SnapStream
M·E·D·I·A

Enterprise TV Server

Administrator Guide

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SnapStream Enterprise TV Server Administrator's Manual

SnapStream Technical Support
877-SNAPSTREAM
support@snapstream.com
www.snapstream.com/enterprise/support/

Overview

SnapStream is a Windows-based appliance for recording television. It is designed to serve PC or Mac clients over the local network. Your SnapStream installation may be comprised of one or more physical systems, called "nodes." An installation with more than one node is referred to as a "cluster."

In most cases, SnapStream will require some configuration before use for compatibility with your TV source. In addition, changes to default system settings can be useful in order for your organization to get the most out of your server. Some features, such as user settings, are not preconfigured, and must be configured manually when you receive your server.

SnapStream settings are found in our web interface. To open the web interface, enter the system's name or IP address into a web browser. Select Admin for access to the settings pages.

The default admin page is **View Status**. This page gives information about clients that are currently connected, as well as information about the system's tuners and task processing.

On the left side of the page are links to the other settings pages.

Settings

- **Alerts:** Default settings for SnapStream TV Alerts

- **E-mail:** Settings used sending e-mail, including TV Alerts, clip sharing, and warning messages

- **Expiration Manager**: Options for managing storage space on each node

- **Folders:** Default folder settings for various purposes; folder creation and management

- **Format Profiles:** Options for different encoding profiles supported by SnapStream

- **Machine:** Settings for individual nodes in your SnapStream cluster

- **Misc:** Various other settings

- **Program Guide:** Settings for program guide updates and channel lineups

- **Recording:** Default recording settings

- **Search:** Settings for search indexing and options for refreshing the index

- **Transcoding:** Default settings for ShowSqueeze, SnapStream's transcoding feature

- **Tuners:** Settings for individual TV tuning devices on each node

- **Users:** Security settings

- **Workflows:** Options for creating rules that create post-processing tasks automatically

Actions

- **Import File:** Copy a file from the client computer to the SnapStream Library

- **View Log:** See status messages generated by SnapStream software

- **Download Log:** Save a copy of the Snapstream log from a particular day to your desktop

External Accounts: Management of Facebook, Twitter, YouTube and Google Cloud Storage accounts

Other information

Initial Configuration

See the included document **Getting Started with SnapStream Software** for passwords and setup.

For initial configuration of a multi-system SnapStream cluster, please contact SnapStream support by calling 877-SNAPSTREAM or e-mailing support@snapstream.com.

How Users Connect to SnapStream

Users can connect to SnapStream by entering the name or IP address of your SnapStream system into the address bar of a web browser.

The web interface uses a plug-in for playback in a web browser on PC or Mac. The SnapStream Web Player plug-in will prompt for installation when a user attempts to play back video through the web interface. The plug-in installs at the user level and does not require administrative permissions. For specifications and system requirements, see our knowledgebase:
http://www.snapstream.com/support/kb/snapstream-web-player-requirements

If your security policy prohibits users from installing browser plugins, or you would prefer to install the web player at the system level, please contact SnapStream support for instructions.

For DVD burning through the web interface, we offer a DVD burning plug-in. The latest version can be downloaded from:
http://www.snapstream.com/download/enterprise/dvd/

Currently, the DVD burning plug-in is available for Windows PCs only. It requires administrative permissions for installation. Installation requires a product key, which can be found on the document entitled Getting Started With SnapStream Software.

About lineups

Lineups are lists of channels that are created in SnapStream. Lineups can be managed on the Program Guide page in the web interface. Two types of lineups can be created from this page:

1. SnapStream.Net lineups. These lineups are tied to your server's product key on our website (SnapStream.Net). When you enter your ZIP code, you will be presented with a preset list of available channel lineups. These lineups are built by our guide data provider and cannot be edited, although you can choose to hide or display individual channels.
Channels on SnapStream.Net lineups have program guide data.

2. Local lineups. These lineups can be built from scratch a channel at a time in the Web Admin. They are not tied to our website.
Channels on local lineups do not have program guide data.

If you have an in-house cable feed, you may need to create a custom lineup with program guide data. To do this, use the **Create New Custom Lineup** button under SnapStream.Net Lineups. Further instructions can be located here:
http://www.snapstream.com/enterprise/support/ETV_5_help/html/create_or_edit_custom_lineup.htm

(**Note:** If you have provided a custom lineup to SnapStream during the ordering process, that lineup should be pre-loaded.)

