

SYSTEM ADMINISTRATION GUIDE

Version 2.20.0

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Contents

1	Introduction 1.1 Applicability	1 1
2	Getting started2.1First time power up2.2Console login2.3Setting new passwords2.4Setting keyboard mapping2.5Network configuration2.6Assigning hostname	3 3 4 4 5 8
3	Accessing the web interface 3.1 Getting started continued	9 9
4	Software upgrade14.1About Software Upgrades	1 1 2
5	Manage inputs15.1Numbering of the input sources15.2Satellite connection15.3Terrestrial and Cable connection15.4CA modules15.5Analog sources15.6List inputs1	5 556678
6	Manage live signals16.1List and edit channels16.2Add channel from input26.3Stream full transport stream from input26.4New external multicast26.5New looped file channel2	9 9 6 6 6
7	MPTS injection27.1 MPTS injection into the main multicast network (eth0)27.2 MPTS injection into the eth1 network3	9 9 0

	7.3	MPTS injection between SnapTV servers
8	Mana 8.1 8.2 8.3	age content 33 VoD
9	Mana 9.1 9.2	age recording 37 Configure Recorder Manager
10	Medi 10.1 10.2 10.3 10.4 10.5 10.6	a Catalog41How to enable Media Catalog41How to migrate existing movies from legacy VoD41How to import movies from disk41How to manually upload movies42How to delete movies42How to edit metadata42
11	Cont 11.1	ent Provisioning Server45Options45
12	Clier 12.1 12.2	At provisioning 47 Amino 47 Standard 48
13	Syst 13.1 13.2 13.3 13.4 13.5 13.6 13.7 13.8 13.9 13.10 13.12	em configuration51Network51Cluster52Mini browser server56EPG service57Monitoring59Portal61Set time zone67Unicast radio services67Manage administrators68O Configuration profiles70I Setting up SSL70Piwik Analytics Server71
14	Syst 14.1 14.2 14.3	em information73License73List versions74System status74
15	User 15.1 15.2 15.3 15.4 15.5	and Asset Organizer77Installation77Getting Started77Products77Users78Client devices78

16	Console:	Advanced	configuration
----	----------	----------	---------------

	16.1 16.2 16.3	Working in a text-based console	. 81 . 81									
	16.4 16.5	way for using an XMLTV EPG source	. 82 . 83 . 83									
17	AMT 17.1 17.2 17.3	- Active Management Technology Overview Connection Tools for accessing AMT from a PC in the network	85 85 85 85									
18 PAGA Mute 18.1 Network based I/O switch												
19	UPS 19.1	Shutdown Serial cable	93 . 93									
20	Audi 20.1	o Media Player Play radio channels on your Audio Media Player	95 . 95									
21	Snap 21.1 21.2 21.3 21.4 21.5 21.6 21.7	SnapCast administration pages Enabling SnapCast Channels Items Schedule Configuration Offline import	97 97 98 98 100 101 102 102									
22	Anyv	where web application	105									
23	Back 23.1 23.2 23.3 23.4 23.5 23.6 23.7	Kup and RestoreSnapTV ConfigurationLocal DatabasesUAO Backup and RestoreVoD Backup and RestoreBackup and Restore of nPVRNetwork settings and other configurationUpgrading from version 1 to 2	107 . 107 . 108 . 108 . 108 . 109 . 110 . 110									
24	Trou 24.1 24.2 24.3 Defa	bleshooting Getting started with Hardware issues Getting started with Software issues Getting started with Network issues ult factory settings	113 . 113 . 116 . 119 121									
20	Dela		121									
26	Lega 26.1 26.2 26.3	acy User And Asset Organizer Installation Getting Started Manage Site	123 . 123 . 123 . 123 . 123									

2	6.4 User management	25					
	6.5 Manage CPEs (customer premises equipment)	29					
2	6.6 Product management	33					
	6.7 Edit assets	11					
	6.8 Messaging	13					
2	6.9 Instant Message Delivery	18					
2	6.10 Configuring Portal to use the organizer	19					
	6.11 Backup and restore database15	50					
27 I	inal Notes 15	51					
28 Indices and tables 15							
Inde	x 15	55					

Introduction

Dear Customer, thank you for selecting SnapTV equipment for your IPTV operation. Please follow this installation manual carefully during installation of your equipment.

1.1 Applicability

This document is applicable to

- SnapTV 360GBPX-E Combo
- SnapTV 360GBPX-E GW Maxi
- SnapTV 360GBPX-E GW Classic
- SnapTV Maxi Express
- SnapTV Mini Streamer
- Software version: 2.20

Some sections are only applicable to some products.

1.2 Target audience

The target audience of this installation manual is personnel who install SnapTV server products. The reader of this manual is required to have a basic command line user experience on Linux and preferably basic knowledge about Linux networking.

For specifics on the SnapTV Linux distribution (Ubuntu 12.04 LTS), the following is a good starting point

- http://community.ubuntu.com/help-information/
- http://help.ubuntu.com/

Also, *man* pages are part of the SnapTV Linux distribution whenever you need detailed information on the command syntax of relevant utilities.

Getting started

2.1 First time power up

Connect both power cables to the unit and to 220VAC wall outlets. Switch both switches on the power supplies to the *1* position. Thereafter, switch the unit on by pressing the toggle switch on the front panel.



2.2 Console login

Attach a VGA cable to a monitor and a standard PS/2 or USB keyboard.

You will need to log in to your equipment in order to define network specific information. Enter username *snap* and password as indicated in *Default factory settings* or defined during the installation phase if you installed the software yourself.

Example:

```
localhost login: snap
password: *****
```

If the password is correct, you will have a bash prompt:

```
localhost ~#
```

2.3 Setting new passwords

It's recommended to define new passwords for your product.

2.3.1 Setting new password for the default user (snap)

Example:

```
~# passwd
New UNIX password:
Retype new UNIX password:
passwd: password updated successfully
```

For more details about the passwd command, type *man passwd* at the shell prompt.

2.3.2 Creating admin user for accessing the web interface

In case the current web interface user/password is forgotten, a new user and password can be defined using this command.

Example:

```
~# sudo /opt/snaptv/bin/create_admin_user.pm <username> <password> (<real name>)
Creating user <username> (admin) with password <pasword>
```

2.4 Setting keyboard mapping

Keyboard mappings for the console are stored in the ascii text file /etc/conf.d/keymaps. Use the *nano* text editor to change the value called KEYMAP into a value suitable for you. Valid values for the KEYMAP variables are found in subfolders of /usr/share/keymaps/i386:

~# nano /etc/conf.d/keymaps

Use the arrow keys to navigate in the file, change the value of the KEYMAP parameter, then save and exit with Ctrl+X \rightarrow Y \rightarrow ENTER. In order to change the keyboard mapping without having to do a reboot of your system, use the command-line utility *loadkeys* to load the selected keyboard mapping. If your keryobard mapping is se to no-latin1, type:

```
~# loadkeys no-latin1
Loading /usr/share/keymaps/i386/qwerty/no-latin1.map.gz
```

2.5 Network configuration

2.5.1 Default settings

Your unit has two network interfaces, named eth0 and eth1 as labeled at the rear of the server.

In a typical configuration, eth1 will be used for external connection, providing Internet access, while eth0 is connected to the local network where the radio and TV channels are to be multi-casted.

By default, eth0 has it's IP address set to 10.0.0.5 with netmask set to 255.255.255.0. eth1 is by default set to get its address, netmask, default gateway and name server using the DHCP protocol.

You may use the *ip address* command to check the IP addressing details associated with each interface.

Example:

```
~# ip address show dev eth0
3: eth0: <BROADCAST,MULTICAST,UP,LOWER UP> mtu 1500 qdisc pfifo fast state UP qlen 1000
   link/ether 00:18:7d:30:bb:85 brd ff:ff:ff:ff:ff
    inet 10.0.0.5/24 brd 10.0.0.255 scope global eth0
    inet6 fe80::218:7dff:fe30:bb85/64 scope link
      valid_lft forever preferred_lft forever
~# ip address show dev eth1
2: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether 00:18:7d:30:bb:86 brd ff:ff:ff:ff:ff
    inet 192.168.1.44/24 brd 192.168.1.255 scope global eth1
    inet6 fe80::218:7dff:fe30:bb86/64 scope link
       valid_lft forever preferred_lft forever
~# ip address
1: lo: <LOOPBACK, UP, LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
      valid_lft forever preferred_lft forever
2: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether 00:18:7d:30:bb:86 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.44/24 brd 192.168.1.255 scope global eth1
    inet6 fe80::218:7dff:fe30:bb86/64 scope link
       valid_lft forever preferred_lft forever
3: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
   link/ether 00:18:7d:30:bb:85 brd ff:ff:ff:ff:ff
    inet 10.0.0.5/24 brd 10.0.0.255 scope global eth0
    inet6 fe80::218:7dff:fe30:bb85/64 scope link
       valid_lft forever preferred_lft forever
```

In case the default setup is insufficient for your needs, the following sections describe how to change the configuration. All changes are made by editing */etc/network/interfaces*. More examples for network setup can be found here *https://help.ubuntu.com/12.04/serverguide/network-configuration.html*.

Example: Default content of /etc/network/interfaces:

```
iface lo inet loopback
auto eth0
iface eth0 inet static
    address 10.0.0.5
    netmask 255.255.255.0
    up ip route add 224.0.0.0/4 dev eth0
auto eth1
iface eth1 inet dhcp # This blank configuration will automatically use DHCP for any net
```

Note that no default gateway is assigned to eth0. This is because a default gateway will be assigned to eth1 if eth1 is used to connect to an external network with automatic configuration via DHCP.

2.5.2 Changing network address in /etc/network/interfaces

In the file /etc/network/interfaces, the network interfaces are configured with the format:

```
iface <interface> inet static
address 10.0.0.5
```

This can, for example, be:

iface eth1 inet dhcp

or

auto lo

iface eth1 inet static address 192.168.1.112 netmask 255.255.255.0

Setting the option to dhcp causes the interface to retrieve its IP address, netmask, default gateway address and name server from a DHCP server (if available). In order to manually specify the interface address, use the static syntax in order to replace dhcp with an IP address and netmask.

2.5.3 Changing default route in /etc/network/interfaces

The network routes can be inspected and modified with *ip route*. The 0.0.0.0 *Destination* will be used for any traffic that is not bound for the local networks connected directly to each interface. When sending traffic along the default route, the IP address of a gateway router should be listed in the *Gateway* column.

Example: If you need to assign a default router to eth0, enter the command:

localhost ~# ip route add default via x.y.z.w

Where you substitute x.y.z.w with the IP address of the default gateway.

If you need to delete a default route, use:

localhost ~# ip route del default via x.y.z.w

And if you assign an explicit default gateway as a part of the boot sequence, add a line in /etc/network/interface in the iface section of your choice (eth0 or eth1)

gateway x.y.z.w

2.5.4 Changing multicast routes in /etc/network/interfaces

Multicast traffic is routed to the interface selected by the multicast route. By default this is eth0. The default multicast route then looks like the following:

up ip route add 224.0.0.0/4 dev eth0

2.5.5 Checking the routing tables

Use the command *ip route* to check the routing table of your SnapTV gateway.

Example:

~# ip route
default via 192.168.1.1 dev eth1 metric 100
10.0.0/24 dev eth1 proto kernel scope link src 10.0.0.5
192.168.1.0/24 dev eth0 proto kernel scope link src 192.168.1.205
224.0.0.0/4 dev eth0 scope link

The above is a typical routing table after initial setup from default configuration files. A default gateway has been defined on eth1 by DHCP, at 192.168.1.1. Multicast routing has been defined for eth0.

2.5.6 Assigning NTP server

In order for some of the SnapTV services (notably the Electronic Program Guide (EPG) and nPVR), the system needs to keep accurate time. This is done through the Network Time Protocol. As long as the SnapTV unit has access to the Internet, this will work transparently. Should this option not be available, an NTP server should be made available to the SnapTV unit on the local network. In this case, the following steps must be taken to make the unit aware of the local network NTP server.

- In the file /etc/conf.d/ntp-client replace pool.ntp.org with the address of your local NTP server: NTPCLIENT_OPTS="-s -b -u pool.ntp.org" → NTPCLIENT_OPTS="-s -b -u <LAN ntp address>"
- In /etc/ntp.conf the value server pool.ntp.org must be changed to server <LAN ntp address>.

Where <LAN ntp address> is the IP address of the local network NTP server.

2.5.7 Using new network settings

To make new network settings take effect, restart the network interface. For eth0, the command would be:

```
~# sudo ifdown eth0 && sudo ifup eth0
```

2.6 Assigning hostname

Note: If you change the hostname and the new hostname does not have a valid entry in the configured DNS, you have to add an alias for it in the file */etc/hosts*, or the SnapTV web interface will not work.

Use the *nano* editor to modify the line *127.0.0.1 localhost* to something like this (See section *Using the Nano editor* for more help on using nano):: 127.0.0.1 localhost snapreceiver-myhotel01

The hostname is a convenient way of identifying the various SnapTV units in a network. The hostname is always shown in the web interface and at the console, so that one can know which unit is being configured. The server should come with a sensible default hostname based on the order documents, but it is possible to change if the default does not suit you. We recommend using the following syntax for the host name:

```
<unit-type>-<location><number>
E.g.: snapreceiver-myhotel01
```

The hostname is stored in the file /etc/hostname. The syntax is:

<hostname> E.g.: snapreceiver-myhotel01

Accessing the web interface

Administration of the SnapTV units is primarily done through the web interface available on the unit. Now that we have done the basics in a terminal window, we can move on and set up the rest of the services. There are still some things that can only be done in a terminal. These are described in chapter 11.

To access the web interface:

Open a web browser from a computer in the network and point it to the IP address of your SnapTV unit. (e.g.: http://10.0.0.5) and log in to the web interface using the username and password from *Default factory settings*, or the password you set during installation. If you changed the password for the admin user as described in *Creating admin user for accessing the web interface*, use this password instead.

Log in									
Login required									
Username	admin								
Password	•••••								
ΟΚ									
Not logged in Back to frontpage									

3.1 Getting started continued

The first things you want to do in the web interface is the following:

- Setting time zone, see section Set time zone
- Configure Host IP, see section Host IP

The following chapters describe how you can use the web interface to administer your SnapTV unit.

Software upgrade

4.1 About Software Upgrades

If your system is connected to the Internet, new software updates will be available regularly. We recommend updating the system to the latest version before it is put to use.

The server operating system is based on Ubuntu 12.04 LTS (Long Term Support) a debian based Linux distribution sponsored by Canonical Ltd. Software updates are downloaded from an online service by SnapTV, while some security patches will be downloaded directly from Canonical servers.

It is recommended to backup your configuration before upgrading your system.

The upgrade will typically take only a few minutes and there is usually no need to reboot the system after the upgrade. You might experience minor disturbances to TV signals, recording and other services during software upgrade.

4.2 Upgrade using Web Interface

- Click on System information and Software upgrade
- Press the Check for updates button
- Press the **Upgrade now** button to upgrade your system

Software	updates	available
----------	---------	-----------

87 updates available (39 security updates).

Upgrade now Check for updates

If you get error messages or experience other problems during upgrade, please try upgrading using the terminal or contact SnapTV support.

4.3 Advanced Upgrade Methods

4.3.1 Upgrade using a terminal

The SnapTV server uses a program called apt-get to keep software up to date. Log into the server using ssh or use an attached keyboard and monitor.

First update the list of available updates:

~# sudo apt-get update

Start the upgrade:

~# sudo apt-get dist-upgrade

Thats it! Your server should now have the latest software from SnapTV as well as security patches from the Ubuntu community. Rebooting the server is usually not required. If the aptget output reccomends a reboot or you experience problems you might reboot at convenient time by using the "sudo reboot" command.

4.3.2 Low bandwidth sites

Consider downloading all upgrades before applying them if you have low bandwith or an unstable Internet connection. This way you can perform the actual upgrade in a more controlled manner. This is achieved by adding the –download-only option to the upgrade command like so:

```
~# sudo apt-get -download-only dist-upgrade
```

When you are ready to perform the upgrade you run the command again without this option, like so:

~# sudo apt-get dist-upgrade

4.3.3 Clustered system

In general we recommend running the same software version all SnapTV servers in a cluster. Currently each server will download upgrades from the Internet independently. By installing a third-party program called Squid-deb-proxy it is possible to have one of your servers act as a proxy for software upgrades so you don't have to download upgrades multiple times.

Conceptually, squid-deb-proxy consists of two pieces, a client and a server. The server package is "squid-deb-proxy" and the client package is "squid-deb-proxy-client".

Select one of your servers with an internet conection to be the upgrade proxy and simply install "squid-deb-proxy" on it:

~# sudo apt-get install squid-deb-proxy

On your other SnapTV servers, install the "squid-deb-proxy-client" package:

~# sudo apt-get install squid-deb-proxy-client

Thats it! All upgrades will now be downloaded once. Note that the "squid-deb-proxy" package is not maintained by SnapTV and it is not included in a standard install.

4.3.4 Upgrading from USB

If your system is completely offline you can upgrade from USB or alternatively perform a clean install. Given an USB install medium, perform the following steps to upgrade a system:

- 1. Insert USB disk
- 2. Find device name (Isblk)

The output of lsblk will show all attached disks. The USB drive should be identifiable by its size:

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
sdf	8:80	1	2G	0	disk	
sdf1	8:81	1	2G	0	part	

We want the device with the part TYPE.

- 1. mkdir /tmp/iso
- 2. sudo mount /dev/sdf1 /tmp/iso
- 3. echo 'deb file:/tmp/iso precise main extras' | sudo tee /etc/apt/sources.list.d/local.list
- 4. sudo apt-get update
- 5. sudo apt-get dist-upgrade

Manage inputs

In this section we will explain how to connect various input sources and configure them to become TV channels.

5.1 Numbering of the input sources

The input devices will be identified by an port identifier like for instance 9:1 or 5:a-1. The number before the colon is the slot number which has the range 1 to 12. The number or string after the colon distinguishes between multiple functionality of the same slot. dvb-s2-cards have two fully independent ports. They are identified from the bottom of the slot. The slot positions at the back of the cabinet is shown in the figure.



5.2 Satellite connection

Each DVB-S/S2 input card has two standard F connectors. Each input connector can be configured individually with regard to selecting band/polarity and up to four different satellite positions using DiSEqC multiswitches.

5.3 Terrestrial and Cable connection

Each DVB-T/DVB-C input has a standard IEC 169 connector (also called Belling-Lee or TV Aerial Plug). The connector at the top is for antenna input to both DVB-T/DVB-C tuners of the two port input card. The bottom connector is a loop through connector.

5.4 CA modules

All DVB-CI ports will be visible in the input page and identified like x:ci-y, where x is a slot number and y the Common Interface port number within the slot. The CI ports may be accessable from the back of the cabinet or the front of the MAXI cabinet. A CI port can be connected to any transponder. To ease operation, there is a default setup. When tuning a transponder, the nearest neighbour CI is auto connected if available, limited to the same slot or the next slot.

When there is a link between an input transponder and a CI port, an associated CAM will be able to descramble pay TV channels. Most EN 50 221 compatible CA modules may be used, but ask your sales contact for verification whether a given module type works.

