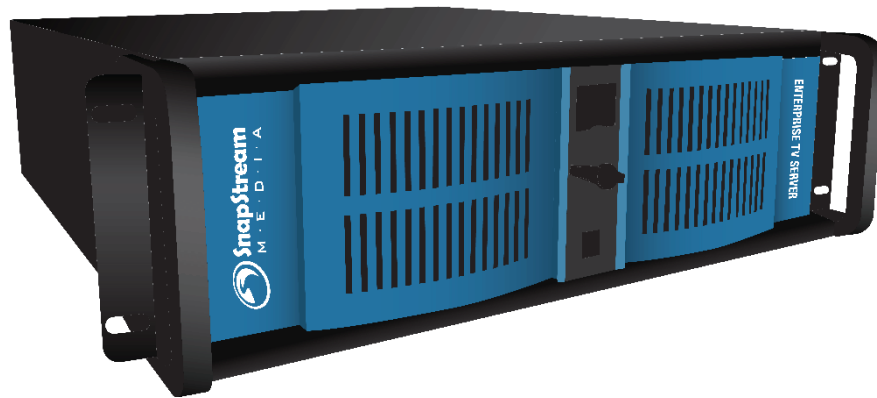




Enterprise TV Server



Administrator Guide

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SnapStream Enterprise TV Server Administrator's Manual

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

Settings Overview

The SnapStream Enterprise TV Server is designed as a preconfigured appliance that can be operated with minimal setup. However, changes to system settings can be useful in order for your organization to get the most out of your server. **Note:** Some features, such as **Security** and **Email Notifications** are not preconfigured, and must be configured manually when you receive your server.

The majority of the Enterprise TV Server's settings are found in the Web Admin. To open the Web Admin, enter the server's IP address into a web browser. Select Admin for access to the settings pages.

The screenshot shows the SnapStream Enterprise TV Server Web Admin interface. The browser window title is "Client Management - Mozilla Firefox". The address bar shows "http://test1.snapstream.com/Configuration/ClientManagement.aspx". The page header includes "Client Management" and navigation links: Home, Search, Alerts, Library, Program Guide, Recording Manager, Tasks, Admin. The user is logged in as "administrator".

Active Clients

| Username | IP Address | License |
|---------------|------------|---------|
| administrator | :::1 | |

Detailed Tuner Status

| Name | Machine | Enabled | Alive | Scheduling | Recorder Manager Online |
|--------------------------------------|---------|---------|-------|------------|-------------------------|
| Hauppauge WinTV 418 Video Capture #1 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #2 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #3 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #4 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #5 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #1 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #2 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #3 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #4 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 Video Capture #5 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #1 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #2 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #3 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #4 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #5 | TEST1 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #1 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #2 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #3 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #4 | TEST2 | True | True | True | True |
| Hauppauge WinTV 418 BDA Tuner #5 | TEST2 | True | True | True | True |

Detailed TaskRunner Node Status

| MachineName | TaskRunner Manager Online | Max Time Constrained | Max Unconstrained | Max Immediate | Max User Generated | Active Time Constrained | Active Unconstrained | Active Immediate | Active User Generated |
|-------------|---------------------------|----------------------|-------------------|---------------|--------------------|-------------------------|----------------------|------------------|-----------------------|
| TEST1 | True | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| TEST2 | True | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| SNAPSQUEEZE | True | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |

Detailed Task Status

No tasks found.