Every tuner on your SnapStream must have a lineup associated with it in order to know what channels it has available. To change the lineup that is associated with a tuner, use the Tuners page in the Admin section of the web interface.

Only channels that are associated with an enabled tuner will be displayed in the Program Guide. The Program Guide will list all active lineups simultaneously by channel number (i.e. if two different lineups have a channel 2 with different callsigns, the Program Guide will display two different entries for channel 2 before listing any channels with higher numbers).

About video profiles

SnapStream provides a variety of preset video profiles in MPEG-2 for creating recordings, and WMV and H.264 for transcoding. The major difference between video profiles within a format is usually bitrate, although some other factors, such as Windows Media encoder version or H.264 AVC profile, may differ as well. These factors can have different effects on the time required for transcoding or on the compatibility of the transcoded video with third-party software.

Due to the variety of profiles and options available for recording and transcoding, as well as the variations in quality of television signals, it is difficult to predict how long transcoding operations will take, or which video profile will be suitable for your use case. Many video profiles are named according to uses for which they are well-suited, but some experimentation may be necessary in order to find the right profile.

Note: MPEG-2 settings apply to SD recordings only. The bitrate of HD recordings is set by the encoding source, and cannot be changed through the SnapStream interface.

About Tasks and Workflows

Post-processing tasks performed by SnapStream include transcoding, clips, SmartChapters (commercial detection), file tagging, exporting to other locations, uploading to the internet, and other options. File tagging is performed automatically on every video file and requires no management. Other tasks can be submitted manually through the Library, or they can be generated automatically using the Workflows feature.

Workflows are very powerful because they allow a variety of actions to be taken based on different types of "trigger" events. For example, a Workflow can be set up to automatically create a transcode task every time a clip is created. Or, a Workflow could be created that would run whenever an HD recording in the Recordings folder reached 38 days of age that would generate a transcript, transcode the recording to H.264, delete the original file, export the transcoded file to a folder on a NAS, and then move the H.264 file to another folder.

Because of the versatility of this feature, it is important to use caution when creating a Workflow and make sure that the effect that it will have is well-understood. Please feel free to contact SnapStream support for assistance in using the Workflows feature.

When post-processing tasks are created, either manually or by a Workflow, they are placed in a queue. This queue can be viewed on the Tasks page.

Information about the status of post-processing on each node is available through System Status in the Web Admin.

Guidelines for Active Directory integration

The SnapStream Active Directory integration feature allows users to log in to SnapStream using their Active Directory or Novell password. Guidelines for AD integration are as follows:

- The server must be added to your domain
- A username and password must be entered in the Security Settings section of the Users page. The username should be entered as domain\user.
- The username entered in Security Settings must have permission to make queries on the properties of all users who will be granted access to SnapStream. This user must also have local administrator permissions on the SnapStream system.
- The SnapStream Broker Windows service on the master node must be configured to log in as the same user who is entered in Security Settings. (Contact SnapStream Support for assistance with this step)
- When a user attempts to log in, the username can usually be entered without domain information. For very large domains, it may be helpful to enter the username as domain\user.

Integration with Novell is also available through the same menu.

E-mail Alerts

Your SnapStream can be configured to send warning e-mail notifications when software errors occur. These alerts are an important tool for catching problems early and maximizing uptime. Please take a moment to enable warning notifications, on the E-mail page of the Admin console.

E-mail alerts are also available for the SnapStream system's hard disk array. Please see **Hard Drives** on page 14 for information.

FAQ

How can I change the configuration of the tuners?

Open the web interface and navigate to Admin=> Tuners. Tuner settings can be edited from this menu.

How can I set up the server for direct video (non-television) inputs? How can I "lock" tuners to a particular channel?

For recording content when no guide data is necessary, you will need to create a single local channel lineup in the web interface under Admin=>Program Guide for each tuner that you would like to do this with. Make sure that each lineup uses a different channel number. You can then set a tuner to use the necessary lineup and input type under Admin=>Tuners.

To lock a tuner to a specific channel with guide data, you will need to create a custom SnapStream.net lineup, by importing the one channel that you would like to lock it to. You can then set a tuner to use the necessary lineup and input type under Admin=>Tuners.

Specific instructions for some types of tuning configurations can be found in the SnapStream Enterprise TV knowledgebase, at http://kb.snapstream.com.