Tuning succeeded

Transpo	nder info:															
Card: 9:1 Tuned to: 11372000 V SR 24500000 Satpos: A Type: dvb-s Downconverter: 9750000																
Frontend Bit Error Rate: 1 e-7 Errortend Signal Strength: 4718 5																
 ♦ Frontend Signal-To-Noice level: 47548 																
Capturing EPG from this transponder stop																
Remo	ve transpo	nder Re-t	une tra	nsponder												
Services	: 28 found,	3 used														
• 1	s id: 35 Original Netw	ork ID: 70														
Service	ID N	lame	Provider	r		Addres	s				Туре	FTA	Hidden			
1515	NRK mP3	1	Telenor	UDP T			:		- *	÷	digital radio sound service	yes				
1510	NRK Sam	i Radio	Telenor	UDP T			:		~ >	÷	digital radio sound service	yes				
1507	NRK Alltic	Klassisk	Telenor	UDP T			:		_ >	÷	digital radio sound service	yes				
1504	NRK P2		Telenor	UDP •			:		_ >	÷	digital radio sound service	yes				
1502	NRK2		Telenor	UDP •			:			÷	digital television service	no				
3516	NRK Jazz		Telenor	UDP V			:			÷	digital radio sound service	yes				
3514	NRK Gull		Telenor	UDP T			:			÷	digital radio sound service	yes				
3509	NRK1 Øs	fold	Telenor	UDP V			:			Ì	digital television service	no				
3511	NRK Vær	et til sjøs	Telenor	UDP V			:			< ,	digital radio sound service	yes				
3501	NRK Alltic	Folkemusikk	Telenor	UDP V			:			< , <	digital radio sound service	yes				
511	NRK Alltic	Nyheter	Telenor	UDP V			:			5	digital radio sound service	yes				
Add s	elected ch	anneis				Pitrata	Max		Duratic							
	Channel H	lidden Source	e Addre	SS	((kbit/s)	(warni	ng/error)	(h:mm:	ss)	Туре			FTA	-	-
		dvb.9.1	udp://@	2239.200.1.12	.1234	9299			1:20:	10	advanced codec HD digita	arter	evision service	по	Edit	Test
2		dvb.9.1	uup.//g	B000 055 4 44	.1234	407			1.20.	10	digital radio sound service	5		yes	Edit	Test
3	NRK P3	dvb:9:1	uap://@	2239.200.1.14	1234	427 🕑			1:26:	16	olgital radio sound service			yes	Edit	Test
Delete	selected	channels														
Conditional access module select																
CAM m	odule Posi	ion Usage	Act	ion	1											
1:ci-1	Front	Unused	С	onnect	1											
2:ci-1	Front	Used by	9:1 D	isconnect]											
3:ci-1	Back	Unused	C	onnect		Back										
3:ci-2	Back	Unused	С	onnect												
10:ci-1	Back	Unused	С	onnect												
10:ci-2	Back	Unused	С	onnect												

Insert your program card into the CAM and then insert the CAM into its port. Note that it may take some time from the channel is first tuned until it works as expected when the program card is new or have been unused for a while.

All reconfiguration of transponders to CI ports can be done in via the tuning page.

5.5 Analog sources

Each analog input slot has a number of different connectors, but only one video and one audio can be used at once. The inputs normally available are stereo RCA audio connectors, S-video,

RCA composite video and RF-tuner inputs. The stereo audio connectors are to be used in conjunction with both S-video and composite video input. When using the tuner both video and audio will be received from the RF input. Sometimes two neighboring slots may share one RF connector.

5.6 List inputs

Manage inputs List inputs	Sele	Select input										
Manage live signals			-1									
Manage content	Hear	view	otserver									
Manage recording	Cards	Cards left to right, Ports Bottom to top or left to right										
SnapCast	Clat	Deut	Eventionality									
Appearance	3101	FUIL	Parent Complex	Status								
Client provisioning			Power Suppy									
System configuration	_		Al connector									
System information	1	1:1	dvb-ct(Not tuned)									
Change password		1:2	dvb-ct(Not tuned)									
Log out		2:1	dvb-s2(Not tuned)									
	2	2:2	dvb-s2(Not tuned)									
		2:ci-2	Common Interface at Front panel(Unused)									
	3	3:1	dvb-s2(Not tuned)									
		3:2	dvb-s2(Not tuned)									
	4	4:1	dvb-ct(722000000 8MHz Type: dvb-t)	PLR: 4.2e-08								
		4:2	dvb-ct(770000000 8MHz Type: dvb-t)	PLR: 6.6e-08								
	5	5:a-1	Analog capture card(Not tuned)									
	c	6:1	dvb-ct(Not tuned)									
	0	6:2	dvb-ct(Not tuned)									
	7	7:a-1	Analog capture card(Not tuned)									
		8:1	dvb-s2(11372000 V SR 24500000 Satpos: A Type: dvb-s Downconverter: 9750000)	PLR: 1.4e-06								
		8:2	dvb-s2(12422000 H SR 27500000 Satpos: D Type: dvb-s Downconverter: 10600000)	PLR: 1.2e-08								
	8	8:ci-1	Common Interface at Front panel(Unused)									
		8:ci-2	Common Interface at Front panel(Used by 4:2)									
		8:ci-3	Common Interface at Front panel(Unused)									
		9:a-1	Analog capture card(Not tuned)									
	9	9:a-2	Analog capture card(Not tuned)									
	10		Empty Slot									
	11		Empty Slot									
	12	12:a-1	Analog capture card(Not tuned)									
	13		COM2 COM1									
	14		USB USB ETH0 ETH1 VGA									
	Multi	ple pro	gram transport stream from stream or file									
	udp1		239.255.1.15	PLR: 4.5e-07								
	udp2		239.255.1.16	PLR: 1.2e-08								
	file1		11372.0_V_24500_1.0W@2011-08-18.16:07.ts	O PLR: 3.1e-06								
	New		Choose stream Choose file									

You are represented with a table of available inputs cards in the server that can be tuned up. You can click on any input, the numbering of the inputs will align with the physical labeling on the rear of your unit. See section *Add channel from input* for how to tune channels from input card.

Manage live signals

6.1 List and edit channels

TV and Radio channel can be found on seperate pages.

TV channels can be displayed by clicking in menu Manage Live signals \rightarrow List TV channels.

Radio channels can be displayed by clicking in menu Manage Live signals \rightarrow List Radio channels.

			C	GW 360GBPX	(- m	iax	manus:	Channels
Manage inputs		TV Channel	Source	Address	Bitrate		Message (warning/error)	
Manage live signals			000100	Addition	(kbit/s)		(h:mm:ss)	
List TV channels	1	1TVRUS Europe	dvb:6	udp://@239.255.1.24:1234	4539	۲	0:03:14	Edit Test
List Radio channels Add channel	2	POLONIA1	dvb:4	udp://@239.255.1.16:1234	2025	۲	0:14:06	Edit Test
Manage content	3	TVS	dvb:5	udp://@239.255.1.19:1234	2595	۲	0:05:56	Edit Test
Manage recording	4	PULS	dvb:5	udp://@239.255.1.21:1234	4516		0:05:56	Edit Test
Client provisioning		FRUGAT						
System configuration	o	EDUSAT	OVD:4	uap://@239.200.1.17:1234	2447	U	0:14:06	Edit lest
System information	6	ITV	dvb:5	udp://@239.255.1.20:1234	2461	۲	0:05:56	Edit Test
Change password Log out	7	Euronews	dvb:6	udp://@239.255.1.25:1234	4240	۲	0:03:14	Edit Test
	8	TVP Kultura	dvb:5	udp://@239.255.1.22:1234	4168	۲	0:05:56	Edit Test
	9	TELE5	dvb:4	udp://@239.255.1.15:1234	2939	۲	0:14:06	Edit Test
	10	JSTV1	dvb:6	udp://@239.255.1.26:1234	3520	۲	0:03:14	Edit Test
	11	TV POLONIA	dvb:5	udp://@239.255.1.18:1234	5679	۲	0:05:56	Edit Test
	12	BBC World News	dvb:6	udp://@239.255.1.23:1234	4020	۲	0:03:14	Edit Test
	12 of 17	Channels in list						
	Change order Delete selected							
	[TV Radio	All					
	Logged in Back to fr	n as admin						

6.1.1 Edit channel

In menu click Manage Live signals \rightarrow List TV channels (List Radio channels). Press Edit for the channel you want to edit.

6.1.2 Edit channel information

If you need to change the channel name, its address, override the TTL for the channel or edit channel ID, you must use this form to do it. Click **OK** to save.

Edit channel information								
Name:	1TVRUS Europe							
Address:	udp://@239.255.1.24:1234							
Override TTL:								
Channel id (match to id from epg server to get EPG)	$\fbox{318.9400.8208.dvb.snap.tv} Use \ format \ nid.tid.sid.dvb.snap.tv \ to \ link \ with \ epg \ from \ dvb}$							
Ok								

6.1.3 Channel descrambling

Channel descrambling

Descramble channel	OK
--------------------	----

Channel descrambling will, if enabled, use a CA module and smart card inserted into the tuner to descramble the channel before multicasting to the internal network.

If disabled, the channel will be multicasted with scrambling intact, requiring descrambling to be done by the end user.

6.1.4 PID Dropping

idio:								 Subtitling:			_	Teletext:		Video:		Other:
rop								Drop				Drop		Drop		Drop
none			•					none T none T			none	•	none			
		Prefer			Us	e only if			Us	e only if						
anguage	Unscr.	Norm.	AC-3	Main (undef)	Clean effects	Hearing impaired	Visual impaired	Language	Main	Hearing impaired		Language				
•								•				•				
T								•				•				

Language based Pid Dropping

The components to be dropped or kept is based on the language(s) they carry. Components are grouped into 5 groups:

- Audio
- Subtitling

- Teletext
- Video
- Other

For each group several selectins are available. Up to 10 languages can be set up in the "Drop all except filter" (Keep filter) for each component.

The main selection for each group consists of 4 choices: Drop "none - all - all except - all scrambled except".

Normal (no pid dropping) operation is obtained by setting these to Drop "none". If Drop "all" is selected, all components of this type is dropped.

If Drop "all except" is selected, the filter below is used to choose which languages should be kept. Same for the selection Drop "all scrambled except", but here all non-scrambled components are kept regardless of the filter setting.

Each filter line (up to 10) can filter in a language and preferences for the specific component.

The "prefer"-section of the filter takes action if threr are several components containing the same language. In that case the not preferred component is suppressed. The "use only if"-sections is used to suppress or keep components with the given properties.

The language drop-down menu will show languages found in the live stream running at the moment. The language "Any" can be used in combination with the prefer section to suppress, say, all audio AC-3 components.

Add language to the list

This item is used add a language code to all the drop-down language selection. This can be usefull if the server setup is done prior to connecting the antenna cables.

Status

~ . .

Here the current total bitrate and warning/error messages for the live signal after Pid Dropping can be checked.

Channel	Source	Address	Bitrate (kbit/s)		Message (warning/error)	Duration (h:mm:ss)
BBC World News		udp://@239.1.1.26:1234	4033	۲		0:54:28
PID Structure						
 PID: 41 Type: Langu PID: 92 Type: PID: 163 Type 	Teletext uage: eng Audio Fl : Video F	Flags: Not scrambled g Flags: ags: Not scrambled Norm Flags: Not scrambled	al			

Pid Structure

Here is a presentation of the kept and dropped components and their properties.

6.1.5 Multicast Monitoring

See section Monitoring.

6.2 Add channel from input

Follow these steps to add channels from a physical input of your SnapTV Gateway product.

1. Click **Manage inputs** \rightarrow **List inputs**. Then you should see a menu looking something like this:

Manage inputs List inputs	Sele	Select input									
Manage live signals			-1								
Manage content	Rear	neal flow of selfer									
Manage recording	Cards	s left to	right, Ports Bottom to top or left to right								
SnapCast	Clat	Deut	Evention ality	Status							
Appearance	5101	Port	Punctionality	Status							
Client provisioning			Power Supply								
System configuration			A I connector								
System information	1	1:1	dvb-ct(Not tuned)								
Change password		1:2	dvb-ct(Not tuned)								
Log out		2:1	dvb-s2(Not tuned)								
	2	2:2	dvb-s2(Not tuned)								
		2:ci-2	Common Interface at Front panel(Unused)								
	3	3:1	dvb-s2(Not tuned)								
	5	3:2	dvb-s2(Not tuned)								
	4	4:1	dvb-ct(722000000 8MHz Type: dvb-t)	PLR: 4.2e-08							
	7	4:2	dvb-ct(770000000 8MHz Type: dvb-t)	PLR: 6.6e-08							
	5	5:a-1	Analog capture card(Not tuned)								
		6:1	dvb-ct(Not tuned)								
	6	6:2	dvb-ct(Not tuned)								
	7	7:a-1	Analog capture card(Not tuned)								
		8:1	dvb-s2(11372000 V SR 24500000 Satpos: A Type: dvb-s Downconverter: 9750000)	PLR: 1.4e-06							
		8:2	dvb-s2(12422000 H SR 27500000 Satpos: D Type: dvb-s Downconverter: 10600000)	PLR: 1.2e-08							
	8	8:ci-1	Common Interface at Front panel(Unused)								
		8:ci-2	Common Interface at Front panel(Used by 4:2)								
		8:ci-3	Common Interface at Front panel(Unused)								
		9:a-1	Analog capture card(Not tuned)								
	9	9:a-2	Analog capture card(Not tuned)								
	10		Empty Slot								
	11		Empty Slot								
	12	12:a-1	Analog capture card(Not tuned)								
	13		COM2 COM1								
	14		USB USB ETH0 ETH1 VGA								
	Multi	iple pro	ogram transport stream from stream or file								
	udp1		239.255.1.15	PLR: 4.5e-07							
	udp2		239.255.1.16	PLR: 1.2e-08							
	file1		11372.0_V_24500_1.0W@2011-08-18.16:07.ts	O PLR: 3.1e-06							
	New		Choose stream Choose file								

2. Now, click on the input to use, the numbering of the inputs will align with the physical labeling on the rear of your unit. See Section *Numbering of the input sources* for more on this.

The next steps will depend on the type of input you have selected.

6.2.1 DVB-S or DVB-S2

- 1. DVB-S/S2 inputs can tune both DVB-S and DVB-S2 transponders, and detection of S2 or S is automatic.
- 2. Enter frequency, symbol rate, polarity and optionally multi-switch position.

(http://www.lyngsat.com and http://www.kingofsat.net are good sources of information for satellite channel maps and tuning data). If you go to kingofsat.net and click on *Clear channels from 19.2E* you should be able to find something like this:

·	the http://ap.k	innofest net/nos-	10 %-fts end obn					0.	Constitution of	. Come	iu I
	ntp://en.k	ngoisache(pos-	19.22-rta_erig.prip					0.	rearing		×10
ogle company value tutori	al 💌 G s	Search • 🕂 🧔	G 🗗 • 🔂 Bookmark	s• 🖑 Check •	AutoLin	k 🔛 A	utoFil 🌛 Send	i to• 🌛		company	» 🥥 Sett
Russia Today	Russia	News	OVERON	Clear	6904	604	624 eng	654	604		2007-07-13
France 24 (in English)	France	News	GlobeCast	Clear	6906	606	626 eng	202	606		2007-09-21
22 EWTN Europe	U.S.A.	Religious	OVERON	Clear	6907	607	627 eng 667 677 687	657	607		2007-07-13
a 1L (19.2E) - 11597.00	V - Txp:26 - Bear	miAstra 1L	PV	8-S (OPSK) - 22	000 5/6	- NID:1	- TID:1026				R
Name	Country	Category	Parkanes	Encryption(s)	SID	VPID	Audio	PMT	PCR	TXT	Last undated
CNBC Europe	United Kingdom	Business	Canal Digitaal & CanalSat & Digital+ (Astra) & Noos Numérique	Clear	10030	307	308 eng	1838	307	43	2007-07-13
BBC World	United Kingdom	News	Canal Digitaal & CanalSat & Noos Numérique	Clear	10050	163	92 eng	1858	163	41	2007-07-13
20 Sky News International	United Kingdom	News	BT	Clear	28707	305	306 eng	4131	131		2007-07-13
tra 1KR (19.2E) - 11626.5	0 V - Txp128 - Be	amiAstra 1KR	PAI	L							2
Name	Country	Category	Packages	Encryption(s)	SID	VPID	Audio	PMT	PCR	TXT	Last updated
CNN International Europe (Cable News Network)	United Kingdom	News		Clear			7.02-7.20 eng				2006-06-21
ten 1/2 (10 20) - 11685 5	0 V - Typ: 22 - Be	amidates 1VP	DW	B-E (ODEK) - 33	000 5/6	- NID-1	. 710-1032				P
Name	Country	Category	Parkages	Encountion(s)	SID	Ivero	Audio	PMT	PCR	TXT	Last undated
Andalucia TV	Spain	Regional	Digital+ (Astra)	Clear	30202	162	88 esp 89 eng	1026	162	38	2007-01-19
	W T	-		() - -	F00 3/4		710.4070		_		P
Find:	A Next Pre	vious El Hobio	htal		3/14	- added	- 110-1068				1.00
	0 0 0 0 0 0	had trip my				_			_	_	

- 3. You decide to add some of the interesting international channels on 11597000 MHz.
- 4. After clicking *Tune!*, you should get a list of channels at the given transponder, looking something like this:

Tuning succeeded

.

Transpon	der info:						
• Ca • Tu • Ca	ard: 2 o Frontend Lock: LC o Frontend Lock: LC o Frontend Bit Error I o Frontend Signal Str o Frontend Signal-To apturing EPG from this tra	27500000 Satpo OCKED Rate: 2.8 e rength: 21.7 -Noice level: 5 nsponder stop	s: C Type: dvb-s 8-5 8				
Services	found:						
• ts • O	id: 9400 riginal Network ID: 318						
Service II	D Name	Provider	Ad	Idress		Туре	FTA
8202	ARM_1	Globecast	UDP •	:	⊁	digital television service	yes
8203	BET	Globecast	UDP V	:	⊁	digital television service	yes
8204	BBC World News	Globecast UK	udp://@239.1.1.26:1234			digital television service	yes
8205	RD1_Radio_ARMENIA	Harmonic	UDP V	:	⊁	digital television service	yes
8206	Sonshine TV	Globecast UK	UDP V	:	⊁	digital television service	yes
8207	Sonshine Radio	Globecast UK	UDP V	:	⊁	digital radio sound service	yes
8208	1TVRUS Europe	Globecast	UDP T	:	⊁	digital television service	yes
8209	CNNi	Globecast	UDP V	:	⊁	digital television service	no
9211	Europeuve	Clobecast	udp://@000.1.1.07-1004			digital television convice	VOC

- 5. Enter a multicast address and port for the channels you want to add. You can click on the wand icon to the right to get a suggested value. On closed networks the suggested value will usually be fine.
- 6. Now click *Add selected channels*. After a few seconds the TV channels will be listed in the web interface and the dot behind each channel should change color from red to green, indicating that "channel status" is OK.

personal television	GW 360GBPX - maxmanus:									Channels
Manage inputs			TV Channel	Source	Address	Bitra	te	Di Message (warning/error)	uration	
Manage live signals						(KDIU)	s) 20. A	- · · · (n	0.02.14	549 T
List I V channels List Radio channels			TTVRUS Europe	OVD:0	uap://@239.255.1.24:1234	40	59 C		0:03:14	Edit Test
Add channel		2	POLONIA1	dvb:4	udp://@239.255.1.16:1234	202	25 🥑		0:14:06	Edit Test
Manage content		3	TVS	dvb:5	udp://@239.255.1.19:1234	259	95 🥑		0:05:56	Edit Test
Manage recording		4	PULS	dvb:5	udp://@239.255.1.21:1234	45	16 🥥		0:05:56	Edit Test
Client provisioning System configuration		5	EDUSAT	dvb:4	udp://@239.255.1.17:1234	24	47 🥑		0:14:06	Edit Test
System information		6	ITV	dvb:5	udp://@239.255.1.20:1234	24	61 🥑		0:05:56	Edit Test
Change password Log out		7	Euronews	dvb:6	udp://@239.255.1.25:1234	424	40 🧲		0:03:14	Edit Test
		8	TVP Kultura	dvb:5	udp://@239.255.1.22:1234	41	68 🥑		0:05:56	Edit Test
		9	TELE5	dvb:4	udp://@239.255.1.15:1234	29	39 🥃		0:14:06	Edit Test
		10	JSTV1	dvb:6	udp://@239.255.1.26:1234	35	20 🥑		0:03:14	Edit Test
		11	TV POLONIA	dvb:5	udp://@239.255.1.18:1234	56	79 🥃		0:05:56	Edit Test
		12	BBC World News	dvb:6	udp://@239.255.1.23:1234	40	20 🥑		0:03:14	Edit Test
	12 of 1	7 Cł	annels in list							
			Change order TV Radio	Delet	e selected					
	Logge Back to	d in a	us admin							

6.2.2 DVB-T and DVB-C

Follow these steps to add channels from a DVB-T or DVB-C transponder:

You will first be asked if the signal to be tuned is DVB-T or DVB-C. Select one and click OK

DVB-T

- 1. Enter the center frequency for the DVB-T transponder you want to tune.
- 2. Select the right bandwidth of the transponder. Usually this is 8MHz for UHF transponders (frequency >300MHz) and 7MHz for VHF transponders (frequency <300MHz), but it can change depending on the country and operator.
- 3. Continue from step 4 in section DVB-S or DVB-S2

DVB-C

- 1. Enter the center frequency for the DVB-C transponder you want to tune.
- 2. Enter the symbol rate of the transponder.
- 3. Select the modulation type
- 4. Continue from step 4 in section *DVB-S or DVB-S2*

6.2.3 Analog Source

Select input connector to use from the "Video source" drop down menu. If more than one of each type is listed it is normally safe to use the first one (e.g. S-Video 1 for the S-Video connector).

