

IPConfigure

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Introduction

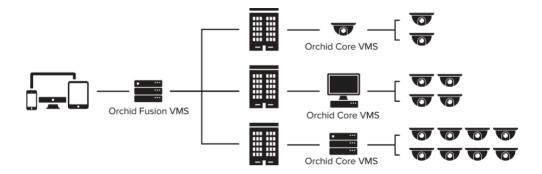
Thank you for your interest in IPConfigure's Orchid Core Video Management System. This guide should provide you with everything you need to know as you prepare the system for readiness. We'll begin with an overview of the product and the user guide, then we'll explain how to activate a license, and add users and cameras to get the system up and running. Once that is done, we'll cover the reporting features and other advanced topics to help you manage and understand the system.

About the Orchid Product Family

Orchid Core VMS is the foundation of IPConfigure's Video Management System. Orchid Core VMS runs on a single server to collect, record, and store video from network cameras. Accessible via an intuitive web browser interface, Orchid Core VMS allows users to view live and recorded video from virtually any web-enabled device.

Orchid Fusion VMS is an enterprise software developed to integrate multiple Orchid Core VMS servers from various locations into one seamless management system. Designed to work across a variety of operating systems, camera types and network topologies, Orchid Fusion VMS is the perfect solution for large organizations.

Orchid Core VMS and Orchid Fusion VMS have very similar user interfaces, and both systems allow viewing and exporting video, but there is a key difference between the two. While Orchid Core VMS works on the camera level, Orchid Fusion VMS now works on the camera level and the server level. In Orchid Core VMS, the administrator will "register" network cameras, configure camera stream settings, and establish video retention levels for each camera. Beginning with version 2.2.0, Orchid Fusion VMS has the power to "register" both cameras and individual Orchid Core VMS servers, resulting in increased management capabilities to an entire network of Orchid Core VMS servers.



About the Orchid Core VMS Administrator Guide

The Orchid Core VMS Administrator Guide is designed for IPConfigure dealers, integrators, or system administrators and is intended to cover the topics that deal with system administration and features that are not part of everyday operation.

This guide includes information on the following topics:

- · Signing into the Orchid Core VMS Software
- Getting Started
- · Activating the Orchid Core VMS Software
- Creating and Managing Users
- Adding and Managing Cameras
- Understanding the Video Retention Policy
- · Viewing System Status and System Report
- Advanced Topics
- Additional Support

Beginning with Orchid Core VMS version 2.2.0, the Advanced Topics section has been expanded to include a variety of topics related to WebRTC. These topics share some general knowledge on WebRTC, how Orchid Core VMS works in WebRTC mode, and troubleshooting tips.

For details on working with the *Stage*, *Timeline Bar*, and viewing/recording video, please refer to the <u>Orchid</u> <u>Core VMS User Guide</u>.

How to Sign In

Orchid Core VMS can be accessed easily through most modern web browsers, such as the latest versions of Chrome or Firefox. The latest version of Chrome is recommended. Your browser choice, however, will determine the available operating modes for Orchid Core VMS.

Internet Explorer is not supported.

A Quick Word on Web Browsers and Operating Modes

Orchid Core VMS version 2.2.0 marked the start of support for Web Real-Time Communication (WebRTC). This technology allows for viewing full-bandwidth, live and recorded H264 video streams within a web browser (without the need to download a plugin). The benefits of WebRTC mode are only available if you are using Google Chrome, version 66 or higher, in a MacOS, Windows, or Linux desktop environment. This browser also gives you the option to run Orchid Core VMS in Low-bandwidth mode.

All other web browsers support Low-bandwidth mode only. These include the latest versions of Mozilla Firefox, Microsoft Edge, and Safari. (For a detailed comparison of the two operating modes, please refer to the <u>Comparing Orchid Core VMS Operating Modes</u> section.)

Starting with Orchid Core VMS version 2.8.0, the FBGST plugin will no longer be supported. The plugin-compatible web browsers (Chrome version 34, and Firefox version 52) have also reached the end of support. If you were previously using either of these web browsers, you should upgrade to the latest version available.

Signing In

- 1. To open Orchid Core VMS on a client device, type the IP address of the Orchid Core VMS server in the web browser address bar. If you are opening Orchid Core VMS on the Orchid Core VMS server itself, you may enter *localhost* in the address bar, or use the Orchid Core VMS program link in the system menu or the Desktop icon, if available. (If the default web server port number was changed to a value other than 80, the IP address or *localhost* will need to be followed by a colon and the web server port number. Example: *localhost:81*)
- 2. You will be prompted to enter a username and password to sign into Orchid Core VMS. If you are the Administrator and this is your first time signing in, enter the username *admin* and the password you set when Orchid Core VMS was installed. If you are an Orchid Core VMS Manager, enter the username and password provided by your Administrator.
- 3. If you are using Google Chrome version 66 (or higher), you will have the option to run Orchid Core VMS in Low-bandwidth mode. (Mark the *Low-bandwidth mode* checkbox to run in Low-bandwidth mode.) In all other web browsers, you will sign in using low-bandwidth mode by default.
- 4. Mark the *Stay signed in* checkbox if you wish to remain signed in even if you close your browser session or reboot your computer. You will remain signed in for approximately 30 days. (If you leave this box unmarked, the system will automatically sign you out if you close your browser session or reboot your computer.)
- 5. Press Sign In.

Q	Orchid Co	re
	Username	
	Password	
	Low-bandwidth mode	
	Stay signed in SIGN IN	

The username and password are both case sensitive.

The *Low-bandwidth mode* checkbox will only be visible if you are using Google Chrome.

Getting Started

Once you are signed in, you will be ready to work on activating your Orchid Core VMS license and configuring the Orchid Core VMS system. You'll learn much more about the user interface in the <u>Orchid</u> <u>Core VMS User Guide</u>, but for administrative purposes, here's how to find what you need.

The *System Menu* (accessible from the top-right corner of the screen) is the primary navigation menu and will always be available. It allows the Administrator to access all of the software features like the *Stage*, *Camera Configuration*, *Retention Policy*, etc. For Managers, Viewers, and Live Viewers, the *System Menu* will contain only those items for which the user has permissions. (Access to the *Stage* and Sign Out are exclusively available on the *System Menu* and are available to all users.)

≡

Accessing the System Menu

This is the *Hamburger* icon.

1. To open the System Menu, click on the Hamburger icon in the top-right corner of the screen.

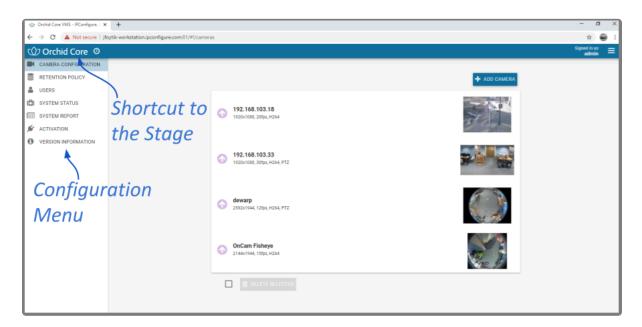
😳 Orchid Core VMS - IPConfigure, i 🗙 🕂		- a ×
← → C A Not secure jfoytik-workstation.ipconfigure.com:81/#//stage		x 🖷 :
Orchid Core		Signed in as
ſ		Stage
	Svs	tem
		Retention Policy
	M	tem Retention Policy enu & Users
		🛱 System Status
		E System Report
		🖋 Activation
	-	Version Information
	Stage	🕑 Sign Out
17 M III M	00 10.27:00 10.28:00	10.29.00 10.30.00 🔨 📛 🛓

Accessing the Configuration Menu

1. To open the *Configuration Menu*, go to the *System Menu*, then click on any of the available selections <u>except</u> **Stage** or **Sign Out**.

The *Configuration Menu* is a secondary navigation menu that will not be available when the *Stage* is open. It allows the Administrator to access all of the software features except the *Stage* and Sign Out. For users without Administrator permissions, the Configuration Menu will contain only those items for which the user has permissions, and will not include the *Stage* and *Sign Out*.

When you are using Orchid Core VMS on a PC (and the web browser is set to zero or minimal zoom), once you access the *Configuration Menu*, it will remain visible on the left side of the screen until you return to the *Stage*.





Activating Orchid Core VMS

In order to increase the number of cameras and features available in Orchid Core VMS, it must be activated with a valid *Core* or *Fusion* license.

An Administrator is the only role with the ability to activate Orchid Core VMS.

About Orchid Core VMS Licenses

There are three main types of licenses available for the Orchid Core VMS software: *Trial*, *Core*, and *Fusion*. Each license type offers certain capabilities and restrictions.

- Trial License
 - When installed on a Windows x86-64 server or a Linux x86-64 server, the *Trial* license will allow up to four cameras, and up to 128GB of video archives. The *Trial* version can also be linked to Orchid Fusion VMS.
 - When installed on a Linux ARM embedded server, the *Trial* license will allow unlimited cameras and archives, but cannot be linked to Orchid Fusion VMS.
- Core License
 - The *Core* license offers unlimited archives, but will limit the number of cameras allowed and cannot be linked to Orchid Fusion VMS.
- Fusion License
 - The *Fusion* license will limit the number of cameras allowed, but offers unlimited archives and can be linked to Orchid Fusion VMS.

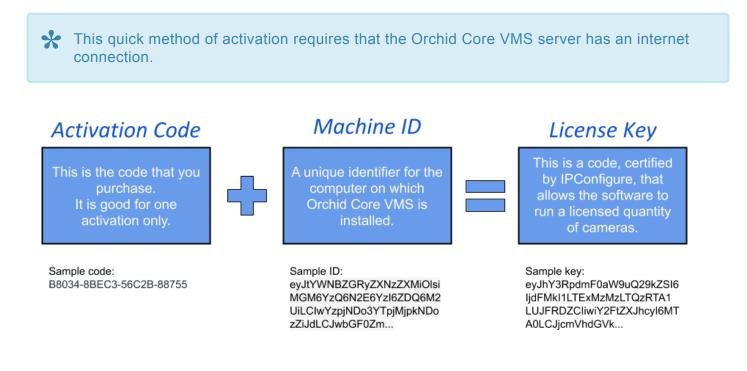
Time-Limited Licenses

IPConfigure also offers time-limited versions of the *Core* License and *Fusion* License. Generally, these will be used for testing large numbers of cameras or high retention settings (that would be impossible with the standard trial license).

Time-limited licenses are very similar to the standard licenses described above, and allow you to add a certain number of cameras with unlimited video retention. There is an important difference in the way these licenses operate, however. With a typical license, when your support expires, Orchid Core VMS will still run, you just can't update/upgrade the software with a version of Orchid Core VMS released after your support expiration. When the time limit expires on a time-limited license, Orchid Core VMS will enter a degraded mode and stop recording video. Previously recorded video will continue to be accessible in this degraded mode. (See License Errors for more details.)

Add a License (Quick Method)

When you purchase a license, you will be given an activation code. As indicated in the diagram below, the activation code is just the starting point in the process of adding a license. This code, after being paired with your Machine ID, will generate a license key. With this quick method, most of the work is done behind the scenes.



When you add, remove, or update a license, a *Licensed Changed* event will appear on the <u>System Report</u>.

- 1. Open Orchid Core VMS and sign in using an administrator level username and password.
- 2. Once signed into Orchid Core VMS, open the *System Menu* in the top-right corner of the screen and select *Activation*.

✤ If Orchid Core VMS has not yet been activated, the licensing screen will show that Orchid Core VMS is using the Trial Edition.

Orchid Core V	MS Activation			
Orchid Core VMS has not yet been activated.				
Edition	Cameras Licensed	Archive Retention	Support Expiration	Activation Code
trial	4	128 GB	N/A	N/A
			Add cense	+ ADD LICENSE

3. When the *Orchid Core VMS Activation* screen appears, click the *Add License* button to activate a new license.

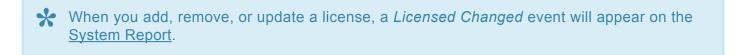
Activation	×
Please provide your Activation Code and a location descrip	
Activation Code* 4B510-FA996-8EC37-9B60E I Code	
Location Store #12345 or Beach house	
Activate 🔍	
OFFLINE ACTIVATION	ATE

- 4. On the *Activation* screen, enter your activation code in the *Activation Code* field. (Sample code: B8034-8BEC3-56C2B-88755)
- 5. Then input a location description that specifies where your Orchid Core VMS server will be located. Common location descriptions are a shop name, number, or location.
- 6. Click the *Activate* button to generate your new Orchid Core VMS license. If the license creation is successful, a screen will appear that indicates success.

Orchid Core	VMS Activation	1		
Orchid Core VMS has been activated.				
Edition	Cameras Licens	ed Archive Retention	Support Expiration	Activation Code
fusion	16	Unlimited	Saturday, February 13, 2021 UTC	4B510-FA996-8EC37- 9B60E
Thank you!				
			PUPDATE LICENS	

Add a License Manually

Use the Manual Activation method if the Orchid Core VMS server doesn't have an internet connection. This activation method is very similar to the original activation method.



- 1. Open Orchid Core VMS and sign in using an administrator level username and password.
- 2. Once signed into Orchid Core VMS, open the *System Menu* in the top-right corner of the screen and select *Activation*.

If Orchid Core VMS has not yet been activated, the licensing screen will show that Orchid Core VMS is using the Trial Edition.

Orchid Core	VMS Activation			
Orchid Core VMS has not yet been activated.				
Edition	Cameras Licensed	Archive Retention	Support Expiration	Activation Code
trial	4	128 GB	N/A	N/A
		Li	Add cense	+ ADD LICENSE

3. When the Orchid Core VMS Activation screen appears, click the *Add License* button to activate a new license.

Activation	×
Please provide your Activation Co Activation Code*	de and a location description.
	Click Offline Activation CANCEL ACTIVATE

4. On the *Activation* screen, click the *Offline Activation* button.

Activation Instructions	×
To activate Orchid Core VMS, access the licensing portal . You will need your Machine ID (shown b generate a license key.	elow) to
Copy Machine ID	
Machine Id	
eyJtYWNBZGRyZXNZZXMiOlsiMDA6ZmY6N2U6MWU6MmE6N2EiLCI3NDpkZToyYjo4ZDplZI ImU00mQlojNk0mQ20jQx0mJmIiwiZjA6ZGU6ZjE6YjY6YWQ6MzkiXSwicGxhdGZvcm0i0 b3dzIE5U0jYuMiAoQnVpbGQg0TIwMCk6QU1ENjQiLCJzdG9yYWdlRGV2aWNljp7ImlkI MzQyMzNIMEw50FMiLCJwYXRoIjoiXFxcXC5cXEM6IiwidHlwZSI6IkhERCJ9LCJ2ZXJzaW MS4yIn0=	iJXaW5k joiRTIw
License Key	
	11
CANCEL	ACTIVATE

- 5. Copy your Machine ID. (Click and drag from the beginning to the end of the text string, then click *CTRL+C* to copy it.)
- 6. Click **CTRL+V** to paste the ID into a text file on a USB drive that you can use on a computer with internet access.
- 7. Using a computer with internet access, go to the following site: <u>https://www.orchidsecurity.com/</u><u>activation</u>.

VMS Activation	
To generate a license key, enter your Activation Code and Machine ID. Enter a unique Locat Looking to use an add-on, upgrade, or renewal code? Click here.	ion Description to associate the license key with a physical location.
Activation Code 222BD-D05FB-F3755-75F0E Activation Code Machine ID	
eyJtYWNBZGRyZXNzZXMiOlsiMDA6ZmY6N2U6MWU6MmE6N2EiLCI3NDpkZToyYjo4ZDpI ZDowZSIsImU0OmQ10jNkOmQ20jQxOmJmIiwiZjA6Z6U6ZjE6YY6YWQ6MzkiXSwicGxhd GZvcm0iOiJXaW5kb3dzIE5U0jYuMiAoQnVpbGQgOTIwMCk6QU1ENjQiLCJzdG9yYWdIRG V2aWNIIjp7ImikijoiRTIwMzQyMzNINEwSOFMiLCJwYXRoljoiXFxcXC5cXEM6liwidHtwZSi6I khERCJ9LCJ2ZXJzaW9uljoiMS4yIn0=	Paste Machine ID
Location Description NFK-Granby St Activate License	
Activate	

- 8. Paste your machine ID (from the USB drive) into the Machine ID field.
- 9. Enter the Activation Code that was provided when you purchased your Orchid Core VMS license into the *Activation Code* field. (Sample code: B8034-8BEC3-56C2B-88755)
- 10. Enter a location description that specifies where your Orchid Core VMS server will be located. Common location descriptions are a shop name, number, or location.
- 11. Click the *Activate License* button to generate your new Orchid Core VMS license. If the license creation is successful, a screen will appear that indicates success and includes a License Key. (The License Key looks like a paragraph of random text.)

