LiveAction®

LiveCapture

User Guide

LiveAction, Inc.
901 Campisi Way, Ste. 222
Campbell, CA 95008, USA
+1 (888) 881-1116
https://www.liveaction.com

20230331-LCU_231a

On-site Hardware Warranty

WARRANTY COVERAGE

We, LiveAction (the trading name of LiveAction, Inc.), warrant that the hardware product ("Product") you have purchased, shall be free from defects in materials and workmanship for the period of your On-site Hardware Warranty from the date of original purchase. This Hardware Warranty does not cover any software you may have purchased from LiveAction, which would be the subject of a separate license agreement. We will, at our option, either repair, replace or refund the price you have paid for the Product which has failed within the warranty period by reason of faulty design (other than any design made, furnished or specified by you) or faulty workmanship or defective materials.

OBTAINING WARRANTY SERVICE

In the event of Product failure, you must contact us within the warranty period in order to notify us of the failure and obtain a Return Material Authorization number for prompt return of the product for repair or replacement. When the failed component is determined, it will be ordered as soon as possible and support technician will replace the part at the site. This process might take few days depending on the availability of the failed parts. Parts will be shipped from the U.S.

a. It is your responsibility to back up the contents of any and all hard drives shipped to us for warranty service. We will not be responsible for damage to or loss of any programs, data or other information stored on any media.
b. If it is determined that the Product cannot be repaired or replaced, LiveAction may, at its sole discretion, refund the price of the Product.
c. Any replaced parts will be warranted for the remainder of the original warranty period.
d. If your Product needs to be shipped to LiveAction, the customer is responsible for that shipping. LiveAction will ship repaired or replacement product freight prepaid within the U.S.
e. If your Product is moved outside of the country purchased, LiveAction must be notified of the move immediately so that there will be no delay in obtaining onsite parts/labor.

EXCLUSIONS AND LIMITATIONS

This warranty covers only the hardware components packaged with the original LiveAction Product. Software, external devices, and accessories or parts added after the Product is shipped from LiveAction are not covered under this warranty. Damage occurring during the original shipment of LiveAction Product to you is not covered under this limited warranty. Damage due to external causes, including accident, abuse, misuse, problems with electrical power, servicing or modifications not authorized in writing by LiveAction, improper installation, usage not in accordance with product instructions and problems caused by use of parts and components not supplied by us is not covered under this limited warranty. No LiveAction agent, employee, or affiliate is authorized to make any modification, extension, or addition to this limited warranty.

IF THIS PRODUCT DOES NOT PERFORM AS DESCRIBED IN THE PRODUCT'S DOCUMENTATION OR IS OTHERWISE DEFECTIVE, WE SHALL NOT BE LIABLE IN ANY EVENT FOR DAMAGES, LOST PROFITS, REVENUE, ANTICIPATED SAVINGS OR ANY OTHER INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE PURCHASE, USE OR INABILITY TO USE THIS PRODUCT. WE SHALL HAVE NO LIABILITY WHATSOEVER FOR OR AS A RESULT OF THE CONDITION OF THE PRODUCT OR ITS FITNESS OR SUITABILITY FOR ANY PARTICULAR PURPOSE. Some states do not allow exclusions or limitations, so the above may not apply to you. This limited warranty gives you specific legal rights, and you may have other rights, which vary from state to state.

If, upon inspection, it is found that the returned Product is not defective within the terms of this limited warranty, you shall pay our standard repair charges to repair the Product including inspection costs and all transport and shipping costs associated with returning the Product to you. Any product or part supplied under this limited warranty may be new or reassembled or reconditioned from serviceable new and used parts. All defective Product or parts will become our property.

EXCEPT FOR THE EXPRESS WARRANTIES STATE ABOVE, LIVEACTION DISCLAIMS ALL WARRANTIES (EXPRESS, IMPLIED STATUTORY OR OTHERWISE) RELATING TO THE PRODUCT, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, AND ANY WARRANTIES THAT MAY ARISE FROM COURSE OF PERFORMANCE OR USAGE OF TRADE. IN ADDITION, THE REMEDIES SET FORTH ABOVE CONSTITUTES THE SOLE REMEDIES FOR YOU AND SOLE OBLIGATION OF US FOR BREACH OF WARRANTY OR OTHER CLAIM WITH RESPECT TO THE PRODUCT. YOU ACKNOWLEDGE THAT LIVEACTION HAS SET ITS PRICES AND ENTERED INTO THESE TERMS IN RELIANCE UPON THE LIMITATION OF LIABILITY AND THE DISCLAIMERS OF WARRANTIES AND DAMAGES SET FORTH HEREIN, AND THAT THE SAME FORM AN ESSENTIAL BASIS OF THE BARGAIN BETWEEN THE PARTIES. YOU AGREE THAT THE LIMITATION AND EXCLUSIONS OF LIABILITY AND DISCLAIMERS SPECIFIED IN THESE TERMS WILL SURVIVE AND APPLY EVEN IF FOUND TO HAVE FAILED OF THEIR ESSENTIAL PURPOSE.

ADDITIONAL INFORMATION

Product Information: www.liveaction.com.

Support Contact Information: https://www.liveaction.com/support/technical-support/

LiveAction Global Next Business Day (NBD) Response Warranty Support Statement

Global NBD Response Warranty Includes

Direct telephone and email access to senior-level analysts for expedited troubleshooting of hardware issues. On-Site dispatch of service technician and/or warranty parts to Customer's business location for repairs and resolution necessary due to a defect in materials or workmanship on the Supported System.

Support Procedures

Support Requests: Customer may submit the issue and a service request by contacting LiveAction technical support at https://www.liveaction.com/support/technical-support/.

Assist with phone/email-based Troubleshooting

- When request is submitted, please include serial number of unit. Be prepared to identify any error messages received, how and when they occurred, and what activities preceded the error. Also be able to describe what steps have already been taken to solve the problem.
- Analyst will go through a series of additional troubleshooting steps to help diagnose the issue.
- If an on-site dispatch and parts replacement is necessary, the analyst will provide Customer with additional instructions.
- An RMA (Return Merchandise Authorization) will be created and any defective parts will be replaced.

On-Site Support

The On-Site Support includes 24x7 next business day response with repair if parts are available. If parts are not available, the repair will take place the day after the parts arrive at the Customer location.

A service technician will be dispatched to the business location of the affected system. Customer will be contacted in advance to schedule the onsite visit.

On-site Response Time Restrictions/Special Terms

With Next Business Day On-Site Response Service following phone-based/Email troubleshooting, a technician can usually be dispatched to arrive onsite the next business day.

- Available 5 days/week, 8 hours/day - excluding holidays.
- Calls received 5:00 PM local Customer time (Monday - Friday) and/or dispatches made after that time may require an additional business day for service technician to arrive at the Customer's location.

Following completion of remote troubleshooting and problem determination, the analyst will determine if the issue requires an on-site service technician and/or parts to be dispatched or if the issue can be resolved remotely over the phone.

Missed Service Visit: If Customer or Customer's authorized representative is not at the location when the service technician arrives, the service technician cannot service the Supported System. The service technician will leave and customer will be notified and the next appointment will be scheduled. If this occurs, Customer may be charged an additional fee for a follow-up service call.

Software Troubleshooting

Support includes software troubleshooting for select applications and operating systems on Supported Systems over the telephone, or by transmission of software and other information through electronic means, or by shipping software and/or other information to Customer. Covered Software Products include core operating systems, which is installed and Supported by LiveAction.

Software Troubleshooting Does Not Include*

- Any product version not currently supported or provided by the manufacturer.
- Configuration, installation or optimization assistance.
- Any on-site service.
- Remote or on-site training assistance.

**LiveAction software maintenance covers Capture Engine Software maintenance and support.*

Global NBD Response Warranty Does Not Include

- LiveWire Edge hardware.
- Accessories, supply items, operating supplies, peripherals or parts such as batteries, frames, and covers.
- Media replacement for software LiveAction no longer ships with new systems.
- Media replacement on non-LiveAction branded / manufactured software.
- Hardware or software support for Customer Factory Integration ("CFI") products.
- Hardware or software support for non-LiveAction peripherals.
- Preventative maintenance.

- Installation, de-installation, or relocation services.
- Direct third party product support.
- Repairs necessitated by software problems, or as a result of alteration, adjustment, or repair by anyone other than LiveAction (or its authorized representatives).
- Support for equipment damaged by misuse, accident, abuse of Supported System or components (such as, but not limited to, use of incorrect line voltages, use of incorrect fuses, use of incompatible devices or accessories, improper or insufficient ventilation, or failure to follow operating instructions), modification, unsuitable physical or operating environment, improper maintenance by Customer (or Customer's agent), moving the Supported System, removal or alteration of equipment or parts identification labels, or failure caused by a product for which LiveAction is not responsible.
- Support for damage resulting from an act of God such as, but not limited to, lightning, flooding, tornado, earthquakes, and hurricanes.
- Any activities or services not expressly described in this Service Description. Please read this Service Description carefully and note that LiveAction reserves the right to change or modify any of the terms and conditions set forth in this Service Description at any time, and to determine whether and when any such changes apply to both existing and future Customers.

Contents

CHAPTER 1

Introduction

In this chapter:

About LiveCapture

Congratulations on your purchase of LiveCapture™! LiveCapture appliances are designed and optimized for raw packet capture and analysis, without dropping a packet. Packets are captured and stored at up to 40 Gbps (LiveCapture 3100 with external storage attached) in standard packet file formats for easy access to the packet data. Stored packet files can be indexed with a variety of characteristics to make retrieval of relevant packets significantly faster. LiveCapture works together with Omnipeek (Windows software), LiveAction's award-winning network analysis software.

With Omnipeek, users can initiate forensic searches for packet data on the LiveCapture appliance. The packets meeting the search criteria are analyzed on the appliance using the built-in analytical software, and the results are visualized and further analyzed using Omnipeek. Packet files can also be downloaded and stored for off-line analysis by Omnipeek. LiveCapture is widely used in enterprises alongside network monitoring solutions to provide the most complete data required for true root-cause analysis – the packets themselves.

LiveCapture is available in the following configurations:

	LiveCapture 1100	LiveCapture 3100
Chassis	1U	2U
Processor **Base Frequency** **Max Turbo Frequency** **Cores** **Thread**	1 x Intel® Xeon® Bronze 3106 1.70 GHz 8 8	2 x Intel® Xeon® Gold 6126 2.6 GHz 3.7 GHz 12 24
Memory	32 GB	192 GB
Expansion Slots	1 x 16 FH/HL **NOTE**: A total of one capture adapter can be added to the LiveCapture 1100.	64 TB / 128 TB Configuration: 1 x 16 FH/FL 2 x 8 FH/FL 1 x 8 FH/HL 96 TB Configuration: 1 x 8 FH/FL 1 x 8 FH/HL 3 x 16 FH/FL 1 x 16 LP/HL **NOTE**: A total of three capture adapters can be added to the LiveCapture 3100.
Integrated Network Interfaces	4 x 1GBASE-T iDRAC	4 x 1GBASE-T iDRAC
Storage-OS	Included as part of Storage-Data	2 x 2 TB NLSAS (4 TB) or 2 x 1.8 TB SAS (3.6 TB)
Storage-Data	4 x 4 TB NLSAS (16 TB)	16 x 8 TB NLSAS (128 TB) or 16 x 4 TB NLSAS (64 TB) or 12 x 8 TB NLSAS (96 TB)

	LiveCapture 1100	LiveCapture 3100
Capture Adapter Options (High performance network analysis cards)	1G Capture Adapter (4-port) **NOTE**: A total of one capture adapter can be added to the LiveCapture 1100.	1G Capture Adapter (4-port) 10G Capture Adapter (2- or 4-port) 40G Capture Adapter (2-port) 100G Capture Adapter (2-port) **NOTE**: A total of three capture adapters can be added to the LiveCapture 3100.
Additional		PERC H840 Adapter (used only for storage sub-system)

Note In this guide, references to 'LiveCapture' refer to the complete collection of LiveCapture configurations described in the table above. When necessary, references to a specific LiveCapture configuration are specified to note any differences between configurations.

The Capture Engine software pre-installed on LiveCapture works in conjunction with Omnipeek, a separate software program required for the monitoring and analysis of the packets captured remotely by LiveCapture. For detailed instructions on how to view and analyze remote captures from within the Omnipeek console, please see the *Omnipeek User Guide* or Omnipeek online help. For more information on the Capture Engine software, please see Chapter 3, *Capture Engines*.

What's included

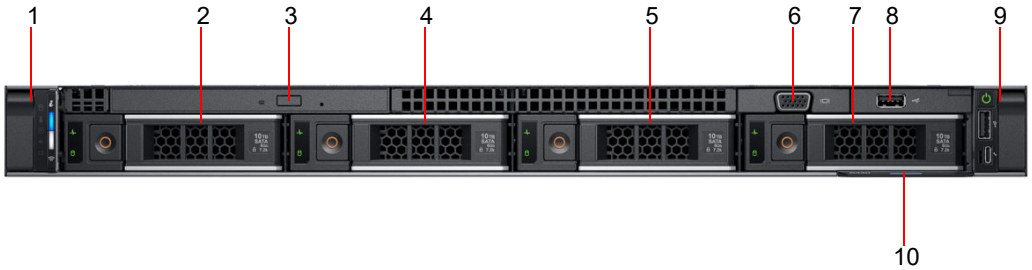
Your standard LiveCapture package includes:

- LiveCapture packet capture and analysis appliance
- Capture Engine software pre-installed in LiveCapture
- Two power cords
- Rack-mount rails
- Chassis bezel

Front / rear panels

See the illustrations and descriptions of the front and back panel of LiveCapture in the sections below.

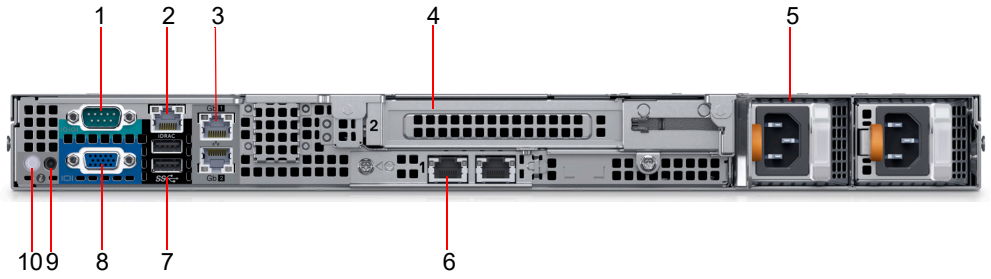
LiveCapture 1100 front panel



Item	Indicator, Button, or Connector	Description
1	Left control panel	Contains system health and system ID, status LED, and optional iDRAC Quick Sync 2 (wireless) LED.
2	Hard drive # 0	3.5 inch hot-swappable hard drive/SSD.
3	Optical drive	One optional slim SATA DVD-ROM drive or DVD+/-RW drive.
4	Hard drive # 1	3.5 inch hot-swappable hard drive/SSD.
5	Hard drive # 2	3.5 inch hot-swappable hard drive/SSD.
6	VGA port	Enables you to connect a display device to the system.
7	Hard drive # 3	3.5 inch hot-swappable hard drive/SSD.
8	USB port	The USB port is USB 2.0 compliant.
9	Right control panel	Contains the power button, USB port, iDRAC Direct micro USB port, and the iDRAC Direct status LED.
10	Information tag	The Information Tag is a slide-out label panel that contains system information such as service tag, NIC, MAC address, and so on.

Note To access the front panel, the front bezel must be removed.

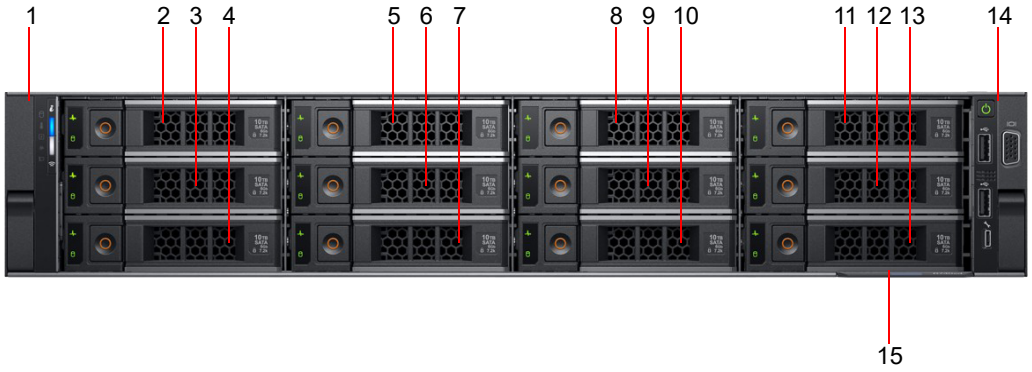
LiveCapture 1100 back panel



Item	Indicator, Button, or Connector	Description
1	Serial port	Allows you to connect a serial device to the system.
2	iDRAC Enterprise port	Enables you to remotely access iDRAC. iDRAC is very useful for remote management and direct access of the appliance.
3	Ethernet ports (2) (The port labeled 'Gb 1' is the eth0 management port)	Use the Ethernet ports to connect Local Area Networks (LANs) to the system.
4	Full height riser slot	Use the card slots to connect full-height PCIe expansion cards on full height riser.
5	Power supply unit (2)	AC 550 W. Both power supplies should be plugged in to power to provide redundancy.
6	Ethernet ports (2)	Use the Ethernet ports to connect Local Area Networks (LANs) to the system.

Item	Indicator, Button, or Connector	Description
7	USB 3.0 port (2)	Use the USB 3.0 port to connect USB devices to the system. These ports are 4-pin, USB 3.0-compliant.
8	VGA port	Use the VGA port to connect a display to the system.
9	CMA power port	The Cable Management Arm (CMA) power port enables you to connect to the CMA.
10	System identification button	The System Identification (ID) button is available on the front and back of the systems. Press the button to identify a system in a rack by turning on the system ID button. You can also use the system ID button to reset iDRAC and to access BIOS using the step through mode.

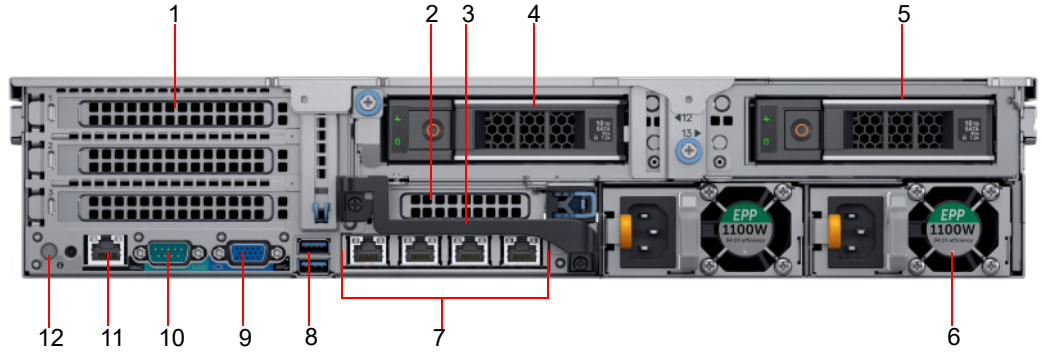
LiveCapture 3100 front panel



Item	Indicator, Button, or Connector	Description
1	Left control panel	Contains system health and system ID, status LED, and iDRAC Quick Sync 2 (wireless) LED.
2	Hard drive # 0	3.5 inch hot-swappable hard drive
3	Hard drive # 1	3.5 inch hot-swappable hard drive
4	Hard drive # 2	3.5 inch hot-swappable hard drive
5	Hard drive # 3	3.5 inch hot-swappable hard drive
6	Hard drive # 4	3.5 inch hot-swappable hard drive
7	Hard drive # 5	3.5 inch hot-swappable hard drive
8	Hard drive # 6	3.5 inch hot-swappable hard drive
9	Hard drive # 7	3.5 inch hot-swappable hard drive
10	Hard drive # 8	3.5 inch hot-swappable hard drive
11	Hard drive # 9	3.5 inch hot-swappable hard drive
12	Hard drive # 10	3.5 inch hot-swappable hard drive
13	Hard drive # 11	3.5 inch hot-swappable hard drive
14	Right control panel	Contains the power button, VGA port, two USB 2.0 ports, and iDRAC Direct micro USB port.
15	Information tag	The information tag is a slide-out label panel that contains system information such as service tag, NIC, MAC address, and so on.

Note To access the front panel, the front bezel must be removed.

LiveCapture 3100 back panel

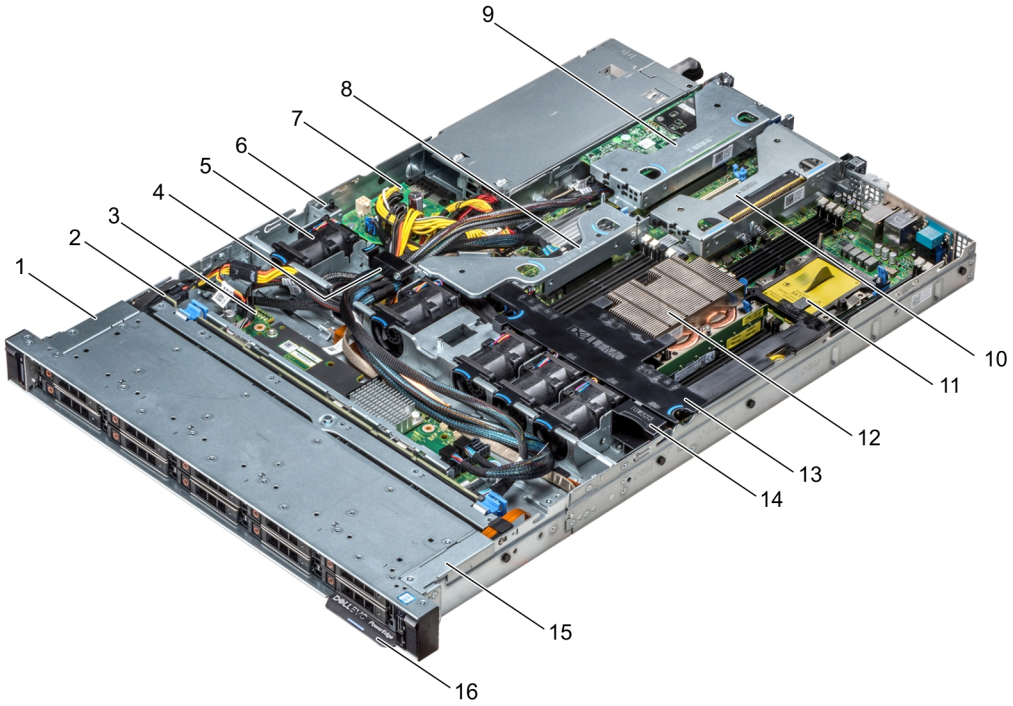


Item	Indicator, Button, or Connector	Description
1	Full-height PCIe expansion card slot (3)	The PCIe expansion card slot (riser 1) connects up to three full-height PCIe expansion cards to the system. **Note**: Depending on your configuration, the capture adapters are installed here.
2	Half-height PCIe expansion card slot	The PCIe expansion card slot (riser 2) connects one half-height PCIe expansion cards to the system. **Note**: On the LiveCapture 3100, the RAID controller is installed here. It may be necessary to remove the handle on the rear of the appliance in order to connect the SAS external cascading cable into the left RAID port of the RAID controller.
3	Rear handle	The rear handle can be removed to enable any external cabling of PCIe cards that are installed in the PCIe expansion card slot 6.
4	Drive # 12	3.5 inch hot-swappable hard drive. This drive is the system HDD (RAID 1)
5	Drive # 13	3.5 inch hot-swappable hard drive. This drive is the system HDD (RAID 1).
6	Power supply unit (2)	AC 1100 W Both power supplies should be plugged in to power to provide redundancy.
7	NIC ports (The left-most port is the eth0 management port)	The NIC ports that are integrated on the network daughter card (NDC) provide network connectivity. From left to right, the ports are configured as eth0, eth1, eth2, and eth3.
8	USB port (2)	The USB ports are 9-pin and 3.0-compliant. These ports enable you to connect USB devices to the system.
9	VGA port	Enables you to connect a display device to the system.
10	Serial port	Enables you to connect a serial device to the system. Typically used for console access, and also optional access to hardware.
11	iDRAC dedicated port	Enables you to remotely access iDRAC. iDRAC is very useful for remote management and direct access of the appliance.
12	System identification button	The System Identification (ID) button is available on the front and back of the systems. Press the button to identify a system in a rack by turning on the system ID button. You can also use the system ID button to reset iDRAC and to access BIOS using the step through mode.

Inside the appliance

CAUTION! Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as directed by the LiveAction support team. Damage due to servicing that is not authorized by LiveAction is not covered by your warranty. Read and follow the safety instructions that are shipped with your product.

LiveCapture 1100 internal components



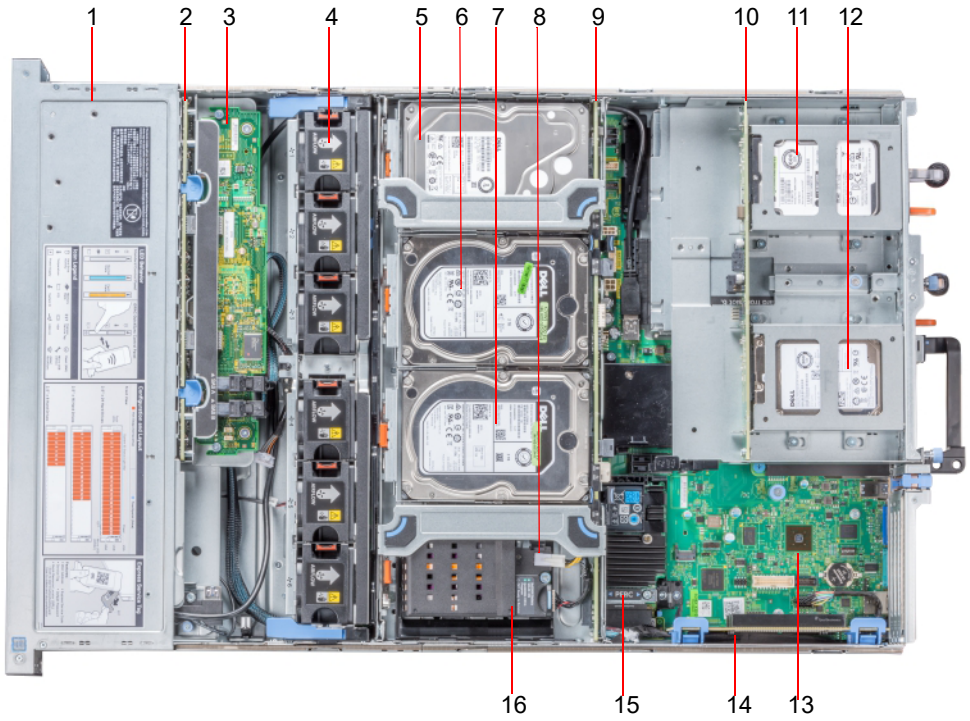
Note The graphic above shows a configuration of ten internal drives installed in the front drive cage of the appliance; however, only a four drive configuration installed in the front drive cage is available with LiveCapture 1100.

Item	Description
1	Left control panel cable cover
2	Hard drive backplane
3	Backplane expander board
4	Cabling latch
5	Air shroud
6	Intrusion switch
7	Power interposer board
8	Internal expansion riser
9	Low profile expansion riser 1

Item	Description
10	Low profile expansion riser 2
11	Processor blank
12	Heat sink
13	Air shroud
14	Cooling fan blank
15	Left control panel cable cover
16	Information tag

Note A defective drive should have a consistent RED blinking LED which should make it easier to detect.

LiveCapture 3100 internal components



Item	Description
1	Hard drives numbered 0–11 in the front drive cage (see also 'LiveCapture 3100 front panel' on page 5)
2	Drive backplane
3	Backplane expander card
4	Cooling fan (6) in the cooling fan assembly
5	Hard drive # 14

Item	Description
6	Hard drive # 15
7	Hard drive # 16
8	Hard drive # 17 (Drive not shown)
9	Mid drive backplane
10	Rear drive backplane
11	Hard drive # 13. This drive is the system HDD (RAID 1).
12	Hard drive # 12. This drive is the system HDD (RAID 1).
13	System board
13	Expansion card riser 1
15	Integrated storage controller card
16	NVDIMM-N battery

Note A defective drive should have a consistent RED blinking LED which should make it easier to detect.

For detailed instructions on how to install and replace specific drive types please see pages 57–74 of the Dell EMC PowerEdge Owner's Manual available at *https://dl.dell.com/topicspdf/poweredge-r740xd_owners-manual_en-us.pdf*.

Installing LiveCapture

LiveCapture 1100

LiveCapture 3100

To install LiveCapture:

1. Place LiveCapture on a flat surface, or mount it in a standard 19-inch equipment rack.
2. Connect a power cable to each of the two power outlets at back of the unit.

Note LiveCapture has two redundant high-efficiency "hot-swappable" power supplies. If a power module fails, it should be replaced immediately. If your LiveCapture is under warranty, please contact Technical Support to arrange for a replacement power supply.

3. Plug the other end of the power cables to an AC outlet.

Important! WARNING: This device has more than one power cord. Disconnect ALL power supply cords before servicing.

AVERTISSEMENT: Cet appareil a plus d'une cordon d'alimentation. Débranchez TOUTES les cordons d'alimentation avant l'entretien.

Connecting network cables

LiveCapture includes Gigabit Ethernet ports and Integrated Remote Access Controller (iDRAC) ports used for remotely accessing and troubleshooting LiveCapture. See 'Front / rear panels' on page 3 for the location of these ports. For information on using iDRAC, see 'Integrated Remote Access Controller (iDRAC)' on page 66.

To connect network cables:

- Use a standard Ethernet cable to connect these ports to your network.

Tip To reach LiveCapture through an SSH connection, you can use an Ethernet cable connected directly between the Gigabit Ethernet port on LiveCapture and your PC or laptop. LiveCapture eth0 port is configured at the factory with a default static IP address of 192.168.1.21. The PC or laptop must be configured to be on the same IP subnet.

System fans

LiveCapture has multiple cooling fans that are used to the cool the system chassis. If any one of the fans fail, it should be replaced immediately. If your LiveCapture is under warranty, please contact LiveAction Technical Support to arrange for a replacement fan.

Important! The chassis top cover must be properly installed in order for the cooling air to circulate correctly through the chassis and cool the components.

Important! WARNING: Slide/rail mounted equipment is not to be used as a shelf or a work space.

AVERTISSEMENT: Le matériel monté sur rails/coulisseaux ne doit pas être utilisé comme étagère ou espace de travail.

Connecting Extended Storage to LiveCapture 3100

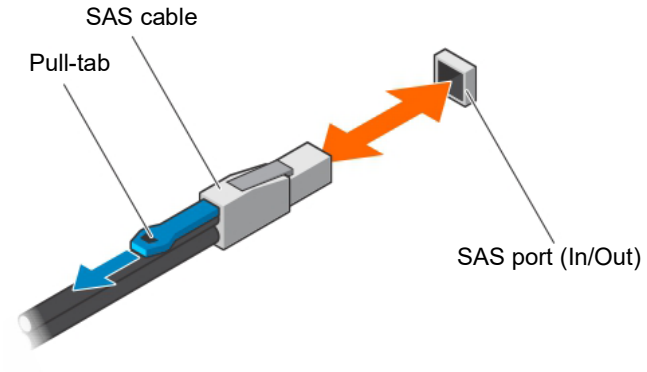
The storage capacity of any LiveCapture 3100 with 96 TB of total hard disk capacity can be increased through the addition of Extended Storage for LiveCapture 3100. Extended Storage is available in a configuration of 96 TB. Up to four Extended Storage units can be added for a total of up to 480 TB. If you purchased Extended Storage with your LiveCapture 3100, the instructions to connect it to your LiveCapture 3100 are provided below.

To connect Extended Storage to LiveCapture 3100:

1. Make sure both Extended Storage and LiveCapture 3100 are powered OFF.
2. Select a suitable location for both Extended Storage and LiveCapture 3100. Both units can be installed on a flat surface, or mounted in a standard 19-inch equipment rack.
3. Run the SAS external cascading cable between the units so that the cable is not kinked, bent, or twisted. The SAS external cascading cable is included with Extended Storage.

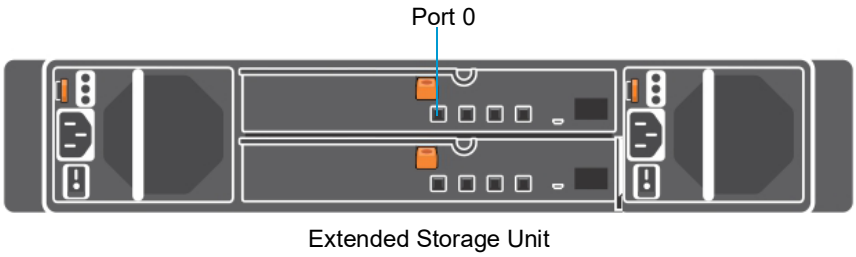
Note If you have multiple Extended Storage boxes, and the system is disconnected for any reason, the cabling of the boxes needs to be exactly as it was before, otherwise the RAID won't be seen correctly. To assist you with the cabling, every Extended Storage box is labeled with a number, and every Extended Storage cable is labeled to the exact port it needs to get plugged into. See 'Connecting multiple Extended Storage units' on page 11.

4. Facing the rear of LiveCapture 3100, insert one connector of the SAS external cascading cable into the left RAID port (Port 0) of the RAID controller on LiveCapture 3100 so that the release pull-tab is on the top.



Note It may be necessary to remove the handle on the rear of the appliance in order to connect the SAS external cascading cable into the left RAID port of the RAID controller.

5. Facing the rear of Extended Storage, insert the other end of the SAS external cascading cable into the RAID port (Port 0) of the RAID controller on Extended Storage so that the release pull-tab is on the top.



Note Be certain the connectors are installed completely as it can look and feel as if the cable is secured without actually making a connection. Give the connector body a tug, then push it in again to be sure.

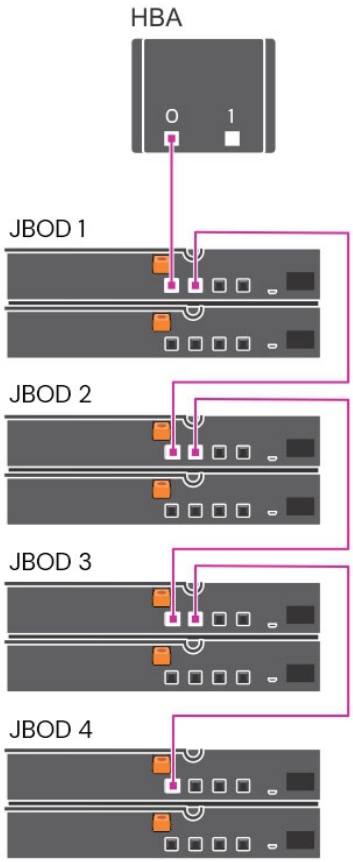
6. Turn on power to Extended Storage by pressing the power button on the front of the chassis. You may see brief bursts of LED activity as the expander in Extended Storage scans the drives.
7. Turn on the power to LiveCapture 3100. The system is ready for use as soon as the LiveCapture 3100 boot sequence completes.

Connecting multiple Extended Storage units

When connecting multiple Extended Storage (JBOD) units to LiveCapture 3100, it is important to note that each LiveCapture 3100 and Extended Storage unit have LiveAction labels with matching serial numbers. Additionally, each Extended Storage unit has a label on the front (designating JBOD 1, 2, 3, etc.), which is the order the units are daisy-chained to LiveCapture 3100 and each of the Extended Storage units. Multiple SAS external cascading cables are included and are also labeled to guide you in connecting each of the units.

To connect multiple Extended Storage units:

1. Locate the LiveAction label on each LiveCapture 3100 and Extended Storage unit. Make sure the LiveAction serial numbers are the same on LiveCapture 3100 and each of the storage units.
2. Locate the first Extended Storage unit labeled as 'JBOD 1' and also the SAS external cascading cable labeled 'HBA - Port 0.' Use the 'HBA Port 0' cable and connect the Extended Storage unit 'JBOD 1' to LiveCapture 3100 as described in 'Connecting Extended Storage to LiveCapture 3100' on page 10. Make sure the release pull-tab on the cable is on top.
3. Locate the second Extended Storage unit labeled as 'JBOD 2' and also the SAS external cascading cable labeled 'JBOD 1 - Port 1.' Use the 'JBOD 1 - Port 1' cable and connect this Extended Storage unit to the previous Extended Storage unit (JBOD 1). Make sure the release pull-tab on the cable is on top.
4. Repeat Step 3 for any additional Extended Storage units, making sure each successive 'JBOD' is connected to the previous 'JBOD' using the appropriate SAS external cascading cable.



LiveCapture Activation

Once LiveCapture is installed, when you attempt to connect to it for the very first time, you must activate the product before it can be used. You can activate LiveCapture either from logging directly into a web-based version of Omnipeek, or from the **Capture Engines Window** in Omnipeek.

Both an automatic and a manual method are available for activation. The automatic method is quick and useful if you have Internet access from the computer from where you are performing the activation. If Internet access is not available, the manual method is available; however, you will need to go to a computer that does have Internet access in order to download a License file that is required to complete the manual activation.

You will need to enter the following information to successfully activate LiveCapture, so please have this information readily available:

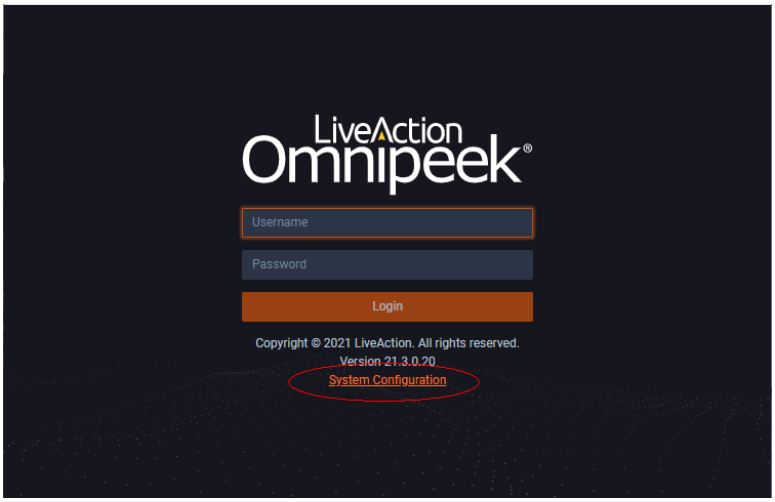
- IP address of LiveCapture
- Product key
- User name
- Company name
- Email address
- Version number

Activation via Omnipeek Web

Note Activation via the web-based version of Omnipeek is not supported on an Internet Explorer web browser. Please use any web browser other than Internet Explorer to activate LiveCapture via Omnipeek.

To activate LiveCapture via Omnipeek:

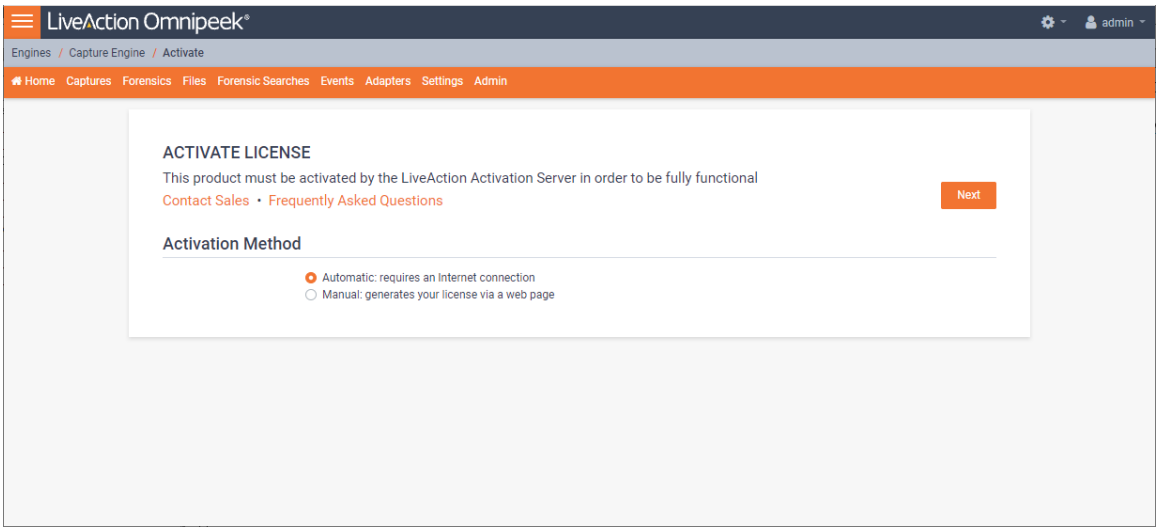
1. From your web browser, type the IP address of LiveCapture into the URL field of the browser and press **Enter**. The Omnipeek login screen appears.