- 1. Enter frequency if using the Tuner input.
- 2. Enter a name for the new channel
- 3. Enter the multicast address and port to use. Click on the wand to get a suggestion. This will normally be OK in a closed network.
- 4. Select service type from the drop down menu. This does not affect the actual streaming which will include video anyway, it only affects whether the channel is listed as TV channel or radio channel in STB.
- 5. Click OK.

You should now get a channel listing in which the added channel will have a green or red dot behind it. If any of the channels have a red dot behind it, wait a few seconds and press "refresh" in your browser (or click the **Manage live signals** \rightarrow **List channels** link in the left hand menu).

6.2.4 Multiple program transport stream from stream or file

In this section of the "Select input" menu, you can choose an existing mpts source and extract spts (single program transport stream) from it. The source can be a udp stream or a file. The selection is done via Choose stream or Choose file. The streams will be numbered from udp1 to udp16 and from file1 to file4 depending on the type of source you select. The lowest free

value will be used. After selecting source, the list of services will be presented so that you can pick programs from it.

See section *MPTS injection* for how to route mpts traffic across the network.

6.3 Stream full transport stream from input

There is a common feature to all input card where multi program transport stream can be received; it is possible to pass the complete stream through in addition to the single program streams it consist of.

Stream full transport stream from input

					NZ.	
Multicast address to stream to:	UDP	239.255.3.73]:	1234	1	ok

This item is accessible for the dvb-s(2), dvb-t, dvb-c inputs. The default setting is that this feature is not enabled. This is shown by an empty address field. These settings will not affect the selected single program streams which might already be configured. To enable, type an UDP address manually or press the wand icon let the system generate the next available address and press OK. To stop an ongoing streaming, press stop.

6.4 New external multicast

Sometimes you need to combine equipment from SnapTV with equipment from other vendors, or use SnapTV equipment with multicast signal feeds from a third party. To do this you can add an external multicast to the channel list. This channel will not be streamed by the SnapTV equipment, but it will be listed in the clients channel list together with the channels streamed by the SnapTV gateways. It will also be possible to select this channel for recording on an a SnapTV nPVR unit.

- 1. Click Manage live signals \rightarrow Add channel \rightarrow External multicast in the menu.
- 2. Enter a name for the channel
- 3. Enter the multicast address and port for the channel. Using the wand is generally not a good idea here, but it can be used if you plan to configure the channel on another streaming platform afterwards, and you want to make sure it does not conflict with the channels streamed by the SnapTV gateways.
- 4. Select service type *TV* or *Radio* to is only affects which list the channel is placed on in the client.
- 5. Click OK.

6.5 New looped file channel

The SnapTV Gateway can stream "simulated" channels by looping a stored file. To do this a broadcast quality mpeg2 single program transport stream is needed. The file should have no discontinuities.

- 1. Click Manage live signals \rightarrow Add channel \rightarrow New looped file channel.
- Select file in the list if you want to use a file already on the server, otherwise select one for upload. You can also fetch a file from a URL by clicking the link at the bottom of the page.
- 3. Select channel type in the "Type" list.
- 4. Enter a name for the new channel.
- 5. Enter the multicast address and port to use. Click on the wand to get a suggestion. This will normally be OK in a closed network.
- 6. Click OK.

You should now get a channel listing in which the added channel will have a green or red dot behind it.

MPTS injection

As described in *Multiple program transport stream from stream or file*, it is possible to receive whole mpts (Multiple Program Transport Streams) from an external source and extract single programs from it.

7.1 MPTS injection into the main multicast network (eth0)

The most straight forward method of injection an mpts into a SnapTV server from any mpts source is to connect the mpts source into the main multicast network and pick the mpts stream up using the "Multiple program transport stream" option in the "Manage inputs" menu. The injected stream address must not be the same as any other stream, and be within the address range set up for multicast traffic, normally 224.0.0.0 to 239.255.255.255.

In this example, server-b is used for producing some udp streams and the goal is that server-a, the SnapTV gateway, shall be able to see them, even if the address of server-b isn't in server-a main address range

server-a network STBs

		Si	napTV GW					udp packet producer
+	-+	+-		-+	+	-+++	-+	++
		eth1	server-a	eth0				eth0 server-b
LAN	[+	+		+	-+	Switch	+	+
			10.0.0.5					10.2.2.5
+	-+	+-		-+	+		-+	++
								Fixed address
				<	udj	o inject	ion	<

If the udp packet produces is set up with a fixed address which isn't in the address ranges of the main network (SnapTV GW and the attached STBs), an additional route have to be set up for that network.

Modified the routing table in server-a:

In /etc/network/interfaces add in the eth0 section: up ip route add 10.2.2.0/24 dev eth0 AND/OR type this shell command to make the change take immediate effect: sudo ip r add 10.2.2.0/24 dev eth0 After this, udp streams can flow from the udp packet producer (server-b) to the SnapTV GW (server-a)

7.2 MPTS injection into the eth1 network

It is also possible to inject mpts traffic into the eth1 network. If so, the routing table of the server must be adjusted. The address range of the injected mpts stream(s) must not be included in the range set up for eth0.

7.3 MPTS injection between SnapTV servers

Below a more complex setup will be described in full detail. Both the sources and the destinations for the mpts will be SnapTV servers in this example. Even if mpts will flow in both directions between these servers, that normally isn't the case. Please note though that the configuration setup wouldn't change even if just one of the directions were used.

The two SnapTV servers in this example are called *server-a* and *server-b*, and they operate on two separate networks, so they are not clustered using the System Configuration -> Cluster option.

Section Stream full transport stream from input explain how mpts is sent from a SnapTV server.

The address ranges for the two servers are split logically in three:

224.0.0.0.0/5 internal usage * 232.0.0.0.0/6 MPTS from server-b to server-a 236.0.0.0.0/6 MPTS from server-a to server-b

* This range, half the address space, will be independent for the two servers

The diagram below show how the servers are connected.



7.3.1 server-a (10.0.0.5) setup

Special setup:

All udp streams we wish *server-b* to see is in the range from 236.0.0.0 to 239.255.255.255 Normal (unmodified) routing table:

```
$ ip r
default via 192.168.1.1 dev eth1 metric 100
10.0.0/24 dev eth0 proto kernel scope link src 10.0.0.5
192.168.1.0/24 dev eth1 proto kernel scope link src 192.168.1.205
224.0.0.0/4 dev eth0 scope link
```

Example:

- generates an mpts stream udp://@239.255.1.16 (which could be ment for server-b)
- generates spts streams udp://@231.255.1.* (which will be used by the server-a network STBs)

server-a PIMD server

Start the PIMD server (System configuration - Network - Multicast)

Internet access

Internet access setup on the server-a server for internet access for all 10.0.0.0-clients

```
sudo iptables -t nat -A POSTROUTING -s 10.0.0/24 -j MASQUERADE
Use "sudo nano /proc/sys/net/ipv4/ip_forward" and alter content from "0" to "1"
AND (for permanent setup)
put these two lines into /etc/rc.local above the exit 0 (last) line
iptables -t nat -A POSTROUTING -s 10.0.0.0/24 -j MASQUERADE
echo "1" > /proc/sys/net/ipv4/ip_forward
```

Set a valid DNS server address via admin IF System Config - Network - DHCP

7.3.2 server-b (10.2.0.5) setup

Special setup:

All udp streams we wish to be seen by the STBs is in the range 228.0.0.0 to 231.255.255.255 All udp streams we wish to be seen by *server-a* is in the range 232.0.0.0 to 235.255.255.255

Modified routing table:

```
$ ip r
default via 10.0.0.5 dev eth1 metric 100
10.0.0.0/24 dev eth1 proto kernel scope link src 10.0.0.57
10.2.0.0/24 dev eth0 proto kernel scope link src 10.2.0.5
224.0.0.0/5 dev eth0 scope link
232.0.0.0/6 dev eth1 scope link
In /etc/network/interfaces modify to
    up ip route add 224.0.0.0/5 dev eth0
    (half the range set mask from 4 to 5
        - the independent ranges)
    up ip route add 232.0.0.0/6 dev eth1
```
(in the eth1 section)

AND/OR

sudo ip r del 224.0.0.0/4 dev eth0
sudo ip r add 224.0.0.0/5 dev eth0
sudo ip r add 232.0.0.0/6 dev eth1

The change in routing config is that the multicast range is set to half the original range Addresses 224.0.0.0 to 231.255.255.255 will be routed to eth0 as usual Addresses 232.0.0.0 to 235.255.255.255 will be routed to eth1 to be picked up by *server-a* Addresses 236.0.0.0 to 239.255.255.255 are not specified. udp-streams within this range can thus be received on eth1.

Example:

- receives an mpts stream udp://@239.255.1.16 via eth1
- extracts from udp://@239.255.1.16 and generates spts streams udp://@231.255.1.* (to eth0) These will be used by the server-b network STBs

server-b Admin IF access

Admin if can be accessed from LAN via a tunnel through server-a

server-b software upgrade

Since *server-a* is set up to route internet traffic to 10.0.0.0-clients, software upgrade on *server-b* will work.

server-b PIMD server

Start the PIMD server (System configuration - Network - Multicast)

7.3.3 Last words

Please note that the above division into three areas is done mainly because it makes the address setting a bit easier to trace. The two highest areas can be combined into one area. The area specified at *server-b* to be directed to eth1 will be the only area where *server-a* can see mpts traffic from *server-b*. *server-b* however, can see traffic from *server-a* both in this area and in other areas not specified as being used for eth0 in *server-b*. Take care, though, so you don't create collisions between mpts packets in the area which is common to the two servers.

Manage content

8.1 VoD

This section is about the deprecated VoD (Video on Demand) system, which is used with the "legacy" portal. For systems running the newer "Up" as the STB user interface, this is replaced by *Media Catalog*.

8.1.1 How to enable VoD

- 1. Enter the web interface
- 2. Go to Manage content \rightarrow VoD
- 3. Click Enable here under VoD Host
- 4. Go to System Configuration \rightarrow Content Provisioning Server
- 5. Click Use with VoD and select Enable here

8.1.2 Getting VoD Content from SnapCast

If your system has an internet connection you can subscribe to VoDs and other content from the SnapCast service. By subscribing to SnapCast channels you can keep your VoD library up to date automatically. Contact SnapTV support (support@snap.tv) or SnapTV sales (sales@snap.tv) if you want to try out SnapCast. Please see *SnapCast* for details about setting up SnapCast

8.1.3 How to add VoD Content

- Add some categories
- Click Launch upload form under Upload VoD Content

Content requires at least a title and a main feature (movie) file. This file must be singleprogram MPEG-TS. You also need to select at least one category, under which the content will be shown to clients. You can queue multiple VoD uploads that will be automatically uploaded in sequence.

After uploading VoD content, there will be a delay of some minutes while the file is indexed and processed, after which it will be displayed on a green background in the **Available** section

of the VoD menu in the web interface.' Editing content after it has been uploaded is done by clicking on the title in the **Available** menu.

8.2 Infopage

With Infopage component you are able to create simple html page that can be displayed in SnapTV Portal. Enter infopage title and content. Infopage content field can contain simple HTML tags.

Manage inputs	EditInfond	20	
Manage live signals	Edit intopa	ge	View current
Manage content Upload EPG data VoD	Title:	SnapTV Infopage	
Configure VoD	Content:		
Mini Browser Pages	SnapTV deve	elops, builds, operates and maintains advanced digital infotainment systems.	
Manage recording			
SnapCast			
Client provisioning			
System configuration			
System information			
Change password			
Log out			
			Publish
	Longed in as admin		

Back to frontpage

To use that page as Infopage in portal set following url under **System configuration -> Portal** -> **Servers -> Info URL**:

http://[SERVER_IP]/infopage/

8.3 Mini Browser Pages

Manage inputs	Mini Browser Pages		
Manage live signals			
Manage content			
Browse uploaded files	Nordlys - http://mobil.nordlys.no	\$ ×	
VoD Mini Browser Pages	Radio Tromsø - http://wap.radiotromso.no	\$ ×	
Manage recording	NRK Nordnytt - http://m.nrk.no/m/distrikt/list.jsp?cat=24925&t=Nordnytt	\$ ×	
Client provisioning			
System configuration	Name: Url:	Add Delete all	
System information			

To see this browser in the portal, you must first enable the Content server in the webinterface. Read more about how to do that here: *Mini browser server*.

8.3.1 Add pages

- In the *Mini Browser Pages* section in the web interface, enter a **Name** and **Url** in the fields beneath the of pages.
- Click the Add button to add the new entry to the list.

8.3.2 Reorder pages

Drag and drop each entry in the list by using the *opposite arrows* button behind each entry in the list. Click and drag the entry to the new position of choice.

8.3.3 Remove pages

- To delete all entries in the list of pages, you can click the **Delete all** button next to **Add**.
- To delete a single entry, click the **X** behind the list entry you want to remove.

Manage recording

To use the Network PVR functionality you need a nPVR ISRV-1234A or a nPVR GHI-480 with some configured channels. Usually this is done by combining the nPVR unit with one or more GW 360GBPX units in a cluster and setting up some channels from these units (see chapters *DHCP* and *Add channel from input*). It is also possible to add "external multicast" channels directly to the nPVR units channel list (see section *New external multicast*). When you have some channels in your channel list you can configure recording of the channels.

NOTE: It is important that the EPG and nPVR servers have the correct time zone configured and have precise clocks. Please complete sections *Assigning NTP server* and *Set time zone* before continuing.

9.1 Configure Recorder Manager

In order to get recordings, you must first enable the service, which is called: *nPVR Manager Host*.

To enable/disable the server software use the following steps:

- 1. Open a browser to the web interface of your unit
- 2. Go to Manage recording \rightarrow nPVR Manager in the left menu
- 3. Click on Enable here / Disable to turn on/off the service.
- 4. Go to System Configuration \rightarrow Content Provisioning Server
- 5. Click Use with nPVR and select Enable here

nPVR Middleware Host		
API active at this host (192.168.0.1)	Disable	Enable here
Specify other nPVR middleware h	ost	
	C	Ж

If you already have a nPVR Manager service running on a different SnapTV server, you can point to it by entering its IP address under the *Specify other nPVR Manager host* heading below and click **OK**.

9.2 Configure recording of TV and Radio channels

Use the following steps to start recording:

- 1. Open a browser to the web interface of your unit
- 2. Click on Manage recording \rightarrow TV channels (or Radio channels) in the left hand menu
- 3. Check the channels you want to record in the list
- 4. Press OK

TV Channels to Record on this Recorder

Default keep time (TV and Radio):	days 0 hours		
1TVRUS Europe	Record: Keep time:	days	hours
POLONIA1	Record: Keep time:	days	hours
TVS	Record: Keep time:	days	hours
PULS	Record: Keep time:	days	hours
EDUSAT	Record: Keep time:	days	hours
ITV	Record: Keep time:	days	hours
Euronews	Record: Keep time:	days	hours
TVP Kultura	Record: Keep time:	days	hours
TELE5	Record: Keep time:	days	hours
JSTV1	Record: Keep time:	days	hours
TV POLONIA	Record: Keep time:	days	hours
BBC World News	Record: C Keep time:	days	hours

OK

Limit number of concurrent playbacks to (-1 for no limit)	: -1	ОК	
-----------------------------------------------------------	------	----	--

Concurrent playbacks license limit: -1

The recorder should now start storing the multicast from these channels to disk. The recorder will use EPG info for the channel to record one file per program. If no EPG data is available the channel the nPVR unit will record one hour per file. These will be presented as "Timed recording" in the STB menu. If there is EPG data available for the channel but no current program, the nPVR unit will not record anything until the next program starts, according to the EPG.

The nPVR unit will record all selected channels all the time. Continously, the unit will continuously remove recordings older than the time set in web interface, unless the recording has been tagged. When configuring recording you should make sure that you don't record so many channels that you run out of disk space. Also note that the maximum number of simultaneous playbacks the unit is capable of will decrease when the number of recorded channels increases. You may need to take this into consideration when selecting channels to record.

If you want to limit the number of clients playing a recording simultaneously, you can enter a value other than **-1** in the textbox here, and save using the **OK** button. This is not the number

of viewers for a single recording, but a limitation for the sum of viewers in total. Can be useful if you experience heavy server load caused by too many viewers at the same time.

The license can have a limit for concurrent playbacks, which is printed below.

9.2.1 nPVR modes

The nPVR system can operate in several different modes, according to operators' needs. The current mode of operation is controlled by the checkboxes under the *Specify mode for Record-ings* header.

- Shared recordings is a free-for-all mode where all operator-enabled recordings are made available to all users.
- Personal recordings enables the tagging system, where users can mark programs as their private recordings that are only visible to that user. This system can also be used in conjunction with the on-demand recorder property, where tagging a program will trigger recording of the relevant channel. In most cases, this will be used together with the UAO or PMS systems.
- If none of the options are enabled, the system can still be configured to record channels, but will not provide the recorded programs to users. This can be useful for system integrators who do not wish to use the standard SnapTV software stack.

The different options can be enabled at the same time to give users both a set of operatorcontrolled recordings and the possibility to select programs for longer storage or on-demand recording of other channels.

Media Catalog

This section is about the Media Catalog system, which replaces *VoD* when using "Up" as the STB user interface.

10.1 How to enable Media Catalog

- 1. Enter the web interface
- 2. Go to System Configuration \rightarrow Media Catalog
- 3. Click Enable here

10.2 How to migrate existing movies from legacy VoD

If you're upgrading a system with existing VoD content to Up and the newer Media Catalog, the movies can be migrated very easily:

- 1. Go to Manage Content \rightarrow Configure VoD
- 2. Click the Migrate button

After migration is complete, the legacy VoD system can be disabled from the same page, if not using the legacy portal.

Note: The legacy VoD system doesn't include the rich meta-data that can be shown in Up. Movies migrated this way will be possible to play, but will be missing some of the images and information in the Movies menu.

10.3 How to import movies from disk

The system can import movies from external disk, delivered by SnapTV via mail.

- 1. Connect the disk to an available USB input (on the server)
- 2. Enter the web interface
- 3. Go to Media catalog \rightarrow Import movie disk

- 4. Select the disk from the dropdown list (if the disk is not found, check the connection, and reload the admin page)
- 5. Click the import button

10.4 How to manually upload movies

This describes how to upload local video files, which are added as movies in the media catalog. All that is required is the video file that contains the main movie feature, an optional video file containing the trailer, and a URL for downloading metadata from TMDb. It is assumed that the server has access to the internet.

- 1. Enter the web interface
- 2. Go to Media catalog \rightarrow Upload movie
- 3. Use the browse buttons to select local files to upload for the main feature, and optionally for the trailer.
- 4. (optional) Paste a TMDb URL into the first text field. A link is provided in the page for searching TMDb for the correct URL.
- 5. Click the Upload button

Warning: Make sure not to close the page or do anything that interrupts the upload while the upload progress bar is shown. You will be automatically redirected to the edit page, where the information about the uploaded movie can be updated manually, if needed.

10.5 How to delete movies

To delete a movie from the catalog:

- 1. Enter the web interface
- 2. Go to Media catalog \rightarrow List movies
- 3. Find the movie and click **Delete** in the right column
- 4. Confirm deletion on the next page

The movie will be deleted immediately from the harddrive, and users won't be able to watch it anymore. If someone is currently watching the movie, or tries to watch it immediately after it's been deleted, they will get an error.