✤ If the activation code has already been used for another machine, then the license generation will fail saying "The provided activation code has already been paired with a different machine ID." If this happens, you'll need to either purchase a new Activation Code, or submit a ticket to the IPConfigure Technical Support Team.

VMS Activation		3.120
License generation successfu	11	
You will find your license key below. Simp	ly copy it from here and paste it into the VMS activation screen.	
License Key	Copy License Key	Copy to Clipboard
eHBpcmVzIjoxNjEzMTc0NDAwHDAwLC3ta U0lzSW1VME9tUTFPakSrT21RMk9qUXhPb Z09USXdNQ2s2UVUxRNSqUMJMQ0p6ZEc5e U0k2SWt0RVJD5jlMQ0oyWlhKemFXOXVJa ODIwhmUxHjQ4NTQ3Y2JiZDVjODg2NjU00 NDKSN2ljMGZiMTMwHjMwODE3YThjOGYVH YmY3NmI40TY3YThiNjISNDA2NjQxY2dIZ OGYyZTIxOTK5M2IxYTdlNGUzNTRiYTdjO	UQwhUZGGYYZNZULIC:RjBFIiwiY2FtZXJhcyIGMTYsImNyZWF0ZWQiOjEIODE5NTAyNjMwMDAsIm WQIOJIUP06WVdOQJPHUNIAWE56WINNAU9sc2INREE2Wm1ZNKAYVTZNVIUZTWIFNK4YRAIM06kzTk UptSWl3aVpQQTZaRIU2WmpFNIlqNTZZVIEZTXpraVhTd2ljR3hoZEdadmNtMGIPaUpYVYcIa2IzZH VIXZGxSRIvyVVdObElcCdDbkwrSWpvaVJUSKdHeJF5TXpOSUFf2VPRk1pTENKd1lVUm93am0pMe m9pTVM0eULwHD0ILCJzaWduYXR1cmUIOII2OGQ4NWQxNWE1ODQxNzc3NT1HJRIOWQwYzZIZjYxHj DkyZTYSZjc0MmI4YWISYJYSMmM0HDIkMzc5ODR10WZkNETODQxNzc3NT1HJRIOWQwYzZIZjYxHj DkyZTYSZjc0MmI4YWISYJYSMmM0HDIkMzc5ODR10WZkNETODQxNzc3NT1HJRIOWQwYZZIZJYWH DdjY2MwhDM3MGIIZDYYTAMIWAUZIJIMmE0YzNkOTBIODM3YTIIZJBJMDFKNm3ZJI5ZmU0YzVIYJ DdjY2MwhDM3MGIIZDYYTAM2M2ZJIJMmE0YzNkOTBIODM3YTIIZJBJMDFKNm3ZJI5ZmU0YzVIYJ TU4YWJIOGQ4ZDg0MmUxZDQ5MTE3YzI2MWHzOCIsInVzZXII0IJVbmtub3duIiwidmVyc21vb1161j	RwalpUb3lZam80WkRwbFpEb3da pJRTVVT2pZdU1pQW9RblZwYkdR Z4Y1hONMNYRU02Sul3aWRTbHda QxOGESMzY4Y2RJM2FhN2QYOGFm Q3ZDEwMGYYMDJYYZZJYTIZNJFl gxZDRYzY1ZJNKMU1NMQ3NOMx dKMGE3ZTIJNDY1MmU4YTkxNDZh ISYmQ1Yzk3NjFkODY4NjBKMmQ1

12. Highlight the license key text and click *CTRL+C* or press the *Copy to Clipboard* button to copy the License Key to a text file on a USB drive, then take it back to the Orchid Core VMS server.

Activation Instructions	×
To activate Orchid Core VMS, access the licensing portal . You will need your Machine ID (shown below generate a license key.	N) to
Machine Id eyJtYWNBZGRyZXNzZXMiOlsiMDA6ZmY6N2U6MWU6MmE6N2EiLCI3NDpkZToyYjo4ZDplZDow2 ImU0omqlojNkomq2OjqxomJmIiwiZjA6ZGU6ZjE6YjY6YWQ6MzkiXSwicGxhdGZvcm0iOiJXa b3dzIE5UojYuMiAoqnVpbGqgoTIwMCk6qU1ENjqiLCJzdG9yYWd1RGV2aWN1Ijp7ImlkIjoiF	aW5k RTIW
MzQyMzNIMEw50FMilcJwYXRoIjoiXFxcXc5cXEM6IiwidHlwzsI6IkhERCJ9LcJ2ZXJzaW9u1 Ms4yIn0= License Key	[j01
TY1N2E2Njk3YWU3YWQ4ZTc2MDBKODk3MDQ5NmRlOGQ4MDdmNzc3YTIxZDUyMjM4MmZmMT DRkYzY1ZjNkMmU1NWQ3NDMxmY3Nml4OTY3YThiNjI5NDAzNjQxYzdiZDdjY2MwNDM3MGI1ZD TA1MzM2ZjIIMmE0YzNkOTBiODM3YTI1ZjBjMDFkNmQ3ZjI5ZmU0YzVIYjdkMGE3ZTIyNDY1MmU4 NDZhOGYyZTIxOTk5M2IxYTdINGUzNTRiYTdjOTdIZDZjMjI0YTk0NjA4OTFjMDRjMmY5YmJIZjhI0TU gzNWNIZTA10WMzMGI5ODg4NDRINDUyNjI5YmQ1Yzk3NjFk0DY4NjBkMmQ1M2M5M2FkNTYxNz A2ZDIwYmZhOWQ0MTU4YWJI0GQ4ZDg0MmUxZDQ5MTE3YzI2MWMzOCIsInVzZXIi0iJVbmtub3c idmVyc2lvbil6ljEuMiJ9Cg==)YyY YTkx J4Nz FINj
Click Activate	CTIVATE

- 13. Click into the *License Key* field on the *Activation Instructions* screen. Click *CTRL+V* to paste the text into the field.
- 14. Click the *Activate* button to activate your new license key.

If the activation was successful, you will see a message at the top of your screen saying "Orchid Core VMS has been activated." The Edition, Cameras Licensed, Archive Retention, and Support Expiration fields will all be updated to match the license you purchased.

Orchid Core	VMS Activatio			
Orchid Core VMS h	as been activated.	Activa	tion Complete	
Edition	Cameras Licer	ased Archive Retention	Support Expiration	Activation Code
fusion	16	Unlimited	Saturday, February 13, 2021 UTC	4B510-FA996-8EC37- 9B60E
Thank you!				
			JUPDATE LICENS	

This is an example of a standard license.

Orchid Core V	ORE VMS Activati /MS has been activated.	on Licen Activat days, 3 hours, 49 minutes	ed	Timed License Sountdown
Edition	Cameras Licensed	Archive Retention	Support Expiration	Activation Code
core- timed	8	Unlimited	Monday, October 8, 2018 UTC	59FAD-C92F0-B9559- 14D7A
Thank you!			JUPDATE LICENSE	REMOVE LICENSE

This is an example of a time-limited license.

Modifying an Existing License (Quick Method)

If you want to add more cameras to the system, upgrade from a *Core* license to a *Fusion* license, or simply extend your support agreement, you will need to modify an existing Orchid Core VMS license.

A valid support agreement is required to install software updates. If your agreement expires, you will be able to install versions of the software that were released before your agreement expired, but you will not be able to install new software updates. (If you attempt to install software that was released after your support expires, your Orchid Core VMS server will not function properly; contact your IPConfigure sales representative to purchase an upgrade or renewal).

If you have an expired, time-limited license, Orchid Core VMS will enter a degraded state and will stop recording. (See <u>License Errors</u> for more details.)

If you add, remove, or update a license, a Licensed Changed event will appear on the System Report.

- 1. Open Orchid Core VMS and sign in using an administrator level username and password.
- 2. Once you are signed into Orchid Core VMS, open the *System Menu* in the top-right corner of the screen and select *Activation*.

	VMS Activation	Current Lic	ense Info	
Edition	Cameras Licensed	Archive Retention	Support Expiration	Activation Code
fusion	16	Unlimited	Sunday, January 17, 2021 UTC	AD900-D0D0B-A7D7F- 1C663
Thank you!				
		Update – License	JUPDATE LICE	

3. When the Orchid Core VMS Activation screen appears, click the **Update License** button.

Activation	×
Please provide your Activation or Upgr Activation or Upgrade Code* 1AF5-4BFA-18AF-7AAA	ade Code and a location description. www.add-On Code
Location NN-Jefferson Ave.	
	Click Activate
OFFLINE ACTIVATION	CANCEL ACTIVATE

- 4. When the *Activation* screen appears, enter your *Renewal/Add-On* code into the *Activation* or *Upgrade Code* field.
- 5. In the *Location* field, enter a description that specifies where your Orchid Core VMS server will be located. Common location descriptions are a shop name, number, or location.
- 6. Click the *Activate* button. The Orchid Core VMS *Activation* screen should appear and should display updated license information. (In this case, the number of licensed cameras has increased.)

Orchid Core		Number of ノ Has Incr		
Edition	Cameras Licensed	Archive Retention	Support Expiration	Activation Code
fusion	17	Unlimited	Sunday, January 17, 2021 UTC	AD900-D0D0B-A7D7F- 1C663
Thank you!				
			🖋 UPDATE LICEN	

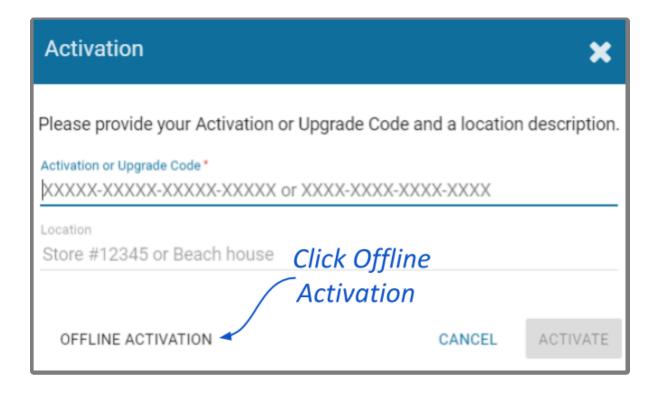
Modifying an Existing License (Offline Method)

Use the Offline renewal/upgrade method if the Orchid Core VMS server doesn't have an internet connection. This renewal method is very similar to the original activation method.

- 1. Open Orchid Core VMS and sign in using an administrator level username and password.
- 2. Once signed into Orchid Core VMS, open the *System Menu* in the top-right corner of the screen and select *Activation*.

Orchid Core	VMS Activation	(Copy Origin	al	
Orchid Core VMS	has been activated.		Code _		
Edition	Cameras Licensed	Archive Retention	Support Expiration	\backslash	Activation Code
fusion	16	Unlimited	Saturday, February 13 UTC	3, 2021	222BD-D05FB-F3755- 75F0E
Thank you!	Click Lic	Update – cense	UPDAT	E LICENS	E 🗑 REMOVE LICENSE

- 3. When the *Orchid Core VMS Activation* screen appears, click and drag over your original activation code to select it, then click *CTRL+C* to copy the code. (You will need this code later.)
- 4. Open a new text file and click **CTRL+V** to paste the original activation code into the text file.
- 5. Save this text file on a USB drive that you can use on a computer with internet access.
- 6. Press the **Update License** button.



7. At the Activation screen, press the Offline Activation button.

Activation Instructions
To activate Orchid Core VMS, access the licensing portal . You will need your Machine ID (shown below) to generate a license key.
Machine Id eyJtYWNBZGRyZXNzZXMiOlsiYzg6NjA6MDA6Y2I6MTI6YTUiXSwicGxhdGZvcm0iOiJMaW51eDo1 LjAuMC0zNy1nZW51cmljOng4N182NCIsInN0b3JhZ2VEZXZpY2UiOnsiaWQiOiJDb3JzYWlyX0Zv cmN1X0dUXzEyMjg3OTMyMDAwMDE0OTQwMDA4IiwicGF0aCI6Ii9kZXYvc2RhMiIsInR5cGUiOiJI REQifSwidmVyc21vbiI6IjEuMiJ9
License Key

 When the Activation Instructions screen appears, this is your cue to take your USB drive and find a computer with internet access. Open a web browser and go to <u>www.orchidsecurity.com/activation</u>. The VMS Activation screen will appear.

VMS Activation	
To generate a license key, enter your Activation Looking to use an add-on, upgrade, or renewal Activation Code	n Code and Machine ID. Enter a unique Location Description to associate the license key with a physical location. code? Click here. Click for Add-Ons, Upgrades & Renewals
Location Description	
Activate License	

9. Click on the link that says: "Looking to use an add-on, upgrade, or renewal code? Click here." The *Renewal/Add-On* screen will appear.

Orchid Core VMS Renewal/Add-On	
To use a renewal/add-on code, you will need to enter it, along with your original Activation Code below.	
Your original Activation Code can be found in the Activation section of the Orchid Core VMS Configuration page in Orchid Core VMS versions 1.10.0 and later. If you have an older Orchid Core VMS version and don't know your Activiation Code, submit an Orchid helpdesk ticket and we'll look it up for you.	
Renewal/Add-On Code	
Original Activation Code 2222BD-D05FB-F3755-75F0E Enter Original Code Click Renew/Upgrade	

- 10. Once you reach the *Renewal/Add-On* screen, go to the *Original Activation Code* field and copy the original code from the USB drive and paste it into this field.
- 11. Go to the *Renewal/Add-On Code* field and enter the code you just purchased.
- 12. Press the *Renew/Upgrade License* button. If successful, the system will generate a *Renewed* license key.

enewal successful!	
a will find your renewed license key below. Simply copy	it from here and paste it into the Orchid Core VMS activation screen.
cense Key	Copy the Renewed Key Copy to Clipboard
eHBpcmVzIjoxNjEzMTc0NDAwMDAwLC3taWQI01JleUp0WVdC U01zSW1VME9tUTFPak5rT21RMK9qUXhPbUptSW13aVpqQTZa Z09USXdNQ2s2UVUxRUSqUNLNQ0p6ZEC5eV1XZ6xSR1YyVVdC U08zSWtoRVDD5j1MQ0oyW1hKemFX0XV3am9pTVM0eU1wID01 ZTM2YMHzM2EwM2Q30TMvOTEyND14ZjczNm310TU2MjBjMTVk ZTgSYQ1MmSMz1hN2I0WzA20Tk3ND1hVjA1M0cxYzUzHzZm YzcyNjRkHTV1NzVjMTBmZmF1Njc3MzB1NGVhOTAYjB1MzRj ZjA3ZWIwODkyNjg0Mjc0MDFhMkNkZjAzYzJkMTV0NTYXZD22	<pre>LLTC1RjBFIiwiY2FtZXJhcyI6MTcsImNyZWF0ZWQi0jE10DE5NTgwNzUwMDASImVkaXRpb2410iJmdXNpb24iLCJl QQlpHUnlaWE56wlhNaU9sc21NREE2Wm1ZNk4yVTZNV1U2TW1FNk4yRNLMQ0kzTkRwa1pUb3lZam80WkRwbFpEb3da aR1U2WmpFNllqWTZZVIE2TXpravhTd2ljR3hozEdadmNtMG1PaUpYYvc1a2IzZHpJRTVVT2pZdU1pQW9RbIZwYkdR DbElqcDdJbhkr5MpvaVJUSXANelF5TXpOSU1Fd2VPRk1pTENKd1IVUm9Jam9pHEZ4Y1hDNNNVRU02SNJ3awR1bHda LLCJzaWduYXR1cmU101IwN2YxYTM0ZjY4ZDAzZDY0ZDF1ZTg4ZjNLY2N1ZDk0Nz1INWNjYjM2OTUXNzNkN2R1MDR1 kNT12NT11NzYzN2U5MzIxNjZjMjQ5MGE0ZJU0NzkyNWEwZThhM2YwODQwHTg5YjJjNNH0ZNN1YNI4NDYwZDISNzRm n0T10MzE40TA4ZTBjZTAzYMZjNZY5ZTE4N2U10Q0zYTNiNTV1NZVINmQwZGEwMWZiNT czM0cxMjAwH0ZkHmY00Dc5 jNq05DTU2ZjkzHjc500kyZjJYWQMDQxMTk2NjI5MjNJNLYZZjZmExZG10ZDHzZDI5YkZDDgwHTQ40DhhZGE3 2MjQyZm14YTZKYTgwNG13YNWMYTM5MzhKZDhmNGMyMjcwOTRKNMYvzLAADZGNJNTg3Mj10Yjg2QWY1Yjcz0DJ0Tdk khZaND010GM4Ym03ZfhIYV15TnVzZXI0JYbmtub3du1iw1dmVyc2lvb165[eU139Ce==</pre>

- 13. Once the renewal is successful, highlight the license key text and click *CTRL+C* to copy the License Key text, then paste it (**CTRL+V**) onto the USB drive.
- 14. Take the USB drive back to the Orchid Core VMS server.
- 15. Return to the *Activation Instructions* screen and click into the *License Key* field. Copy the *Renewed* license key text from the USB drive and paste it into the *License Key* field.