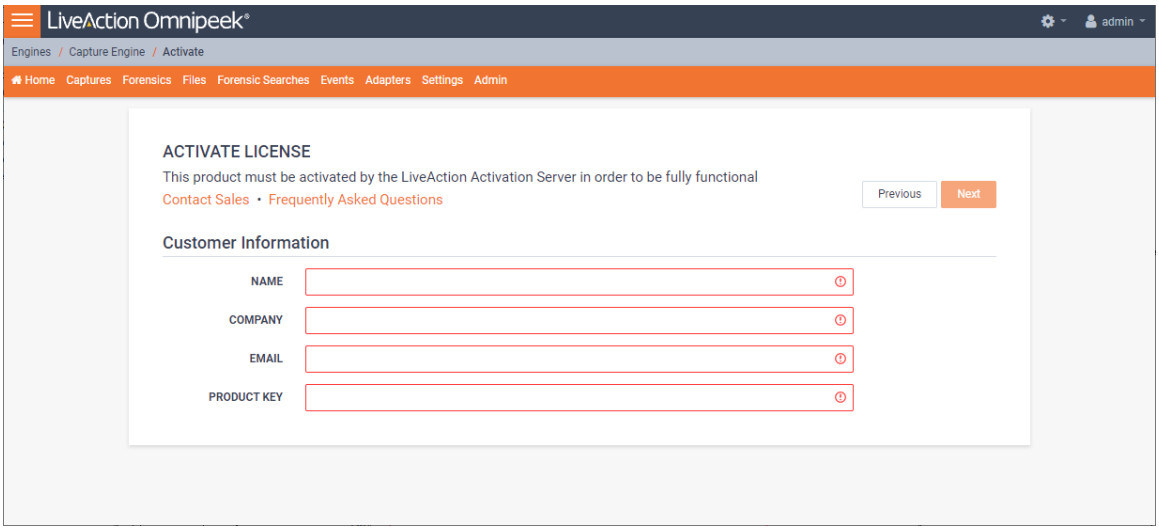
   - *Username*: Type the username for LiveCapture. The default is *admin*.
   - *Password*: Type the password for LiveCapture. The default is *admin*.

2. Type the *Username* and *Password* and click **Login**. The Omnipeek *Activation License* window appears.

Note You can also access the Omnipeek *Activation License* window by clicking *Update License* from the Capture Engine *Home* screen in Omnipeek.



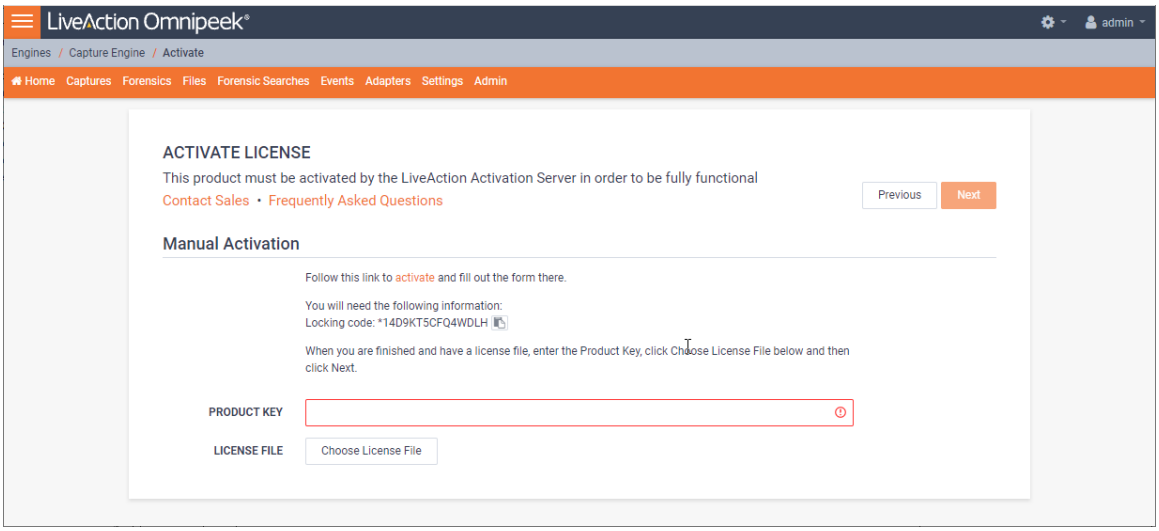
3. If your client has an active Internet connection, select *Automatic* and click **Next**. The **Customer Information** window appears. Continue with Step 4 below.



- *NAME:* Type the user name of the customer.
- *COMPANY:* Type the company name.
- *EMAIL:* Type the email address of the customer.
- *PRODUCT KEY:* Type the product key.

If your client does not have an active Internet connection, or you are prevented from accessing the Internet using personal firewalls, or there are other network restrictions that may block automatic activations, select *Manual* and click **Next.** The **Manual Activation** window appears. Skip to Step 5 below.

Note The manual activation method is available for instances described above; however, you will need to go to a computer that does have Internet access in order to download a License file that is required to complete the manual activation.

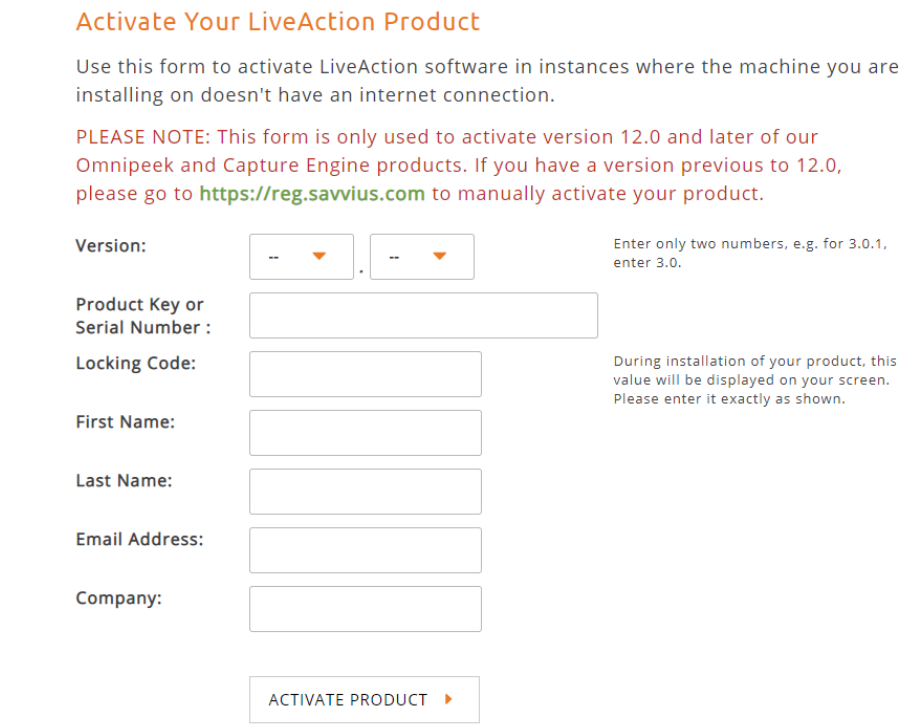


Note The ***Locking code*** displayed in the window above is required in Step 6 below. You can click the small icon next to the code to save it to the clipboard so you can paste it into the Locking Code field in Step 6 below.

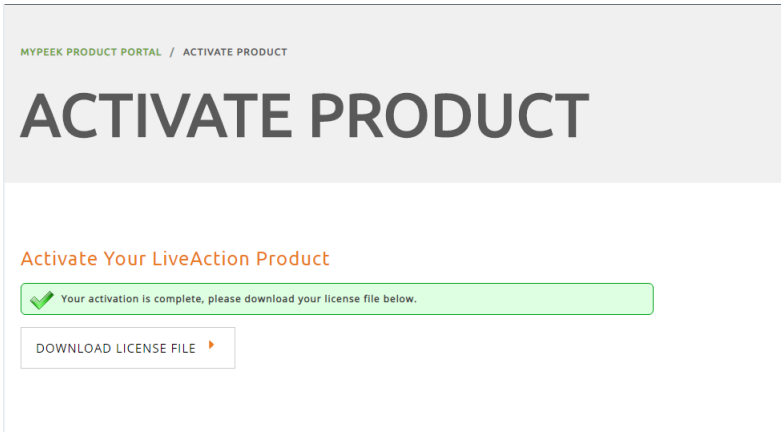
4. Complete the Customer Information window and click **Next**. LiveCapture is now activated and you can begin using the product. The activation process is complete.

Note If the automatic activation does not complete successfully, go back and select the manual activation process. Personal firewalls or other network restrictions may block automatic activations.

5. Click the *activate* link (*https://mypeek.liveaction.com/activate_product.php*) in the window. A web browser page opens that allows you to activate your LiveAction product and to obtain and download a license file. The license file is required to complete the manual activation.



6. Complete the information on the activation page and click **ACTIVATE PRODUCT**. The following page appears once the activation is complete.



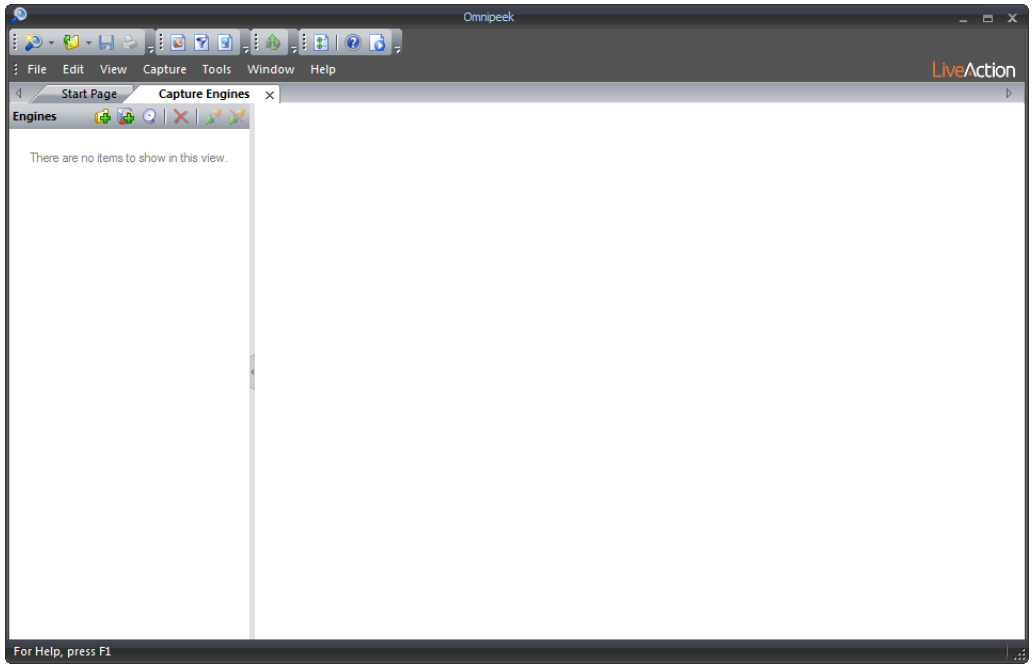
7. Click **DOWNLOAD LICENSE FILE** to save the license file to your computer. You will need the license file in the following steps.
8. Return back to the to the **Manual Activation** window, and click **Choose License File**.
9. Navigate to the license file downloaded above and click **Open**.
10. Click **Next** in the **Manual Activation** window. LiveCapture is now activated and you can begin using the product. The activation process is complete.

Activation via Omnipeek

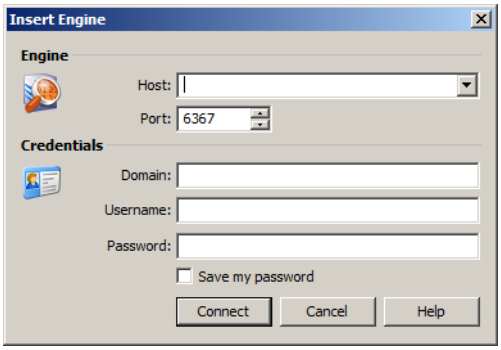
Note Activation of LiveCapture via Omnipeek is supported on Omnipeek version 13.1 or higher.

To activate LiveCapture via Omnipeek:

1. From the Omnipeek Start Page, click **View Capture Engines** to display the **Capture Engines** window.

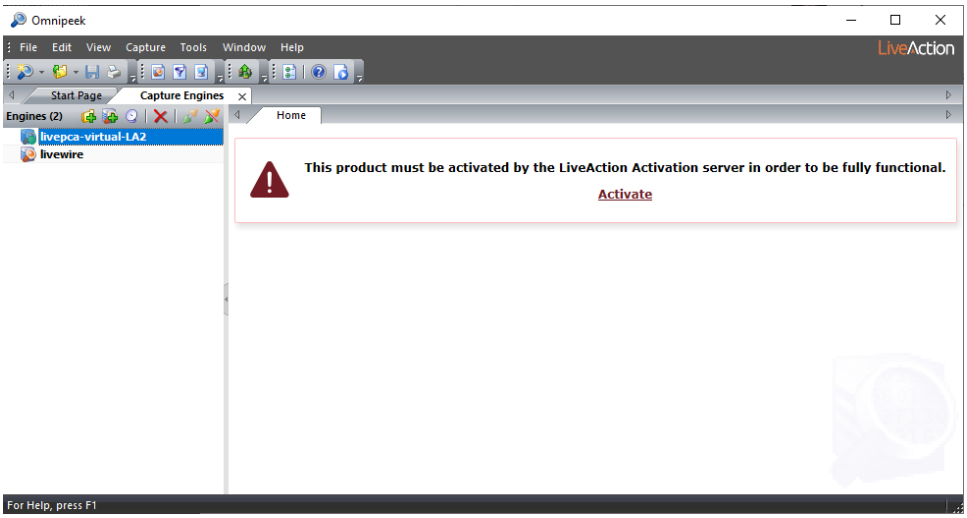


2. Click *Insert Engine* and complete the **Insert Engine** dialog.

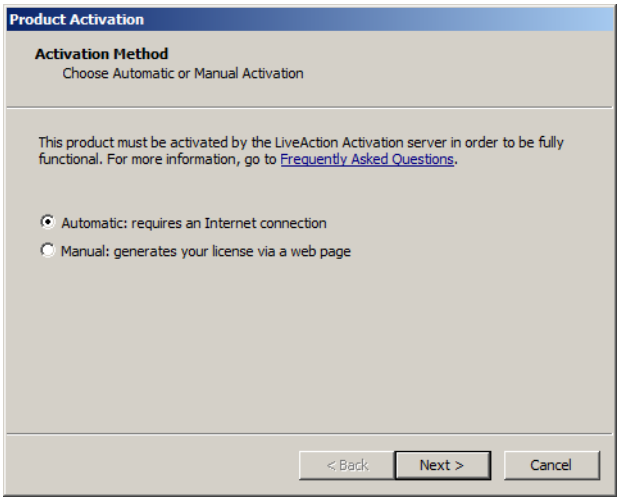


- *Host*: Enter the IP address of LiveCapture.
- *Port*: Enter the TCP/IP port used for communications. Port 6367 is the default for LiveCapture.
- *Domain*: Type the Domain for login to LiveCapture. If LiveCapture is not a member of any Domain, leave this field blank.
- *Username*: Type the username for LiveCapture. The default is *admin*.
- *Password*: Type the password for LiveCapture. The default is *admin*.
- *Save my password*: Select this option to remember your password to connect to LiveCapture.

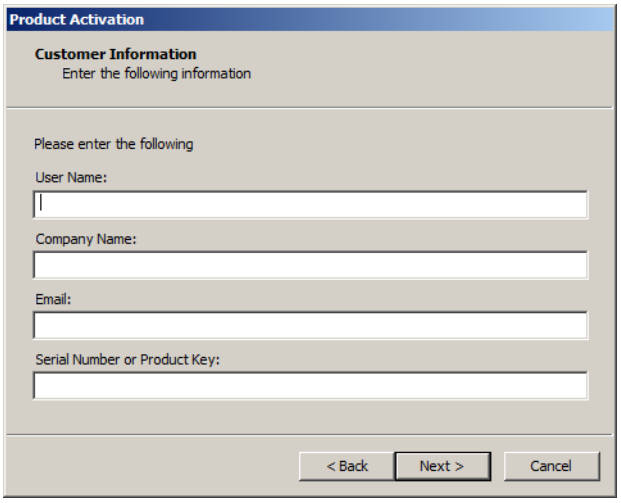
3. Click **Connect** to connect to LiveCapture. If LiveCapture has not yet been activated, the activation message appears in the **Capture Engines** window.



4. Click *Activate* LiveCapture. The **Activation Method** dialog appears.



5. If your client has an active Internet connection, select *Automatic* and click **Next**. Otherwise, select *Manual* and click **Next.** The **Customer Information** dialog appears.



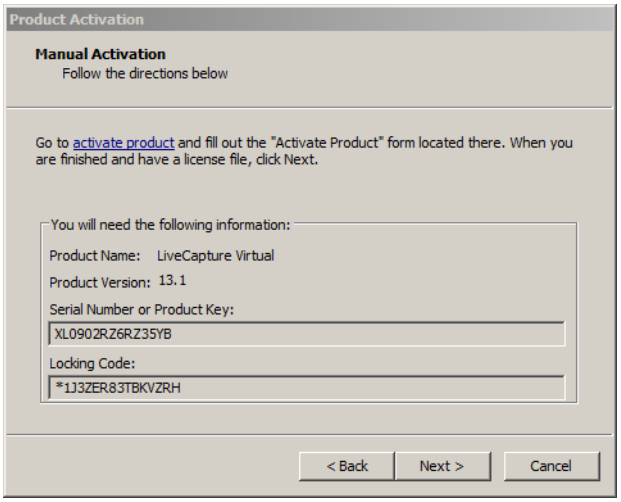
- *User Name*: Type the user name of the customer.
- *Company Name*: Type the company name.

- *Email*: Type the email address of the customer.
- *Serial Number or Product Key*: Type either the serial number or product key.

6. Complete the **Customer Information** dialog and click **Next**. If you selected the *Automatic* activation, LiveCapture is now activated and you can begin using the product. The activation process is complete.

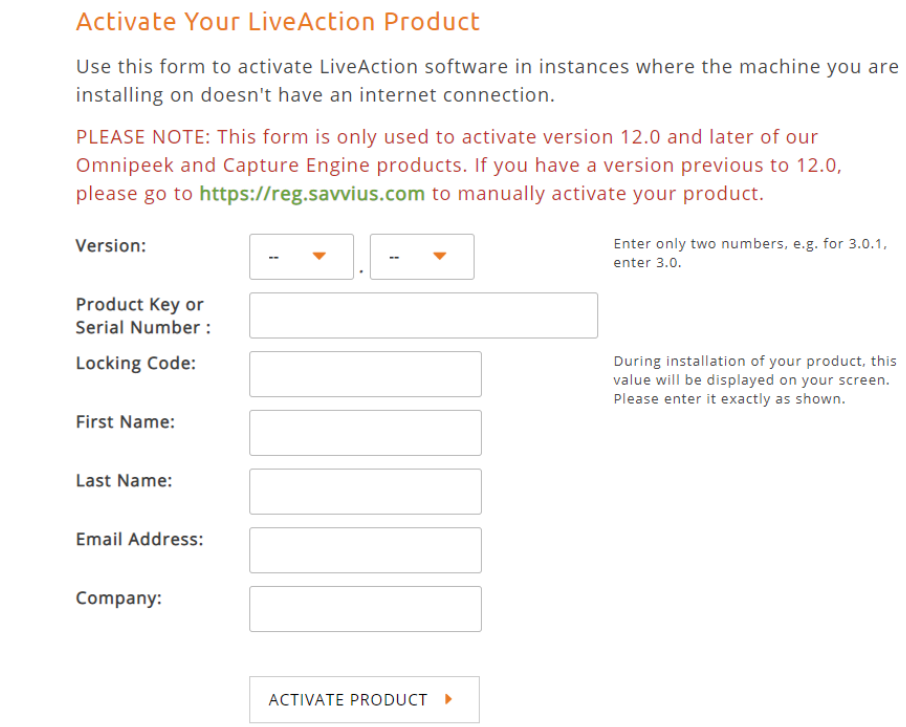
   If you selected the *Manual* activation, the **Manual Activation** dialog appears. You will need to continue with the remaining steps.

Note The manual activation method is available for instances when a computer does not have Internet access; however, you will need to go to a computer that does have Internet access in order to download a License file that is required to complete the manual activation.

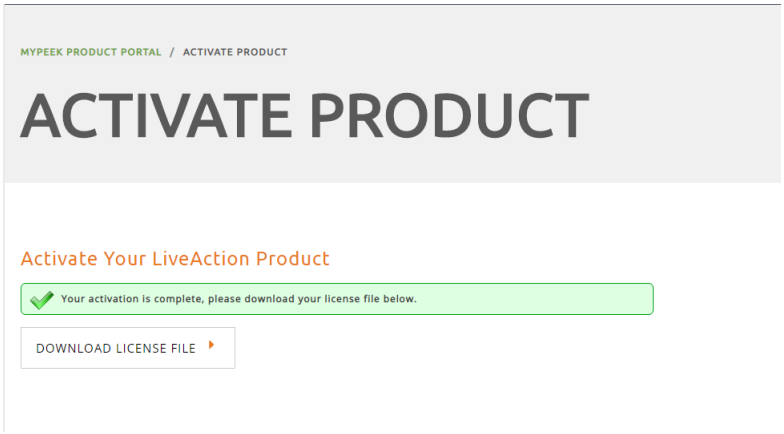


Note The *Product Key*, and also the *Locking Code* displayed in the **Manual Activation** dialog are required in the next step. You can cut and paste this information from the **Manual Activation** dialog when required in the next step.

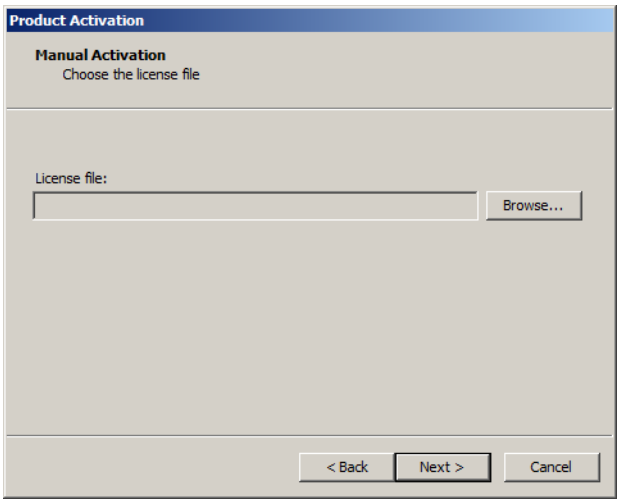
7. Click the *activate product* link (*https://mypeek.liveaction.com/activate_product.php*) in the dialog. A web browser page opens that allows you to activate your LiveAction product and to obtain and download a license file. The license file is required to complete the manual activation.



8. Complete the information on the activation page and click **ACTIVATE PRODUCT**. The following page appears once the activation is complete.



9. Click **DOWNLOAD LICENSE FILE** to save the license file to your computer. You will need the license file in Step 11 below.
10. Return to the **Omnipeek Product Activation** dialog, and click **Next**. The **Manual Activation/Choose the license file** dialog appears.



11. Browse to the license file that was downloaded above and click **Next**. LiveCapture is now activated and you can begin using the product. The activation process is complete.

Starting / shutting down LiveCapture

To start LiveCapture:

- Press the power button in the upper right corner on the front of the chassis.

To shutdown LiveCapture:

- Click the actions link at the top of the configuration utility to display the Actions dialog, and then select Power Off option.
- SSH, or use a console connection to LiveCapture and use the 'shutdown' command from the command prompt (*admin@livecapture*):

  shutdown -h now

> **Note** You can also use the iDRAC interface to shutdown and start LiveCapture. See 'Starting / Shutting down LiveCapture' on page 73.

Attaching the front bezel

To attach the front bezel:

- Attach the front bezel by inserting the locking hooks into the front chassis of LiveCapture. The bezel should be centered between the two black tabs on the left and right of the LiveCapture chassis.

Contacting LiveAction support

Please contact LiveAction support at *https://www.liveaction.com/contact-us* if you have any questions about the installation and use of LiveCapture.

An RMA (Return Material Authorization) number must be obtained from LiveAction before returning hardware. Please contact LiveAction technical support at *https://www.liveaction.com/support/technical-support/* for instructions.

CHAPTER 2

Configuring LiveCapture

In this chapter:

Logging-in to LiveCapture command line

You can log into the LiveCapture command line in one of three ways:

- Remotely, using remote SSH software such as *Putty*
- Locally, by connecting a monitor, mouse and keyboard to LiveCapture
- Locally, via the serial port

The first time you log into LiveCapture, use the following as your username and password:

username: *admin*

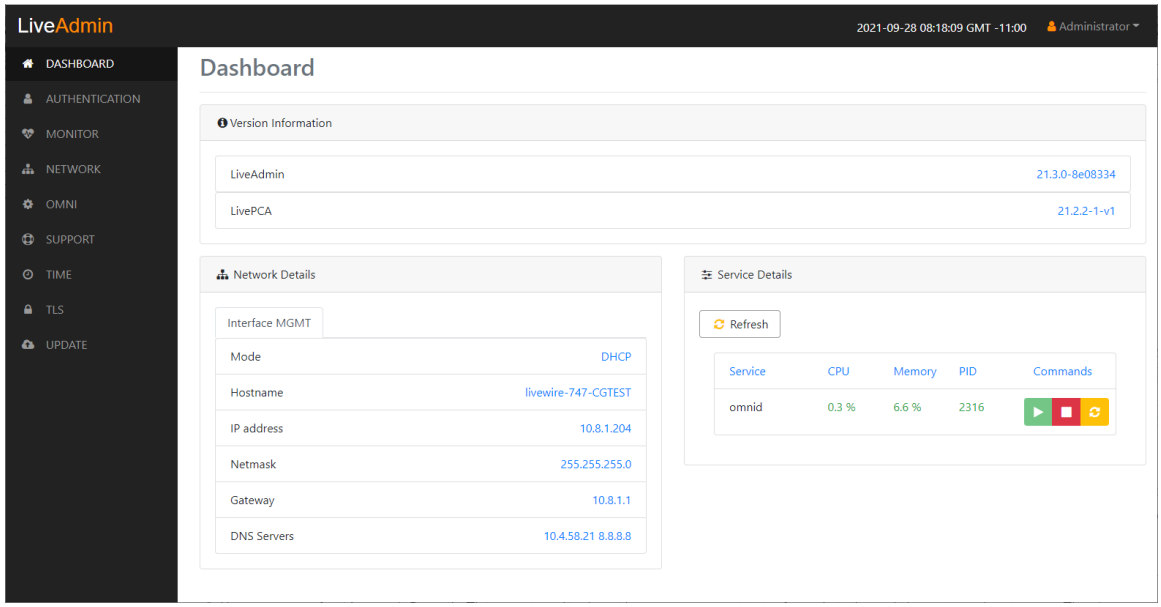
password: *admin*

After you have logged into LiveCapture for the first time, you can then change your password and add users and privileges.

Note For security reasons, we strongly recommend changing the default password.

Using the LiveAdmin utility

The LiveAdmin utility on LiveCapture lets you view and configure a variety of settings from the LiveAdmin views in the left-hand navigation pane of the utility. To learn more about each of the LiveAdmin views, go to the appropriate section below:



- *Dashboard*: The *Dashboard* view provides you with some very basic information about the system. See *Dashboard* on page 25.
- *Authentication*: The *Authentication* view lets you change the password for LiveCapture. See *Authentication* on page 26.
- *Monitor*: The *Monitor* view displays the health of the overall system. See *Monitor* on page 27.
- *Network*: The *Network* view lets you configure the primary network interfaces network settings and the hostname of the system. See *Network* on page 27.
- *Omni*: The *Omni* view lets you enable the Device Management Server (DMS) for the appliance. See *Omni* on page 29.
- *Support*: The *Support* view let you download logs from the system that would be helpful in troubleshooting issues. See *Support* on page 31.

- *Time*: The *Time* view lets you configure the system's Timezone and NTP servers. See *Time* on page 32.
- *TLS*: The *TLS* view lets you change the self-signed certificates that LiveAdmin and Omnipeek use for HTTPS. See *TLS* on page 33.
- *Update*: The *Update* view lets you update the appliance using a software update package. See *Update* on page 34.
- *Administrator*: The *Administrator* context menu in the upper right lets you restart LiveCapture, power off LiveCapture or log out from the LiveAdmin utility. See *Restart and power off* on page 35.

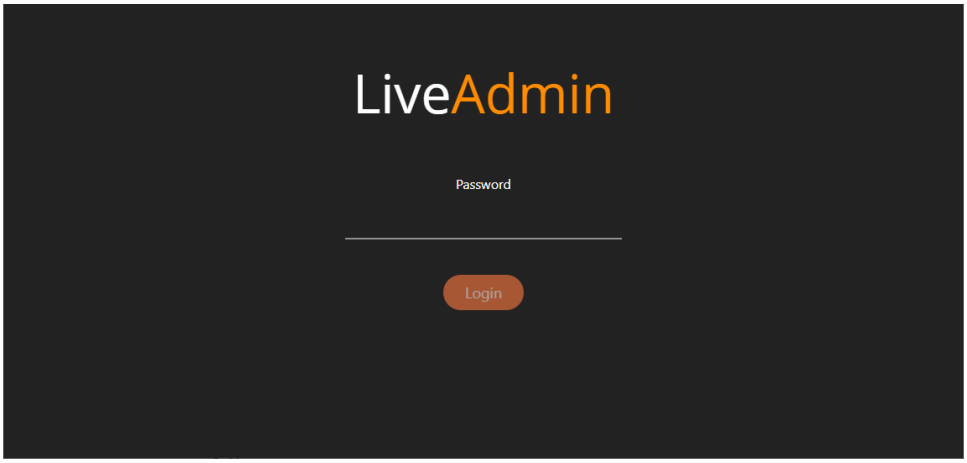
Important! LiveCapture comes pre-configured to obtain its IP address via DHCP. The IP address is required to configure LiveCapture, as described below. You can obtain the IP address by logging into the DMS as described in *Using DMS to manage and configure LiveAction appliances* on page 35.

Note If an IP address is not assigned to LiveCapture by the DHCP server within two minutes of being connected to the network, LiveCapture defaults to a static address of 192.168.1.21.

Login

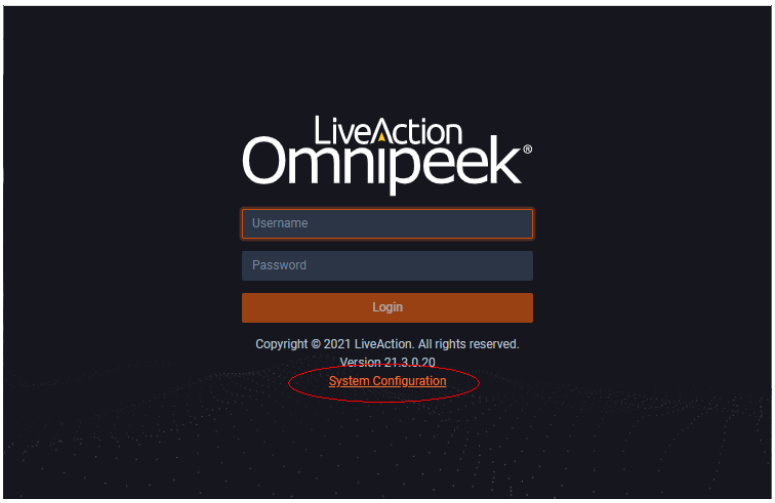
To log into the LiveAdmin utility:

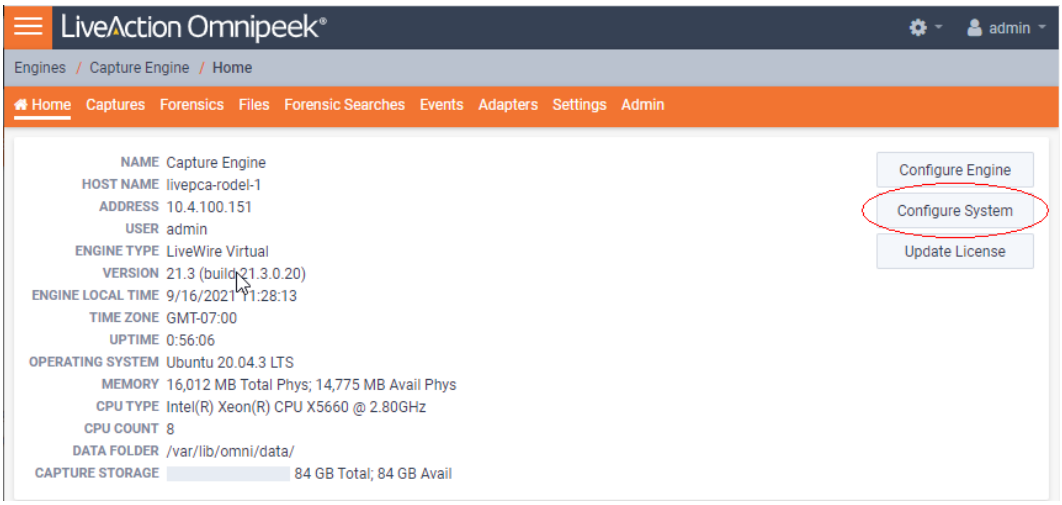
1. Connect LiveCapture to your network router or switch with an Ethernet cable.
2. From a browser window on a computer connected to the same network as LiveCapture, enter the IP address for LiveCapture in the URL box as *<IP address>:8443* (e.g., 192.168.1.21:8443). The LiveAdmin Login screen appears.



3. Enter the default password 'admin' and click **Login**.

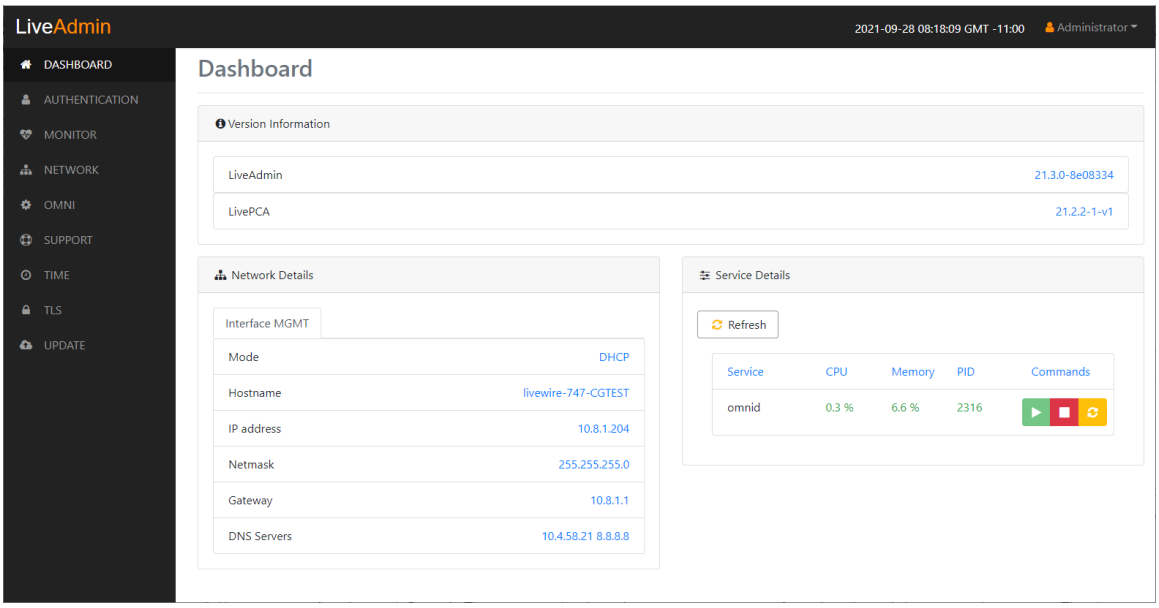
Note If you are using Omnipeek Web, you can also access the LiveAdmin Login screen by clicking *System Configuration* from either the Omnipeek Login screen, or by clicking *Configure System* from within Omnipeek itself.





Dashboard

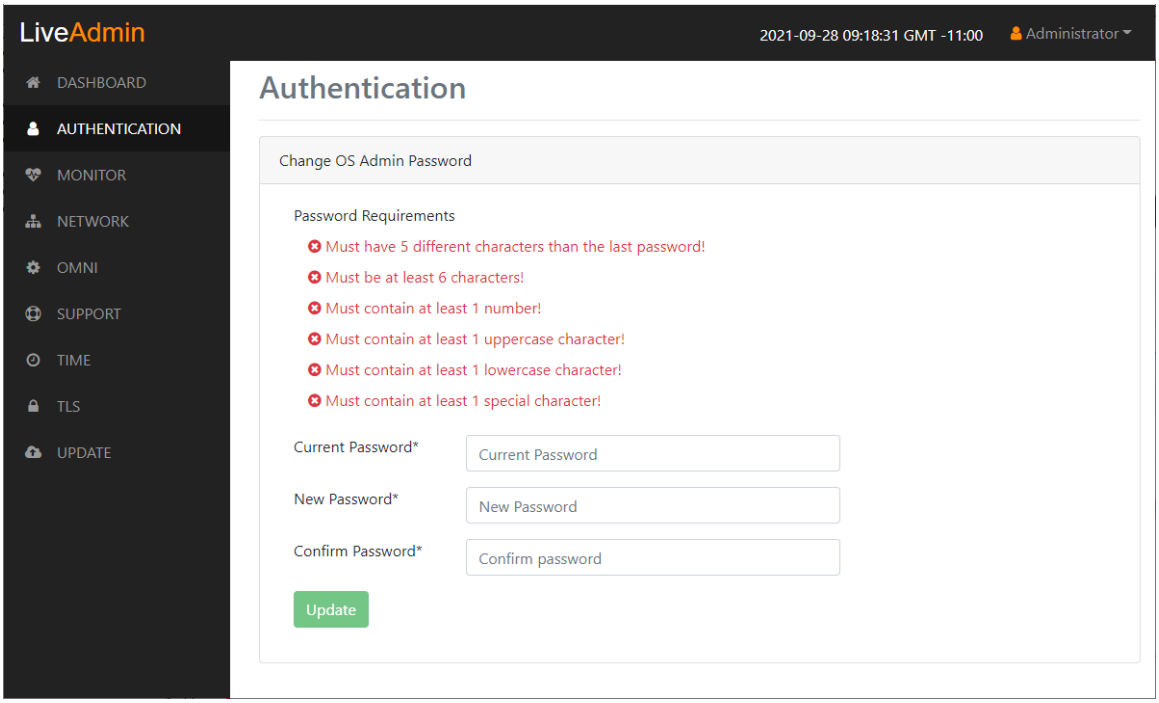
The Dashboard view provides you with some very basic information about the system.



- *Version Information*: This section displays the version numbers of the LiveAdmin utility and the software on the LiveAction appliance.
    - *LiveAdmin*: Displays the version number of the LiveAdmin utility
    - *LivePCA*: Displays the version number of the software installed on the LiveAction appliance.
- *Network Details*: This section displays the management interface details and the system hostname. The management interface is defined from the Network view in LiveAdmin. See *Network* on page 27.
- *Service Details*: This section lists a set of services you are able to monitor. This has currently been limited to the omnid process only, although additional services could easily be added:
    - *Refresh*: Click to update the view
    - *Service*: Displays the name of the service
    - *CPU*: Displays the amount of CPU the service is using
    - *Memory*: Displays the amount of memory the service is using
    - *PID*: Displays the Process ID of the service
    - *Commands*:
      Start - Click to start the service and can only be triggered if the service is stopped.
      Stop - Click to stop the service and can only be triggered if the service is running.
      Restart - Click to restart the service and can only be triggered if the service is running.

Authentication

The *Authentication* view lets you change the password for LiveCapture.



- *Current Password*: Enter the current password for LiveCapture. The default is *admin*.
- *New Password*: Enter the new password for LiveCapture. The new password must meet the following requirements:
    - Must have 5 different characters than the last password.
    - Must be at least 6 characters.
    - Must contain at least 1 number

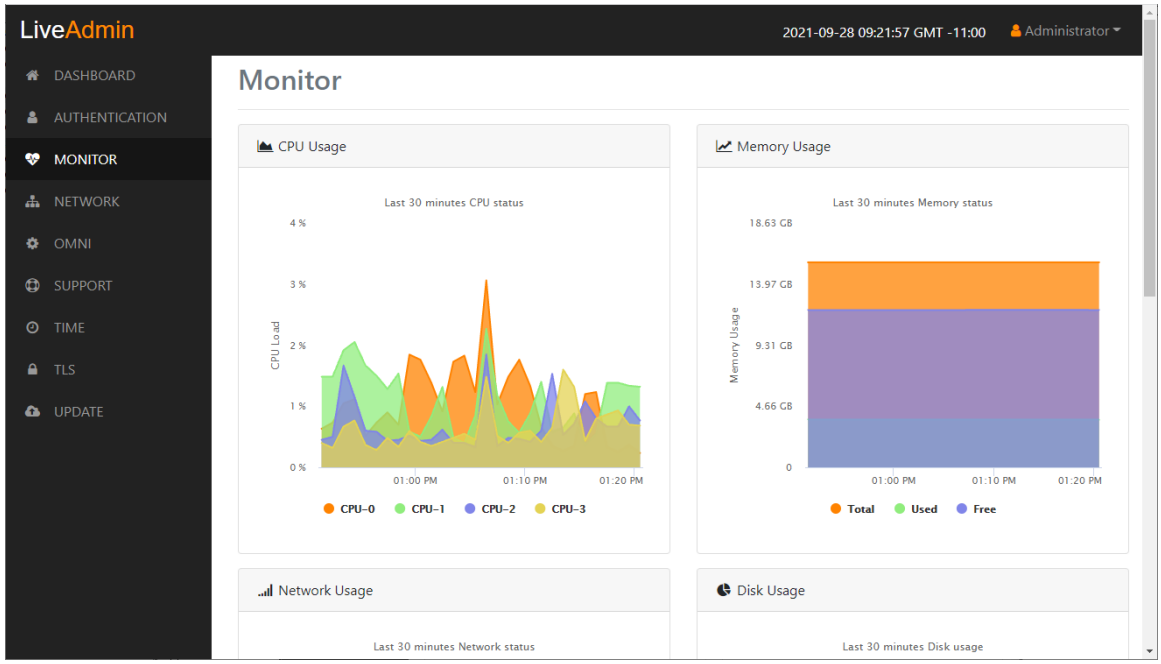
- Must contain at least 1 uppercase character.
- Must contain at least 1 lowercase character.
- Must contain at least 1 special character.

