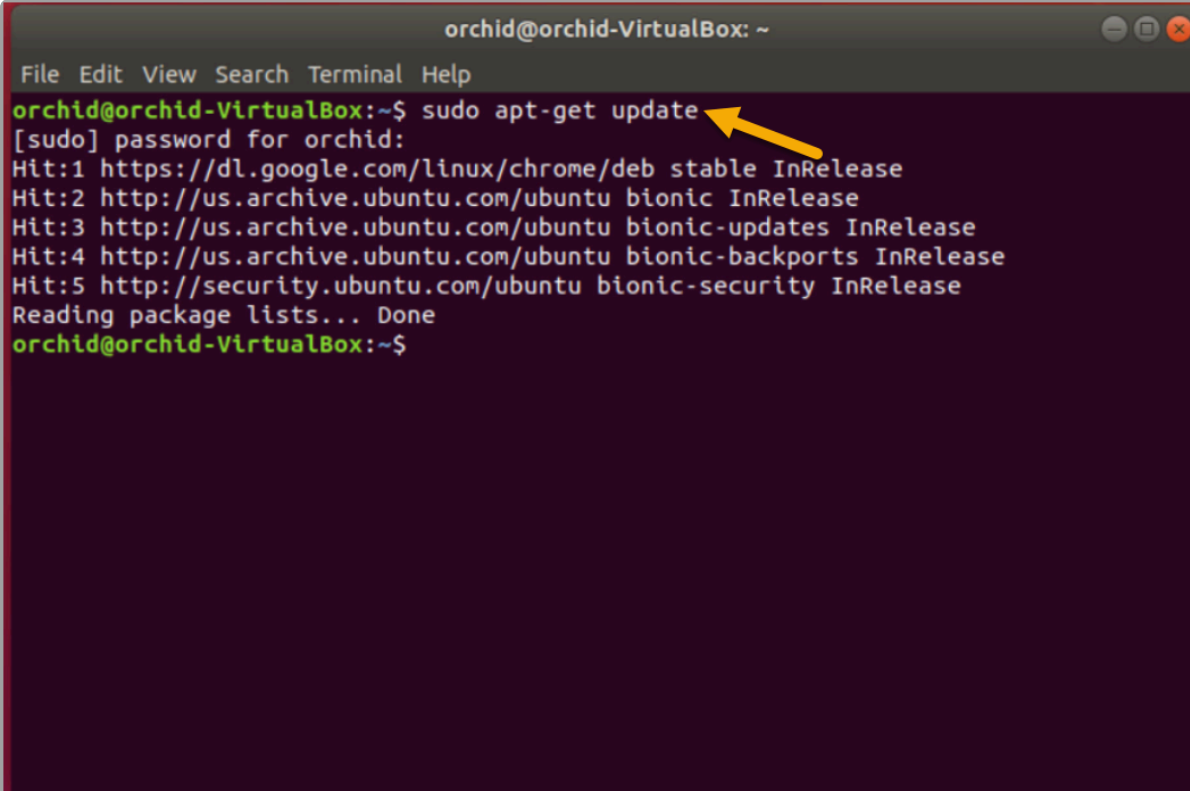
1. You will need to install Java 8 before you install Fusion. Type each of the following commands, pressing **Enter** after each one. (The screenshots that follow show the first couple of commands and the system response.)

- `sudo apt-get update`
- `sudo apt install openjdk-8-jre-headless`

After this command, if the system is upgrading, you may receive a message that requests if you want to continue and use the additional space required. Respond by pressing **Y**.

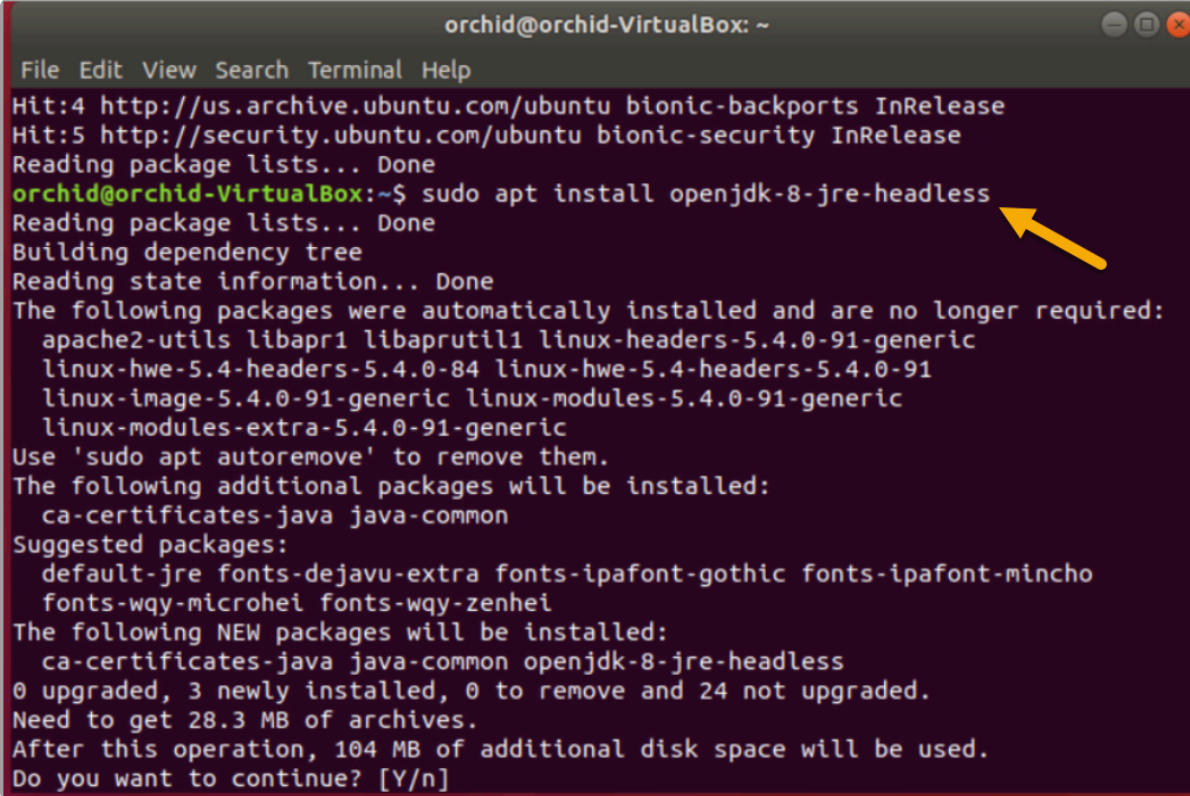
- `sudo update-alternatives --config java`

If only one version of Java is present on your server, the last command above will do nothing. If more than one version is present, select Java 8 when prompted by the last command.

A screenshot of a terminal window titled 'orchid@orchid-VirtualBox: ~'. The terminal shows the command 'orchid@orchid-VirtualBox:~\$ sudo apt-get update' being entered. A yellow arrow points to this command. The output shows the system fetching package lists from various sources, including Google, Ubuntu mirrors, and security updates. The terminal text is as follows:

```
orchid@orchid-VirtualBox: ~
File Edit View Search Terminal Help
orchid@orchid-VirtualBox:~$ sudo apt-get update
[sudo] password for orchid:
Hit:1 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:2 http://us.archive.ubuntu.com/ubuntu bionic InRelease
Hit:3 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu bionic-security InRelease
Reading package lists... Done
orchid@orchid-VirtualBox:~$
```





```
orchid@orchid-VirtualBox: ~
File Edit View Search Terminal Help
Hit:4 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu bionic-security InRelease
Reading package lists... Done
orchid@orchid-VirtualBox:~$ sudo apt install openjdk-8-jre-headless
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  apache2-utils libapr1 libaprutil1 linux-headers-5.4.0-91-generic
  linux-hwe-5.4-headers-5.4.0-84 linux-hwe-5.4-headers-5.4.0-91
  linux-image-5.4.0-91-generic linux-modules-5.4.0-91-generic
  linux-modules-extra-5.4.0-91-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ca-certificates-java java-common
Suggested packages:
  default-jre fonts-dejavu-extra fonts-ipafont-gothic fonts-ipafont-mincho
  fonts-wqy-microhei fonts-wqy-zenhei
The following NEW packages will be installed:
  ca-certificates-java java-common openjdk-8-jre-headless
0 upgraded, 3 newly installed, 0 to remove and 24 not upgraded.
Need to get 28.3 MB of archives.
After this operation, 104 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

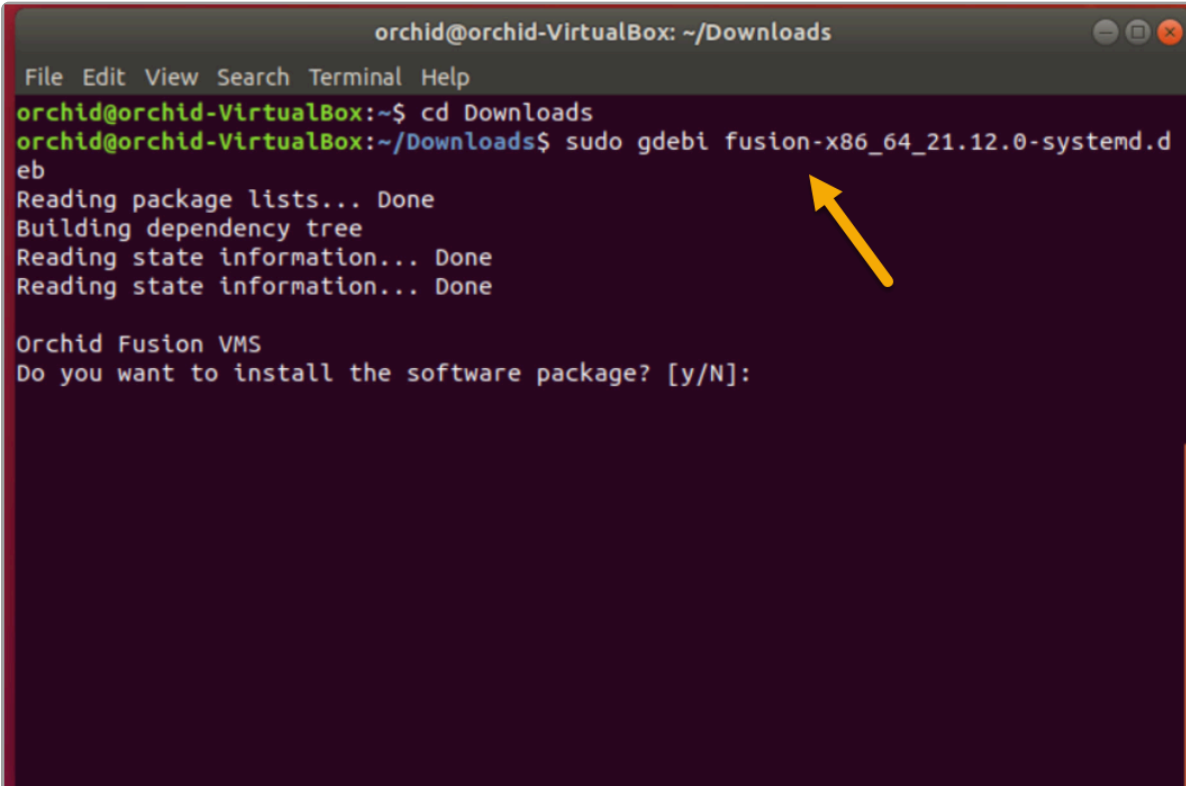
2. Download the Fusion .deb file. You can find the latest version of Orchid Fusion VMS (for Ubuntu 16.04, Ubuntu 18.04, Debian Jessie, and Raspbian Jessie) on IPConfigure's website at <http://www.ipconfigure.com/products/fusion#download>.
3. Once you've downloaded the Orchid Fusion VMS installation package, decide whether you want to perform the installation via the [Command Line](#) or the [GUI](#).

## Installing through the Command Line (Ubuntu Server):

\* Beginning with Orchid Fusion VMS version 2.10.0, if you are performing an upgrade of your Orchid Fusion VMS, you should check to make sure that all of the registered Orchid Core VMS servers are running, at minimum, Orchid Core VMS version 2.8.0. (You will receive a warning message during the installation if this is not the case.) In addition, you should install the Orchid Fusion VMS upgrade using the command line.

1. Open the *Terminal* program (**CTRL+ALT+T**) and navigate to the directory where you downloaded the Orchid Fusion 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. Type the following command:  
`sudo apt-get install gdebi`. 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 Fusion VMS debian package. The syntax is `sudo gdebi (package-name).deb`, where *package-name* is the complete filename of the Orchid Fusion VMS installation package that you downloaded. For example, if the name of the package is *fusion-x86\_64\_2.10.0-systemd.deb*, type the following command: `sudo gdebi fusion-`

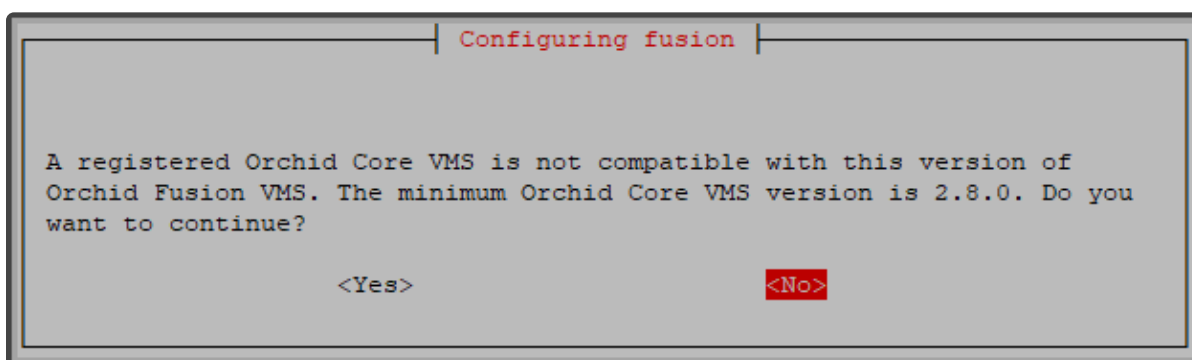
x86\_64\_2.10.0-systemd.deb. Then press **Enter**.



```
orchid@orchid-VirtualBox: ~/Downloads
File Edit View Search Terminal Help
orchid@orchid-VirtualBox:~$ cd Downloads
orchid@orchid-VirtualBox:~/Downloads$ sudo gdebi fusion-x86_64_21.12.0-systemd.d
eb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Reading state information... Done