Activation Instructions
To activate Orchid Core VMS, access the licensing portal . You will need your Machine ID (shown below) to generate a license key.
Machine Id eyJtYWNBZGRYZXNZZXMiOlsiMDA6ZmY6N2U6MWU6MmE6N2EiLCI3NDpkZToyYjo4ZDplZDowZSIs ImU0OmQlojNkOmQ2OjQxOmJmIiwizjA6ZGU6ZjE6YjY6YWQ6MzkiXSwicGxhdGZvcm0iOiJXaW5k b3dzIE5U0jYuMiAoQnVpbGQgOTIwMCk6QU1ENjQiLCJzdG9yYWdlRGV2aWNlIjp7ImlkIjoiRTIw MzQyMzNIMEw50FMiLCJwYXRoIjoiXFxcXC5cXEM6IiwidHlwZSI6IkhERCJ9LCJ2ZXJzaW9uIjoi MS4yIn0=
License Key UZMZZmOTI0MZE40TA4ZTBjZTAZYWZjN2Y5ZTE4N2U10DQZYTNiNTVIN2VINmQwZGEwMWZiNTczM DcxMjAwNGZkMmY00Dc5YzcyNjRkMTVINzVjMTBmZmFiNjc3MzBIMGVh0TA3YjBIMzRjNGQ50TU2Zjk zMjc50DkyZjJiYWQwMDQxMTk2NjI5MjNjNDk1Y2ZjZmExZGI0ZDMzZDI5Yjk2NDgwMTQ40DhhZGE3Zj A3ZWIw0DkyNjg0Mjc0MDFhMWNkZjAZYzJkMTY0NTYxZDE2MjQyZmI4YTZkYTgwNGI3YWVmYTM5M zhkZDhmNGMyMjcw0TRkNmYzNzA0ZGNjNTg3MjI0Yjg20WY1Yjcz0DJI0TdkZWZjZmI30TFiNDExNDc 0Y2IwYWJiZWI0ZjRjMzk50WNINzZkNzA2NDQ10GM4YmQ3ZjhiYyIsInVzZXIi0iJVbmtub3duliwidmVyc 2lvbil6ljEuMiJ9Cg==
Click Activate

16. Click the *Activate* button to activate your new license key. If the activation is successful, you will see a message at the top of your screen saying "Orchid Core VMS has been activated."

Orchid Core VMS Activation									
Orchid Core VMS has been activated.									
	Edition	Cameras Licensed	Archive Retention	Support Expiration	Activation Code				
	fusion	19	Unlimited	Sunday, January 17, 2021 UTC	AD900-D0D0B-A7D7F- 1C663				
Т	hank you!								
				🖋 UPDATE LICEN					

The Orchid Core VMS *Activation* screen should display updated information in the appropriate fields (to match the add-on, upgrade, or renewal you purchased).

Creating and Managing Users

Once installation and activation are complete, Orchid Core VMS is configured with one administrator user by default; this user is created during installation and cannot be removed. Additional users can be created with varying levels of privileges through the *Users* option in Orchid Core VMS's *System Menu*.

An Administrator is the only role with the ability to create and manage users.

About Orchid Core VMS User Roles

There are four different User roles in Orchid Core VMS, each with a different level of access:

- Live Viewer: A *Live Viewer* is only able to view live video.
- Viewer: A Viewer is able to view live and recorded video.
- Manager: A *Manager* can view live and recorded video, export video, view System Reports, and control PTZ Players. (The Manager is not able to create or manage users or cameras.)
- Administrator: An *Administrator* is able to do everything within Orchid Core VMS, including activating Orchid Core VMS, adding new users and cameras, resetting passwords, and viewing System Reports.

User roles are set when you create new users, however, an Administrator may change the role of an existing user by clicking the *Edit* pencil icon. Find out more about editing users later in this section.

Access the Orchid Core VMS Users List

- 1. Sign in to Orchid Core VMS as the Administrator by entering the username admin and the password you set when Orchid Core VMS was installed.
- 2. Open the System Menu in the top-right corner of the screen and select Users.

The Orchid Core VMS *Users* screen lists all of the users that have been added, their assigned roles, and descriptions of each of the four possible User roles.

Orthol Care VMG - IRConfigure, X + -								
← → C 🔺 Not secure jhcytik-workstation.jpconfigure.com@1/#Users 🗠 🔍 🏠							2) i
CO Orchid Core O Signed in a admit								
	CAMERA CONFIGURATION				Add Haan			
8	RETENTION POLICY				Add User			
-	USERS		admin	Administrator	A . A			
(2)	SYSTEM STATUS		admin	Administrator	• •			
	SYSTEM REPORT		AWilliams	Viewer	Locked Admin User 🧹 🖉 🍵			
۶	ACTIVATION		DJones	Viewer	and the second s			
0	VERSION INFORMATION	-	JSmith	Viewer	Edit User Settings 🏸 🖉 🝵			
	Current		RMiller	Viewer	a			
	Users		A Viewer can str A Manager can o	n only stream live video. eam live video and review ard do everything a Viewer can do	Delete User thived video. They can also view system reports, export archive footage, and control PTZ cameras. er can do. They can also configure cameras, manage user accounts, and manage Orchid Core			

Adding a New User

✤ This is the Add icon.

- 1. Click the Add User button in the top-right corner of the Orchid Core VMS Users screen.
- 2. A *New User* screen will open. Enter the username you would like to set for the new user in the *Username* field.

New User for Orchid Core VMS		×
Username *	Role Manager	•
Password *	Confirm Password *	
	CANCEL	ADD USER

- 3. Enter the password for the new user into the two fields labeled Password and Confirm Password.
- 4. Select a role for the new user from the *Role* drop-down list. (The role can be updated by an administrator at any time.)
- 5. Click the *Add User* button at the bottom of the screen to create the new Orchid Core VMS user.

The new user will now appear in the list of users and will immediately have access to Orchid Core VMS.

Editing Existing Users

This is the *Edit* pencil icon.

Nothing is set in stone for Orchid Core VMS users and almost all of the user settings can be updated, as needed. The only user that cannot be completely edited is the default admin user (which has a *Lock* icon in place of the *Trash Can* icon). While the password can be updated, the username and role cannot be changed.

- 1. To edit a user, click the *Edit* pencil icon to the right of the user you want to update. The *User* screen will open.
- 2. Edit any of the available fields, as needed.
- 3. Click the *Update User* button. All of the changes will be effective immediately.

If you try to change your own password, Orchid Core VMS will automatically sign you out.

Deleting Existing Users

This is the **Delete** icon.

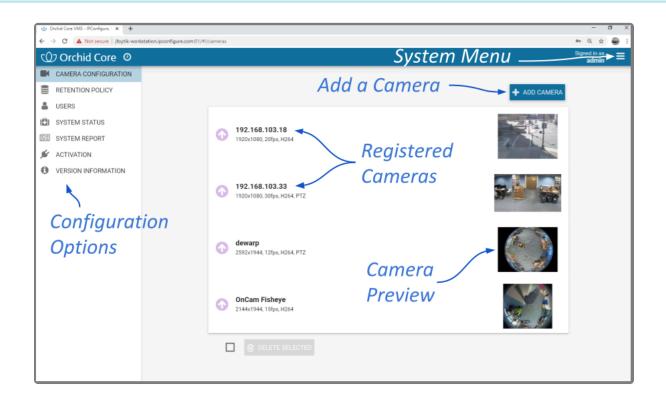
1. To delete an existing user, click the *Trash Can* icon to the right of the username. Orchid Core VMS will ask you to confirm that you would like to remove the user. Once you confirm you want the user removed, it will be permanently erased.

Adding and Managing Cameras

The *Camera Configuration* screen is an important part of the Orchid Core VMS setup process. This screen provides a list of all of the registered cameras (in alphabetical order by camera name) and a preview of each video stream. It is also the starting point for adding cameras, editing camera settings, and deleting cameras.

1. To access the *Camera Configuration* screen for Orchid Core VMS, open the *System Menu* in the topright corner of the screen, then select *Camera Configuration*.

An Administrator is the only role with the ability to add and manage cameras.



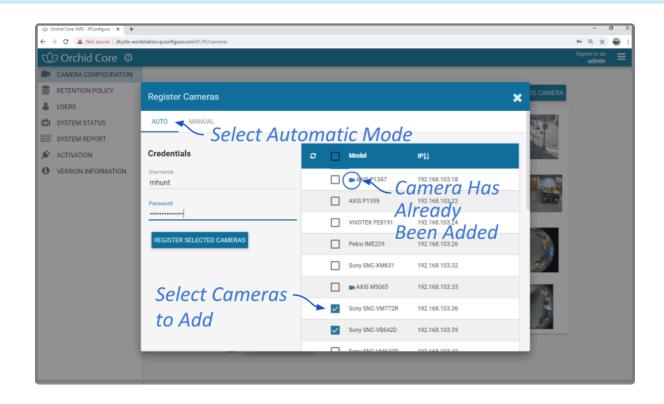
The *Camera Configuration* screen will open with a list of cameras that have already been registered, if any. The process for adding most cameras is typically pretty simple, especially if the camera supports ONVIF auto-discovery.

Adding One or More Cameras (using Auto Mode)

This is the **Add** icon.

1. From the list of registered cameras on the *Camera Configuration* screen, press the *Add Camera* button to access the *Register Cameras* screen. Orchid Core VMS will open the *Register Cameras* screen in *Auto* mode by default. This screen displays a list of all the cameras Orchid Core VMS was able to auto-discover.

In order for Orchid Core VMS to auto-discover cameras, they must support ONVIF autodiscovery and be located on the same network subnet. If you have cameras that are not automatically discovered, they can always be added <u>manually</u>.



- 2. To add a new camera, mark the checkbox next to the camera. (You may select multiple cameras as long as they all use the same ONVIF username and password.)
- 3. Enter the ONVIF username and password that is setup on the camera(s) you would like to add.

4. Press the Register Selected Cameras button to add the cameras to Orchid Core VMS.

Depending on the number of cameras being added, it may take a few minutes for Orchid Core VMS to add them successfully. When complete, Orchid Core VMS will show a list of all cameras that were successfully and unsuccessfully added. If Orchid Core VMS fails to add a camera, an error message will appear.

5. Go to each of the newly added cameras and enter a unique, descriptive name for each one. (Good camera names are important because they are searchable in Orchid Fusion VMS.) You should also review or edit the camera stream settings.

If these newly added cameras will use similar stream settings, use the <u>Copy Stream to</u> <u>Cameras</u> feature to configure multiple cameras at once.

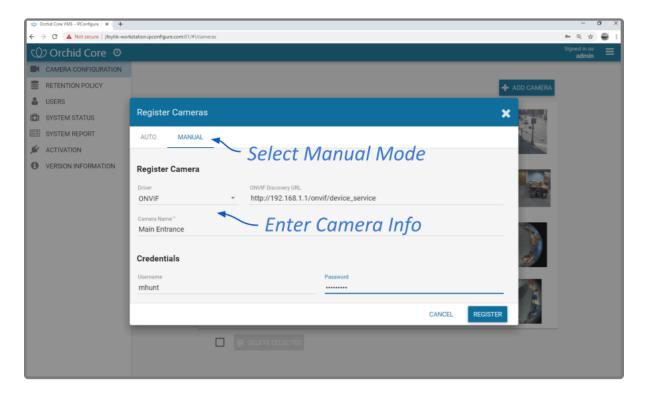
If you have any trouble adding cameras, please refer to the <u>Advanced Topics</u> section for additional help.

Adding a Single Camera (in Manual Mode)

This is the *Add* icon.

In the event that Orchid Core VMS cannot auto-discover a camera, it can be added manually.

- 1. At the *Camera Configuration* screen, press the *Add Camera* button to access the *Register Cameras* screen. Orchid Core VMS will open the *Register Cameras* screen in Auto mode.
- 2. Select *Manual* mode.



3. Select the appropriate driver (ONVIF or RTSP) from the drop-down list.

While the Generic RTSP driver is available when adding cameras manually, this is not always guaranteed to work due to the way different manufacturers handle RTSP streams. The recommended driver to use with Orchid Core VMS is ONVIF.

4. Enter the ONVIF Discovery URL, or the RTSP Stream URI (depending on the driver you specified) to match the correct address for the camera being added. Consult with the camera manufacturer's user

guide, as needed, for the correct syntax of the address.

- 5. Enter a unique name for the camera. This will allow you to distinguish the camera from other cameras set up within Orchid Core VMS.
- 6. Enter the username and password that is setup on the camera being added.

For some ONVIF cameras, a separate username and password needs to be created specifically for ONVIF. (Please refer to the <u>Advanced Topics</u> section for more information.)

7. Press the *Register* button to add the camera to Orchid Core VMS.

When complete, Orchid Core VMS will add the new camera to the list of registered cameras. If Orchid Core VMS fails to add a camera, an error message will appear explaining the issue.

8. Once the camera has been added, you should review or edit the camera stream settings.

If you have any trouble adding cameras, please refer to the <u>Advanced Topics</u> section for additional help.

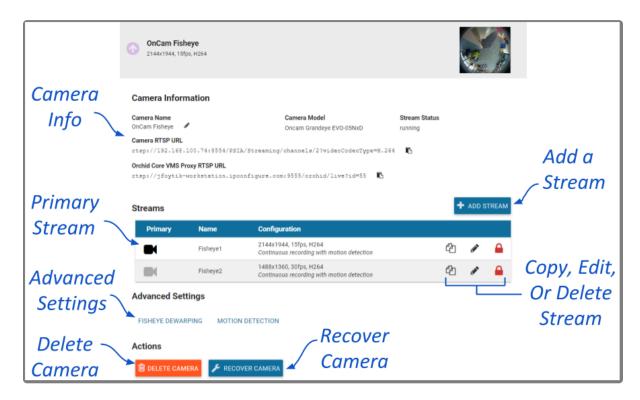
Edit Camera Stream Settings

This is the *Edit* pencil icon.

This is the *Camera* icon. (Black represents the Primary Stream. Gray represents an available camera stream.

After a camera has been added to Orchid Core VMS, settings such as the stream resolution and frame rate can be updated through the camera stream's configuration. While this is true for most cameras, cameras added using the RTSP driver (old cameras and cameras that don't support ONVIF) cannot be edited through Orchid Core VMS. You will need to access those cameras directly to edit settings. (Refer to the camera manufacturer's documentation for more details.)

 From the list of registered cameras on the *Camera Configuration* screen, click the name of the camera you want to edit. (The list will expand to display all of the information for the selected camera. This includes the camera name, IP address, and all of the available streams.)



 To change the camera name, click the *Edit* pencil to the right of the camera name. Enter a new name in the *Camera Name* field and press the *Update Camera* button. (Remember: The cameras are listed in alphabetical order by camera name.)