- *Confirm Password*: Enter the new password to confirm the password.
- *Update*: Click to change the password.

Note Make sure to note the *Password* that you configure.

Monitor

The Monitor view displays the health of the overall system. The view is broken up into four usage charts and one interface statistics table.

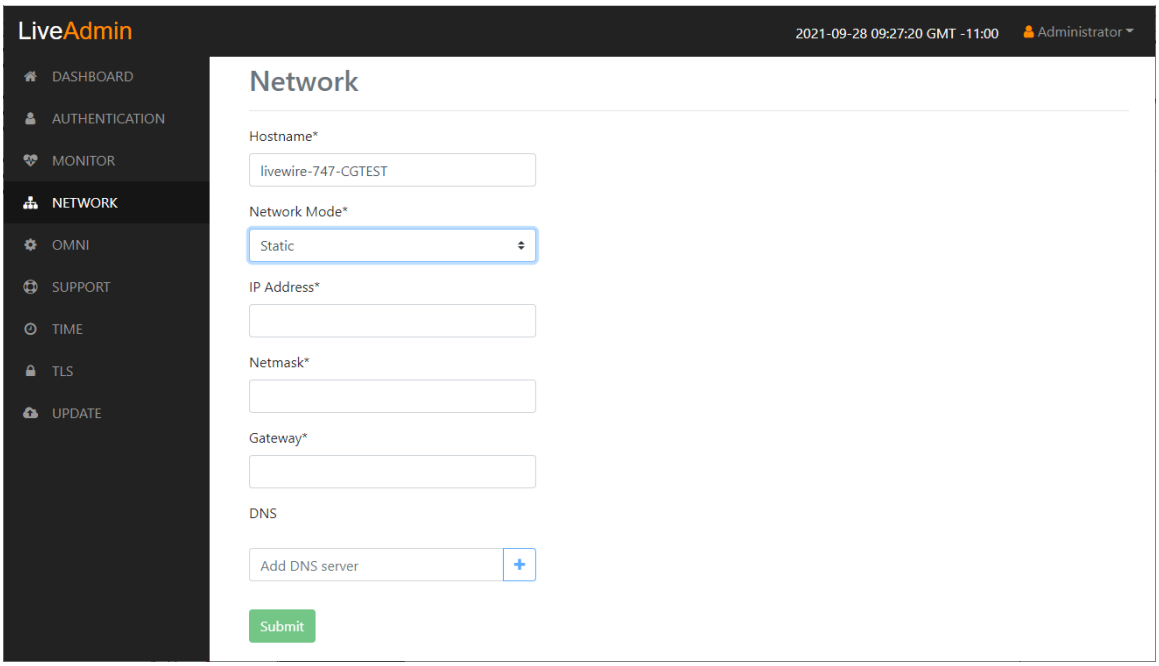


- *CPU Usage*: This chart displays the current usage of individual CPUs on the system. Click the CPU label in the legend to enable/disable its data displayed in the chart.
- *Memory Usage*: This chart displays the current amount of memory being consumed on the system. Click the *Total*, *Used*, or *Free* labels in the legend to enable/disable which data to display in the chart.
- *Network Usage*: This chart displays the current throughput of the network interfaces. Click the labels in the legend to enable/disable which data to display in the chart.
- *Disk Usage*: This chart displays the current amount of space being used by the Data and Metadata volumes. Click the *Total*, *Used*, or *Free* labels in the legend to enable/disable which data to display in the chart.
- *Interface Statistics*: This table displays the statistics of the primary management interface. To update the statistics click **Refresh**.

Network

The *Network* view lets you configure the primary network interface network settings and the hostname of the system. You can configure either DHCP or static network settings.

Note Changing the network settings will restart the omni service.



- *Hostname*: Enter a name for LiveCapture. A unique device name allows for easy identification of data sources. The hostname can only contain alphanumeric characters and hyphens, and cannot be longer than 255 characters.
- *Network Mode*: This setting lets you to specify whether LiveCapture uses a DHCP or static setting for its IP address. If *Static* is selected, then *IP Address*, *Netmask*, *Gateway*, and *DNS* settings can be configured for LiveCapture. If *DHCP* is selected, then LiveCapture is configured by a DHCP server.

Important! LiveCapture is pre-configured to a static IP address. The default is 192.168.1.21. We strongly recommend the use of a static IP address for LiveCapture. If DHCP is selected as the *IP Assignment*, and if the address should change on a new DHCP lease, then the user must look up the new IP address assigned to LiveCapture. To help you look up the IP address, the MAC Address of LiveCapture is displayed as the *Ethernet Address*.

- *IP Address*: This setting lets you specify the IP address that you are assigning to LiveCapture.
- *Netmask*: A Netmask, combined with the IP address, defines the network associated with LiveCapture.
- *Gateway*: Also known as 'Default Gateway.' When LiveCapture does not have an IP route for the destination, the IP packet is sent to this address as it does not know how to direct it locally. Only a single default gateway can be defined.
- *DNS*: This is the domain name server. A Domain Name Server translates domain names (e.g., www.liveaction.com) into an IP address. To add a DNS server, enter the address of the server, and click the plus (**+**) icon. Multiple DNS name servers can be defined. You can also edit or delete any defined DNS servers.

Configure DHCP

To configure a DHCP IP address:

1. Enter a hostname in the *Hostname* field.
2. From the *Network Mode* list, select *DHCP*.

3. Click **Submit**.

Configure Static

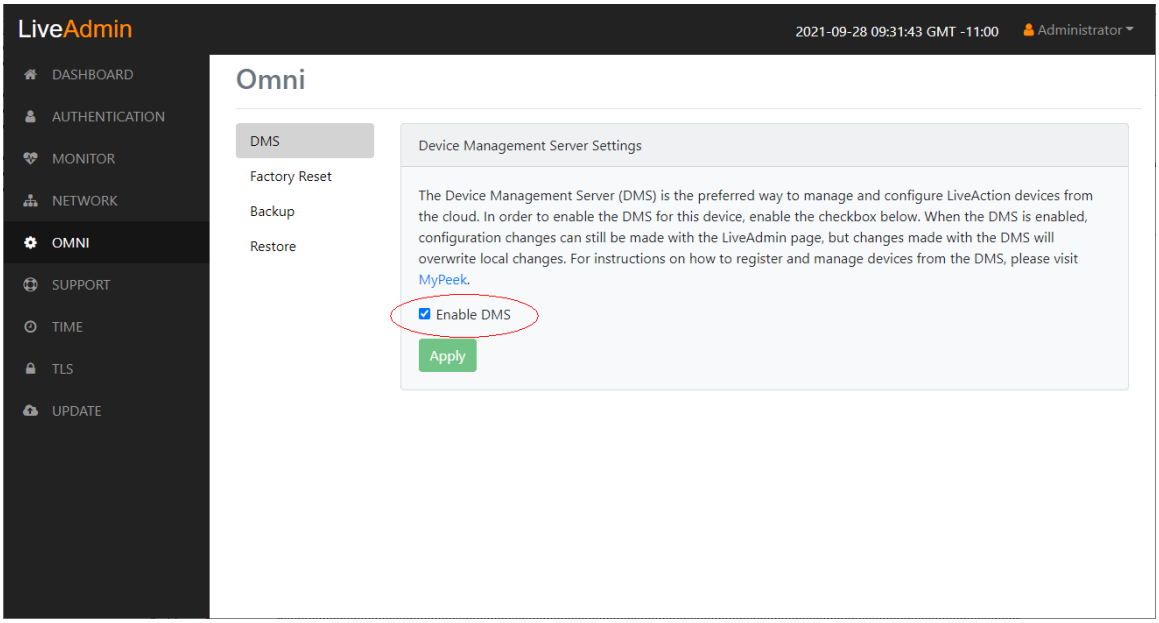
To configure a static IP address:

1. Enter a hostname in the Hostname field.
2. From the *Network Mode* list, select *Static*.
3. Enter a valid IP address in the *IP Address* field.
4. Enter a valid netmask in the *Netmask* field.
5. Enter a valid default gateway in the *Gateway* field.
6. (Optional) Enter a valid DNS server in the *Add DNS server* field and click the plus (**+**) button.
7. Click **Submit**.

> **Note** You will lose connection to LiveCapture if you configured a new static address in *IP Address* above.

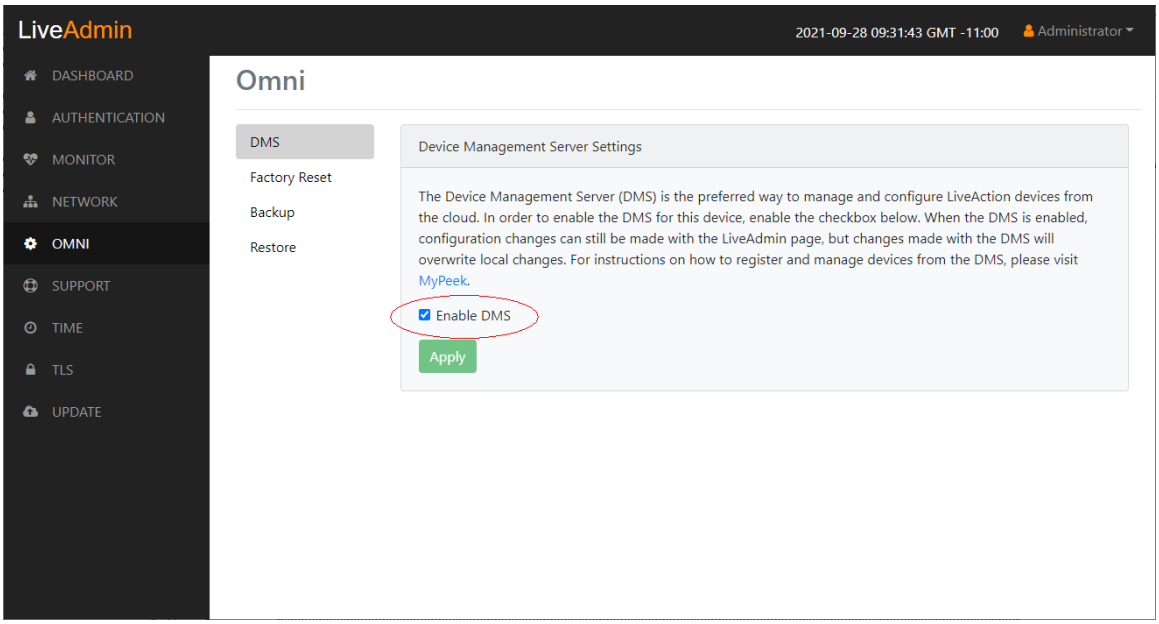
Omni

The *Omni* view lets you enable the Device Management Server (DMS) for the appliance, Backup, and Restore options.



DMS

The *DMS* (Device Management Server) is the preferred way to manage and configure LiveAction appliances from the cloud. In order to enable the DMS for LiveCapture, enable the check box. When the DMS is enabled, configuration changes can still be made with the LiveAdmin utility, but changes made with the DMS will overwrite local changes. For instructions on how to register and manage devices from the DMS, please visit *MyPeek*.



- *Enable DMS*: Select this check box to enable the DMS for LiveCapture to manage and configure LiveCapture from the cloud. See *Using DMS to manage and configure LiveAction appliances* on page 35.

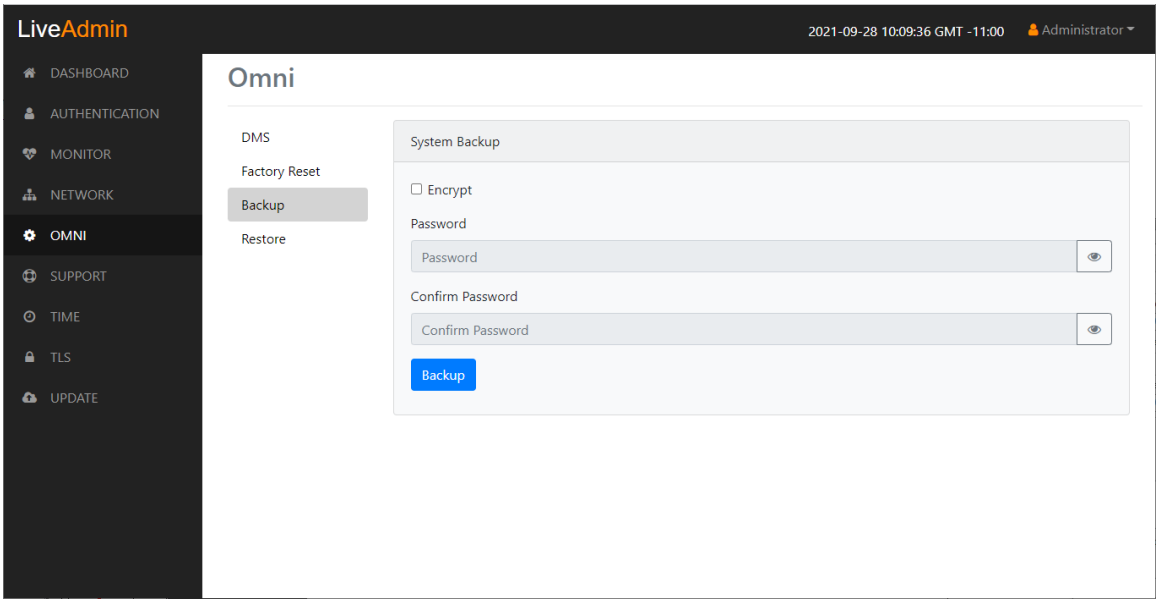
Note When DMS is enabled, you can make local changes to LiveCapture using the LiveAdmin utility; however, changes made with the DMS will overwrite any local changes made with the LiveAdmin utility.

Factory reset

(*Factory reset* is unavailable from the LiveAdmin utility for LiveCapture appliances.)

Backup

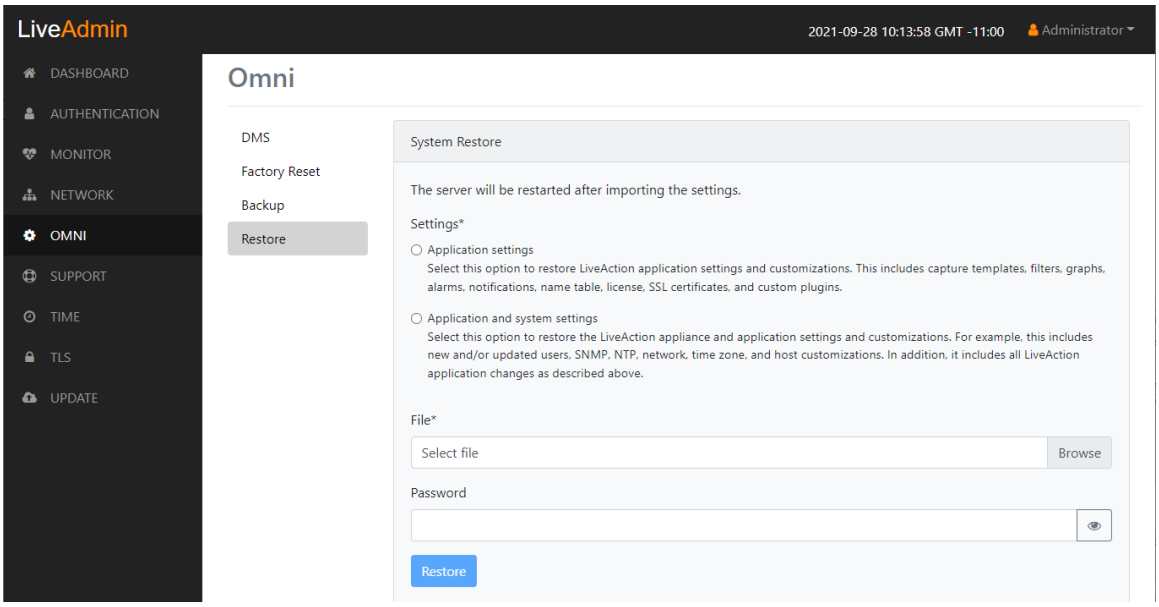
Backup allows you to back up all the system data on LiveCapture to a back up file that you can restore at a later time.



- *Encrypt*: Select this data to encrypt the system backup. You will need to enter a password that is required to restore the backup to LiveCapture.
- *Password*: Type a password for the backup.
- *Confirm Password*: Type the password again to confirm the password.
- *Backup*: Click to start the backup.

Restore

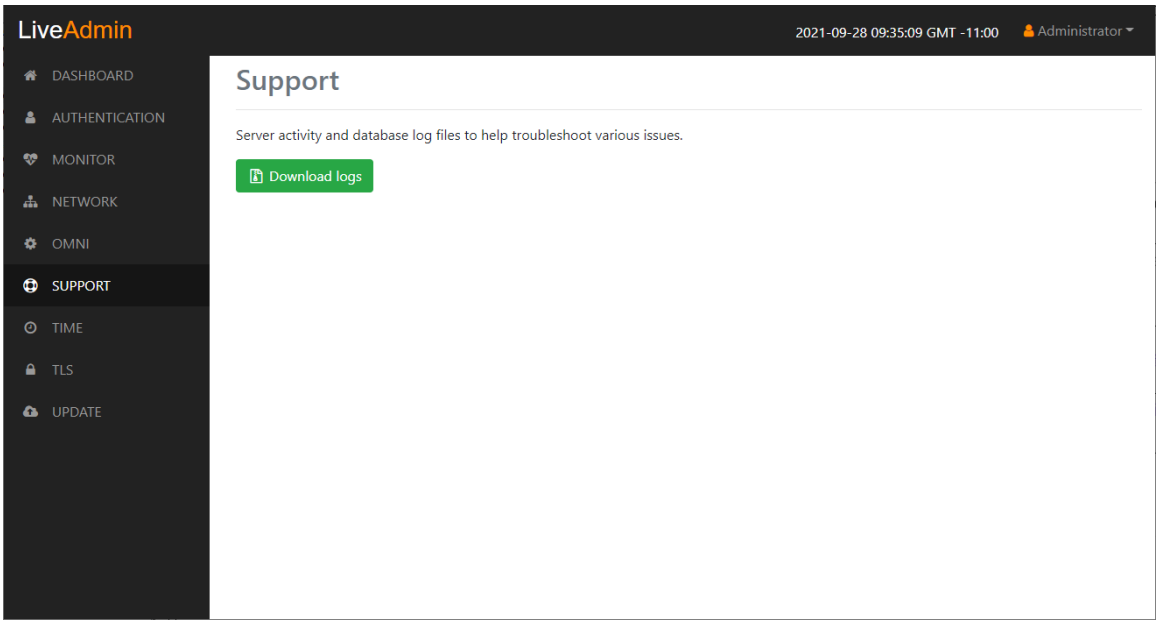
Restore allows you to restore to LiveCapture a backup that was previously performed on LiveCapture. To perform a restore, you will need the backup file you want to restore and any password associated with the backup.



- *Application settings*: Select this option to restore the appliance application settings and customizations.
- *Application and system settings*: Select this option to restore the appliance, application settings, and customizations.
- *File*: Click **Browse** to select the backup file you are restoring.
- *Password*: Enter the password for the backup you are restoring.
- *Restore*: Click to start the restore.

Support

The Support view lets you download logs from LiveCapture that would be helpful in troubleshooting issues.



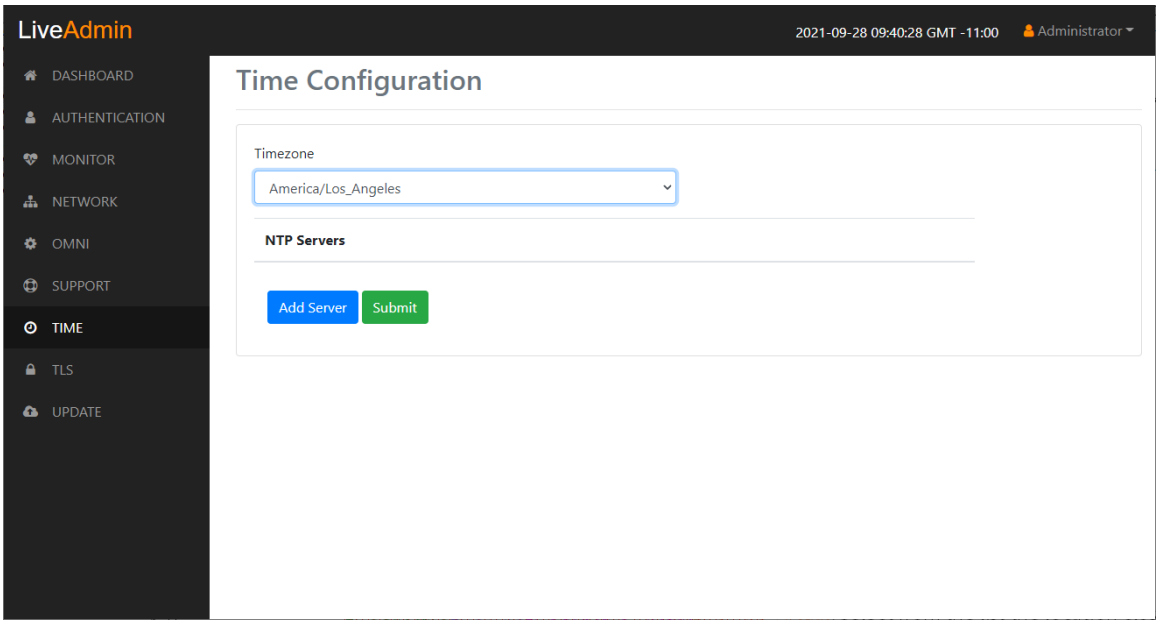
- *Download logs*: Click to download the *logs.tgz* file to your default location.

  The *log.tgz* file will consist of the following information and files:

  - */proc/mounts*
  - */proc/meminfo*
  - */proc/net/dev*
  - */var/log/auth.log*
  - */var/log/boot.log*
  - */var/log/dmesg*
  - */var/log/dms.log*
  - */var/log/dmsd.log*
  - */var/log/kern.log*
  - */var/log/live*
  - */var/log/liveflow*
  - */var/log/nginx*
  - */var/log/omniperf.log*
  - */var/log/omnitrace.log*
  - */var/log/routermap_to_interface.log*
  - */var/log/syslog*

Time

The *Time Configuration* view lets you configure the system's Timezone and NTP servers.

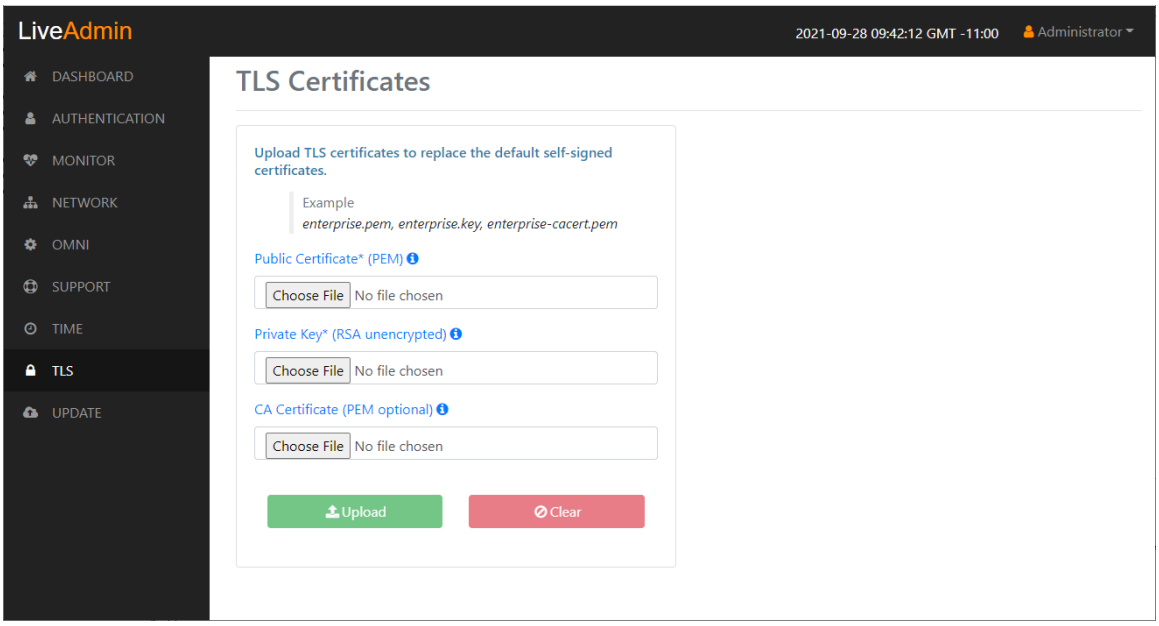


- *Timezone*: The Timezone setting lets you specify the physical location of LiveCapture. Select from the list the location closest to your LiveCapture.
- *NTP Servers*: The NTP (Network Time Protocol) server setting displays the NTP servers used to synchronize the clocks of computers over a network. Many features of LiveCapture require accurate timestamps to properly analyze data.

  To synchronize the LiveCapture clock, you can specify the IP address of an NTP server located on either the local network or Internet. Once an NTP server is added to LiveCapture, you can update (edit) or delete a server displayed in the list.
- *Add Server*: Click to add a new NTP server to the list. Enter the IP address of the NTP server and click **Save** to save the server to the list. Multiple NTP servers can be defined.
- *Submit*: Click to save your changes to LiveCapture.

TLS

The *TLS Certificates* view lets you change the self-signed certificates that Omnipeek and LiveAdmin use for HTTPS.

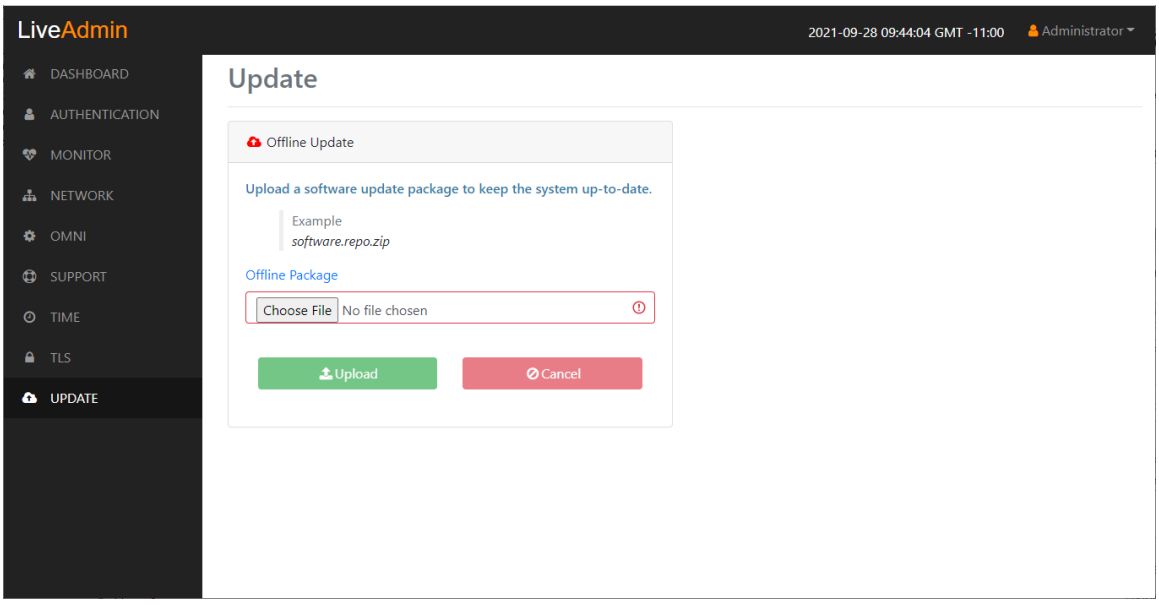


- *Public Certificate* (PEM)*: Click **Choose File** to browse and select your Public Certificate file. Click the information icon to display an example of the file.
- *Private Key* (RSA unencrypted)*: Click **Choose File** to browse and select your Private Key file. Click the information icon to display an example of the file.
- *CA Certificate (PEM optional)*: Click **Choose File** to browse and select your CA Certificate file. Click the information icon to display an example of the file.
- *Upload*: Click to upload the selected files to LiveCapture.

Update

The Update view lets you update the appliance using the software update package.

Note Updating the software will cause the system to reboot.



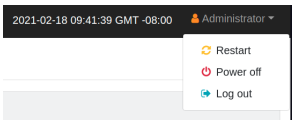
To update the software:

1. Download the latest software update package to your system.
2. Click **Choose File** and select the software update package.
3. Click **Upload** to upload the package and begin the update process.

   Once the update process is complete, the system restarts. A restart message is broadcast to all users connected to the appliance.

Restart and power off

The *Administrator* context menu at the top of the LiveAdmin utility has options that let you restart and power off LiveCapture and log out from the utility.



To restart LiveCapture:

1. Click the *Administrator* context menu and select **Restart**.
2. Click **Yes, restart now!** to confirm the restart.

To power off LiveCapture:

1. Click the *Administrator* context menu and select **Power off**.
2. Click **Power Off** to confirm you want to power off.

To log out of the LiveAdmin utility:

- Click the *Administrator* context menu and select **Log out**.

Using DMS to manage and configure LiveAction appliances

If you have one or more LiveAction appliances, you can use the Device Management Server (DMS) to manage and configure these appliances from the cloud. In order to use the DMS server for the LiveAction appliance, you must first enable the *Enable DMS* option in the LiveAdmin utility as described in *Omni* on page 29.

Note When DMS is enabled, you can make local changes to the LiveAction appliance using the LiveAdmin utility; however, changes made with the DMS will overwrite any local changes made with the utility.

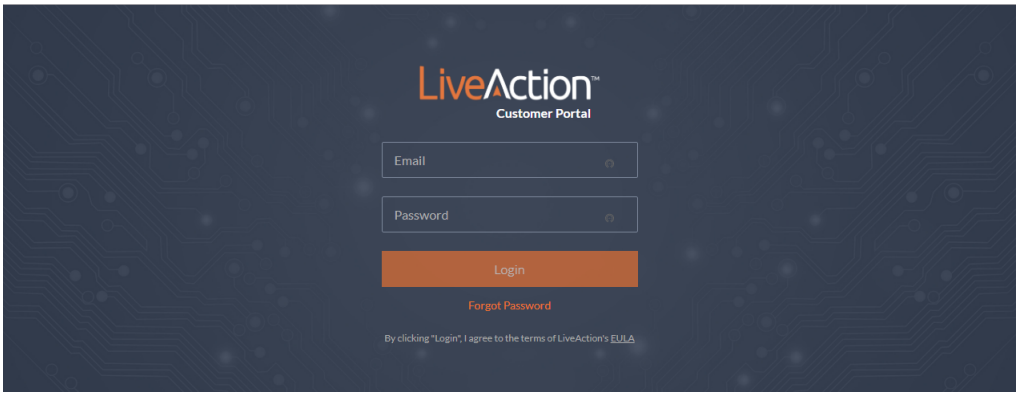
Note All DMS communications require that the LiveAction appliance has Internet access and is able to access various websites including *https://mypeek.liveaction.com* and *https://cloudkeys.liveaction.com* using TCP over port 443. If necessary, configure a DNS server to resolve the URLs above.

Additionally, all DMS communications are initiated by the LiveAction appliance, so it is not necessary to open a port in the firewall for communications.

To use DMS to manage and configure LiveAction appliances:

1. Log into the LiveAction Customer Portal at *https://cloudkeys.liveaction.com/*.

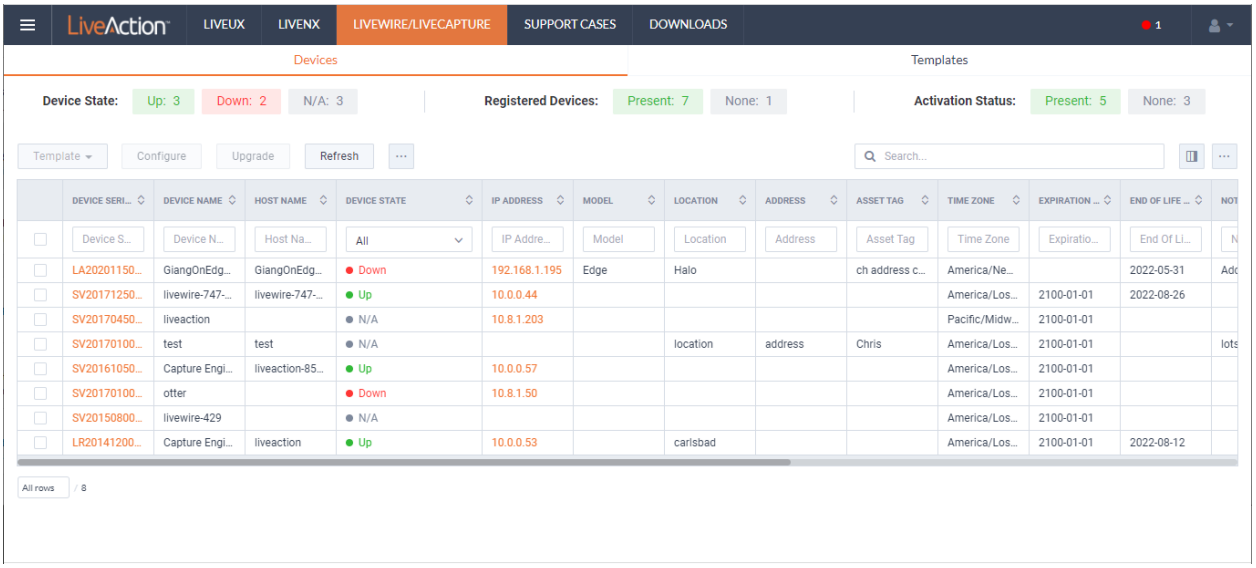
Note A link to the LiveAction Customer Portal and a temporary password is emailed to the customer whenever a LiveAction appliance is purchased. Use the customer email and temporary password to log into the customer portal. You will be required to change the temporary password upon first login.



2. Click the **LIVEWIRE/LIVECAPTURE** tab at the top of the portal to configure the appliances. The LiveAction appliances associated with the user account are displayed.

DMS Devices tab

The DMS Devices tab displays the LiveCapture devices associated with user's account. A description of each of the available options and settings in the *Devices* tab is provided below:



Device State

The *Device State* displays whether the device is able to connect to the DMS portal.

- *Up*: Displays the number of devices that were able to connect the DMS portal.
- *Down*: Displays the number of devices the DMS portal has not heard from in the last two intervals. The default interval is 10 minutes.
- *N/A*: Displays the number of devices that are not available to the DMS portal.

Registered Devices

The *Registered Devices* displays the number of devices that have registered with the DMS portal.

- *Present*: Displays the number of devices that have registered with the DMS portal.
- *None*: Displays the number of devices that have not registered with the DMS portal.

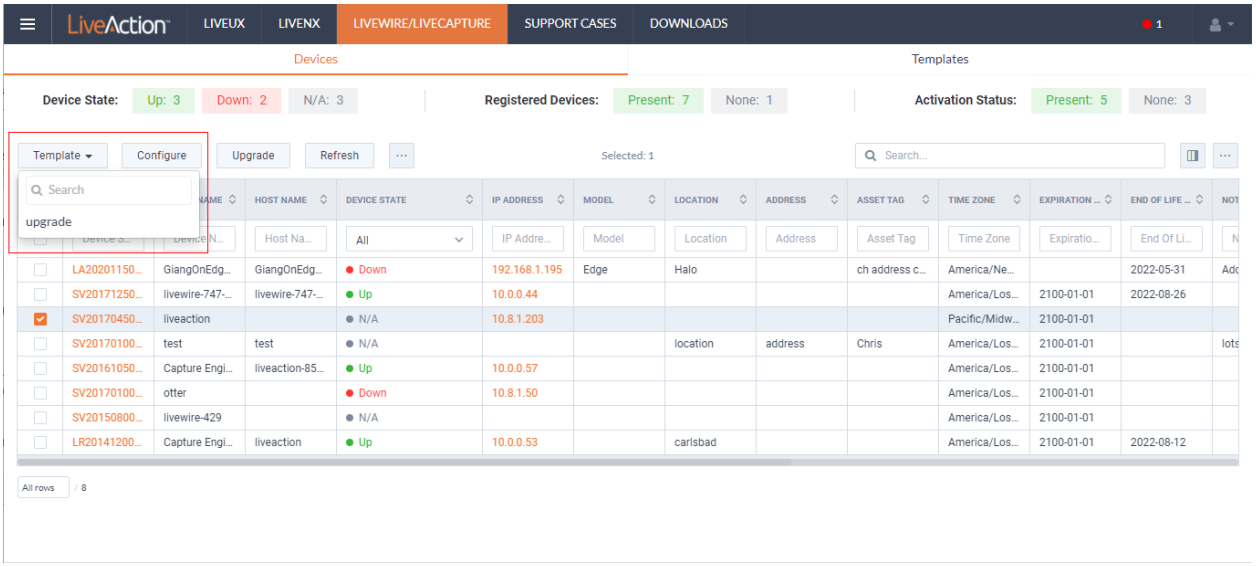
Activation Status

The *Activation Status* displays the number of devices that have been activated.

- *Present*: Displays the number of devices that have been activated with the DMS portal.
- *None*: Displays the number of devices that have not been activated with the DMS portal.

Template

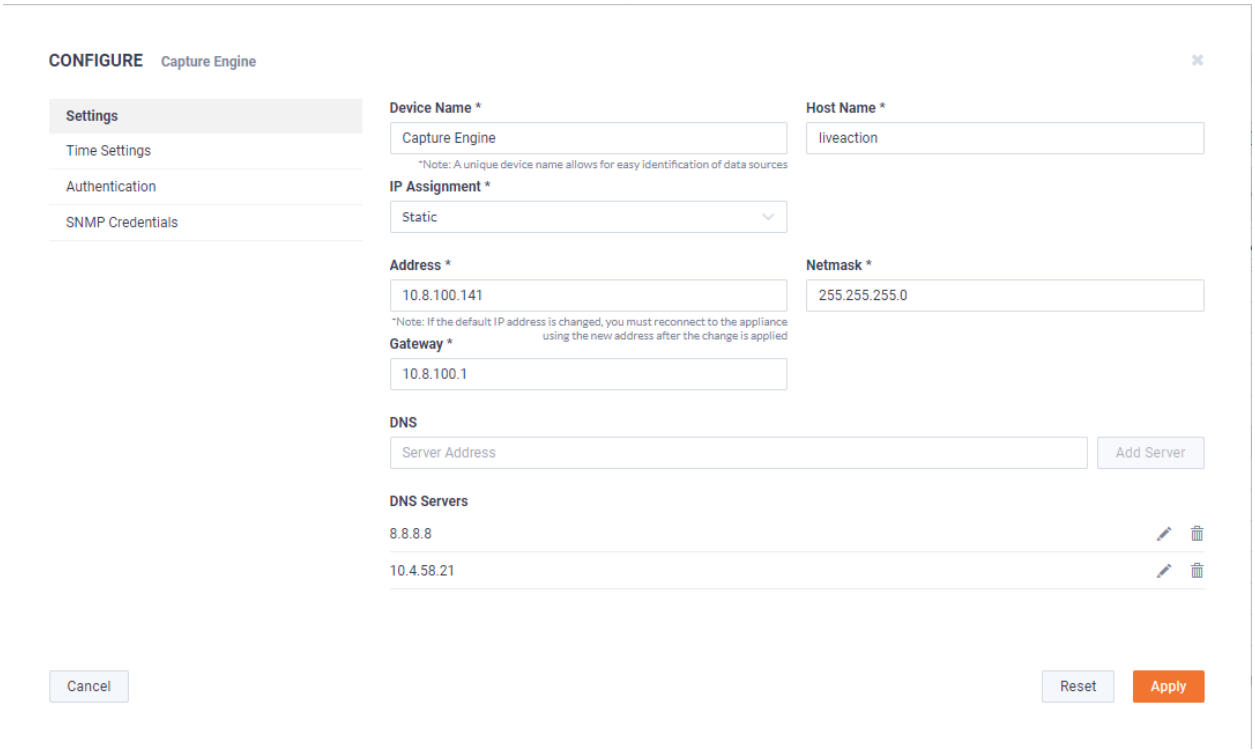
Click the **Template** button to select a template to apply to the selected devices. Templates allow you to apply version-specific settings to one or more devices. To create a template or modify an existing template, see *DMS Templates tab* on page 52.