Orchid Fusion VMS
Do you want to install the software package? [y/N]:
```

4. You will be asked if you want to install the software. Respond by pressing **Y** and **Enter**.
- Beginning with Orchid Fusion VMS version 2.10.0, if you are performing an upgrade of your Orchid Fusion VMS, the installer will check the Orchid Core VMS version numbers on each of the registered Orchid Core VMS servers. If any of the registered servers have an Orchid Core VMS version number older than 2.8.0, you will receive a warning message similar to the one pictured here.



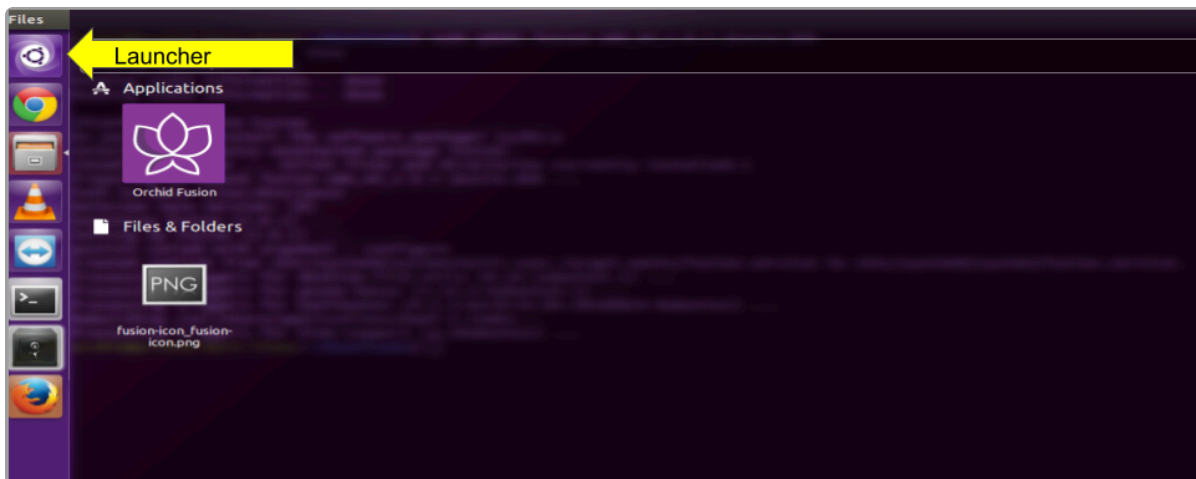
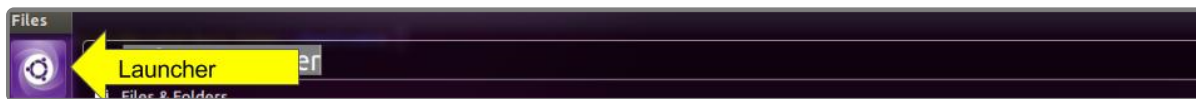
- Orchid Fusion VMS Setup will ask if you want to continue with the installation. IPConfigure recommends that you select **No**, and upgrade any Orchid Core VMS servers that don't meet the minimum version requirement. When all of your Orchid Core VMS upgrades are complete, return to step 3 to install the new Orchid Fusion VMS.
5. You will be asked to accept the End User License Agreement. After reading the agreement, press the **Tab** key, then the **Enter** key to accept it.

6. You will then be asked to accept the agreement in a separate prompt. Use the **Left Arrow** key to select **Yes**, and press **Enter** to accept it.
7. The installer will then ask for the web server port number to use for Orchid Fusion VMS. By default, it is set to port 8080 (which is the recommended port for most installations). If Orchid Fusion VMS needs to use a different port, update the port then press the **Enter** key.
8. Enter the password you would like to set for the default admin account, then press the **Enter** key.

The installation will complete automatically without any additional prompts. This process may take a few minutes. The Orchid Fusion VMS service starts automatically once the package installation is done, after which you can access the Orchid Fusion VMS user interface in your web browser. (For more details on signing in, please refer to the *Enabling...* topics included in the [Installation Support Topics](#) section, and the *Sign In* topic in the [Orchid Fusion VMS Administrator Guide](#).)

You may automatically launch a browser to Orchid Fusion VMS using the link installed on your server:

- Click on the **Launcher** icon in the top left corner of the screen. Then type *fusion* in the search box, and click the **Orchid Fusion** icon listed under *Applications*.



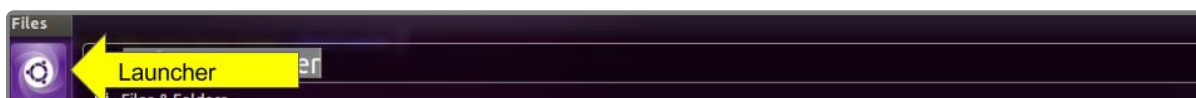
- Or, you can click the **Applications** icon (in your favorites or the lower-left corner of the screen), then click on the **Orchid Fusion** icon.

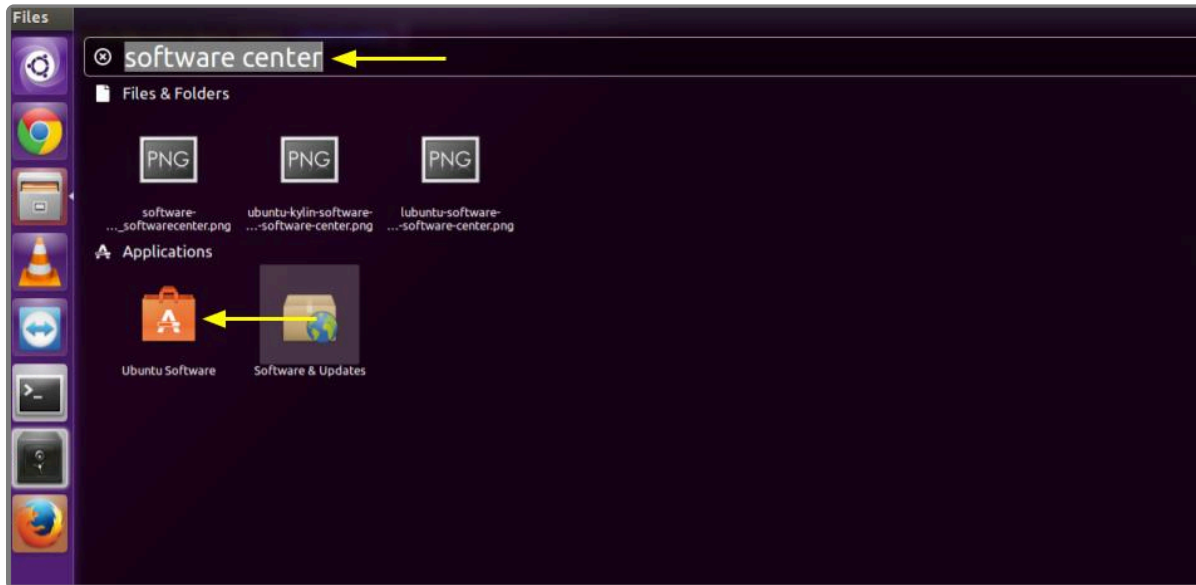


## Installing through the GUI (Ubuntu Desktop):

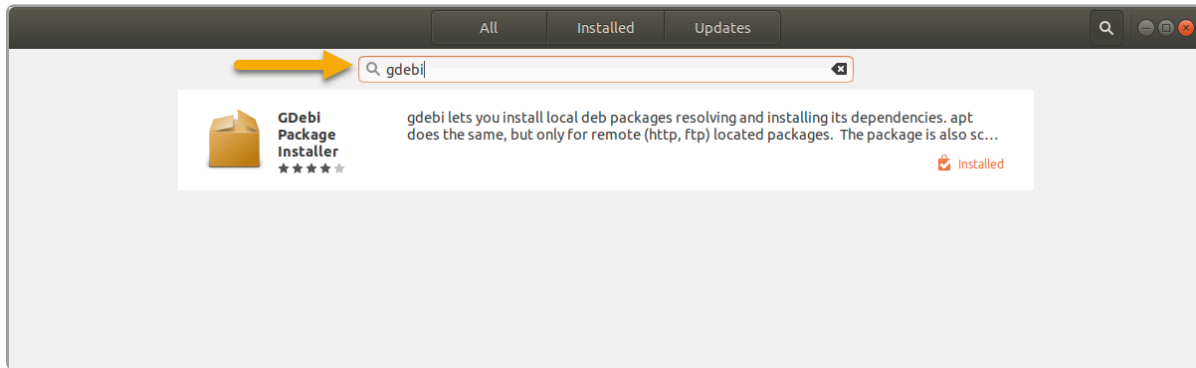
- ✿ If you are performing an upgrade of your Orchid Fusion VMS, you should perform the upgrade using the command line.

1. First, we'll need to open the *Ubuntu Software Center*. Here are a couple of ways to do this.
  - a. Click on the **Launcher** icon in the top left corner of the screen. Then type *Software Center* in the search box, and click the **Ubuntu Software Center** icon listed under *Applications*.
  - b. If it is not available in your favorites, click the **Applications** icon in the lower-left corner of the screen. Then click on the **Ubuntu Software Center** icon.

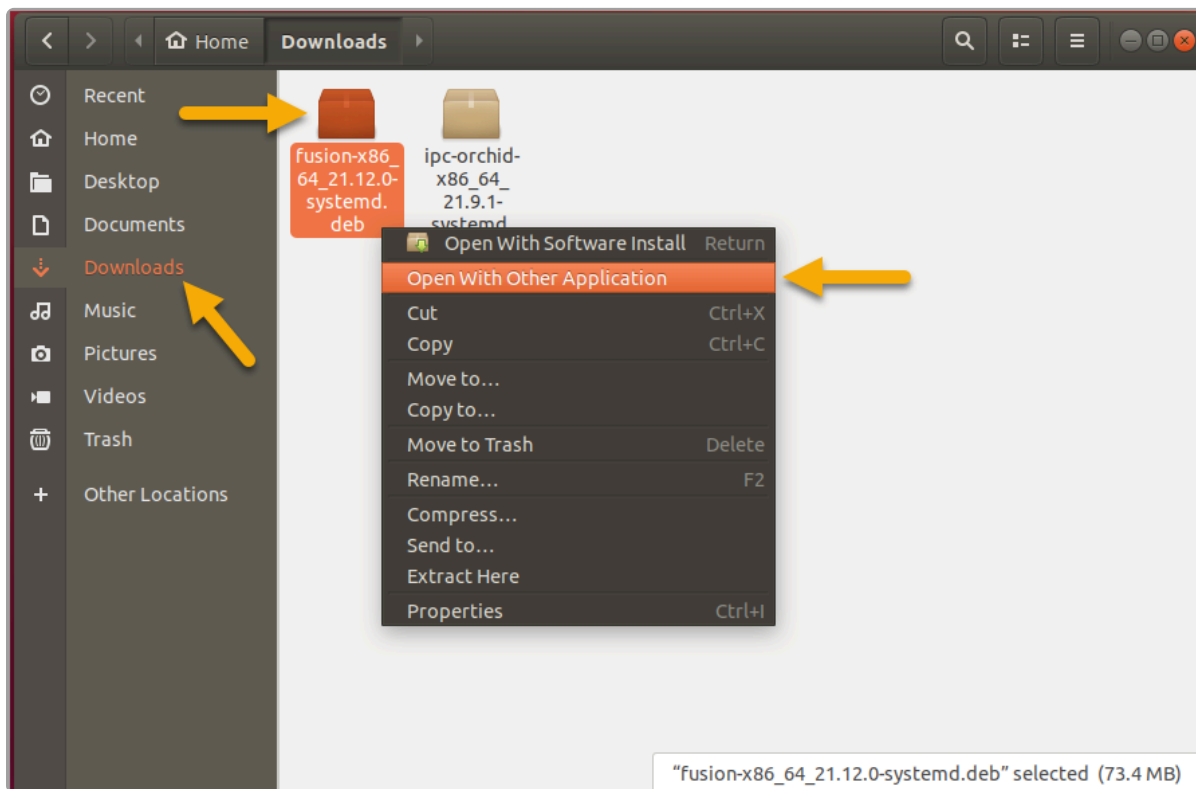


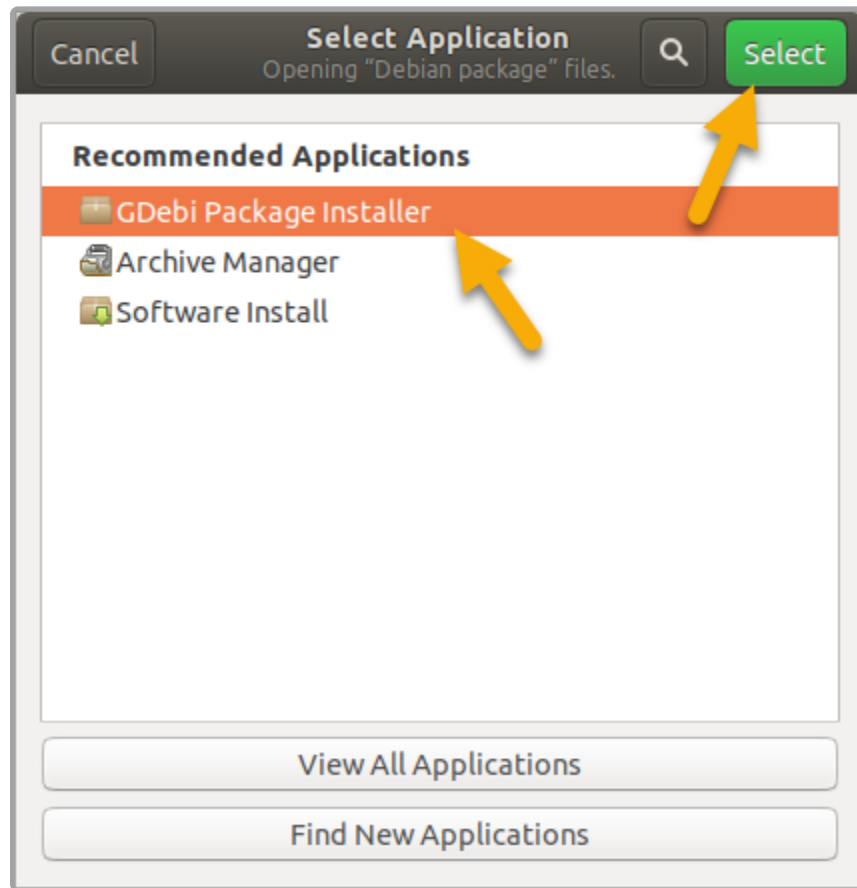


2. In the Software Center search bar (below), type *gdebi*.



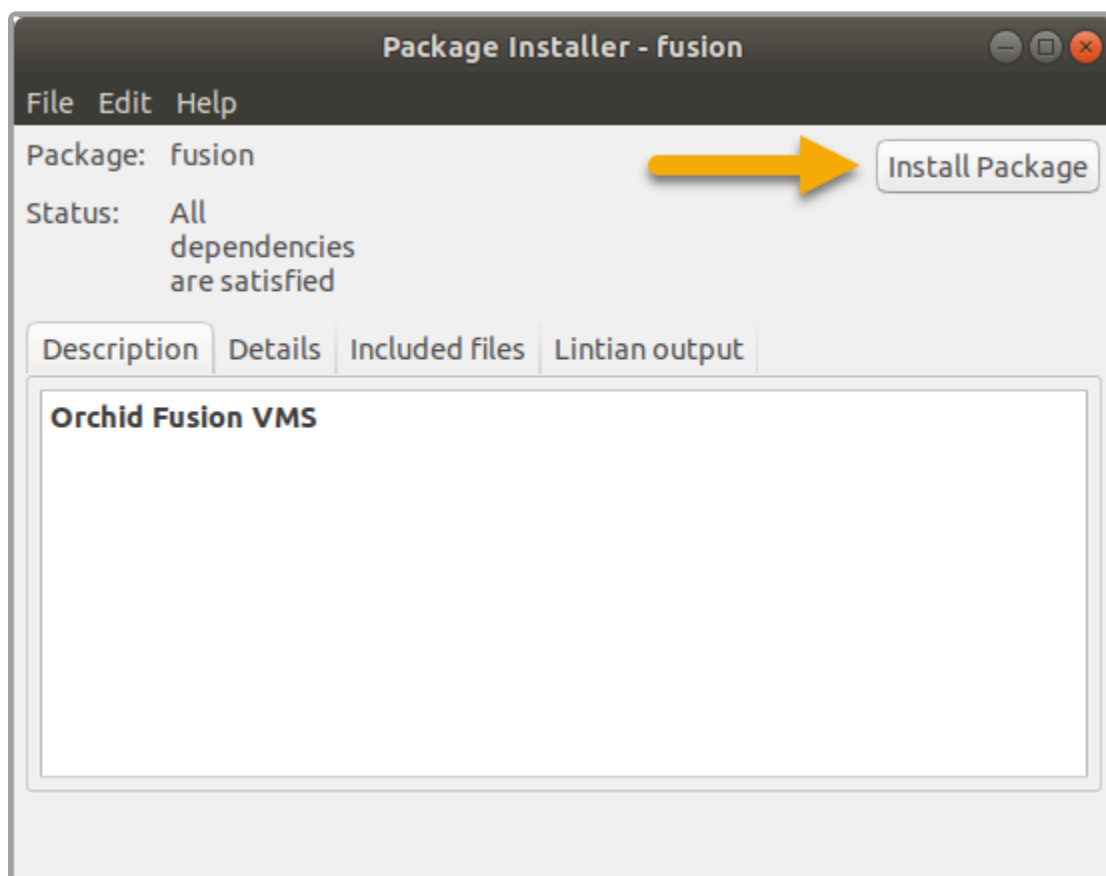
3. Select *GDebi Package Installer (gdebi)*, and then click the **Install** button.
4. After GDebi has finished installing, click the **Files** icon to open the *Files Explorer*, then navigate to the folder storing your Orchid Fusion VMS package (.deb file). (The package is probably stored in the *Downloads*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



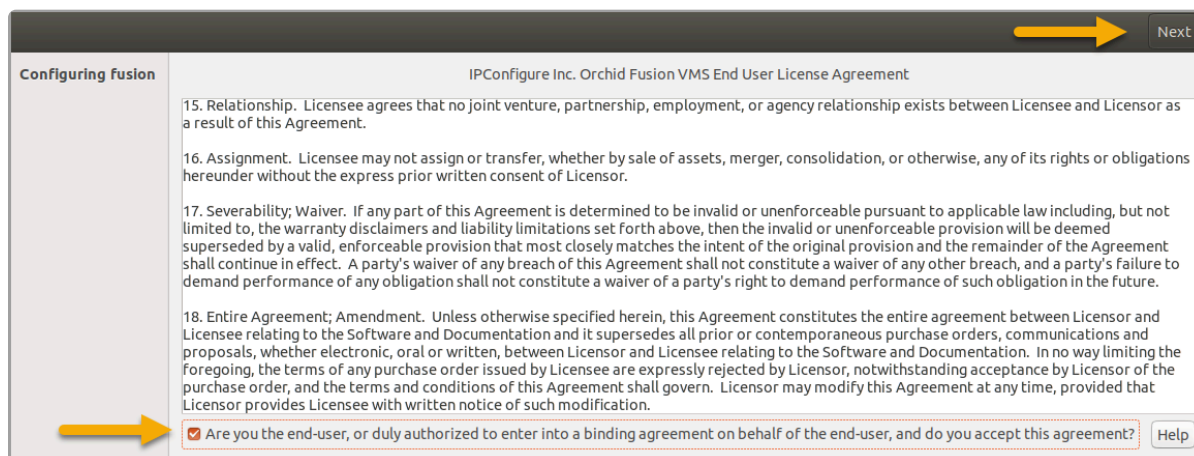


6. Once the GDebi package installer loads, click the **Install Package** button in the top right-hand corner of the window. (You may be asked to enter the administrator password.)



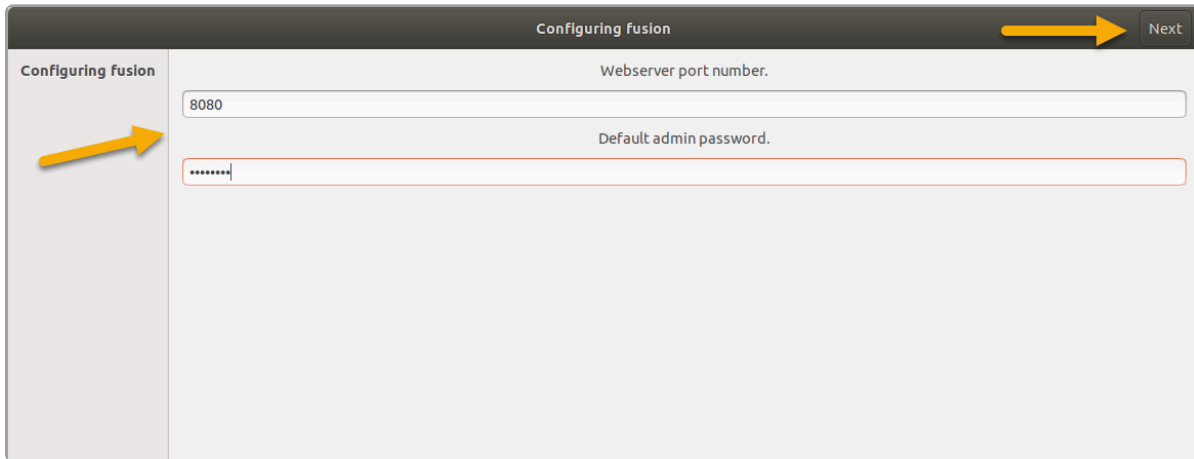


7. You will be asked to accept the End User License Agreement. After you read the agreement, mark the *Do you accept this agreement* checkbox and click the **Forward** button, or mark the *Are you the end user* checkbox and click the **Next** button.



8. The installer will ask you to set the web server port and default admin password:
- By default, the web server port is set to port 8080, which is recommended for most installations. Update the port number only if Orchid Fusion VMS needs to use a port other than 8080.
  - Enter the password you would like to set for the default admin account.

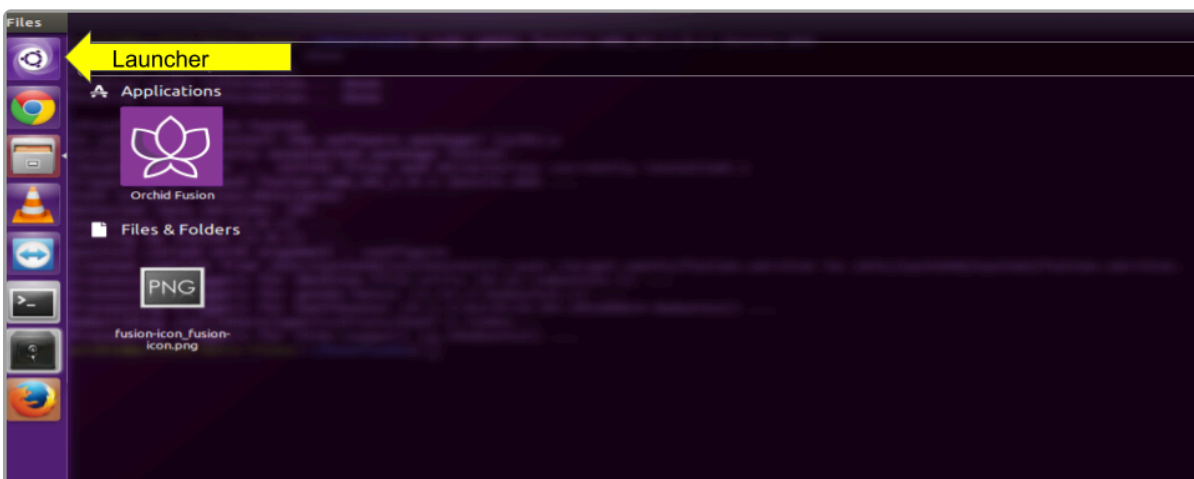
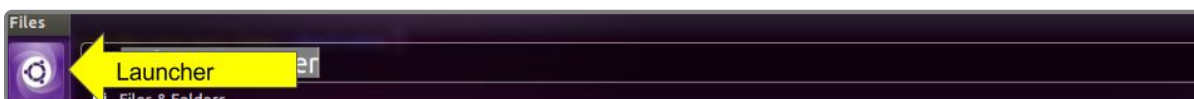




9. When finished, click the **Forward** or the **Next** button.  
The installation will complete automatically without any additional prompts. This may take a few minutes.
10. Once the package installer displays an “Installation Finished” message at the top of the screen, click the **Close** button to close the installer and complete the installation. The Orchid Fusion VMS service will start automatically once the package installation is done, after which you can access the Orchid Fusion VMS user interface in your web browser. (For more details on signing in, please refer to the *Enabling...* topics included in the [Installation Support Topics](#) section, and the *Sign In* topic in the [Orchid Fusion VMS Administrator Guide](#).)

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

- Click on the **Launcher** icon in the top left corner of the screen. Then type *fusion* in the search box, and click the **Orchid Fusion** icon listed under *Applications*.



- Or, you can click the **Applications** icon (in your favorites or the lower-left corner of the screen), then click on the **Orchid Fusion** icon.



# How to Edit a Configuration File in Ubuntu 16.04 to 20.04

---

If it becomes necessary, you can edit the Orchid Fusion VMS configuration file 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](#) (GUI).

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

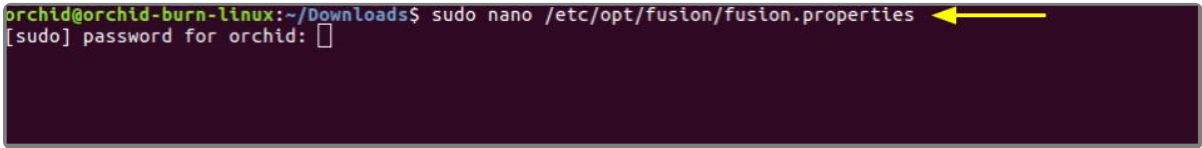
The default location for the Orchid Fusion VMS configuration file in Linux is:

- `/etc/opt/fusion/fusion.properties`
  - Stores all of the Orchid Fusion VMS settings and can be used to update things like the Orchid Fusion VMS port number, manually update the admin password, etc.

Refer to the [Installation Support Topics](#) section for a list of available properties.

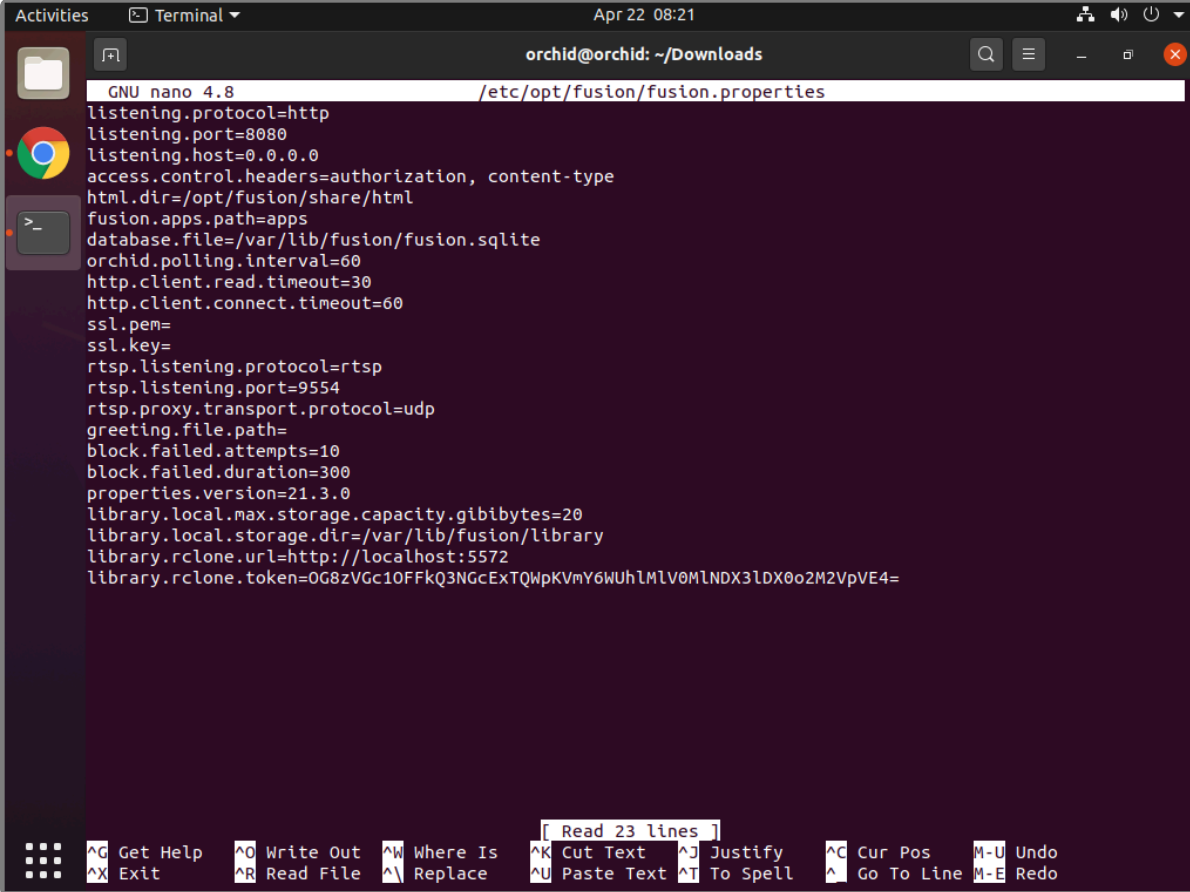
## Editing Configuration Files Through the Command Line:

1. Open the *Terminal* program (**CTRL+ALT+T**) and open the Orchid Fusion VMS configuration file in the nano text editor by typing the following command: `sudo nano /etc/opt/fusion/fusion.properties`. Then press **Enter**.