How do I make a recording from a specific TV input?

Enterprise TV does not support setting a recording job to use a specific tuner. In order to enable recording by tuner, you must create a single-channel lineup for each tuner. See the answer above.

Do I need to install the web player on every single user PC? Where can I find the prerequisites that are necessary? Is the web player suitable for distribution through Windows Group Policy or other installation management tool? Is there a Mac-compatible version of the web player?

The SnapStream web player is a browser plug-in that must be installed in order for users to play back recordings through a web browser. It can be used on both Macs and PCs. Clicking the play button next to a recording in our web interface will prompt a user to download and install the web player it if they don't have it already.

You can find the prerequisites needed for installing the web player here:
http://www.snapstream.com/support/kb/snapstream-web-player-requirements

A walkthrough of installation can be found in our online help file:
http://www.snapstream.com/enterprise/support/etv_5_help/html/thewebplayer.htm

The web player installs at the user level. For this reason, it does not require administrative permissions, and it is not suitable for distribution through an installation management tool. We recommend allowing users to manage the installation of the plug-in themselves. However, if administrative installation of the Web Player is desired, SnapStream Support can provide a suitable installation package.

What video format does the server use? Can I change the video format?

In most cases, the SnapStream appliance records SDTV and HDTV in MPEG-2 format inside an MPEG-2 transport stream wrapper. Recording files have the extension .TP or .TS. In some circumstances, it may be an option to record H.264 video inside a transport stream wrapper. SnapStream's ShowSqueeze feature allows videos to be transcoded into Windows Media, H.264/MPEG-4 or XDCAM formats for portability and file compression.

What permissions should I give to my users?

SnapStream comes pre-loaded with five user groups: Administrators, Schedulers, Basic Schedulers, Live TV Viewers, and Pre-Recorded Viewers. The difference between the profiles of these groups is the degree to which users assigned to them can impact the activity of other users. For example, Pre-Recorded Viewers have "read-only" access to the server, whereas Basic Schedulers can create recordings, but not edit them or change settings. Administrators can change settings that affect the operation of the entire server.

Permissions can be edited by creating a new group or by editing an existing group. We recommend that you restrict access to Administration, Scheduling and Editing permissions to trusted users.

Can my users access SnapStream over a Wide-Area Network (WAN)? Over the Internet?

It is possible for users to access SnapStream via web browser from outside the local network, if the network is configured properly. Playback will be constrained by the effective bandwidth between the client and the server, and may require changes to the bitrate of recordings (either during encoding or transcoding), firewall rules, and DNS settings. See our knowledgebase for more information, or contact SnapStream Support for assistance.

Can I add network-attached storage or a USB hard drive as a video folder?

For our Server systems, network-attached storage can be added as a video folder for additional storage space. However, note that the amount of data that your system is licensed to index may be limited to the internal storage of the system, and additional storage beyond that limit will not be indexed. See the SnapStream knowledgebase for more information on configuring network-attached storage.

The SnapStream SBE and Express are limited to use of the internal storage disks, and network-attached storage cannot be added to the Library.

For both Server and SBE systems, network-attached storage can be added as an Export location, in which case data copied to it will not be included in the SnapStream Library, and it will not count toward the indexing license limit. See the help file for more information on this option:
http://www.snapstream.com/enterprise/support/etv_5_help/html/add_export_location.htm

Unfortunately, due to known performance-related issues with Windows USB drivers, we are unable to support the use of USB storage with SnapStream at this time.

Should I add the SnapStream server to my domain?

Adding the SnapStream server to your domain should not have any negative impact on the operation of the software. If you wish to use the Active Directory integration feature or add a UNC path as a video folder, joining to the domain is necessary.

Note: The SnapStream Express runs on Windows 8.1 Home Edition, and cannot be joined to a domain.

What is SnapStream.Net for?

SnapStream.Net is SnapStream's server for guide data. It also provides a user account that can be used to create or edit a custom lineup. It is not necessary to create a SnapStream.Net account in order to use any of the features of SnapStream.

Technical specifications

Power Requirements

All SnapStream servers are equipped with dual hot-swap power supplies that are both redundant and load-balancing. A single unit may be replaced without a system power-down. They also support auto detection of 100-240V and 50-60Hz power.