Configure

Click the *Configure* button to configure the selected devices. If multiple devices are selected, certain configuration options will not be available and greyed out; for example, the *Device Name*. There are tabs available for configuring *Settings*, *Time Settings*, and *Authentication*.

Settings



- *Device Name*: Displays the unique name given to the device. Type a new name to change the name.
- *Host Name*: Displays the host name of the device used by DNS. Type a new name to change the name.
- *IP Assignment*: Displays the current IP assignment for the device. You can select either *DHCP* or *Static*. If the IP Assignment is *DHCP*, then the IP assignment is configured automatically via the DHCP server. If the IP Assignment is *Static*, then the options below are available:

Important! LiveCapture is pre-configured to obtain an IP address automatically from a DHCP server; however, we strongly recommend the use of a static IP address for LiveCapture. If DHCP is selected as the *IP Assignment*, and if the address should change on a new DHCP lease, then the user must look up the new IP address assigned to LiveCapture.

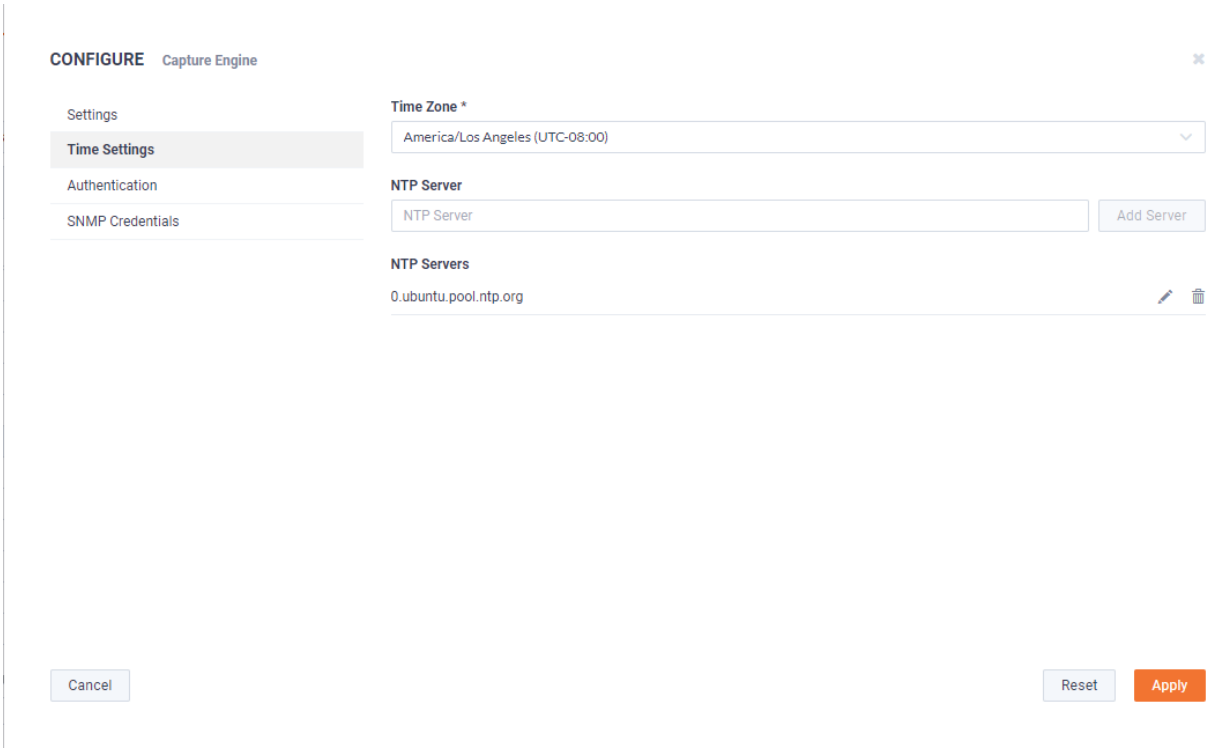
Note If *DHCP* is selected, you have approximately two minutes to connect LiveCapture to your network in order for the DHCP server to assign an IP address. If an IP address is not assigned to LiveCapture by the DHCP server within two minutes of being connected to the network, LiveCapture defaults to a static address of 192.168.1.21. Please make sure LiveCapture is connected to your network within the two minute time period from the time you click **Apply**. If you reboot LiveCapture, the two minute clock is also reset.

- *Address*: Displays the IP address assigned to the device. Type a new address to change the IP address.
- *Netmask*: Displays the netmask address assigned to the device. A netmask address, combined with the IP address, defines the network associated with device. Type a new address to change the netmask address.
- *Gateway*: Displays the gateway address, also known as 'default gateway,' assigned to the device. When the device does not have an IP route for the destination, the IP packet is sent to this address as it does not know how to direct it locally. Only a single default gateway can be defined. Type a new address to change the gateway address.

- *DNS*: Enter the address of any DNS (Domain Name Server) servers to add to the configuration. A Domain Name Server translates domain names (e.g., www.liveaction.com) into an IP address. To add a DNS server, enter the address of the server, and click **Add Server**. Multiple DNS name servers can be defined. You can also edit or delete any defined DNS servers.
- *Add Server*: Click to add the DNS server to the configuration.
- *DNS Servers*: Displays the DNS servers added to the configuration.
- *Edit DNS*: Click to edit or update the DNS server in the configuration.
- *Delete DNS*: Click to delete the DNS server from the configuration.

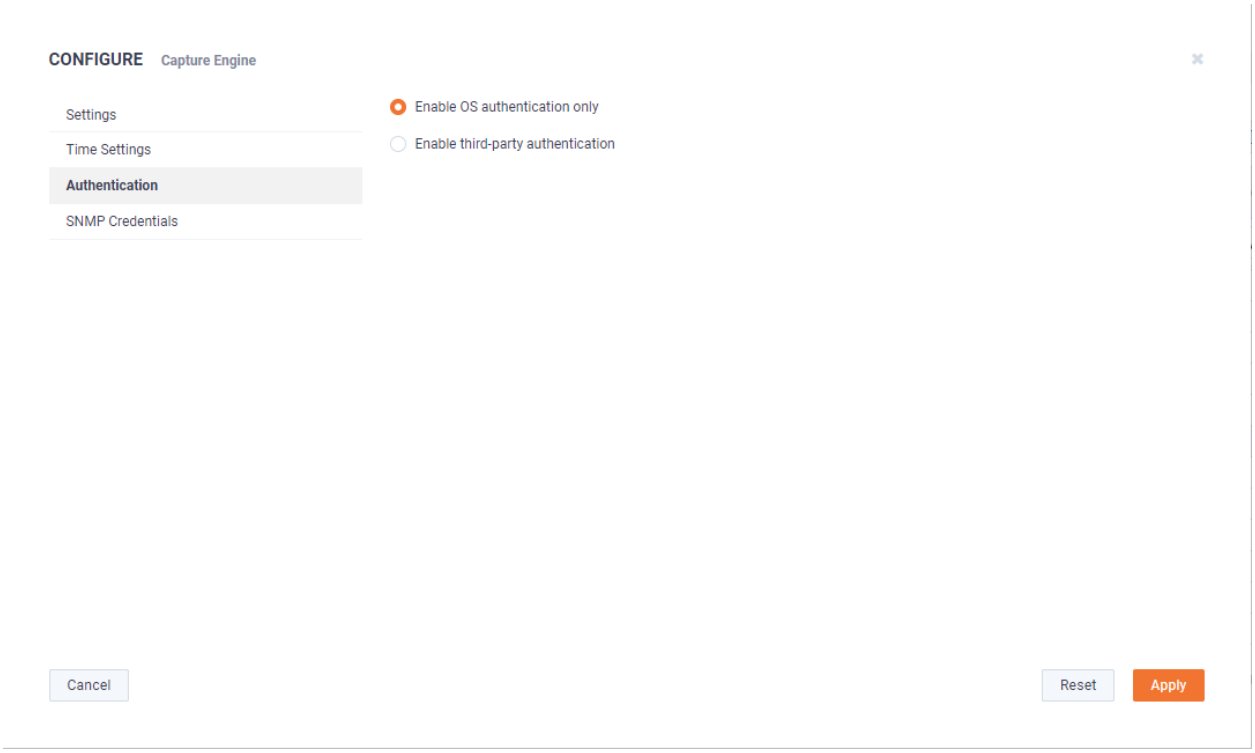
- *DHCP Timeout*: Displays the amount of time (in seconds) the device will wait for a DHCP address.

Time Settings



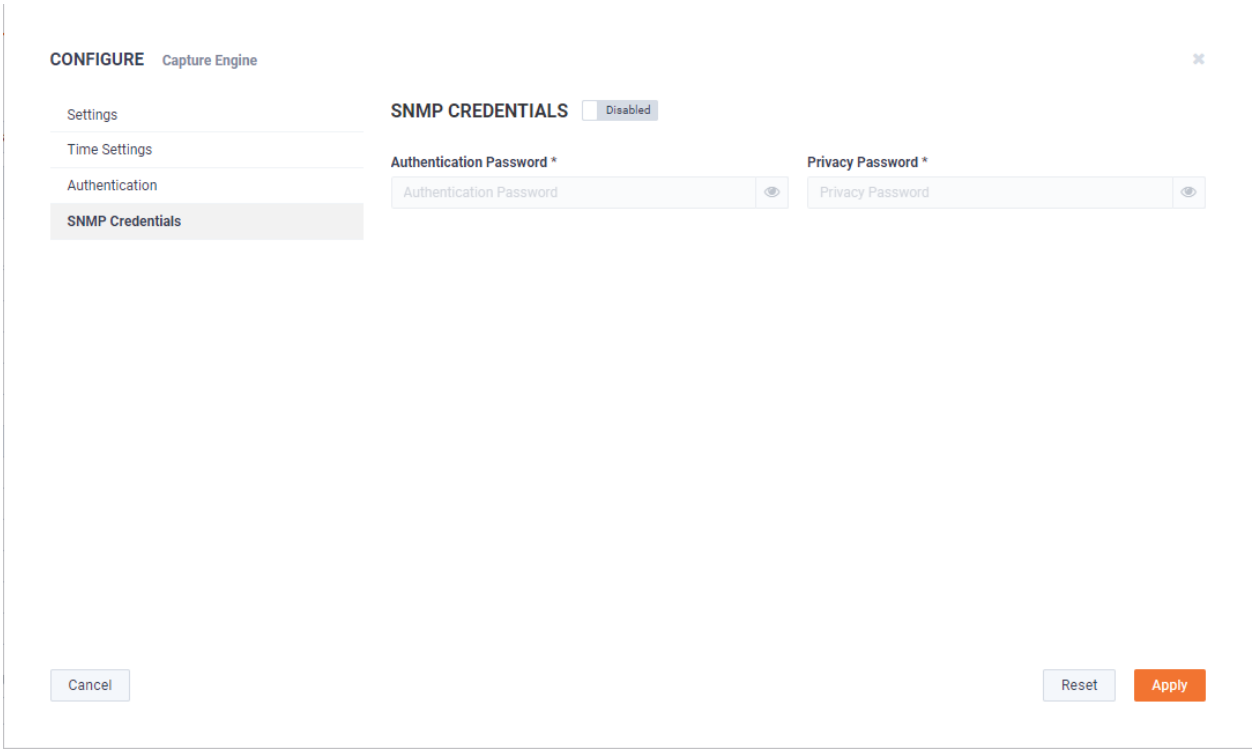
- *Time Zone*: Displays the time zone of the device. Select a different time zone to change the time zone.
- *NTP Server*: Enter the address of any NTP servers to add to the configuration, and then click **Add Server**.
- *NTP Servers*: Displays the list of NTP servers added to *Time Settings*. You can click the **Edit** icon to edit an NTP server in the list, or click the **Trash** icon to remove an NTP server from the list.

Authentication



- *Enable OS authentication only*: Select this option to use the local OS authentication.
- *Enable third-party authentication*: Select this option to use TACACS+ or RADIUS authentication. If this option is selected, click **Add** to configure the new authentication setting.
  - *Add*: Click to add a new authentication setting. You will need to configure the new authentication setting.
  - *Search*: Enter the text string to search the list of authentication settings.
  - *Name*: Displays the name of the authentication setting.
  - *Type*: Displays the type of authentication, which can be either 'RADIUS' or 'TACACS+.'
  - *Host*: Displays the host of the authentication setting.
  - *Port*: Displays the port of the authentication setting.
  - *Secret*: Displays the secret key of the authentication setting.
  - *In Use*: Displays whether or not the authentication setting is in use.
  - *Action*: Click the *Edit* icon to edit the authentication setting, or click the *Trash* icon to delete the authentication setting.
  - *Apply*: Click to save the authentication setting.

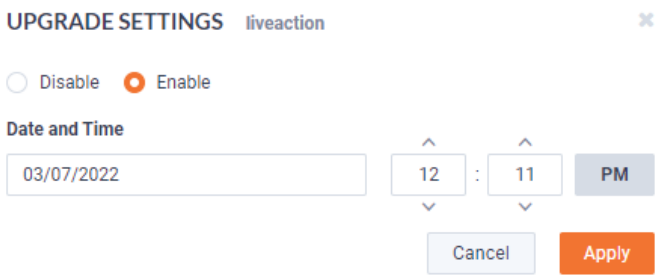
SNMP Credentials



- *Enabled/Disabled*: Select to enable or disable the *SNMP Credentials* configured below for the *Authentication Password* and *Privacy Password*.
- *Authentication Password*: Type a new *Authentication Password* to change it from the default Authentication Password displayed in 'LiveNX SNMP Configuration' in *LiveFlow* on page 87.
- *Privacy Password*: Type a new *Privacy Password* to change it from the default Authentication Password displayed in 'LiveNX SNMP Configuration' in *LiveFlow* on page 87.

Upgrade

Click the **Upgrade** button to upgrade the selected appliance remotely through the DMS. The version that the appliance is upgraded to is the latest shipping version of the appliance. There is no capability to upgrade to a previously released version.



- *Disable*: Select to disable the upgrade on the selected devices.
- *Enable*: Select to enable the upgrade on the selected devices. If you enable the upgrade, you are presented with settings to specify the date and time the upgrade should take place. Because all communications are initiated from the device once every ten minutes, the upgrade will happen as the result of the device communicating with the network, sometime on or after the selected time.

- *Apply*: Click to save the changes to the selected devices.

Refresh

Click the **Refresh** button to refresh the list of devices.

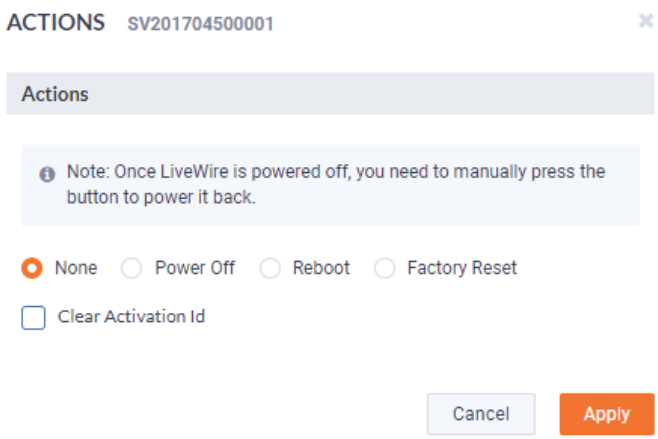
Elipsis (...)

Click the **Elipsis** (...) to view the following options:

- Power and Reset
- Change Password
- Edit Additional Info
- Backup Settings
- Restore Backup
- Share
- Create Template
- Compare Configurations
- iDRAC Settings

Power and Reset

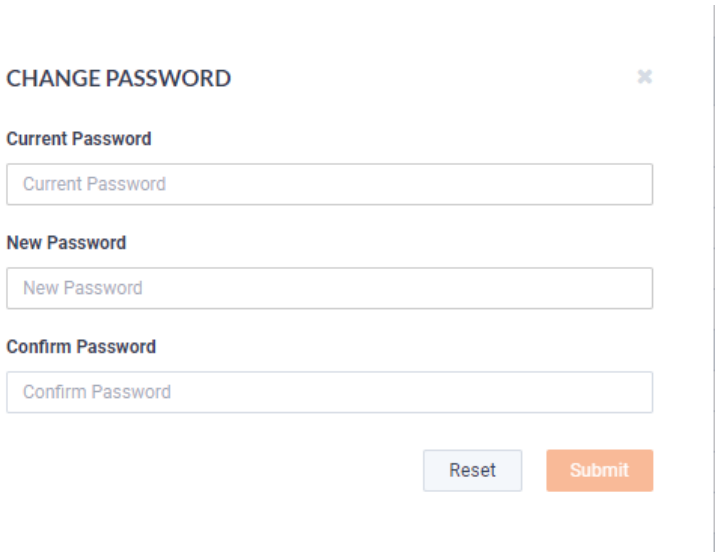
Select the *Power and Reset* option to perform the actions below on the device.



- *None*: Select to not perform an action on the selected appliances.
- *Power Off*: Select to power off the selected device. Once the device is powered off, you must manually press the power-on button on each of the devices to power them back on.
- *Reboot*: Select to reboot the selected appliances.
- *Factory Reset*: Select to reset the selected appliances to their factory default settings.
- *Clear Activation ID*: Select the check box to clear the activation ID.

Change Password

Select the *Change Password* option to change the password of the selected devices.

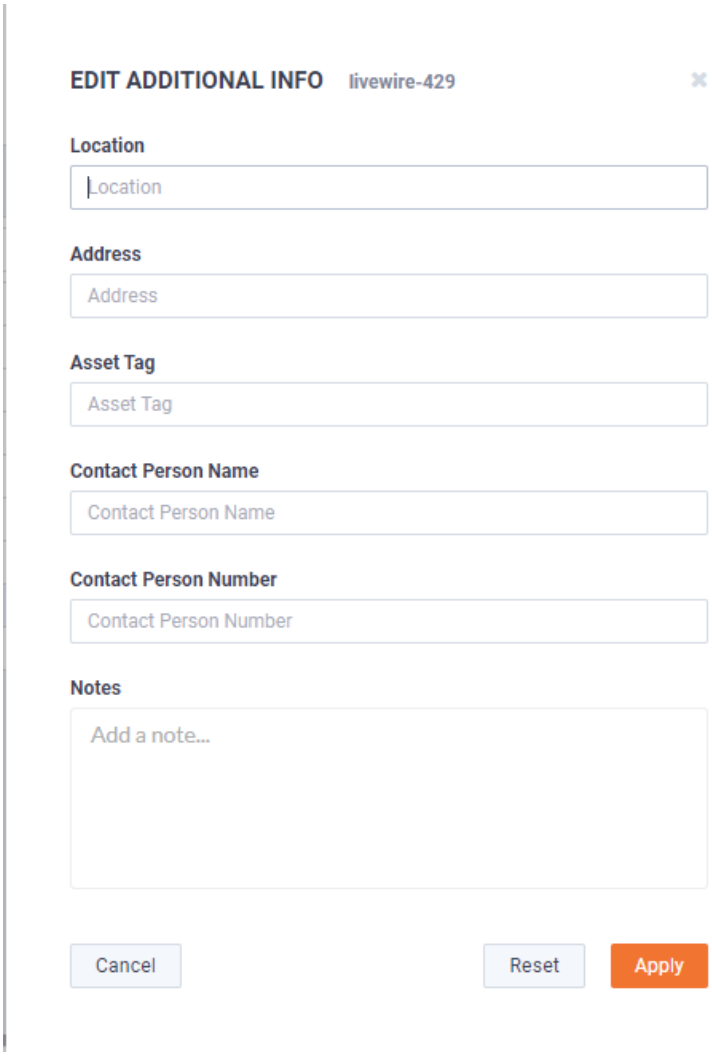


- *Current Password*: Enter the current password.
- *New Password*: Enter the new password. The new password must meet the following requirements:

  Must have 5 different characters than the last password.
  Must be at least 6 characters.
  Must contain at least 1 number
  Must contain at least 1 uppercase character.
  Must contain at least 1 lowercase character.
  Must contain at least 1 special character.
- *Confirm Password*: Enter the new password again.

Edit Additional Info

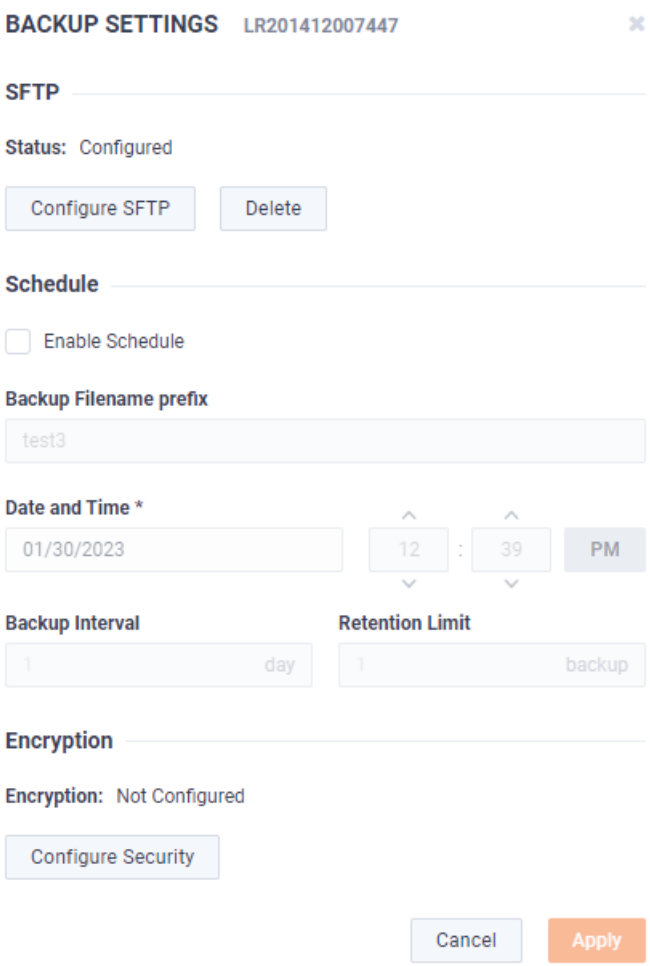
Select *Edit Additional Info* to edit various settings of the selected devices.



- *Location*: Displays the general location of the device. Type a new location to change the location. We suggest entering the physical location of the device for the organization. For example, 'Office.'
- *Address*: Displays the mailing address of the device. For example, 123 Main St., New York, NY. Type a new address to change the address.
- *Asset Tag*: Displays the asset tag of the device. Type a new asset tag to change the asset tag.
- *Contact Person Name*: Displays the contact person of the device. Type a new name to change the contact person.
- *Contact Person Number*: Displays the phone number of the contact person. Type a new number to change the phone number.
- *Notes*: Displays any notes for the device. Type any new notes to update the notes.
- *Reset*: Click to clear the *Edit Additional Info* values.
- *Apply* Click to apply the additional info to the device.

Backup Settings

Select *Backup Settings* to set up and configure a backup for the selected device. See *Backup and restore* on page 61 for instructions on performing an actual backup.



SFTP

- *Configure SFTP*: Click to configure the SFTP (Secure FTP) server for the backup.
  - *Hostname*: Type the IP address of the SFTP server.
  - *Port*: Type the port used for the SFTP Server.
  - *Username*: Type a username.
  - *Password*: Type a password for the SFTP server.
  - *Directory*: Type the directory where backups are saved on the SFTP server.
- *Delete*: Click to delete the configured SFTP server for the backup.

Schedule

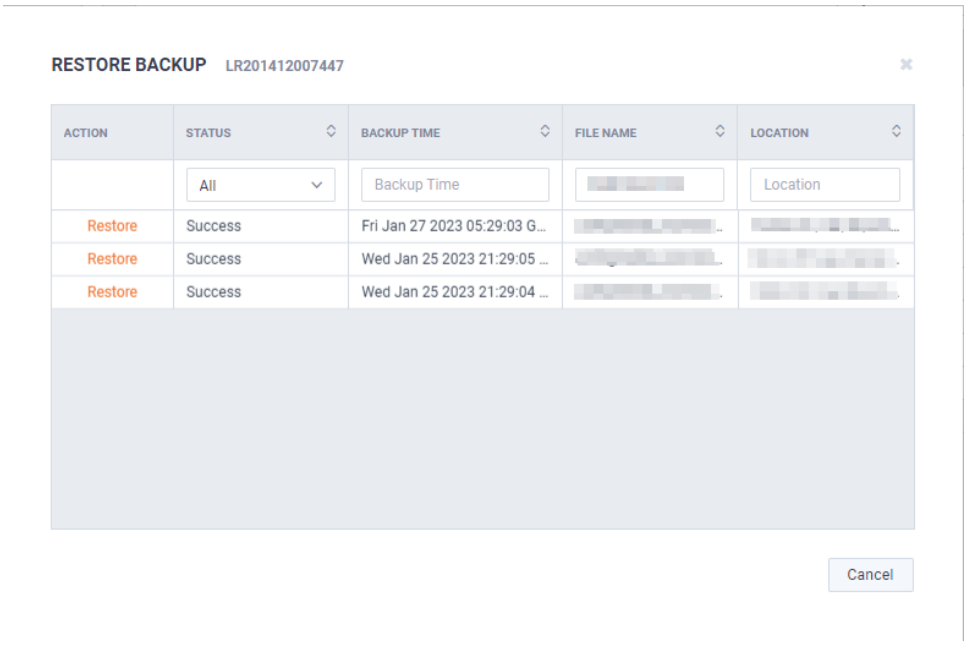
- *Enable Schedule*: Click to enable scheduling for the backup.
- *Backup Filename prefix*: Type a prefix filename for the backup. Each scheduled backup that is created will append the prefix to the beginning of the backup filename.
- *Date and Time*: Click to configure the date and time the backup will complete.
- *Backup Interval*: Type the number of days between YADA.
- *Retention Limit*: Type the number backups to YADA.

Encryption

- *Encryption*: Displays whether or not encryption is configured for each scheduled backup.
- *Configure Security*: Click to configure security settings to encrypt each scheduled backup.
  - *Encrypt backups*: Select this option to encrypt each scheduled backup.
  - *Password*: Type the password to YADA. The password must be YADA
  - *Repeat Password*: Tye the password again to verify the password.

Restore Backup

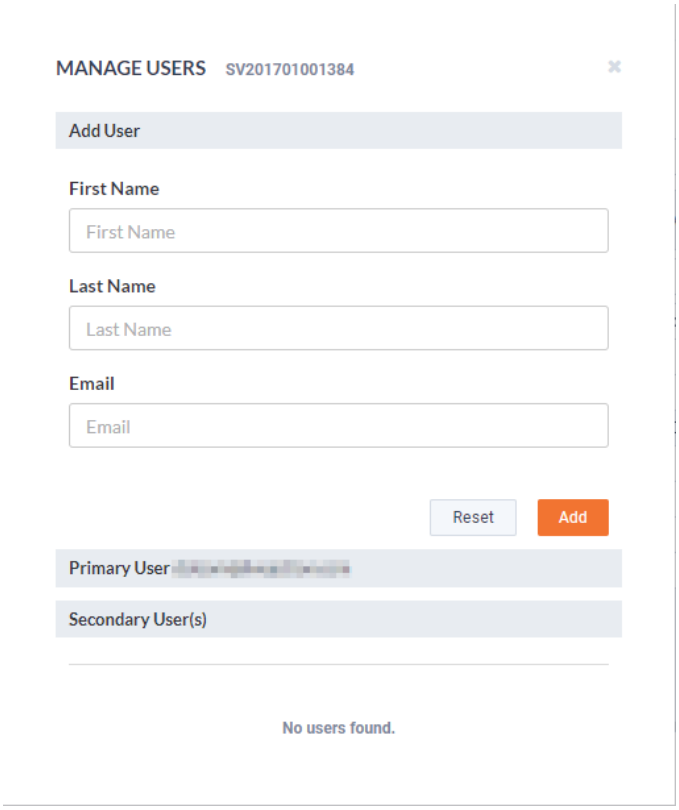
Select *Restore Backup* to restore a backup from an earlier backup. See *Backup and restore* on page 61 for instructions on performing an actual restore.



- *Action*: Click **Restore** to restore a backup for the device. You will need to select to restore either *Application Settings* or *Application and System Settings*.
  - *Application Settings*: Select this option to restore all application settings and customizations, including capture templates, filters, graphs, alarms, notifications, name table, SSL certificates, and custom plugins. .
  - *Application and System Settings*: Select this option to restore all application settings and customizations, including capture templates, filters, graphs, alarms, notifications, name table, SSL certificates, and custom plugins. Additionally, all system settings are restored and include all new and/or updated users, SNMP, NTP, network, time zone, and host customizations.
  - *Password*: Type the password of the backup you are restoring.
  - *Restore*: Click to perform the restore.
- *Status*: Displays the status of the backup.
- *Backup TIme*: Displays the date and time the backup was completed
- *File Name*: Displays the name of the backup.
- *Location*: Displays the location of the backup.

Share

Select the *Share* option to share the selected devices with other users who manage and configure appliances. You will need to add a user by completing the *Manage Users* dialog.



- *First Name*: Type the first name of the user.
- *Last Name*: Type the last name of the user.
- *Email*: Type the email address of the user.
- *Reset*: Click to clear the *Add User* values.
- *Add*: Click to add the user to the list of secondary users.
- *Primary User*: Displays the primary user of the device when the device was registered with LiveAction. If multiple appliances are selected in the list of devices, the *Primary User* is not displayed.
- *Secondary User(s)*: Displays any secondary users assigned to the device. If multiple appliances are selected in the list of devices, the *Secondary User(s)* are not displayed.

Create Template

Select the *Create Template* option to create a template based on the configuration of the selected device. Once created, the template can be selected when you click the **Template** button. See also *Template* on page 37 and *DMS Templates tab* on page 52.

Compare Configurations

Select the *Compare Configurations* option to compare details between two selected devices. This option is available only when two devices are selected.

iDRAC Settings

Select the *iDRAC Settings* option to configure various options for that would normally be configured by using the iDRAC utility on . See also *Integrated Remote Access Controller (iDRAC)* on page 66.

Note Only selected options available from the iDRAC utility are available and configurable below.

- *Hostname*: Displays the *Hostname* of the device. Type a new *Hostname* to change it.
- *Domain Name*: Displays the *Domain Name* of the device. Type a new *Domain Name* to change it.
- *Time Zone*: Displays the *Time Zone* of the device. Select a new *Time Zone* to change it.
- *DNS Server 1*: Displays the *DNS Server* used by the device. Enter a new *DNS Server* to change it.
- *DNS Server 2*: Displays the *DNS Server* used by the device. Enter a new *DNS Server* to change it.
- *Web Server TLS Version*: Displays the TLS protocol version support used by the device. You can select from the following: TLS 1.1 and Higher, TLS 1.2 and Higher, and TLS 1.3
    - *Host Header Check*: Select to enable *Host Header Check* requests.

Network Settings:

- *NIC IP Address*: Displays the static *NIC IP Address* of the device. Type a new *NIC IP Address* to change it.
- *NIC Gateway*: Displays the *NIC Gateway* of the device. Type a new *NIC Gateway* to change it.
- *NIC Subnet Mask*: Displays the *NIC Subnet Mask* of the device. Type a new *NIC Subnet Mask* to change it.

Authentication:

- *Username*: Displays the *Username* of the device. Type a new *Username* to change it.
- *Password*: Configures the *Password* of the device. Type a new *Password* to change it.

Update Settings:

- *Enable Updates*: Select to enable updates on the device. If enabled, you must configure the Update Proxy Server, Update Proxy User, and Update Proxy Password.
- *Update Proxy Server*: Displays the *Update Proxy Server* of the device. Type a new *Update Proxy Server* to change it.
- *Update Proxy User*: Displays the *Update Proxy User* of the device. Type a new *Update Proxy User* to change it.
- *Update Proxy Password*: Displays the *Update Proxy Password* of the device. Type a new *Update Proxy Password* to change it.

SNMP:

- *Enable SNMP*: Select to enable the SNMP Agent on the iDRAC. If enabled, you must configure the *SNMP Community.*
    - *SNMP Community*: Configures the *SNMP Community* name used for SNMP Agents. Type a new *SNMP Community* name to change it
- *Enable SNMP Alert 1*: Select to enable the *SNMP Alert 1* on the iDRAC. If enabled, you must configure the *Alert 1 Target Address*.
    - *Alert 1 Target Address*: Displays the IPv4, IPv6, FQDN address, or hostname of the target destination to receive alerts. Must be valid IPv4, IPv6, FQDN address, or hostname.
- *Enable SNMP Alert 2*: Select to enable the *SNMP Alert 2* on the iDRAC. If enabled, you must configure the *Alert 2.* If enabled, you must configure the *Alert 2 Target Address*.
    - *Alert 2 Target Address*: Displays the IPv4, IPv6, FQDN address, or hostname of the target destination to receive alerts. Must be valid IPv4, IPv6, FQDN address, or hostname.

NTP:

- *Enable NTP*: Select to enable an *NTP* server on the iDRAC. If enabled, you must configure the *NTP Server*.

- *NTP Server*: Displays the name or IP address of the *NTP Server*. Type a new name or IP address to change it.

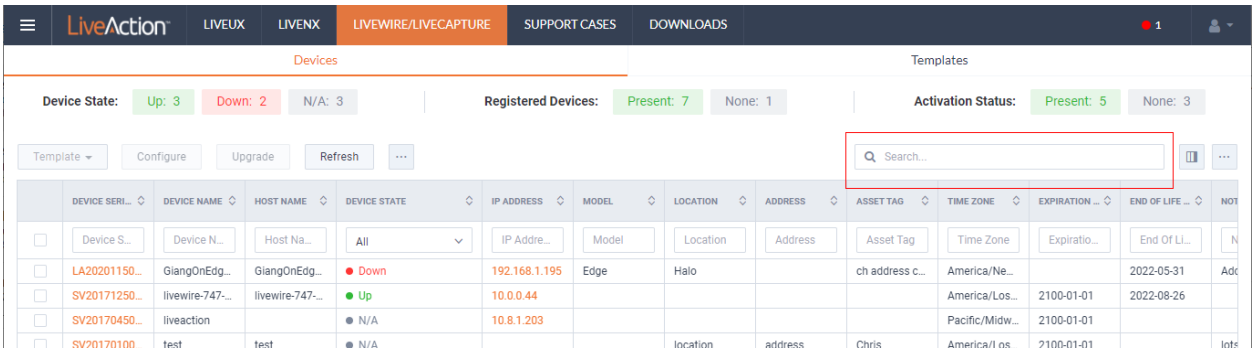
Event Filters:

- *Alert*: Displays any iDRAC Event filters configured for the device.
- *Add*: Click to add a new Event filter configured in the text box. You must provide any parameters by defining what you want to be alerted to and how you want to be notified. You can configure as may event filter commands as you want. The general format of an alert category:

  idrac.alert.category.[subcategory].[severity]

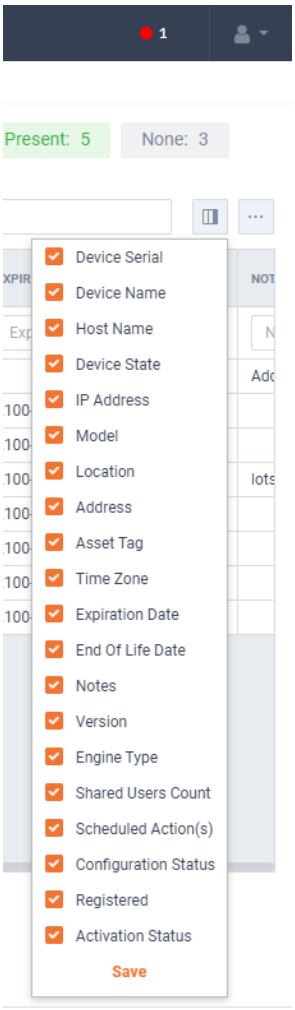
Search

Use the *Search* field to locate a specific device in the list of devices. Simply enter a text string to display all appliances that match the text string.



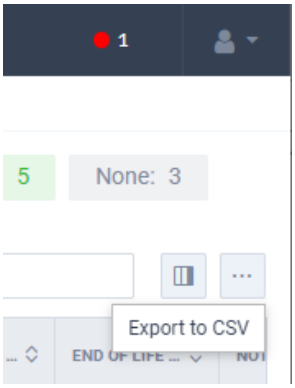
Display Columns

Click the **Display Columns** icon and then select the columns you want to display in the list of devices.



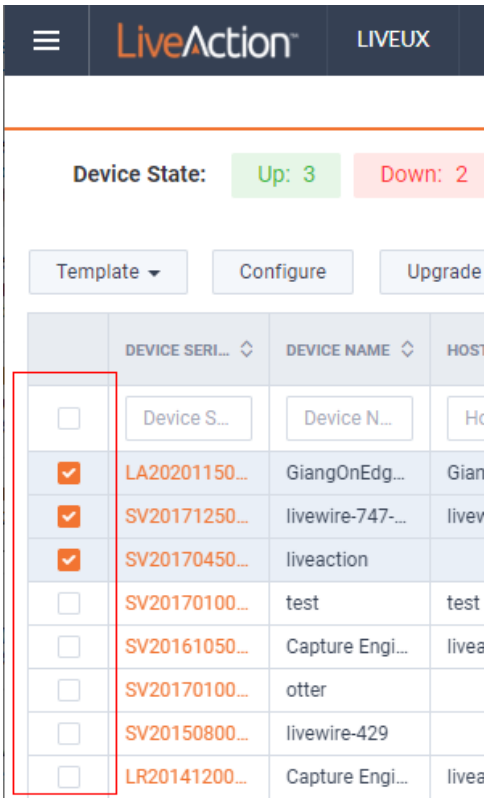
Export to CSV

Click the **Export to CSV** icon (...) to display an option for exporting the list of devices to a *.csv* file.



Check Box

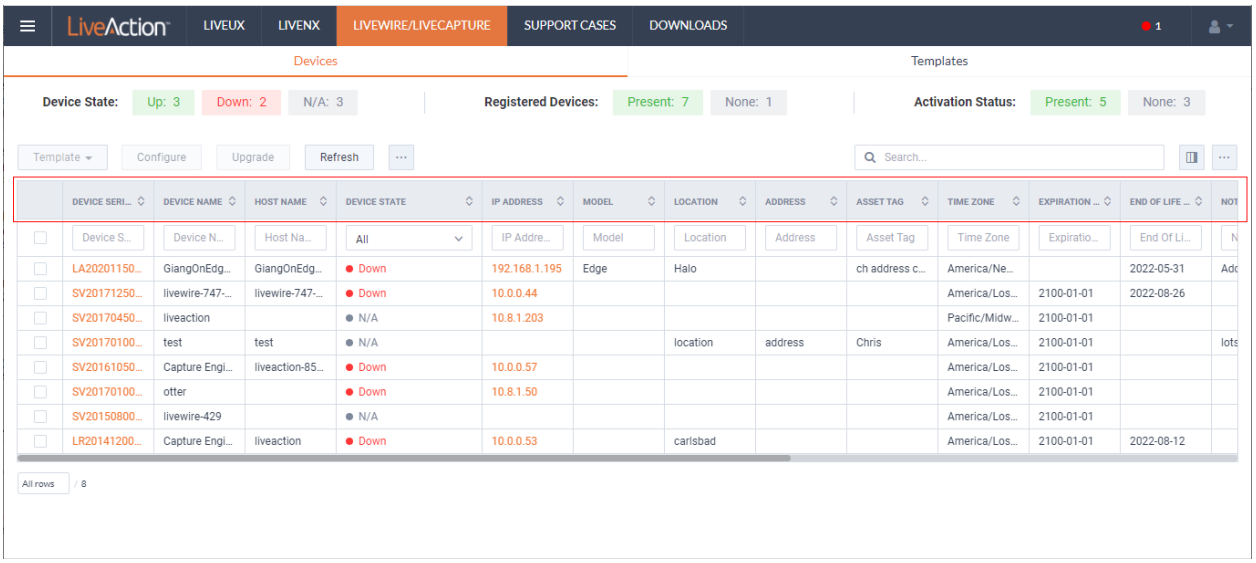
To select a device in the list of devices, select the check box of the desired devices. Selecting the check box at the top of the column allows you to select or clear the check boxes of all devices in the list of devices.



Devices column headings

Descriptions of the columns displayed in the list of devices are provided below.

Tip Below each of the column headings is either a text box or list box that you can use to filter the devices displayed in the list of Devices. To filter using the text box, simply enter a text string to display the devices that match the text string. To filter using a list box, click the box and select an option to display the devices that match that option.