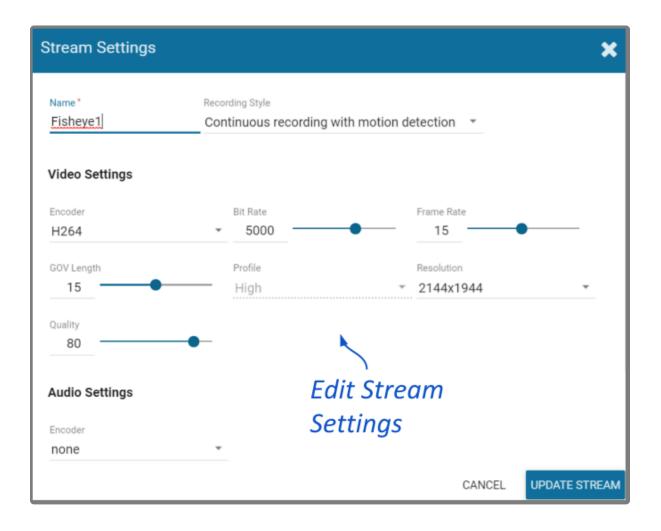
- This screen also displays the camera model and the status of the camera stream in use. These settings are informational and cannot be altered here; please refer to the <u>System Status</u> section for status descriptions.
- 4. The RTSP URL status fields are typically used for troubleshooting. These allow for a comparison of the video coming from the camera and the video as received by Orchid Core VMS to determine where a problem might be occurring.
 - a. The *Camera RTSP URL* (which contains the camera's IP address) represents the video stream that Orchid Core VMS is recording.
 - b. The Orchid Proxy RTSP URL represents the video that Orchid Core VMS is showing on the *Stage*. (For more details, please refer to the <u>Advanced Topics</u> section.)

A camera stream is a profile with all of the basic settings used by Orchid Core VMS to record video from the camera. The stream currently being used by Orchid Core VMS, the primary stream, is indicated by a darkened camera icon.

5. To select a new stream, click the *Camera* icon located to the left of the name of the stream you want Orchid Core VMS to record with.

Only one stream per camera can be used at a time. However, multiple stream profiles from the same camera can be used if the camera is added to Orchid Core VMS multiple times. (This is especially useful for cameras with <u>multiple lenses</u>.)

6. To edit a stream, click the *Edit* pencil icon (located to the right of the stream name). A screen will appear with all of the stream settings available for editing.



- 7. Review or change the stream name so users can easily identify the camera stream.
- 8. Review or change the *Recording Style* for the camera stream.

Orchid Core VMS offers five different recording styles. Refer to the descriptions below (and the table that follows) before making your selection.

- **Continuous Recording with Motion Detection**: Orchid Core VMS will continuously record video from the camera and perform motion detection. This is the default and recommended setting.
- **Continuous Recording without Motion Detection**: Orchid Core VMS will continuously record video from the camera, but will not perform motion detection. This option offers a modest reduction in CPU load on the Orchid Core VMS server.
- Continuous Recording with Motion Adaptive Frame Rate: Orchid Core VMS will record at a higher frame rate while motion is detected, and a different (slower) frame rate while no motion is detected. These frame rates are user-selectable (as shown in the screenshot following the table). (Due to the way H264 compresses video, this recording style typically shows significant savings in disk usage only for inexpensive cameras with noisy sensors, or cameras in low-light environments.)

- Proxy Only: Orchid Core VMS will provide live video from the camera but will not record video.
- **Recording Only When Motion Detected**: Orchid Core VMS will only record video from the camera when motion is detected. This may result in a reduction in disk usage on the Orchid Core VMS server, however, motion detection accuracy may vary and result in video loss.

Motion detection can be further customized using <u>Advanced Settings</u> on the *Camera Configuration* screen.

	Continuous recording with motion detection (Default)	Continuous recording without motion detection	Continuous recording with motion adaptive frame rate	Proxy only, no video will be recorded	Recording only when motion is detected
Recording and playback are available	Yes	Yes	Yes	No	Yes (When motion is detected)
Live view is available in low-bandwidth mode	Yes	No	Yes	No	Yes
Thumbnail previews are available	Yes	Yes	Yes	No	Yes

If you select the *Continuous recording with motion adaptive frame rate* recording style, you will need to set both the *Frame Rate During Motion* and the *Frame Rate During Non-Motion*. (The *Frame Rate During Motion* will dictate the available settings for the *Frame Rate During Non-Motion*. Allowable settings for the *Frame Rate During Non-Motion* range from 1 up to a setting that is less than or equal to the *Frame Rate During Motion*.)

Stream Settings				×
	ecording Style Continuous recording with m	otion a	daptive frame rate 🔹	
Frame Rate During Motion	Frame Rate During Non-Motion	•	Additional	
Video Settings			Settings	
Encoder H264	Bit Rate		Frame Rate These values can be manipulated above while Motion Reduction is selected.	
GOV Length These values can be manipulated above while Motion Reduction is selected.	Profile Baseline	Ŧ	Resolution 1920x1080	
Quality 70				
Audio Settings				
			CANCEL UPDATE STR	EAM

9. Continue to review and change camera stream settings for video, audio and bandwidth as needed. Refer to the definitions below for help in selecting settings.

Video Settings

Each camera type reports its own default values provided by the camera manufacturer. Use those default values unless otherwise noted.

- Encoder: The type of compression used for the camera's video. In WebRTC mode, Orchid Core VMS only supports H264 video. In Low-bandwidth mode, Orchid Core VMS supports JPEG, MPEG4, and H264 (recommended). (Available selections depend on the camera.)
- **Bit Rate:** The target data size (in kilobits per second) of the compressed video. Increasing this value will typically improve image quality at the expense of increased disk usage and reduced retention. In WebRTC mode, bitrates of 2000 kbps or less tend to work best. The default value is recommended.
- Frame Rate: The number of frames per second transmitted within the video stream. Most Orchid Core VMS users are best served by values between 7 and 12. Higher frame rates provide more video detail at the expense of reduced video retention and increased bandwidth usage.

- GOV Length: When using H264 compression, this value specifies how often the camera sends a full
 image frame (instead of a "change frame" which only describes differences between frames). For
 example, if this is set to 15, Orchid Core VMS will send a full image frame once every 15 frames. Be
 aware of how this setting may impact video quality. As the GOV length decreases, the system will
 need to send more keyframes of video (within the set bit rate). This may result in a loss of quality for
 those keyframes. The default value is recommended.
- **Profile:** When using H264 compression, this specifies an H264 Profile of either Baseline, Main, or High. Higher profiles offer better compression (which means increased retention and lower bandwidth usage) at the expense of increased CPU utilization when decoding video. The highest available profile is recommended.
- **Resolution:** The resolution of video transmitted by the camera. Higher values increase video detail at the expense of reduced video retention and increased bandwidth usage. Most Orchid Core VMS users are best served by resolutions between 1280×720 and 1920×1080.
- **Quality:** This value affects how much the video is compressed. Higher values increase video quality at the expense of increased storage requirements (and thus reduced video retention). The default value is recommended.

Audio Settings (if supported)

Beginning in Orchid Core VMS version 2.8, audio control is no longer supported at the Player/Stage level. However, the Orchid Core VMS server is still recording audio for those cameras that support it, and this audio will be available in exported video files. Future versions of Orchid Core VMS will support audio over WebRTC.

These Audio Settings will appear on the screen only if the camera supports audio and will determine how the Orchid server records the audio. Each camera type reports its own default settings. Use those default values unless otherwise noted.

- **Encoder:** The type of compression used by the camera's audio. Orchid Core VMS supports "None" (audio is disabled), G711, and AAC (recommended if audio is desired).
- **Bit Rate:** The target data size (in kilobits per second) of the compressed audio. The default value is recommended.
- **Sample Rate:** Affects the quality of recorded sound. The default value is recommended.

Low-bandwidth Settings

• **Decode all frames:** This setting applies to viewing Live video in Low-bandwidth mode. When *Decode all frames* is disabled, Orchid Core VMS will display only full frames (per the configured GOV length) when viewing live video in Low-bandwidth mode. When *Decode all frames* is enabled, Orchid Core VMS will display every available frame from the camera (regardless of GOV length) when viewing live

video in Low-bandwidth mode, assuming sufficient bandwidth exists. *Decode all frames* is disabled by default because enabling this setting will increase CPU use on your Orchid Core VMS server. (For more details on Low-bandwidth mode, please refer to the <u>Advanced Topics</u> section.)

- 10. Once the stream settings have been updated, click the *Update Stream* button to save the new stream settings. It may take a few seconds for the settings to change based on the camera being updated.
- 11. You may review the impact that the stream settings have on video playback for each camera. Simply click on the corresponding thumbnail to watch a current live video feed.

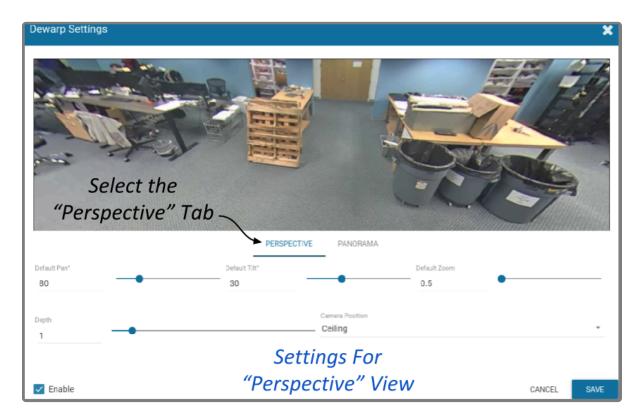
Advanced Settings: Fisheye Dewarping

Starting in Orchid Core VMS version 2.8, the *Camera Configuration* screen includes *Fisheye Dewarping* which allows you to manipulate video from fisheye cameras for display on the Player. This feature provides three viewing options: *Off, Perspective*, and *Panorama*. This means that you can view the standard fisheye view, or one of two "flattened" views.

For any fisheye camera, the *Dewarp Settings* allow you to enable or disable the dewarping features, and set a default view for the associated Player.

Perspective

1. At the *Camera Configuration* screen, click the camera you want to edit. Then click the *Fisheye Dewarping* link to open the *Dewarp Settings* screen.



2. Select the *Perspective* tab.

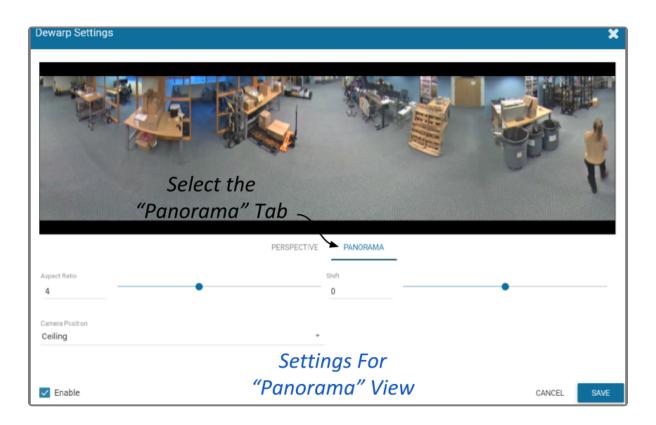
Use the *Perspective* screen to enter settings for the *Perspective* view of the selected camera. The *Perspective* view is a flattened version of the available video from the fisheye camera for which you select a

portion of the image as the default view to be displayed on the Player. (The *Perspective* view can also be changed at the Player, but that will not change the default.)

- 3. Mark the *Enable* checkbox to activate the *Dewarp Settings* (both *Perspective* and *Panorama*) for this camera. (If this is not marked, Dewarping features will not be available at the Player.)
- 4. Use the Default Pan slider to move the camera to the right and left to set the default view.
- 5. Use the *Default Tilt* slider to move the camera up and down to set the default view. (Be aware that it is possible to tilt the view beyond the capability of the camera; if this happens, portions of the screen will appear black.)
- 6. Use the *Default Zoom* slider to zoom into or out of the image to set the default view. (Be aware that it is possible to zoom beyond the capability of the camera; if this happens, portions of the screen will appear black.)
- 7. Use the *Depth* slider to stretch or compress the image height to set the default view. (This can cause extreme image distortion at the bottom and top ends of the scale. The default value is likely the best setting.)
- 8. Use the drop-down list to select the camera's mounting location as Ceiling, Floor, or Wall. (This setting will impact how the software displays the camera image.)
- 9. Press the *Save* button to save your settings, or *Cancel* to exit without saving.

Panorama

1. Select the Panorama tab.



Use the *Panorama* screen to enter settings for the default *Panorama* view of the selected camera. The *Panorama* view is a flattened version of the available video from the fisheye camera. This view displays the entire image and cannot be altered at the Player.

- 2. Mark the *Enable* checkbox to activate the *Dewarp Settings* (both *Perspective* and *Panorama*) for this camera. (If this is not marked, Dewarping features will not be available at the Player.)
- 3. Use the *Aspect Ratio* slider to change the amount of Player area the image will fill. You might take some time to experiment with this setting, but the points below describe how it works.
 - a. At the high end of the scale, the image will fill the length of the Player, but the height of the image will be condensed.
 - b. At the center of the scale, the image will fill the length of the Player, and the height of the image will be at its least distorted.
 - c. As you move from the center of the scale to the low end, the height of the image will stretch toward the top and bottom of the Player.
 - d. From the point that the image fills the Player, if you continue to move to the bottom of the scale, the image width will shrink until the image disappears.
- 4. Use the *Shift* slider to adjust the center point of the image. (If there is a certain part of the image that you prefer at the center of the Player, use the slider to make this adjustment.)
- 5. Use the drop-down list to select the camera's mounting location as Ceiling, Floor, or Wall. (This setting will impact how the software displays the camera image.)

6. Press the *Save* button to save your settings, or the *Cancel* button to exit without saving.

Advanced Settings: Motion Detection

Starting in Orchid Core VMS version 2.6, the *Camera Configuration* screen includes *Motion Detection* Settings which allow you to apply camera-specific motion detection settings. The *Motion Detection Configuration* screen provides two tools to reduce the number of "nuisance" motion captures: *Motion Mask* and *Object Size*.

Motion Mask

At the *Camera Configuration* screen, click the camera you want to edit. Click the *Motion Detection* link to open the *Motion Detection Configuration* screen.

Motion Detection Configuration			×
Mask Brush	+ Edit Motion	Edit Object	Masked Area
	Mask	Size	Remove Mask
Use the brush to paint the areas of the image that shoul Brush Size 40	MOTION MASK		ion will be detected.
Brush	Size	Brush Type-	CANCEL UPDATE CAMERA

1. Select the *Motion Mask* tab (just underneath the video image). Use this screen to change the way motion detection is applied to the selected camera.

By default, all cameras are set to detect motion. When motion is detected, a motion event is recorded and will appear on the *Timeline Bar* (which is intended to make video review easier). But sometimes, the camera captures too much motion. There may be objects in the video, like trees, banners, or balloons, that move constantly, increasing the number of motion events to such a degree that it actually makes video review more tedious.

The *Motion Mask* tool allows you to "paint" over one or more areas of the video image, making those areas invisible to motion detection. (You will still see all of the video, but the motion capture feature will ignore the masked area.)

- 2. Select the *Brush Type*.
 - a. The paint brush will add a masked area to the video image. This area will be ignored by the motion detection feature.
 - b. The eraser will remove masked area from the video image. This area will now be evaluated during motion detection.
- 3. Adjust the *Brush Size* using either of the following methods.
 - a. Click in the *Brush Size* field and enter a new number or use the up and down arrows to increase or decrease the size of the brush.
 - b. Click and drag the slider to increase or decrease the size of the brush.
- 4. Position your cursor over the video image and you'll see a blue circle (the mask paint brush) or a pink circle (the mask eraser). (Adjust the brush size if needed.)
- 5. Click and drag the brush across the video image to change the masked area.
 - a. If you selected the paint brush, you will add masking to the image.
 - b. If you selected the eraser, you will <u>remove</u> masking from the image.
- 6. To remove the entire mask, click the *Clear* button.
- 7. To save the mask (or the cleared image), click the *Update Camera* button.

Due to the variability of the video image that comes with PTZ cameras, the *Motion Mask* feature should not be used with PTZ cameras.

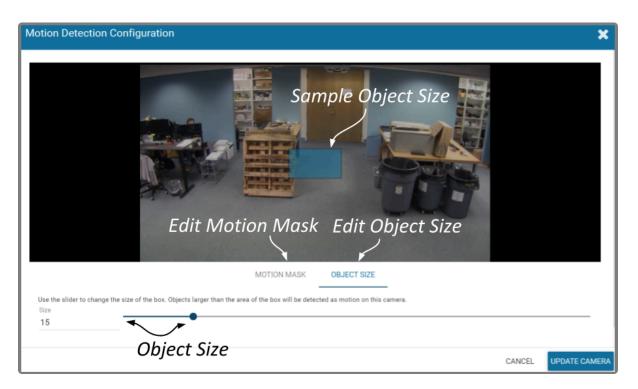
There are some circumstances that will inhibit motion detection. If the motion enters and exits the video image very quickly, the system may not see enough of the frames to detect the motion. If this becomes an issue, you may want to consider reducing the stream GOV setting (which results in more keyframes), or enable the *Decode all frames* option. Keep in mind, however, that this will put additional load on the server.