```
orchid@orchid-burn-linux:~/Downloads$ sudo nano /etc/opt/fusion/fusion.properties
[sudo] password for orchid: 
```

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.



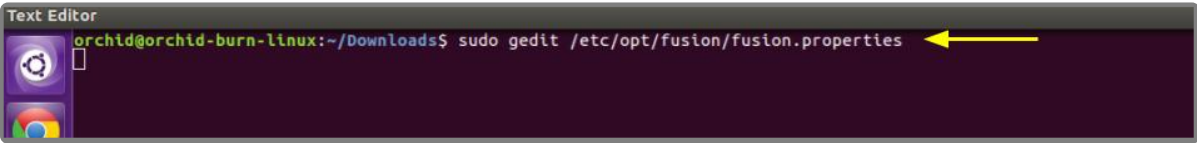
```

GNU nano 4.8 /etc/opt/fusion/fusion.properties
listening.protocol=http
listening.port=8080
listening.host=0.0.0.0
access.control.headers=authorization, content-type
html.dir=/opt/fusion/share/html
fusion.apps.path=apps
database.file=/var/lib/fusion/fusion.sqlite
orchid.polling.interval=60
http.client.read.timeout=30
http.client.connect.timeout=60
ssl.pem=
ssl.key=
rtsp.listening.protocol=rtsp
rtsp.listening.port=9554
rtsp.proxy.transport.protocol=udp
greeting.file.path=
block.failed.attempts=10
block.failed.duration=300
properties.version=21.3.0
library.local.max.storage.capacity.gibibytes=20
library.local.storage.dir=/var/lib/fusion/library
library.rclone.url=http://localhost:5572
library.rclone.token=OG8zVGc1OFFkQ3NGcExtQWpKVmY6WUhlMlV0MlNDX3lDX0o2M2VpVE4=
  
```

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 Fusion VMS service in Linux to implement the new settings.

## Editing Configuration Files Through the GUI:

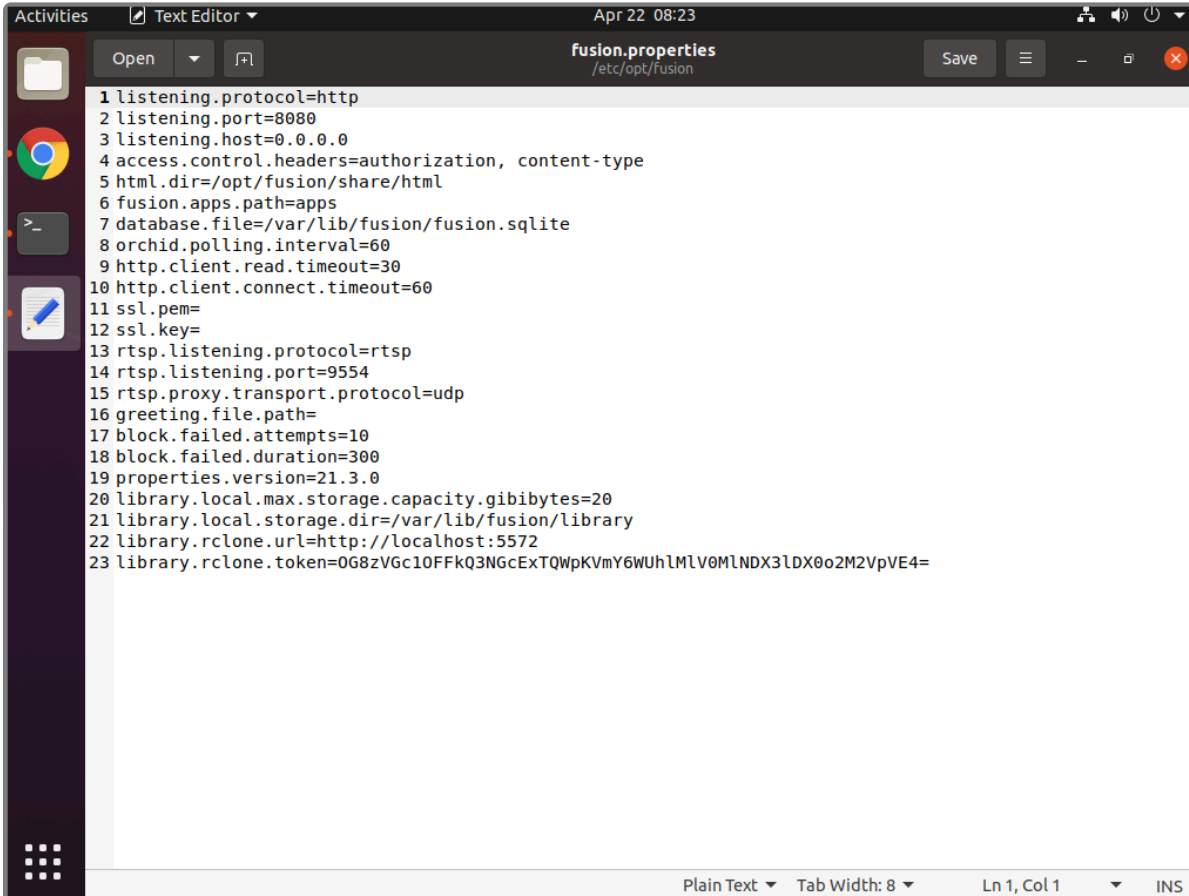
1. Open the *Terminal* program (**CTRL+ALT+T**) and open Orchid Fusion VMS's configuration file by typing the following command: `sudo gedit /etc/opt/fusion/fusion.properties`. Then press **Enter**.



```

Text Editor
orchid@orchid-burn-linux:~/Downloads$ sudo gedit /etc/opt/fusion/fusion.properties
  
```

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.



```
1 listening.protocol=http
2 listening.port=8080
3 listening.host=0.0.0.0
4 access.control.headers=authorization, content-type
5 html.dir=/opt/fusion/share/html
6 fusion.apps.path=apps
7 database.file=/var/lib/fusion/fusion.sqlite
8 orchid.polling.interval=60
9 http.client.read.timeout=30
10 http.client.connect.timeout=60
11 ssl.pem=
12 ssl.key=
13 rtsp.listening.protocol=rtsp
14 rtsp.listening.port=9554
15 rtsp.proxy.transport.protocol=udp
16 greeting.file.path=
17 block.failed.attempts=10
18 block.failed.duration=300
19 properties.version=21.3.0
20 library.local.max.storage.capacity.gibibytes=20
21 library.local.storage.dir=/var/lib/fusion/library
22 library.rclone.url=http://localhost:5572
23 library.rclone.token=0G8zVGc10FFkQ3NGcExTQWpKvMv6WUhlMlV0MlNDX3lDX0o2M2VpVE4=
```

4. When you are ready to save the file, click **File/Save**.
5. [Restart](#) the Orchid Fusion VMS service in Linux to implement the new settings.

\* Beginning with version 2.10, some of the Orchid Core VMS configuration settings can be edited from within the Orchid Fusion VMS user interface. (This is done using the *Advanced Settings* feature which is explained in the [Orchid Fusion VMS Administrator Guide](#).) To edit the Orchid Core VMS configuration file using standard text editors in Linux, please refer to the [Orchid Core VMS Installation Guide](#).

# How to Manage the Orchid Fusion VMS Services Through the Command Line

---

The following services are used by Orchid Fusion VMS in Linux. If you need to check the status, start, or stop the service, you can do this from the command line.

- **Fusion:** This service supports the Orchid Fusion VMS server that manages registered Orchid Core VMS servers and provides access to video from those servers.
  - You will need to restart this service whenever a change has been made to the Orchid Fusion VMS configuration file.
- **Fusion\_Rclone:** This service supports Fusion's ability to export video files to an external cloud storage location, via the Rclone open-source library.
  - You will need to restart this service if you re-run the Rclone executable.

## Tip

- After you've configured your Orchid Fusion VMS properties and started the service, you should check the service status to verify Orchid Fusion VMS is running.

To manage the Orchid Fusion VMS service from the command line:

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

```
orchid@orchid-burn-linux:~/Downloads$ sudo systemctl start fusion.service  
orchid@orchid-burn-linux:~/Downloads$
```

```
orchid@orchid-burn-linux:~/Downloads$ sudo systemctl stop fusion.service  
orchid@orchid-burn-linux:~/Downloads$
```

```
orchid@orchid-burn-linux:~/Downloads$ sudo systemctl restart fusion.service  
orchid@orchid-burn-linux:~/Downloads$
```

```
orchid@orchid-burn-linux:~/Downloads$ sudo systemctl status fusion.service  
● fusion.service - Orchid Fusion Video Management System  
   Loaded: loaded (/etc/systemd/system/fusion.service; enabled; vendor preset: enabled)  
   Active: active (running) since Thu 2017-08-24 11:37:14 EDT; 7min ago  
     Main PID: 11754 (java)  
      CGroup: /system.slice/fusion.service  
              └─11754 java -classpath /opt/fusion/lib/fusion-2.0.1.jar:/opt/fusion/lib/Fusion_F
```

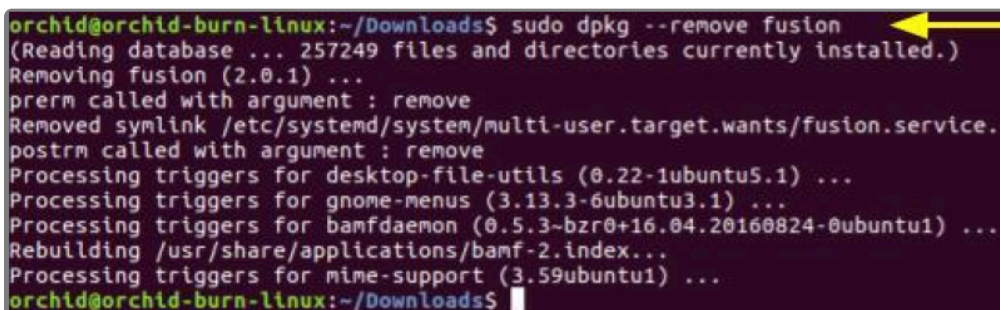
✿ The set of commands above will only manage the Fusion server service. If you need to manage the Fusion\_Rclone service, replace `fusion.service` with `fusion_rclone.service` in the command line.

# Uninstalling Orchid Fusion VMS in Ubuntu 16.04 to 20.04

---

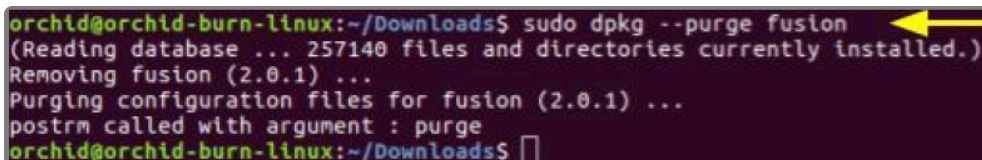
There are a couple of options for removing the Orchid Fusion VMS software. The *Remove* command will uninstall all files installed and created by Orchid Fusion VMS except the configuration files and the database. The *Purge* command will uninstall all files installed and created by Orchid Fusion VMS.

1. Open the *Terminal* program (**CTRL+ALT+T**).
2. To uninstall Orchid Fusion VMS, use either step 3 or step 4 below.
3. To uninstall Orchid Fusion VMS (while keeping the configuration files and the database), type the following command: `sudo dpkg --remove fusion`. Enter the password when prompted to do so, then press **Enter**.



```
orchid@orchid-burn-linux:~/Downloads$ sudo dpkg --remove fusion
(Reading database ... 257249 files and directories currently installed.)
Removing fusion (2.0.1) ...
prerm called with argument : remove
Removed symlink /etc/systemd/system/multi-user.target.wants/fusion.service.
postrm called with argument : remove
Processing triggers for desktop-file-utils (0.22-1ubuntu5.1) ...
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...
Processing triggers for bamfdaemon (0.5.3-bzr0+16.04.20160824-0ubuntu1) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for mime-support (3.59ubuntu1) ...
orchid@orchid-burn-linux:~/Downloads$
```

4. To uninstall all of the Orchid Fusion VMS files, type the following command:  
`sudo dpkg --purge fusion`. Enter the password when prompted to do so, then press **Enter**.



```
orchid@orchid-burn-linux:~/Downloads$ sudo dpkg --purge fusion
(Reading database ... 257140 files and directories currently installed.)
Removing fusion (2.0.1) ...
Purging configuration files for fusion (2.0.1) ...
postrm called with argument : purge
orchid@orchid-burn-linux:~/Downloads$
```



# Working in Red Hat

---

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

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

✿ Beginning with Orchid Fusion VMS version 2.10.0, if you are performing an upgrade of your Orchid Fusion VMS, you should check to make sure that all of the registered Orchid Core VMS servers are running, at minimum, Orchid Core VMS version 2.8.0. (You will receive a warning message during the installation if this is not the case.)

# Installing Orchid Fusion VMS in Red Hat Enterprise Linux 7

---

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

There are a couple of steps you will need to perform to prepare to install Orchid Fusion VMS.

1. You will need to install Java 8 before you install Fusion. Type each of the following commands, pressing **Enter** after each. (The screenshot that follows shows the initial command and the system response.)

- `sudo yum install java-1.8.0-openjdk`

After this command, if the system is upgrading, you may receive a message that requests if you want to continue and use the additional space required. Respond by pressing **Y**.

- `sudo update-alternatives --config java`

If only one version of Java is present on your server, the last command above will do nothing. If more than one version is present, select Java 8 when prompted by the last command.

```

orchid-burn-rhel.ipconfigure.com - PuTTY
orchid @ orchid-burn-rhel.ipconfigure.com (linux x86_64) [-]
$ sudo yum install java-1.8.0-openjdk
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-
: manager
epel/x86_64/metalink | 18 kB 00:00
epel | 5.3 kB 00:00
nodesource | 2.5 kB 00:00
rhel-7-server-rpms | 3.5 kB 00:00
(1/4): epel/x86_64/updateinfo | 1.0 MB 00:00
(2/4): epel/x86_64/primary_db | 6.8 MB 00:00
(3/4): rhel-7-server-rpms/7Server/x86_64/updateinfo | 3.7 MB 00:00
(4/4): rhel-7-server-rpms/7Server/x86_64/primary_db | 70 MB 00:05
Resolving Dependencies
There are unfinished transactions remaining. You might consider running yum-
complete-transaction, or "yum-complete-transaction --cleanup-only" and "yum hist
redo last", first to finish them. If those don't work you'll have to try rem
g/installing packages by hand (maybe package-cleanup can help).
--> Running transaction check
--> Package java-1.8.0-openjdk.x86_64 1:1.8.0.252.b09-2.el7_8 will be insta
--> Processing Dependency: java-1.8.0-openjdk-headless(x86-64) = 1:1.8.0.252
-2.el7_8 for package: 1:java-1.8.0-openjdk-1.8.0.252.b09-2.el7_8.x86_64
--> Running transaction check
--> Package java-1.8.0-openjdk-headless.x86_64 1:1.8.0.252.b09-2.el7_8 will
installed
--> Finished Dependency Resolution

Dependencies Resolved

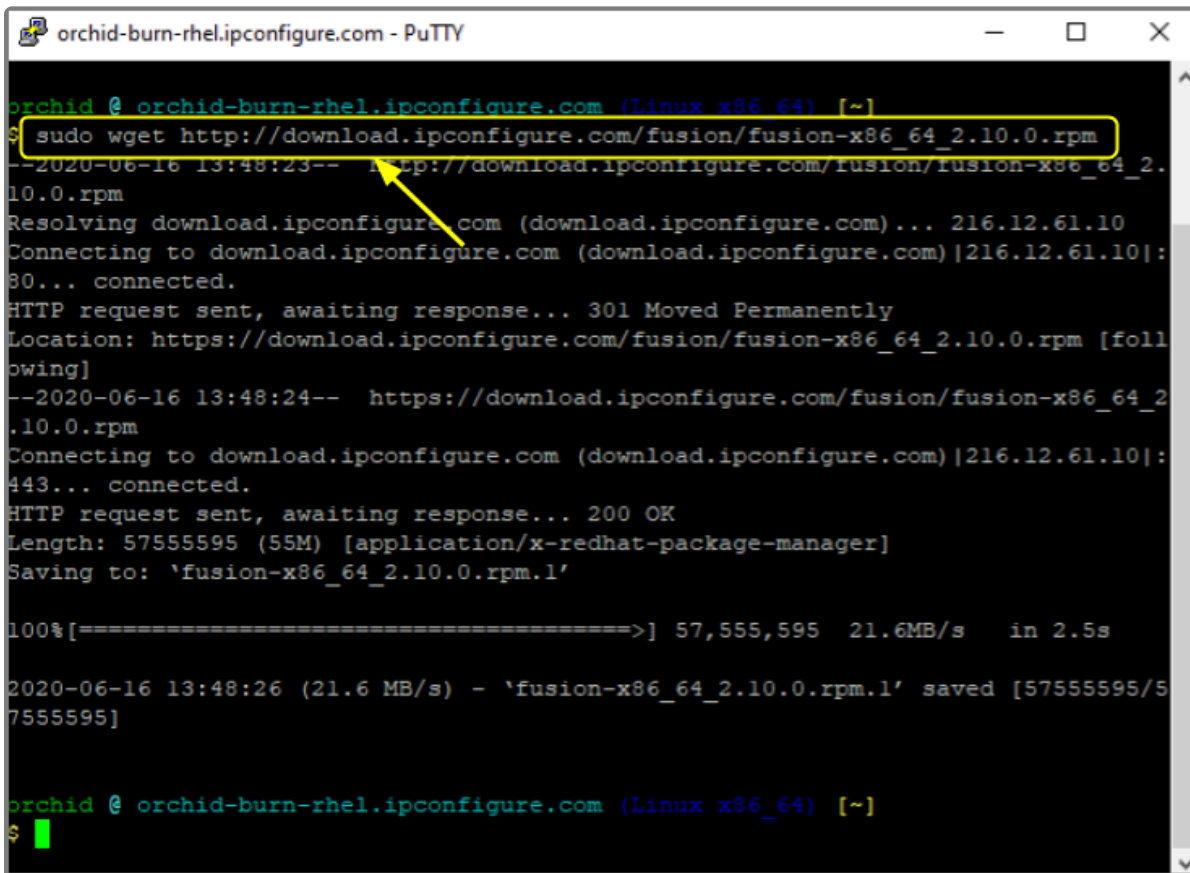
-----
Package Arch Version Repository Size
-----
Installing:
java-1.8.0-openjdk x86_64 1:1.8.0.252.b09-2.el7_8 rhel-7-server-rpms 29
Installing for dependencies:
java-1.8.0-openjdk-headless
x86_64 1:1.8.0.252.b09-2.el7_8 rhel-7-server-rpms 3
Transaction Summary
-----
Install 1 Package (+1 Dependent package)