10.6 How to edit metadata

It's possible to edit the metadata for any movie in the catalog (whether it's uploaded, or imported from a distribution disk). From the movie list (**Media catalog** \rightarrow **List movies**), click the **Edit** button to edit information manually, or click the **Update** button to automatically download the latest information from the TMDb website, including images and statistics.

Note: The information that can be edited manually is currently quite limited, compared to what

can be downloaded from TMDb.

Note: The "Update" functionality is currently only possible if a TMDb URL was specified when the movie was originally imported/uploaded.

Note: When using the "update" functionality, any manually entered information can be overwritten.

Content Provisioning Server

In order to provide end-user access to content such as nPVR or VoD, the SnapTV software stack uses the Content Provisioning Server which can provide selective access to services based on user subscriptions and other metadata.

The Content Provisioning Server will automatically make use of any enabled authentication or asset providers, such as the UAO, that have been enabled in the cluster.

Unless free-for-all access has been enabled and user authentication has been disabled, users will not have access to any assets that are not granted by an asset provider. Some asset providers may also provide options for purchasing assets in-band.

To enable/disable the Content Provisioning Server use the following steps:

- 1. Open a browser to the web interface of your unit
- 2. Go to System configuration \rightarrow Content Provisioning Server in the left menu
- 3. Select any combination of "Use with [system]" checkboxes
- 4. Click on Save and enable here / Disable to turn on/off the service.

Ticking the checkboxes and clicking **Save and enable here** will enable client access to that system. If a checkbox hasn't been ticked, clients will not be able to use that system and it will be disabled in the SnapTV Portal.

11.1 Options

The behaviour of the CPS can be modified through the checkboxes under **Options**:

· Allow unauthenticated users

If this is checked, the CPS will allow all clients to access the system. If unchecked, clients must be registered in the UAO.

Note that even if unauthenticated users are allowed, they will not have access to any services unless the corresponding free for all option has been enabled.

· Live channels free for all

If this is checked, all clients will have access to all live channels.

VoD free for all

If this is checked, all clients that can access the VoD system can access all content stored in it.

If this is not checked, clients must be explicitly granted access to VoD content by an asset provider, such as the UAO or an in-band payment system.

• nPVR free for all

If this is checked, all clients will have access to a (nearly) unlimited ammount of recording quota. The quota is used to determine if a user can pin programs for storage.

Client provisioning

12.1 Amino

The Amino STBs get their software image and settings from a multicast service called bootcast. In order to avoid conflicting bootcasts when several SnapTV products are present in the network, the unit which is to run bootcast must be explicitly instructed to do so.

In the web interface, click **Client provisioning** \rightarrow **Amino** to bring up a configuration menu like this:

	GW 360GBPX - maxmanus:	Amino
Manage inputs Provisioning Manage live signals		
Manage content		
Manage recording Amino		
Client provisioning No Amino host defined: Enable h	ere	
Amino		
Standard Specify other amino host		
System configuration	ОК	
System information		
Change password Reboot		
Log out		
This reboots all online Amino STE	ls.	
Reboot all STBs		
Logged in as admin		

Here you can instruct the gateway you are currently logged into to be the bootcast server by clicking the **Enable here** link under the **Amino** heading. If you have more than one SnapTV gateway in a group (see section *DHCP*) you can alternatively enter the IP address of another SnapTV gateway to act as bootcast server under **Specify other amino host** and press the **OK** button next to it.

The bootcast system is now operational and will provide Amino STB's with up-to-date software and configuration, requiring no further interaction.

The settings for the bootcast server are located in /etc/mcastbootd.conf. If you change any of the addresses in that file the matching changes must also be done in /etc/dhcp/snaptv/99_amino.dhcpd.conf.

12.1.1 Reboot all STBs

Press the **Reboot all STBs** button and press OK in the confirmation dialog to reboot all STBs connected to the same network as the gateway.

12.2 Standard

Boot images and software configuration is delivered from the SNAPTV GW 360GBPX-E to connected Motorola STB's by the multicast based infocast service. In order to avoid conflicting infocasts when several SnapTV products are present in the network, the unit which is to run infocast must be explicitly instructed to do so. In the web interface, click **Client provisioning** \rightarrow **Standard** to bring up a configuration menu like this:

		GW	/ 3600	GBP>	< - maxmanus:	Infocast
Manage inputs Manage content Manage recording Client provisioning Amino Standard	Channel 1903/1963/1003 Bootcast channel SnapTV command channel Metadata channel 15x0/17x0 Bootcast channel 15x0/20 Bootcast channel	Protocol udp:// udp:// udp:// udp:// udp://	Address 224.2.2.22 224.2.2.3 224.2.2.4 224.2.2.11 224.2.2.21	Port 22222 Ed 22222 Ed 22222 Ed 22222 Ed 22222 Ed 22222 Ed		
System configuration System information Change password Log out	19x0 Bootsplash channel Bootstrap channel Provisioning	udp:// udp://	224.2.2.23 224.2.2.2	22222 Ed	nn fit fit	
	Infocast Infocast active: disable Specify other infocast host			ОК		
	Reboot Reboot all STBs Logged in as admin Back to frontpage					

Here you can instruct the gateway your are currently logged into to be the Infocast server by clicking the **Enable here** link under the **Infocast** heading. If you have more than one SnapTV gateway in a group (see section *DHCP*) you can alternatively enter the IP address of another SnapTV gateway to act as Infocast server under **Specify other infocast host** and press the OK button next to it.

The infocast system is now operational and will provide STB's with up-to-date software and configuration, requiring no further interaction.

At this point you should connect a Motorola STB to you network and watch it start. If everything is properly set up, it should display a range of circular symbols that will gradually change color to green, after which the SnapTV logo appears. After this, the STB will display *channel 1*, which will be black until you have added some TV channels.

12.2.1 Reboot all STBs

Press the **Reboot all STBs** button and press **OK** in the confirmation dialog to reboot all STBs connected to the same network as the gateway.

NOTE: Reboot all STBs button can be found on administration page of gateway where Infocast is defined.

System configuration

13.1 Network

13.1.1 Host IP

Warning: If you change the IP address you have to do a *Configuration remap* afterwards. Also remeber that the STBs will not receive new network settings until the end of the lease time and a reboot of the STBs might be necessary.

The default setup for IP addresses of the server for the eth0 interface is address 10.0.0.5 and Subnet Mask 255.255.255.0.

Host IP		
IP address (eth0)	Subnet Mask	
10.0.0.5	255.255.255.0	Save

This can be reconfigured via the Host IP page.

Note: Several tests of the new address takes place. The requested new address is rejected if in use, rejected if set to the broadcast address (all unmasked bits set) or the network address (all unmasked bits cleared). You will be warned if the address/mask overlaps a reserved address area. You will be warned if the DHCP server is active. It is recommended to disable the *DHCP* server since the parameters must be changes manually before it can work correctly under the new Host IP.

Browsing the server via eth0 and change to an address within the same subnet (e.g. going from 10.0.0.5 to 10.0.0.8):

The new address is enabled, with a timeout set to 45 seconds after which the original address will be restored if the new address is not confirmed. You have to authenticate to the server with

its new address and press the confirmation button to make the new IP address permanent. If this is not done within the timeout period, the server will be set up with the original address again and you might need to set this address manually in your browser address field to regain contact with the server.

```
New Host IP set, Timeout will occur in 35 seconds
set_new_ip -> Checking transfer from 10.0.0.5 to 10.0.0.8, please wait...
test_new_ip -> Try
test_new_ip -> Try
test_new_ip (callback) -> Result is alive
```

Browsing the server via eth0 and change to an address in another subnet (e.g. going from 10.0.0.5/24 to 10.0.1.5/24):

A popup confirmation is presented with the text: You can't be automatically transferred to this address since it is on another subnet, so that must be done manually. Continue anyway? (Yes/No)

If answering yes, a new popup will appear: *Please specify at timeout in seconds (60 to 600) after which the Host IP address will be set back to the current value.*

You have to manualy change the IP address of the client (your PC) and set an address in the same subnet as the server before contact can be re-established. Set the timout to a value high enough to make these changes.

This information will appear on the screen:

```
New Host IP (10.0.1.5) set, Timeout will occur in 291 seconds
You have to manually reconfigure the network settings on your PC and open the
following page in your web browser to confirm the servers new IP address.
```

Browsing the server via eth1:

If you are connected to the server via eth1 you will not loose your connection when changing in the IP address for eth0, and the new address settings will be saved without the need of any further confirmation.

13.1.2 Configuration remap

Configuration remap **have to be used** if you have changed the IP address on a gateway or if you wish to move all services to another gateway.

Move services or change server ip addresses

Old ip	New ip
10.0.0.65	10.0.0.65
10.0.0.73	10.0.0.73
192.168.0.1	192.168.0.1
192.168.0.2	192.168.0.2
ok	

13.1.3 DHCP

In order for STB's to recevie network settings, a DHCP server must be present in the local network, and the gateway can function as a DHCP server.

The DHCP server is started by clicking System configuration \rightarrow Network \rightarrow DHCP \rightarrow Enable here.

Note: Before enabling the DHCP server, make sure that the settings are correct. Especially after having changed the Host IP, the settings must be changed accordingly. The "Fill in default configuration values" button will adjust the content according to the current Host IP address. In this way, correct configuration values can be pre enabled before the "Enable here" button is pressed.

You can specify a different DHCP host if you already have one running in your network.

DHCP					
DHCPD active: disable					
Specify other DHCP host					
		Save			
This DHCP server (10	.0.0.5) is active				
-	-				
Subnet	Netmask	Range From	Range To	Default gateway	
10.0.0.0	255.255.255.0	10.0.050	10.0.254	10.0.0.5	
NTP server	DNS address	DNS address			
10.0.0.5				Sav	/e
Fill in default configuration values Fill in currently running values					

The DCHP configuration can be altered in the *This DCHP server* menu.

The values which can be set are:

- Subnet
- Netmask
- Range
- Default gateway
- NTP server: Network Time Protocol server IP address. This is required for the set-top boxes to have the correct time. Normally, this is the same as the DHCP server.
- DNS address (up to two)

There are two buttons which can alter the setting without saving them:

- · Default configuration values
- · Current running values

The default configuration values is set up according to the current host IP address.

Several sanity checks are performed on the settings before they are accepted.

- · Subnet: Wrong values are not accepted
- · Netmask: A Netmask different from the Host IP Subnet Mask will produce a warning
- Range: Range values outside the possible range according to the Subnet and Netmask are not accepted

A printout of the stored DHCP config can be seen at the bottom of the page.

```
Stored dhcp config
### Generated from the snap.tv web interface, dhcp menu at Fri Oct 22 11:15:30 2010
allow bootp ;
ddns-update-style ad-hoc ;
subnet 10.0.0.0 netmask 255.255.255.0 {
    option routers 10.0.0.5 ;
    range 10.0.0.50 10.0.0.254 ;
    option ntp-servers 10.0.0.5 ;
    }
### End
```

13.1.4 Multicast

Note: For multicast to function properly in your network, it is vital that there is an active IGMP querier in the network. If the querier is not present, end user devices will be flooded with more traffic than they can handle and will not function properly.

An IGMP querier can often be enabled in your networking equipment. If not, you can enable the PIMD service on a gateway, which will perform the same function.

• To turn on/off this service, check the box and click OK.

Multicast settings

Default multicast ttl: 1
PIMD Server: This host
Select this host
ОК

Default multicast ttl can be useful if you route the multicast traffic, then enter the number of steps allowed in the text form.

13.2 Cluster

Sometimes it is needed to run several SnapTV servers together on a single site. These can be grouped into a cluster. The cluster has a shared configuration file so that you can have a single channel list with channels originating from one or more servers. You can also combine these with nPVR and VoD servers.

To create a cluster start with two servers that has completed the initial configuration steps. If any more configuration than the initial steps has been done on the servers, the cluster will keep the configuration from the server that has had the most changes to its configuration. The configuration from the other server will be lost (not including the initial steps).

Before starting be sure the servers have got different IP addresses on the eth0 interfaces (see section *Network configuration*), and that only one (if any) server is connected to the external connection via eth1.

The remaining configuration is now done using the web interface.

To create the cluster, follow these steps:

- 1. Click **System configuration** \rightarrow **Cluster** in the left hand menu of the first server.
- 2. Note the Hostname, Identifier and Fingerprint.
- 3. Go to the next server and find the hostname of the first server in the list of *New servers*.
- 4. Check that these values match the noted values, if they don't match there is something wrong. Contact support@snap.tv.
- 5. If the fingerprint match, click the *Accept* button.
- 6. Repeat the same procedure in the opposite direction.

Crypto

 Hostname: 192.168.0.1 Identifier: combo_tromso Fingerprint: 57:F6:73:B9:8E:8A:BB:ED:EE:AC:B6: Local version: 267 	BE:60:3F:64:11:B9:98:74:A3
Peered/known Servers	
 192.168.0.2 : No known certificate 10.0.0.65 : No known certificate 	8
New servers	
 10.0.0.5 (Dev_Tromso): 8B:C4:63:3E:D4:39:52:00 10.0.0.244 (buildelawa 18): 2B:E4:80:E0:DD:C0:5):70:4E:1F:AD:7E:12:A6:15:37:02:DA:49 - accept

- 10.0.0.244 (buildslave-18): 26.F1.8C.E0.DD.CC.SC.C3.B6.80.F6.7D.70.2E.70.0E.DC.96.04(19 accept
 10.0.0.70 (robinp-test): 9C.8C:9E:6F:E6:C6:39:D2:AB:FD:5C:96:C6:75:ED:5D:4D:16:80:EF accept
- 10.0.0.70 (robinp-test), 90.00.9E.0F.E0.00.39.D2.Ab.FD.30.30.00.73.ED.30.4D.10.00.EF 800ept

The servers are now authenticated to share each other's configuration. Each server should show the other server under "Peered/known Servers" with hostname, Identifier fingerprint and a configuration version. The format of the line is:

<hostname> (<Identifier>) (<Configuration version>): <Fingerprint>

Check that the *Local version* matches the local version shown under "Crypto". If they are the same value on all servers, the cluster is working correctly.

To add a new server to the cluster, just select one server in the existing cluster. Then follow the above steps with this server and the new server. The selected server will share its trust in the new server with the other servers in the cluster. Likewise, the new server will inherit the selected server's trust in the rest of the cluster. Afterwards, each server should list all other servers with hostname, Identifier, fingerprint and configuration version.

Still the local version number should be the same for all the servers.

13.3 Mini browser server

Manage inputs	Content conver					
Manage live signals	Content server					
Manage content						
Manage recording	Content server active at this host (192.168.0.1) Disable Enable here					
Client provisioning						
System configuration	Specify other content server host					
Network						
Cluster	UK					
Content server						
EPG Service						
Monitoring						
Portal						
Set time zone						
Unicast radio services						
Audio Media Player						
Configuration profiles						
System information						

This is the service providing the mini browser option to the portal. To enable the service

- 1. Click on "System configuration" and the "Mini Browser server" in the left hand menu
- 2. Click Enable here to start the service
- 3. Watch the icon appear in the portal a few seconds later
- 4. To turn off, click **Disable** button

When you have enabled it, go to "Mini Browser Pages" under the "Manage content" menu in the sidebar. Read more about adding pages to the browser in *Mini Browser Pages*.

If you already have a mini browser server up and running in your network, can specify it in the dialog box and click OK. If you are in a cluster it will automatically find it.

13.4 EPG service

To deliver Electronic Program Guide to set-top boxes (and other clients), you will need to configure an EPG server.

Note: It is important that the EPG Server has the correct time zone configured and has a precise clock. Please complete section *Set time zone* and *Assigning NTP server* before continuing.

To enable the EPG service click on **System configuration** \rightarrow **EPG Service** and click the checkbox that appears.

The EPG server will keep the EPG data some time after the programs are completed to answer queries like "what was on yesterday at noon". Select the maximum number of days and hours to store EPG after the programs are completed. Then click the "OK" button.

	GW 360GBPX - combo_tromso:	Administration
Manage inputs List inputs	EPG Server settings	
Manage live signals	EDC Server: This host	
Manage content	Select this host	
Manage recording		
Client provisioning	Keep epg data for: 7 Days 0 Hours	
System configuration	Ot	
Network	OK	
Cluster	Browse epg data	
Content server		
EPG Service		
Monitoring		
Portal		
Set time zone		
Unicast radio services		
Audio Media Player		
Configuration profiles		
System information		
	Back to frontpage	

Note: If you have a cluster/head-end system with more than one SnapTV gateway, only one should be configured as EPG server.

What you have done so far is only to enable the Electronic Program Guide service as such; you have not yet defined the sources of data for the service. The SnapTV system supports aggregation of EPG data from the *Event Information Tables (EIT)* that are embedded in the

DVB transport streams, and import from XMLTV. However if you need to import data from XMLTV, contact technical support as there is currently no integrated support for it in the web interface.

You enable EIT aggregation on a per transponder basis in the DVB card page.

- 1. Click Manage inputs \rightarrow List inputs in the menu
- 2. Select a tuned DVB input from the list (see *Add channel from input*)
- 3. Click the "Start" button after "Not capturing EPG from this transponder.

Manage inputs List inputs	Tuning	succeeded					
Manage live signals	Transpon	der info:					
Manage content							
Manage recording	• Ca	ard: 3 uned to: 11372000 V SR 2	4500000	Satpos: A Type: dvb-s			
Client provisioning		 Frontend Lock: LC 	CKED				
System configuration		 Frontend Bit Error 	Rate: 🥥	< 1 e-6			
System information	• Ci	 Frontend Signal Str Frontend Signal-To apturing EPG from this tra 	ength: 22 -Noice lev nsponder	26 el: 152 stop			
	Services	found:					
	• ts • C	id: 35 riginal Network ID: 70					
	Service I	D Name	Provider	Address		Туре	FTA
	3515	NRK1 HD	Telenor	UDP V :	⊁	digital television service	no
	3513	NRK Super	Telenor	UDP ~ :	⊁	digital radio sound service	yes
	3514	NRK Gull	Telenor	UDP ~ :	⊁	digital radio sound service	yes
	3509	NRK1 Østfold	Telenor	UDP ~	⊁	digital television service	no
	3511	NRK Været til sjøs	Telenor	UDP ~	⊁	digital radio sound service	yes
	3501	NRK Alltid Folkemusikk	Telenor	UDP V :	⊁	digital radio sound service	yes
	511	NRK Alltid Nyheter	Telenor	UDP 🗸	⊁	digital radio sound service	yes
	1515	NRK mP3	Telenor	udp://@239.1.1.93:1234		digital radio sound service	yes
	1514	NRK Stortinget	Telenor	UDP ~ :	⊁	digital radio sound service	yes
	1510	NRK Sami Radio	Telenor	UDP ~ :	⊁	digital radio sound service	yes
	1507	NRK Alltid Klassisk	Telenor	UDP ~ :	⊁	digital radio sound service	yes

If you at a later point want to disable EPG capture from this transponder you can click the *stop* link after *Capturing EPG from this transponder*.

After a short time (up to 30 minutes) EPG data will start to appear (you may force an EPG read refresh by putting the STB in and out of standby).

13.4.1 Browse EPG data

To test if the server is running and capturing EPG data click **System configuration** \rightarrow **EPG Service -> Browse EPG data**. Select a channel and click OK. You don't have to select a time span. Now you can view what's currently on the selected channel or what has been shown a few hours back in time.

You can also view EPG data for a selected time span between 00:00 and 23:00 or a specific time, e.g. 20:30, using the drop down boxes.

Server status
What is on: Discov Science
between (from - to): 18:00 ▼ - 20:00 ▼
or/and at time (h:m): 21 ▼ : 30 ▼
ΟΚ
What's on at Discov Science at 21:30?

What's on at Discov Science between 18:00 and 20:00?