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The default admin page is **Client Management**. This page gives information about clients that are currently connected to the server, 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. They are:

Alerts- Configure settings for e-mail features, including search alerts and software warnings

CC Indexer Status- Status of active indexing of closed-captioning data

Expiration Manager- Options for managing storage space on each server node

File Format Profiles- Settings for video profiles used for recording and transcoding

Folder Manager- Default folder settings for various purposes; folder creation and management

Lineups- Channel lineup creation and channel hiding

Log- Status messages about SnapStream software

Local Settings- Task settings for each server node

Program Guide- Settings for program guide updates

Recordings- Default settings for new recordings, including recording quality and location

Security- Toggle security on or off and set up LDAP integration

Transcoding- Settings for automatic postprocessing and default settings for transcoding and clipping

Tuners- Settings for each individual tuner, including channel lineup, video input, and IR blasting

Users- Administration of users and groups

Other information

Initial Configuration

Standalone servers should be preconfigured before delivery. See **Getting Started with SnapStream Software** for passwords and setup.

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

Installing Enterprise TV Link

An MSI installer for Enterprise TV Link can be found in My Documents on the server's C: drive and on a USB key that is included with the server accessories. The installer is suitable for inclusion in a silent install package. See our knowledgebase for more information.

There are a number of Windows components that must be installed as prerequisites to Enterprise TV Link. They are:

- **Windows Service Pack 3** and **Microsoft DirectX 9** (Windows XP only)
 - **Microsoft .NET Framework version 3.5 Service Pack 1**
 - **Visual C++ Redistributable 2005 x86 Service Pack 1**
 - **Visual C++ Redistributable 2008 x86 Service Pack 1**
- All of the above can be downloaded from Microsoft.com.
- **SnapStream DVD Burning Prerequisites** Available at <http://download.snapstream.com/webinstaller/DVDBurnSetup.msi>

About lineups

Lineups are lists of channels that are created either on SnapStream.net or in Enterprise TV. Lineups can be managed on the Lineups page in the Web Admin. 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 custom lineup wizard on SnapStream.Net. Consult the following knowledgebase article for instructions:

<http://kb.snapstream.com?id=1507>

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

Every tuner on the TV Server 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 admin.

Only channels that are associated with a non-disabled 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, the Program Guide will display two different entries for channel 2 before listing any higher channels).

About video profiles

Enterprise TV provides a variety of preset video profiles in MPEG-2, WMV, and H.264. 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.

Transcoding and Clip Management

Post-processes performed by Enterprise TV include transcoding, Clips, SmartChapters (commercial detection), file copying, and file tagging. File tagging is performed automatically on every video file and requires no management. Transcoding and SmartChapter jobs can be generated automatically or submitted ad hoc through the Recorded Shows menu in Enterprise TV Link and the Library in the Web Admin. Automatic transcoding, SmartChapter, and file copy generation can be toggled on and off in the Web Admin, through Admin=> Transcoding. When Transcode, SmartChapter and Clip jobs are submitted, they are placed in a queue. This queue can be viewed in the Web Admin, on the Tasks page.

Post-processes can occupy a significant portion of a server node's resources. **Transcoding jobs should be limited to one per server node** in order to maintain each node's ability to make recordings and serve them to clients. Information about the status of post-processing on each server is available through Client Management in the Web Admin.

Guidelines for LDAP setup

Guidelines for LDAP integration are as follows:

- The server must be added to your domain
- A username and password must be entered in the LDAP Integration section of the Security Settings menu.
- The username entered in LDAP Integration must have permission to make queries on the properties of all users who will be granted access to the Enterprise TV Server.
- The SnapStream Broker Service on the master server must be configured to log in as the same user who is entered in LDAP Integration.
- 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 user@domain.com or domain\user.

FAQ

How can I change the configuration of the tuners?

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

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

You will need to configure the video sources appropriately in the web admin, under Settings=>Audio and Video Inputs. Specific instructions for some types of tuning configurations can be found in the SnapStream Enterprise TV knowledgebase, at <http://kb.snapstream.com>.

Note: in order for changes to tuner configuration to take effect, the tuner must be disabled and then re-enabled.

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

Enterprise TV does not support recording directly from a tuner. In order to enable recording by tuner, you must create a single-channel lineup for each tuner. Consult the following knowledgebase article for instructions:

<http://kb.snapstream.com/?id=1505>

Note: in order for changes to tuner configuration to take effect, the tuner must be disabled and then re-enabled.