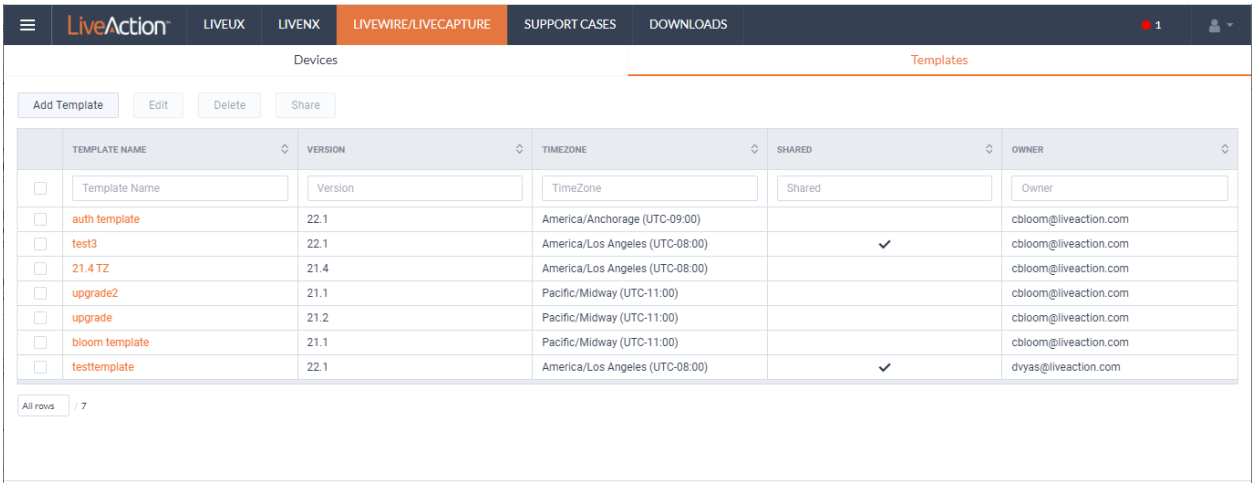


- *Device Serial*: Displays the serial number of the device.
- *Device Name*: Displays the name of the device.
- *Host Name*: Displays the host name of the device used by DNS.

- *Device State*: Displays whether the device is *Up* or *Down*. A device is up if it has contacted the DMS in the last 25 minutes.
- *IP Address*: Displays the IP address of the device. The *IP Address* value is a link which can be used to connect directly to Omnipeek running on the device. This makes it easy to use the DMS as a launch pad to access all of the devices being managed. It can also be used to discover the *IP Address* in the case where the device is set to DHCP, or for some other reason the *IP Address* is not known. The *IP Address* is provided by the device every time the device connects back to the portal, which by default is every 10 minutes. This way, if the *IP Address* of the device changes, the *IP Address* value displayed in the DMS portal will reflect that.
- *Model*: Displays the model of the device (*Edge*, *1100*, *3100*, or *Virtual*).
- *Location*: Displays the location of the device.
- *Address*: Displays the address of the device. Typically, this is the mailing address where the device is located.
- *Asset Tag*: Displays the asset tag of the device.
- *Time Zone*: Displays the time zone of the device.
- *Expiration Date*: Displays the date that the maintenance on the device will expire. Once the expiration date has passed, you can still access the DMS and use it to manage most of the device configuration; however, until the maintenance is renewed, the device cannot be upgraded to a newer version. As LiveAction releases new versions a few times a year with significant improvements, we recommend keeping the devices up to date with the latest releases of the software.
- *End Of Life Date*: Displays the date for when the device should be replaced.
- *Notes*: Displays any notes entered for the device.
- *Version*: Displays the version number of the software installed on the device.
- *Engine Type*: Displays the type of device, which can be *LiveWire*, *LiveCapture*, or *LiveWire Virtual*.
- *Shared Users Count*: Displays the number of secondary users that have access to the device.
- *Scheduled Action(s)*: Displays any 'Actions' scheduled for the device.
- *Configuration Status*: Displays any status associated with configuration of the device.
- *Registered*: Displays a check mark if the device has been registered with LiveAction.
- *Activation Status*: Displays a check mark if the license on the device is valid and not expired.

DMS Templates tab

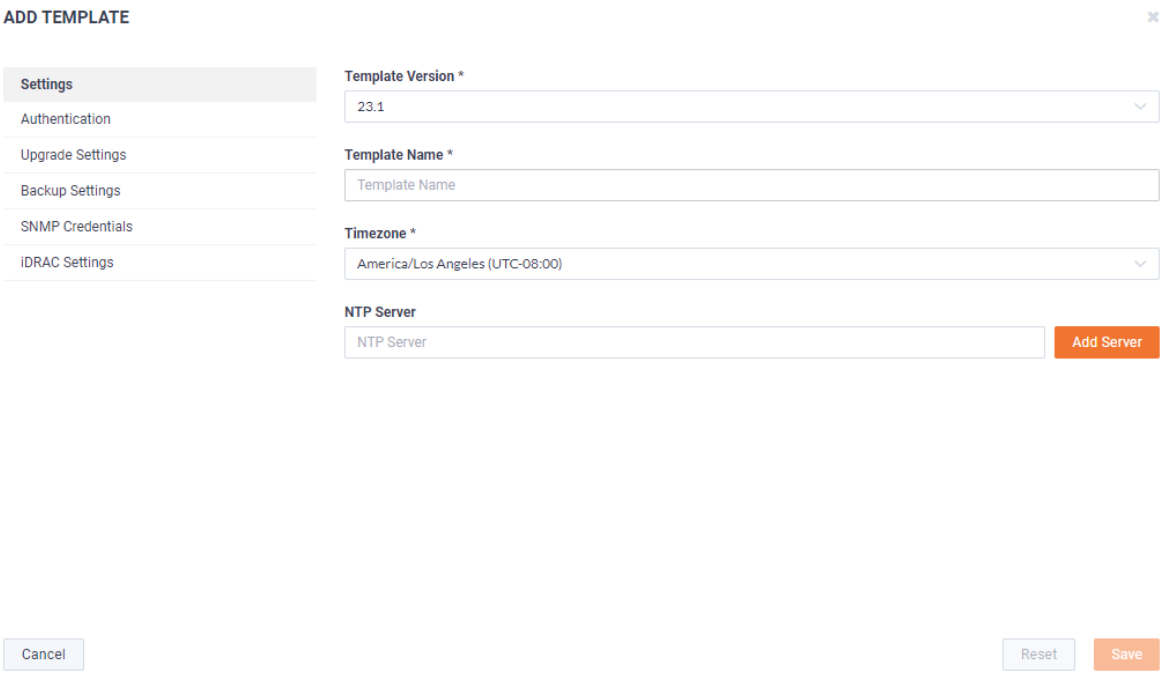
The DMS *Templates* tab displays the templates associated with your account. Templates allow you to configure settings independent of a particular device, and then apply the template, and thus the settings, to a device, or multiple devices in bulk at the same time. A description of each of the available options and settings in the *Templates* tab is provided below:



Add Template

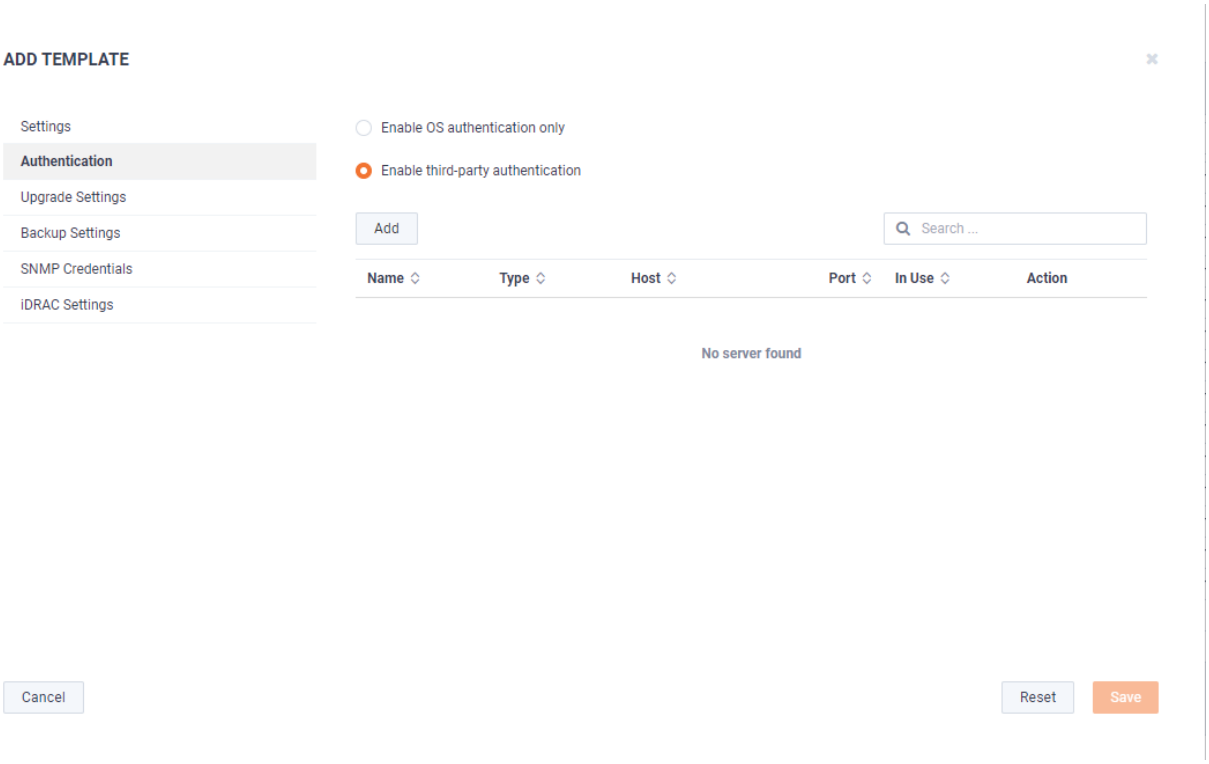
Click the **Add Template** button to display the *ADD TEMPLATE* dialog to add a new template to the configuration.

Settings



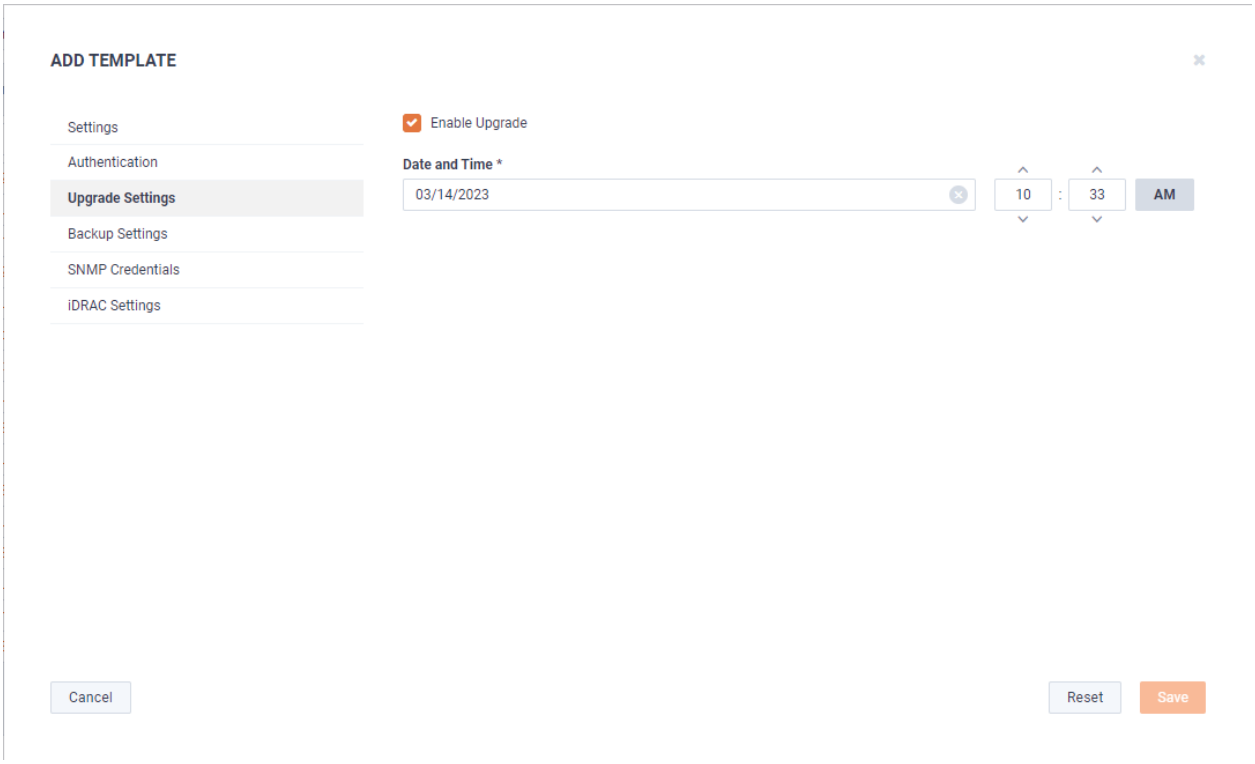
- *Template Version*: Click to select the version of the template you are configuring.
- *Template Name*: Type a name for the template.
- *Timezone*: Click to select the timezone for the template.
- *NTP Server*: Enter the address of any NTP servers to add to the configuration, and then click **Add Server**.
- *NTP Servers*: Displays the list of NTP servers added to *Settings*. You can click the **Edit** icon to edit an NTP server in the list, or click the **Trash** icon to remove an NTP server from the list.

Authentication



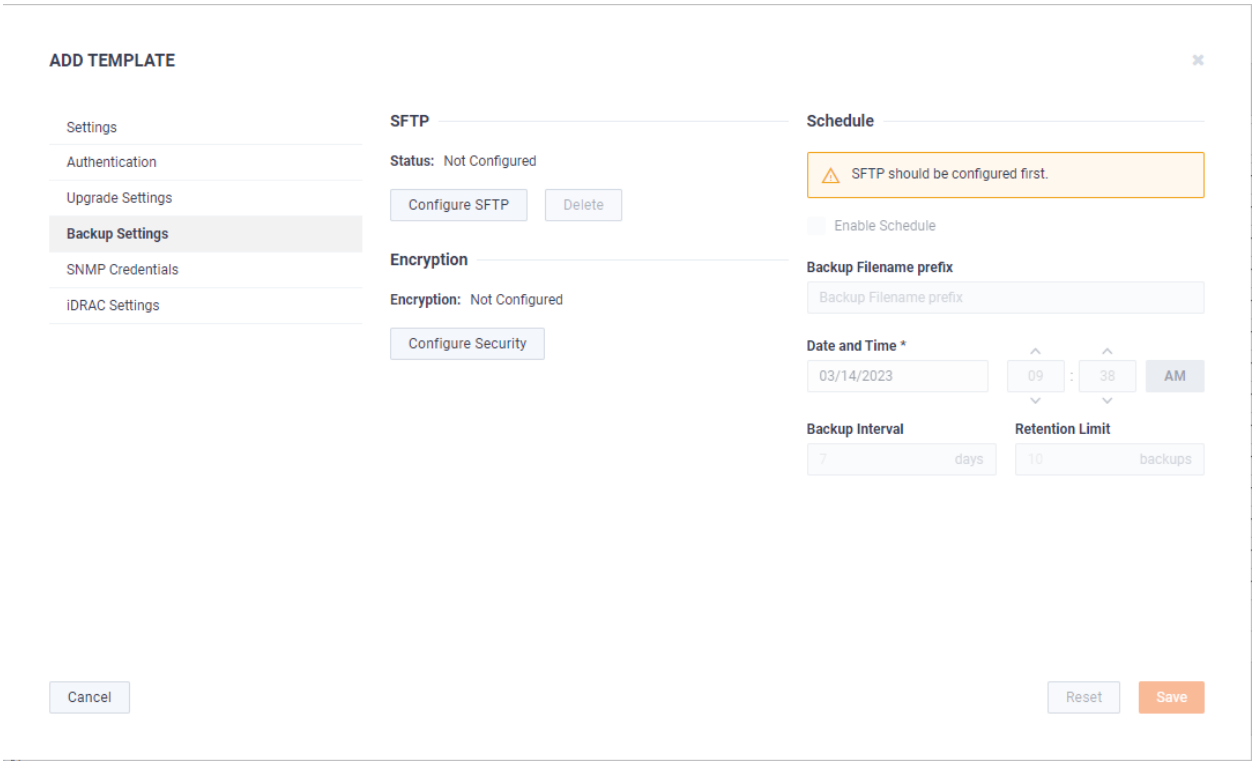
- *Enable OS authentication only*: Select this option to use the local OS authentication.
- *Enable third-party authentication*: Select this option to use TACACS+ or RADIUS authentication. If this option is selected, click **Add** to configure the new authentication setting.
  - *Add*: Click to add a new authentication setting. You will need to configure the new authentication setting.
    - *Name*: Displays the name of the authentication setting.
    - *Type*: Displays the type of authentication, which can be either 'RADIUS' or 'TACACS+.'
    - *Host*: Displays the host of the authentication setting.
    - *Port*: Displays the port of the authentication setting.
    - *Secret*: Displays the secret key of the authentication setting.
    - *Use*: Displays whether or not the authentication setting is in use.
    - *Save*: Click to save the authentication setting.
  - *Search*: yadayada.

Upgrade Settings



- *Enable Upgrade*: Select to enable the upgrade on the selected templates. If you enable the upgrade, you are presented with settings to specify the date and time the upgrade should take place.

Backup Settings



SFTP

- *Configure SFTP*: Click to configure the SFTP (Secure FTP) server for the backup.
  - *Hostname*: Type the IP address of the SFTP server.

- *Port*: Type the port used for the SFTP Server.
- *Username*: Type a username.
- *Password*: Type the password again to verify the password.
- *Directory*: Type the directory where backups are saved on the SFTP server.

- *Delete*: Click to delete the configured SFTP server for the backup.

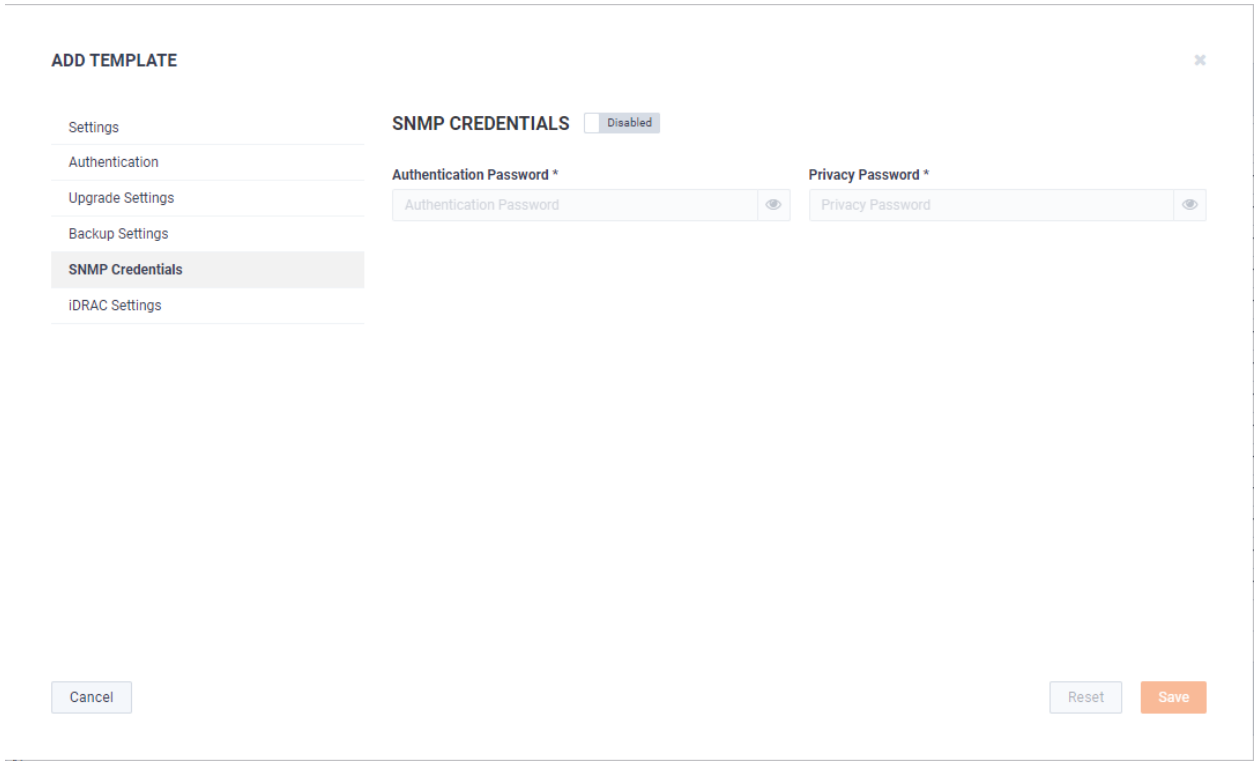
Schedule

- *Enable Schedule*: Click to enable scheduling for the backup.
- *Backup Filename prefix*: Type a prefix filename for the backup. Each scheduled backup that is created will append the prefix to the beginning of the backup filename.
- *Date and Time*: Click to configure the date and time the backup will complete.
- *Backup Interval*: Type the number of days between YADA.
- *Retention Limit*: Type the number backups to YADA.

Encryption

- *Encryption*: Displays whether or not encryption is configured for each scheduled backup.
- *Configure Security*: Click to configure security settings to encrypt each scheduled backup.
  - *Encrypt backups*: Select this option to encrypt each scheduled backup.
  - *Password*: Type the password to YADA.
  - *Repeat Password*: Tye the password again to verify the password.

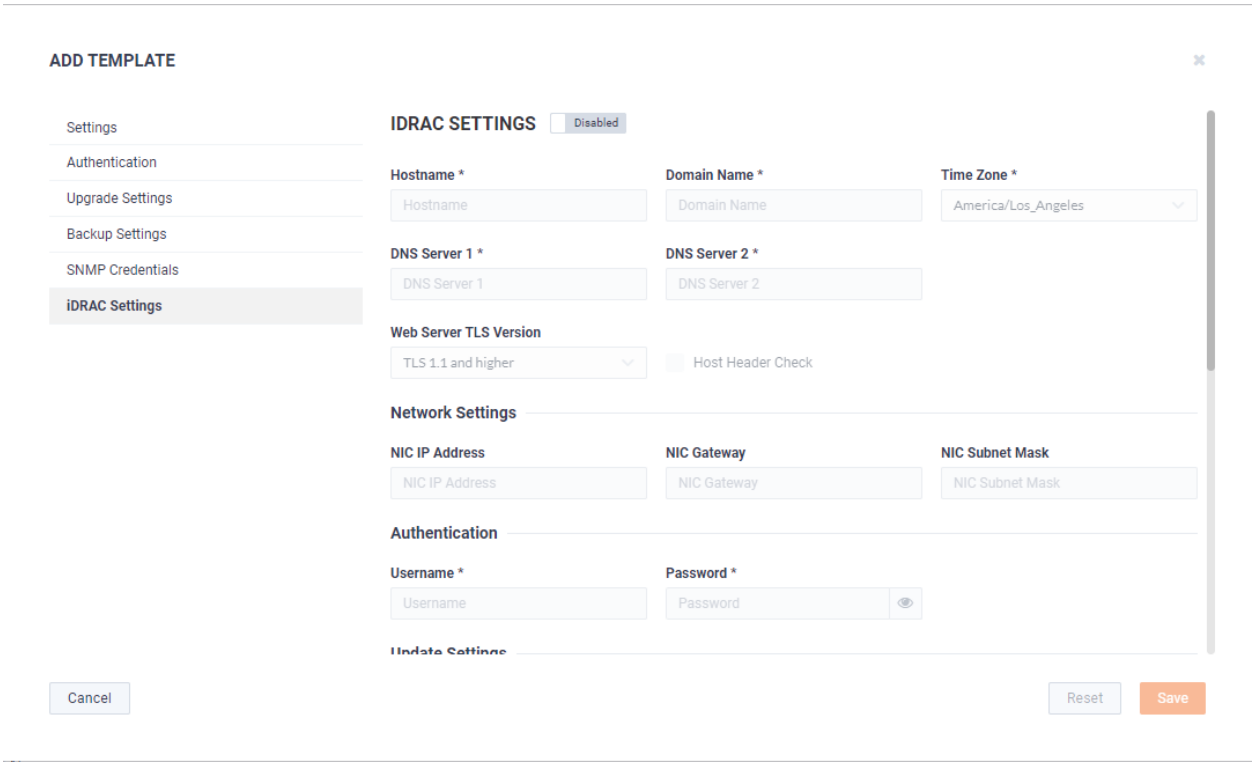
SNMP Credentials



- *Enabled/Disabled*: Select to enable or disable the *SNMP Credentials* configured below for the *Authentication Password* and *Privacy Password*.
- *Authentication Password*: Type a new *Authentication Password* to change it from the default Authentication Password displayed in 'LiveNX SNMP Configuration' in *LiveFlow* on page 87.

- *Privacy Password*: Type a new *Privacy Password* to change it from the default Authentication Password displayed in 'LiveNX SNMP Configuration' in *LiveFlow* on page 87.

iDRAC Settings



Note Only selected options available from the iDRAC utility are available and configurable below. See also *Integrated Remote Access Controller (iDRAC)* on page 66.

- *Hostname*: Displays the *Hostname* of the device. Type a new *Hostname* to change it.
- *Domain Name*: Displays the *Domain Name* of the device. Type a new *Domain Name* to change it.
- *Time Zone*: Displays the *Time Zone* of the device. Select a new *Time Zone* to change it.
- *DNS Server 1*: Displays the *DNS Server* used by the device. Enter a new *DNS Server* to change it.
- *DNS Server 2*: Displays the *DNS Server* used by the device. Enter a new *DNS Server* to change it.
- *Web Server TLS Version*: Displays the TLS protocol version support used by the device. You can select from the following: TLS 1.1 and Higher, TLS 1.2 and Higher, and TLS 1.3
    - *Host Header Check*: Select to enable *Host Header Check* requests.

Network Settings:

- *NIC IP Address*: Displays the static *NIC IP Address* of the device. Type a new *NIC IP Address* to change it.
- *NIC Gateway*: Displays the *NIC Gateway* of the device. Type a new *NIC Gateway* to change it.
- *NIC Subnet Mask*: Displays the *NIC Subnet Mask* of the device. Type a new *NIC Subnet Mask* to change it.

Authentication:

- *Username*: Displays the *Username* of the device. Type a new *Username* to change it.
- *Password*: Configures the *Password* of the device. Type a new *Password* to change it.

Update Settings:

- *Enable Updates*: Select to enable updates on the device. If enabled, you must configure the Update Proxy Server, Update Proxy User, and Update Proxy Password.
- *Update Proxy Server*: Displays the *Update Proxy Server* of the device. Type a new *Update Proxy Server* to change it.
- *Update Proxy User*: Displays the *Update Proxy User* of the device. Type a new *Update Proxy User* to change it.
- *Update Proxy Password*: Displays the *Update Proxy Password* of the device. Type a new *Update Proxy Password* to change it.

SNMP:

- *Enable SNMP*: Select to enable the SNMP Agent on the iDRAC. If enabled, you must configure the *SNMP Community.*
  - *SNMP Community*: Configures the *SNMP Community* name used for SNMP Agents. Type a new *SNMP Community* name to change it
- *Enable SNMP Alert 1*: Select to enable the *SNMP Alert 1* on the iDRAC. If enabled, you must configure the *Alert 1 Target Address*.
  - *Alert 1 Target Address*: Displays the IPv4, IPv6, FQDN address, or hostname of the target destination to receive alerts. Must be valid IPv4, IPv6, FQDN address, or hostname.
- *Enable SNMP Alert 2*: Select to enable the *SNMP Alert 2* on the iDRAC. If enabled, you must configure the *Alert 2*. If enabled, you must configure the *Alert 2 Target Address*.
  - *Alert 2 Target Address*: Displays the IPv4, IPv6, FQDN address, or hostname of the target destination to receive alerts. Must be valid IPv4, IPv6, FQDN address, or hostname.

NTP:

- *Enable NTP*: Select to enable an *NTP* server on the iDRAC. If enabled, you must configure the *NTP Server*.
  - *NTP Server*: Displays the name or IP address of the *NTP Server*. Type a new name or IP address to change it.

Event Filters:

- *Alert*: Displays any iDRAC Event filters configured for the device.
- *Add*: Click to add a new Event filter configured in the text box. You must provide any parameters by defining what you want to be alerted to and how you want to be notified. You can configure as may event filter commands as you want. The general format of an alert category:

  idrac.alert.category.[subcategory].[severity]

Edit

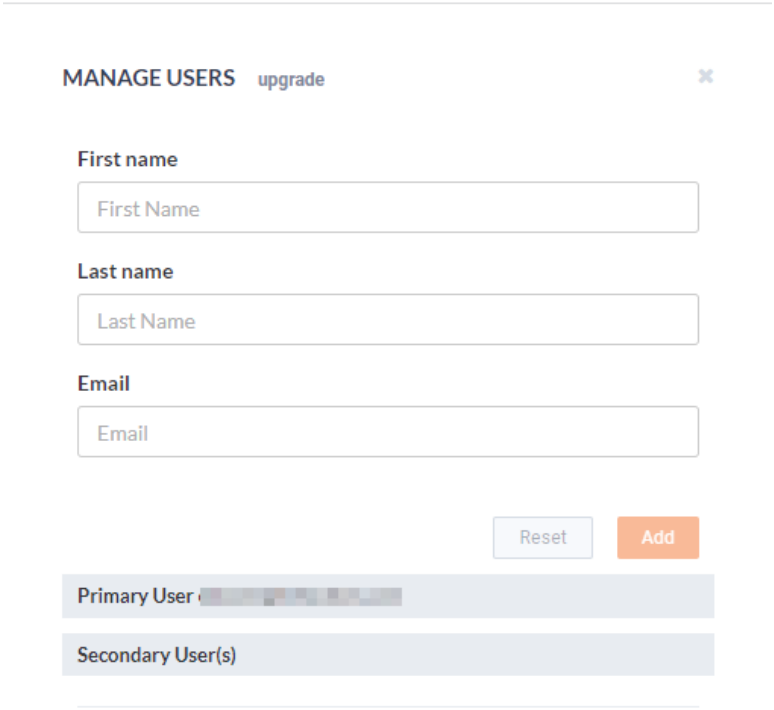
Click the **Edit** button to edit the selected template. See also *Add Template* on page 53.

Delete

Click the **Delete** button to delete the selected template.

Share

Click the **Share** button to share the selected template with other users who manage and configure appliances. You will need to add a user by completing the *Manage Users* dialog.

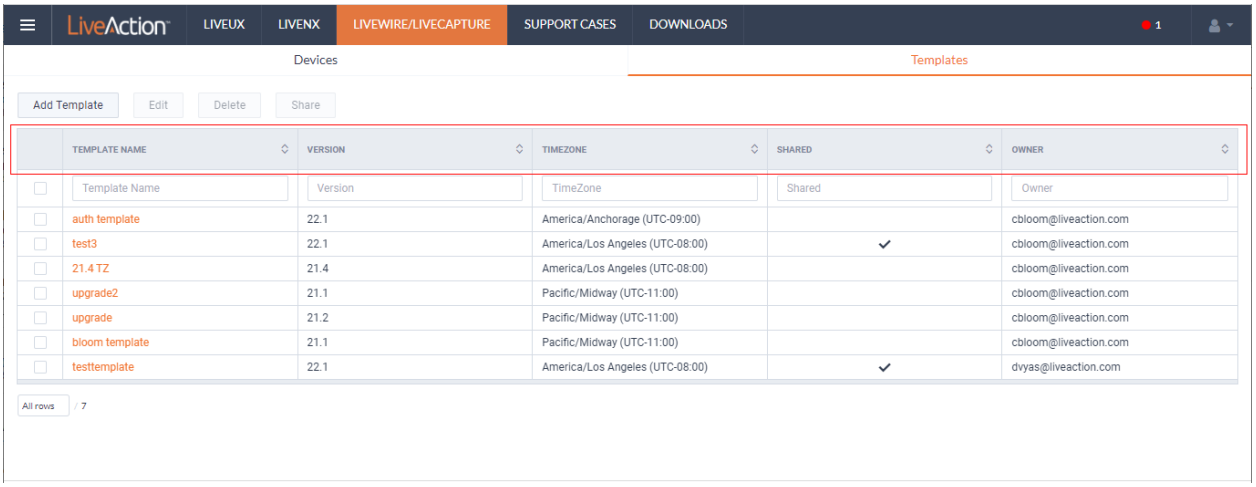


- *First Name*: Type the first name of the user.
- *Last Name*: Type the last name of the user.
- *Email*: Type the email address of the user.
- *Reset*: Click to clear the *Manage User* values.
- *Add*: Click to add the user to the list of secondary users.
- *Primary User*: Displays the primary user of the device when the device was registered with LiveAction. If multiple appliances are selected in the list of devices, the *Primary User* is not displayed.
- *Secondary User(s)*: Displays any secondary users assigned to the device. If multiple appliances are selected in the list of devices, the *Secondary User(s)* are not displayed.

Template column headings

Descriptions of the columns displayed in the list of templates are provided below.

Tip Below each of the column headings is a text box you can use to filter the templates displayed in the list of templates. To filter using the text box, simply enter a text string to display the templates that match the text string.



- *Template Name*: Displays the name of the template. Click the name to display details about the template.
- *Version*: Displays the version number of the template.
- *Timezone*: Displays the time zone of the template.
- *Shared*: Displays the users that have been shared with the device. Shared users can fully configure a device from DMS.
- *Owner*: Displays the owner of the device. There can only be one owner of the device.

Backup and restore

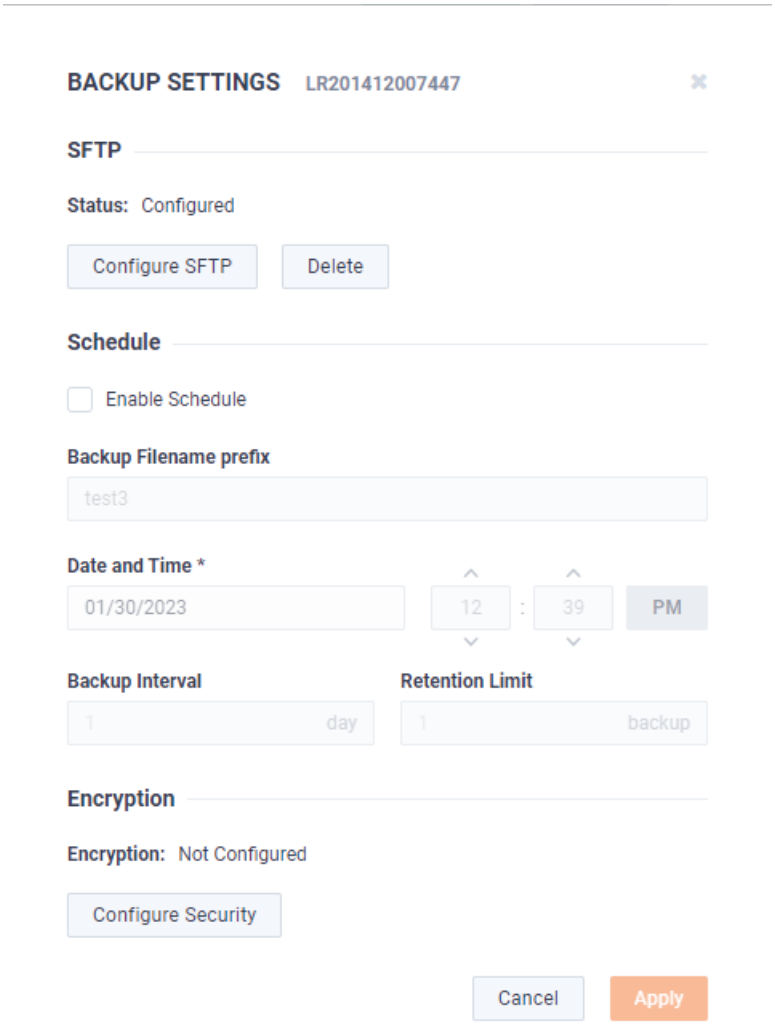
The *Backup Settings* in DMS lets you configure and designate an SFTP (Secure FTP) server for backing up the application and system settings on the LiveWire device. Once a backup is created, you can use the *Restore Backup* settings to restore either the application settings, or both the application and system settings to the same or different LiveWire device.

Here are descriptions of the *Application* and *System* settings that are included in a backup:

- *Application* settings: These are all application settings and customizations, including capture templates, filters, graphs, alarms, notifications, name table, SSL certificates, and custom plugins.
- *System* settings: These are new and/or updated users, SNMP, NTP, network, time zone, and host customizations.

Creating a backup

1. Click the **Elipsis** (...) in DMS and select *Backup Settings*. The *Backup Settings* dialog appears. See *Backup Settings* on page 44 for a description of each of the settings.



SFTP

- *Configure SFTP*: Click to configure the SFTP (Secure FTP) server for the backup.
  - *Hostname*: Type the IP address of the SFTP server.

- *Port*: Type the port used for the SFTP server.
- *Username*: Type a username for the SFTP server.
- *Password*: Type a password for the SFTP server.
- *Directory*: Type the directory where backups are saved on the SFTP server.

- *Delete*: Click to delete the configured SFTP server for the backup.

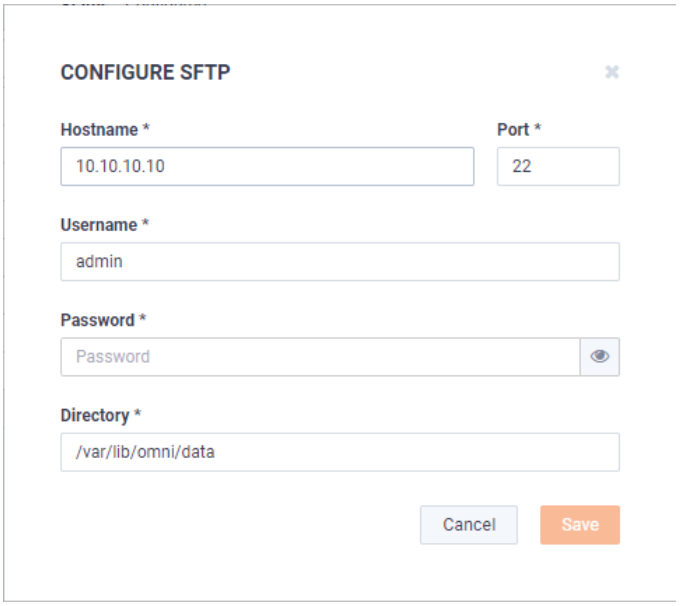
Schedule

- *Enable Schedule*: Click to enable scheduling for the backup.
- *Backup Filename prefix*: Type a prefix filename for the backup. Each scheduled backup that is created will append the prefix to the beginning of the backup filename.
- *Date and Time*: Click to configure the date and time the backup will complete.
- *Backup Interval*: Type the number of days between when backups are performed.
- *Retention Limit*: Type the number backups to save before a backup is deleted.

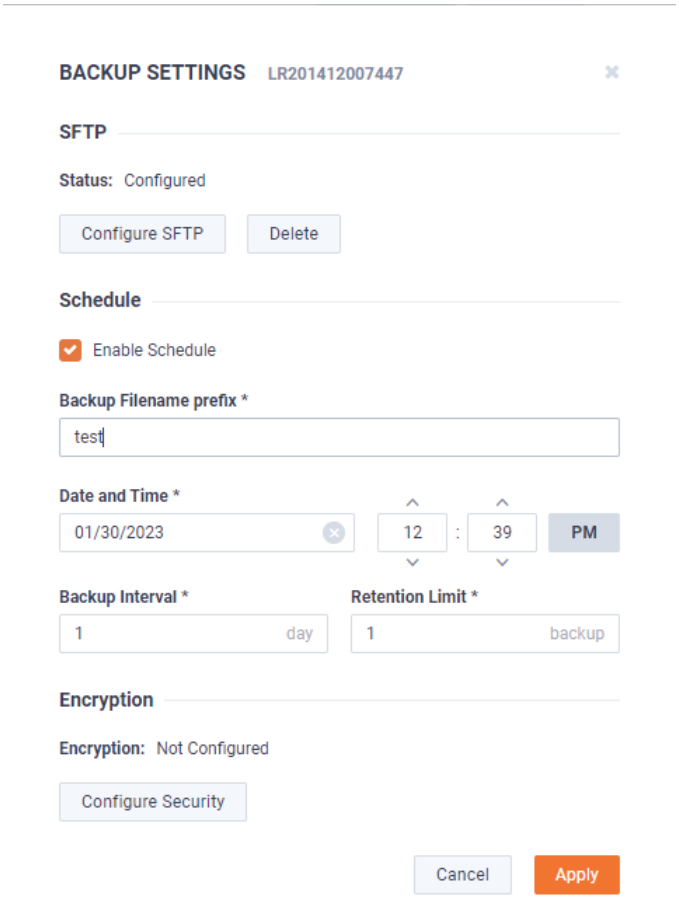
Encryption

- *Encryption*: Displays whether or not encryption is configured for each scheduled backup.
- *Configure Security*: Click to configure security settings to encrypt each scheduled backup.
  - *Encrypt backups*: Select this option to encrypt each scheduled backup.
  - *Password*: Type a password for the encrypted backup.
  - *Repeat Password*: Tye the password again to verify the password.
- *Apply*: Click to apply the backup settings on the device.

2. Click **Configure SFTP** to configure the SFTP (Secure FTP) server for the backup.The *Configure SFTP* dialog appears.