13.5 Monitoring

With your SnapTV comes the feature to monitor different services. For instance can EPG data for a specific channel be monitored and send e-mail notification when something is wrong. Through the web interface, you can turn on monitoring for different services in your SnapTV unit. Each of them will be explained in this chapter. For each service you can choose between three levels of monitoring:

- Enabled: Enable monitoring for a service and get notification by e-mail, sent to registered e-mail address.
- Enabled without notification: Enable monitoring for a service, but leave out email notifications. You still get to look at nice graphs at monitoring.snap.tv
- Disabled: Disable monitoring for this service.

13.5.1 Host monitoring

Go to **System configuration** \rightarrow **Monitoring** and turn on monitoring for you server by clicking the drop down menu and then click the OK button.

	GW 360GBPX - combo_tromso:	Nagios
Manage inputs Manage live signals	Site-identifier	
Manage content	The site identifier is the common name for your installation and will be used to identify senarate sites	
Manage recording		
Client provisioning	Shapev	
System configuration		
IP settings		
Network	Host Monitoring	
Cluster		
EPG Service		
Monitoring	192.168.0.1 enabled 🗸	
Portal		
Set time zone	OK	
Unicast radio services		
Audio Media Player		
Configuration profiles		
System information		
	Back to frontpage	

13.5.2 Signal strength monitoring

Go to **Manage inputs** \rightarrow **List inputs**, then click on a tuned transponder to see tuning information. Below channels tuned, just above Conditional access module, you will see a header Signal strength Monitoring. Click the drop down menu to choose your level of monitoring. Click OK button.

	GW 360GBPX - Pepper: Adv	ministratio
Manage inputs List inputs	Tuning succeeded	
Manage live signals List TV channels List Radio channels Add channel	Transponder info: • Card: 1:2 • Tuned to: 11325000 H SR 24500000 Satpos: A Type: dvb-s Downconverter: 9750000 • Frontend Lock: LOCKED	
Manage content	Frontend Bit Error Rate: I e-7	
Manage recording	Frontend Signal Strength: 4390.8	
Client provisioning	Frontend Signal-1o-Noice level: 35268	
System configuration	Not capturing epg from this transponder Start	
System information	Remove transponder	
Change password	renove sansponder	
_og out	Services: 10 found, 2 used	
	ts id: 25 Original Network ID: 70	
	Service ID Name Provider Address Type FTA Hidden	
	2507 St-Sh TS Telenor UDP 🔻 📄 🕅 digital television service no	
	1038 CI+ Test Telenor UDP 🔻 : 🗡 digital television service no 📄	
	2516 (Old) Fox Crime Telenor UDP T : Kigital television service no	
	2111 Showtime Telenor UDP T	
	1609 Star Telenor UDP T : Kigital television service no	
	2512 (Old) FEM Telenor UDP T : Kigital television service no	
	2511 History Channel Telenor UDP 🔻 🗄 : 🗡 digital television service no 🗐	
	2514 Viasat 4 Telenor UDP T : Kigital television service no	
	Add selected channels	
	Channel Hidden Source Address Bitrate Message Duration Type (kbit/s) (warning/error) (h:mm:ss)	FTA
	1 (Old) Gospel Channel Europe dvb:1:2 udp://@239.255.1.24:1234 2204 Image: 0:07:12 digital television service	ice yes Edit Test
	2 BBC Entertainment dwb:1:2 udb://@239.255.1.20:1234 260 🙆 Bad Audio/Video 0:07:12 dinital television servi	ice no Edit Test
	Delete selected channels	
	Conditional access module	
	Open CAM menu Open CAM messages Select CAM	
	Signal strength Monitoring	

13.5.3 Multicast monitoring

To always be sure that a channel is multicasting, click **Manage live signals** \rightarrow **List channels**. Choose a channel to monitor and click Edit behind the channel. You are presented with a page with channel information and at the bottom of the page you can turn on/off Multicast Monitoring for the channel.

Multicas	t M	lon	ito	ring
----------	-----	-----	-----	------

Monitoring	enabled without notification *	OK

13.6 Portal

To enable this service go to **System configuration** \rightarrow **Portal** \rightarrow **Host Setup**. Select a portal type and click *Save and enable here*. This should result in a screen similar to this:

Portal Host

Portal enabled on this server: snaptv-portal-legacy-maritime	
Select portal on this server:	
snaptv-portal-legacy-maritime	\$ Save
Disable portal	

The following portals can be available:

- **snaptv-portal-legacy-maritime** The default portal with most functionality, installed by default. See *Legacy portal configuration* for configuration options.
- **up** The minimalistic portal that currently supports TV, Radio and EPG. More features will be available over time. See *Installing Up* for install instructions.

If your servers are clustered (See section *DHCP*) you can see the running Portal Host IP address.

13.6.1 Installing Up

Note: Requires VIP1003 or VIP1113 set-top boxes.

Read about using the terminal in the *Working in a text-based console* section. Installing up requires that http://apt.snap.tv is reachable from the server that shall be running up.

Update the available system packages with:

sudo apt-get update

Install set-top box firmware for up:

```
# sudo apt-get install snaptv-motorola-kreatv4
```

and then install up:

sudo apt-get install snaptv-up

For VIP-1003, activate provisiong from Client provisioning \rightarrow Motorola Boot Images \rightarrow VIP19x3. Select the image up-normal:

Boot images for Motorola VIP19x3 Series STBs

```
The current selected image is up-normal
Select Image:
up-normal
The image will be loaded the next time the STBs reboot
Save
```

For VIP-1113, activate provisiong from Client provisioning \rightarrow Motorola Boot Images \rightarrow VIP28x3. Select the image normal:

Boot images for Motorola VIP28x3 Series STBs



Finally, enable up as described in *Portal*.

13.6.2 Legacy portal configuration

Setup

Go to System configuration \rightarrow Portal \rightarrow Legacy \rightarrow Setup.

Enable Components

Enabled components



All installed portal components are by default enabled as long as the required resource is available in the system. For instance, the VoD menu icon in the portal is available if there is a VoD server, and it has at least one available movie.

The **Enable Components** page allows the administrator to override the default setting, and force particular components *not* to appear in the portal menu, even if the service is available.

Note: Deselecting a component will only remove it from the *menu*, e.g. if "EPG browser" is deselected, it is not available in the main menu, but can still be accessed from the green button in the TV component.

Languages

Stream languages

Dutch, Middle (ca.1050–1350) Dutch; Flemish	Saved languages
Dyula	
Dzongkha	English
Eastern Frisian	
Efik	
Egyptian (Ancient	
Ekajuk	
Elamite	
English	
Portal UI languages	
Arabic	
Deutsch	Saved languages
English	
Español	English
Français	Español
Norsk	
Polski	
Português	

Hold Ctrl key and select/deselct languages.

Save

Configure languages that will be available in media streams and user interface.

Portal Debug

Portal Debug

Portal debug disabled: Enable here

Sometimes you want to debug a bit to get some techical feedback on what is going on in the running client. That could be on one or many motorola boxes, for example. Enabling **Port debug** will make the clients log to the server, to a file located at */tmp/panelpc.log*. By using the following command on the server, you can watch the logging simultaneously, as it happens:

tail -f /tmp/panelpc.log

Read more about using the terminal in the *Working in a text-based console* section.

Favourite Channels

Favourite Channels

Favourites channel in portal are disabled: Enable here

By default favoure channels functionality is disabled in portal. If you want to allow users to create their personalized channel lists on STBs click **Enable here** on **Favourite Channels** section.

Factory settings

Go to System configuration \rightarrow Portal \rightarrow Legacy \rightarrow Factory Settings.

Factory Settings		
Use factory settings each time portal is loaded:	O Yes	⊛ No
General Settings		
User interface language English 🔻		
User interface transparency: 20% ▼		
Standby LED: On Off		
HDMI mode: 720p ▼		
Initial Volume:		

TV Settings

Standard audio language: Arabic 🔻
Alternate audio language: Arabic 🔻
Standard subtitle language: Arabic
Alternate subtitle language: Arabic
Audio mode:
Subtitles: On Off
TV format:
● 4:3 LetterBox ▼
○ 16:9 None ▼
OK

Factory settings is used to set up default setting for the set-top boxes (STB).

In some portal versions it is possible to alter some or all of these settings locally at each STB. This menu is used for setting the default values globally for all STBs.

Changing a parameter in the factory settings page will take immediate effect in all the STBs. An exception here is if the STB user already changed this parameter locally; then this parameter (for this STB) will be locked to the value set by the STB user. The locks might be released on the next reboot.

Note: Factory settings have the following limitations on Amino STBs:

• The chosen TV format under factory settings in the administration interface is not used. The factory settings for Aminos are always 16:9, using the "pillar box" conversion method for 4:3 video.

- When enabling the option "Use factory settings each time the portal is loaded", the default TV format 16:9 is applied each time the portal is loaded, regardless of the chosen values.
- TV format settings in the portal menu on the STB are available. However, when HD output is enabled (HDMI Mode is either 1080i or 720p) the TV format is always 16:9, and selecting 4:3 has no effect.
- **Use factory settings each time portal is loaded.** Factory settings will always be used when booting a STB without settings (a new box).

If set to "Yes": Each time the STB portal is loaded, the local settings locks decribed above are released and the factory settings are used. This is the recommended setting in Hotel systems.

If set to "No": Settings which has been changed (touched) by the local STB user will never be overridden.

User interface language Select what language is used on the text displayed in the portal.

User interface transparency Select the transparency of the user interface in the portal.

- **Standby LED** If set to "On" the led lamp in front of the STB will be red when the STB is in standby mode. If set to "Off" the led will be turned off. When turned on the led will light green.
- HDMI mode Select the HDMI mode.
- **Initial Volume** Set the initial volume (between 0 100) to use when powering on the STB. If you control the volume on the TV's this can be set to 100.
- **Standard audio language** What audio language to use as standard if a TV channel broadcasts more than one audio language.
- Alternate audio language If the standard audo language is not available, this will, if available, be used instead.
- **Standard subtitle language** What subtitle language to use as standard if the TV channel broadcast subtitles in more than one language.
- Alernate subtitle language If the standard subtitle language is not available, this will, if available, be used instead.
- **Audio mode** If you connect additional sound equipment to the STB, set the output mode to "Digital" if you use coax or TOSLINK.

Subtitles Determines if subtitles, if available, is shown or not.

TV format What format to use on the TV's.

If all TVs attached to all the STBs are in 4:3 format, the correct selection is 4:3 Letterbox

If all TVs attached to all the STBs are in 16:9 format, you should either select **16:9 None** or **16:9 Pillar Box**. The difference is how 4:3 content will be displayed: If set to **16:9 None** the whole 16:9 screen will be used. If set to **16:9 Pillar Box**, there will be black vertical stripes to the left and right.

13.7 Set time zone

- 1. Click System configuration \rightarrow Set time zone.
- 2. Select your country and press the Set button.
- 3. If your country spans several time zones you will be presented with a list. Select one and press "OK".

Select Country and Timezone

Aaland Islands	▼	Set

13.8 Unicast radio services

Unicast Radio settings		
Unicast Radio Server: This host		
Ok		

Unicast radio services starts a DLNA server and enables unicast playout of radio. This provides DLNA and UPnP capable devices with a list of URLs pointing to the unicast radio services so that they can play radio channels over http.

Controlling the list of radio services is done in parallel with the setup of multicast radio. Hence, the list found in **Manage live signals** \rightarrow **List Radio channels** is the list of unicast radio services too. Sort order of unicast radio services however can't be changed.

To enable this service click System configuration \rightarrow Unicast radio services, check the check-box called *select this host* and click *OK*.

If another server in a cluster of many servers is set up to process the radio services, the address of that server will be shown in this menu.

The service relies on receiving the radio streams via UDP packets from the source gateway. All streams are transcoded into MP3 format on the server where the service runs. The transcoding requires some resources, so the service shouldn't be set up with a lot of channels on a server which is heavily loaded in the first place.

It is possible to skip the transcoding part and hence avoid CPU load. The audio format sent to the media player then will be MP2 usually, and there are many media players capable of decoding this format. To select, add the attribute transcode="false" to the channel tag of every radio channel that you don't want to be transcoded. Example: *<channel transcode="false">channel transcode="false">. See System configuration \rightarrow Configuration profiles.*
13.9 Manage administrators

Define and maintain administrator users and give them restricted access to the web interface.

13.9.1 Creating new users

Add admin interface user

Username	
Name	
Password	
Role	channel_admin ▼
Create	

Three different roles are defined:

- channel_admin
- content_admin
- admin

The channel_admin and content_admin roles have got access to parts of the system only.

Manage inputs		
List inputs		
Manage live signals		
List TV channels		
List Radio channels		
Add channel		
System information		
List versions		
Change password		
Log out		

The channel_admin can set up input cards and looped file channels.

🛃 snap.tv
personal television
Manage live signals
List TV channels
List Radio channels
Add channel
Manage content
Browse uploaded files
VoD
Manage recording
TV channels
Radio channels
Configure front-end
System information
List versions
System status
Change password
L out

The content_admin can manage recordings and VoDs, monitor live channels and set up looped file channels.

The admin role has access to all parts of the system.

A new user can be created by filling in the form at **System configuration** \rightarrow **Manage administrators**. The Username must be at least 3 characters and the Password at least 6. If no Name is filled in, the Username will be copied to the Name field.

13.9.2 Maintain users

Admin interface users

Username	Name	Role	View
admin	Default Admin User	admin	view
johnjones	John Jones	channel_admin	view
severinsmith	Severin Smith	content_admin	view

View/change/remove user 'admin'

		Action
Username	admin	Remove user
Name	Default Admin User	Update name
Password		Set new password
Role	admin	Remove

3

A table gives an overview of all created users. By pressing the view link of a user, details about this user are shown and can be altered. The user can be removed, the Name can be changed, the password can be overwritten by a new and the role can be changed.

13.10 Configuration profiles

You can now save your configuration to different profiles.

Use the following steps to create a configuration profile for you unit:

- Open System configuration \rightarrow Configuration profiles from the menu.
- Browse down to the Configuration profiles section.
- Choose a name for your current config.
- Click the Save button.

The profile will

To restore a profile and overwrite the current profile, select a profile from the drop-down box and click **Restore**.

Configuration	profiles		
Save profile:			
Restore profile:	.xml Save		
▼ Restore			

13.11 Setting up SSL

In the left hand menu choose the option Manage SSL. Press the enable button to turn on SSL authentication.



Note that upon turning on SSL authentication, your browser is likely to give you a security violation. This results from the browser not being aware of default certificate that SnapTV has self signed. You can either except the certificate by overriding the violation and downloading the certificate or upload a trusted certificate.

If you would like to generate a new Certificate Signing Request (CSR) please fill in the appropriate X.509 attributes of the certificate. This is done by filling in the two empty fields labelled Common Name and Organisation and pressing Generate. Once the CSR has been generated press the Sign button to self sign it and upload it.

If you have no attention of sending this CSR to a third party vendor for authentication then this isn't necessary as we already provide a self signed certificate. But if you are considering signing your certificate through a third party Certificate Authority then you can upload the issued signed certificate by the authority in the text area provided and pressing upload.

13.12 Piwik Analytics Server

If installed, the admin interface will have a page called "Piwik Analytics Server", where this feature can be enabled. Analytics is currently enabled for the *Anywhere web application* only.

To enable analytics, first click the "Enable here" button in the configuration page. When enabled, the page will show a link to the Piwik page. The first time the page is opened, it will run a configuration wizard. The wizard will ask for MySQL username, password and name of database. All three must be entered exactly as "piwik". Continue to enter a site name and email address, and the main application should appear when the wizard is complete.

When this is done, data should start to appear for every time the Anywhere application is being used.

Note: The Piwik Analytics Server is provided by a package called *snaptv-piwik-setup*, which depends on *piwik* and *mysql-server*. If this is installed from a terminal, the mysql package will ask you to enter a password for the root user. Do not enter a password, but instead just hit escape and let the installation continue. The *snaptv-piwik-setup* package will set a root password, and add the "piwik" user afterwords.

System information

14.1 License

To list your license information click **System information** \rightarrow **License** in the menu.

To renew your license, you simply need to click the "Renew" button found at the same page, underneath the license information. See image below.

Manage inputs	Lissnes information	
Manage live signals	License information	
Manage content		
Manage recording	Found valid license with t	ollowing limitations/information
Client provisioning	radio-channels	
System configuration	OVD-S2	12
System information	motorola-sw-provisioning	g unlimited
License	mainboard	pcie-9652-R10
List versions	vod	unlimited
System status	analog	12
	identifier	combo_tromso
	recorded-hd	unlimited
	recorded-radio	unlimited
	dvb-t	12
	dvb-c	12
	dvb-s	12
	web-radio	unlimited
	amino-sw-provisioning	unlimited
	concurrent-streams	unlimited
	recorded-tv	unlimited
	epg	unlimited
	tv-channels	unlimited
	serialnumber	90184
	hd-channels	unlimited
	product	GW 360GBPX
	dvb-asi	12
	Renew	
	Lipload licorco	
	opioau incerise	
	Pack to frontage	
	END A TO TRANSPORT	

If you have no internet connection or if license request fails you could click "Try again" or download the license by clicking the "Get offline license request" button. Then send this file it to support@snap.tv which enters it into the license system and returns a license file that you can upload manually.

When you have the license stored on our computer, you can upload your license by clicking the "Upload license" button found in the same page. Do the following:

Click "Upload license"

- Choose a file from your computer
- Press the "Upload" button

lanage inputs	Unload licence
lanage live signals	- opioad license
lanage content	
lanage recording	Bla gjennom Upload
lient provisioning	
system configuration	
system information	
License	
List versions	
Custom status	

14.2 List versions

Manage inputs	System Information		
Manage live signals			
Manage content			
Manage recording	Product:	GW 360GBPX	
Client provisioning	Kernel:	Linux 2.6.24-snaptv-r7441	
System configuration	Installed from:	i686-snapinstall-trunk-CB.7468	
System information	amino:	1.9.7399	
License	analog:	1.9.7620	
List versions	epg:	1.9.7344	
System status	gui-icons:	1.9.7443	
	infoservice:	1.9.7343	
	mcastmgt:	1.9.7661	
	request-license:	1.9.7160	
	snapdvb:	1.9.7637	
	snapstreamer:	1.9.7288	
	snaptv-content:	1.9.7693	
	snaptv-kreatel:	1.9.7083	
	snaptv-nagios:	1.9.7632	
	snaptv-pki:	1.9.7083	
	snaptv-portal:	1.9.7866	
	snaptv-qa:	1.9.7083	
	snaptv-webinterface:	1.9.7851	
	snaputils:	1.9.7660	

This is a list of the versions of the installed software in your SnapTV unit.

14.3 System status

Manage inputs	System Status		
Manage live signals	System Status		
Manage content			
Manage recording	Uptime Time since booting the system: 14 d 4 h 28 min 33 s		
Client provisioning			
System configuration			
System information	Load averages		
License	Average number of active processes over a time period.		
List versions System status	1 Minute 2.00		
	5 Minutes 2.34 15 Minutes 2.77		

Follow these steps to see the system information for your SnapTV unit.

1. Click System information -> System status in the menu

- 2. Scroll down to see information for all the following areas:
 - Uptime
 - Load averages
 - CPU Usage
 - Disk space
 - Memory usage
 - Network usage
 - Sensors
 - Services
 - Network interface configuration
 - Kernel IP routing table
 - Mail to support (see section *Mail to support* below for more information)

You should see updated information (some realtime) for all areas.

14.3.1 Mail to support

When you are experiencing a problem with your server, and you don't know what is causing the problem, you should contact support at SnapTV. Do this is by clicking **System information** \rightarrow **System status** in the left menu and at the bottom of the screen you will see a section called Mail to support.

Mail to support
Click the button below to generate a report. Attach the report to an email describing your problem, and send it to support@snap.tv.
Generate report
Back to frontpage

By clicking the button named "Generate report" the server will call a program to gather important status and logfiles about your server and collect them in a compressed package. This file is downloaded and should be included in an e-mail to support@snap.tv. It is also preferred that you click the e-mail link in the "Mail to support" section, which sets the e-mail subject if you have configured a e-mail client on you computer.

User and Asset Organizer

There are two versions of the UAO available - standard and legacy. This document describes the standard version.