Total download size: 32 M
Installed size: 108 M
Is this ok [y/d/N]: y

```

## Installing Orchid Fusion VMS in RedHat

1. To obtain the Orchid Fusion VMS installation package (.rpm file), do either of the following:
  - Use a web browser to obtain the file from the IPConfigure web site.
  - Type the following command at the *Terminal* screen: `sudo wget http://download.ipconfigure.com/fusion/fusion-x86_64_VERSION.rpm`, where *VERSION* is the software version number. Then press **Enter**.



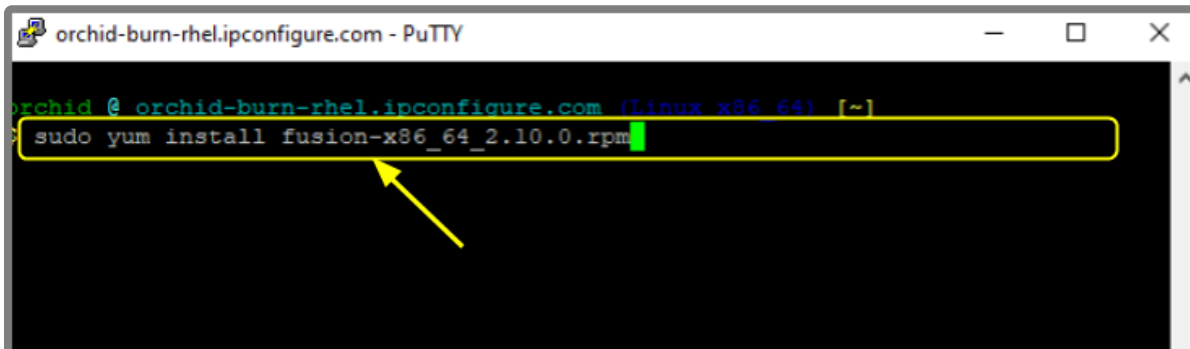
```
orchid-burn-rhel.ipconfigure.com - PuTTY
orchid @ orchid-burn-rhel.ipconfigure.com (Linux x86_64) [~]
$ sudo wget http://download.ipconfigure.com/fusion/fusion-x86_64_2.10.0.rpm
--2020-06-16 13:48:23-- http://download.ipconfigure.com/fusion/fusion-x86_64_2.10.0.rpm
Resolving download.ipconfigure.com (download.ipconfigure.com)... 216.12.61.10
Connecting to download.ipconfigure.com (download.ipconfigure.com)[216.12.61.10]:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://download.ipconfigure.com/fusion/fusion-x86_64_2.10.0.rpm [following]
--2020-06-16 13:48:24-- https://download.ipconfigure.com/fusion/fusion-x86_64_2.10.0.rpm
Connecting to download.ipconfigure.com (download.ipconfigure.com)[216.12.61.10]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 57555595 (55M) [application/x-redhat-package-manager]
Saving to: 'fusion-x86_64_2.10.0.rpm.1'

100%[=====>] 57,555,595  21.6MB/s  in 2.5s

2020-06-16 13:48:26 (21.6 MB/s) - 'fusion-x86_64_2.10.0.rpm.1' saved [57555595/57555595]

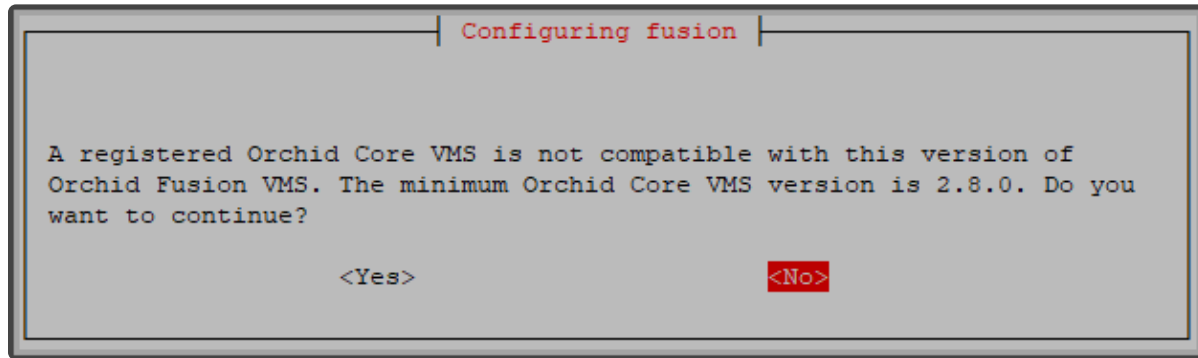
orchid @ orchid-burn-rhel.ipconfigure.com (Linux x86_64) [~]
$
```

2. Install Orchid Fusion VMS by typing the following command: `sudo yum install fusion-x86_64_2.10.0.rpm`, where *VERSION* is the software version number. Then press **Enter**.



```
orchid-burn-rhel.ipconfigure.com - PuTTY
orchid @ orchid-burn-rhel.ipconfigure.com (Linux x86_64) [~]
$ sudo yum install fusion-x86_64_2.10.0.rpm
```

- Beginning with Orchid Fusion VMS version 2.10.0, if you are performing an upgrade of your Orchid Fusion VMS, the installer will check the Orchid Core VMS version numbers on each of the registered Orchid Core VMS servers. If any of the registered servers have an Orchid Core VMS version number older than 2.8.0, you will receive a warning message similar to the one pictured here.



Orchid Fusion VMS Setup will ask if you want to continue with the installation. IPConfigure recommends that you select **No**, and upgrade any Orchid Core VMS servers that don't meet the minimum version requirement. When all of your Orchid Core VMS upgrades are complete, return to step 2 to install the new Orchid Fusion VMS.

This will install all necessary files for Orchid Fusion VMS and the Orchid Fusion VMS services. By default, the services will *not* be started. (For details on working with the services, please refer to the [How to Manage the Orchid Fusion VMS Services](#) section.)

3. Press the **Y** key and **Enter** to accept the EULA, or **N** to decline.
4. **After the installation is complete, you must set the admin password in the configuration file. (Refer to the next section for details.)**

# How to Edit a Configuration File in Red Hat

Orchid Fusion VMS uses a configuration file to store all of the system settings. This file may be edited to revise settings such as the Orchid Fusion VMS port number, the admin password, etc. Right after installation, you **must** set the admin password in the configuration file before you run the software. You can edit the Orchid Fusion VMS configuration file using your favorite text editor. (If you don't have a favorite, try nano.)

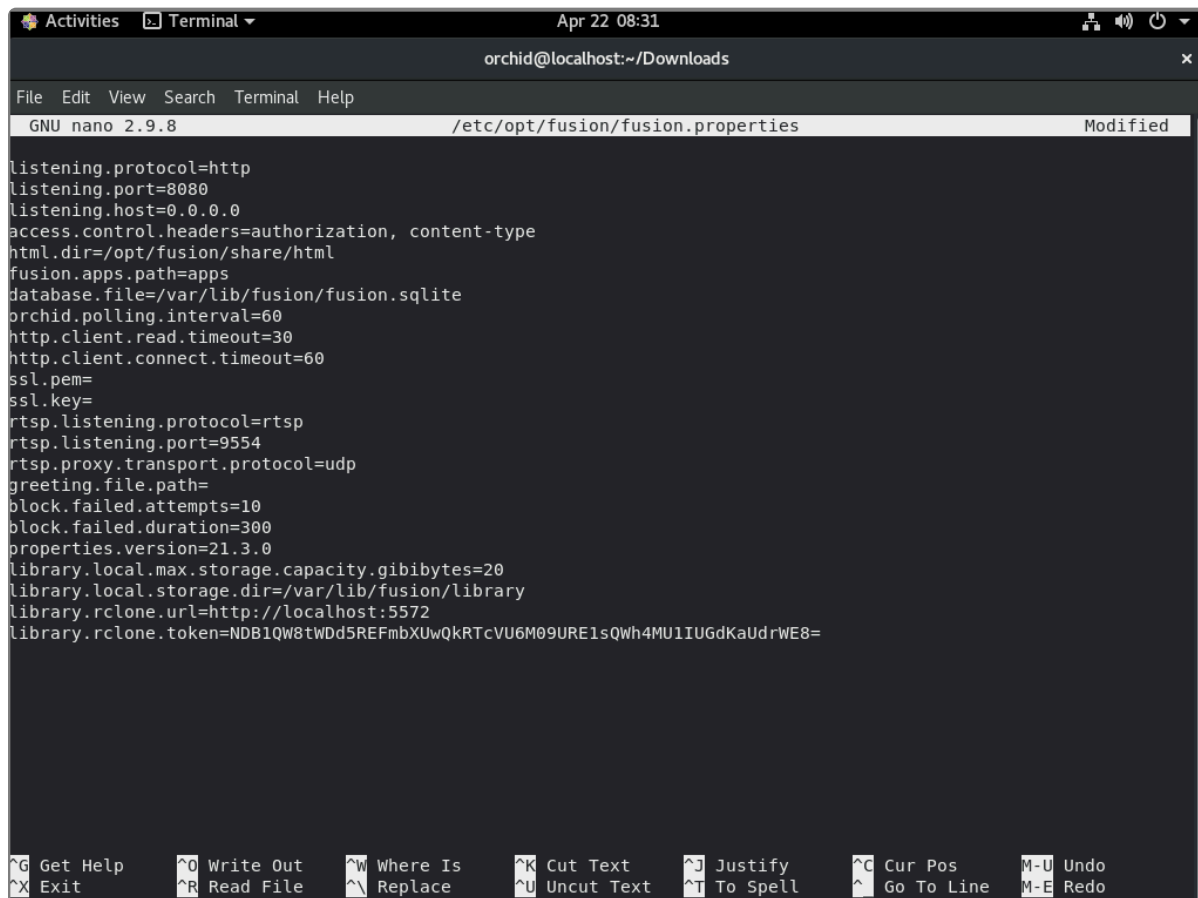
✿ You must sign in to the computer as a user with “root” access.

The default location for the Orchid Fusion VMS configuration file in Linux is:

- `/etc/opt/fusion/fusion.properties`

Refer to the [Installation Support Topics](#) section for a list of available properties.

1. Open the *Terminal* program (**CTRL+ALT+T**).
2. Open the Orchid Fusion VMS configuration file in the nano text editor by typing the following command: `nano /etc/opt/fusion/fusion.properties`. Then press **Enter**:

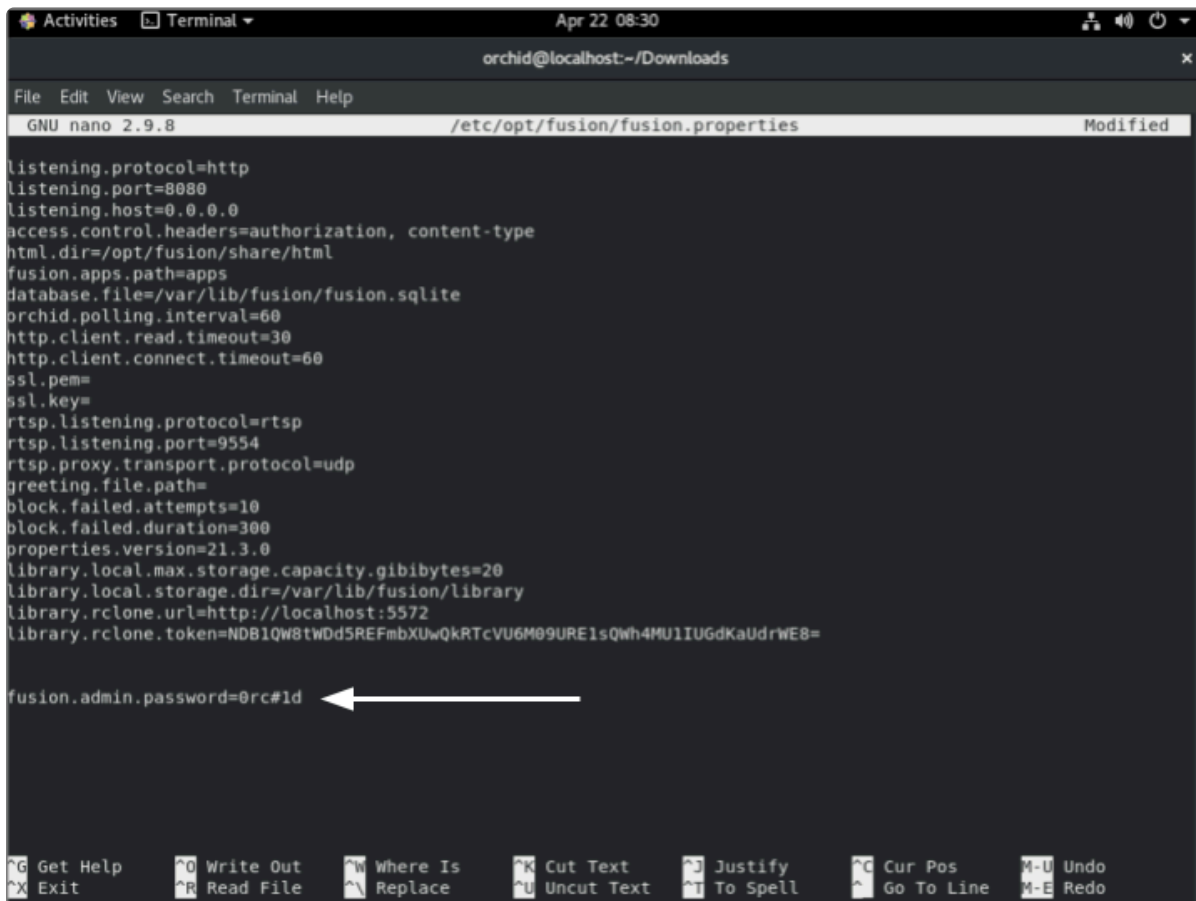


```
Activities  Terminal  Apr 22 08:31
orchid@localhost:~/Downloads
File Edit View Search Terminal Help
GNU nano 2.9.8 /etc/opt/fusion/fusion.properties Modified
listening.protocol=http
listening.port=8080
listening.host=0.0.0.0
access.control.headers=authorization, content-type
html.dir=/opt/fusion/share/html
fusion.apps.path=apps
database.file=/var/lib/fusion/fusion.sqlite
orchid.polling.interval=60
http.client.read.timeout=30
http.client.connect.timeout=60
ssl.pem=
ssl.key=
rtsp.listening.protocol=rtsp
rtsp.listening.port=9554
rtsp.proxy.transport.protocol=udp
greeting.file.path=
block.failed.attempts=10
block.failed.duration=300
properties.version=21.3.0
library.local.max.storage.capacity.gibibytes=20
library.local.storage.dir=/var/lib/fusion/library
library.rclone.url=http://localhost:5572
library.rclone.token=NDB1QW8tWDD5REFmbXUwQkRTcVU6M09URE1sQWh4MU1IUGdKaUdrWE8=
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  M-U Undo
^X Exit      ^R Read File  ^_ Replace  ^U Uncut Text  ^T To Spell  ^_ Go To Line  M-E Redo
```

3. Scroll down to review or set the Orchid Fusion VMS admin password (below). It will take effect only when Orchid Fusion VMS is started for the first time [typically meaning that the Orchid Fusion VMS database (at `/var/lib/fusion/fusion.sqlite`) does not exist when Orchid Fusion VMS starts].

### fusion.admin.password

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



```
orchid@localhost:~/Downloads
GNU nano 2.9.8 /etc/opt/fusion/fusion.properties Modified
listening.protocol=http
listening.port=8080
listening.host=0.0.0.0
access.control.headers=authorization, content-type
html.dir=/opt/fusion/share/html
fusion.apps.path=apps
database.file=/var/lib/fusion/fusion.sqlite
orchid.polling.interval=60
http.client.read.timeout=30
http.client.connect.timeout=60
ssl.pem=
ssl.key=
rtsp.listening.protocol=rtsp
rtsp.listening.port=9554
rtsp.proxy.transport.protocol=udp
greeting.file.path=
block.failed.attempts=10
block.failed.duration=300
properties.version=21.3.0
library.local.max.storage.capacity.gibibytes=20
library.local.storage.dir=/var/lib/fusion/library
library.rclone.url=http://localhost:5572
library.rclone.token=NDB1QW8tWdD5REFmbXUwQkRTcVU6M09URE1sQWh4MU1IUGdKaUdrWE=

fusion.admin.password=0rc#1d
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos    M-U Undo
^X Exit      ^R Read File  ^N Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line  M-E Redo
```

4. Review or edit the remainder of the parameters as needed.
5. Start or [Restart](#) the Orchid Fusion VMS service to implement the new settings.

\* Beginning with version 2.10, some of the Orchid Core VMS configuration settings can be edited from within the Orchid Fusion VMS user interface. (This is done using the *Advanced Settings* feature which is explained in the [Orchid Fusion VMS Administrator Guide](#).) To edit the Orchid Core VMS configuration file using standard text editors in Linux, please refer to the [Orchid Core VMS Installation Guide](#).

# How to Manage the Orchid Fusion VMS Services in Red Hat

---

The following services are used by Orchid Fusion VMS in Red Hat. If you need to enable, check the status, start, or stop the services, you can do this from the command line.


- **Fusion:** This service supports the Orchid Fusion VMS server that manages registered Orchid Core VMS servers and provides access to video from those servers.
  - You will need to restart this service whenever a change has been made to the Orchid Fusion VMS configuration file.
- **Fusion\_Rclone:** This service supports Fusion's ability to export video files to an external cloud storage location, via the Rclone open-source library.
  - You will need to restart this service if you re-run the Rclone executable.

## Tips

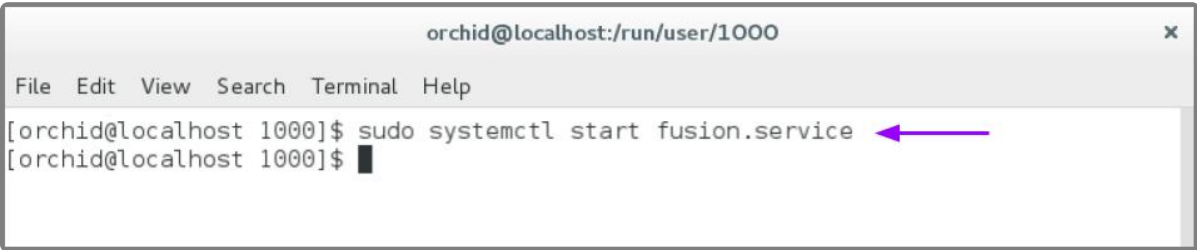
- In Red Hat, you have to enable both of the Orchid Fusion VMS services. This will allow the services to automatically start on bootup and restart in the case of failure.
- After you start the services, you should configure the firewall.
- After you've configured your Orchid Fusion VMS properties and started the service, you should check the service status to verify Orchid Fusion VMS is running.

To manage the Orchid Fusion VMS service:

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



```
orchid@localhost:~  
File Edit View Search Terminal Help  
[orchid@localhost ~]$ sudo systemctl enable fusion.service  
Created symlink from /etc/systemd/system/multi-user.target.wants/fusion.service to  
/etc/systemd/system/fusion.service.  
[orchid@localhost ~]$
```



```
orchid@localhost:/run/user/1000  
File Edit View Search Terminal Help  
[orchid@localhost 1000]$ sudo systemctl start fusion.service  
[orchid@localhost 1000]$
```



```
orchid@localhost:~  
File Edit View Search Terminal Help  
[orchid@localhost ~]$ sudo systemctl stop fusion.service  
[orchid@localhost ~]$
```

```
orchid@localhost:~  
File Edit View Search Terminal Help  
[orchid@localhost ~]$ sudo systemctl status fusion.service  
● fusion.service - Orchid Fusion Video Management System  
   Loaded: loaded (/etc/systemd/system/fusion.service; enabled; vendor preset: disabled)  
   Active: active (running) since Thu 2017-08-24 10:02:25 EDT; 1min 25s ago  
     Main PID: 27409 (java)  
       CGroup: /system.slice/fusion.service  
              └─27409 java -classpath /opt/fusion/lib/fusion-2.0.1.jar:/opt/fusion/...
```

\* The set of commands above will only manage the Fusion server service. If you need to manage the Fusion\_Rclone service, replace `fusion.service` with `fusion_rclone.service`.

# Post-Installation Steps in Red Hat

---

## Configure the Firewall

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

```
sudo firewall-cmd --zone=public --add-port=8080/tcp --permanent
sudo firewall-cmd --zone=public --add-port=9554/tcp --permanent
sudo firewall-cmd --zone=public --add-port=40000-50000/udp --permanent
sudo firewall-cmd --reload
```

## How to Sign In to Orchid Fusion VMS in Red Hat


Sign in to Orchid Fusion VMS using a web browser pointed to your server's IP address at the port specified in the configuration file (default is 8080). Unless changed during the configuration process, the default sign in credentials are *admin* and *password*. (For more details on signing in, please refer to the *Enabling...* topics included in the *Installation Support Topics* section, and the *Sign In* topic in the [Orchid Fusion VMS Administrator Guide](#).)

# Uninstalling the Orchid Fusion VMS Package in Red Hat

---

1. To remove the Orchid Fusion VMS package, type the following command: `sudo rpm -e fusion-version.x86_64`, where `version` is the software version number. Then press **Enter**.

(This will remove all files installed and created by Orchid Fusion VMS.)

A terminal window titled "orchid@localhost:~" with a standard menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command `sudo rpm -e fusion-2.0.1.x86_64` being executed. A purple arrow points to the command. The output shows "fusion.service disabled", "fusion.service stopped", and "fusion.service removed". The prompt returns to `[orchid@localhost ~]$`.