Below are several sample configurations and their respective power consumption statistics.*

Storage Level	Chassis Size	Total Number of Drives	Power Supply	Load Draw Watts	Load Draw Amps	Load Draw kVA	Power Off Draw
4 TB	3U	6	Dual 920 Watts	189	1.58	0.1892	11 W
12 TB	3U	14	Dual 920 Watts	219	1.82	0.219	11 W
16 TB	3U	8	Dual 920 Watts	215	1.79	0.215	11 W
24 TB	3U	10	Dual 920 Watts	230	1.92	0.23	11 W
40 TB	3U	14	Dual 920 Watts	262	2.23	0.262	11 W

**Best Practices for power management**

Minimal Configuration

Each system power supply unit plugged into an 'uninterrupted power supply' (UPS) or 'battery backup unit' (BBU.) Protection provided for single system power supply unit failure and minor power outages or failures.
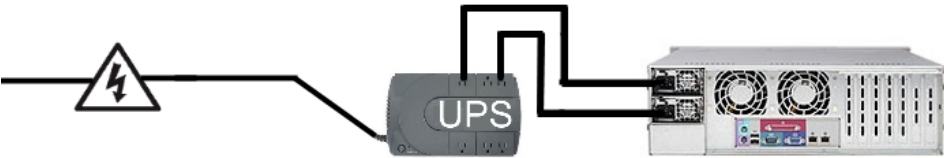

Better Configuration

Each system power supply unit plugged into a separate UPS or BBU. Protection provided for single system power supply unit failure, power outages, and single UPS/BBU failure.
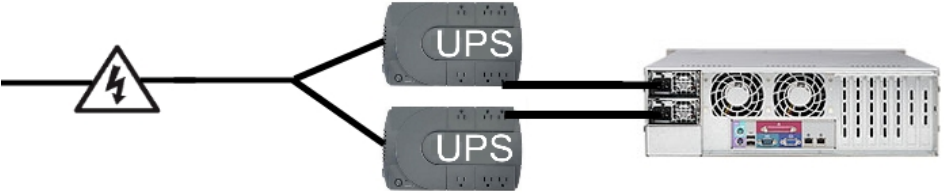
Best Configuration

Each system power supply unit plugged into its own UPS/BBU, each of which is powered by separate, independent circuits. Protection provided for single system power supply unit failure, power outages, single UPS/BBU failure, and single facility circuitry failure.
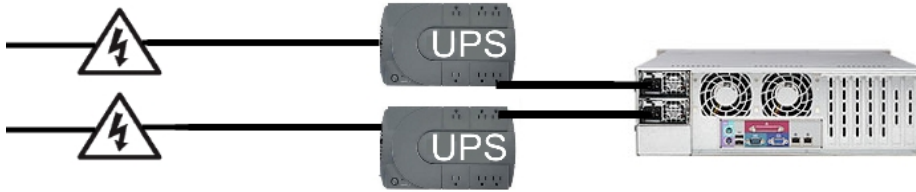
UPS VA Recommendations

When deciding on UPS hardware, it is important to choose a solution with the appropriate VA rating. This rating allows you to calculate the prospective uptime of a server in the event of a power failure, based on the power draw of the system. For specific advice on choosing a UPS unit, we recommend that you contact your preferred hardware vendor and provide the power draw specifications contained in this document.

Heat

The heat output of your SnapStream appliance will vary directly with the number of hard disks that are in use. The chart below shows approximate heat output by storage capacity.*

Storage Level	Chassis Size	Draw Consumed @ Load	Thermal Output @ Load
4 TB	3U	193 Watts	645.55 BTU/h
12 TB	3U	222 Watts	747.23 BTU/h
16 TB	3U	251 Watts	733.58 BTU/h
24 TB	3U	231 Watts	784.76 BTU/h
40 TB	3U	265 Watts	893.94 BTU/h

*NOTE 1: During system startup, power draw and heat output may temporarily reach levels of up to 150% of the Load figures noted in these tables.
NOTE 2: These figures apply to SnapStream tuner nodes (i.e., system with TV tuner cards and storage disks) ONLY. For power draw and thermal output figures that apply to other hardware platforms, please see the SnapStream knowledgebase at http://kb.snapstream.com.