The standard version is recommended in nearly all cases. The two exceptions where the legacy UAO must be used is when

- · Using the legacy portal with messages
- · Using the legacy portal with VoD

15.1 Installation

The SnapTV Users and Assets Organizer is contained in the package snaptv-uao-api. Like other optional packages it can be installed using the apt-get command.

\$ sudo apt-get install snaptv-uao-api

15.2 Getting Started

If you have used older versions of the UAO, you will find that the core concepts are the same, but that the interface has been made much simpler. There are less things to worry about and fewer steps required to make it work.

In addition, the UAO can now integrate with external services for automatic provisioning of users and assets. This is used when offering services for purchase, since the payment processing system then can automatically update the UAO on demand.

For use cases where the operator wants to manually configure users and their assets, the admin interface provides a few simple steps to make this work.

15.3 Products

There are currently three product types available:

- Master Product
- Channel Pack

Recorder Access

All products have the same basic properties: A name, an optional comment and a free for all checkbox. If the free for all checkbox is checked, this product automatically becomes available to all registered users and you do not have to assign it to users.

Master products are used to gather several products into one asignable unit. It can include any number of channels, channel packs or recorder access products..

A channel pack can include any number of channels. In addition, a channel pack has an auto add channels option. When checked, this option will cause the channel pack to automatically include all channels in the system.

Recorder access products allow users with access to them to allocate storage on available nPVR servers. Each recorder access product contains a number of hours that add up to the total ammount of time a user is allowed to pin.

15.4 Users

Users can have any number of client devices (CPEs) and any number of products their client devices can access. Users are identified by their comment field and, optionally, an external id. The external id is primarily used when integrating with external payment processors,

Once a client device has been created for a user, that device can register itself with UAO and start accessing the products assigned to the user. User, client device and asset registration takes effect immediately, although end user interfaces, such as up, might have a delay before they check for new assets.

15.5 Client devices

There are two distinct methods for registering and activating client devices:

- Activation Codes
- Audo activation

Both methods can be used interchangably and at the same time and there is no reconfiguration necessary to switch between them.

The activation code mechanism is useful when you do not have or does not care about the exact number and detailed description of all client devices in the network. Activation codes can either be enterred manually when editing the user or created automatically under the *Batch generate* menu.

The batch generation menu allows you to select a user and a number of codes to create. Each code represents a single client device and can then be entered by an end user to activate their client device. Once the code is entered, the client device is registered as belonging to the user for whom the code was generated and will receive access to all the user's assets.

Using this method means that a large number of activation codes can be pre-generated and that client devices can be replaced at any time without requiring any further system configuration.

The auto activation mechanism requires you to register the MAC addres and serial number of all client devices to be used in the system in the UAO. When client devices start, they will

attempt to register themselves using their MAC and serial number. If the pair matches a device registered in the UAO, the client device will become associated with the corresponding user and receive access to all the user's assets.

To reduce the ammount of work required to use this mechanism, the UAO admin interface provides a *Batch import* option that allows you to upload a CSV file containing the required information.

The format of the file is:

User comment, MAC, serial number, master product name

E.g.:

```
user1,00:00:fa:la:fe:10,123,Basic
user1,00:00:fa:la:fe:11,124,Basic
user2,00:00:fa:la:fe:12,125,Basic
```

The master product is optional. If specified, it must match the name of an existing master product.

Console: Advanced configuration

16.1 Working in a text-based console



A console is a text-only way of doing tasks. Often referred to as CLI and often used by programmers and system administrators, in engineering and scientific environments, and by technically advanced computer users.

Linux and OS X have remote shell clients installed by default. If you're working from Microsoft Windows, PuTTY is a popular remote shell client that can be used to open a connection to the SnapTV server. Download it at http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

16.2 Using the Nano editor

Nano is a small, free and friendly editor for unix-like operating systems.

All key sequences in nano are entered using the keyboard. nano is a "modeless" editor. All

keys, with the exception of Control and Meta key sequences, will enter text into the file being edited.

The two lines at the bottom of the screen inside the Nano editor show some of the more commonly used functions in the editor. Here are a few of them listed:

Command	Keyboard shortcut
Save	CTRL + O
Save & Exit	$CTRL + X \to Y \to ENTER$
Cancel	CTRL + C
Search	CTRL + W
Search & Replace	CTRL + W + R
Page Up	CTRL + Y
Page Down	CTRL + V

16.3 EPG: Importing XMLTV data into the SnapTV EPG server Configuring the gateway for using an XMLTV EPG source

The SnapTV EPG server comes with support for importing data in XMLTV format.

It does not, at the moment, contain support for mapping the channel id's used by a particular XMLTV source to the internal channel id's used by the SnapTV Gateway.

This means that before importing XMLTV data, the channel id in the gateway configuration must be modified to match the wanted channel id from the input data, plus the string '.xmltv.snap.tv'.

16.3.1 Example

Given the following XMLTV fragment:

```
<tv source-info-name="Radio Times" generator-info-name="XMLTV"
generatorinfo-url="http://xmltv.org/wiki/">
<channel id="scotland.bbcl.bbc.co.uk">
<display-name>BBC1 Scotland</display-name>
<display-name>BBC One Scotland</display-name>
<icon src="http://www.lyngsat-logo.com/logo/tv/bb/bbc1.jpg" />
</channel>
</tv>
```

The corresponding entry in the gateway configuration must be modified so the value of the id tag matches the value of the id attribute on the channel tag in the XMLTV data:

```
<snapconfig>
<tvChannels>
<channel>
<address>udp://@239.0.0.16:1234</address>
<name>BBC1 Scotland</name>
<id>scotland.bbc1.bbc.co.uk.xmltv.snap.tv</id>
<pvr>
<host>10.10.0.3</host>
<card>/dev/video5</card>
<input>2</input>
```

```
</pvr>
</channel>
</tvChannels>
</snapconfig>
```

16.4 EPG: Importing XMLTV data

To import a file containing XMLTV data:

- · Log into the gateway
- Copy or download the XMLTV file
- Run the following commands, replacing /PATH/TO/YOUR/XMLTV_FILE with the actual path to the XMLTV file:

```
~$ cd /opt/snaptv/epg
~$ perl -MLibSnap::EPG -e 'LibSnap::EPG::cleanup()'
~$ perl -MLibSnap::EPG -e 'LibSnap::EPG::xmltv_loadfile("/PATH/TO/YOUR/XMLTV_FILE")'
```

Note: The EPG database currently requires the "lang" attribute to be present for both "title" and "description" elements. This command might be necessary to insert the attribute for all title elements:

~\$ sed -i -e 's/<title>/<title lang="en">/g' XMLTV_FILE

16.5 Resetting the System Passwords

To reset system console password you need to reboot the gateway with monitor and keyboard connected. When the GRUB menu shows press 'e' on the keyboard to edit boot options. Three lines will appear. Select the line starting with "kernel" and press 'e'. At the end of the line type the following::

```
real_init=/bin/busybox init_opts=sh
```

Make sure there is a space between 'real_init' and any existing options. Press enter when finished typing and then press 'b' to boot with the new options. when the bootup is completed you should get a shell with no password required. Enter the following commands:

```
~ # mount -n -o remount,rw /
~ # passwd
New password:
Retype new password:
passwd: password updated successfully
~ # mount -n -o remount,ro /
```

Now reboot by pressing the reset button on the chassis, or holding the power button in for 4 seconds.

AMT - Active Management Technology

17.1 Overview

Intel (R) AMT (Active Management Technology) is a remote control technology, which is integrated into the hardware component of PC based on Intel (R) vPro (TM) platform. Traditional remote control solutions could control a computer only if the computer's operating system was running and configured. Intel (R) AMT (Active Management Technology) removes this limitation and allows the control of a remote computer that is turned off, has no operating system installed or if its operating system hangs. Such functionality is provided by a special add-on processor on the motherboard that can handle incoming network requests for many useful tasks. Even if the computer is turned off, the add-on processor will work on stand-by power provided the computer's power cord is plugged in.

17.2 Connection

The AMT hardware is tied to the ethernet connector labeled eth1. The default setup of eth1 is DHCP so when connected to a network with a DHCP server, any PC in this network can gain access to the AMT functionality

17.3 Tools for accessing AMT from a PC in the network

There are several tools which serves different purposes

17.3.1 Finding the AMT enabled servers

The IP address of the server which was given to it by the DHCP server is the same for normal access and AMT access. If not known, an IP address scan of the active AMT port can be performed from any PC in the network. If the server can be accessed normally via a web browser, the IP can be shown in the System Information -> System status page. If not, a tool for port scanning can be used

A PC with Ubuntu Linux

nmap -p16992 192.168.1.*

(IP range must be set according to the DHCP range of the particular network). Servers with AMT will respond with port 16992 open.

17.3.2 Restricted access

For all accesses to the AMT system a user name and password is required. The default user / password set up before shipping is

```
User: admin
Password: !thAx06!
```

17.3.3 Web access

The AMT firmware communicates through a standard browser on port 16992. Simply enter the IP address (or server name) with the port number attached

```
http://192.168.1.22:16992
http://my-license:16992
```

Enter correct user amd password in the logon dialogue.

Here you can check the status of the server, turn on and off power, and change some AMT Bios settings.



Network settings

X – D Intel®	Active Managem ×	
🔶 🗼 🥙 🔇 peppe	r: 16992/ip.htm	r 🖓
Intel [®] Active Man Computer: pepper	agement Technology	(intel)
System Status Hardware Information System Processor Memory Disk Event Log Remote Control Power Policies Network Settings IPv6 Network Settings User Accounts	Network Settings Configure the managed device network settings for this computer. ✓ Respond to ping TCP/IP settings for wired connection • Obtain IP settings automatically ∪ Use the following IP settings: IP address: Subnet mask: Gateway address: Preferred DNS address: Alternate DNS address: Submit	

Note that under "Network Settings" you can change the IP address for the AMT interface. This will not affect the settings of the shared eth1 port settings for normal operation traffic. The default setting is "Obtain IP settings automatically" which means obtain settings via the DHCP server. In some environments it is more convinient to set up a fixed IP address.

17.3.4 Access via the linux tool 'amttool'

AMT_PASSWORD=' <password>' amttool <IP or Server Name>

This tool communicates on port 16992 and a subset of the commands and status replies compared to the Web access tool is available.

~ \$ AMT_PASSWORD='!thAx06!' amttool	pepper
<pre>### AMT info on machine 'pepper' ##;</pre>	#
AMT version: 8.0.0	
Hostname: pepper.local	
Powerstate: S0	
Remote Control Capabilities:	
IanaOemNumber	157
OemDefinedCapabilities	IDER SOL
SpecialCommandsSupported	PXE-boot HD-boot cd-boot
SystemCapabilitiesSupported	powercycle powerdown powerup reset
SystemFirmwareCapabilities	f821

17.3.5 Access via the linux tool 'amtterm'

AMT_PASSWORD=' <password>' amtterm <IP or Server Name>

Make sure that amtterm release 1.3 or higher is installed.

This tool connects to the server (using ip port 16994) over a virtual serial port (SOL or Serial Over LAN). During bootup and poweroff sequences of the server the console messages are redirected here.

```
~ $ AMT_PASSWORD='!thAx06!' amtterm pepper
amtterm: NONE -> CONNECT (connection to host)
ipv4 pepper.snap.tv [192.168.1.71] 16994 open
amtterm: CONNECT -> INIT (redirection initialization)
amtterm: INIT -> AUTH (session authentication)
amtterm: AUTH -> INIT_SOL (serial-over-lan initialization)
amtterm: INIT_SOL -> RUN_SOL (serial-over-lan active)
serial-over-lan redirection ok
connected now, use ^] to escape
```

```
This is pepper.unknown_domain (Linux x86_64 3.1.6_p0001001300000001-snaptv) 11:07:30
```

pepper login: root
Password:
Last login: Mon Jun 18 10:57:05 CEST 2012 from oslo-gw.snap.tv on pts/1
root@pepper ~ #

17.3.6 Access via the linux tool 'gamt'

AMT_PASSWORD=' <password>' gamt <IP or Server name>

Same as amtterm, but wrapped in a graphical environment. There are issues in Release 1.2 which makes the communication drop during powerup and powerdown.

17.3.7 Access via the Windows tool 'Radmin Viewer 3.4'

With this tool all information available at a local console directly connected to the server will be available via Serial Over LAN. However the tool can't connect to the server without interrupting the current operation and starting from scratch.

Preparations

In order for the connect mechanism to work with Radmin, the AMT IP address should be set up to a fixed adress. See section *Network settings* for how to set static IP address.

Setup new connection

Under the Connection tab, select "New connection..." and set up the fixed IP adress and also the name of the server.

Select a session type and start

Right click the newly created connection icon and select one of the Intel (R) AMT options.



17.3.8 Access via tunnel

All the above tools can be accessed via a tunnel in situations where the target equipment is not reachable from the network you want to log in from. If the port number selected for the tunnel is the same as the target port number, the syntax when logging on is basically the same as before. However if another port number is chosen for the tunnel the syntax for correct number is as follows,

Example: From your local linux machine you can log onto a machine in the same network as the target AMT enabled server.

17.3.9 AMT Setup

A total reconfiguration of AMT can be done, starting with resetting the AMT settings, including password via the BIOS

Boot up the server with a local console connected (USB keyboard and VGA monitor)

Enter BIOS by typing DEL

Under the Advanced tab

AMT Configuration [Enabled] Un-Configure ME [Enabled]

(set Un-Configure ME to Enabled)

Exit, and then when booting up enter AMT BIOS by typing Ctrl^P

```
Continue unconfigure [Y/N] Y
```

Then the system will reboot again, and again enter AMT BIOS by typing Ctrl^P

First time login requires that you type the default password, which is 'admin' and set a new password. If the new password is rejected, the most likely reason is that it is too simple. Try another which contains Upper and Lower case letters numbers and special characters. An example:

!thAx06!

Here a minimum of settings are described to get you back to the configuration which was activated from the factory

```
> Intel (R) AMT Configuration
        > SOL/IDER/KVM
        Legacy Redirect Mode <Enabled>
> Network Setup
        > Intel (R) ME Network Name Settings
        Host Name <same as license name>
        Domain Name local
> TCP/IP Settings
        > Wired LAN IPV4 Configuration
        > DHCP mode <Enabled>
Activate Network access (enable)
```

Note: You may want to reconfigure TCP/IP Settings into a fixed IP address instead of DHCP. In DHCP mode, the network address of the AMT interface is the same at the IP for normal access. In manual setup mode, the AMT address is fixed to the settings of this menu, while the normal access address is still DHCP enabled. See section *Network configuration*.

The "Network Setup" and "TDP/IP Settings" can be manipulated via the web interface later. See section *Network settings*

NOTE: If the IP setting in normal mode is set to a fixed IP address, the AMT setup should be a fixed address too. The AMT address might be set to the same address as the normal mode address.

17.3.10 Boot menu setup

In the linux boot menu there will be two lines for entering the same software. The default one is for Serial Over LAN enabled access. When booting up, the boot console messages are routed to a PC which is connected via LAN where one of the tools explained above is running and connected. The menu item above is for normal boot without Serial Over LAN so that the boot console messages are directed to the locally hooked up VGA monitor.

GNU GRUB version 0.97 (615K lower / 523264K upper memory)	

 SnapTV 3.1.6_p000100130000001-snaptv 	
SnapTV 3.1.6_p0001001300000001-snaptv_SERIAL_OVER_LAN	
ч.	
•	
•	
-	
*	
***************************************	* * * *
Use the * and * keys to select which entry is highlighted.	
Press enter to boot the selected OS, 'e' to edit the	
commands before booting, or 'c' for a command-line.	

PAGA Mute

The PAGA Mute is an advanced feature that enables you to immediately and temporarily mute all Set Top Boxes in your installation on reception of an electrical signal. This is intended for usage in environments where there is a requirement for TV sets to be muted during public announcements.

Usage of the PAGA Mute feature requires either a network based dedicated I/O switch, or a special serial cable to operate. It is also possible to use both methods simultaneously.

18.1 Network based I/O switch

18.1.1 Configuration of the IO box

For the IO box to generate the correct signal, DI0 and DIGND must be short-circuited during normal operation. When the Mute feature is required, the short-circuit must be broken.

When the SnapTV gateway has been configured to connect to the IO box, PAGA Mute will automatically mute all connected Set Top Boxes for as long as the short-circuit is broken.

18.1.2 Configuring the gateway

The gateway must be configured with the following, under "System configuration" and "PAGA Mute":

- The IP address of the IO box
- The timeout in seconds for each status query to the IO box (typically 5 seconds)
- The number of retries if the status queries time out (typically 5)
- The interval between each status check in seconds

The interval between each status check will affect how quickly the system responds to the external signal. We recommend that you set this to 1, delaying propagation of the signal as little as possible.

In addition, the "enable" check-box under "Network based I/O switch" must be checked.

18.2 Serial cable

18.2.1 Connecting to an external switch

PAGA mute can be enabled by connecting an external device directly to the serial port of the SnapTV gateway. It does not require the device to have a serial port, but requires a special serial cable that can be connected to a switch such as a relay.

This requires a direct wire between the external device and the gateway. If this is not practical, use the network based approach.

18.2.2 Configuring the gateway

The gateway must be configured similar to the network based configuration. The serial port must be selected, and the interval between each check (in seconds, typically 1 second).

In addition, the "enable" check-box under "Serial cable" must be checked.

UPS Shutdown

19.1 Serial cable

19.1.1 Connecting to the UPS

UPS shutdown can be enabled by connecting the UPS directly to the serial port of the SnapTV gateway. It does not require the UPS to have a serial port, but requires a special serial cable that can be connected to a relay or switch on the UPS.

This requires a direct wire between the UPS and the gateway.

19.1.2 Configuring the gateway

The gateway configuration is very similar to the PAGA mute configuration described in the previous section. It is found under **System configuration** \rightarrow **UPS Shutdown** in the admin interface. The serial port must be selected, and the interval between each check (in seconds, typically 1 second).

In addition, the "enable" check-box under "Serial cable" must be checked.

Audio Media Player

20.1 Play radio channels on your Audio Media Player

When enabling the Unicast Radio services it is possible to play radio channels using DLNA or UPnP compliant Audio Media players.

Setting up via the web interface:

- 1. Enable Unicast radio services.
- 2. Add some radio channels, see Add channel from input.

Operating the Audio Media player:

- 1. Attach your Audio Media player to the same network as the gateway and power it up.
- 2. Make sure the device is connected to the server, this normally happens automatically when turning power on. If not connected, make sure that the correct network is selected, normally Wired (if the device has got a wireless option).
- 3. Attach speakers or a headset if there is no internal speaker in the device.
- 4. Navigate to the Shared Media option. This is where you find the SnapTV DLNA service, and inside you will find the list of radio channels.
- 5. Select a channel and start listening.

SnapCast

SnapCast is your window to the internet. Install SnapCast to fetch updated content - podcasts, videos and news feeds - and provide it to your users.

SnapCast is installed along with other SnapTV software, as part of the *content server* packages.

The Snapcast system consists of the software module described here (Gateway module) and a SnapTV central repository where the content is downloaded from (Repository module). The central repository module has several ways of collecting the actual content. The Gateway have to be registered in the central repository and subscription(s) to content must be set up in order for the gateway to "see" content on the central repository.

For a description of how to subscribe to content from the central repository please see (putt in referanse?)

The scope of this chapter is to explain the SnapCast menu in the SnapTV Gateway interface.

21.1 SnapCast administration pages

SnapCast is integrated into the SnapTV Gateway administration interface, together with the administrative pages for other SnapTV services.

When you navigate into the SnapCast menu, you will see five items:

Manage inputs
Manage live signals
Manage content
Manage recording
SnapCast
Channels
Items
Schedule
Host settings
Configuration
Client provisioning
System configuration
System information
Change password
Log out

Before using these pages, SnapCast must be enabled on the server.

21.2 Enabling SnapCast

To subscribe to channels and download media from repository it is required to enable SnapCast service on a gateway.

If there are several gateways clustered, it is recomended to enable the SnapCast service on a content server (nPVR). It is also required that the SnapCast and VoD services will be enabled on the same server

To enable SnapCast service open **Host settings** page and click on **Enable here**.