```
orchid@localhost:~  
File Edit View Search Terminal Help  
[orchid@localhost ~]$ sudo rpm -e fusion-2.0.1.x86_64  
fusion.service disabled  
fusion.service stopped  
fusion.service removed  
[orchid@localhost ~]$
```

# Installation Support Topics

---

As you work with Orchid Fusion VMS, you may encounter issues that are not typical of daily operation and should be addressed by an advanced user. Please review these topics if you need extra help. For in-depth explanations and additional topics, we encourage you to check our [Knowledge Base](#).

# Orchid Fusion VMS Configuration Settings

---

Orchid Fusion VMS uses a configuration file (*fusion.properties*) and a logging file (*logback.xml*). These files contain settings that don't change on a regular basis, and are reserved for those with administrator access. If a change to the configuration settings is required, please refer to the appropriate section (such as *Working in Windows* or *Working in Ubuntu 16.04*) earlier in this *Installation Guide*.

Orchid Fusion VMS's configuration settings are included below.

## Web Server Settings

### **listening.protocol**

Possible values include **http** and **https**. (The *ssl.pem* and *ssl.key* also need to be set. See [SSL Properties](#).)

### **listening.port**

Port number of the web server.

### **html.dir**

Root path to the Orchid Fusion VMS HTML files.

### **listening.host**

Listening address (0.0.0.0 binds to all network interfaces).

### **access.control.headers**

Access-Control-Allow-Headers response header value (CORS). The default value is **authorization, content-type**.

## SSL Properties

### **ssl.pem**

Full path to the PEM encoded TLS certificate file.

### **ssl.key**

Full path to the PEM encoded RSA key.

## Database Settings

### **database.file**

The sqlite database file.

# Fusion Server Settings

## **orchid.polling.interval**

Number of seconds between Orchid Core VMS data sync.

## **fusion.admin.password**

Updates the admin password (removed from the file after parsed). Prior to version 2.0.0, this was **new.password**.

## **fusion.(username).enabled**

This allows for the creation of a new user. (Set this to **True** and set the password property below to create a new user. Set this to **False** to delete a Fusion user.)

## **fusion.(username).password**

This may be used to reset the password of any user, or to create a new user (when combined with the *enabled* property above).

## **fusion.(username).superuser**

This allows for the promotion of any user to superuser status. (Set this to **True** to create a new superuser. Set this to **False** to revoke superuser status.)

## **pages.orchids.size**

Sets the number of Orchid Core VMS servers that will be displayed per page (on the *Servers* screen). The default is **10**.

## **fusion.public.url**

This optional setting may be used to set a custom, public URL for the Fusion server. Starting with version 2.6.2, this public URL will be displayed in *Notification* emails. In prior versions, the *Notification* emails displayed an IP address (which was not always helpful in identifying the source of the problem).

## **inactivity.threshold.minutes**

This setting may be used to automatically log a user out of the system after a set number of minutes of inactivity. Enter a number greater than zero to set the number of minutes of inactivity that the system will allow. (After that number of minutes expires, the software will log the user out of the system.) Enter zero to disable this setting. (Default: **0**.)

# Library Settings

## **library.local.max.capacity.gibibyte**

This represents the maximum capacity that the *Library* (local Fusion storage) will be able to hold. Value must be a whole number.

## **library.local.storage.dir**

This is the file path to the local directory for *Library* exports.

- (Linux) **library.local.storage.dir** = **/var/lib/fusion/library**
- (Windows) **library.local.storage.dir** = **<windows-install-dir/library**

**library.export.threads**

The maximum number of threads used by the pool to execute *Library* export requests. (Default: 100)

**library.export.http.client.read.timeout**

The maximum time (in seconds) that the *Library* export HTTP client will wait for a response from Orchid when performing a *Library* export. (Default: 180)

**library.export.http.client.connect.timeout**

The maximum time (in seconds) that the *Library* export HTTP client will wait to establish a connection to Orchid when performing a *Library* export. (Default: 60)

**library.rclone.remote**

This is the name of your Rclone *remote*. (This is required if you want to export *Library* items to an external cloud storage service.)

**library.rclone.url**

This is the url through which Fusion and Rclone communicate. (This property is set by the installer and should **not** be changed.)

**library.rclone.token**

This is how Fusion authenticates to the Rclone service. (This property is set by the installer and should **not** be changed.)



For additional instructions on enabling the use of an external cloud storage system, please refer to the [Enabling External Cloud Storage](#) section.

## RTSP Proxy Server Settings

**rtsp.listening.protocol**

Options are as follows:

- **rtsp**  
Default – Orchid Fusion VMS UI will access the streams via UDP.
- **rtspt**  
Orchid Fusion VMS UI will access the streams via TCP-interleaved.
- **rtspS**  
Orchid Fusion VMS UI will access the streams via UDP SRTP. (Secure — `ssl.pem` and `ssl.key` must be set)
- **rtspst**  
Orchid Fusion VMS UI will access the streams via TCP-interleaved TLS. (Secure tcp — `ssl.pem` and

ssl.key must be set)

**rtsp.listening.port**

The port the rtsp proxy listens on (default 9554)

**rtsp.proxy.transport.protocol**

This is the RTSP transport protocol between Orchid Fusion VMS and Orchid Core VMS. Options are:

- **udp**  
Default
- **tcp**
- **http**  
(http only works with target Orchid Core VMS servers running rtsp)

**rtsp.session.cleanup.period**

Time (in seconds) to periodically check for inactive sessions. Default is **2** seconds.

**rtsp.server.backlog**

The maximum number of queued requests for the server. Default is **50**.

**rtsp.max.threads**

The maximum number of 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. The default is **100**.

**rtsp.max.sessions**

The maximum allowed number of sessions. A value of **0** allows an unlimited number of sessions. Default is **128**.

**rtsp.port.range.min**

Sets the minimum RTP port range. A value of **0** will disable the minimum setting (meaning the server may use any available port). Default is **0**. If this is set to **0** (disabled), the **rtsp.port.range.max** will also be disabled.

**rtsp.port.range.max**

Sets the maximum RTP port range. A value of **0** will disable the maximum setting (meaning the server may use any available port). Default is **0**. If this is set to **0** (disabled), the **rtsp.port.range.min** will also be disabled.

## Sign In Options

Orchid Fusion VMS offers multiple ways to sign in. Important information regarding the configuration file is included below.



✳ For more detailed instructions on enabling alternative sign in methods, please refer to the following sections: \* [Enabling Google Authentication](#) \* [Enabling Active Directory](#) \* [Enabling Azure Active Directory](#) \* [Enabling FreeIPA Authentication](#) \*

## Google Authentication

Enabling Google sign in requires an *OAuth client ID* for Orchid Fusion VMS that is generated by Google. For more information, please refer to <https://console.developers.google.com/apis/credentials>.

### **google.auth.clientid**

This property enables Google sign in. (For example: **google.auth.clientid=<your client id>**)

## Active Directory

To use Active Directory authentication, you must already have an Active Directory server with at least one Active Directory group with one Active Directory user. The following properties will also need to be configured, as noted.

### **authentication.active.directory.servers**

This command identifies the active directory server. If there are more than one, use a comma to separate multiple server addresses.

### **authentication.active.directory.admin.groups**

This property was previously required to initialize admin access and provides a comma-separated list of groups for each domain. This property is now optional. You may use the Orchid Fusion VMS user interface to add Active Directory Administrator groups.

### **authentication.active.directory.referral.mode**

This property allows authentication to follow references to another server. Values include **follow** (the default), **ignore**, and **throw**.

## Azure Active Directory

To use Azure Active Directory authentication, you must create an Azure Active Directory App. (Please refer to Microsoft documentation for the most up-to-date instructions.). The following properties will also need to be configured, as noted.

### **authentication.azure.active.directory.clientid**

This property provides the Application ID assigned to your App when you registered it with Azure Active Directory.

### **authentication.azure.active.directory.clientsecret**

This property provides the application secret that you saved after creating it in the Azure Portal.

**authentication.azure.active.directory.endpoint**

This property provides the Microsoft OAuth 2.0 Authorize Endpoint assigned to your App when you registered it with Azure Active Directory.

**authentication.azure.active.directory.domain**

This property defines the domain associated with this Azure Active Directory instance. This can be anything, but in most cases should match the domain into which users are logging in. For example, for users logging in as *<Users>@ipconfigure.com*, the appropriate domain setting would be **ipconfigure.com**.

## FreeIPA Authentication

To use FreeIPA authentication, you must already have a FreeIPA server with at least one FreeIPA group with one user. The following properties will also need to be configured, as noted.

**authentication.freeipa.servers**

This property provides a list of authentication domains from FreeIPA.

**authentication.freeipa.(domain).userdn**

This property sets the base domain name used when authenticating a FreeIPA user. (This is an advanced FreeIPA option that will only need to be defined if the users are located somewhere other than the domains defined in the property above.)

## All LDAP Authenticators (Active Directory, FreeIPA)

Orchid Fusion VMS uses the LDAP protocol to communicate with both Active Directory and FreeIPA servers. You may need to define the property below (as noted).

**authentication.domain.alias**

This property provides a list of alternate domain names for servers registered with Active Directory or FreeIPA. (This is an advanced setting that will only be needed if the users are signing in to an “alias” domain for Active Directory or FreeIPA.)

# Java Versions Required for Orchid Fusion VMS

---

Java version 8 is required for Orchid Fusion VMS on all of the supported operating systems. The products used to implement the Java platform, and the exact delivery, however, will vary. Please refer to the following table for details.

	Java Product	Bundled with Orchid Fusion VMS	Installs Automatically
<b>Windows</b>	Oracle JDK 8	Yes	Yes
<b>Ubuntu 14.04</b>	Any Java 8 JRE	No	No
<b>Ubuntu 16.04</b>	Any Java 8 JRE	No	No
<b>Ubuntu 18.04</b>	Any Java 8 JRE	No	No
<b>Ubuntu 20.04</b>	Any Java 8 JRE	No	No
<b>Red Hat 7</b>	Any Java 8 JRE	No	No
<b>Red Hat 8</b>	Any Java 8 JRE	No	No
<b>CentOS 7</b>	Any Java 8 JRE	No	No
<b>CentOS 8</b>	Any Java 8 JRE	No	No
<b>Debian Jessie (ARMv7)</b>	Any Java 8 JRE	No	No
<b>Raspbian Jessie (Raspberry Pi)</b>	Any Java 8 JRE	No	No

# How to Edit the Java Options File in Linux

Orchid Fusion VMS contains a Java Options file that may be used for additional system configuration. If it becomes necessary, you can edit the Java Options file using a standard text editor in Linux. This section will describe how to edit the Java Options file from the command line.

\* This file should only be modified by a knowledgeable administrator.

\* In order to edit a text file as the root user, you will need administrator access to the computer on which Orchid Fusion VMS is installed.

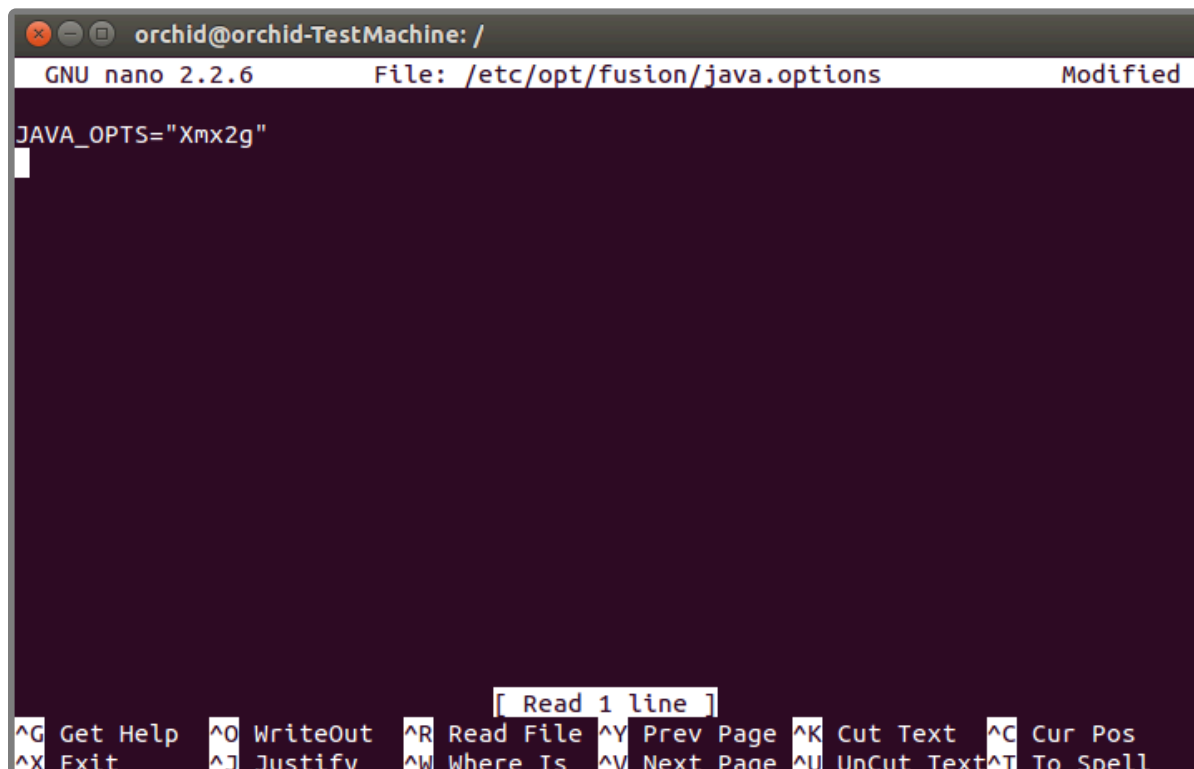
The default location for the Java Options file in Linux is:

- `/etc/opt/fusion/java.options`
  - This file contains the variable **JAVA\_OPTS**. By default, this variable is empty, but experienced administrators may use this variable to set Java/JVM related parameters.

## Editing the Java Options File from the Command Line:

1. Open the *Terminal* program (**CTRL+ALT+T**).
2. Open the Java Options file in a text editor (such as nano) by typing the following command: `sudo nano /etc/opt/fusion/java.options`. Then press **Enter**.

The file will open to display one variable: **JAVA\_OPTS**. This variable will initially be blank, but may be modified to define one or more settings. In the example below, the variable is modified to **-Xmx2g** (which sets the JVM maximum heap size to 2 gibibytes).