Do I need to install Enterprise TV Link on every single user PC? What options are available through the Web interface? Is there a Mac-compatible version of Enterprise TV Link?

Enterprise TV Link, also called "Link" or "the Link client," is the primary interface available to users for watching, searching, and clipping video. MPEG-2 and H.264 videos require the Link client for playback. Windows Media video can be played back through the Web Admin Library using Windows Media Player. Clipping can only be performed in Link.

Enterprise TV Link must be installed individually on each user PC. There is currently no built-in option for administrative deployment. However, Enterprise TV Link is distributed on a site-licensed basis (i.e. all of your Link installations will use the same license key), so it is suitable for incorporation into a silent-install package.

Currently, SnapStream does not offer a Mac-compatible version of Enterprise TV Link. Some support is available for virtual PCs running in a Mac environment. Best results have been achieved using VMWare Fusion with Windows 7. In general, the more powerful the Mac, the better the results will be.

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

The Enterprise TV Server records SDTV in the MPEG-2 format and HDTV in a wrapped MPEG-2 format with the extension .TP. Due to hardware limitations, these are the only formats in which the server can record. SnapStream's ShowSqueeze utility allows videos to be transcoded into Windows Media or H.264/MPEG-4 (Quicktime) formats for portability and file compression.

What permissions should I give to my users?

Enterprise TV 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 the Enterprise TV Server over a Wide-Area Network (WAN)? Over the Internet?

SnapStream does not recommend Enterprise TV Link for use across a WAN, but does provide some support for it. Network latency can cause issues with use of the Link client. The Web Admin usually works well over a WAN, as does WMV playback through Windows Media Player.

SnapStream provides no support for using Enterprise TV Link or the Web Admin over the Internet (i.e. outside your internal network) and strongly recommends against doing so.

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

Yes, USB and network-attached storage can be added as video folders for additional storage space. However, SnapStream strongly recommends against recording directly to any location other than the server's internal hard drive arrays. See the SnapStream knowledgebase for more information.

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 LDAP integration feature or add a UNC path as a video folder, joining to the domain is necessary.

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 schedule recordings on your Enterprise TV Server remotely over the internet, or to create or edit a custom lineup.

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 the server configurations and their respective power consumption statistics.

| Storage Level | Chassis Size | Total Number of Drives | Power Supply Used | Idle Draw Watts | Idle Draw Amps | Max Draw Watts | Max Draw Amps | Power Off Draw |
|---------------|--------------|------------------------|-------------------|-----------------|----------------|----------------|---------------|----------------|
| 3 TB | 3U | 7 | Dual 800 Watts | 190 | 1.6 | 240 | 2.0 | 30 W |
| 6 TB | 3U | 11 | Dual 800 Watts | 250 | 2.1 | 300 | 2.5 | 30 W |
| 9 TB | 3U | 16 | Dual 800 Watts | 325 | 2.7 | 375 | 3.1 | 30 W |
| 12 TB | 4U | 20 | Dual 900 Watts | 385 | 3.2 | 435 | 3.6 | 30 W |
| 15 TB | 4U | 24 | Dual 900 Watts | 445 | 3.7 | 495 | 4.1 | 30 W |

Best Practices

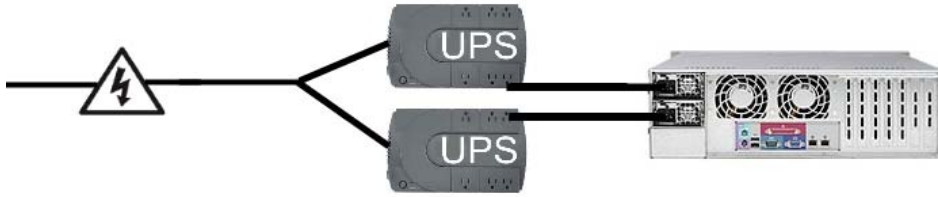
Minimal Configuration

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.