Note: Starting SnapCast services takes a moment. Once started, the administrative pages become available. After that, it typically takes about five minutes before channels appear, and several additional minutes while synchronizing item listings for each channel.

21.3 Channels

Content in SnapCast is organized in *channels*. After your SnapCast server has finished synchronizing with the SnapCast repository, you will be able to see a list of available channels. If you would like to have additional channels in the list, such as the Video on Demand channel, please contact your SnapTV representative.

The channels menu is where you decide which channels you want to subscribe to. You can click on the channel name so show additional information about the channel, or in the items column to see a list of current items:

Select channel to change

Search					Filter
Action: Go 0 of 10 selecte	By Subscribed				
Name 🔺	Items	Is subscribed to	Quality	Keep time	Yes
Airwave movies		0	High	Forever	No
Deadline 22.30	View Items (41)	•			
Food Guru Video Podcast		0	High	Forever	
NBC Nightly News (video)		0	High	Forever	
NRK – Radio Super små	View Items (3)	•			
NRK2 – Aktuelt	View Items (5)	0	High	Forever	
NRK2 – Dagsnytt	View Items (50)	0	High	Forever	
So ein Ding		•			
Sony PS3 Spotlight - GameTrailers.com	View Items (82)	0	High	Forever	
TVAvisen2100	View Items (32)	•			
10 channels					

There are three additional columns in the table:

Is subscribed to Shows whether the channel is selected for subscription.

Subscribing to a channel means that items (audio and video files) are automatically downloaded from the online repository. When enabling a subscription, all existing items are scheduled for downloading, and new items that become available will be downloaded automatically.

Items that are downloaded by a subscription are automatically removed after a configurable *keep time*.

Note: It's possible to download individual items from a channel without subscribing. A subscription is not required in order to download and make content available on the gateway. In fact, when using "offline sync", typically the channel should *not* be subscribed to.

Note: Do not confuse subscription with anything related to payment. Subscription is merely an "auto-download" feature.

- **Quality** This defines the quality for the media files that will be downloaded as part of a subscription. Use low quality when you want to get the feeds fast (e.g. newscasts) or if your connections is slow.
- **Keep time** How many days since publication date the videos should be kept on disk before they get deleted, if the channel is subscribed to.

Historically, if a channel was marked as a VoD (Video on Demand) channel, then the videos would show up under the VoD menu on the portal. However, in newer applications, such as SnapTV Anywhere, VoD content and other content are available in a single user interface. The VoD mark is only used to distinguish how the content is presented to the user.

21.3.1 Choosing which channels you want to subscribe to

Subscribing to channel will cause all media for that channel being downloaded automatically.

When you want to subscribe to one or more channels, you mark the channels using the checkbox on the left side of the channel and use the "Subscribe to selected channels" action in the action menu. Click on **Go** button and you will be redirected to subscription setup page.

Subscribe				
Please set subscription parameters for the following channel: Deadline 22.30				
Quality:	High 🗾			
Keep time:	0			
Subscribe				

Enter choosen media *quality* and *keep time* and create a subscription. *Keep time* is denoted in days and the value *0* represents forever. The effect of *keep time* is that the items will be deleted a fixed period after they were published.

21.3.2 Unsubscribe channel

If you unsubscribe channel select in in channels page, select action **Unsubscribe selected channels** and press **Go** button.

21.4 Items

Each item represents a video or audio file that can be played by a user in the SnapTV Portal or SnapTV Anywhere application.

The items page lists all items that exists in SnapCast. There are similar pages that list items for individual channels, available from the channel list. For each item you can see it if is available (meaning that it exists in the central repository) and if it is downloaded. You can also download single items by marking them and choosing the "Schedule items for download" action in the dropdown box.

If an item is currently being downloaded, or if it's currently in the download queue, the Downloaded column will show a progress bar instead of the usual red or green icon.

Select	item	to	chan	ge
--------	------	----	------	----

_								
9			Search					Filter
All dates June 2012 July 2012 August 2012						By Publication Date		
		·						Any date
A				ed				l oday Paet 7 dave
	Name	2 📥	Channel 1 🗢	Publication Date	Sizes	Downloaded	Available	This month
	Deadline 12-06-25		Deadline 22.30	June 25, 2012, 8:30 p.m.	55.7 MB 81.7 MB 159.1 MB	•	0	This year
	Deadline 12-06-26		Deadline 22.30	June 26, 2012, 8:30 p.m.	61.2 MB 89.9 MB 175.0 MB	•	0	By Downloaded
	Deadline 12-06-27		Deadline 22.30	June 27, 2012, 8:30 p.m.	61.4 MB 90.1 MB 175.3 MB	•	0	Al
	Deadline 12-06-28		Deadline 22.30	June 28, 2012, 8:30 p.m.	116.9 MB 171.2 MB 333.2 MB	•	0	Yes
	Deadline 12-06-29		Deadline 22.30	June 29, 2012, 8:30 p.m.	60.0 MB 88.2 MB 171.3 MB	•	0	No
	Deadline 12-06-30		Deadline 22.30	June 30, 2012, 8:30 p.m.	61.2 MB 90.0 MB 175.0 MB	•	0	Errors
	Deadline 12-07-01		Deadline 22.30	July 1, 2012, 8:30 p.m.	96.6 MB 178.4 MB	•	0	By Available
	Deadline 12-07-02		Deadline 22.30	July 2, 2012, 8:30 p.m.	59.9 MB 87.9 MB 170.8 MB	•	0	All
	Deadline 12-07-03		Deadline 22.30	July 3, 2012, 8:30 p.m.	59.9 MB 87.9 MB 171.0 MB	•	0	Yes
	Deadline 12-07-04		Deadline 22.30	July 4, 2012, 8:30 p.m.	101.5 MB 187.4 MB	•	0	No
	Deadline 12-07-05		Deadline 22.30	July 5, 2012, 8:30 p.m.	55.7 MB 81.6 MB 159.0 MB	•	0	By media type
	Deadline 12-07-06		Deadline 22.30	July 6, 2012, 8:30 p.m.	56.7 MB 83.1 MB 161.3 MB	•	0	All
	Deadline 12-07-07		Deadline 22.30	July 7, 2012, 8:30 p.m.	55.8 MB 81.8 MB 159.0 MB	•	0	Audio
	Deadline 12-07-08		Deadline 22.30	July 8, 2012, 8:30 p.m.	57.7 MB 84.8 MB 165.1 MB	•	0	Video
	Deadline 12-07-11		Deadline 22.30	July 11, 2012, 8:30 p.m.	96.5 MB 178.3 MB	•	0	By categories
	Deadline 12-07-12		Deadline 22.30	July 12, 2012, 8:30 p.m.	96.6 MB 178.3 MB	•	0	All
	Deadline 12-07-13		Deadline 22.30	July 13, 2012, 8:30 p.m.	96.8 MB 178.6 MB	•	0	News & Politics
	Deadline 12-07-14		Deadline 22.30	July 14, 2012, 8:30 p.m.	96.5 MB 178.3 MB	•	0	Games & Hobbies
	Deadline 12-07-15		Deadline 22.30	July 15, 2012, 8:30 p.m.	106.2 MB 196.2 MB	•	0	News & Politics
	Deadline 12-07-16		Deadline 22.30	July 16, 2012, 8:30 p.m.	96.6 MB 178.1 MB	•	0	Kids & Family
	Deadline 12-07-17		Deadline 22.30	July 17, 2012, 8:30 p.m.	96.6 MB 178.2 MB	•	0	
	Deadline 12-07-18		Deadline 22.30	July 18, 2012, 8:30 p.m.	106.1 MB 195.8 MB	•	0	
	Deadline 12-07-19		Deadline 22.30	July 19, 2012, 8:30 p.m.	96.6 MB 178.3 MB	•	0	

Items can also be imported from an attached disk, see Offline import.

Full disk In the event that the Gateway's disk has filled up, you'll need to clean it out by deleting old items. This can either be done by lowering the keep time via the *subscribe to* procedure of the various channels or by deleting single items in the items list using the "Delete local item" action. Note that deleting local copies have a permanent effect only if the channel is set to *unsubscribed*, see (putt inn referanse?)

21.5 Schedule

If there is no schedule set, then SnapCast will try to download any items in the download queue when they are added.

If you want to reserve bandwidth for other applications at certain times of a given day, then you need to define a schedule for when SnapCast can download items for that day. This is done by adding timeslots to the schedule list.

Each slot defines a start and end time for a given day of the week. Thus if you want SnapCast to download movies between 8pm and 4am, you need to create two slots per weekday. One for 20:00 to 23:59 and another 00:00 to 04:00.

Add schedu	le		
Weekday:	Thursday 🗾		
Start:	Now 🕓	Now Midnight	
Stop:	04:00:00 Now 🕓	6 a.m. Noon	
		Cancel	Save and add another Save and continue editing Save

For instance, if you want SnapCast to only download content between midnight and 6am on weekdays, you should define a schedule with a slot for each weekday, like this:

Coloct cohodulo to chonge

	Ga O of 5 selected	Add schedule 4
Weekday	△ Start	Stop
Monday	midnight	6 a.m.
Tuesday	midnight	6 a.m.
Wednesday	midnight	6 a.m.
Thursday	midnight	6 a.m.
Friday	midnight	6 a.m.
5 schedules		
0001100120		

Since this schedule contains no timeslots for Saturday and Sunday, there are no restrictions on when SnapCast can download content during weekends.

21.6 Configuration

Available configuration options for the SnapCast service:

- **Metadata sync interval** How often the SnapCast Gateway should synchronize updated *metadata* from the SnapCast repository. Meta-data in this case means information about available channels and items.
- **Download directory (read only)** The local file-system directory where all SnapCast content is stored. This can not be changed from the configuration page, but is only informational.

21.7 Offline import

For low bandwidth sites, an alternative method for downloading content between the SnapCast repository and the SnapCast gateway exists. With this method, content is copied from the repository onto a portable disk, which is shipped to the site, and attached to the gateway. The gateway can then import content, as if it was downloaded from the repository.

This describes the steps to import content from a prepared content disk, at an offline (or low bandwidth) site:

- Connect the content disk to the gateway that runs SnapCast. Mount it under the root file system, and make note of the mount point. It should normally be a subdirectory of either /mnt or /media.
- 2. From a terminal (or an SSH shell), run the following command:

```
snapcast-gw-manage attach_media /path/to/mounted-media-disk
```

The output of the command should be something like "Successfully registered 'count' items from 'count' channels for offline sync".

- 3. Open the gateway web admin interface, and open the items page (see *Items*)
- 4. On the right hand side of the page, under "By available on attached media" select "Yes".
- 5. The list now shows the available content on the disk. You can click the check box to the left of the column headings to select all items, or make any selection from the list.
- 6. In the "Action" drop-down, select "Import from offline media", then click the "Go" button.

You should get a response saying that the content is being imported. Watch the progress in the web page, and make sure the disk stays connected until all imported items are completed.

When the process is completed, run the following command before unmounting the disk:

snapcast-gw-manage detach_media

This will clear the "available on attached media" status, and hand over the items to the normal SnapCast cleanup and maintenance routines.

Note: Typically when using offline import, the channel should *not* be subscribed to (see *Channels*)
Anywhere web application

An application called "SnapTV Anywhere" is included that allows content access (movies and news clips) from standard web browsers. Both desktop and embedded browsers on smart-phones and tablets are supported.

The application is part of *SnapCast*, and is enabled whenever SnapCast is enabled. When enabled, the application is accessed by pointing a browser to http://server-address/anywhere/.

Backup and Restore

Depending on how your server or cluster of servers are set up there might be different parts of the system you want to backup. SnapTV specific configuration is stored in a plain xml file and can be downloaded and restored using the web interface. Most general Linux settings, like network and dhcp settings, are not part of this configuration but usually resides in various text files in the /etc folder. The subsystems for user management, VoD and recordings uses a postgres database and can be backed up and restored using postgres commands.

If you have a high speed connection to server suitable for storing backups you can transfer the content via your network to your backup server. Otherwise you might want to connect an external USB drive. If you require regular backups for disaster recovery you might want to look closer at backup tools like 'duplicity'. For the sake of simplicity we will use simple file copying in this guide. You must adapt the examples to your environment.

See also:

https://help.ubuntu.com/community/Mount/USB and https://help.ubuntu.com/community/DuplicityBackupHowt

23.1 SnapTV Configuration

SnapTV specific configuration is stored in a single XML file. This file is automatically synchronized between servers in a cluster. Backup of the configuration is only a matter of backing up this one file. The system will automatically notice any changes to this file and changes will take effect immediately.

The configuration file might have different schema between different versions. We recommend using an XML aware merging tool when applying a configuration file from a different version.

23.1.1 Using the web interface

Use the web interface and download current configuration from "System Configuration" -> "Configuration Profiles". In this same interface you can also upload and restore previous configurations.

23.1.2 Using the terminal

The configuration is stored in /opt/snaptv/etc/snaptv-base/snapconfig.xml. Any changes to this file will immediately take effect.

23.1.3 Clustered systems

If you have several servers in a cluster, they synchronize their configuration file. If there is a conflict the configuration file from the server with the highest "Local version" will be chosen. You can find the local version in "System configuration" -> "Cluster".

23.2 Local Databases

Several of the subsystems store data in a local PostgreSQL database. There are several ways to take regular backups of PostgreSQL databases. In this guide we will use the SQL Dump method. The idea behind this dump method is to generate a text file with SQL commands that, when fed back to the server, will recreate the database in the same state as it was at the time of the dump. PostgreSQL provides the utility 'pg_dump' for this purpose.

See also:

http://www.postgresql.org/docs/9.1/static/backup.html

23.2.1 Database migrations

When a SnapTV service that uses a database is started the system will automatically migrate the database if necessary, i.e. if the database structure has changed. This works only when restoring a database from an older or the same version as the current database. As long as you are moving to the same or a newer version of the SnapTV server software you shold be fine.

This example shows how to find the version of the VoD database. In this specific database the version is '6', hence you can restore a database from other systems with version 6 or less.

23.3 UAO Backup and Restore

Please see the *Backup and restore database* section in the UAO documentation.

23.4 VoD Backup and Restore

23.4.1 Backup the VoD database and content

The VoD service uses a database named 'snapvod'. The following command will create a dump (backup) of the VoD database:

sudo -u postgres pg_dump -Fc snapvod > ~/snapvod-dump

Copy the database dump to your backup location:

scp ~/snapvod-dump user@mybackupserver:/my-backup-folder/

The VoD content (movies) are stored as normal files in the directory '/opt/snaptv/rec/vod'

To copy all VoD's to a folder on a remote server you can use scp like so:

scp -r /opt/snaptv/rec/vod user@mybackupserver:/my-backup-folder

23.4.2 Restore the VoD database and content

First stop the VoD service:

sudo stop snaptv-vod

Then restore the database:

sudo -u PostgreSQL pg_restore -d snapvod --clean --single-transaction ~/snapvod.dump

Restore VoD content by copying a previous backup of VoD folder back to /opt/snaptv/rec/vod:

sudo scp -rf user@mybackupserver:/my-backup-folder/vod/* /opt/snaptv/rec/vod/

Start the VoD service:

sudo start snaptv-vod

23.5 Backup and Restore of nPVR

Recordings usually take alot of disk space. If you need to backup continuous recordings you might want to consider setting up a parallel nPVR server to duplicate recordings.

23.5.1 Backup the nPVR database and content

The nPVR data is stored in a PostgreSQL database named 'npvr'. The following command will create a dump (backup) of the npvr database and put it on a USB drive:

sudo -u postgres pg_dump -Fc npvr > /media/usb/npvr-dump

The recorded content are stored as normal files in the directory '/opt/snaptv/rec/'. There should be subfolder per day of recorded TV.

To backup all recordings from 2014 to a mounted USB drive:

cp -r /opt/snaptv/rec/2014-* /media/usb/

23.5.2 Restoring an nPVR backup

First stop the nPVR service:

sudo stop snaptv-npvr

Then restore the database:

sudo -u postgres pg_restore -d npvr --clean --single-transaction /media/usb/npvr.dump

Restore nPVR content by copying a previous backup of recordings folder back to /opt/snaptv/rec/:

sudo cp -rf /media/usb/2014-* /opt/snaptv/rec/

Start the nPVR service:

sudo start snaptv-npvr

23.6 Network settings and other configuration

Linux configuration is stored various files under the directory '/etc'.

For most systems it makes sense to backup networks settings as well as the dhcp configuration.

DHCP server configuration is stored in the following file:

/etc/dhcp/snaptv/00_snaptv.dhcpd.conf

Network interfaces are defined in this file:

/etc/network/interfaces

We recommend using the web interface to re-enter the network and dhcp configuration instead of restoring these files. However, backups of these files are very useful as a reference for how the network was set up previously.

Note: Linux configuration files are not compatible between version 1 and version 2 of the SnapTV server software.

23.7 Upgrading from version 1 to 2

If you are migrating data and content from a server running version 1 to a server running version 2 the procedure is similar. Generation 1 of the SnapTV server software was based on a Linux distribution called "Gentoo" while generation 2 is based on "Ubuntu". Some commands will therefore differ a bit. For instance, on a Ubuntu server you will have to prefix commands with 'sudo' if they require administrative privileges.

23.7.1 Database backup and restore on version 1

Database backup on Gentoo servers:

pg_dump -U postgres -Fc snapvod > ~/snapvod-dump

Database restore on Gentoo servers:

pg_restore -U -d snapvod --clean --single-transaction ~/snapvod-dump

Troubleshooting

24.1 Getting started with Hardware issues

24.1.1 Hard Disk

Products with the Storage Kit option included have hardware raid. Use command line tool to check status of raid.

Run	following	command [•]	to	have	info	rmation	about	hard	disks	tw_	_cli /c0 show:	

Unit	UnitType	Statu	lS		%]	RCmp	pl	%V/:	I/M	Stripe	Siz	e(GB)	Ca	ache	AVrfy
u0	RAID-5	OK						_		256K	279	3.94	Ri	W	ON
VPort	Status		Unit	Size	0		Тур	e I	Phy	Encl-Slot	t	Model	-		
р0	OK		u0	931	.51	GB	SAS		0	_		SEAGA	ATE	ST31()00424SS
p1	OK		u0	931	.51	GB	SAS		1	_		SEAGA	ΑTΕ	ST310	000424SS
p2	OK		u0	931	.51	GB	SAS	4	2	_		SEAGA	ΑTΕ	ST31(000424SS
р3	OK		u0	931	.51	GB	SAS		3	_		SEAGA	ATE	ST31(000424SS
Name	OnlineStat	te BI	BURead	dy :	Stat	tus		Volt	t	Temp	Н	ours	Las	stCap?	Test
bbu	On	Ye	es	(ЭК			OK		OK	1	22	xx-	-xxx-	XXXX

If status for u0 is **DEGRADED** it means one (or in case of RAID-6 up to two) disk(s) have failed.

If status for u0 is **OK** then the raid is in working order. Status **VERIFYING** or **INITIALIZING** does not mean anything is wrong but the raid controller is currently performing a task that affects performance.

The **%Rcmpl column** will give a progress indicator in this case. It is recommended to check the status of the raid after such operations have completed. If status for u0 is **DEGRADED** it means one (or in case of RAID-6 up to two) disk(s) have failed.

One (or more) of the disks listed as p0-p15 should then have not **OK** status. This could be **DEGRADED** which means the raid controller has detected a fault on this disk and has stopped using it or **MISSING** which means the disk has been physically removed, is completely dead or has a faulty connector.

Take note of which port is marked as problematic. The port number (p0-p15) should match numbers marked on the disk bays in front. Take note of all the serial numbers of the healthy drives and (if possible) the serial number of the faulty disk.

Now, if at all possible shut the server down before proceeding. It is possible to hot swap drives, but the risk of catastrophic failure if accidentally disconnecting a wrong drive is very large.

Remove the drive in the tray marked with a number matching the port number of the missing/faulty drive according to the controller.

If you were able to get the serial number of the faulty drive, check this against the serial number written on the removed drive, otherwise check that the removed drive does not have the serial number of one of the healthy drives.