```
orchid@orchid-TestMachine: /
GNU nano 2.2.6      File: /etc/opt/fusion/java.options      Modified
JAVA_OPTS="Xmx2g"
[ Read 1 line ]
^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is   ^V Next Page  ^U UnCut Text ^T To Spell
```

3. Modify the Java Options file as needed.
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 Fusion service in Linux to implement the new settings. (If you need extra help, refer back to the *How to Manage the Orchid Fusion VMS Service* section that corresponds to the operating system you are using.)
6. Once the restart is complete, you can sign into Orchid Fusion VMS.

# Orchid Fusion VMS Firewall/Ports Configuration

---

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

## Required External Ports

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

- Web server TCP port
  - Default: **8080**
  - Configuration property: **listening.port** (number between 1 and 65535.)

## Optional External Ports

Orchid Fusion 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 VMS user interfaces, but may be used by certain third-party integrations or other applications.

- RTSP TCP port
  - Default: **9554**
  - Configuration property: **rtsp.listening.port** (number between 1 and 65535)
- RTP UDP port range
  - Defaults: **0** (any port)
  - Configuration properties:
    - **rtsp.port.range.min** (number between 1 and 65535)
    - **rtsp.port.range.max** (number between 1 and 65535)

## RTSP Configuration Properties

The following two settings are related to Orchid Fusion VMS's Proxy mode (which provides a workaround when the Orchid Core VMS server is not directly accessible to your web browser).

- **rtsp.listening.protocol**  
Options are as follows:
  - **rtsp**  
Default – Orchid Fusion VMS UI will access the streams via UDP.
  - **rtspt**  
Orchid Fusion VMS UI will access the streams via TCP-interleaved.
  - **rtsp**

Orchid Fusion VMS UI will access the streams via UDP SRTP. (Secure — ssl.pem and ssl.key must be set)

- **rtspst**

Orchid Fusion VMS UI will access the streams via TCP-interleaved TLS. (Secure tcp — ssl.pem and ssl.key must be set)

- **rtsp.proxy.transport.protocol**

This is the RTSP transport protocol between Orchid Fusion VMS and Orchid Core VMS. Options are:

- **udp**

Default

- **tcp**

- **http**

(http only works with target Orchid Core VMS servers running rtsp)

# Enabling Google Authentication

Orchid Fusion VMS offers multiple ways to sign in. By performing some configuration work on the front end, your Orchid Fusion VMS users will be able to sign in with their existing Google credentials.

✿ If you are using Orchid Hybrid VMS, remember that it is a managed system. IPConfigure Support staff will need to configure the system to use Google authentication.

## Creating the Google Credentials

The first step in enabling Google authentication is to create an *OAuth client ID* that Orchid Fusion VMS will use to identify itself with Google OAuth servers.

1. Navigate and sign in to <https://console.developers.google.com>.
2. Click **Credentials**.
3. Click **Create Credentials** and select **OAuth Client ID**.
4. Select **Web application**.
5. Set the name to *Fusion*.
6. Enter the URL for your instance of Fusion under Authorized Javascript origins.
7. Click **Create**. When the ID is created, copy the client ID.

## Creating Users in Orchid Fusion VMS

Orchid Fusion VMS users now need to be associated with Google accounts. For each user that would like to sign in using a Google account, create or modify their Orchid Fusion VMS account and specify their Google account in the email address field. For more information, please refer to the *Creating and Managing Users* section in the [Orchid Fusion VMS Administrator Guide](#).

## Modifying the Configuration File

To finish up, you will need to modify the Orchid Fusion VMS configuration file and then restart Orchid Fusion VMS. For help with the steps below, please refer back to the *Installation* section that corresponds to the operating system in which you are working.

1. Add/modify the following line in your Orchid Fusion VMS configuration file:  
**google.auth.clientid=<your client ID>**
  - a. Replace **<your client ID>** with the client ID that you copied from Google.
2. Restart the Orchid Fusion VMS service.

✿ If you're using Chrome, it may be necessary to restart Chrome if the user is currently signed



into the browser and having trouble with the Google credentials.

# Enabling Active Directory

Orchid Fusion VMS offers multiple ways to sign in. By performing some configuration work on the front end, your Orchid Fusion VMS users will be able to sign in with their existing Active Directory credentials.

✿ If you are using Orchid Hybrid VMS, remember that it is a managed system. IPConfigure Support staff will need to configure the system to use Active Directory authentication.

## Prerequisites

To configure Orchid Fusion VMS to work with Active Directory, you will need to have an Active Directory server that:

- Is reachable from your Orchid Fusion VMS server.
- Contains at least one Active Directory user who is a member of at least one Active Directory group.

## Modifying the Configuration File

There are several properties in the Orchid Fusion VMS configuration file that will need to be modified in order for Active Directory authentication to work.

✿ For extra help with the steps below, please refer back to the *Installation* section that corresponds to the operating system in which you are working.

1. Set the following properties in the Orchid Fusion VMS configuration file:

- **authentication.active.directory.servers=**  
**<domain1>|ldap(s)://<domainServerAddress1>,<domain2>| ldap(s)://<domainServerAddress2>**
- **authentication.active.directory.admin.groups= <domain>\\<group> (Optional)**
- **authentication.active.directory.referral.mode=follow**

Here is an example enabling the domain *malibu.beach* with server address 192.168.105.46, and an Active Directory group called *FusionAdmins* that will be given administrator access in Orchid Fusion VMS.

- **authentication.active.directory.servers=malibu.beach|ldap://192.168.105.46**
- **authentication.active.directory.admin.groups= malibu.beach\\FusionAdmins (Optional)**
- **authentication.active.directory.referral.mode=follow**

✿ The **authentication.active.directory.admin.groups** property is now optional. Instead of modifying this property in the configuration file, you may add Active Directory Admin groups using the Orchid Fusion VMS user interface. Please refer to the *Add a Permission Group for Active Directory* section of the [Orchid Fusion VMS Administrator Guide](#) for more details.

✿ **<domainServerAddress>** may be a DNS name or IP address and may be prefixed with either `ldap://` or `ldaps://` to specify the protocol.

2. After modifications to the configuration file are complete, restart the Orchid Fusion VMS service, then sign in to Orchid Fusion VMS.

Refer to the *Add a Permission Group for Active Directory* section of the [Orchid Fusion VMS Administrator Guide](#) for instructions on setting Active Directory groups.

## Troubleshooting

If your administrator Active Directory user is unable to sign in, but you believe the mappings have been configured correctly, check the *fusion.log* file on the Orchid Fusion VMS server found in the following locations:

- C:\Program Files\IPConfigure\Orchid Fusion VMS\logs\fusion.log (Windows)
- /var/logs/fusion/fusion.log (Linux)

During server startup, the list of the configured Orchid Fusion VMS administrator Active Directory mappings are logged. So using the previous example, you would see a line in the file that looks like this:

**14:33:46.804 [main] INFO c.i.f.i.Init03ActiveDirectoryAdminGroupsInitializer – Administrator active directory groups: malibu.beach | FusionAdmins**

Also, a failed sign in attempt will show the list of Active Directory groups of which the user is a member. So using the previous example, you would see a line in the file that looks like this:

**14:32:48.888 [XNIO-1 task-21] INFO c.i.f.u.a.ActiveDirectoryAuthenticator – Active directory user: nofusionaccess@malibu.beach successfully authenticated with domain: malibu.beach server address: 192.168.105.46 but failed to authenticate with Fusion because the user is not a member of any active directory groups authorized by Fusion.**

**nofusionaccess@malibu.beach is a member of active directory domain:**

**malibu.beach groups:**

**malibu.beach\\Developers**

**malibu.beach\\Domain Users**

**Fusion has authorized domain: malibu.beach groups:**

# Enabling Azure Active Directory

---

Beginning with version 2.10, Orchid Fusion VMS allows Azure Active Directory authentication. By performing some configuration work on the front end, your Orchid Fusion VMS users will be able to sign in with their existing Azure Active Directory credentials.

\* If you are using Orchid Hybrid VMS, remember that it is a managed system. IPConfigure Support staff will need to configure the system to use Azure Active Directory authentication.

## Prerequisites

To configure Orchid Fusion VMS to work with Azure Active Directory, you will need to have an Azure Active Directory server that:

- Is reachable from your Orchid Fusion VMS server.
- Contains at least one Azure Active Directory user who is a member of at least one Azure Active Directory group.

## Create an Azure Active Directory Application

Follow the steps below to create an Azure Active Directory App. For a more detailed look at this process, please refer to the next [topic](#). (Please refer to Microsoft documentation for the most up-to-date instructions.)

- Log into the Azure Active Directory portal
  - [https://portal.azure.com/#blade/Microsoft\\_AAD\\_IAM/ActiveDirectoryMenuBlade/Overview](https://portal.azure.com/#blade/Microsoft_AAD_IAM/ActiveDirectoryMenuBlade/Overview)
- Register an Azure Active Directory “App”
  - Manage – “App registrations” – click “New registration”
    - Enter name
    - Select “Single tenant”
    - Select “Client Application (Web, iOS, Android, Desktop+Devices)”
  - App registrations – – click “Authentication”
    - “Add a platform” – select “Web”
    - Enter the Fusion redirect URI: /redirect.html
  - App registrations – – “API permissions”
    - Add Microsoft Graph Directory.Read.All (Delegated)
    - Admin consent – Microsoft Graph Directory.Read.All
  - App registrations – – “Certificates & secrets”
    - Click “New client secret” – copy and save secret value

# Modifying the Configuration File

There are several properties in the Orchid Fusion VMS configuration file that will need to be modified in order for Azure Active Directory authentication to work.

✿ For extra help with the steps below, please refer back to the *Installation* section that corresponds to the operating system in which you are working.

1. Set the following properties in the Orchid Fusion VMS configuration file:
  - **authentication.azure.active.directory.clientid=<applicationid>**
    - Replace **<applicationid>** with the Application ID assigned to your App when you registered it with Azure Active Directory.
  - **authentication.azure.active.directory.clientsecret=<secretvalue>**
    - Replace **<secretvalue>** with the secret value you saved after creating it in the Azure portal.
  - **authentication.azure.active.directory.endpoint=https://login.microsoftonline.com/tenant/oauth2/authorize**
    - Replace **tenant** with the OAuth 2.0 Authorization Endpoint assigned to your App when you registered it with Azure Active Directory.
  - **authentication.azure.active.directory.domain=</domain>**
    - Typically, you will replace **</domain>** with the domain into which users are signing in.
2. After modifications to the configuration file are complete, restart the Orchid Fusion VMS service, then sign in to Orchid Fusion VMS.

Refer to the *Add a Permission Group for Azure Active Directory* section of the [Orchid Fusion VMS Administrator Guide](#) for instructions on setting Permission Groups for Azure Active Directory groups.

# Detailed Steps for Configuring Azure Active Directory

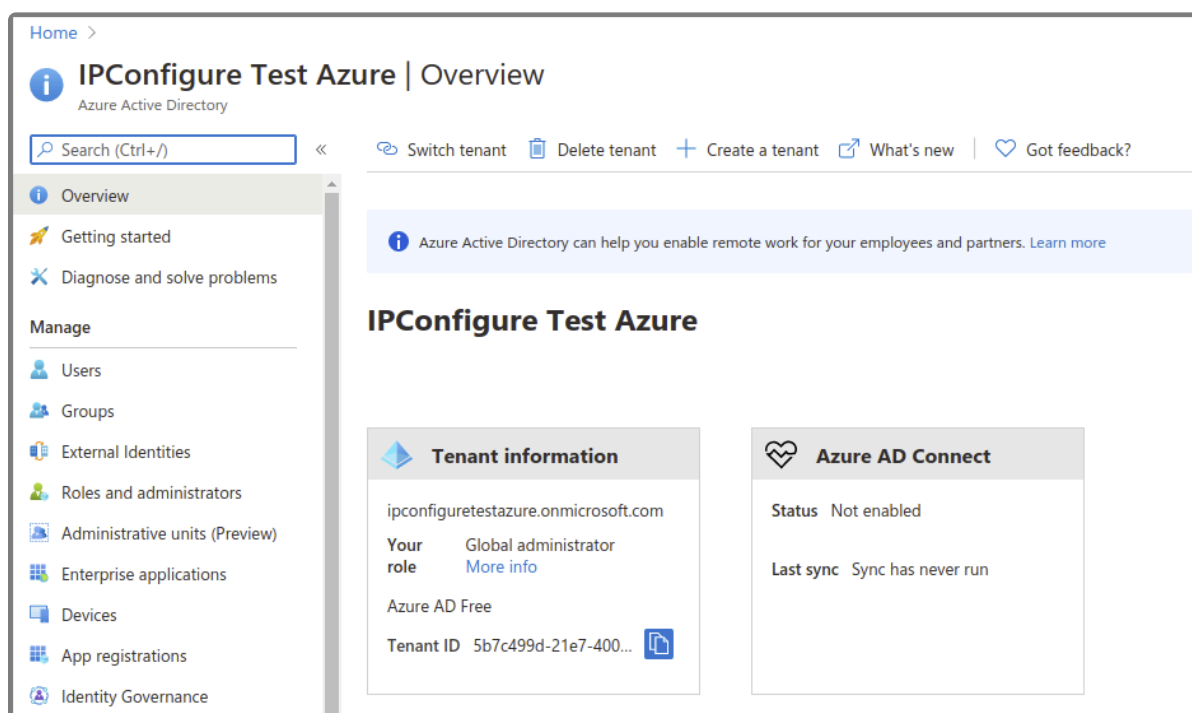
This section provides a quick walk-through of configuring Azure Active Directory (free tier) (for enabling Azure Active Directory-based authentication in Orchid Fusion VMS). Specifically this section will guide you through the following:

- Creating a free Microsoft Account (if needed)
- Creating an Azure Active Directory user
- Creating an Azure Active Directory group
- Registering an Azure Active Directory app

✿ Please be aware that screenshots and descriptions of the Microsoft Azure AD web interface are current as of June, 2020, but may be changed by Microsoft at any time.

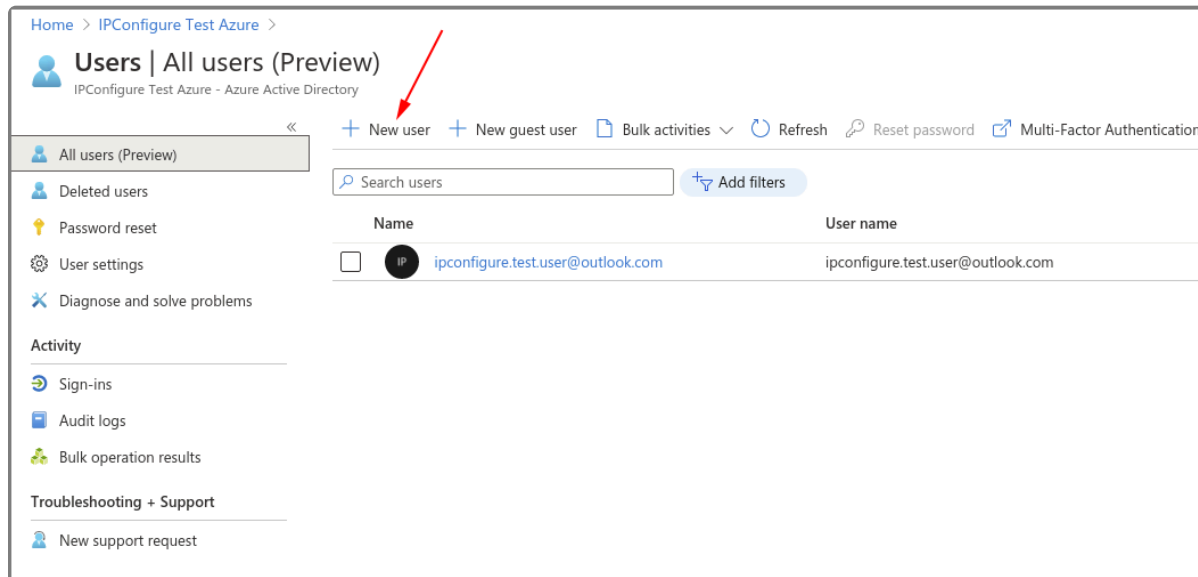
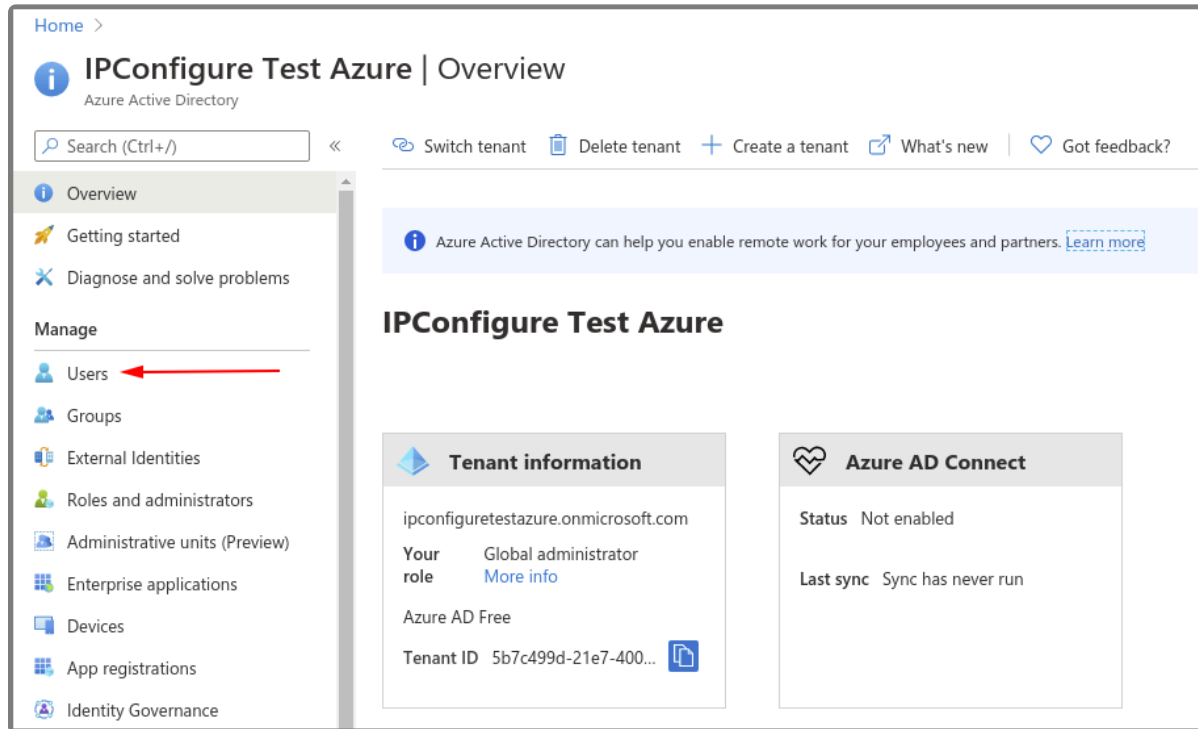
## Microsoft Azure Active Directory Account Setup and Portal Login

1. If you do not have a Microsoft account, create a free account here: <https://account.microsoft.com/account>
2. Log into the Azure Active Directory (free tier) portal using your Microsoft account: [https://portal.azure.com/#blade/Microsoft\\_AAD\\_IAM/ActiveDirectoryMenuBlade/Overview](https://portal.azure.com/#blade/Microsoft_AAD_IAM/ActiveDirectoryMenuBlade/Overview)



## Create an Azure Active Directory User

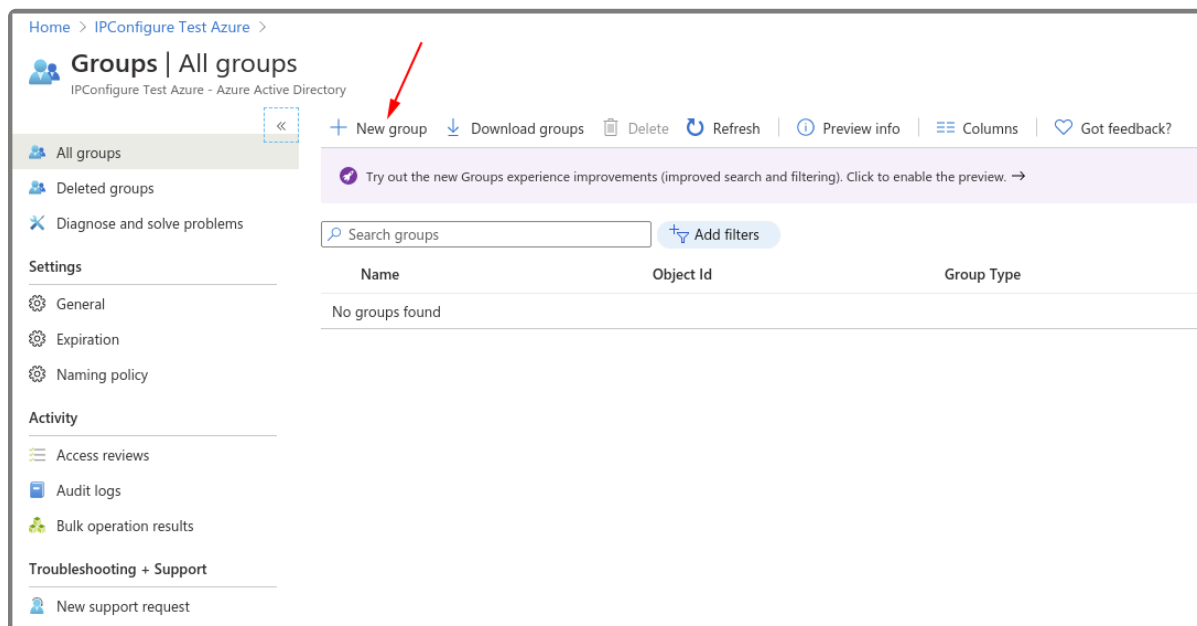
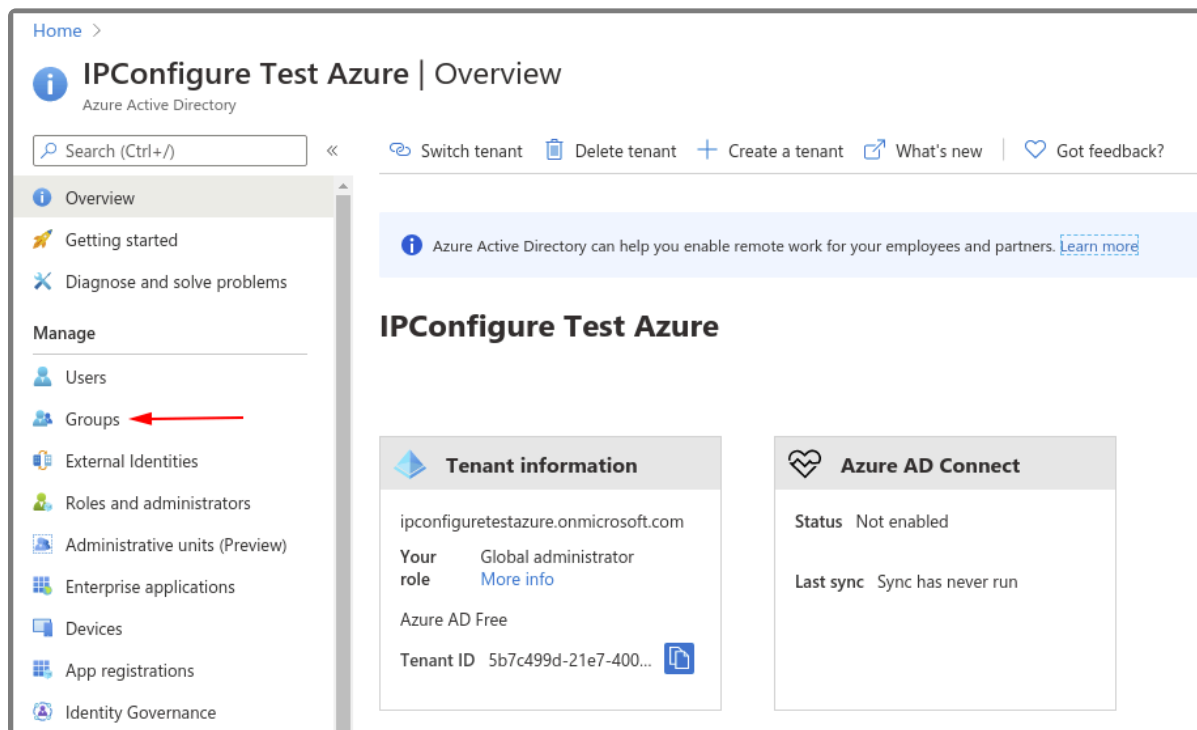
1. Enter a name for the user in the *User name* field. (This is a short name that you use to sign in, like *TJones @ ipconfigure.com*.)
2. Enter the formal (long) name for the user in the *Name* field (like *Tom Jones*).



## Create an Azure Active Directory Group

1. You will need to create at least one Azure Active Directory Group with at least one member.

- a. Select a type from the *Group type* drop-down.
- b. Enter a name for the group in the *Group name* field.
- c. Select group members by clicking on the *Members* link.

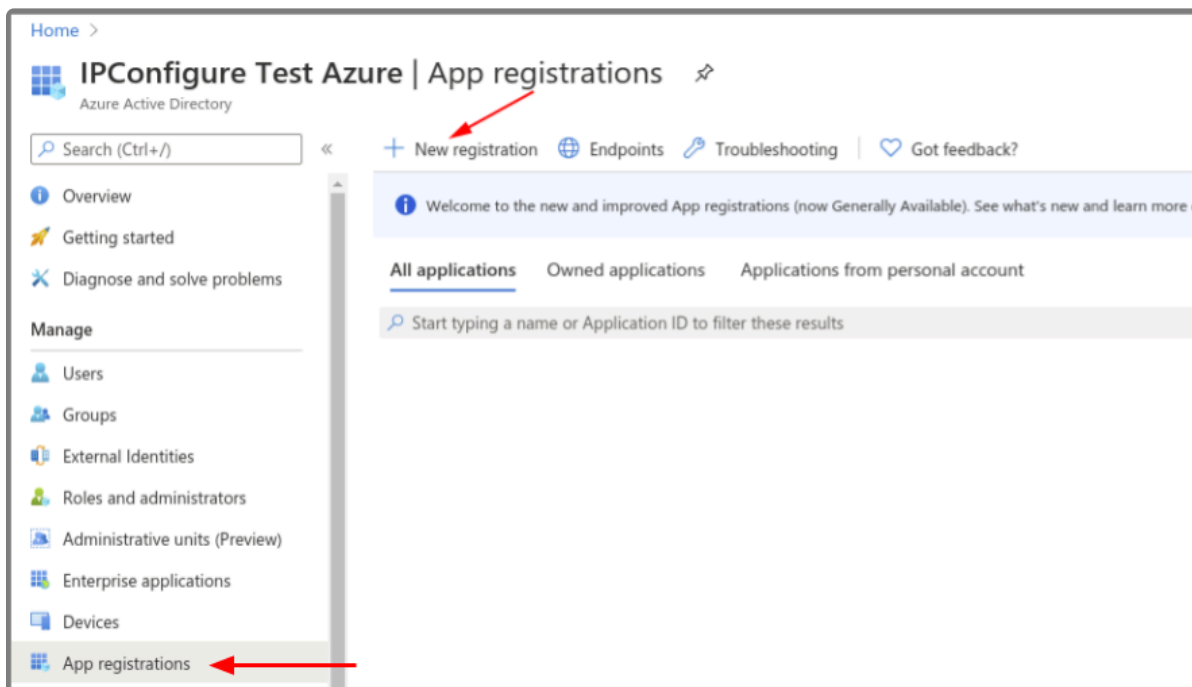


## Register an Azure Active Directory App

1. To register a New app, be sure to set the following:
  - a. Enter the user-facing display name for this application in the *Name* field.
  - b. Select the *Single Tenant* option under *Supported Account Types*.



- c. Select the *Client Application* option under *Platform Configuration*.



## Azure AD App – Authentication – Add a Web Platform

1. Go to *Authentication*, then select *Add a platform*.
  - a. Select the *Web* type application.
  - b. Enter the Fusion redirect URL: `http(s)://<fusion-url>/redirect.html` in the *Redirect URIs* field (where `<fusion-url>` is the URL for your Fusion server).

Home >

## Fusion Azure AD Test App | Authentication

Search (Ctrl+/) Save Discard Got feedback?

Overview  
Quickstart  
Integration assistant (preview)

**Manage**

Branding  
**Authentication**  
Certificates & secrets  
Token configuration  
API permissions  
Expose an API  
Owners  
Roles and administrators (Preview)  
Manifest

Support + Troubleshooting  
Troubleshooting  
New support request

### Platform configurations

Depending on the platform or device this application is targeting, additional configuration may be required such as redirect URIs, specific authentication settings, or fields specific to the platform.

[+ Add a platform](#)

### Supported account types

Who can use this application or access this API?

☒ Accounts in this organizational directory only (IPConfigure Test Azure only - Single tenant)  
☐ Accounts in any organizational directory (Any Azure AD directory - Multitenant)

[Help me decide...](#)

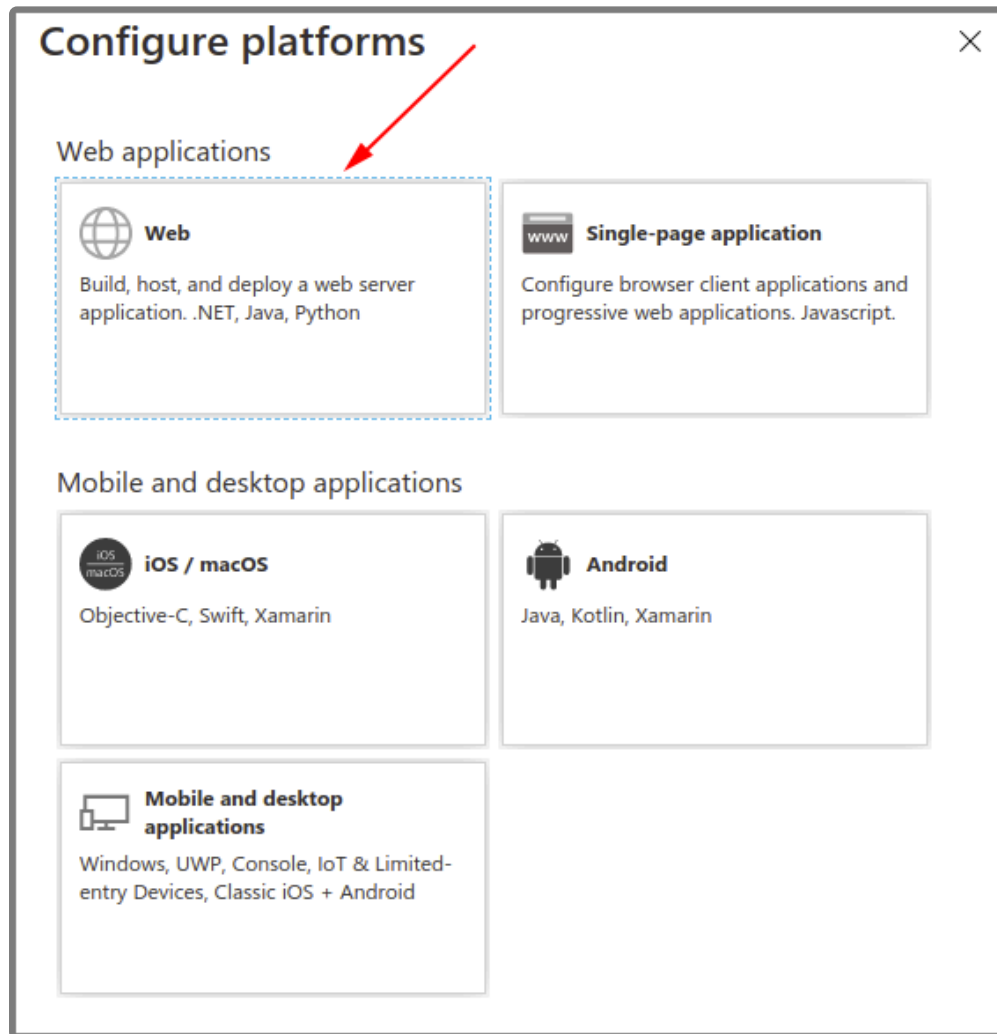
**⚠** Due to temporary differences in supported functionality, we don't recommend enabling personal Microsoft accounts for an existing registration. If you need to enable personal accounts, you can do so using the manifest editor. [Learn more about these restrictions.](#)

### Advanced settings

**Default client type**

Treat application as a public client.  