Object Size

The *Object Size* tool allows you to modify motion detection based on area. This tool instructs the software to ignore the movement of any objects with a smaller area than the selected object size (like small animals and robot vacuum cleaners). (You will still see all of the video, but the motion capture feature will ignore the small stuff.)

1. Select the *Object Size* tab (just underneath the video image). Notice the blue square in the center of the video image. This represents the defined object area. Objects of equal or lesser area will be ignored by motion detection.

For example, if the selected object size (area) is 100, the software will ignore objects with an area of 100 or less. This includes objects that are 10×10 , 20×5 , 30×3 , 45×2 and so on (each of which have an area of 100 or less).



- 2. Adjust the *Object Size* using either of the following methods.
 - a. Click in the *Size* field and enter a new number or use the up and down arrows to increase and decrease the area.
 - b. Click and drag the slider to increase and decrease the area.
- 3. To activate motion detection for objects of all sizes, set the Size to zero.
- 4. To save the Object Size settings, click the Update Camera button.

When selecting the *Object Size*, it may be better to keep it small. As this selection gets larger, the system ignores more motion events (which may be detrimental to your overall objective).

* The Motion Mask and Object Size tools can be used together to completely customize motion detection for each camera.

Add a Stream

Usually you will not need to add a stream unless your camera does not come configured with any streams by default.

- 1. From the *Camera Information* screen, press the *Add Stream* button to add a new stream for the selected camera. Orchid Core VMS will open a screen in which you will need to enter and modify the settings for the stream.
- 2. When all settings have been entered, press the *Add Stream* button to add the new profile to the *Streams* list for the selected camera.

Copy Stream to Cameras

This is the **Copy Streams** icon.

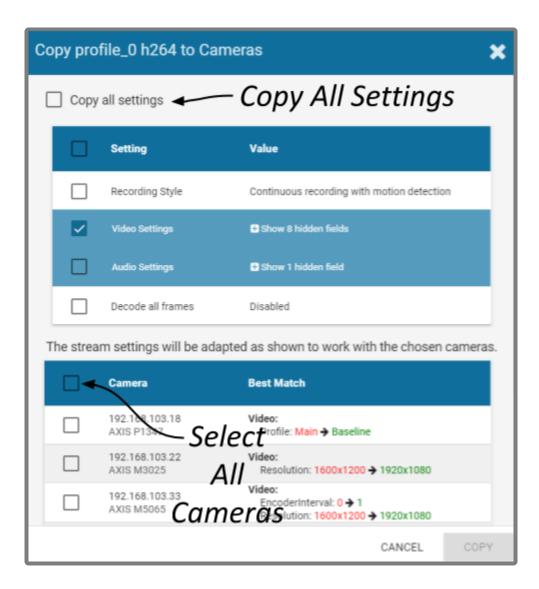
This feature is a shortcut you may use if you have multiple, similarly configured cameras to set up. Once you complete a stream settings profile for one camera, you can copy all (or part) of that profile to one or more cameras with one click. This shortcut is especially useful if you have added multiple cameras at once (using Auto mode).

- 1. From the list of registered cameras on the *Camera Configuration* screen, click the name of the camera you want to use as a model.
- 2. Then add or edit a camera stream that contains the settings you would like to copy to other cameras.
- 3. Once your template profile is complete, click the *Copy Stream to Cameras* icon for the stream you want to copy.

Orchid_dc5d2048x1536, 12fps, H264 Continuous recording with motion detectionDetect	Primary	Name	Configuration			
Profile_U h264 Recording only when motion detected COpy		Orchid_dc5d		ළු	Salt	圃
profile () iper		profile_0 h264	2592x1944, 12fps, H264 Recording only when motion detected Copy	<u> </u>	Sant	圃
		profile_0 jpeg	Editer () (Elbo) of Ed	ළු	Salt	圃

RTSP cameras have a limited number of settings that can be edited in Orchid Core VMS. These cameras will not display the **Copy Stream** icon and are not eligible for the **Copy** *Stream* feature.

A screen will appear that will allow you to edit and complete the profile transfer to selected cameras.



The screen lists all of the cameras that have been added to the system. It also provides comments to show which cameras are good candidates for the stream settings (which may help you decide if you want to copy all of the settings to all of the cameras.) For each camera that is not a perfect match, Orchid Core VMS will pick the stream setting that is the closest match and indicate how the stream settings will be modified for that camera.

There are several reasons why profile matches might not be perfect. For instance, maybe the model camera is configured to use a higher resolution than is supported by the target cameras. In this case, Orchid Core VMS will choose the closest available resolution on the target cameras.

The appearance of this screen will change as different settings are selected. Depending on how many cameras have been added and which settings are selected, you may need to scroll down to see all of the cameras and settings.

- 4. Mark the *Copy all settings* checkbox to copy all of the stream settings. (These will be copied to all of the cameras selected in the lower half of the screen.)
- 5. Leave the *Copy all settings* checkbox unmarked if you want the ability to choose which settings will be copied.
 - a. Mark the **Setting** checkbox if you decide to copy all of the settings anyway.
 - b. Mark the checkbox for any of the individual categories that you want to copy (including *Recording Style, Video Settings, Audio Settings*, and *Decode all frames*).
 - c. You may expand the *Video* and *Audio Settings* categories to select individual settings within each, if needed. (Click on the +*Show hidden fields* link to expand the list and the *-Hide fields* link to condense the list.)
- Mark the *Camera* checkbox if you want to copy settings to all of the cameras in the list. Leave the *Camera* checkbox unmarked if you want the ability to choose which cameras will receive the stream settings.
- 7. Mark the **Overwrite primary stream** checkbox if you want these stream settings to replace the existing primary stream settings on every camera selected. Leave the **Overwrite primary stream** checkbox unmarked if you simply want to add this as a new stream option for each of the selected cameras. (Orchid Core VMS will not record from this new stream.)
- Once your selections are complete, click the *Copy* button to send the stream settings to the selected cameras. It may take a few minutes for the settings to change based on the number and type of cameras being updated.
- 9. When the copy process is complete, click the *Done* button.

Cameras with Multiple Lenses

There are some camera models that have multiple lenses or offer multiple camera views (such as 180- or 360-degree cameras). To take advantage of this capability, you will need to do the following:

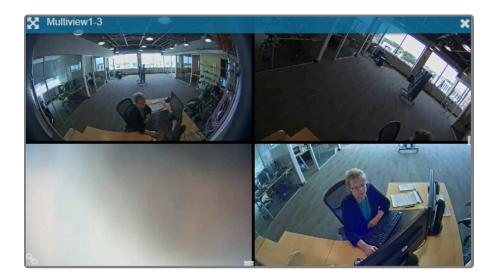
- 1. Add this camera to the system one time for each available lens.
- 2. Edit the properties for each of the cameras as follows:
 - a. For ease of identification, provide similar but unique camera names. (For example: Tower1East, Tower1West, and Tower1North.)
 - b. To ensure that you are able to view video from each of the available lenses, select a different primary stream for each of the cameras you added.

In the example below, a multi-lens camera has been added to the system 3 times. Each has a similar (but different) camera name, and each has a different primary stream.

Camera Information	Multiview1-2	ifferent Na	imes 📰 🔨			
Camera Name Multiview1-1 🌶			- B.	X		
Camera RTSP URL rtsp://192.168.105.50/onvif-med	Camera Information	Multiview1-3			-	
Orchid Proxy RTSP URL rtsps://grimace.ipconfigure.com	Camera Name Multiview1-2 🅜	1920×1080, 15\$ps, H264				
Streams	Camera RTSP URL rtsp://192.168.105.50/onvif-med	Camera Information				
Primary Name	Orchid Proxy RTSP URL <pre>staps://grimace.ipconfigure.com</pre>	:: Camera Name Multivieu/1-3	Camera Model AXIS F34	Stream Status		
profile_1 h264 Streams				ioning.		
	Streams	Camera RTSP URL rtep://192.168.105.50/onvi	f-media/media.amp?profile=profile_3_h		e 16	
profile_1 h264 profile_1 jpeg profile_2 h264	Primary Name	rtsp://192.168.105.80/onvi Orchid Proxy RTSP URL	f-media/media.amp?profile=profile_0_h e.com:354/orchid/live?id=608		re 🖪	
polie_1 jpg	Primary Name Profile_11264	rtsp://192.168.105.80/onvi Orchid Proxy RTSP URL		2646sessiontimeout=1206st	e €	TR
polie_1 jpg polie_2 h264	Primary Name Image: profile_11x264 profile_11x264	Orchid Proxy RTSP URL rtsps://grimace.ipconfigur		2646sessiontimeout=1206st		STRE
profie_1 jarg profie_2 1254 profie_2 jarg	Primary Name Image: profile_11x064 profile_11x064 Image: profile_11y00 profile_12x064	rtsp://192.168.105.50/cmv1 Orchid Proxy RTSP URL rtsps://grimace.ipconfigur Streams	e.com:554/orchid/live7id=655	2446949910nt1meout=12069t		
profie_1 jpg profie_2 h264 profie_2 jpg profie_3 h264	Primary Name I profile_11x564 II profile_11x564 II profile_21x564 III profile_21x564 III profile_21x564	rtsp://192.168.108.45/00v1 Orchid Proxy RTSP URL rtsps://grinace.ipconfigur Streams Primary Name	e. com:554/orch14/11ve71d=605 Configuration 1400x1050, 15(ps, JPEG Continuous recording with motion 1 1980/279, 15(cs, 1962)	2444sessiontimeout=1204st		
profie_1 jpg profie_2 h264 profie_2 jpg profie_3 h264	Primary Name Image: profile_11x064 profile_11x064 Image: profile_11y00 profile_12x064	rtspi//192.168.108.80/com Orchid Proxy RTSP URL rtsps://grimace.ipcomfigur Streams Primary Name proline_1 hot	e. com:554/orchid/live7id=605 Configuration 1400x1509, JFE0 Continuus recording with motion a 128bx720, 155ps, JFEG Continuus recording with motion a 128bx720, 155ps, JFEG	24465eessiontimeout=1206sti detection detection detectio		5TRE 1 1
profie_1 jarg profie_2 1254 profie_2 jarg	Primary Name I profile_11x564 II profile_11x564 II profile_21x564 III profile_21x564 III profile_21x564	rtspi//192.168.108.45/00v1 Orchd Proxy RTSP URL rtspir//primace.ipconfigur Streams Primary Name Primary Name profile_1 k2 profile_1 joe	econ: 354/orchid/live7id=405 Configuration 1400x1950, 15(ps, JPEG Continuus recording with motion o 201b0x700, 15(ps, JPEG Continuus recording with motion o 120b0x100, 15(ps, JPEG Continuus recording with motion o 120b0x700, 15(ps, JPEG Continuus recording with motion o	2000 2000 2000 2000 2000 2000 2000 200		1

If you find a Camera Stream profile called "multiview" (or something similar) in the list of stream names, select that as the Primary stream if you want to view/record all of the views as one stream. When you add this Player to the *Stage*, it will display all available views as

one Player.



Removing a Stream

This is the **Delete** icon.

1. To remove a single camera stream, go to the *Streams List* for a given camera and identify the stream you want to delete.

Primary	Name	Configuration				
	H.264	1280x960, 15fps, H264 Continuous recording with motion detection		ආ	(a)	► 🔒
	MJPEG	1280x1024, 5fps, JPEG Continuous recording with motion detection	Locked - Stream	ළු	(a)	
	MOBILE	320x240, 3fps, JPEG Continuous recording with motion detection		ළු	Gail	▶ 🛍
	stream_10852423	1280x960, 15fps, H264 Continuous recording with motion detection	Delete - Stream	ආ	Ser	圃
	stream_944eb43e	1280x960, 30fps, H264 Continuous recording with motion detection		ළු	(and	圃

2. Click the *Trash Can* icon to the right of the selected stream. Orchid Core VMS will ask you to confirm that you want to delete the stream. Press *Delete* to confirm. This cannot be undone.

A red *Lock* icon indicates that the stream cannot be deleted. This locked state is dictated by the camera and cannot be changed.

Recovering a Camera

This is the **Recover Camera** icon.

If someone edits camera settings (including the IP address) directly at the camera, Orchid Core VMS may be unaware of the new settings and may lose its connection with the camera. Beginning with version 2.2.2, Orchid Core VMS helps fix this problem by adding the *Recover Camera* feature.

- 1. To recover a camera, click the name of the camera you want to recover from the list of registered cameras on the *Camera Configuration* screen.
- 2. Press the **Recover Camera** button at the bottom of the expanded camera entry. The Connection Settings screen will appear.

Connection Settings		×
Use this to recover and synchronize you • The camera's IP address has char • The camera's settings have been a		
ONVIF Discovery URL http://192.168.103.33/onvif/device_se	rvice	
Credentials Username	Password	
	CANCEL RECOVER CA	MERA

- To refresh the camera settings, simply enter the credentials for the camera, then press the *Recover Camera* button. (The software will pull the camera settings directly from the camera.)
- 4. To reconnect with the camera, replace the camera's IP address (with the new one) in the camera's URL field. Then enter the credentials for the camera and press the *Recover Camera* button. (The software will reconnect with the camera at its new IP address, and will also pull the camera settings from the camera.)

Removing a Camera

This is the **Delete** icon.

- 1. To remove a single camera, do either of the following:
 - a. From the list of registered cameras on the main *Camera Configuration* screen, position the cursor over the Up arrow to the left of the camera you want to delete; the arrow will change into a checkbox. Mark the checkbox, then press the *Delete Selected* button at the bottom of the list. Orchid Core VMS will ask you to confirm that you want to delete the camera. Press *Delete* to confirm. Once a camera is removed, it is no longer available for viewing, playback, recording, export, etc. This cannot be undone.
 - b. From the camera's settings screen, click the *Delete Camera* button (located at the bottom of the screen). Orchid Core VMS will ask you to confirm that you want to delete the camera. Press *Delete* to confirm. Removal may take a few moments.

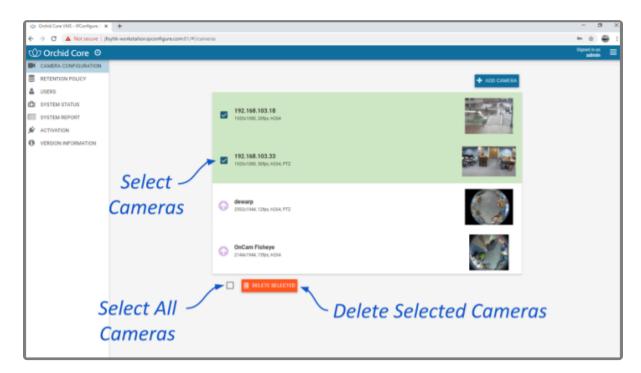
192.168.10 752x480, 5fps,	0.39 H264, G726 Audio, PTZ					
Camera Inforr	nation					
Camera Name 192.168.100.39	1	Camera Model AXIS Q6042	Stream Status running			
Camera RTSP URL rtsp://192.168.	100.39/onvif-media/	media.amp?profile=profile04sessiontime	out=1206stream	itype=	в	
Orchid Core VMS P rtsp://orchid.i		orchid/live?id=1560 🖪				
Streams				+	ADD S	TREAM
Primary	Name	Configuration				
	stream_4d4124bc	704x480, 24fps, H264 Continuous recording with motion detection		ආ	San	ŵ
	stream_b8bafcad	752x480, 5fps, H264 Continuous recording with motion detection		ආ	S	Û
Advanced Set	tings					
FISHEYE DEWAR	RPING Delet	e Camera				
Actions	/					

Removing Multiple Cameras

This is the **Delete** icon.

Multiple cameras can be removed from Orchid Core VMS at the same time, if needed.

1. From the list of registered cameras on the main *Camera Configuration* screen, first select the cameras you want to delete. (For each camera you want to delete, position the cursor over the Up arrow to the left of the camera name; the arrow will change into a checkbox. Mark the checkbox.)



- Once your selections are complete, click the *Delete Selected* button at the bottom of the list. Orchid Core VMS will ask you to confirm that you want to delete the cameras. Press the *Delete* button to confirm. Once the cameras are removed, they are no longer available for viewing, playback, recording, export, etc. This cannot be undone.
- 3. To delete ALL of the cameras in the list of registered cameras, mark the *Delete Selected* checkbox at the bottom of the list, then click on the *Delete Selected* button. Orchid Core VMS will ask you to confirm that you want to delete the cameras. Press the *Delete* button to confirm. Once the cameras are removed, they are no longer available for viewing, playback, recording, export, etc. This cannot be undone.