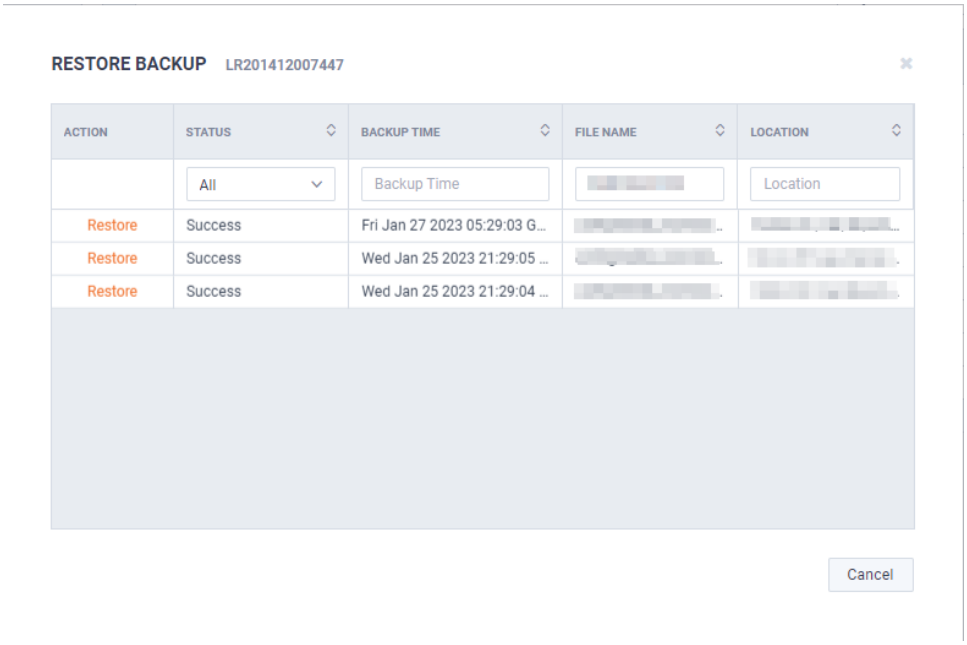


3. Configure the SFTP server you want to use as the backup server. You will need to configure the *Hostname*, *Port*, *Username*, *Password*, *Directory*, and click **Save**.
4. On the *Backup Settings* dialog, select the *Enable Schedule* check box. You will need to configure the *Backup Filename Prefix*, *Date and Time*, *Backup Interval*, *Retention Limit*, *Encryption*, and click **Apply**.

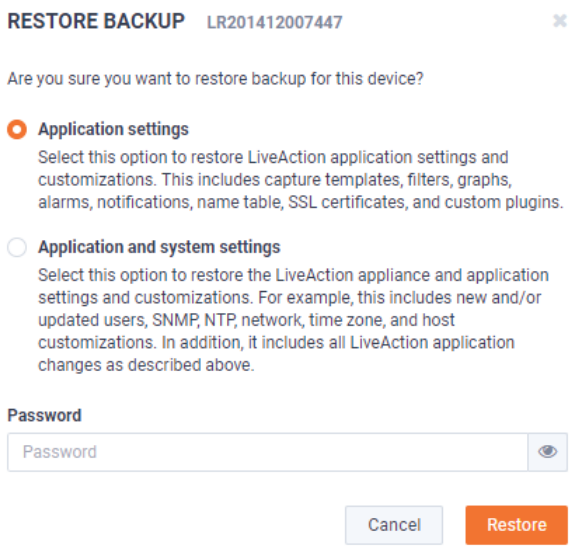


Restoring a backup

1. Click the **Elipsis** (...) in DMS and select **Restore Backup**. The *Restore Backup* dialog appears.



2. In the *Action* column, select the backup you want to restore. The second *Restore Backup* dialog appears.



3. Select either the *Application Settings* or *Application and System Settings* option, enter the *Password* for the backup, and click **Restore**.

Configuring network settings by command script

You can configure LiveCapture network settings by using the 'omni-interface' command script from the 'root' user command prompt (*root@LiveCapture*). To get to the '**root**' user command prompt, enter the following command from the command prompt and enter '**admin**' as the password when prompted:

#sudo su

Here are the commands to configure the network settings from the command prompt:

Usage: *omni-interface [options]*

options:

-a, --adapter	adapter to modify
-f, --wifi	enable or disable Remote AP Capture capability [on|off]
-c, --dhcp	configure dhcp
-s, --static	configure static
-l, --manual	configure manual
-r, --address	static adapter address
-m, --netmask	static adapter netmask
-b, --broadcast	static adapter broadcast address
-w, --network	static adapter network address
-g, --gateway	static adapter gateway address
-h, --hwaddress	static adapter mac address
-d, --dns	static dns servers (comma separated)

Important! The Ethernet ports can be configured to obtain an IP address automatically from a DHCP server by specifying 'dhcp' instead of 'static' settings; however, we strongly recommend the use of static IP addresses for the Ethernet ports. If DHCP is used, and if the address should change on a new DHCP lease, then the user must restart the Capture Engine service to see the new IP addresses in the 'Adapters' capture options in Omnipeek.

Additionally, if you specify 'dhcp' instead of 'static' settings, and there is no DHCP server available, you must allow the command to time-out.

Connecting to LiveCapture through the serial port

Using the serial port on LiveCapture, a laptop, and a terminal program of your choice, you can log into LiveCapture and access the LiveCapture command prompt (*admin@livecapture*).

To connect to LiveCapture:

1. Connect a serial console cable from your laptop to the serial port on the back of LiveCapture. The cable must be an RS-232 (null modem) cable with a female DB-9 connector for the serial port on LiveCapture.
2. Using any serial terminal program (e.g., HyperTerminal or Putty), establish a connection to LiveCapture. Make sure the appropriate terminal settings match the default settings below for LiveCapture:
   - Terminal Type: [VT100+]
   - Bits per second: [115200]
   - Data Bits: [8]
   - Parity: [None]
   - Stop Bits: [1]
   - Flow Control: [None]
   - VT-UTF8 Combo Key Support: [Enabled]
   - Recorder Mode: [Disabled]
   - Resolution 100x31: [Enabled]
3. Once a connection to LiveCapture has been established, the LiveCapture login prompt appears.
4. Log into LiveCapture as you normally would. The LiveCapture command prompt (*admin@livecapture*) appears.
5. At this point, you can configure network settings by using the 'omni-interface' command script, as described in *Configuring network settings by command script* on page 64. Additionally, please configure an NTP server as described in *Time* on page 32.

Using LiveCapture with Omnipeek

Any computer on the network with the Omnipeek Windows software installed can now access the Capture Engine running on LiveCapture. From the **Capture Engine** window in Omnipeek, you can configure, control, and view the results of the Capture Engine remote captures.

For more information on how to view and analyze remote captures from within the Omnipeek console, please see *Using Capture Engines with Omnipeek* on page 92, and also the *Omnipeek User Guide* or Omnipeek online help.

Integrated Remote Access Controller (iDRAC)

The Integrated Remote Access Controller (iDRAC) firmware and hardware built into LiveCapture lets you remotely access LiveCapture as if you were in the same room as the LiveCapture. Using an Internet browser, you can easily perform tasks such as accessing a remote console, reimaging LiveCapture, rebooting, shutting down, and starting LiveCapture (even if LiveCapture is off).

iDRAC and network security

iDRAC is a powerful tool for performing various tasks remotely on LiveCapture; however, there are potential network security vulnerabilities when using iDRAC.

Below are some suggestions to ensure that vulnerabilities through iDRAC are minimized:

- **Restrict iDRAC to Internal Networks**: Restrict iDRAC traffic to trusted internal networks. Traffic from iDRAC (usually UDP port 623) should be restricted to a management VLAN segment with strong network controls. Scan for iDRAC usage outside of the trusted network, and monitor the trusted network for abnormal activity.
- **Utilize Strong Passwords**: Make sure the iDRAC password on LiveCapture is set to a strong, unique password. See *Changing the default password* on page 68.
- **Encrypt Traffic**: Enable encryption on iDRAC, if possible. For example, use HTTPS in your web browser's URL location field when connecting to iDRAC (e.g., 'https://xxx.xxx.xxx.xxx').

Setting the IP address for iDRAC

iDRAC on LiveCapture requires its own IP address for communication. You can set this in one of two ways:

- Access the BIOS settings for LiveCapture and configure the IP address
- Use CLI commands from the command prompt and configure the IP address

Access BIOS setting to configure IP address

You must be physically present at LiveCapture to initially set the iDRAC IP address. Once set, you can use iDRAC to view or change the setting.

To initially set the iDRAC IP address:

1. Locate the iDRAC port on the front or back of LiveCapture, and connect an Ethernet cable from your network to the iDRAC port.
2. Reboot or restart LiveCapture.
3. Press the [F2] key multiple times during system boot to enter the BIOS settings.
4. Select *iDRAC Settings* from the Advanced menu.
5. Select *Network* from the iDRAC submenu.
6. iDRAC is set to 192.168.1.21 by default. You can change the static address as well. You will need this IP address in order to remotely access LiveCapture.
7. Press [Esc] to back out of each menu, then press **Enter** to confirm exit.

Connecting to iDRAC on LiveCapture

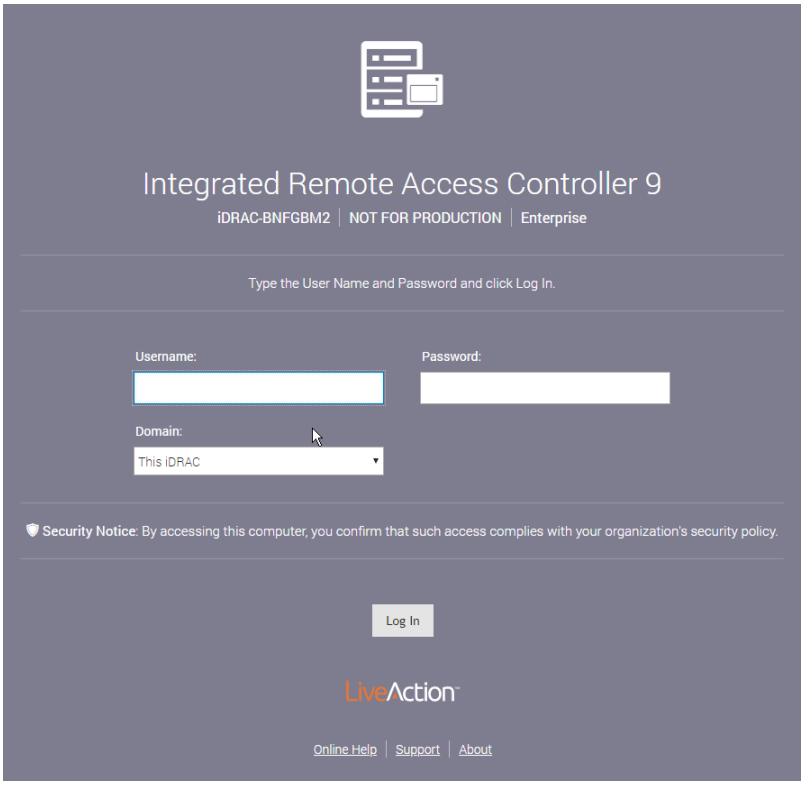
You can use an Internet browser window to connect to iDRAC on LiveCapture. Additionally, you must make sure the following ports are accessible through any firewall:

- Port 80 (TCP)
- Port 443 (Web HTTP SSL)
- Port 623 (UDP)

- Port 5901 (Video)
- Port 5900 (Keyboard/Mouse)
- Port 5120 (Media Redirection)

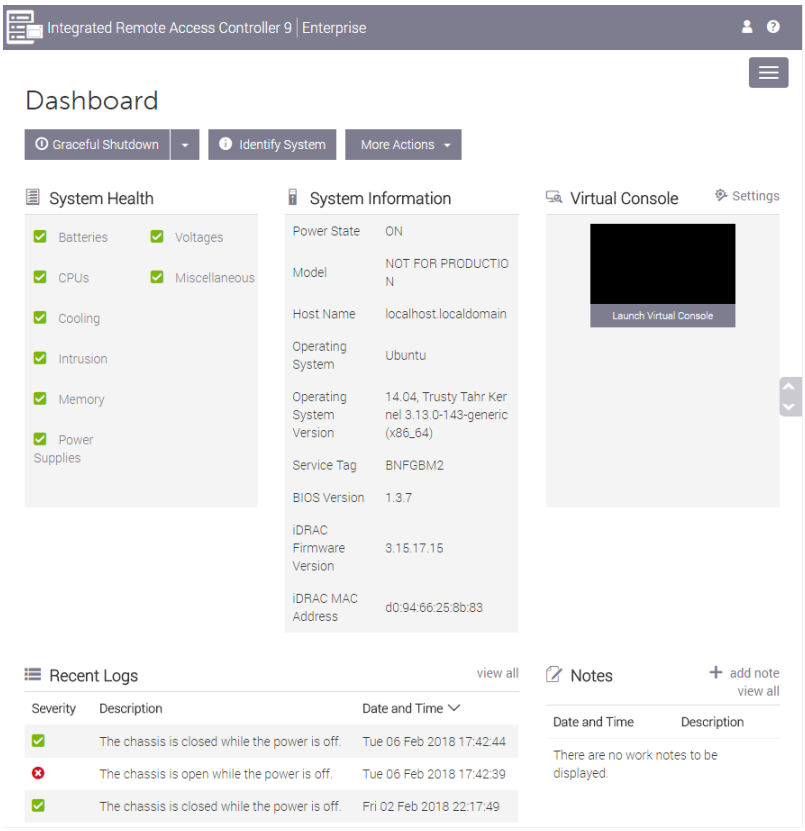
To connect to iDRAC on LiveCapture using your browser:

1. From a computer connected to the network, open an Internet browser window.
2. Enter the iDRAC IP address of LiveCapture in the address bar of your browser.
3. Once the connection is made, the Login screen appears.



4. Enter the *Username* and *Password*, and then click **Login** (the default username is ***root***, and the default password is ***liveaction***). The iDRAC dashboard appears.

Note For security reasons, we strongly recommend changing both the default iDRAC username and password on LiveCapture.



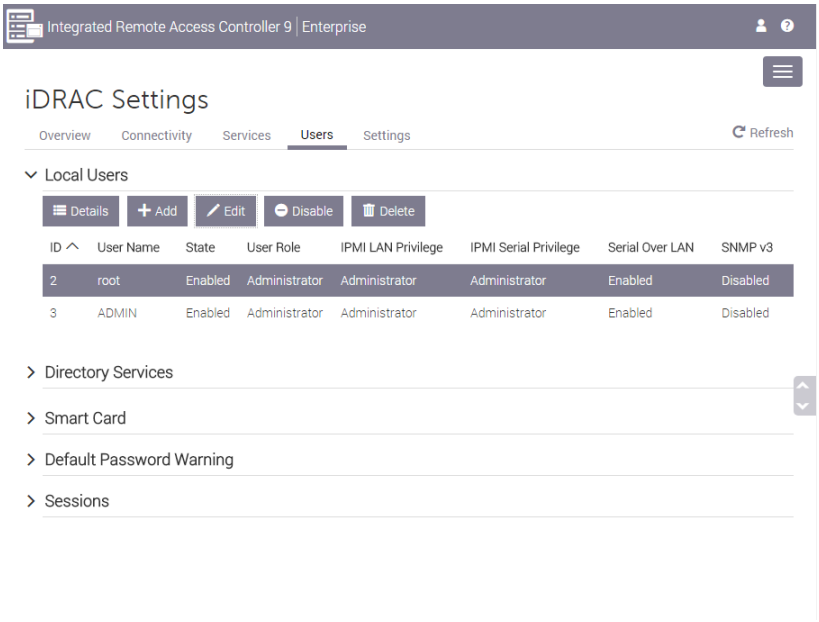
5. View the remaining instructions in this section for instructions on using iDRAC to perform tasks such as changing the default password, accessing a remote console, reimaging, rebooting, starting, and shutting down LiveCapture.

Changing the default password

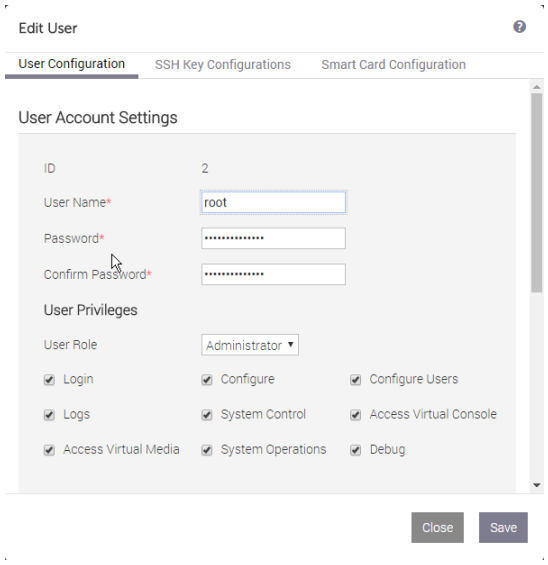
For security reasons, we strongly recommend changing both the default username and password to iDRAC.

To change the default password:

1. In the iDRAC Settings, click *Users*. The list of *Local Users* appears.



2. Select the *User ID* of the user you are configuring (in this case, user ID *2*), and click **Edit**. The **User Account Settings** dialog for the selected user ID appears.



3. Make your edits to the *User Name* and *Password* settings, and then click **Save**.

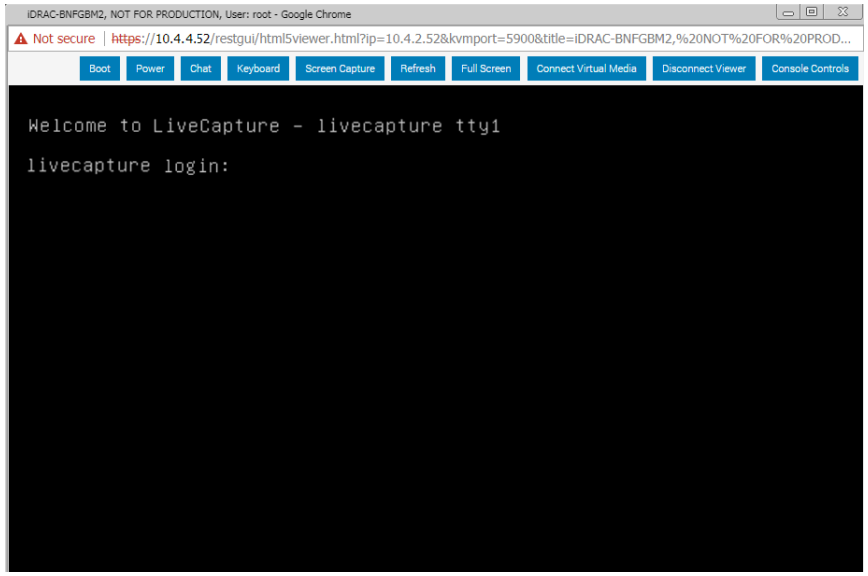
Accessing a remote console

A powerful feature when using iDRAC is the ability to open a remote console from which you can enter commands to LiveCapture.

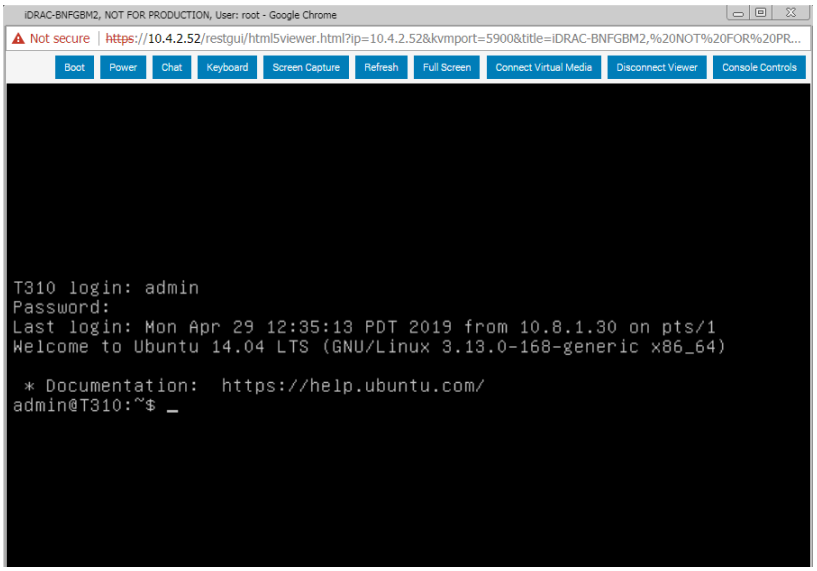
To open a remote console:

> **Note** The *Plug-in Type* was changed to 'HTML5' from the default of 'Native' for the instructions in this section. To change the *Plug-in Type*, click *Settings* in the *Virtual Console Preview*.

1. From the iDRAC dashboard, click *Launch Virtual Console*. The LiveCapture login window appears.



2. Log into LiveCapture using LiveCapture login user name and password. The *admin@livecapture:~#* command prompt appears once you are logged into LiveCapture.

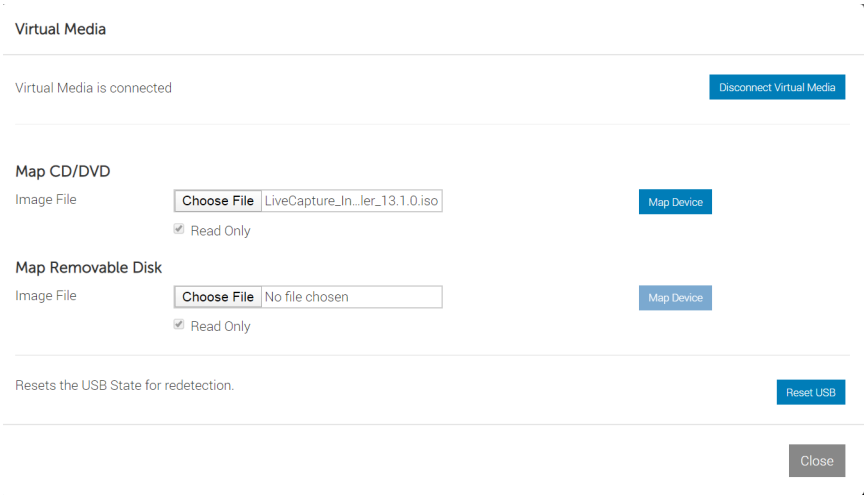


Reimaging LiveCapture with an ISO image

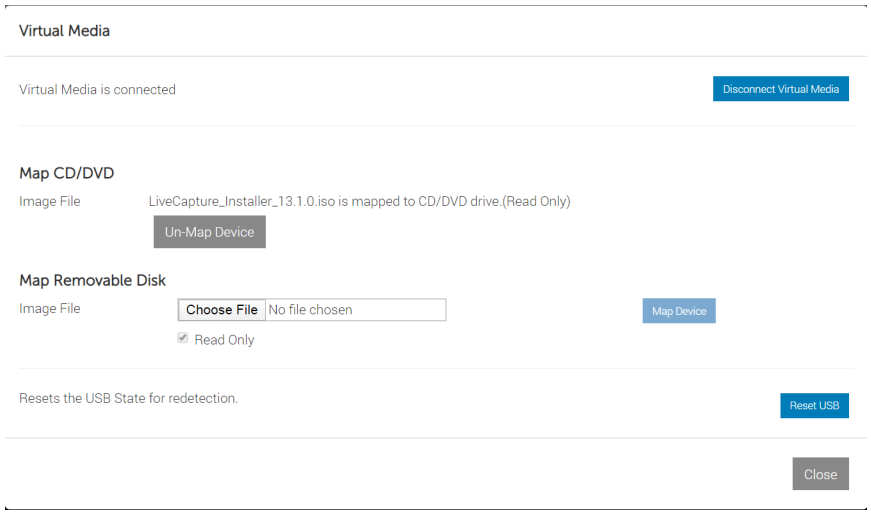
You can reimage LiveCapture remotely using iDRAC and an ISO image available from LiveAction technical support. See *Contacting LiveAction support* on page 21.

To reimage LiveCapture:

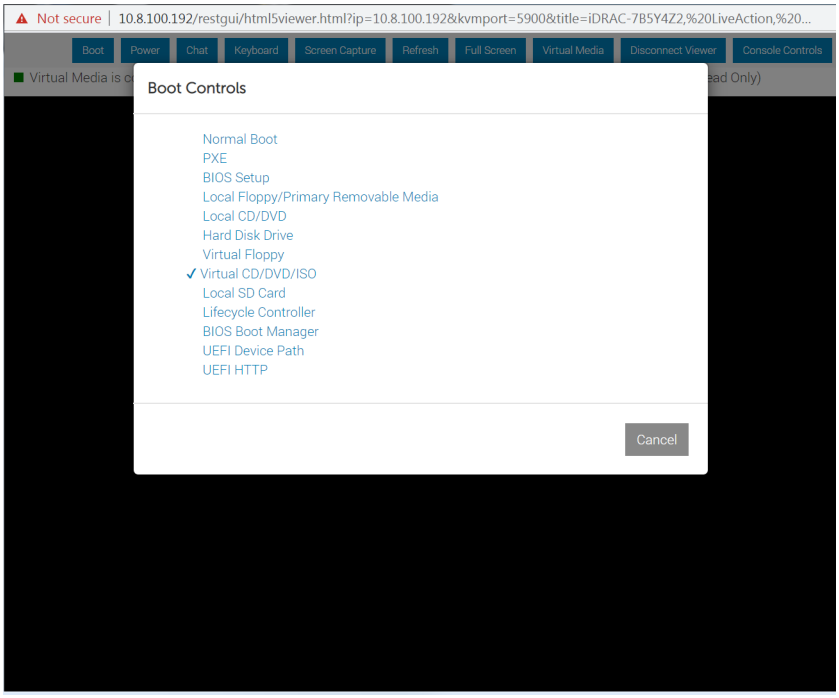
1. From the remote console, click **Connect Virtual Media**. The **Virtual Media** dialog appears.



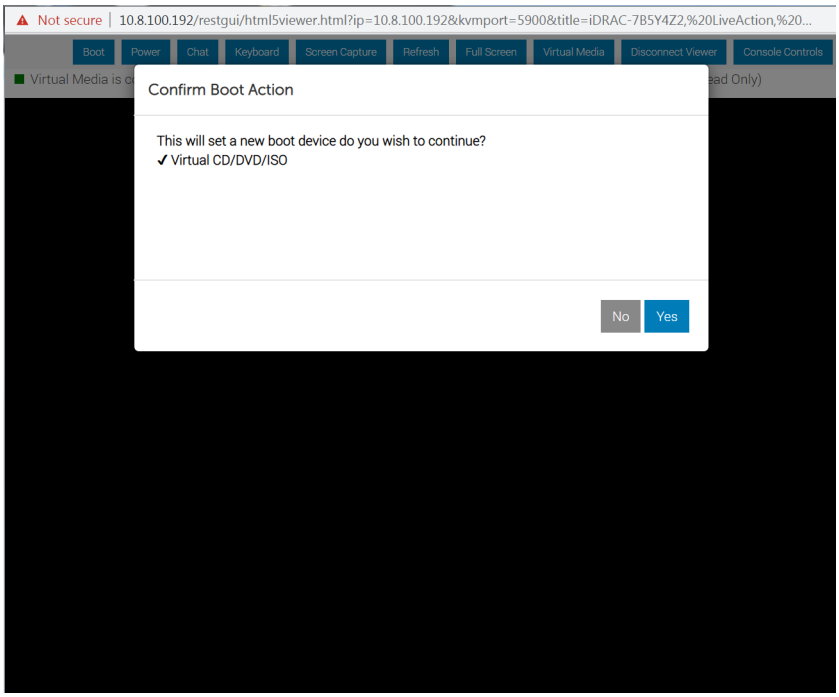
2. Click **Choose File** under *Map CD/DVD* to select the ISO file (e.g., *omni-20.1.0-x.iso*), and then click **Map Device**. The ISO image is mapped to the CD/DVD drive.



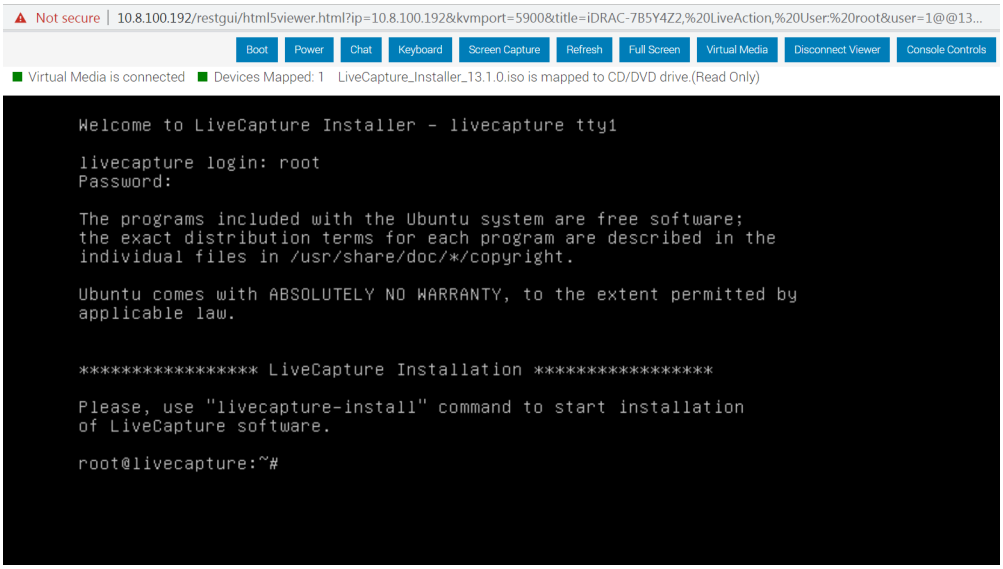
3. Click **Close** to close the dialog.
4. From the remote console, click **Boot** and select *Virtual CD/DVD/ISO* from the boot controls. The **Confirm Boot Action** dialog appears.



5. Click **Yes** to set the *Virtual CD/DVD/ISO* as the new boot device.



6. From the remote console, click **Power** and select *Power Cycle System (cold boot)*. The **Confirm Power Action** dialog appears.
7. Click **Yes** to execute the *Power Cycle System (cold boot)*.
8. Click **OK** to confirm, and the system will start to load the ISO image. Allow the system to fully boot from the ISO image.
9. Once the ISO image is fully loaded, you are prompted to log into the boot ISO image. Log in using the username ('root') and password ('liveaction').
10. At the command prompt, type *livecapture-install* and press **Enter**. You will receive a warning message that all data will be lost.



11. Type *Yes* and press **Enter**. The install process takes up to 20 minutes.

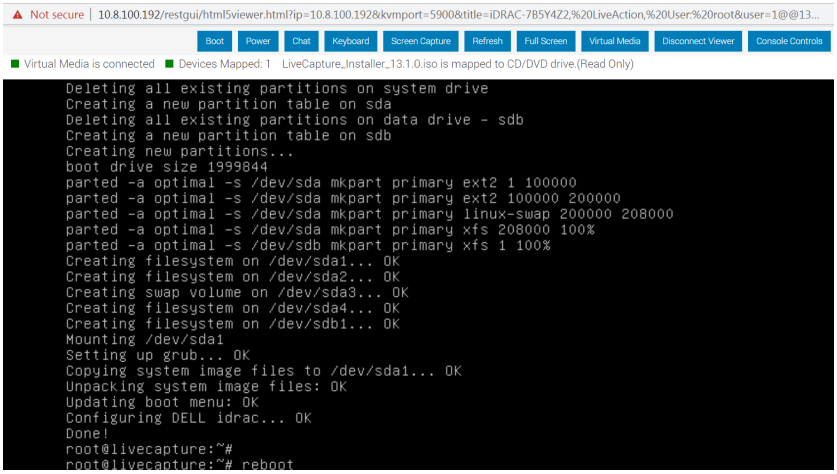
Note When running the *livecapture-install* script though the remote console, do not close the console until the script completes. Closing the console prematurely causes the reimaging process to fail.

12. When the install process is finished, type *reboot* and press **Enter**. You will receive instructions to eject any disc.
13. Click the Power button again and select **Reset System (warm boot)**.
14. Once LiveCapture has rebooted, you can proceed to configuring the management IP, time zone, NTP, and other settings for LiveCapture as you normally would. See those sections in this guide for instructions.

Rebooting LiveCapture

To reboot LiveCapture:

- From the remote console, click **Boot** and select *Normal Boot* from the boot controls and follow the prompts to reboot.
- From the remote console, enter the *reboot* command.



Starting / Shutting down LiveCapture

If your power cables and Ethernet cable are connected to LiveCapture, you can access iDRAC even if LiveCapture is off. Once iDRAC is accessed, you can use iDRAC to start LiveCapture.

To start or shut down LiveCapture:

- From the iDRAC dashboard, if LiveCapture is off click *Power On System*, or *Graceful Shutdown* if it is on.

Note If you have a remote console open, you can also select the start or power off commands from the **Power** menu of the remote console.

You can also issue the *#poweroff* command (recommended) from the remote console to shut down LiveCapture.

Capture Engines

In this chapter:

About Capture Engine

Pre-installed on LiveCapture, Capture Engine captures and analyzes network traffic in real time and records that traffic for post-capture analysis. With Capture Engine, network engineering teams can monitor distributed networks remotely and quickly identify and remedy performance bottlenecks without leaving the office.

Capture Engine works in conjunction with Omnipeek, a separate software program required for the monitoring and analysis of the packets captured remotely by LiveCapture. For more information on how to view and analyze remote captures from within the Omnipeek console, please see *Using Capture Engines with Omnipeek* on page 92, and also the *Omnipeek User Guide* or Omnipeek online help.

Using the Capture Engine Manager

The Capture Engine Manager is installed by default when you install Omnipeek. You can run the Capture Engine Manager from the Omnipeek computer to do the following:

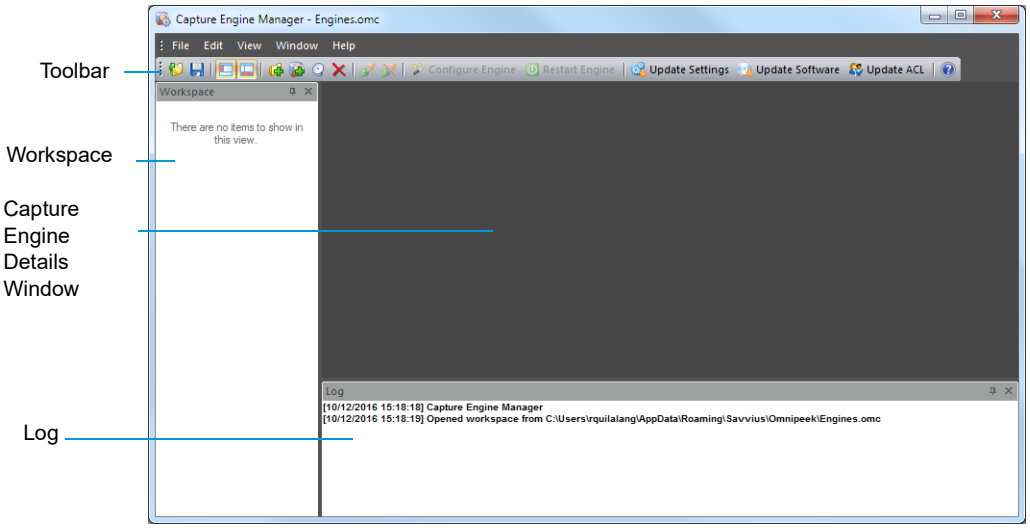
- Update and configure the Capture Engine on LiveCapture
- Display the status and configuration of Capture Engines
- Update settings for filters, alarms, remote graph templates, and capture templates
- Distribute security settings to all Capture Engines running within the same domain
- View the Audit log

Navigating the Capture Engine Manager window

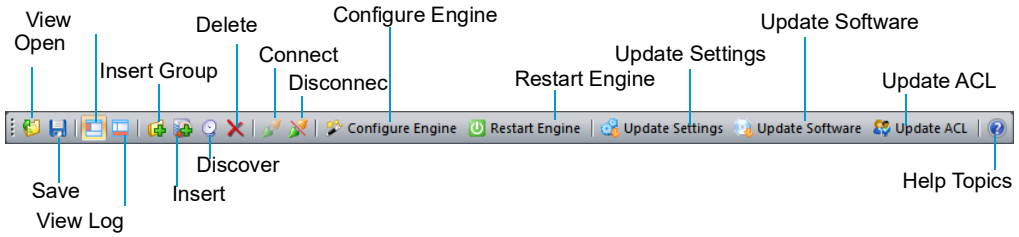
To start the Capture Engine Manager from the Omnipeek computer:

- Choose **Start** > **All Programs** > **LiveAction** > **LiveAction Capture Engine Manager for Omnipeek**. The **Capture Engine Manager** appears.
- On the **Start** menu, click **LiveAction Capture Engine Manager for Omnipeek**. The Capture Engine Manager appears.

The parts of the **Capture Engine Manager** window are described below.



- *Toolbar:* The toolbar allows you to control the following program functions:



- *Open:* Click to open a Capture Engine Manager Workspace *(*.omc)* file.

Note Opening a Capture Engine Manager Workspace *(*.omc)* file other than the *engines.omc* default file (located in *C:\Users\<username>\AppData\Roaming\LiveAction\Omnipeek)*, will no longer synchronize the list of Capture Engines displayed in Omnipeek and Capture Engine Manager.

- *Save:* Click to save the Capture Engine Manager Workspace *(*.omc)* file.
- *View Workspace:* Click to hide/show the Workspace pane.
- *View Log Window:* Click to hide/show the Log pane.
- *Insert Group:* Click to insert a new Capture Engine group.
- *Insert:* Click to insert a new Capture Engine.
- *Discover:* Click to discover Capture Engines via UDP multicast. See *Discover Capture Engines* on page 80.
- *Delete:* Click to delete the selected Capture Engine group or single Capture Engine.
- *Connect*: Click to display the **Connect** dialog, allowing you to connect to the selected Capture Engine. See *Connecting to a Capture Engine* on page 77.
- *Disconnect*: Click to disconnect the Capture Engine Manager from the Capture Engine displayed in the active window.
- *Configure Engine:* Click to start the **Capture Engine Configuration Wizard** to configure the Capture Engine. See *Configuring a Capture Engine* on page 81.
- *Restart Engine*: Click to restart the Capture Engine. See *Reconnect button* on page 80.
- *Update Settings:* Click to update the settings for **Filters**, **Alarms**, or **Graphs** for the Capture Engine. See *Updating Capture Engine settings* on page 86.
- *Update Software:* Click to update the Capture Engine software for one or more Capture Engines using the Update Service.
- *Update ACL:* Click to distribute a single Access Control List (ACL) to multiple Capture Engines running on machines belonging to the same Domain. See *Updating Capture Engine ACL settings* on page 87.
- *Help Topics:* Click to display online help for the Capture Engine Manager application.

- *Workspace:* This area displays the list of currently defined Capture Engines. Both Omnipeek and Capture Engine manager maintain the same list of Capture Engines. Making a change in either program automatically updates the list in the other program.

Note Right-click inside the Workspace to display a context-menu with additional options for displaying the list of Capture Engines; inserting and discovering Capture Engines; editing, deleting, or renaming Capture Engines; connecting and disconnecting Capture Engines; forgetting all passwords; and importing and exporting Capture Engines.

- *Capture Engine Details window:* This area displays the details and tabbed views for the Capture Engine. Each Capture Engine window can also have an **Analysis Modules** and **Audit Log** view, in addition to **Status, Filters, Alarms,** and **Graphs** views. Double-click any Capture Engine in the Workspace to view the details for that Capture Engine.
- *Log:* This area shows the messages sent to the Log file, including program start and the status of update tasks.
  - You can right-click inside the log to save, copy, or clear the contents of the Log file.
  - Choose **File** > **Save log** to save the Log file as a text file.

> **Tip** You can float the Workspace and Log panes, or drag either to dock it in a different location. To toggle between floating and docking, double-click the title bar of the window.

Creating new engine groups

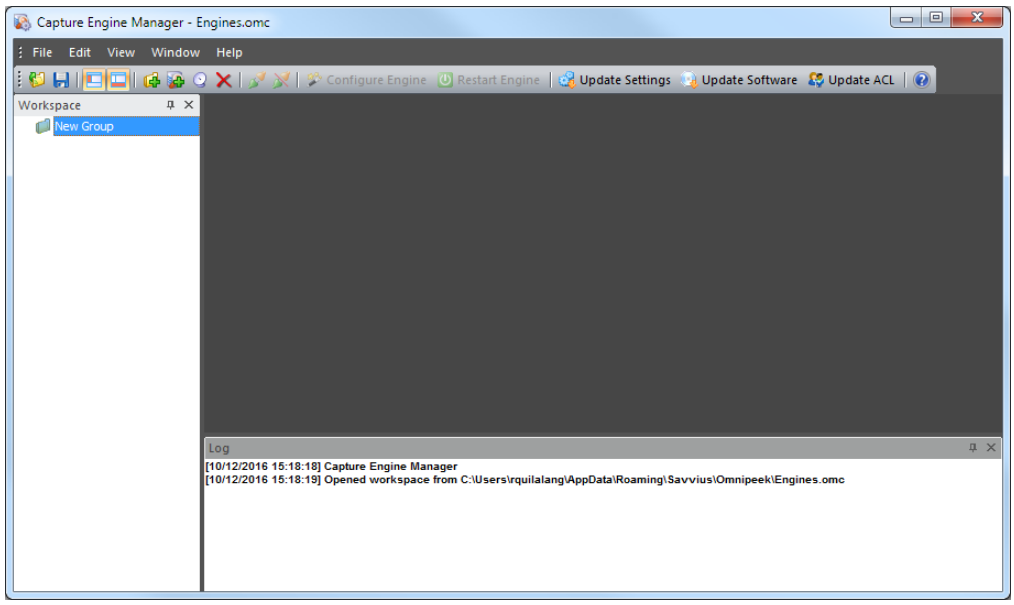
You can organize Capture Engines in groups or add single Capture Engines one at a time to the Workspace.