Required for the use of the following flows where a redirect URI is not used:

☐ Resource owner password credential (ROPC) [Learn more](#)



## Configure Web

[All platforms](#)[Quickstart](#)[Docs](#)

### Redirect URIs

The URIs that we will accept as destinations when returning authentication responses (tokens) after successfully authenticating users. Also referred to as reply URLs. [Learn more about Redirect URIs and their restrictions](#)

✓

### Logout URL

This is where we send a request to have the application clear the user's session data. This is required for single sign-out to work correctly.

### Implicit grant

Allows an application to request a token directly from the authorization endpoint. Checking Access tokens and ID tokens is recommended only if the application has a single-page architecture (SPA), has no back-end components, does not use the latest version of MSAL.js with auth code flow, or it invokes a web API via JavaScript. ID Token is needed for ASP.NET Core Web Apps. [Learn more about the implicit grant flow](#)

To enable the implicit grant flow, select the tokens you would like to be issued by the authorization endpoint:

☐ Access tokens☐ ID tokens

## Azure AD App – API Permissions

1. Go to *API permissions*, then select *Add a permission*.
  - a. Select the *Microsoft Graph*.
  - b. Select the *Directory.Read.All* delegated permission.

Home > Fusion Azure AD Test App | API permissions

Search (Ctrl+/) « Refresh

Overview  
Quickstart  
Integration assistant (preview)

Manage

Branding  
Authentication  
Certificates & secrets  
Token configuration  
API permissions  
Expose an API  
Owners  
Roles and administrators (Preview)  
Manifest

Support + Troubleshooting

Troubleshooting  
New support request

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the all the permissions the application needs. [Learn more about permissions and consent](#)

+ Add a permission Grant admin consent for IPConfigure Test Azure

API / Permissions name	Type	Description
Microsoft Graph (1)		
User.Read	Delegated	Sign in and read user profile

## Request API permissions

Select an API

Microsoft APIs

APIs my organization uses

My APIs

Commonly used Microsoft APIs



### Microsoft Graph

Take advantage of the tremendous amount of data in Office 365, Enterprise Mobility + Security, and Windows 10. Access Azure AD, Excel, Intune, Outlook/Exchange, OneDrive, OneNote, SharePoint, Planner, and more through a single endpoint.



### Azure Service Management

Programmatic access to much of the functionality available through the Azure portal



### Office 365 Management APIs

Retrieve information about user, admin, system, and policy actions and events from Office 365 and Azure AD activity logs

## Request API permissions

< All APIs

**Microsoft Graph**  
https://graph.microsoft.com/ Docs

What type of permissions does your application require?

**Delegated permissions**  
Your application needs to access the API as the signed-in user.

**Application permissions**  
Your application runs as a background service or daemon without a signed-in user.

Select permissions expand all

Directory.Read.All ✓

Permission	Admin consent required
<b>Directory (1)</b> <input checked="" type="checkbox"/> Directory.Read.All Read directory data ⓘ	Yes

2. Select *Grant admin consent* for your application.

Home >

## Fusion Azure AD Test App | API permissions

Search (Ctrl+/) << Refresh

Overview  
Quickstart  
Integration assistant (preview)

**Manage**

Branding  
Authentication  
Certificates & secrets  
Token configuration  
**API permissions**  
Expose an API  
Owners  
Roles and administrators (Preview)  
Manifest

Support + Troubleshooting  
Troubleshooting  
New support request

**Configured permissions**  
Applications are authorized to call APIs when they are granted permissions by users/admins as part of the all the permissions the application needs. [Learn more about permissions and consent](#)

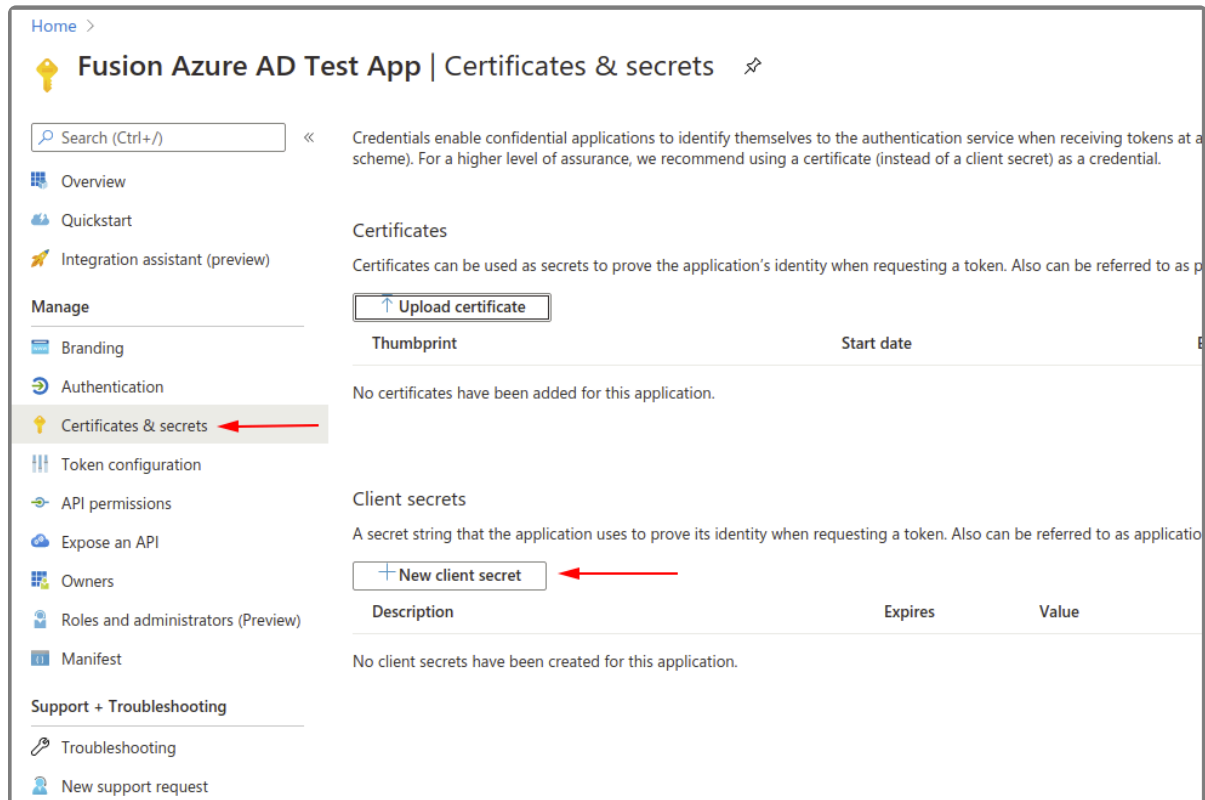
+ Add a permission Grant admin consent for IPConfigure Test Azure

API / Permissions name	Type	Description
Microsoft Graph (2)		
Directory.Read.All	Delegated	Read directory data
User.Read	Delegated	Sign in and read user profile

## Azure AD App – Certificates & Secrets – Create a New Client Secret

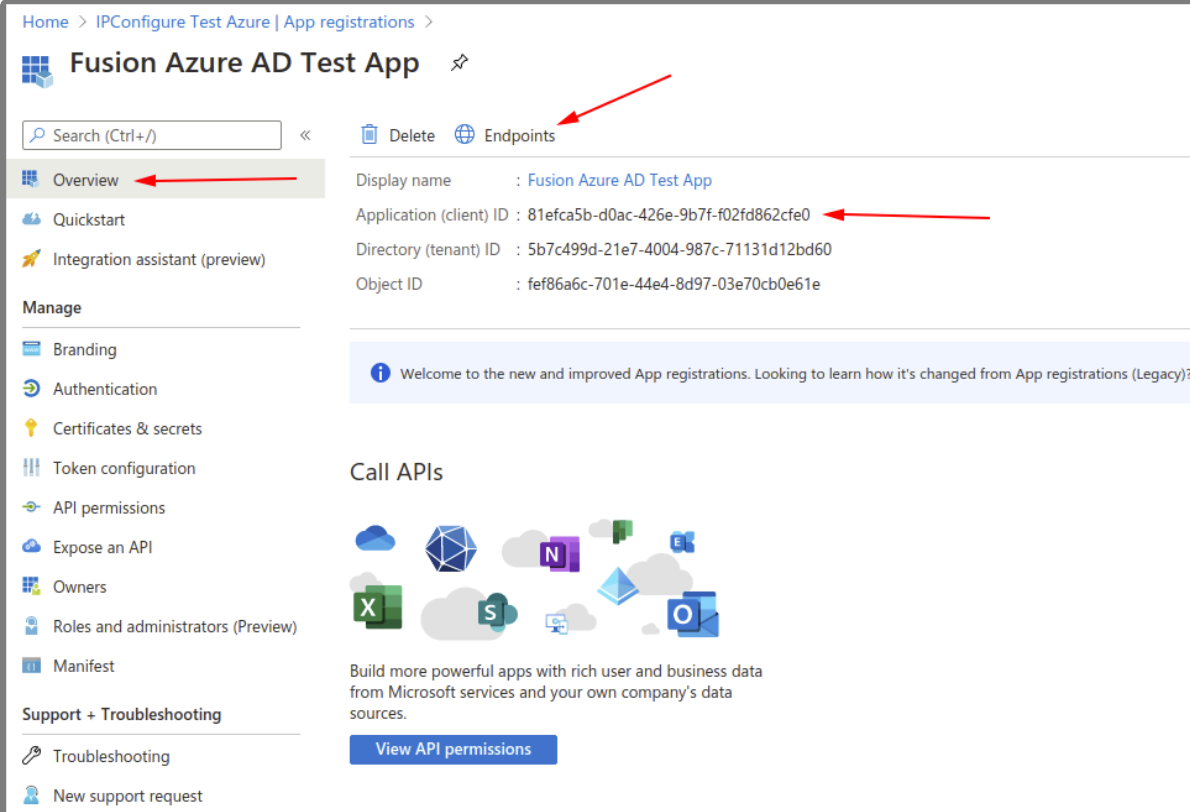
1. Select *New client secret* to create a new secret value.
2. **Save** the secret value because it will not be available later. (Copy the secret value to a secure

location.)



## Azure AD App – Save the Client ID and OAuth 2.0 Authorization Endpoint (v1)

1. Go to the *Overview*.
  - a. Make note of the *Azure Application (client) ID* value for later use.
2. Select *Endpoints*.
  - a. Make note of the *OAuth 2.0 authorization endpoint (v1)* value for later use.



Home > IPConfigure Test Azure | App registrations >

## Fusion Azure AD Test App

Search (Ctrl+/) << Delete Endpoints

**Overview** Quickstart Integration assistant (preview)

**Manage**

- Branding
- Authentication
- Certificates & secrets
- Token configuration
- API permissions
- Expose an API
- Owners
- Roles and administrators (Preview)
- Manifest

**Support + Troubleshooting**

- Troubleshooting
- New support request

Display name : Fusion Azure AD Test App

Application (client) ID : 81efca5b-d0ac-426e-9b7f-f02fd862cfe0

Directory (tenant) ID : 5b7c499d-21e7-4004-987c-71131d12bd60

Object ID : fef86a6c-701e-44e4-8d97-03e70cb0e61e

Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)?

### Call APIs

Build more powerful apps with rich user and business data from Microsoft services and your own company's data sources.

[View API permissions](#)



## Endpoints

**OAuth 2.0 authorization endpoint (v2)**

<https://login.microsoftonline.com/5b7c499d-21e7-4004-987c-71131d12bd60/oauth2/v2.0/authorize>

**OAuth 2.0 token endpoint (v2)**

<https://login.microsoftonline.com/5b7c499d-21e7-4004-987c-71131d12bd60/oauth2/v2.0/token>

**OAuth 2.0 authorization endpoint (v1)**

<https://login.microsoftonline.com/5b7c499d-21e7-4004-987c-71131d12bd60/oauth2/authorize>

**OAuth 2.0 token endpoint (v1)**

<https://login.microsoftonline.com/5b7c499d-21e7-4004-987c-71131d12bd60/oauth2/token>

At this point, you should have all of the required values to enable Azure Active Directory-based authentication in Orchid Fusion VMS. Return to the previous section ([Enabling Azure Active Directory](#)) for instructions on modifying the Orchid Fusion VMS configuration file to enable Azure Active Directory authentication. Once enabled, you may add one or more Orchid Fusion VMS *Permission Groups* that pull users from your Azure Active Directory. (For details on adding *Permission Groups*, please refer to the *Add a Permission Group for Azure Active Directory* section in the [Orchid Fusion VMS Administrator Guide](#).)



# Enabling FreeIPA Authentication

Beginning with version 2.10, Orchid Fusion VMS allows FreeIPA authentication. By performing some configuration work on the front end, your Orchid Fusion VMS users will be able to sign in with their existing FreeIPA credentials.

\* If you are using Orchid Hybrid VMS, remember that it is a managed system. IPConfigure Support staff will need to configure the system to use FreeIPA authentication.

## Prerequisites

To configure Orchid Fusion VMS to work with FreeIPA, you will need to have an FreeIPA server that:

- Is reachable from your Orchid Fusion VMS server.
- Contains at least one FreeIPA user who is a member of at least one FreeIPA group.

## Modifying the Configuration File

There are a couple of properties in the Orchid Fusion VMS configuration file that will need to be modified in order for FreeIPA authentication to work.

\* For extra help with the steps below, please refer back to the *Installation* section that corresponds to the operating system in which you are working.

1. Set the following properties in the Orchid Fusion VMS configuration file:
  - **authentication.freeipa.servers=**  
**<domain1>|<domainServerAddress1>,<domain2>|<domainServerAddress2>**
    - Replace **<domain1>** with the domain on which your first FreeIPA server exists. Replace **<domainServerAddress1>** with the address of your first FreeIPA server.
  - **authentication.freeipa.domain.userdn= cn=<domain>-users,cn=<domain>-accounts**
    - Replace **domain** with one of the configured FreeIPA servers. Replace **<domain>** with the name of the alternate user container.

\* **<domainServerAddress>** may be a DNS name or IP address and may be prefixed with either **ldap://** or **ldaps://** to specify the protocol.


2. After modifications to the configuration file are complete, restart the Orchid Fusion VMS service, then sign in to Orchid Fusion VMS.

Refer to the *Add a Permission Group for FreeIPA* section of the [Orchid Fusion VMS Administrator Guide](#) for instructions on setting FreeIPA *Permission Groups*.

# Enabling External Cloud Storage

Beginning with version 21.3, Orchid Fusion VMS supports the exporting of *Library* files to an external cloud storage service. By performing some configuration work on the front end, your Orchid Fusion VMS will automatically send all *Library* files to the selected cloud service (instead of the local Orchid Fusion VMS server). You will be able to view and share exported video files using that cloud service.

The process is fairly straightforward. Orchid Fusion VMS utilizes an open-source library called *Rclone* to communicate with the external cloud storage service. Using Rclone, you may choose one of the many supported cloud storage options, such as Box.com, Dropbox, Google Drive, and Microsoft OneDrive. Once Rclone is set up, you'll configure Orchid Fusion VMS to use Rclone as the gateway to your external cloud storage.

 If you are using Orchid Hybrid VMS, IPConfigure Support staff will need to configure the system to work with an external cloud storage service.

## Prerequisites

In order to work with an external cloud storage system:

- You must have installed a version of Orchid Fusion VMS that includes a bundled Rclone executable. (This includes versions 21.3.0 and higher.)
- You must use this bundled version of Rclone to configure your cloud storage account (remote).

## Set Up Your Preferred Cloud Storage Service in Rclone

Follow the steps below to configure Rclone to use your preferred cloud storage solution and create the *remote*.

1. Go to the Rclone website at <https://rclone.org>.
  - a. Scroll down until you find the list of supported cloud storage providers.
  - b. Click the **Config** button next to your preferred provider for instructions on how to create an Rclone *remote*. (These instructions will vary based on the provider that you select.) Make note of the specific command required to configure Rclone for the selected cloud storage provider.
2. To begin configuration and create a *remote*, go to the command line on your Orchid Fusion VMS server. (In Windows, make sure you run the Command Prompt as an Administrator.) In this next step, we'll instruct the system to access the Rclone executable and Rclone configuration file that were bundled with Fusion, then we'll specify the rclone command we want to run.
  - a. (In Linux) Type the following command: `sudo /opt/fusion/bin/rclone --config /etc/opt/fusion/rclone.conf (command)` (where the *command* is the one you noted in step 1b). Then press **Enter**.

- b. (For Windows) Type the following command: `C:\Program Files\IPConfigure\Orchid Fusion VMS\bin\rclone.exe --config "C:\Program Files\IPConfigure\Orchid Fusion VMS\conf\rclone.conf" (command)` (where the *command* is the one you noted in step 1b). Then press **Enter**.
3. Follow the on-screen prompts to finish creating the *remote*. (You may use the instructions provided on the rclone site as a guide.)

After you run the configuration and create the Rclone *remote*, you can then modify the Orchid Fusion VMS config file.

## Modifying the Configuration File

In order for Orchid Fusion VMS to work with the external cloud storage service, you will need to modify the Fusion configuration file.

✿ For extra help with the steps below, please refer back to the *Installation* section that corresponds to the operating system in which you are working.

1. Set the following property in the Orchid Fusion VMS configuration file:
  - **library.rclone.remote** = *your-rclone-remote-name*
    - Replace *your-rclone-remote-name* with the name of your Rclone *remote*.
2. After modifications to the configuration file are complete, you'll need to restart the Orchid Fusion VMS service.

# Orchid Fusion VMS APPs

Orchid Fusion VMS supports the Application Partner Platform (APP) feature. The *APPs* component allows third-party vendors to customize Orchid Fusion VMS by creating features that live within the Orchid Fusion VMS user interface.

✿ If you are using Orchid Hybrid VMS, IPConfigure Support staff will need to configure the system in order to use APPs.

## To Activate the APPs Feature in Orchid Fusion VMS

Follow these steps to setup the *APPs* feature:

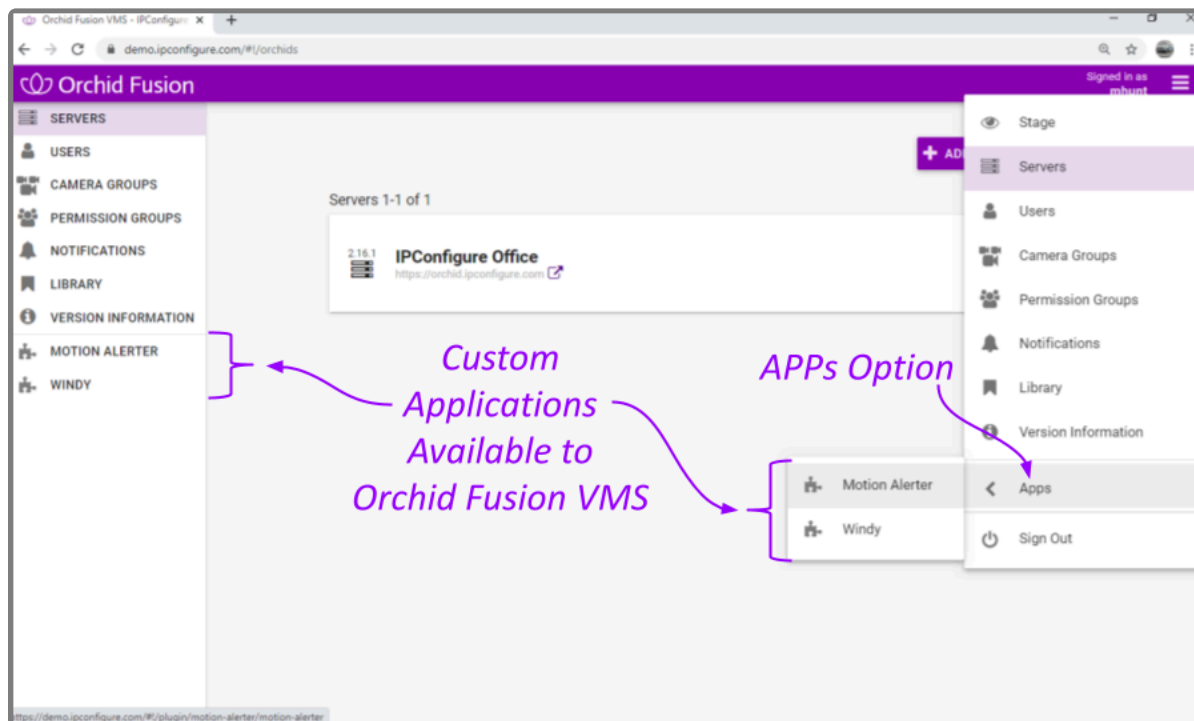
1. Obtain the custom application from your developer.
2. Install the application according to the developer's instructions.
3. Modify the Orchid Fusion VMS configuration file. This modification identifies the Orchid Fusion VMS server location at which your custom application is stored.
  - a. Open the Orchid Fusion 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.)
  - b. Modify the **fusion.apps.path** setting to specify where on the server the custom application is being stored. For example: **fusion.apps.path=c:\\apps**  
(Don't forget to remove the # at the beginning of the line.)
  - c. Save your changes and close the configuration file.
4. Restart the Orchid Fusion VMS service. (If you need extra help, refer back to the *How to Manage the Orchid Fusion VMS Service* section that corresponds to the operating system you are using.)
5. Once Orchid Fusion VMS knows where to find the *APPs*, the program will respond by providing the *APPs* option on the *System Menu*.

## Access the Orchid Fusion VMS APPs Feature

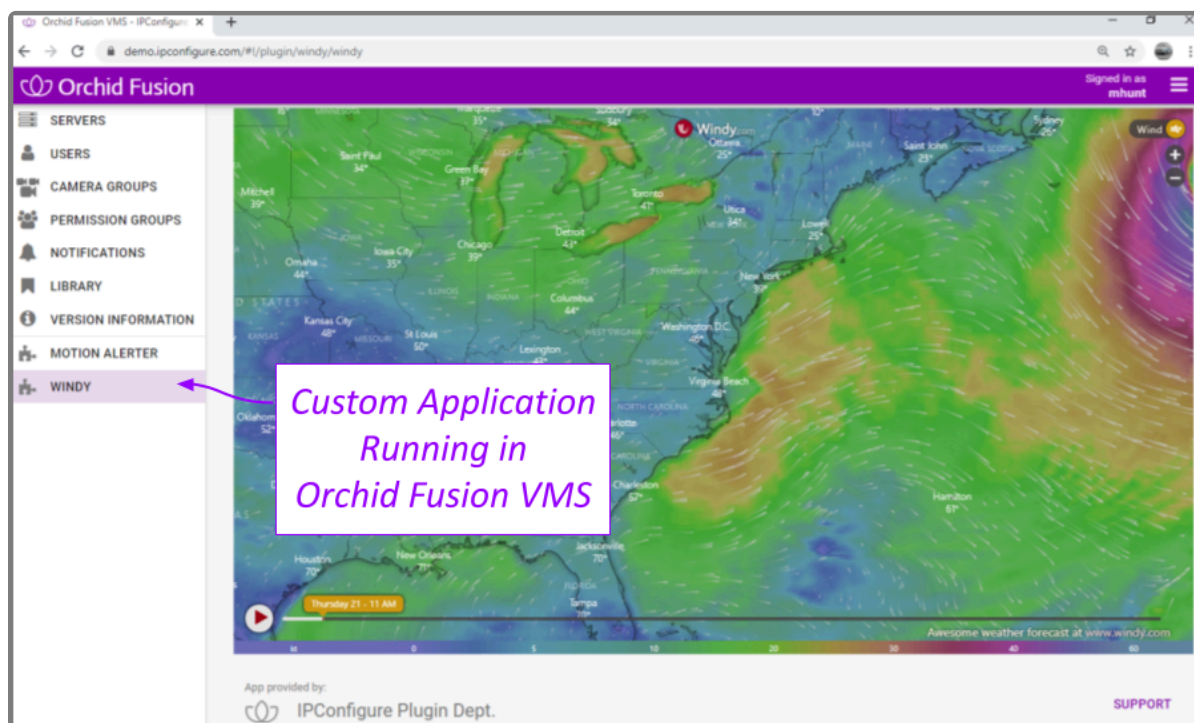
Once the *APPs* feature is activated, you can access your custom applications within Orchid Fusion VMS.

✿ To access the *APPs* feature, you must be a member of a *Permission Group* that has access (such as an *Administrator* group, the *All APPs* group, or an APP-specific group).

1. Open the *System Menu* in the top-right corner of the screen and select *APPs*.
2. The *APPs* sub-menu will appear. This sub-menu will list all of the custom applications that Orchid Fusion VMS finds in the location noted in the Fusion properties file, and that you have access to. (Notice that all of your custom applications are now also listed on the *Configuration Menu*, when visible, on the left side of the screen.)



3. Click on one of the custom applications to open it within Orchid Fusion VMS.



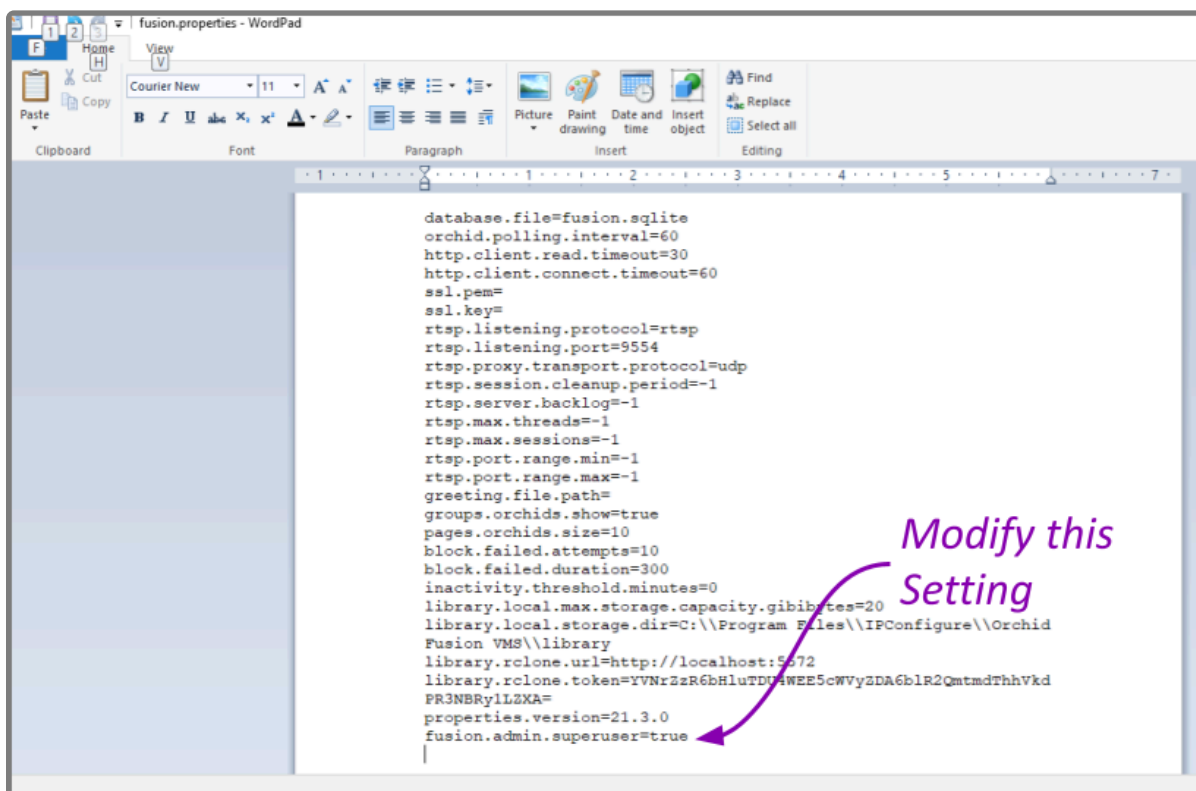
# Creating a Superuser

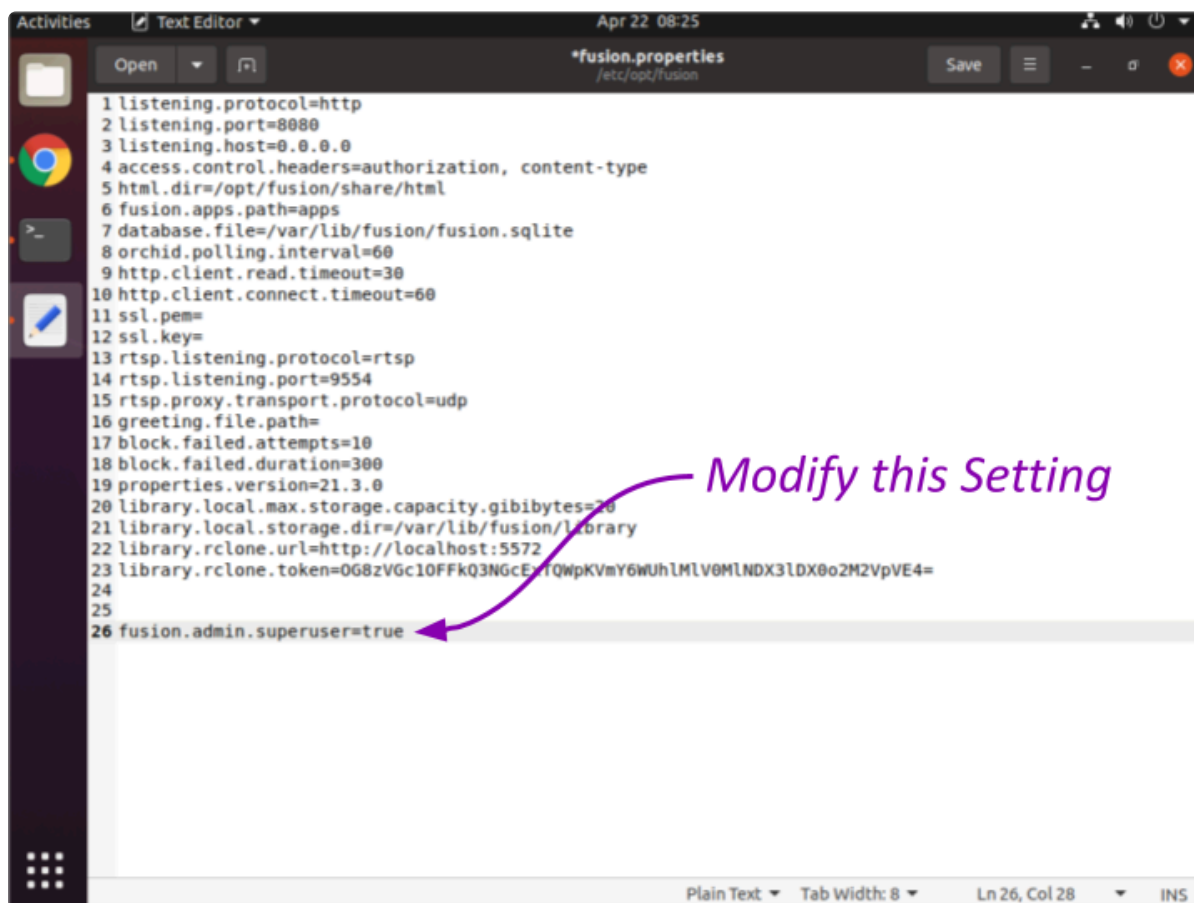
Orchid Fusion VMS allows you to create a *Superuser*. This special administrator account has all of the abilities and access of an administrator, and is protected from edits by any other user. You may create this account by modifying the Orchid Fusion VMS properties file.

✿ In order to perform this change, you must be signed in as an Administrator, and you must be using standard or Google authentication.

✿ If you are using Orchid Hybrid VMS, IPConfigure Support staff will need to configure the system to create a Superuser.

1. Open the Orchid Fusion 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.)