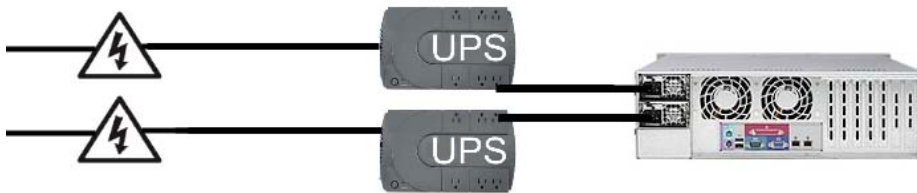
Better Configuration

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. Listed below are some approximate times for our servers based on UPS hardware with standard VA ratings*.

Single UPS Configuration (All times approximate)

| Storage Level | Idle Draw Watts | Max Draw Watts | 500VA | 800VA | 900VA | 1200VA | 1500VA |
|---------------|-----------------|----------------|-------|--------|--------|--------|--------|
| 3 TB | 190 | 240 | 3 min | 15 min | 15 min | 15 min | 20 min |
| 6 TB | 250 | 300 | 3 min | 15 min | 15 min | 15 min | 20 min |
| 9 TB | 325 | 375 | N/A | 10 min | 10 min | 10 min | 13 min |
| 12 TB | 385 | 435 | N/A | 6 min | 6 min | 6 min | 9 min |
| 15 TB | 445 | 495 | N/A | 6 min | 6 min | 6 min | 9 min |

Dual UPS Configuration (All times approximate)

| Storage Level | Idle Draw Watts | Max Draw Watts | 500VA | 800VA | 900VA | 1200VA | 1500VA |
|---------------|-----------------|----------------|-------|--------|--------|--------|--------|
| 3 TB | 190 | 240 | 9 min | 25 min | 27 min | 33 min | 38 min |
| 6 TB | 250 | 300 | 9 min | 25 min | 27 min | 33 min | 38 min |
| 9 TB | 325 | 375 | 9 min | 25 min | 27 min | 33 min | 38 min |
| 12 TB | 385 | 435 | 3 min | 15 min | 15 min | 22 min | 24 min |
| 15 TB | 445 | 495 | 3 min | 15 min | 15 min | 22 min | 24 min |

*These calculations are a conservative estimate based on maximum power draw with a full CPU load.

Network connection

The Enterprise TV Server has two ethernet adapter ports, but these ports are not bridged. The server's maximum network connection speed is 1Gb/s, which is available from either ethernet adapter port alone. If you have three or more servers configured in a cluster, a dedicated switch is required for the cluster.

Hard Drives

All servers are configured with a fault-tolerant RAID 5 storage array, operated by an LSI PCI 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.

Security

Network information

SnapStream software uses port 80 to serve the web interface and 9090-9093 to serve Enterprise TV Link, including video playback. These same ports are used by a master server node to communicate with slave nodes.

Server information is broadcast to the clients using Discovery Address 239.192.42.69, port 9990, with Discovery Response Address 239.192.42.70, port 9991. This information is used only in order for clients to auto-discover the server and is not necessary for the core functions of the software. More information on the multicasting protocol that is in use for server discovery can be found at <http://tools.ietf.org/html/rfc2365>.

In order for the server to download program guide data, it must have access to ports 80 and 443 on the following websites:

- snapstream.net
- wsdl.snapstream.net
- partners.snapstream.net

IP addresses for these sites can be found in our knowledgebase, at <http://kb.snapstream.com?id=1478>. However, 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\MSSQL10.SNAPSTREAMTVDB
- C:\Program Files (x86)\SnapStream Media
- All internal storage drives (drive letters D-G)
- Any USB storage devices that are configured as video folders in Enterprise TV

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.