Retention Policy

The *Retention Policy* feature in Orchid Core VMS allows Administrators to manage video archive retention on a stream by stream basis as well as review current and projected disk utilization.

An Administrator is the only role with access to the *Retention Policy*.

About Video File Retention

To maintain a system for video file retention, Orchid Core VMS determines how much disk space is available on the server. By default, Orchid Core VMS will retain videos until your hard disk is 85% full (the *Cleaner Threshold*), at which point it will begin deleting the oldest videos to make room for new videos. The available video storage space is divided among all the cameras that have been added to Orchid Core VMS based on equal days of retention; however, based on individual camera settings, this doesn't mean that each camera will require the same amount of server storage space.

If no camera-specific retention settings have been entered, Orchid Core VMS will grant each camera the same number of days of video retention. Since each camera may have different settings (such as recording style, frame rate, etc.), and those settings impact video file size, the amount of space required for the same number of days will vary.

In some applications, there may be cameras for which increased file retention is critical. For these cameras, the Administrator may set specific, minimum retention settings. In these cases, the retention settings for the remaining cameras will be adjusted automatically to share the remaining balance of available storage before the *Cleaner Threshold* is met.

When disk usage reaches the retention limit, Orchid Core VMS will create free space by removing the oldest archives first. The system will ensure, however, that the minimum desired retention settings that have been set are maintained, assuming sufficient disk space is available.

To change the 85% *Cleaner Threshold* setting, please refer to the *How to Edit a Configuration File* section (for the appropriate operating system), and the *Orchid Core VMS Configuration Settings* section (both of which are in the <u>Orchid Core VMS Installation Guide</u>).

Accessing the Retention Policy

1. To access the retention settings for Orchid Core VMS, open the *System Menu* in the top-right corner of the screen, then select *Retention Policy*.

Estimated Retention	Summary	Breakdown by Camera
365.7 GB of unavailable space	Max archive threshold at 493.7 GB 👘 1.3 T	B of free space
Camera	Estima:ed Retention	Desired Retention
192.168.103.18	1.3 days (13.2 GB / day)	AUTOMATIC
192.168.103.33	1.3 days (24.9 GB / day)	AUTOMATIC
C dewarp	1.3 days (9.3 GB / day) *	AUTOMATIC
CnCam Fisheye	1.3 days (50.6 GB / day)	AUTOMATIC
	ANCEL CHANGES Use a streams configured to record mo	Automatic or Custom

At the top of the *Estimated Retention* section, Orchid Core VMS displays a summary of estimated server space usage. Use the cursor to hover over the colored regions of the summary graphic to view the estimated server space usage for each camera.

- **Unavailable space:** This space on the disk is marked in grey. It is already in use by other applications and is unavailable to Orchid Core VMS for storing video.
- Video data: This space on the disk is marked in various bright colors representing each camera. This space is filled with videos that are managed by Orchid Core VMS. To make space for new video, the oldest videos are continuously and automatically deleted as the *Cleaner Threshold* is reached.
- Cleaner Threshold: By default, Orchid Core VMS will attempt to make sure that no more than 85% of your disk space is used. This threshold is marked on the bar by a red dotted line. To change the 85% Cleaner Threshold setting, please refer to the How to Edit a Configuration File section, and the Orchid Core VMS Configuration Settings section (both of which are in the Orchid Core VMS Installation Guide).

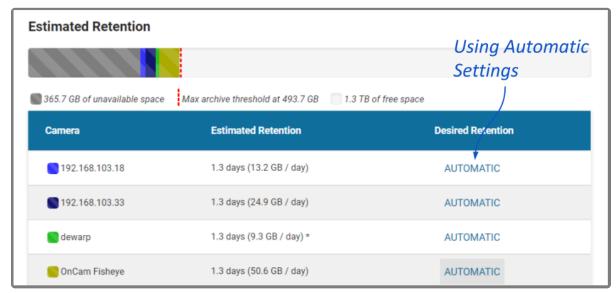
• Free space: This disk space is not in use by Orchid Core VMS or any other program.

Changing Desired Retention Settings

If you decide that you need to set some specific retention settings, keep a few things in mind.

- The amount of space in which Orchid Core VMS may store video files is limited, regardless of what you may attempt to enter as desired retention settings.
- As custom desired retention settings are entered, Orchid Core VMS will automatically re-distribute the remaining available space to the remaining cameras (that are using the Automatic retention settings).
- Increasing the cameras' desired retention settings to inflated numbers may not be realistic, and may result in an error message.
- Keep it simple and let Orchid Core VMS do most of the work. Instead of decreasing some settings and increasing others, keep the Automatic settings for most cameras, and increase the desired retention on cameras that are most critical to the operation.

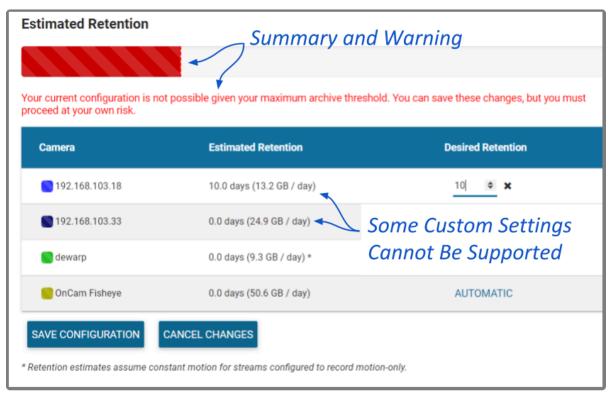
The following screenshots depict a series of retention scenarios.



This example shows that the system will keep approximately 1.3 days worth of video for each camera when all cameras are using the Automatic (default) retention settings.

Estimated Retention	Summary	
365.7 GB of unavailable space	Max archive threshold at 493.7 GB 📃 1.3 T	'B of free space
Camera	Estimated Retention	Desired Retention
192.168.103.18	8.0 days (14.1 GB / day)	8 🗢 🗙
192.168.103.33	0.2 days (3.7 GB / day)	
ewarp	0.2 days (9.5 GB / day) *	AUTOMATIC
OnCam Fisheye	0.2 days (50.8 GB / day)	AUTOMATIC
	CANCEL CHANGES	ow Custom Settings Estimated Retention

In this example, the retention setting for the first camera has been increased to 8 days. After an automatic adjustment, the remaining cameras will have decreased storage capacity at approximately 0.2 days each.



In the final example, the retention setting for the first camera has been increased to 10 days. This setting will require so much space that it results in an error. The system estimates that it will not be

able to store this much video for camera 1 (or any video at all for the remaining cameras).

- 1. To edit the minimum Desired Retention setting for any given camera, click on the corresponding *Automatic* button.
- 2. Type in a new setting to represent the number of days of video that will be kept for this camera. The remaining estimated retention will automatically be recalculated for all cameras that do not have a manually specified retention setting.

If your new setting requires more storage than is physically available on your disk, Orchid Core VMS will flag an error (as pictured previously). To fix this, you'll need to reduce the desired retention to an acceptable level or add more available storage.

- 3. Repeat steps 1 and 2 for each camera that requires custom, minimum retention settings.
- 4. To undo the last setting you changed, press the *Cancel Changes* button at the bottom of the list. (You can only use this feature before you save the new configuration.)
- 5. Once all settings have been entered, press the **Save Configuration** button at the bottom of the list.
- To quickly change any setting back to *Automatic*, click the *X* button next to the setting and then press the *Save Configuration* button.

Reviewing the Current Disk Utilization

The bottom half of the *Retention Policy* screen displays how the server space is actually being used. Use the cursor to hover over the colored regions of the summary graphic to view the actual server space usage for each camera.

Current Disk Utilization	Actual Data Retention Max archive threshold at 493.7 GB 1.3 TB of free space	Video Data Collection Period)
Camera	Actual Fetention	Retention Span
192.168.103.18	1.4 days (18.1 GB) total	1.4 days
192.168.103.33	1.4 days (34 GB) total	1.4 days
ewarp 📔	0.1 days (945.6 MB) total	1.3 days
📒 OnCam Fisheye	1.4 days (69 GB) total	1.4 days

The *Current Disk Utilization* section displays a summary of actual server space usage which includes unavailable space (space used by the operating system and other files), space occupied by video files, and a buffer of free space. It then provides a usage breakdown by camera. This information can be very helpful in diagnosing retention issues.

The *Actual Retention* column shows how many days worth of video is being stored per camera. It also includes how much disk space each camera is consuming. The *Retention Span* column shows the number of days over which the video files have been recorded. This data point is especially helpful for those cameras that are set to record only when motion is detected. (For example, look at the "dewarp" camera above. At first glance, the actual retention reading might cause concern. The *Retention Span* confirms that the system has been monitoring the camera for about the same amount of time as the other cameras.)

You may also use this breakdown to determine if any of the cameras are using excessive disk space. If this is the case, you can then take steps to re-configure the camera (by changing either the minimum desired retention settings or the camera stream settings) and fix the problem.

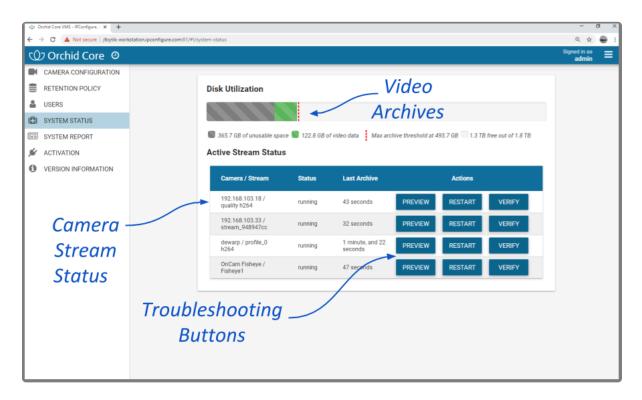
View the System Status

The *System Status* feature in Orchid Core VMS provides an overview of the current disk utilization of the video archives folder and the active streams running in Orchid Core VMS.

Administrators and Managers are the only roles with the ability to access the *System Status*.

Accessing the System Status Report

1. To access the *System Status* report for Orchid Core VMS, open the *System Menu* in the top-right corner of the screen, then select **System Status**.



The *Disk Utilization* section summarizes how the server space is being used. If the overall amount of total disk space appears low, this may indicate that your recording drive(s) have gone offline and Orchid Core VMS is recording to some other location.

- **Unavailable space:** This space on the disk is marked in grey and is already in use by other applications; it is unavailable to Orchid Core VMS for storing video.
- Video data: This space on the disk is marked in green. This space is filled with videos that are managed by Orchid Core VMS. To make space for new video, the oldest videos are automatically deleted as the *Cleaner Threshold* is reached.
- Cleaner threshold: By default, Orchid Core VMS will attempt to make sure that no more than 85% of your disk space is used. This threshold is marked on the bar by a red dotted line. To change the 85% *Cleaner Threshold* setting, please refer to the *How to Edit a Configuration File* section (for the appropriate operating system), and the *Orchid Core VMS Configuration Settings* section (both of which are in the <u>Orchid Core VMS Installation Guide</u>.

• Free space: This disk space is not in use by Orchid Core VMS or any other program.

By default, the video archives folder can be found in the following locations:

- In Linux: /orchives
- In Windows: C:\orchives

To change the location of the orchives folder, please refer to the *Changing the Orchid Core VMS Archives Storage Location* section in the <u>Orchid Core VMS Installation Guide</u>.

Reviewing the Camera Stream Status Section

The *Active Stream Status* section of the *System Status* report shows a list of all the active camera streams in Orchid Core VMS, their current status, and how long ago the last archive was saved for that stream. Available stream statuses are:

- **Running:** The stream is currently active and running properly without any errors. It is actively recording and saving video (if configured to do so).
- **Restarting:** The stream is being restarted automatically and should be active again within a few seconds.
- Idle: The camera is not responding after being restarted by Orchid Core VMS multiple times and the camera status should be manually verified.
- **Stopping:** The camera stream has been shut down and is in the process of writing the video file. (This will typically happen because another stream has been selected as the primary stream.)

The *Last Archive* field will typically display the amount of time that has passed since the last archive was saved. If Orchid Core VMS has never saved an archive for the camera stream, the software will display *Never* in the *Last Archive* column. Orchid Core VMS writes video archives every minute, so any camera whose *Last Archive* is more than a minute old will be flagged in red, as this indicates video may not be recording.

Troubleshooting the Camera Stream Status

If there are any issues with the streams, you can troubleshoot the issue within Orchid Core VMS by using the *Preview*, *Restart*, and *Verify* buttons:

- **Preview:** View a live feed of the camera stream. If you are able to see moving video from the camera's feed, then the server and the camera are properly connected.
- **Restart:** Closes and restarts the camera stream. You can then use the *Preview* button to verify that Orchid Core VMS is receiving video from the camera stream without having to navigate back to the *Stage*.
- Verify: Pings the camera and confirms whether or not Orchid Core VMS can communicate with the camera successfully. This button will turn green after a successful validation. The button will turn red if the Orchid Core VMS server is unable to communicate with the camera. (If the ping command is unsuccessful, the camera's IP address may have been changed directly at the camera. If this is the case, obtain the new IP address and use the <u>Recover Camera</u> feature to reconnect.)

(Please refer to the Advanced Topics section for additional help.)

Viewing the System Report

The *System Report* feature in Orchid Core VMS allows Administrators and Managers to view various types of events (such as camera streams starting and stopping) and camera stream statistics during a specified time period. This report also provides access to the Orchid Core VMS system log.

*	Administrators and	d Managers	are the	only roles	with the	ability to	o access t	he System
	Report.							

Accessing the System Report

To access the *System Report* for Orchid Core VMS, open the *System Menu* in the top-right corner of the screen, then select **System Report**.

	Time Selection			
	From: 🚔 JAN 9, 2020 - 0		— Select	Date Range
	Server Events			
Se	lect Event t	0		
V	liew Details	5	11	
	01/09 03:00 06:0	09.00	12:00 15:00 18	.00 21:00
	What	Where		When
	stream-starting	OnCam Fisheye / Fisheye1		2020-01-09 11:04:01
	Stream Statistics			
for Each	Camera / Stream	MB Recorded	Video Recorded	Motion Recorded
Stream	192.168.103.18 / quality h264	8,157	14 hours, 47 minutes, and 45 seconds	8 hours, 30 minutes, and 39 seconds
	192.168.103.33 / stream_948947cc	13,328	14 hours, 47 minutes, and 15 seconds	1 hour, 16 minutes, and 15 seconds
	dewarp / profile_0 h264	413	1 hour, 2 minutes, and 33 seconds	1 hour, 3 minutes, and 19 seconds
	OnCam Fisheve / Fisheve1	31.852	14 hours, 44 minutes, and 37	1 hour, 27 minutes, and 45

Working with the Server Events and Stream Statistics

By default, the System Report will provide a report for the current date (from 12:00 AM to 11:59 PM).

1. To select a new date range for the report, use the *From* and *To* buttons to select the new dates/times for the report in the pop-up calendar and then press the *Go* button. As soon as new dates are chosen, the report will update the *Server Events* and *Stream Statistics* sections.

The *Server Events* graph displays the date and time along the x-axis and the number of events that occurred on the y-axis. For each time period on the *Server Events* graph, a vertical bar will appear if at least one event occurred during that time frame.

Server events include the following:

- Start: The Orchid Core VMS server was started.
- Stop: The Orchid Core VMS server was stopped.
- License Changed: The Orchid Core VMS license has been added, removed, or updated.
- Entered Degraded State: The Orchid Core VMS server has entered a state in which it will not operate normally. No new video will be recorded and no existing video will be deleted. (Refer to the <u>Advanced Topics</u> section for more details.)
- **Trusted Issuer Created:** This indicates that Orchid Fusion VMS has registered (added) this Orchid Core VMS server.
- **Trusted Issuer Removed:** This indicates that the Orchid Fusion VMS server has detached from this Orchid Core VMS server.

Stream events include the following:

- Stream-starting: The stream was started. (System provides the stream name and time.)
- **Stream-error:** The stream posted an error. (System provides the stream name, time, and error message.)
- Failover Failed: The stream encountered a storage device failure. (System provides the stream name and time.)
- 2. To view specific details on server events, click on any of the vertical bars. (The selected bar will appear in red.) The server event details for the selected time period will appear in a table beneath the graph. Event details include the date and time.