Chassis dimensions

Equipment	RU	Dimensions (L x W x H)
SnapStream Server	3u	25.5" x 17.2" x 5.2"
SnapStream HD/SDI Node	1u	14.5" x 17.2" x 1.7"
SnapStream Transcode Node	1u	14.5" x 17.2" x1.7"
Drake DSE24	1u	19" x 14.5" x 1.75"

Network connection

SnapStream systems has two ethernet adapter ports, but these ports are not bridged. A server's maximum network connection speed is 1Gb/s, which is available from either ethernet adapter port alone. If you have multiple SnapStream systems configured in a cluster, they must all be connected to a single 1Gb managed switch.

TV Signal

For best results, we recommend an RF TV signal of between +5 and -5dB, for both HD and SDTV.

Hard Disk Drives

All servers are configured with a fault-tolerant RAID 5 storage array, operated by an LSI PCIe RAID controller. The administrative interface for the RAID controller can be reached through the MegaRAID shortcut on the server's desktop. Click on the machine name and log in with the Windows password, which can be found in the document **Getting Started with SnapStream Software**.

The SnapStream Enterprise TV Server's boot drive is configured in RAID 1 (mirroring), also through the LSI RAID controller.

IMPORTANT: Failure of one of the RAID array's storage drives is the most common hardware issue experienced by users of the Enterprise TV Server. Because the array is fault-tolerant, you should not experience any loss of data or system instability due to a drive failure. However, this also means that **it is possible for drive failures to go undetected if the server is allowed to run unmonitored.** For this reason, the RAID controller's administrative interface provides an automatic e-mail alert system. To configure these alerts, open the MegaRAID manager and go to Tools=> Configure Alerts. Please take a moment to configure these e-mail alerts so that any problems that arise can be detected and addressed in a timely manner.

In the event of a drive failure, please contact SnapStream Enterprise Support for an RMA at 877-SNAPSTREAM or through our web form at
http://www.snapstream.com/enterprise/support/contact.asp

Your server may have one or more hot spare drives, which will be indicated on the server's front panel by a **flashing red light**. The flashing light is a normal indication of a hot spare, and does not indicate a problem.

Please note that **fault-tolerant storage is not a substitute for data backup**. We recommend backing up any critical data to a safe location. SnapStream Media does not guarantee the integrity of your data.

Network information

Required TCP Ports

Ports 80 and/or 443 The SnapStream Web Interface can be hosted as non-ssl (80) and/or ssl (443). The system administrator can choose to disable port 80 through the IIS Administration Tool on the SnapStream Server.
Ports 9090-9093 Used for communication between SnapStream Cluster nodes.
Port 9190 Used for the SnapStream Web Player and DVD Burn Plugin.
Port 9999 Used for file access communication on both nodes and clients.

Cloud Sharing

In order for Cloud Sharing to work, the server will need to be able to access Guide Data and send data via HTTPS to the IPs listed under "US East (Northern Virginia)" in the URL below.
https://forums.aws.amazon.com/ann.jspa?annID=1701

Cloud Sharing emails come from these IP Addresses: 64.9.150.132 or 64.9.150.136.

Guide Data

In order for the server to download program guide data, it must have access to port 443 on the following websites:
snapstream.net (64.9.150.141)
wsdl.snapstream.net (64.9.150.144)
partners.snapstream.net (64.9.150.143)
snapstream.com (64.9.150.140)

Please note that **these IP addresses are subject to change without notice.** For this reason, we strongly recommend whitelisting the DNS name rather than the IP address.

Antivirus Information

The Enterprise TV Server is compatible with most common antivirus solutions. However, in order to prevent conflicts, **the following locations MUST be excluded from on-access virus scans**
- C:\Program Files\Microsoft SQL Server
- C:\Program Files (x86)\SnapStream Media
- C:\ProgramData\SnapStream Media\SnapStream TV
- C:\Windows\system32\config\systemprofile\AppData\Local\SnapStream Media\SnapStream TV
  (In some cases, this location may vary depending on the configuration of your system. Please contact SnapStream Support for more information.)
- All internal storage drives (usually drives D-G) (recording nodes only)

These directories can be included in periodic system scans which do not monitor activity in real time. The storage drives may also be included in system scans; however, please be aware that the size of the storage drives can increase the time required for a full-system scan dramatically.

Windows Updates

SnapStream servers are shipped with automatic Windows updates disabled, in order to avoid unattended reboots and maintain a known operating system environment. SnapStream recommends following your IT department's recommendations on Windows updates. In the unlikely event that a Windows update causes a conflict with SnapStream software, we will notify users as soon as possible.