To create a new group in the Workspace:

1. Select the location in the Workspace under which the new group should appear.
2. Click **Insert Group** in the toolbar.

   The new group appears with its default name (*New Group*) ready to edit.

> **Tip** To change the name of a group in a Workspace file, right-click and choose **Rename**.

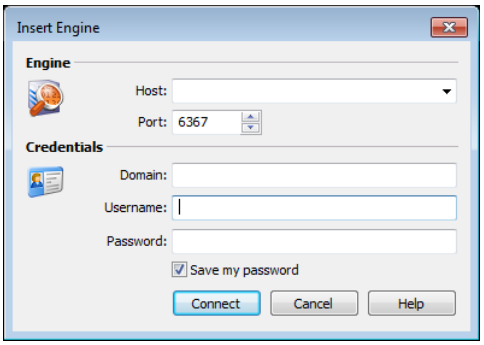


Connecting to a Capture Engine

You can connect to a Capture Engine and add it to the Workspace.

To add a Capture Engine to the Workspace:

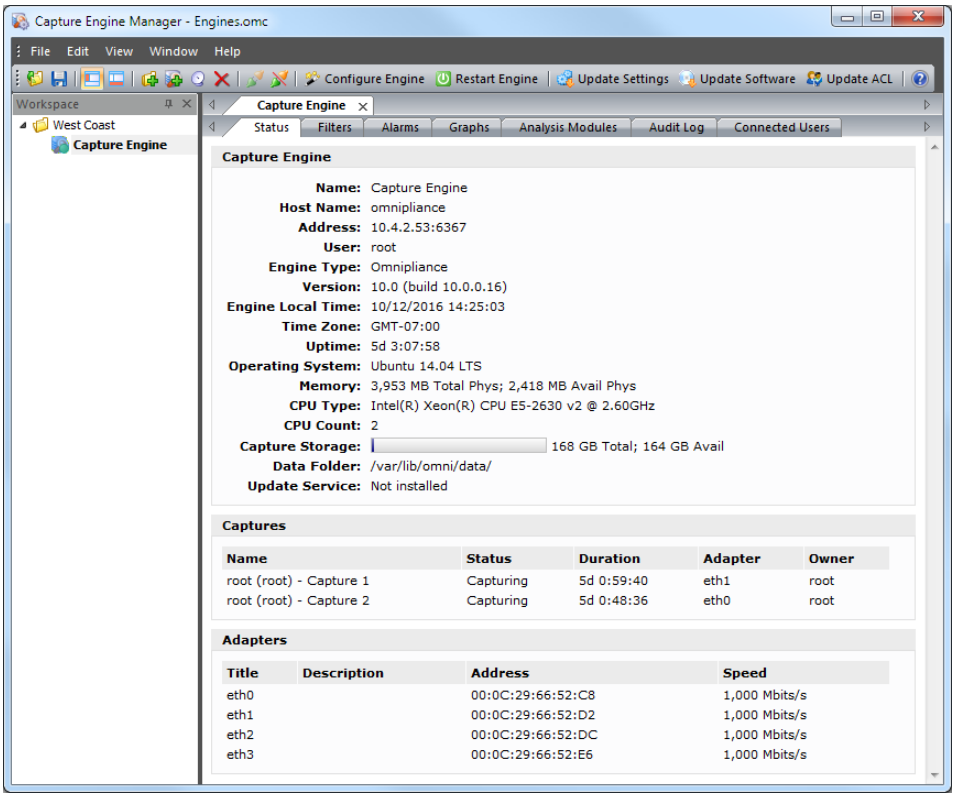
1. Select the location in the Workspace under which the new Capture Engine should appear.
2. Click **Insert Engine**. The **Insert Engine** dialog appears.



3. Complete the dialog:
   - *Host:* Enter the IP address or DNS name of the engine that you want to connect to.
   - *Port:* Enter the TCP/IP Port used for communications. The default port is 6367.
   - *Domain:* Type the Domain for the Capture Engine. If the Capture Engine is not a member of any Domain, leave this field blank.
   - *Username:* Type the Username for login to the Capture Engine.
   - *Password:* Type the Password for login to the Capture Engine.

Note If you leave the *Username* and *Password* fields blank, the Capture Engine Manager attempts to log in using the current Windows login credentials.

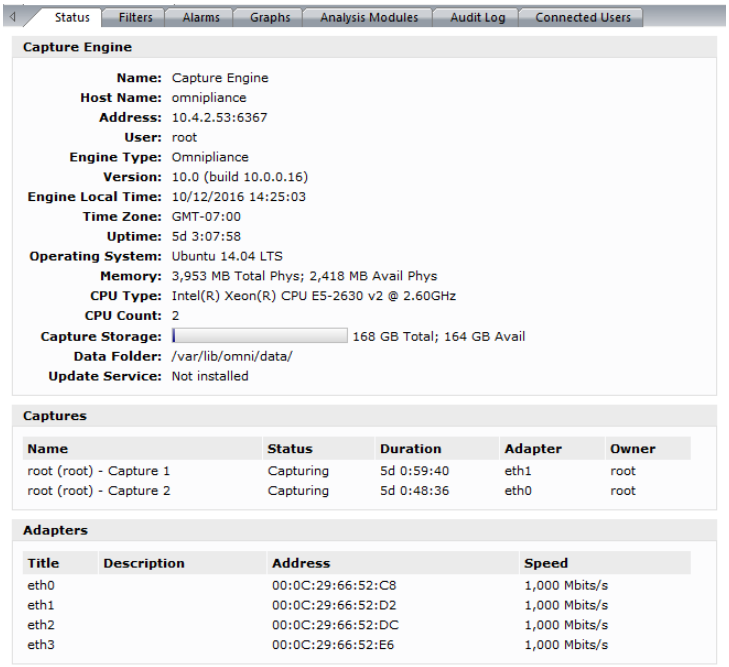
4. Click **Connect**. When the connection is established, the Capture Engine is added to the Workspace and its **Capture Engine** window is displayed showing details for that Capture Engine. See *Capture Engine details windows* on page 79.



Note When you close the **Capture Engine Manager** window, you are automatically disconnected from any Capture Engine displayed in the Capture Engine Manager. When you start the Capture Engine Manager again, all Capture Engines are in a disconnected state. You will need to reconnect to any Capture Engine that you want to configure or update.

Capture Engine details windows

A **Capture Engine** details window displays status information about the Capture Engine and lists the filter, alarm, and graph settings that can be distributed from the Capture Engine to other Capture Engines using the Capture Engine Manager. A Capture Engine details window can have the following tabs: **Status**, **Filters**, **Alarms**, **Graphs, Analysis Modules**, and **Audit Log** and **Connected Users**.



- The **Status** tab displays details about the connected Capture Engine. It includes the *Name*, *IP Address* and *Port* configured for the Capture Engine, *User*, product and file *Version* for the Capture Engine, and whether or not the *Update Service* is running.
  - *Captures:* Shows all the captures defined for the Capture Engine, including the Name, Status (Capturing or Idle), Duration, Adapter it is using, and the Owner.
  - *Adapters:* Shows all the adapters available to the Capture Engine, including the Title, Description, physical Address, and the network Speed.

Tip To print the **Status** tab of a Capture Engine window, make it the active window and choose **File** > **Print...**.

- The **Filters** tab lists all the filters defined for the Capture Engine
- The **Graphs** tab lists all the remote graph templates defined for the Capture Engine
- The **Analysis Modules** tab displays summary information about each analysis module installed on the Capture Engine
- The **Audit Log** tab lists all available information regarding events taking place on the Capture Engine. You can go to the first and last page of the log, and you can search the log.

- The **Connected Users** tab lists all users currently connected to the Capture Engine. Click **Refresh** to refresh the list.

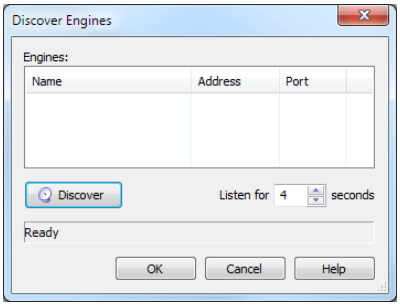
You can distribute settings from the **Filters**, **Alarms**, and **Graphs** tabs to other Capture Engines. For details, see *Updating Capture Engine settings* on page 86.

Discover Capture Engines

When you click **Discover** in the toolbar, the **Discover Engines** dialog appears. This dialog lets you search for Capture Engines installed on the local segment of your network. You can then insert one or more of the Capture Engines that are found into the Workspace.

To discover Capture Engines:

1. Click **Discover** in the toolbar. The **Discover Engines** dialog appears.



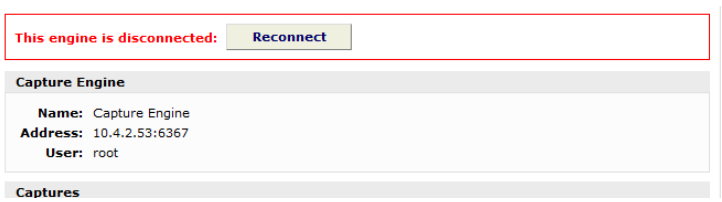
   - *Engines:* Displays the Capture Engines found on the local segment of your network.
   - *Discover:* Click to search for Capture Engines installed on the local segment of your network. The status message will change from *Listening...* to *Finished* when all network-available Capture Engines are discovered.
   - *Listen time:* Enter the number of seconds that the Capture Engine Manager will listen for responses to the discovery request. You can enter a minimum of 2 and a maximum of 60 seconds.
2. Click **Discover** on the dialog. All Capture Engines found on the local segment of your network are displayed in the Engines list.
3. Discovered Capture Engines have the check box next to their name selected. Clear the check boxes of the Capture Engines that you do not want to add to the Workspace and click **OK**. Only the selected Capture Engines are added to the Workspace.

> **Tip** Right-click in the *Engines* pane of the **Discover Engines** dialog and select **Uncheck all** to deselect all Capture Engines.

Reconnect button

To reconnect to a Capture Engine listed in the Workspace:

1. Open the **Status** tab of the **Capture Engine** window for the desired Capture Engine.
2. Click **Reconnect**.



When you click **Reconnect**, the Capture Engine Manager applies the most recently used login information for the selected Capture Engine.

Note If you wish to log in under a different *Username*, or if the configuration for the IP address and/or port have changed since your last login in the same session, you must use the **Connect** dialog directly. See *Connecting to a Capture Engine* on page 77.

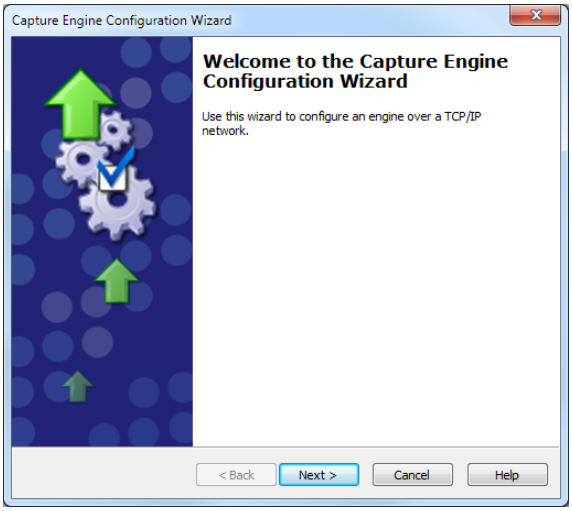
Configuring a Capture Engine

To configure a Capture Engine, you must use the **Capture Engine Configuration Wizard** of the Capture Engine Manager.

Note The **Capture Engine Configuration Wizard** of the Capture Engine Manager also appears when you first install a Capture Engine and are prompted to configure it.

To configure a Capture Engine from the Omnipeek computer:

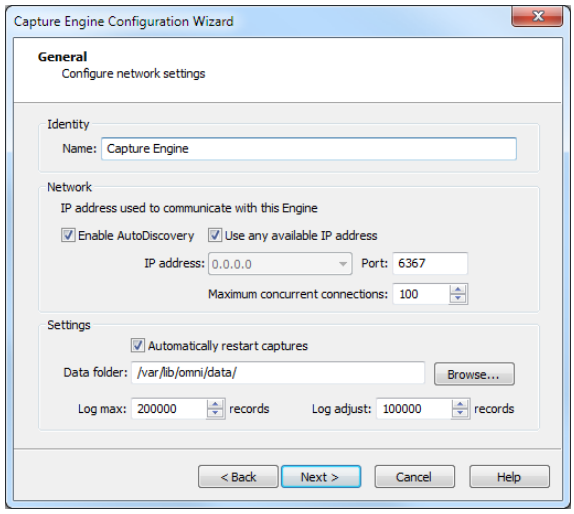
1. Choose **Start** > **All Programs** > **LiveAction** > **LiveAction Capture Engine Manager for Omnipeek**. The **Capture Engine Manager** window appears.
2. Connect to a Capture Engine in the Workspace (see *Connecting to a Capture Engine* on page 77) and click **Configure Engine** in the toolbar. The **Capture Engine Configuration Wizard** appears.



3. Click **Next**. The **General** view of the **Capture Engine Configuration Wizard** appears.
4. Configure the settings in the **General**, **Security**, and **Edit Access Control** views. See *Engine Configuration—General* on page 81; *Engine Configuration—Security* on page 82; and *Engine Configuration—Edit Access Control* on page 84.
5. When prompted, click **Yes** to send the configuration changes to the Capture Engine. The configuration changes won't take effect until the Capture Engine is restarted.

Engine Configuration—General

The **General** view of the **Capture Engine Configuration Wizard** lets you configure the name, address, capture restart, local disk use, and log settings for the Capture Engine.

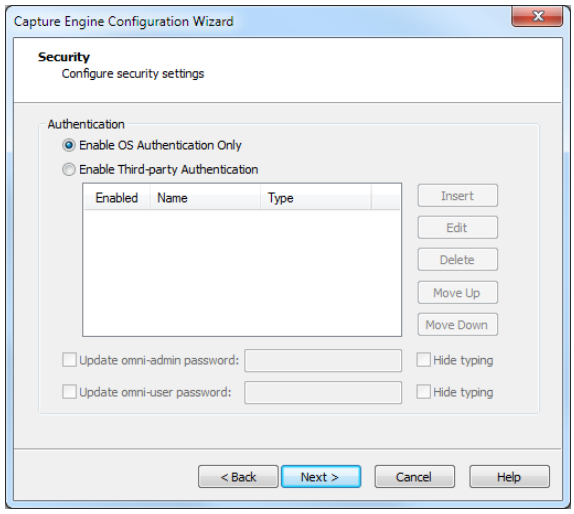


- *Name:* Type a name for the Capture Engine. This name appears in the **Capture Engines** window in Omnipeek.
- *Enable AutoDiscovery:* Select this check box to enable the Capture Engine to respond to autodiscovery requests which arrive from the Capture Engine Manager.
- *Use any available IP address:* Select this check box to accept communications on any and all IP addresses assigned to the computer on which the Capture Engine is installed.
- *IP address:* Select the IP address used to communicate with the Capture Engine. The Capture Engine will respond to communications only on that address. This option is not available when *Use any available IP address* is selected.
- *Port:* Type a port used for communications. The default port is 6367.
- *Maximum concurrent connections:* Type or select the maximum number of concurrent Omnipeek connections allowed for the Capture Engine.
- *Automatically restart captures:* Select this check box to automatically restart captures whenever the Capture Engine restarts. When enabled, the Capture Engine remembers any capture (active or idle) defined for it, and restores the capture whenever the Capture Engine itself is restarted.
- *Data folder:* Type or browse to the location for the data folder. The Capture Engine uses this location to store packet files created when the *Capture to Disk* option is used. The contents of the data folder appear in the **Files** tab of the Omnipeek **Capture Engines** window.
- *Log max:* Select or enter the maximum number of records in the application log. These are the log records you see in the Capture Engine log view. You can enter a range between 100,000 to 100,000,000 records (do not include commas). The default is 200000.
- *Log adjust:* Select or enter the number of application log records that are deleted (the oldest records are deleted first) when the maximum number of log records is reached. You can enter a range between 10,000 to 100,000,000 messages (do not include commas). The default is 100000.

Note Setting the *Log max* or *Log adjust* value to a large number of records or messages can slow down the performance of entries written to the log.

Engine Configuration—Security

The **Security** view of the **Capture Engine Configuration Wizard** lets you set security and authentication settings.



- *Authentication:*
  - *Enable OS Authentication Only:* Select this check box to use the Operating System authentication only, and to disable all other third-party authentication mechanisms.
  - *Enable Third-party Authentication:* Select this check box to enable third-party authentication using an Active Directory, RADIUS, or TACACS+ authentication server. For more information on enabling Third-party authentication, see *Third-party authentication with Capture Engines* on page 95.
  - *Insert:* Click to display the **Edit Authentication Setting** dialog, which allows you to name the setting and select from one of the following *Third-party Authentication* types:
    - *Active Directory:* Select this type to enable Active Directory authentication, and then configure the host information: *Host* (domain controller) and *Port* settings (Capture Engine (Windows)); or *Realm* (domain controller) and *KDC* settings (Capture Engine (Linux)).
    - *RADIUS:* Select this type to enable RADIUS authentication, and then configure the *Host* (IP address), *Port*, and *Secret* settings (select *Hide Typing* to hide the settings) for the RADIUS authentication server.
    - *TACACS+:* Select this type to enable TACACS+ authentication, and then configure the *Host* (IP address), *Port*, and *Secret* settings (select *Hide Typing* to hide the settings) for the TACACS+ authentication server.
  - *Edit:* Click to edit the selected authentication setting.
  - *Delete:* Click to delete the selected authentication setting.
  - *Move Up:* Click to move the selected authentication setting higher up in the list.
  - *Move Down:* Click to move the selected authentication setting lower up in the list.

Note The order of the authentication settings in the list determines the order an authentication server is authenticated against.

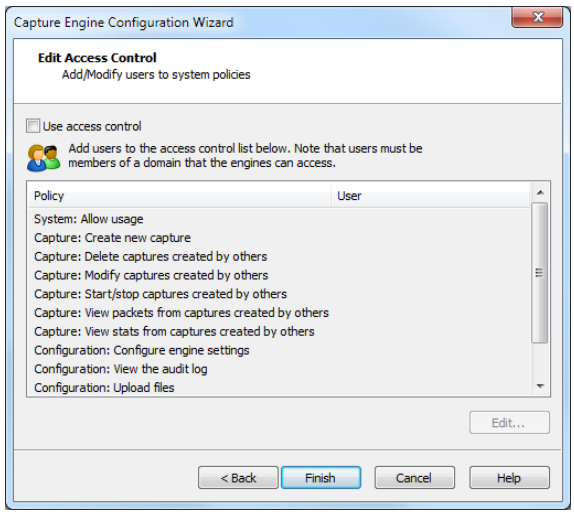
Authentication settings are attempted in groups in a top/down order. For example, if the first setting at the top is a RADIUS setting, then all RADIUS settings in the list are attempted first before attempting the next group type in list. If an authentication server can not be reached because of either an incorrect or unreachable server IP, incorrect port, or incorrect shared secret, then the next setting in the group is attempted. If communication with the authentication server is good, but the user cannot be authenticated because of either an incorrect username, password, or a disabled account, then the next group type is attempted (if authenticating a RADIUS or TACACS+ setting), or the next setting in the list is attempted (if authenticating an Active Directory setting).

Note The Capture Engine operates within the security environment configured in the operating system. Refer to your operating system documentation for instructions on configuring security settings for your operating system.

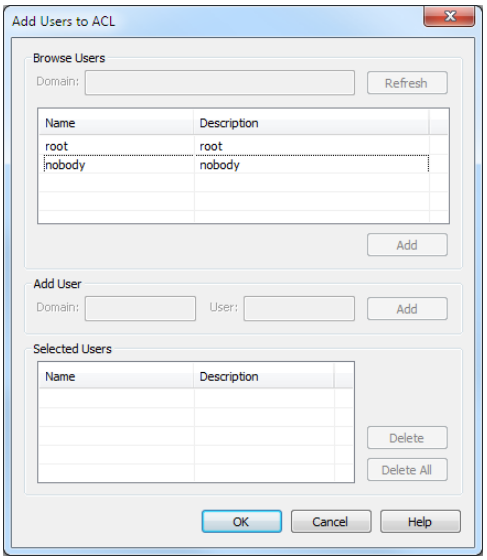
Engine Configuration—Edit Access Control

The **Edit Access Control** view of the **Capture Engine Configuration Wizard** lets you define which users have access to a Capture Engine and which classes of actions (policies) each user is allowed to perform.

Note There are several ways to create a new user in your operating system. Refer to your operating system documentation for instructions on creating new user profiles.



- *Use access control:* Select this check box to enable Access Control.
- The *Policy* column lists the predefined policies:
  - *System: Allow usage*
  - *Capture: Create new capture*
  - *Capture: Delete captures created by others*
  - *Capture: Modify captures created by others*
  - *Capture: Start/Stop captures created by others*
  - *Capture: View packets from captures created by others*
  - *Capture: View stats from captures created by others*
  - *Configuration: Configure engine settings*
  - *Configuration: View/modify matrix switch settings (Capture Engine (Windows) only)*
  - *Configuration: View the audit log*
  - *Configuration: Upload files*
- The *User* column lists which users have access to a certain policy.
- *Edit:* Select a policy and then click **Edit** to define which users have access to the policy. The **Add Users to ACL** dialog appears:



Browse Users

- *Domain:* Type the Domain for the Capture Engine. If the Capture Engine is not a member of any Domain, leave this field blank.
- *Refresh:* Click to poll the Domain controller to retrieve the list of users.

Note Large Domains with hundreds of users may take several minutes to load.

- *Name/Description:* Displays the name and description for each defined user. Both the name and the description are taken from the operating system security settings (local or Domain).
- *Add:* Click to add the selected user to the *Selected Users* table.

Add User

Note If the Capture Engine is not a member of any Domain, you can ignore *Add User*.

- *Domain:* Type the Domain for the Capture Engine.
- *User:* Type the name of the User you wish to add to the *Selected Users* table.
- *Add:* Click to add the selected user to the *Selected Users* table.

Selected Users

- *Name/Description:* Displays the name and description of users allowed to perform the selected policy.
- *Delete:* Click to remove the selected user from the *Selected Users* table.
- *Delete all:* Click to remove all users from the *Selected Users* table.

Tip A *Policy* that has no users associated with it is effectively reserved for users with Administrator or root level privileges.

Considerations when configuring Access Control

Please note the following when configuring Access Control:

- Users with Administrator or root level privileges always have access to all features of the Capture Engine.

- If the Capture Engine is installed on a machine under local control, the local user with Administrator or root level privileges (and equivalents) has access to the Capture Engine regardless of the settings in the **Edit Access Control** view.
- If the Capture Engine is installed on a machine under Domain control, the Domain Administrator always has access regardless of the settings in the **Edit Access Control** view.
- When *Use access control* is selected and no other users are added to the **Edit Access Control** view (the initial default settings), then only the user with Administrator (local or Domain, depending on the computer setup) or root level privileges has access to the Capture Engine.

Considerations when disabling Access Control

When access control is disabled, the only restrictions on the use of the Capture Engine are those imposed by the operating system security settings. Examples of relevant permissions controlled by operating system security settings include:

- **Login privilege:** A user must be able to log in to the machine on which the Capture Engine is running in order to use the program.

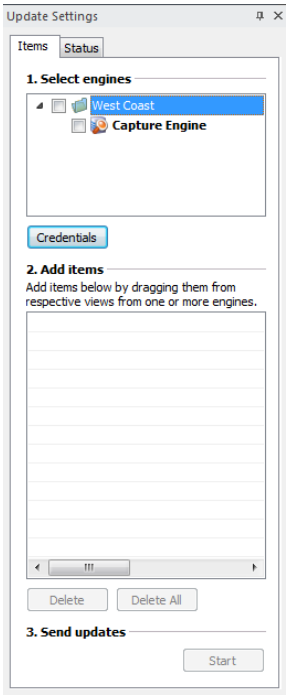
Updating Capture Engine settings

The Capture Engine Manager lets you distribute settings for filters, alarms, and graphs from one or more connected Capture Engines to one or more selected Capture Engines.

Important! You must have Administrator or root level privileges for the Capture Engine where you are distributing settings.

To update settings for one or more Capture Engines:

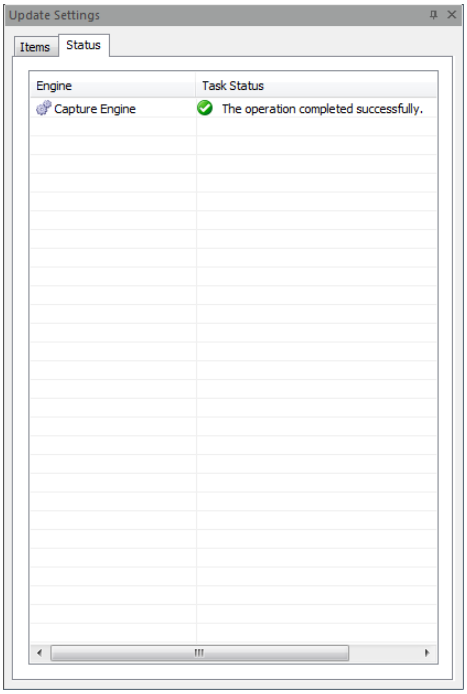
1. Click **Update Settings** in the toolbar. The **Update Settings** dialog appears and lists the Capture Engines defined in the Workspace.



2. Select the check box of the Capture Engines you are updating. You can right-click inside the view to expand all/collapse all lists, or check all /uncheck all Capture Engines.

Note You can click **Credentials** to enter the login credentials that can be used to connect to one or more Capture Engines when distributing software updates or new settings. See *Credentials dialog* on page 91.

3. Open the Capture Engine window of any connected Capture Engine in the Workspace and select the **Filters**, **Alarms**, or **Graphs** tab.
4. Drag-and-drop an item from the **Filters**, **Alarms**, or **Graphs** tab to the *Add items* section of the **Update Settings** dialog. You can add any combination of filters, alarms, or graphs settings.
5. Click **Start** to send the settings to the selected Capture Engines.
6. Click the **Status** tab to see the current status of all configuration updates for each target Capture Engine.



Note To update the settings for a target Capture Engine that has *Use access control* enabled, you must log in either as a user associated with the *System: Allow usage* policy or as a user with Administrator or root level privileges (local or Domain) for the host machine. If the target Capture Engine does not have *Use access control* enabled, any user with read/write privileges to the Data folder directory of the target Capture Engine can use the **Update Settings** dialog.

Updating Capture Engine ACL settings

The Access Control List (ACL) limits access to a Capture Engine by associating *Users* (defined in the operating system) with classes of tasks on the Capture Engine, called *Policies*. These associations are set in the configuration of each Capture Engine.

The Capture Engine Manager also lets you add the same Domain username and Policy associations to the ACLs of multiple Capture Engines, all of which are operating under the same Domain control.

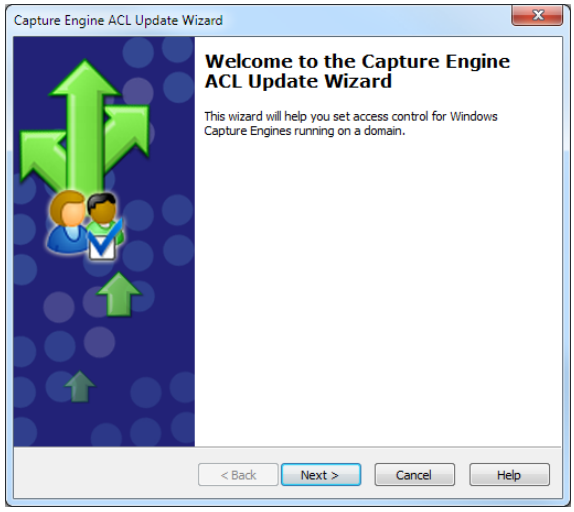
Note To use the ACL with Omnipliance Linux, you must first add the user to the Linux OS and then add the same user to the first ACL policy, "System: Allow usage." You can then limit that user's permission by adding the user to any of the other ACL policies.

Important! The Capture Engine Manager must be able to log in to each target Capture Engine as a user with the correct permissions to update the ACL on that Capture Engine, as described above. For detailed login information, see *Credentials dialog* on page 91.

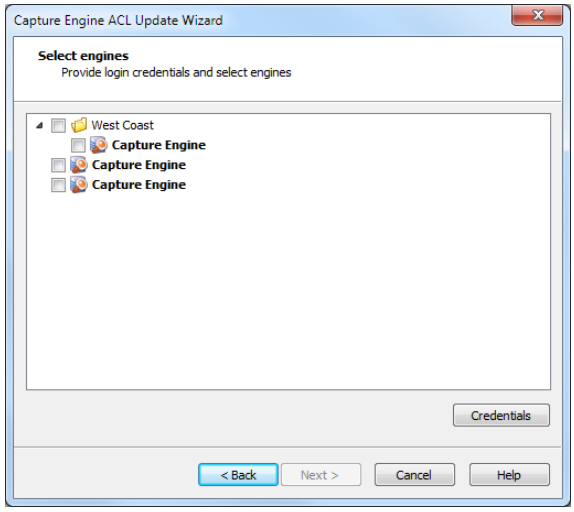
Note To use the **Capture Engine ACL Update Wizard**, you must present the correct login credentials for each target machine. For a Capture Engine with *Use access control* enabled, any user associated with both the *System: Allow usage* and *Configuration: Configure engine settings* policies can configure the Capture Engine. Any user with Administrator privileges (local or Domain) on the target machine can configure the Capture Engine, regardless of any settings in its ACL.

To distribute an ACL update to one or more Capture Engines in a single domain:

1. Click **Update ACL** in the toolbar. The **Capture Engine ACL Update Wizard** appears.



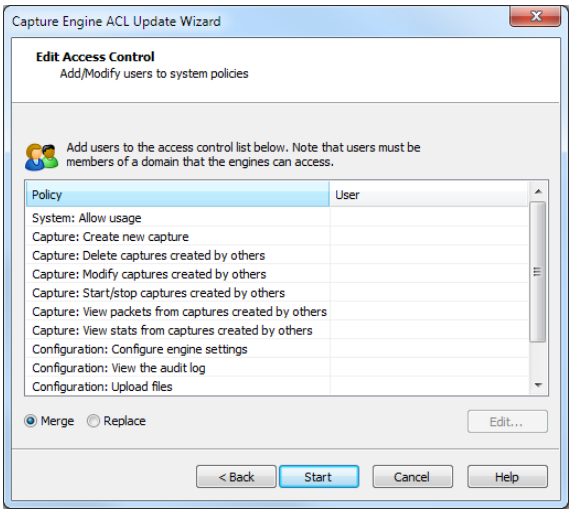
2. Click **Next**. The **Select engines** view appears and lists the Capture Engines defined in the Workspace.



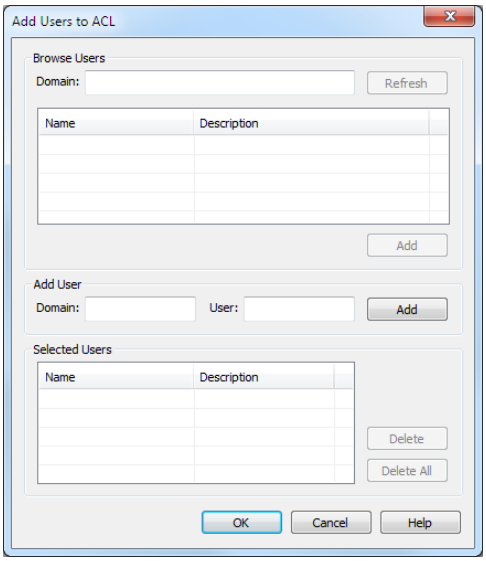
3. Select the check box of the Capture Engines you are updating. You can right-click inside the view to expand all / collapse all lists, or check all / uncheck all Capture Engines.

Note You can click **Credentials** to enter the login credentials that can be used to connect to one or more Capture Engines when distributing software updates or new settings. See *Credentials dialog* on page 91.

4. Click **Next** to open the **Edit Access Control** view. From this view, you can associate any *User* defined for the current Domain with any *Policy* defined for the selected Capture Engines.



5. Select a *Policy* in the list and click **Edit**. The **Add Users to ACL** dialog appears.



Browse Users

- *Domain* (Capture Engine (Windows) only)*:* Type the Domain for the Capture Engine. If the Capture Engine is not a member of any Domain, leave this field blank.
- *Refresh:* Click to poll the Domain controller to retrieve the list of users.

Note Large Domains with hundreds of users may take several minutes to load.

- *Name/Description:* Displays the name and description for each defined user. Both the name and the description are taken from the operating system security settings (local or Domain).
- *Add:* Click to add the selected user to the *Selected Users* table.

Add User (Capture Engine (Windows) only)

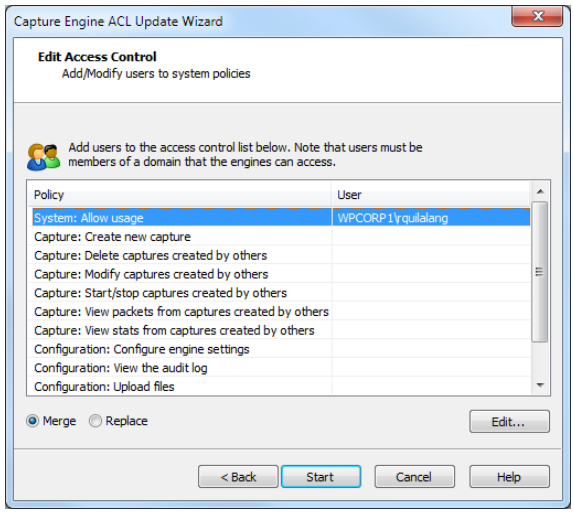
- *Domain:* Type the Domain for the Capture Engine.
- *User:* Type the name of the User you wish to add to the *Selected Users* table.
- *Add:* Click to add the selected user to the *Selected Users* table.

Selected Users

- *Name/Description:* Displays the name and description of users allowed to perform the selected policy.
- *Delete:* Click to remove the selected user from the *Selected Users* table.
- *Delete all:* Click to remove all users from the *Selected Users* table.

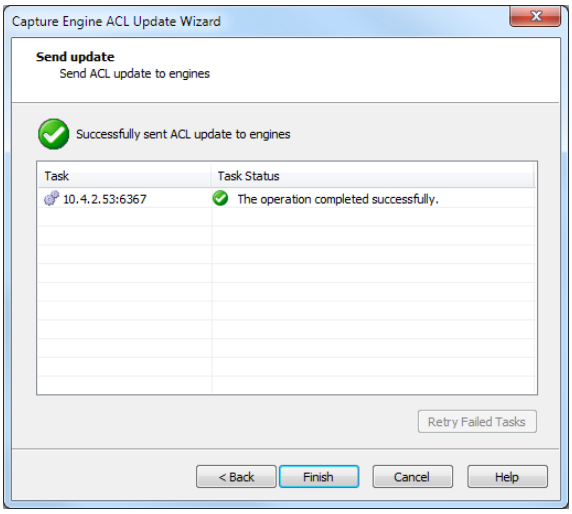
Tip A *Policy* that has no users associated with it is effectively reserved for users with Administrator or root level privileges.

6. Enter the name of the *Domain* and click **Refresh**. The dialog will poll the Domain controller to retrieve a list of users.
7. Select a user you want to associate with the current Policy and click **Add**. The user will appear in the *Selected Users* table of the dialog. Repeat this step until you have added all the users you wish to associate with the current Policy.
8. Click **OK** to close the dialog and return to the **Edit Access Control** view. The users from the *Selected Users* table appear in the *Users* column beside the appropriate *Policy*. You can choose to *Merge* users to the existing Access Control List, or *Replace* the existing Access Control List with a new list defined here.



9. Continue in this manner until you have fully defined the ACL.
10. Click **Start** to begin distributing the ACL to the listed Capture Engines. The **Send update** dialog appears and displays the task status.

Tip If at least one task fails, you can click **Retry Failed Tasks** to send the update again to the Capture Engines that did not complete the task successfully.



Note In order to be able to retrieve the list of Domain users, you must be logged on as a user with Administrator privileges (local or Domain). Additionally, you must have logged on to a computer under the Domain control of the target Domain during the current session of Windows. Your Domain login can have been as a Domain user of any kind, Administrator or otherwise.

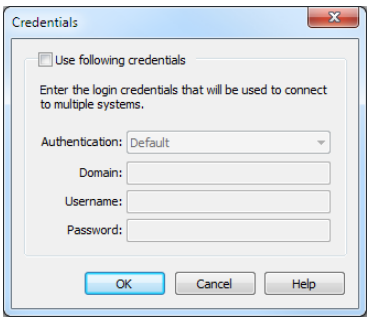
11. Click **Finish** to close the **Capture Engine Update ACL Wizard**.

Credentials dialog

The **Credentials** dialog lets you present a single set of credentials when you distribute software updates, setting updates, or ACL updates to Capture Engines.

To open the Credentials dialog:

1. Click **Credentials...** in any of the following views:
   - the **Items** tab of the **Update Settings** dialog (see *Updating Capture Engine settings* on page 86).
   - the **Select engines** view of the **Capture Engine Update ACL Wizard** (see *Updating Capture Engine ACL settings* on page 87).



2. Select the *Use following credentials* check box to enable credentials.
3. Complete credential information for *Authentication*, *Domain*, *Username*, and *Password*. See *Connecting to a Capture Engine* on page 77 for details.
4. Click **OK** to accept your changes.

Using Capture Engines with Omnipeek

Capture Engines have no user interface of their own and rely on an Omnipeek console to provide a user interface through the **Capture Engines** window. The **Capture Engines** window in Omnipeek is used for interaction between Omnipeek and a Capture Engine.

Connecting to a Capture Engine from Omnipeek

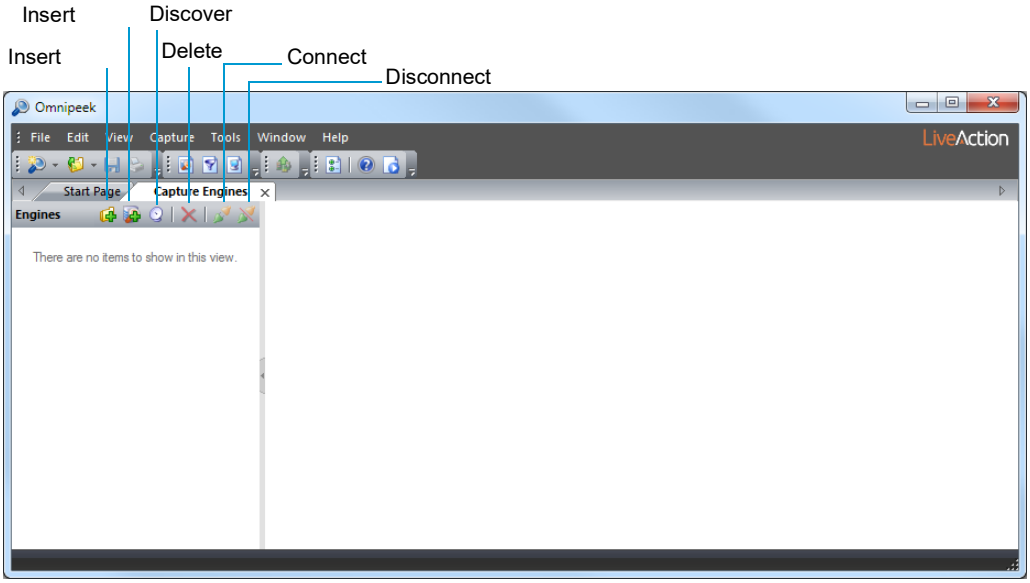
In order to view packets and data from a Capture Engine, you must first connect to the Capture Engine from the **Capture Engines** window.

To connect to a Capture Engine from Omnipeek:

1. Do one of the following to display the **Capture Engines** window:
   - Choose **View** > **Capture Engines**.
   - Click **View Capture Engines** on the Start Page.

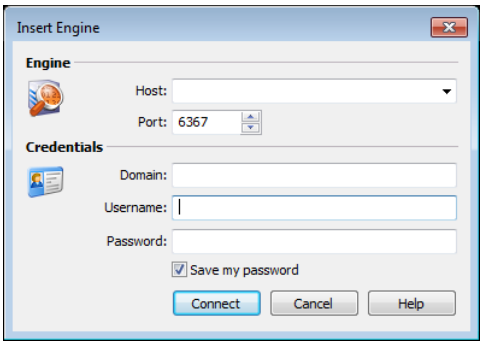
   The **Capture Engines** window appears and displays the list of currently defined Capture Engines.

> **Note** Both Omnipeek and Capture Engine Manager maintain the same list of Capture Engines. Making a change in either program automatically updates the list in the other program.