3. If there are multiple events within a selected time period, you may double-click on the vertical bar to zoom in for more detail on the time frame.

The *Stream Statistics* section lists each of the active camera streams in Orchid Core VMS. For each stream, Orchid Core VMS will show how many megabytes of video was recorded, the length of the recorded video, and how much of the recorded video contained motion. (The motion reported here only includes motion that the camera was instructed to detect. Please refer to <u>Advanced Settings</u> for more details.)

Working with the Log Export

The bottom half of the *System Report* includes the *Log Export* feature. This feature allows you to view and export Orchid Core VMS system logs into a compressed file or plain text. These logs contain advanced troubleshooting information and are useful when trying to diagnose issues with Orchid Core VMS.

The *Timeline Bar* displays the time on the client machine while system reports and logs are based on the server time. If there is a discrepancy, click the *Clock* icon (next to the software name in the image below) to view the time gap.

Orchid Care VMS - IPConfigure, 1 X +					- 0
C ▲ Not secure jfoytik-workstation.ipconfigur Orchid Core ②	e.com:81/#I/system-report				역 ☆ 🚭 Signed in as
	Camera / Stream	MB Recorded	Video Recorded	Motion Recorded	admin
RETENTION POLICY	192.168.103.18 / quality h264	8,157	14 hours, 47 minutes, and 45 seconds	8 hours, 30 minutes, and 39 seconds	-
USERS SYSTEM STATUS	192.168.103.33 / stream_948947cc	13,328	14 hours, 47 minutes, and 15 seconds	1 hour, 16 minutes, and 15 seconds	
SYSTEM REPORT	dewarp / profile_0 h264	413	1 hour, 2 minutes, and 33 seconds	1 hour, 3 minutes, and 19 seconds	
ACTIVATION	OnCam Fisheye / Fisheye1	31,852	14 hours, 44 minutes, and 37 seconds	1 hour, 27 minutes, and 45 seconds	
VERSION INFORMATION					_
	Log Export Format: (a) gzip (b) text (c) Specify Range From: (c) JAN 9, 2020 - 0		Log Format Select Date		
	To: 🛗 JAN 9, 2020 - 1	10:30			

- 1. Select the format you wish to use for the log export:
 - a. gzip: This option will download the latest log from Orchid Core VMS into a compressed file, allowing it to be viewed on other computers. The gzip-compressed file can be extracted using the gunzip command on Linux or a utility such as 7-zip on Windows.
 - b. text: This option will display the log within the browser without downloading any files. This file is likely to be very large when a narrow date range is not specified.
- To specify a date/time range for the log, mark the *Specify Range* checkbox. Then use the *From* and *To* buttons to select the start and end dates/times.
- 3. Once your selections are complete, click the *Export Logs* button.

Advanced Topics

As you work with Orchid Core 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 <u>Knowledge Base</u>.

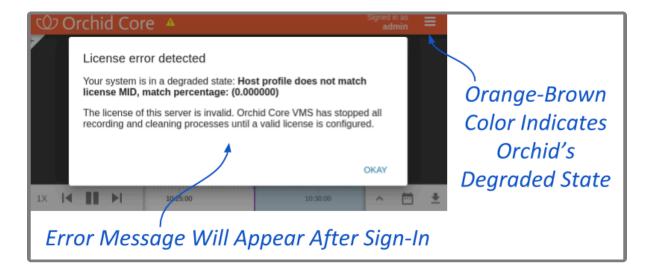
Degraded State

In rare cases, Orchid Core VMS will experience an event that will cause the system to enter a degraded state. To protect archive data, while in this degraded state, Orchid does not record new video or clean out old video archives.

The two subsections below provide details regarding causes and resolutions for the degraded state.

Orchid Core VMS License Errors

If Orchid Core VMS encounters a license error, it will cause the server to enter a degraded state (like that pictured below), and an "Entered Degraded State" event will be logged in the *System Report*.



This can happen if:

- The Orchid Core VMS database is moved to a different system after installation, or if multiple hardware components (like hard drives) are replaced on the Orchid Core VMS server. This causes the licensing information in Orchid Core VMS's database to no longer match the system on which Orchid Core VMS is installed. (These actions disrupt the Machine ID which is an integral part of the license information.)
- A time-limited license expires.

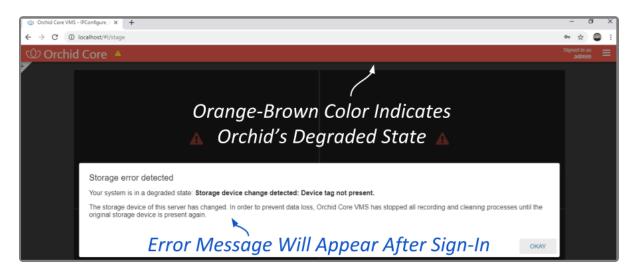
In this degraded state, Orchid Core VMS does not record video but will allow for playback of existing recordings.

- 1. If this license error occurs, you will receive an error upon signing in. You can click **OKAY** to continue running Orchid Core VMS in this degraded state, but you will see differences in Orchid Core VMS's appearance and capabilities:
 - a. The dialog header will appear in an orange-brown color which indicates Orchid Core VMS is running in a degraded state.
 - b. Orchid Core VMS will not record any new video. (Previously recorded video, however, will be available for playback.)
- 2. Possible solutions include the following:
 - a. If the database was moved or there was a hardware failure, contact IPConfigure Technical Support for a new license. Then follow the <u>Modifying an Existing License</u> procedure to update your license.
 - b. If a time-limited license expired, you may apply an old, non-time-limited license (if you have one), or you may contact IPConfigure to purchase a new license.

Orchid Core VMS Storage Device Errors

In version 2.4.0, Orchid Core VMS now has a way to alert Administrators and Users that there is a problem with a storage device.

During normal operation, Orchid Core VMS periodically checks on the storage device. To do this, Orchid looks for a specific file (orchid-device.tag) that is saved in the defined "orchives" directory. If Orchid does not find the file, or if it does not match the original, Orchid interprets this as a storage error. When this happens, the Orchid Core VMS server will enter a degraded state (like that pictured below), and an "Entered Degraded State" event will be logged in the *System Report*.



This can happen if:

- The Orchid Core VMS "orchives" folder is moved to a location different than the one specified in the properties file. This causes Orchid Core VMS to lose contact with the orchid-device.tag file (that is stored in the "orchives" folder).
- There is an actual hardware failure, in which case, Orchid Core VMS will lose contact with the orchiddevice.tag file. An alert to the failure of the storage device is critical, especially if the system is configured to store data in an external hard drive or a RAID device.
- 1. If this storage error occurs, you will receive an error upon signing in. You can click **OKAY** to continue running Orchid Core VMS in this degraded state, but you will see differences in Orchid Core VMS's appearance and capabilities:
 - a. The dialog header will appear in an orange-brown color which indicates Orchid Core VMS is running in a degraded state.
 - b. Orchid Core VMS will disable all communication and recording with the cameras. Neither live streams nor archive video will be available.
- 2. Possible solutions include the following:
 - a. If the "orchives" folder was moved, edit the properties file (orchid_server.properties) so that the archives.dir property points to the actual location of the "orchives" folder. Then restart the Orchid Core VMS Server service. (For help with these tasks, please refer to the <u>Orchid Core</u> <u>VMS Installation Guide</u>.)
 - b. If there was a problem with the storage device, bring the storage device back to working order (to include the "orchives" folder with all of the media files and the original orchid-device.tag file).

Trouble Adding a Camera

If you're having trouble adding a camera to the system, refer to the list of common issues.

- Make sure all of the cameras are connected to the network.
- If you are adding multiple cameras at once, make sure that they all use the same username and password, and they are all on the same subnet. You may also need to check to see if there are multiple IP addresses assigned to the Orchid Core VMS computer. If this is the case, you will likely have to revise the Orchid Core VMS properties. Please refer to the Knowledge Base article Orchid Not Auto-Discovering Cameras for more details.
- If you are adding a camera manually, make sure that the IP address is correct.
- If you can't find a specific camera on the Register Cameras screen, it may not support ONVIF autodiscovery. Switch to Manual mode and add the camera manually.
- If the camera is old or unusual, it may not support the ONVIF standard. In this case, you will need to register the camera manually, and you will need to select the Generic RTSP driver.
 - When you select this driver, Orchid Core VMS will automatically populate the RTSP Stream URL field. You'll need to update the IP address portion of that entry. You may also need to check the camera's documentation to ensure the syntax is correct.
 - If you add a camera using the Generic RTSP driver, you will not be able to configure the camera settings in Orchid Core VMS. Connect to the camera directly to configure settings.
- Axis cameras require that a special username and password be set on the camera for use with the ONVIF standard. Please refer to the Knowledge Base article <u>Configure ONVIF User On Axis Cameras</u> for more details.
- If you are running Orchid Core VMS in WebRTC mode, and a newly added camera doesn't produce video, there may be several reasons why the video is not working. (Please refer to the <u>WebRTC</u> <u>Troubleshooting</u> section for additional help.)

Trouble Viewing the Camera Stream in Orchid Core VMS

If Orchid Core VMS is not receiving a live video stream from a camera:

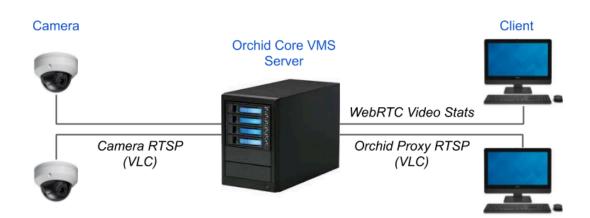
- Use the <u>System Status</u> feature in Orchid Core VMS to test the camera preview, restart the camera stream, or verify the network connection between the camera and Orchid Core VMS. (This may lead you to try the <u>Recover Camera</u> feature.)
- Perform the check associated with packet loss.
- If you are running Orchid Core VMS in WebRTC mode, but one of your Players appears to be stuck in Low-bandwidth mode, check the camera stream settings. Make sure that the Encoder is set to H264. (WebRTC mode does not support JPEG or MPEG4.) (For additional troubleshooting suggestions, please refer to the <u>WebRTC Troubleshooting</u> section.)

If you have issues with recorded video being unavailable, you may need to check a variety of things:

- Use the *Streams* section of Orchid Core VMS's <u>Camera Configuration</u> feature to make sure that the recording style is set to record video.
- Use Orchid Core VMS's <u>Retention Policy</u> to see how much video is actually being stored for any given camera. For critical cameras, you may need to increase the desired retention setting.
- There may be an issue with the system time setting on the Orchid Core VMS server. This can occur
 when the system time is reset (for daylight savings time, for example). To fix this issue, you should
 restart the Orchid Server service. (Refer to the <u>Orchid Core VMS Installation Guide</u> for more details.)
 If that doesn't work, you should restart the computer on which Orchid Core VMS is installed.
- There may be an issue with packet loss due to network infrastructure. If the packet loss rate is high, Orchid Core VMS may not be able to successfully record the video. There are a couple of ways to check for packet loss. Please refer to the next topic for more details.

Checking for Packet Loss

If video in Orchid Core VMS is unavailable or degraded, you may be experiencing packet loss in one of two locations: either between the camera and Orchid Core VMS, or between Orchid Core VMS and the viewing client. The diagram below indicates which check methods are available to test the different connections.



Run a Check Using VLC

Before starting this test, ensure you have VLC installed on the Orchid Core VMS server. For installation instructions, please visit VLC's documentation here: <u>https://wiki.videolan.org/Documentation:Installing_VLC/</u>

1. To start, open VLC on the Orchid Core VMS server. When VLC opens, click *CTRL+N* on the keyboard to open the *Open Media* window (shown below).

🛓 Open Media 🦳 —		×
Copen Media –		~
Show more options	▼ <u>C</u> a	ncel

For this example, we'll check for packet loss between a camera and the Orchid Core VMS server.

2. In the *Please enter a network URL* field, enter the *Camera RTSP URL* for the camera you want to stream and enter the camera's RTSP credentials — these are the credentials you used when you registered the camera to Orchid Core VMS. [You can copy and paste the URL from the <u>Camera Information</u> screen (circled in the next image), or consult the manual provided by the camera's manufacturer for the exact RTSP URL to use for your camera.]

Q	192.168.103							
	Camera Inforn	nation						
	Camera Name		Camera Model	Stream Status				
	192.168.103.18	*	AXIS P1347	running				
	Orchid Core VMS Pr	oxy RTSP URL		one-click	creamt	F		
	Streams			Сору	+	ADD S	TREAM	
				copy	_		_	
	Primary	Name	Configuration					
		balanced h264	1280x960, 15fps, H264 Continuous recording with motion detection		ආ	Ser	Ŵ	
		balanced jpeg	1280x960, 15fps, JPEG Continuous recording with motion detection		ආ	Cart .	Ŵ	
		bandwidth h264	1280x960, 15fps, H264 Continuous recording with motion detection		ආ	Can't	Ŵ	

 Click the *Play* button to start streaming the camera in VLC. Right-click on the video in VLC (or the blank black area if the video has not started playing) and select *Tools*, then *Media Information*. The *Current Media Information* window will open.

🛓 Current Media Information			-		×
General Metadata Codec Statistic					
Current media / stream statistics					
✓ Audio					
Decoded	0	blocks			
Played	0	buffers			
Lost	0	buffers			
✓ Video					
Decoded		blocks			
Displayed		frames			
Lost	6	frames 🔫		•	
✓ Input/Read					
Media data size		KiB			
> Input bitrate		kb/s			
Demuxed data size	2301				
Content bitrate	573	kb/s			
Discarded (corrupted)	0				
Dropped (discontinued)	0				
 Output/Written/Sent 					
Sent		packets			
Sent		KiB			
Upstream rate	0	kb/s			
					_
Location: 92.168.103.18/onvif-media/media	.amp?profile=quality_h264&se	ssiontimeout=	1208strea	amtype=u	nicast
				Qlos	e

4. Click the *Statistics* tab. Under the video section, it will list the number of decoded blocks, displayed frames, and lost frames. If the *Lost* frames count is increasing, the video stream is dropping frames.

In this example, only 9 frames were lost after streaming for about five minutes. This is acceptable and will not prevent video from recording. However, if the number of lost frames is steadily increasing over a period of 30 seconds or more (as opposed to an isolated burst), there is a network issue that will prevent our software from successfully recording video from the camera.

Once network related issues are resolved and VLC is able to stream video from the camera without significant frame loss, Orchid Core VMS will be able to record the camera successfully.

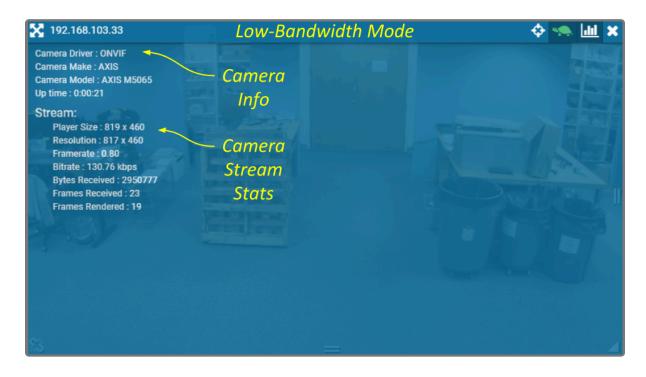
To check for packet loss between the Orchid Core VMS server and a client, run this same check using the Orchid Proxy RTSP URL address.

Run a Check Using Video Statistics

In each of its operating modes, Orchid Core VMS will allow you to access statistics for any of the Players on the *Stage*. This may help you in diagnosing issues between the Orchid Core VMS server and clients.

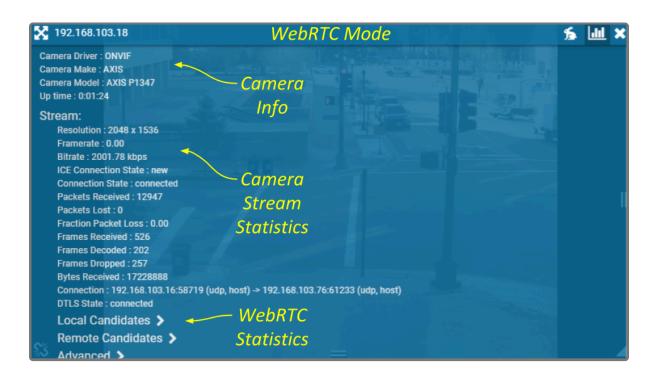
1. To view Player statistics, position the mouse over the image and click on the *Statistics* icon in the header.