```
1 listening.protocol=http
2 listening.port=8080
3 listening.host=0.0.0.0
4 access.control.headers=authorization, content-type
5 html.dir=/opt/fusion/share/html
6 fusion.apps.path=apps
7 database.file=/var/lib/fusion/fusion.sqlite
8 orchid.polling.interval=60
9 http.client.read.timeout=30
10 http.client.connect.timeout=60
11 ssl.pem=
12 ssl.key=
13 rtsp.listening.protocol=rtsp
14 rtsp.listening.port=9554
15 rtsp.proxy.transport.protocol=udp
16 greeting.file.path=
17 block.failed.attempts=10
18 block.failed.duration=300
19 properties.version=21.3.0
20 library.local.max.storage.capacity.gibibytes=20
21 library.local.storage.dir=/var/lib/fusion/library
22 library.rclone.url=http://localhost:5572
23 library.rclone.token=0G8zVGc10FFkQ3NGcE:1QWpKVmY6WUhlV0MLNDX3lDX0o2M2VpVE4=
24
25
26 fusion.admin.superuser=true
```

2. Modify the **fusion.(username).superuser** property to establish or revoke superuser status.
  - a. The username may be **admin** (for the default admin user) or any other Fusion username.
  - b. Set this property to **True** to elevate the user to superuser status.
  - c. Set this property to **False** to revoke the user's superuser status.
  - d. Don't forget to remove the **#** at the beginning of the line.
3. Save and close the configuration file.
4. After you update the Orchid Fusion VMS properties file, you must restart the Orchid Fusion VMS service. (If you need extra help, refer back to the *How to Manage the Orchid Fusion VMS Service* section that corresponds to the operating system you are using.)
5. Once the restart is complete, you can sign into Orchid Fusion VMS.



# Linux Tips & Tricks

---

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

## Opening and Navigating a Terminal

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 liberally, it makes things much easier!

# Important Directories and Files

Orchid Fusion 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
<b>Installation directory</b>	C:\Program Files\IPConfigure\Orchid Fusion VMS	/opt/fusion
<b>Executable files</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS	/opt/fusion/bin
<b>Exported Library files</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\library	/var/lib/fusion/library
<b>Library files</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\lib	/opt/fusion/lib
<b>Log file</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\logs	/var/log/fusion
<b>Database file</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\ fusion.sqlite	/var/lib/fusion/ fusion.sqlite
<b>Configuration file</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\conf\ fusion.properties	/etc/opt/fusion/ fusion.properties
<b>Logback file</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\conf\ logback.xml	/etc/opt/fusion/ logback.xml
<b>Uninstall file</b>	C:\Program Files\ IPConfigure\Orchid Fusion VMS\ uninstall.exe	N/A
<b>Downloads (Exported video)</b>	User's Downloads folder	~/Downloads

\* If you are using Orchid Hybrid VMS, most of the files and data are stored in the Hybrid cloud. When you export video, the exported video files are saved in the *Downloads* folder on the client machine.

\* For additional help with Orchid Fusion VMS, please visit our training site at [training.ipconfigure.com](https://training.ipconfigure.com).