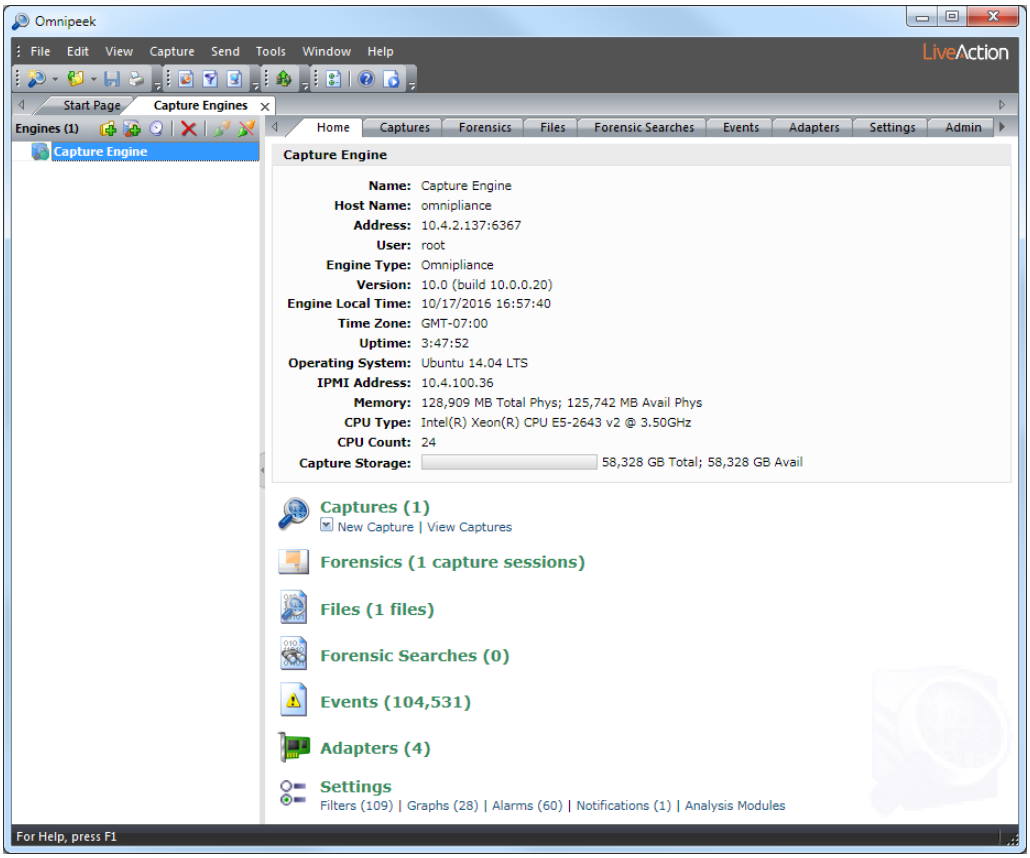


2. Click **Insert Engine**. The **Insert Engine** dialog appears.

> **Note** You can also click **Discover Engine** in the toolbar to find all of the Capture Engines available on your network segment. See *Discover Capture Engines* on page 80 for details.

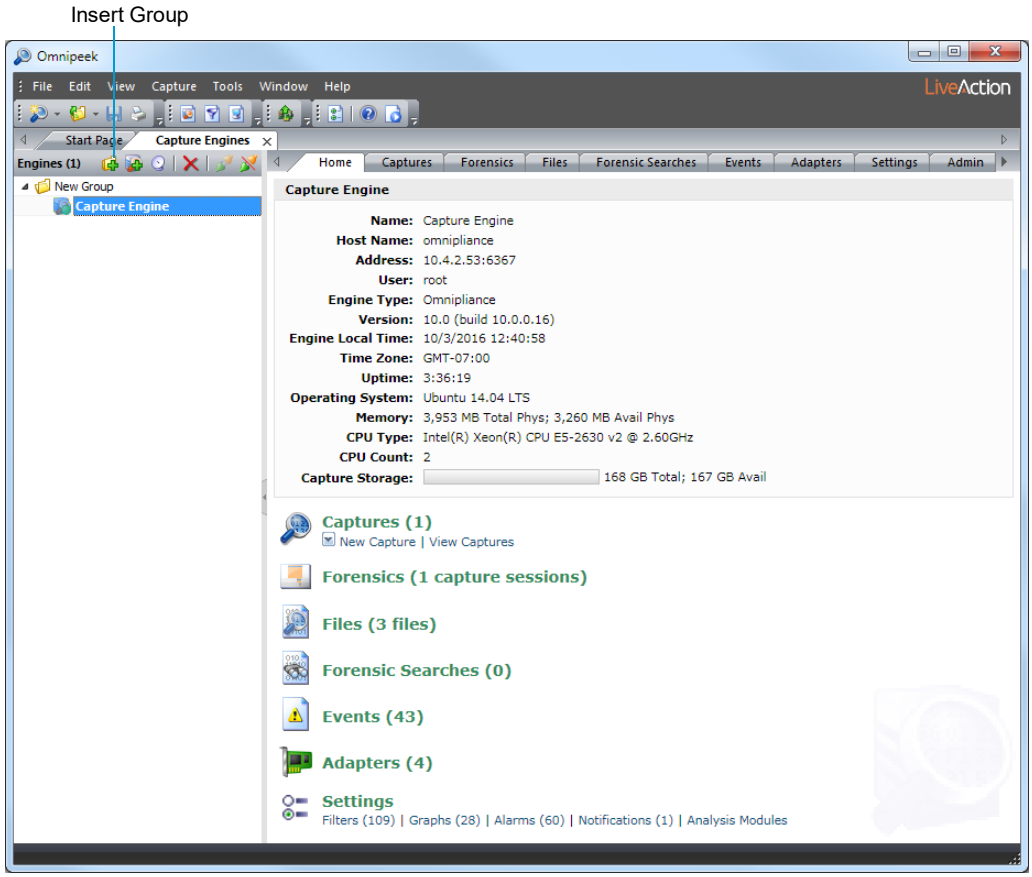


3. Complete the dialog:
   - *Host:* Enter the IP address of the Capture Engine that you want to connect to.
   - *Port:* Enter the TCP/IP Port used for communications. The default port is 6367.
   - *Domain:* Type the Domain for the Capture Engine. If the Capture Engine is not a member of any Domain, leave this field blank.
   - *Username:* Type the Username for login to the Capture Engine.
   - *Password:* Type the Password for login to the Capture Engine.
4. Click **Connect**. When the connection is established, the Capture Engine appears in the **Capture Engines** window.



Tip You can add multiple Capture Engines to the **Capture Engines** window by clicking **Insert Engine**.

5. Click **Insert Group** to add a group of Capture Engines to the **Capture Engines** window.
6. Select the Capture Engine group and then click **Insert Engine** to add an Capture Engine to the group.



Capturing from a Capture Engine

You can select from the following options to capture packets from a Capture Engine:

- *New Capture...*: This option lets you create a new capture window based on the capture settings that you define.
- *New "Forensics Capture"*: This option lets you create a new capture window based on pre-configured capture settings optimized for post-capture forensics analysis.
- *New "Monitoring Capture"*: This option lets you create a new capture window based on pre-configured capture settings optimized to produce higher level expert and statistical data in a continuous capture.
- *Edit Capture Templates*: This option opens the **Capture Templates** dialog and allows you to create new or edit existing capture templates.

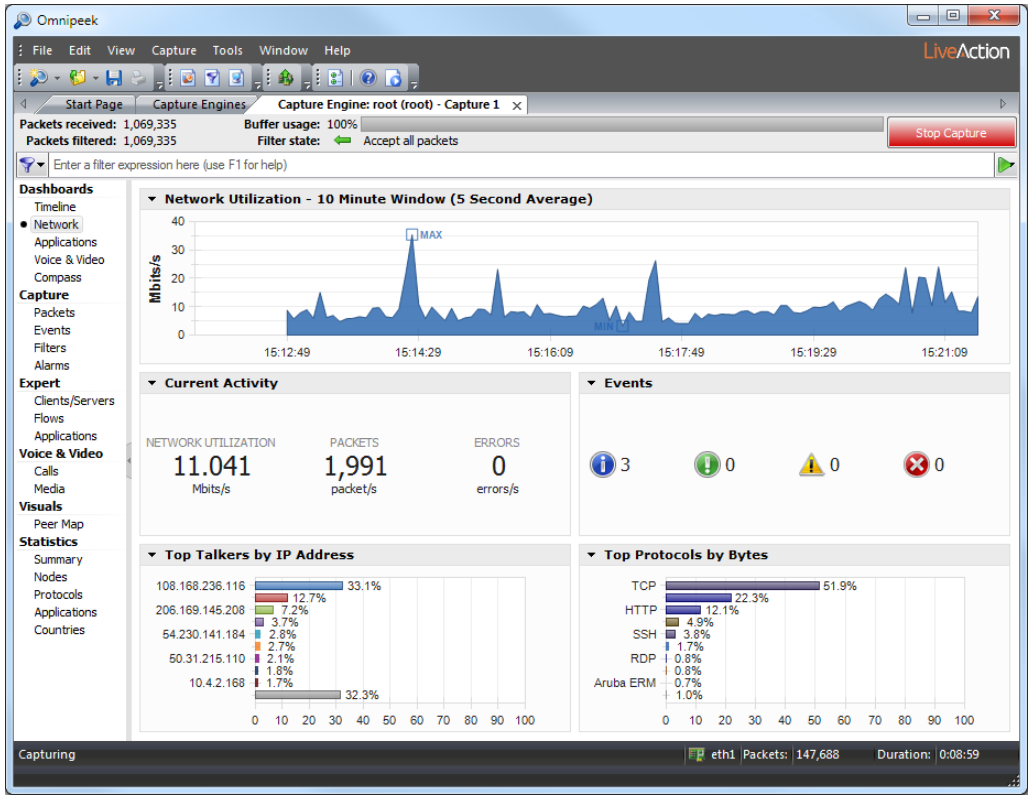
> **Note** For more information about each of the optimized capture formats, please see the *Omnipeek User Guide* or online help.

To begin a remote capture from a Capture Engine:

1. Do one of the following:
   - On the **Home** tab, select the type of remote capture to perform by selecting *New Capture* under the *Captures* heading.
   - On the **Captures** tab, select the type of remote capture to perform by clicking the small arrow next to **Insert**.
   - On the **Adapters** tab, select the type of remote capture to perform by selecting *New Capture* under the name of the adapter you wish to use.

   The remote **Capture Options** dialog appears.

2. Make any desired changes to the capture option settings.
3. Click **OK**. A Capture Engine capture window appears.



Note The views in the left-hand navigation pane that are available in a Capture Engine capture window depend on the type of Capture Engine that is connected, and the *Analysis Options* capture settings configured for that capture window. See the *Omnipeek User Guide* or online help for details on using the features available from Capture Engine capture windows.

4. Click **Start Capture** to begin capturing packets. **Start Capture** changes to **Stop Capture.**
5. Click **Stop Capture** when you want to stop collecting packets into the remote capture buffer.

Third-party authentication with Capture Engines

Third-party authentication of Capture Engines allows administrators of Capture Engines to easily manage logon credentials (after a set of Capture Engines have been deployed), without having to make changes on every Capture Engine individually.

Administrators and users can also sign on to Capture Engines with one set of credentials without requiring the same account on every Capture Engine computer. You can use Active Directory, RADIUS, and TACACS+ authentication to maintain logon credentials.

To use third-party authentication, you must first set up third-party authentication on the Capture Engine (using Capture Engine Manager from the Omnipeek computer), and then log in to the Capture Engine from Omnipeek.

Setting up third-party authentication on the Capture Engine:

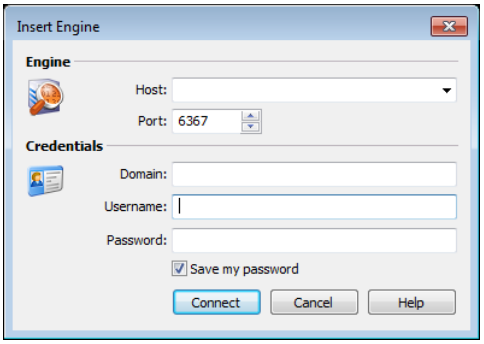
1. Start the Capture Engine Manager from Omnipeek, connect to the Capture Engine, and then add the Capture Engine to the Workspace. See *Using the Capture Engine Manager* on page 75.
2. Click *Configuration* to run the **Capture Engine Configuration Wizard**.

3. When the **Capture Engine Configuration Wizard** appears, click **Next** twice. The **Security** view of the wizard appears.

   The **Security** view of the **Capture Engine Configuration Wizard** allows you to configure the third-party authentication settings that allow the Capture Engine to communicate with, and authenticate to, the authentication servers. See *Engine Configuration—Security* on page 82.

Logging in to the Capture Engine from the Omnipeek computer:

1. From Omnipeek, click **Insert Engine** in the **Capture Engines** window. The **Insert Engine** dialog appears.



2. Complete the dialog:
   - *Host:* Enter the IP address of the Capture Engine that you want to connect to.
   - *Port:* Enter the TCP/IP Port used for communications. The default port is 6367.
   - *Domain:* Leave this field blank. This field is not used for Capture Engine (Linux).
   - *Username:* Type the Username for login to the Capture Engine using the specified credentials.
   - *Password:* Type the Password for login to the Capture Engine using the specified credentials.
3. Click **Connect.** The Omnipeek console sends the credentials to the Capture Engine over an encrypted channel.

   The Capture Engine decrypts the credentials, and then sends a request to the specific authentication server:
   - A negative response will prompt the Capture Engine to send an error message back to the console (**Access Denied**).
   - An affirmative response allows the user to log on.

CHAPTER 4

Capture Adapters for LiveCapture

In this chapter:

About capture adapters

The capture adapters for LiveCapture are high performance network analysis cards that allow you to perform advanced recording, monitoring and troubleshooting of Gigabit, 10 Gigabit, and 40 Gigabit Ethernet networks. The capture adapters for LiveCaptureare available in the following configurations:

- 1G capture adapter—Four port PCI Express Gigabit adapter (see *1G capture adapter* on page 98)
- 10G capture adapter—Two or four port 10 Gigabit adapter (see *10G capture adapter* on page 99)
- 40G capture adapter—Two port 40 Gigabit adapter (see *40G capture adapter* on page 101)
- 100G capture adapter—Two port 100 Gigabit adapter (see *100G capture adapter* on page 102)

If your capture adapter supports Precision Time Protocol (PTP), instructions for manually enabling PTP support and connecting the PTP adapter on LiveCapture are included.

For more information on using capture adapters with LiveCapture and Omnipeek, please refer to the documentation and online help that ships with the Omnipeek. Additionally, the LiveAction website has up-to-date software and support at *https://www.liveaction.com*.

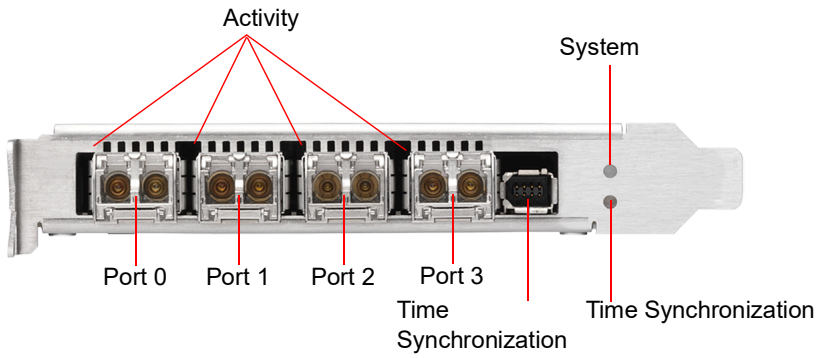
1G capture adapter

The 1G capture adapter is a four port PCI Express Gigabit adapter that supports up to four half-duplex Gigabit Ethernet channels (two full-duplex links). The 1G capture adapter can be connected via taps, matrix switches, or at a switch span port. Taps and matrix switches provide completely passive monitoring that does not affect the network, even in power loss conditions.

1G capture adapter I/O bracket

The I/O bracket of the 1G capture adapter has four SFP cages, a time synchronization connector, and status LEDs. The SFP cages accommodate either fiber or copper modules, which allows you to match different media for your network: copper, single mode fiber (SX), multi-mode fiber (LX), and 10/100/1000 Base-T.

Note Each SFP cage accommodates a single SFP module (not included). A pair of SFP modules are required for full-duplex links.



LED status

The following table describes the LED status on the 1G capture adapter.

LED	State and Color	Condition
System LED	Off	The power is off.
	Constant red	During start-up: Power is on. The adapter is checking the power supplies.
	Flashing red	After start-up: The power is on. There is a fatal hardware error.

LED	State and Color	Condition
	Constant yellow	During start-up: The power is on. The power supplies are working.
	Flashing yellow	There is a new entry in the hardware log.
	Constant green	The FPGA is loaded, and the system is running.
Activity LEDs	Off	The driver is not loaded, the Ethernet link is down, or the port is disconnected.
	Constant Green	The driver is loaded and the Ethernet link is up, but there is no RX or TX traffic.
	Flashing Green	The driver is loaded and there is RX or TX traffic on the Ethernet link
External Time Synchronization LED	Off	No driver is loaded, or no valid PPS or NT-TS signal is detected or generated on the SMA port of the external time synchronization connector, and the Ethernet link on the PTP port is down.
	Constant yellow	The Ethernet link on the PTP port is up.
	Flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link on the PTP port is down and the following condition is fulfilled: When the SMA port of the external time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.
	Yellow with flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link is up. When the corresponding time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated

10G capture adapter

The 10G capture adapter is a two or four port 10 Gigabit adapter specifically designed to handle 10 Gigabit capture and analysis. Capturing 10 Gigabit network traffic, it can slice and filter packets in order to focus the traffic stream and optimize analysis. The 10G capture adapter can be used in fiber environments, or via SPAN or mirror ports.

The 10G capture adapter is available in the following configurations:

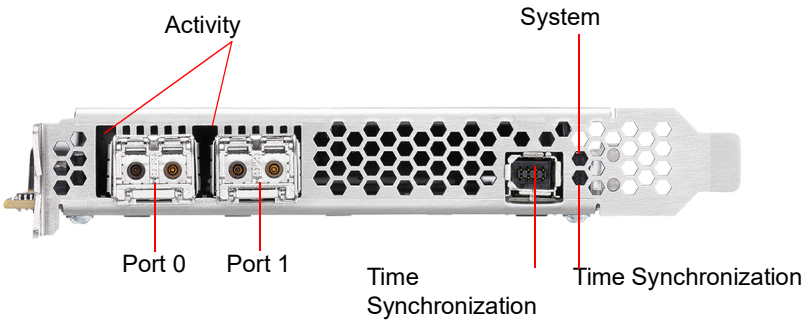
- Two or four 850nm MMF SFP+ optical transceivers with LC connectors
- Two or four 1310nm SMF SFP+ optical transceivers with LC connectors

Note If you are using a variable rate 1 GB SFP+, you will need to cd into `/opt/Napatech/bin` and issue the following command to set the port rate to 1 GB:

```
config --cmd set --port 1 --speed 1G
```

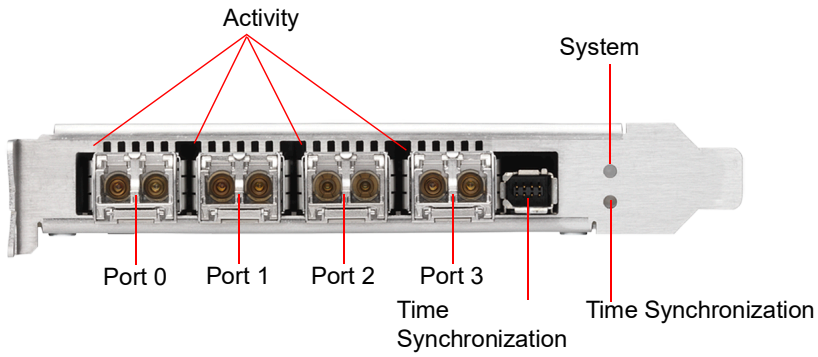
10G capture adapter (2-port) I/O bracket

The I/O bracket of the 10G capture adapter (2-port) has two SFP+ cages, a time synchronization connector, and status LEDs. Each SFP+ cage accommodates a single SFP+ module. A pair of SFP+ modules are required for full-duplex links.



10G capture adapter (4-port) I/O bracket

The I/O bracket of the 10G capture adapter (4-port) has four SFP+ cages, a time synchronization connector, and status LEDs. Each SFP+ cage accommodates a single SFP+ module (not included). A pair of SFP+ modules are required for full-duplex links.



LED status

The following table describes the LED status on the 10G capture adapter.

LED	State and Color	Condition
System LED	Off	The power is off.
	Constant red	During start-up: Power is on. The adapter is checking the power supplies.
	Flashing red	After start-up: The power is on. There is a fatal hardware error.
	Constant yellow	During start-up: The power is on. The power supplies are working.
	Flashing yellow	There is a new entry in the hardware log.
	Constant green	The FPGA is loaded, and the system is running.
Activity LEDs	Off	The driver is not loaded, the Ethernet link is down, or the port is disconnected.
	Constant Green	The driver is loaded and the Ethernet link is up, but there is no RX or TX traffic.
	Flashing Green	The driver is loaded and there is RX or TX traffic on the Ethernet link
External Time Synchronization LED	Off	No driver is loaded, or no valid PPS or NT-TS signal is detected or generated on the SMA port of the external time synchronization connector, and the Ethernet link on the PTP port is down.
	Constant yellow	The Ethernet link on the PTP port is up.

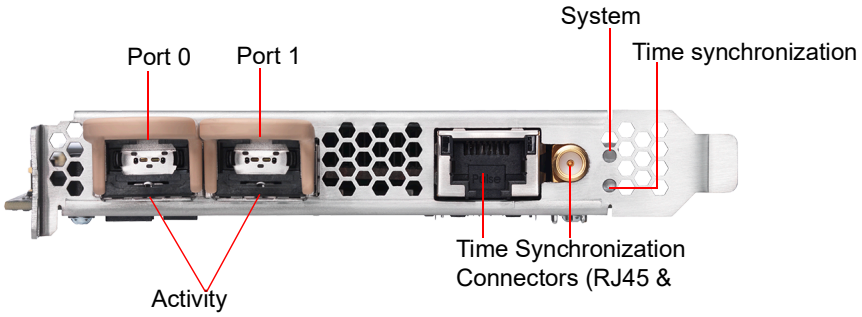
LED	State and Color	Condition
	Flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link on the PTP port is down and the following condition is fulfilled: When the SMA port of the external time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.
	Yellow with flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link is up. When the corresponding time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.

40G capture adapter

The 40G capture adapter is a two port, PCI Express 40 Gigabit adapter with optical interfaces that are optimized for recording, monitoring, and troubleshooting traffic on 40 Gigabit Ethernet networks. The 40G capture adapter provides tracing and dynamically configurable filtering together with high precision time-stamping. The 40G Adapter is available with two QSFP+ interfaces.

40G capture adapter I/O bracket

The I/O bracket of the 40G capture adapter has two QSFP+ cages, a time synchronization connector, and status LEDs. Each QSFP+ cage accommodates a single QSFP+ module (not included).



LED status

The following table describes the LED status on the 40G capture adapter.

LED	State and Color	Condition
System LED	Off	The power is off.
	Constant red	During start-up: Power is on. The adapter is checking the power supplies.
	Flashing red	After start-up: The power is on. There is a fatal hardware error.
	Constant yellow	During start-up: The power is on. The power supplies are working.
	Flashing yellow	There is a new entry in the hardware log.
	Constant green	The FPGA is loaded, and the system is running.
Activity LEDs	Off	The driver is not loaded, the Ethernet link is down or the port is disconnected.
	Constant Green	The driver is loaded and the Ethernet link is up, but there is no RX or TX traffic.
	Flashing Green	The driver is loaded and there is RX or TX traffic on the Ethernet link

LED	State and Color	Condition
External Time Synchronization LED	Off	No driver is loaded, or no valid PPS or NT-TS signal is detected or generated.
	Constant Yellow	The Ethernet link on the external RJ45 time synchronization connector is up.
	Flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link on the externalRJ45 time synchronization connector is down, and the following condition is fulfilled: When the external SMA time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.
	Yellow with flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link on the externalRJ45 time synchronization connector is down, and the following condition is fulfilled: When the external SMA time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.

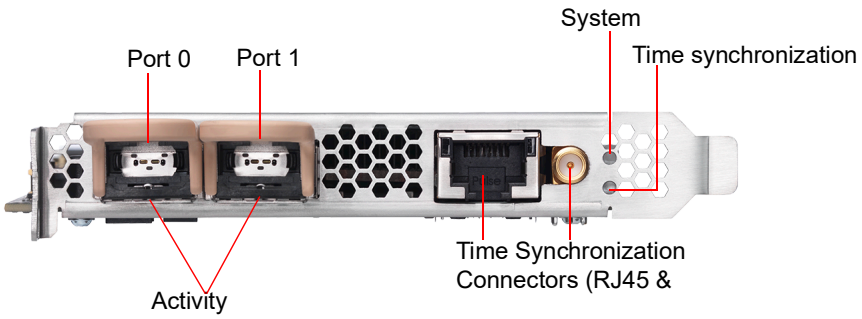
100G capture adapter

The 100G capture adapter is a two port, PCI Express 100 Gigabit adapter with optical interfaces that are optimized for recording, monitoring, and troubleshooting traffic on 100 Gigabit Ethernet networks. The 100G capture adapter provides tracing and dynamically configurable filtering together with high precision time-stamping. The 100G capture adapter is available with two QSFP28 interfaces.

Note Both a 25G and 80G capture adapter configuration that is based on the 100G capture adapter form factor are also available. If you are interested in obtaining either a 25G or 80G capture adapter configuration, please contact LiveAction Technical Support.

100G capture adapter I/O bracket

The I/O bracket of the 100G capture adapter has two QSFP28 cages, a time synchronization connector, and status LEDs. Each QSFP28 cage accommodates a single QSFP28 module (not included).



LED status

The following table describes the LED status on the 100G capture adapter.

LED	State and Color	Condition
System LED	Off	The power is off.
	Constant red	During start-up: Power is on. The adapter is checking the power supplies.

LED	State and Color	Condition
	Flashing red	After start-up: The power is on. There is a fatal hardware error.
	Constant yellow	During start-up: The power is on. The power supplies are working.
	Flashing yellow	There is a new entry in the hardware log.
	Constant green	The FPGA is loaded, and the system is running.
Activity LEDs	Off	The driver is not loaded, the Ethernet link is down or the port is disconnected.
	Constant Green	The driver is loaded and the Ethernet link is up, but there is no RX or TX traffic.
	Flashing Green	The driver is loaded and there is RX or TX traffic on the Ethernet link
External Time Synchronization LED	Off	No driver is loaded, or no valid PPS or NT-TS signal is detected or generated.
	Constant Yellow	The Ethernet link on the external RJ45 time synchronization connector is up.
	Flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link on the externalRJ45 time synchronization connector is down, and the following condition is fulfilled: When the external SMA time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.
	Yellow with flashing green synchronous with the PPS or NT-TS pulse	The Ethernet link on the externalRJ45 time synchronization connector is down, and the following condition is fulfilled: When the external SMA time synchronization connector is configured as a: • PPS or NT-TS input connector: A driver is loaded, and a valid PPS or NT-TS signal as relevant is detected. • PPS or NT-TS output connector: A driver is loaded, and a PPS or NT-TS signal is generated.

Enabling PTP support for capture adapters

The capture adapters for LiveCapture support the Precision Time Protocol (PTP). This protocol allows the adapters to sync to a time source on the network that may be more accurate than the clock on LiveCapture. If you have multiple capture adapters, you can sync the adapters to a single clock source, as well as allow the packets received on the adapters to have more accurate timestamps. See also *Synchronizing the capture engine clock* on page 105.

To enable PTP support for the adapters, you must manually edit a config file and restart some services on the Capture Engine. The instructions for enabling PTP support on the Capture Engine are provided below.

To enable PTP support on the Capture Engine:

1. SSH into the Capture Engine.
2. Stop the Capture Engine service.
   - service omnid stop
3. Open the file /etc/omni/ntservice.ini
   - This file uses the INI format.
   - The file is broken up into sections. Each section has a name wrapped in [] (e.g [Adapter0]), all of the fields below the section name apply to that section.
4. Find the adapter section corresponding to the adapter you wish to configure. Make note of the section name.
   - Adapter sections have section names which follow the format [AdapterN] where N is a number starting at 0 and incremented by one for each Napatech adapter present on the system.
5. Close the /etc/omni/ntservice.ini file.

6. Open the file /etc/omni/ntoverrides.ini
   - This file has the same format as the /etc/omni/ntservice.ini file.
   - This file is used to override the default settings of configuration parameters in the /etc/omni/ntservice.ini file.
7. Add the section name of the adapter retrieved in the /etc/omni/ntservice.ini file.
8. Below this section, add the necessary PTP configuration parameters.
   - If more than one card is being configured, add the next section name and the necessary PTP configuration parameters.
9. When all of the adapters have been configured, save and close the file.
10. Run the ntcard_setup script to update the configuration file with the PTP settings.
    - service ntcard_setup start
    - This script may take a couple of minutes to complete.
11. Once the script is finished, restart the Capture Engine service.
    - service omnid start

Configuration parameters

The minimum configuration parameters that must be set to enable PTP on an Adapter for LiveCapture are described in the table below. For more complex configurations, contact LiveAction Tech Support to get a full list of all the PTP configuration parameters supported.

Note *PtpIpAddr*, *PtpGw* and *PtpNetmask* are only applicable if *PtpDhcp* is set to DISABLE. If *PtpDhcp* is set to ENABLE the static IP configuration parameters should not be added to the configuration file.

Section	Parameters	Description	Values	Default Value
System	TimeSyncOsTimeReference	This option can be used to synchronize the OS Time to a Napatech adapter clock The chosen adapter cannot specify OSTime as one of the options in the TimeSyncReferencePriority field	None - adapter-0 - adapter-1 - adapter-2...	None
AdapterN	PtpDhcp	Enables/disables DHCP support on the PTP port. Set to DISABLE if a static IP address will be used.	ENABLE - DISABLE	DISABLE
AdapterN	PtpIpAddr	Specifies a static IP address for the PTP port.	Any valid IPv4 address (e.g. 192.168.1.10)	Not set
AdapterN	PtpGw	Specifies a gateway address for the PTP port.	Any valid IPv4 address (e.g. 192.168.1.10)	Not set
AdapterN	PtpNetMask	Specifies the netmask for the static address specified with PtpIPaddr.	Any valid IPv4 netmask (e.g. 255.255.255.0)	Not set

Section	Parameters	Description	Values	Default Value
AdapterN	PtpUnicastMasterAddre<1...10>	Adds an IP address of a PTP master to the unicast master table. Up to 10 IP addresses can be added. The order of the addresses is not important.	Any valid IPv4 address (e.g. 192.168.1.10)	Not set
AdapterN	TimeSyncReferencePriority	Comma separated list of clock sources. In order to enable PTP, PTP must be the first item in the list. The last item in the list must be either FreeRun or OSTime.	PTP - Ext1 - FreeRun - OSTime	OSTime

Example of /etc/omni/ntoverrides.ini:

```
## This file is used to specify overrides for the ntservice configuration file
#
## Option to synchronize OS time to a Napatech adapter clock:
##   Note: The selected accelerator must not have OSTime included in the
##   TimeSyncReferencePriority parameter, nor must it be synchronized to an accelerator
##   in OS synchronization mode.
[System]
TimeSyncOsTimeReference = adapter-1

#
# Example for Configuring Multicast:
[Adapter0]
PtpDhcp = ENABLE
# Last item in list must be FreeRun or OSTime, cannot include both in the list:
TimeSyncReferencePriority = PTP, OSTime

##
# Example for Configuring Unicast using a Static IP Address:
[Adapter1]
PtpDhcp = DISABLE
PtpIpAddr = 192.168.1.15
PtpGw = 192.168.1.1
PtpNetMask = 255.255.255.0
PtpUnicastMasterAddr1 = 192.168.1.13
PtpUnicastMasterAddr2 = 192.168.1.29
TimeSyncReferencePriority = PTP, FreeRun
```

Synchronizing the capture engine clock

If PTP support is enabled on the capture adapter in a PTP network environment, to prevent inaccurate time-stamps from being reported, ensure that the Capture Engine's clock is synchronized with the PTP or NTP server (if NTP's time source is pointed at the PTP grandmaster clock).

To synchronize the Capture Engine clock, one of the following configurations is needed:

- Enable 'TimeSyncOsTimeReference' in */etc/omni/ntoverrides.ini*—This option synchronizes the OS time to a Napatech adapter clock, which in turn should be configured to point to the PTP grandmaster clock as its time reference
- If NTP server references PTP as its time source, run 'ntpdate' to synchronize the OS time with the NTP server, and then start up the NTP daemon

Connecting the external time synchronization adapter

For the capture adapters for LiveCapture that support the Precision Time Protocol (PTP), a time synchronization adapter is included with your adapter. One end of the time synchronization adapter is connected to the external time synchronization connector on the capture adapter; the other end of the time synchronization adapter is connected to your PTP source via an Ethernet or GPS connection (blue cable).

Note For instructions on manually enabling PTP support on your Capture Engine, see *Enabling PTP support for capture adapters* on page 103.

Troubleshooting the capture adapters

When the connection for one or more channels is down or degraded, you can use a known good test cable to connect the card to itself in order to facilitate troubleshooting and help to isolate the source of trouble.

Verifying link status

1. Remove the cables from two of the channels and replace with a crossover test cable connected as shown below:

2. If the two links are established, this will indicate that both channels, including the SFP/SFP+ modules, are functional. An external connection issue should then be investigated.

   If both links are NOT established using the Link Status test steps above, users of fiber SFP/SFP+ modules may attempt a further test to isolate individual SFP/SFP+ modules.

Note Both the Rx and Tx sides of the connection are contained in a single jack for 1000Base-TX SFPs/SFP+ modules. The following steps can only be used to test fiber SFP (SX or LX) and SFP+ modules, which have separate Rx and Tx connectors.

To test fiber SFP/SFP+ modules individually:

1. Connect the crossover test cable as shown below:

2. Each channel should auto-negotiate with itself, turning its Link Status LED on.
3. If a single failing channel is identified, substitute the corresponding channel's SFP/SFP+ module.
4. If substitution of the SFP/SFP+ modules does not resolve the problem, replace the card.

Hardware Specifications

In this appendix:

LiveCapture technical specifications

LiveCapture 1100

Specification	Description
Processor	1 x Intel® Xeon® Bronze 3106
Base Frequency Cores Thread	1.70 GHz 8 8
Memory	32 GB
Expansion Slots	1 x 16 FH/HL **NOTE**: A total of one capture adapter can be added to the LiveCapture 1100.
Integrated Network Interfaces	4 x 1GBASE-T iDRAC
Storage-OS	Included as part of Storage-Data
Storage-Data	4 x 4 TB NLSAS (16 TB)
Chassis Dimensions (WxHxD): Weight:	1U Rackmount 17.08 x 1.68 x 27.26 in. (434 x 42.7 x 692.4 mm) Up to 38.58 lb (17.5 kg) Maximum
System Cooling	Five chassis cooling fans (hot-pluggable)
System Input Requirements AC Input Voltage: Rated Input Current: Rated Input Frequency:	 100-240 V AC 7.4 A-3.7 A 50/60 Hz
Power Supply (2 units) Rated Output Power:	 550 W
Operating Environment Operating Temperature: Non-operating Temperature: Operating Relative Humidity: Non-operating Relative Humidity: Heat dissipation (maxiumum):	 50° to 95° F (10° to 35° C) -40° to 149° F (-40° to 65° C) 10% to 80% (non condensing) 5% to 95% (non condensing) 2559 BTU/Hour

LiveCapture 3100

Specification	Description
Processor	2 x Intel® Xeon® Gold 6126
Base Frequency Max Turbo Frequency Cores Thread	2.6 GHz 3.7 GHz 12 24
Memory	192 GB
Expansion Slots	64 TB / 128 TB Configuration: 1 x 16 FH/FL 2 x 8 FH/FL 1 x 8 FH/HL 96 TB Configuration: 1 x 8 FH/FL 1 x 8 FH/HL 3 x 16 FH/FL 1 x 16 LP/HL **NOTE**: A total of three capture adapters can be added to the LiveCapture 3100.
Integrated Network Interfaces	4 x 1GBASE-T iDRAC
Storage-OS	2 x 2 TB NLSAS (4 TB) or 2 x 1.8 TB SAS (3.6 TB)
Storage-Data	16 x 8 TB NLSAS (128 TB) or 16 x 4 TB NLSAS (64 TB) or 12 x 8 TB NLSAS (96 TB)
Chassis Dimensions (WxHxD): Weight:	2U Rackmount 17.09 x 3.42 x 28.17 in. (434 x 86.8 x 715.5 mm) Up to 72.91 lb (33.1 kg) Maximum
System Cooling	Six chassis cooling fans (hot-pluggable)
System Input Requirements AC Input Voltage: Rated Input Frequency:	 100-240 V AC, autoranging 50/60 Hz
Power Supply (2 units) Rated Output Power:	 1100 W
Operating Environment Operating Temperature: Non-operating Temperature: Operating Relative Humidity: Non-operating Relative Humidity: Heat dissipation (maxiumum):	 50° to 95° F (10° to 35° C) -40° to 149° F (-40° to 65° C) 10% to 80% (non condensing) 5% to 95% (non condensing) 4100 BTU/Hour

Important! WARNING: Slide/rail mounted equipment is not to be used as a shelf or a work space.

AVERTISSEMENT: Le matériel monté sur rails/coulisseaux ne doit pas être utilisé comme étagère ou espace de travail.

Capture adapter technical specifications

1G capture adapter specifications

Specification	Description
Network Interfaces Standard: Physical interface:	 IEEE 802.3 1 Gbps Ethernet support 4x SFP ports
Supported SFP modules	Multi-mode SX (850 nm), single-mode LX (1310 nm), single-mode ZX (1550 nm), 1000BASE-T or 10/100/1000BASE-T
Environment Power consumption: Operating temperature: Operating humidity:	 23.3 Watts including SFP SX modules 32° F to 113° F (0° to 45° C) 20% to 80%
Regulatory approvals and compliances	CE CB RoHS REACH cURus (UL) FCC CSA VCCI C-TICK

10G capture adapter (2-port) specifications

Specification	Description
Network interfaces Standard: Physical interface:	 IIEEE 802.3 10 Gbps Ethernet LAN 2 x SFP or SFP+ ports
Supported SFP modules: Supported SFP+ modules: Supported dual-rate modules:	Multi-mode SX, single-mode LX and ZX, 1000BASE-T or 10/100/1000BASE-T Multi-mode SR, single-mode LR and ER, 10GBASE-CR Multi-mode SR and single-mode LR

Specification	Description
Environment	
Operating temperature:	32°F to 113°F (0° to 45°C)
Operating humidity:	20% to 80%
Regulatory approvals and compliances	CE CB RoHS REACH cURus (UL) FCC CSA VCCI C-TICK

10G capture adapter (4-port) specifications

Specification	Description
Network interfaces	
Standard:	IIEEE 802.3 10 Gbps Ethernet LAN
Physical interface:	4x SFP or SFP+ ports
Supported SFP modules:	Multi-mode SX, single-mode LX and ZX, 1000BASE-T or 10/100/1000BASE-T
Supported SFP+ modules:	Multi-mode SR, single-mode LR and ER, 10GBASE-CR
Supported dual-rate modules:	Multi-mode SR and single-mode LR
Environment	
Power consumption:	27 Watts including SFP+ SR modules
Operating temperature:	32° F to 113° F (0° C to 45° C)
Operating humidity:	20% to 80%
Regulatory approvals and compliances	PCI-SIG® CE CB RoHS REACH cURus (UL) FCC CSA VCCI C-TICK

40G capture adapter specifications

Specification	Description
Network interfaces	
Standard:	IEEE 802.3 40 Gbps Ethernet LAN
Physical interface:	2x QSFP+ ports
Supported optical transceivers:	
Supported QSFP+ modules:	40GBASE-SR4, 40GBASELR4, and 40GBASE-SR-BiDi
Supported QSFP28 modules:	100GBASE-SR4 and 100GBASE-LR4

Specification	Description
Environment Operating temperature: Operating humidity:	 32°F to 113°F (0° to 45°C) 20% to 80%
Regulatory approvals and compliances	PCI-SIG® NEBS level 3 CE CB RoHS REACH cURus (UL) FCC ICES VCCI C-TICK

100G capture adapter specifications

Specification	Description
Network interfaces Standard: Physical interface:	 IEEE 802.3 40 Gbps Ethernet LAN 2x QSFP+ ports
Supported optical transceivers: Supported QSFP+ modules: Supported QSFP28 modules:	 40GBASE-SR4, 40GBASELR4, and 40GBASE-SR-BiDi 100GBASE-SR4 and 100GBASE-LR4
Environment Operating temperature: Operating humidity:	 32°F to 113°F (0° to 45°C) 20% to 80%
Regulatory approvals and compliances	PCI-SIG® NEBS level 3 CE CB RoHS REACH cURus (UL) FCC ICES VCCI C-TICK