In Low-bandwidth mode, the statistics overlay will display a few details about the camera and performance. A comparison of the frames received and the frames rendered should give some indication of how well the video is decoded.



WebRTC mode delivers an expanded list of statistics, which include frames received, decoded, and dropped, plus packets received, and packets lost. If the packets lost stat increases continuously over a period of 30 seconds or more (versus an isolated burst), there may not be sufficient bandwidth between the Orchid Core VMS server and the Orchid Core VMS client.

In addition, this mode provides data points that can be used to identify the candidate pair that is being used to connect the server and the client, as well as the status of this connection. For more details on these statistics, please refer to the <u>WebRTC Statistics</u> section.



About WebRTC

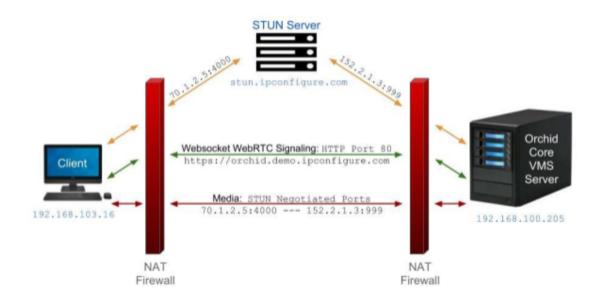
Web Real-Time Communication, or WebRTC, provides users with another method for connecting an Orchid Core VMS server with a client, so that the client may view good quality, live and recorded video. One of the main benefits of WebRTC is that it allows for viewing full-bandwidth video without requiring the client device to download and use a Plugin. WebRTC in Chrome decodes and renders video using accelerated Graphics Processing Unit (GPU) technology. This method requires fewer resources than software decoding which allows for good quality video for a greater number of Players.

Using Interactive Connectivity Establishment (ICE) and a Session Traversal Utilities for NAT (STUN) server, the system identifies and tests several connection candidates to find the best way to connect the server and client for direct media transfer. With a successful connection, WebRTC is able to break through the barriers that sometimes make cross-network communication difficult.

The diagram below illustrates a simple example of direct media transport. In this case, the server and the client are both on the same network, so there is no barrier to a direct connection.



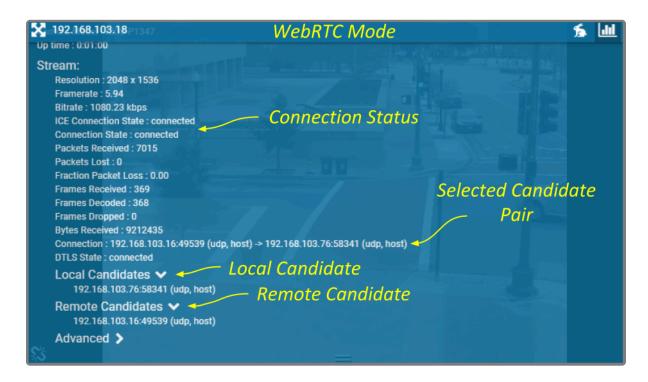
The next diagram illustrates a more complicated situation. The server and the client are on different networks, and are each protected by a firewall. In this case, ICE identifies the best path for connecting the server and the client. Then a STUN server identifies the public IP addresses of the server and the client, and works out a way for them to connect. The media can then be transported between the server and client using the STUN-negotiated ports.



In order to use WebRTC with servers behind a firewall, Orchid Core VMS must have access to a STUN server. By default, Orchid Core will use stun.ipconfigure.com, which is publicly available on the internet. For complete details, please refer to the <u>Orchid Core VMS Installation Guide</u>.

WebRTC Statistics

In WebRTC mode, Orchid Core VMS supplies not only the standard statistics (like those in Low-bandwidth mode), it also supplies Chrome WebRTC statistics. These statistics are available as an overlay on any Player and can be used in troubleshooting.



The statistics under the Stream heading include the following:

- **ICE Connection State:** This indicates the state of the ICE connection. When "connected," ICE has identified the best way to connect the server and client.
- Connection State: This indicates if there is a working connection between the server and the client.
- **Packets Received:** This represents the number of video data packets that are transferred from the server to the client.
- **Packets Lost:** This represents the number of video data packets that are dropped during the transfer from the server to the client. (If this number continues to increase, video quality will decrease.)
- Fraction Packet Loss: This represents the number of packets lost divided by the number of packets expected.
- **Frames Received:** This is the number of complete video frames that were transferred from the server to the client.
- Frames Decoded: This is the number of video frames that the client has decoded.

- **Frames Dropped:** This is the number of video frames that the client could not decode and were eliminated.
- **Bytes Received:** Total number of bytes transferred from the server to the client.
- **Connection:** This statistic provides the addresses of both the local and the remote candidates in use, which communications protocol is in use at each candidate, and the candidate types.
- **DTLS State:** This provides the status of the attempts to negotiate a secure connection.

Under the *Stream* group of statistics, Orchid Core VMS displays additional Chrome WebRTC statistics that provide insight into the connection candidates that ICE has found and which ones are being used to transport video. Individual entries for the local candidate and remote candidate are presented, and provide the same information as the *Connection* statistic listed above.

The *Advanced* group of statistics provides very detailed information regarding the selected candidate pair, certificates, and video data transport.



For additional details on these and other WebRTC statistics, please refer to documentation that is readily available online. Here's a sample: <u>https://testrtc.com/webrtc-internals-documentation/</u>

WebRTC Troubleshooting

If you encounter trouble as you are running Orchid Core VMS in WebRTC mode, refer to these troubleshooting tips.

If you don't have video:

- 1. Activate the Player statistics to see if the ICE Connection State reads connected.
- 2. If the *Ice Connection State* does <u>not</u> read *connected*, then none of the connection candidates worked.
- Make sure that the STUN server is properly setup and configured. (The Orchid Core VMS properties file uses default settings to configure the STUN server. Review these settings and make changes, as necessary, to conform to your system. More details are available in the <u>Orchid Core VMS Installation</u> <u>Guide</u>.)
- 4. If the connection still fails, the network may be incompatible. Switch to Low-bandwidth mode. (See also, <u>Incompatible Network</u> later in this topic.)

If you don't have video, but the ICE Connection State is connected:

- 1. Check the *Bytes Received* stat.
- 2. If the system is receiving bytes, check for Packet Loss.
- 3. If packet loss exists, try lowering the bitrate (by editing the camera stream settings).

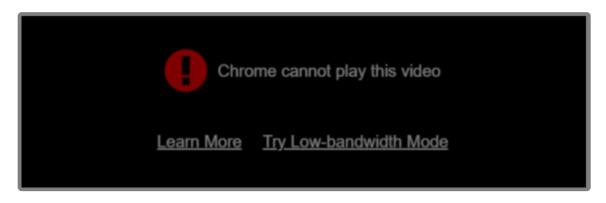
If this pop-up error message appears on a Player, the system may have already detected a certain level of packet loss:



- 1. Decrease the bitrate (by editing the camera stream settings).
- 2. Decrease the resolution (by editing the camera stream settings).
- 3. If neither of these solve the problem, switch to Low-bandwidth mode.

If this pop-up error message appears on a Player, the system may not be

decoding the video properly:



- 1. Decrease the bitrate (by editing the camera stream settings).
- 2. Decrease the resolution (by editing the camera stream settings).
- 3. If neither of these solve the problem, switch to Low-bandwidth mode.

Video encoder:

WebRTC does not support JPEG or MPEG4, so it is important to make sure that the camera stream is set properly.

- 1. Open the *Stream Settings* screen to check the settings.
- 2. Make sure that the Encoder is set to H264.

GPU decoding:

Chrome (in Windows) uses GPU to decode video. Some cameras are not compatible with GPU.

1. If you have tried other fixes, try disabling GPU decoding in Chrome. (Please refer to Chrome documentation for details.)

Incompatible Network

When viewing WebRTC on a local network, such as when both Orchid Core VMS and your web browser are on the same LAN, Google Chrome requires the use of mDNS instead of regular IP addresses. In certain circumstances, mDNS may fail and streaming video over WebRTC will not be possible. This can happen when Orchid Core VMS and your web browser are on different local network subnets, and when an operating system doesn't natively support mDNS (such as Windows 7). If this failure occurs, consider disabling Chrome's mDNS behavior.

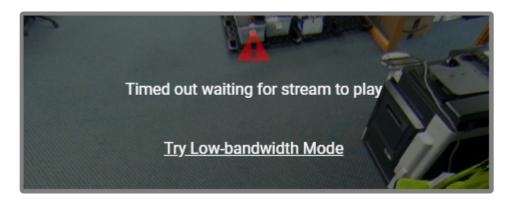
- 1. Navigate to chrome://flags.
- 2. Search for *mDNS*.
- 3. At the Anonymize local IPs exposed by WebRTC setting, use the drop-down list to select **Disable**.

For a more detailed review of this issue, please refer to the article on the Orchid Core VMS knowledge base at <u>support.ipconfigure.com</u>.

Additional Troubleshooting

The following are some additional errors that you may encounter in Orchid Core VMS.

If this error appears, it is taking too long for the system to receive enough video data to display the video:



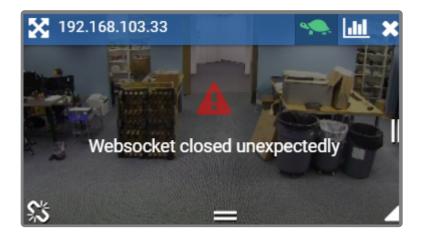
- 1. Decrease the bitrate (by editing the camera stream settings).
- 2. Decrease the resolution (by editing the camera stream settings).
- 3. Switch to Low-bandwidth mode.

If this error appears, the system can no longer see the camera:



- 1. Use the *System Status* feature to check on the camera.
 - a. Click the *Restart* button to attempt to reconnect.
 - b. Click the *Verify* button to see if the camera is still connected to the network.
- 2. Check to see if the camera has power.

If this error appears, the backend server probably shut down the video stream:



1. Go to the *System Status* screen and use the troubleshooting buttons to check/restart the camera stream.

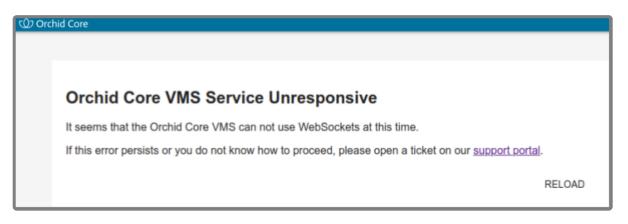
(This error is not likely to appear.)

If this error appears, the system was not able to establish an ICE connection:



- 1. You may need to setup a STUN server. (Do this by editing the Orchid Core VMS configuration file. Don't forget to restart the Orchid Core VMS service when you're done.)
- 2. You should also check your network.

If this error appears, the connection between the client and server has dropped:



- 1. Press the *Reload* button to refresh the Orchid Core VMS page (which may solve the problem).
- 2. If reloading doesn't solve the problem, contact <u>Support</u>.

Comparing Orchid Core VMS Operating Modes

Beginning with version 2.2.0, Orchid Core VMS supports operation in WebRTC mode in addition to the original Low-bandwidth mode. The benefit of WebRTC mode is that it allows for viewing full-bandwidth, live and recorded video streams through a web browser without requiring a plugin. The availability of these operating modes will depend on your web browser and operating system.

Starting with Orchid Core VMS version 2.8, the FBGST plugin will no longer be supported. The plugin-compatible web browsers (Chrome version 34, and Firefox version 52) have also reached the end of support. If you were previously using either of these web browsers, you should upgrade to the latest version available.

The table below provides a high-level comparison of the two operating modes.

	Low-bandwidth mode	WebRTC mode
Compatible operating systems	Windows, Linux, macOS, iOS, Android	Windows, Linux, macOS
Compatible web browsers	Most modern web browsers (Microsoft Internet Explorer is not supported)	Google Chrome (version 66 or higher in a desktop environment)
Network requirements	Works well even on slow connections between web browser and Orchid Core VMS server	Requires a good connection between web browser and Orchid Core VMS Server
Video decoding	Decoding is done on the Orchid Core VMS server	Decoding is done on the client machine
Additional configuration required for viewing servers behind a firewall	None (assuming web interface is already accessible)	STUN server
Video quality	Frame rate that throttles to match available bandwidth	Native, unthrottled frame rate
Supported video file types	H264, JPEG, MPEG4	H264
Audio support	No	No
PTZ camera support	Yes	Yes
Video statistics	Yes (Minimal)	Yes (Overload)
Mode is selectable (at sign in	Yes (In Google Chrome only)	Yes (In Google Chrome only)

and per Player)		
Mode indicator	۹.	5

Additional Support

Orchid Core VMS users with questions or issues should first contact their Company's Orchid Core VMS System Administrator. Barring any internal corporate policies, an Administrator may escalate the technical support request.

- Tier 1 Support: Orchid Core VMS System Administrator
- Tier 2 Support: Integrator or Dealer
- Tier 3 Support: IPConfigure Technical Support Resources

<u>IPConfigure's Orchid Core VMS Knowledge Base:</u> The <u>Orchid Core VMS Knowledge Base</u> is freely and publicly available on IPConfigure's support website, and includes detailed information for a variety of Orchid Core VMS issues. The Knowledge Base covers everything from basic Orchid Core VMS usage to advanced installation and configuration scenarios.

<u>IPConfigure's Email-based Trouble Ticket System:</u> Any Orchid Core VMS customer with a valid Orchid Core VMS Support Agreement can submit trouble tickets using the IPConfigure support website at <u>http://support.ipconfigure.com</u>. Orchid Core VMS trouble tickets are resolved over email by IPConfigure's highly trained Technical Support Team. (Please see the next topic for instructions.)

<u>IPConfigure's Telephone Support Line</u>: Customers with an Orchid Core VMS Express Support Agreement may call IPConfigure's Telephone Support toll-free at 877-207-1112 (during the times listed below). Orchid Core VMS Express Support is complimentary for one year with all new Orchid Core VMS license purchases.

As of December, 2018, IPConfigure's technical support hours are as listed below. For the most up-to-date version of the IPConfigure support schedule, please see support.ipconfigure.com.

IPConfigure Technical Support Hours

Sunday	Closed
Monday	9:00 AM to 8:00 PM EST
Tuesday	9:00 AM to 12:00 PM, 1:00 PM to 8:00 PM EST
Wednesday	9:00 AM to 8:00 PM EST
Thursday	9:00 AM to 8:00 PM EST
Friday	9:00 AM to 8:00 PM EST
Saturday	Closed

How to Submit a Support Request

- 1. Visit our technical support site at: <u>http://support.ipconfigure.com</u>
- 2. Click on the Submit a request link in the top-right corner of the screen.

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Technical Support > Orchid Core VMS ORCHID CORE VMS	Access the Support Site	Submit a Request
Overview • * Orchid Core VMS Documentation • * Release Notes • Orchid Operator Quick Guide v 1.10 • Orchid Datasheet • Orchid Overview Video	Installation • Ubuntu Installation Guide • Non-Interactive installation of • Orchid Post-Installation Che • Enabling TLS/SSL in Orchid	
Cameras and Recording Add Watermark to Axis Camera More to Determine Video Retention Teme	Users, Passwords, and I • How to Manually Reset the A	

3. When the support request screen appears, use the drop-down list to select the product or issue that best matches your support need.

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Please select the ticket that best matches your IPConfigure product or its Provide as much detail as you can, and our technical support staff will re you via this system (you will also receive an email).	
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administrator/#customer.com	Enter Contact Info
Subject *	and Issue Details
Orchid properties	una issue Details
Suggested articles	
Installing/Upgrading on Red Hat Enterprise Linux 7	Click Submit
Orchid Firewall/Ports Configuration Enabling TLS/55L in Orchid	Click Submit
Orchid Not Starting in Windows Server	(at Bottom of Screen)
How to Edit a Configuration file in Linux	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

4. Enter your contact information, a description of your question/problem, the version number of your Orchid Core VMS software, your Orchid Core VMS server type, and IPConfigure SteelFin server serial number (if applicable). Please provide as much detail as possible about the problem and attach screenshots and system logs (if available).

To find the Orchid Core VMS software version number, go to the *System Menu* and select *Version Information*.

5. When all the available information has been entered, press the *Submit* button at the bottom of the screen.

The IPConfigure Technical Support Team will respond to your request as soon as possible.

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