Insert a new healthy drive in the tray where the faulty drive was removed. The new drive should have at least the size of the removed drive and should ideally be the same make and model.

Power on the system again, When the system is up and running, checks status of the raid again. If the status is **REBUILDING** then the new drive was detected and a rebuild was started automatically.

Performance of the raid will be poor while the rebuild is in progress. The **%Rcmpl column** will give a progress indicator. If the rebuild does not start automatically you can start it manually by running:

tw_cli /c0/u0 start rebuild disk=pX

where X is the port number of the replaced drive.

If the drive is not detected (should only happen when hot swapping) run:

```
# tw_cli /c0 rescan
```

to force the controller to look for new drives.

In the end check with *tw_cli /c0 show* if all the disk are **OK**!

24.1.2 Power Supply

SnapTV Gateways comes with redundant power supply. This is a power supply that actually includes two (or more) units within it, each of which is capable of powering the entire system by itself. If for some reason there is a failure in one of the units, the other one will seamlessly take over to prevent the loss of power to the server. You can usually even replace the damaged unit without taking the machine down. This is called hot swapping.

If a problem supply becomes defect, the system will start beeping. You can find out the defect power supply by looking at the LED's on the backside of power supply.

After that completely Power off the system. Check if that power supply is properly connected. Start the gateway and if you still hear the beeping sound then contact support@snap.tv to order the replacement power supply for that specific system.

To replace the the faulty power supply with new:

- 1. Unplug the power cable from faulty power supply.
- 2. Pull the module towards you by using the small handle behind.
- 3. Push the new power supply onto the same position.
- 4. Plug in the power cable to turn it on again.

The server will stop beeping if the new power supply is properly installed and if it is working fine.

24.1.3 LAN Ports

SnapTV system comes with two Ethernet interfaces. The system is designed to use (eth0) for all video streaming in and out of the box. The secondary Ethernet interface (eth1) is for auxiliary administration access only.

You may use the *ip address* command to check the IP addressing details associated with each interface.

In case of a faulty Ethernet interface the system will either stop streaming or the streaming quality will become poor:

- 1. First of all check if your network configurations are correct.
- 2. Check the cable if it is not connected with a bad patch cable, or the cable is not properly connected or the eth0 is dying.
- 3. Run *ethtool eth0* to confirm the bitrate:

```
# ethtool eth0
Settings for eth0:
       Supported ports: [ TP ]
        Supported link modes: 10baseT/Half 10baseT/Full
                               100baseT/Half 100baseT/Full
                               1000baseT/Full
        Supported pause frame use: No
        Supports auto-negotiation: Yes
        Advertised link modes: 10baseT/Half 10baseT/Full
                               100baseT/Half 100baseT/Full
                               1000baseT/Full
       Advertised pause frame use: No
       Advertised auto-negotiation: Yes
       Speed: 1000Mb/s
       Duplex: Full
       Port: Twisted Pair
       PHYAD: 1
       Transceiver: internal
       Auto-negotiation: on
       MDI-X: off
       Supports Wake-on: pumbg
       Wake-on: g
       Current message level: 0x0000001 (1)
                               drv
       Link detected: yes
```

In case of a faulty Ethernet interface the complete main board needs to be replaced due to built-in Ethernet ports:

- 1. Unplug the power cable and all other cables on the back of the box and remove the system cover.
- 2. Label all the connections that attach to the motherboard and remove them one by one. Do not remove the cables entirely, just the ends that attach to the motherboard.
- 3. Remove all the plug-in cards, memory modules, and anything else that prohibits the motherboard from being removed.
- 4. Remove the old board and replace with the new unit, making sure it's securely positioned and fastened with the standoffs and screws provided.

- 5. Reinstall the cards and attach all the cables that were removed previously. Reference the documentation that comes with the new motherboard to ensure proper connections. Don't assume they are the same as what was on the old board.
- 6. Replace the cover and reattach all the cables and the power connector.
- 7. Login to the system.
- 8. Remove the old system database file:
 - # rm /etc/udev/rules.d/70-persistent-net.rules
- 9. Reboot the system:

reboot

10. Renter the license file:

/opt/snaptv/bin/request_license.sh <License Identifier>

11. Reboot the system again to apply changes:

reboot

24.2 Getting started with Software issues

24.2.1 Channel Down Issues

This section will describe how to find and fix the problem related to down channels.

- 1. First of all check the signal cable and signal strength.
- 2. Click **Test** in front of the channel to check the Channel statistics.
- 3. And then click on the input card to see the transponder info:

Transponder info:

- Card: 1:1
- Tuned to: Tuned to: 11372000 V SR 24500000 Satpos: A Type: dvb-s Downconverter: 97
 - Frontend Lock: LOCKED
 - Packet Loss Ratio: 3.9e-09
- Not capturing epg from this transponder

Services found:

- ts id: 35
- Original Network ID: 70

Try restarting DVB card by pressing the button **Re-tune Transponder**.

There are different drivers for different type of cards:

Digital Devices dvb-s2/dvb-ct = ddbridgeHauppauge AV = cx23885 You can check the card type by running *lspci –v*

Following is an example about how to restart driver for the analog Hauppauge card:

```
snapreceiver # /etc/init.d/vlc stop

* Stopping VLC Streaming Server ...
snapreceiver ~ # rmmod cx23885
snapreceiver ~ # modprobe cx23885
snapreceiver ~ # /etc/init.d/vlc start

* Starting VLC Streaming Server ... [ ok ]
```

Type *initctl list | grep snaptv* to check if all the services are up and running again.

24.2.2 Descrambling issues

It might be a problem with subscription status if the status color of the channel is yellow and the massage (warning/error) says **Bad Audio/Video**

Verify if the correct cam module and smart card is being used for that specific channel.

It may take some time from the channel is first tuned until it works as expected when the program card is new or haven't been used for a while.

To verify the Subscription status Enter the input card with cam module.

- 1. Click on the Open CAM Menu to see the subscription status.
- 2. Click on the Open CAM Massages to see the error massages.
- 3. See above how to re-tune the transponder, this will include restarting the CAM.
- 4. If the CAM repeatedly stops descrambling, it is possible to turn on automatic re-tuning. See below how to do this.

Automatic re-tuning

To turn on/off automatic re-tuning, the configuration have to be edited manually. The configuration is found in the left hand menu *System configuration - Configuration Profiles*. In the Edit configuration window, find the <dvb>-tag which has the correct <card>-tag and <ci-card>-tag (corresponding to the card:port you want to set up). Change the <auto-retune>-tag to the desired value (on or off) and press ok. Confirm that setting to on is registered by finding the message *Auto re-tune on bad audio/video is turned on (This feature can be changed manually in 'Configuration profiles')* in the tuning page for this card.

24.2.3 EPG/Clock out of sync

EPG/Clock out of sync issues are main cause of recording delays and wrong EPG data. Run *date* to confirm if the system time is correct:

```
# date
Thu May 20 15:39:02 CEST 2010
```

NTPCLIENT_OPTS="-b -u pool.ntp.org" in /etc/conf.d/ntp-client must be changed to NTPCLIENT_OPTS="-b -u <LAN ntp address>"

server pool.ntp.org in /etc/ntp.conf must be changed to server <LAN ntp address> where <LAN ntp address> is the IP address of the local network NTP server.

24.2.4 License issues

SnapTV system provides a unique license identifier to each installation depends on the Hardware available in that specific system.

License needs to be updated upon software and hardware changes in the system. For e.g. installing an extra DVB card or purchasing the VOD application requires a license update.

To renew your license, you simply need to click the **Renew** button available under the *License menu* in the web interface or run:

/opt/snaptv/bin/request_license.sh <License>

Use **Get offline license request** button to request a offline license file in case no internet connectivity.

You can upload your offline license sent by support@snap.tv by clicking the **Upload license** button found in the same page.

24.2.5 Take backup of the system configuration before updating

System configuration can be downloaded through two ways to have as a backup in case of software updates and clean installations.

Through Web interface:

- 1. Select System Configuration and then Configuration profile.
- 2. Save the configuration by using Download configuration.

Use same menu to upload the backup configuration.

Through Console:

1. Take backup of the following files:

```
/opt/snaptv/etc/snaptv-base/snapconfig.xml
/opt/snaptv/etc/snaptv-base/hostconfig.xml
```

To save server configuration take backup of the following file:

/etc/init.d/conf.d/net

To save dhcp configuration take backup of the following file:

/etc/dhcp/snaptv/00_snaptv.dhcpd.conf

To restore the system just copy these configuration files back to the same location where they copied from.

24.3 Getting started with Network issues

24.3.1 Suggested Network Switch Configuration

The typical network related problems are often related to the network switch configuration in use. Switches should have the following features enabled:

- IGMP Snooping
- IGMP Queries

To control the flow of multicast traffic in a layer 2 network, **IGMP Snooping** must be enabled on all switches and there need to be a **IGMP Querier** in the network. Note that due to reverse path filtering, the IGMP querier must have an IP address in the subnet used by the multicast interface.

On some switches you can turn on IGMP querying in the settings, others will automatically enabled a querier if no other queriers are detected in the network. Some switches enabled querying when **PIM-SM** is enabled and no other queriers are detected.

If the switch does not support IGMP querying, a SnapTV server can provide the IGMP querier by enabling **PIMD Server** in its admin interface.

Missing configuration of IGMP snooping can cause symptoms such as all multicast channels getting broadcasted on all switch ports, causing STBs to become unable to display any content.. Missing configuration of an IGMP querier can cause multicast streams to stop getting sent to a STB a short while after the STB starts playing them.

A standard definition MPEG2 TV channel uses between 3 and 8 mbit per second. High definition MPEG4 TV channels can use up to 16mbps. Traffic on a switch port that connects an STB at significantly higher bit rates than this is a symptom of a multicast misconfiguration.

24.3.2 Remote access & monitoring

For service & monitoring we need the Gateway/nPVR to have outgoing TCP access to port 8080 (used for backup) and port 5667 (used for monitoring) on monitoring.snap.tv (currently 178.79.128.204).

For remote access we need incoming access to port 22 on the gateway/nPVR. If access needs to be restricted to a specific address then porter.snap.tv (currently 178.79.176.32) can be used as a trusted source.

Default factory settings

Default system login info after installation is as following.

Default IP Address: 10.0.0.5

Console Login:

Username: snap Password: thax06

Web interface Login:

Username: admin Password: thax06

Intel Active Management Technology (AMT) login:

Username: admin Password: !thaX06!

Legacy User And Asset Organizer

26.1 Installation

The SnapTV Users and Assets Organizer is contained in the package snaptv-uao. Like other optional packages it can be installed using the apt-get command.

```
$ sudo apt-get install snaptv-uao
```

26.2 Getting Started

When installed on a gateway, the Organizer will function in *single-site* mode, where it will be added into the normal admin interface of the gateway and automatically integrate with the gateway's services.

From gateway admin interface you will be able to manage users, create and manage products and send messages to users.

Basicaly typical chain of actions in order to allow customer use offered and purchased products you will have to:

- Create a user
- Register customers CPE (customer premises equipment)
- Create product
- Enable product on same site as customer
- Assign product to customer

This guide explains how to perform all listed above actions and more.

26.3 Manage Site

26.3.1 Default site

Please note that even though it is possible to edit the default site that is created automatically in the Organizer, it is very important to let it keep its orginial name. If the name of the default site is changed, the Organizer will stop functioning.

26.3.2 Enable and disable products on site

Organizer gives a convenient way for quick enabling and disabling existing products on site. Open *Enable product on site* page in **User and Asset Organizer -> Manage Site** menu. For example **Enable channel packs for site**.

Manage inputs	End	hla	ahannal naaka	for Del	ault a	ite	
User and Asset Organizer	Ena	apie	channel packs	IOF Del	auit	sile	
Manage Site	Nun	nber	of channel packs: 3				
Enable channel packs for site	ID	Na	me	Price	Tax	Assign to site	Make mandatory
Enable credit bundles for site 🤊 Enable master products for site	17	No	rwegian Channels	16.00	0.00		
Enable recorder products for	21	Inte	ernational	222.00	1.00		
site Enable VoD catalogues for site	22 Family		mily	111.00	1.00		
Manage CPEs Messages							
Manage live signals							
Manage content							
Manage recording							
SnapCast							
Client provisioning							
System configuration							
System information							
Change password							
Log out							

You can see list of all created channel packs. By clicking on relevant checkboxes you can enable or disable channel pack product on Default site.

You can also make it mandatory or not.

After you are done click on Save button.

In the same way you can manage enabling and disabling Recorder Products, VoD Catalogues and Master Products.

Note: When clicking on *ID* link you can open product edit form.

26.3.3 Batch Importing User and CPE data

The batch import interface allows operators to import large datasets containing customer and CPE information into the database.

The importer will create new users and CPEs as it encounters them and will update information for already existing users.

Any users that are present in the database but not mentioned in the imported file will become deactivated. It is therefore important that the imported file always contains the *full* list of users at the site in question.

Data format

Data to be imported must be formatted as Comma Separated Values (CSV). CSV can be created from all common spreadsheet programs. For the import script to work, it is very important that the data file contains the correct values:

The first row must consist of a header, with the following values:

- ID
- First name
- Last name
- Address
- City
- Zip
- Email
- Phone
- CPE MAC
- CPE Serial

The header names must be given exactly as described above. ID refers to the customers external ID. This value should never change for a customer, since the system then will create a new customer.

If a customer has several CPEs, the customers information (particularly including ID) can be replicated on several rows with different CPE MAC and CPE Serial values.

Example

:: ID,First name,Last name,Address,City,Zip,Email,Phone,CPE MAC,CPE serial 1,John,Doe,"Some Street 1","New York",12345,john@example.com,5551234567,00:02:9b:a1:af:e1,MB1 1,John,Doe,"Some Street 1","New York",12345,john@example.com,5551234567,00:02:9b:de:ad:b2,MB⁻ 2,Jane,Doe,"Some Street 1","New York",12345,jane@example.com,5551234568,00:02:9b:ba:ba:ba,MB⁻

26.4 User management

Admin Interface allows to create users (customers), view their information and edit it as well as assign products to them.

Use management interface is available from User and Asset Organizer -> Manage Users menu.

Note: Words user and customer are equivalent in UAO user management admin interface.

Note: All user personal information displayed on images is fictional.

26.4.1 Create new user

To create new customer open from menu **Create User** page. You will be presented with customer creation form.

Manage inputs	New quetemor	
User and Asset Organizer	New customer	
Manage Site	First name:	
Manage Products	Last name:	
Manage Users	Lust nume.	
Create User	Address:	
List/Search Users	Zip:	
Manage CPEs	City:	
Messages	Extermal customer number:	
Manage live signals	Telephone:	
Manage content		
Manage recording	Mobile phone:	
SnapCast	Email:	
Client provisioning	Password:	New password
System configuration	Sev	
System information		Male 📮
Change password	Date of birth (yyyy-mm-dd):	
Log out	VoD active:	
	Customer status:	Active 1
	Billing type:	Pavex 1
	Customer fee type:	Default
	Comments:	
	Create	

Provide required customer information.

Setting *Email* and *Password* will allow customer to log into Funshop. With *New password* button you can generate random password.

Customer can have three different statuses:

- Active represents active customer in system who can use assigned products and purchase new.
- Blocked represents customers who have been denied access to products, for example becasue of not paying.
- Inactive represents user that are no longer customers.

If customer is registered in some external billing or tracking system it is possible to provide customer's id registered there as an'*xternal id*.

Note: VoD active field is obsolete. Does not need to be set.

Complete customer creation by clicking on *Create* button.

26.4.2 List and search users

In Admin Interface it is possible to list all created customers as well as search for specific one.

In order to list of serach for a customer open **List/Search Users** page from menu. List of all users will be displayed devided on pages with 20 customers per page. Pages are displayed

Manage inputs	Customere												
User and Asset Organizer Manage Site Manage Products Manage Users	Sea	Search for customer s containing: Search for customer by internal ID:											
Create User	Sea	rch for custo	mer by exterr	nal ID:									
Manage CPEs	Q	UERY First name	Last name	Address	Zip	City	External ID	Billing	Status	CPEs	VOD	Assets	Site
Messages	41	Gregus	Husdal	Grønland plass 210	3919	PORSGRUNN		PAYEX	Active	0	False	Assets	Default site
Manage live signals	42	Liesel	Thrane	Bratnerveien 41	1785	HALDEN		PAYEX	Active	0	False	Assets	Default site
Manage content	2	Ottil	Flo	Blindheimsvegen 2	6012	ÅLESUND		PAYEX	Active	0	False	Assets	Default site
Manage recording	3	Alban	Oftedal	Malmgruvebakken 178	1354	BÆRUMS VERK		PAYEX	Active	0	False	Assets	Default site
SnapCast	4	Kjelborg	Melheim	Slettumvegen 136	2825	GJØVIK		PAYEX	Active	0	False	Assets	Default site
Client provisioning	5	Marion	Egge	Hogstadveien 239	1383	ASKER		PAYEX	Active	0	False	Assets	Default site
System configuration	6	Oddlaug	Mohamed	Mellombrottet 103	3737	SKIEN		PAYEX	Active	0	False	Assets	Default site
System information	7	Idun	Aspaas	Moenskogen 52	1739	BORGENHAUGEN		PAYEX	Active	0	False	Assets	Default site
Change password	8	Toruly	Utgaard	Nedre Ullevål 198	0850	OSLO		PAYEX	Active	0	False	Assets	Default site
Log out	9	Jorund	Hvidsten	Kullebunnbakken 101	3616	KONGSBERG		PAYEX	Active	0	False	Assets	Default site
	10	Adelin	Pollestad	Peckels gate 205	3616	KONGSBERG		PAYEX	Active	0	False	Assets	Default site
	11	Eilert	Karim	Liaveien 161	8210	FAUSKE		PAYEX	Active	0	False	Assets	Default site
	12	Tryggvi	Rudi	Sledeveien 45	1615	FREDRIKSTAD		PAYEX	Active	0	False	Assets	Default site
	13	Elisabeth	Engevik	Fiolvegen 17	2409	ELVERUM		PAYEX	Active	0	False	Assets	Default site
	14	Finnbjørn	Aarø	Simon Darres veg 137	2624	LILLEHAMMER		PAYEX	Active	0	False	Assets	Default site
	15	Sølvy	Rogne	Spinnestredet 80	1767	HALDEN		PAYEX	Active	0	False	Assets	Default site
	16	Eydis	Skadberg	Nordlandsgata 132	0483	OSLO		PAYEX	Active	0	False	Assets	Default site
	17	Nico	Skille	Vear Øvre 49	3173	VEAR		PAYEX	Active	0	False	Assets	Default site
	18	Karolina	Sjaastad	Bjørnebærveien 96	8026	BODØ		PAYEX	Active	0	False	Assets	Default site
	19	Thore	Stenvik	Lunde 115	4885	GRIMSTAD		PAYEX	Active	0	False	Assets	Default site

Searching for customers

You have three options of making customer queries:

- Search for customers containing this option will query all users having entered value in any of their field except ID
- Search for customer by internal ID this option will search for user with given internal id
- Search for customer by external ID this option will search for user with given id of external billing or tracking system

Accessing relevant pages

Customer list view not olny presents most usefull information but also allows for quick access cusomer management pages. You can:

- Display customer summary by clicking on users *ID* link.
- Display cusomer assest page by cklicking on Assets link.
- Display customer's site management page by clicking on *Site* link.

26.4.3 Edit user

Editing user information, deleting user and managing user asstets and CPEs is accessible from user summary page. To access that page you have to click on *ID* link on *List/Search User* page.

User summary page shows all relevant user information such as personal information, payments and registered CPEs.

Manage inputs	Customer There Ste	nvik						
User and Asset Organizer	Gustomer - Thore Ste							
Manage Site	Edit User							
Manage Products	Add CPE							Pelete
Manage Users	Edit assets							renere
Create User	Site:	Default si	te					
List/Search Users	First name:	Thore						
Manage CPEs	Address:	Lunde 11	5					
Messages	- Zip: City:	GRIMSTA	D					
Manage live signals	External customer number:	GITIMOT						
Manage content	Telephone:							
Manage recording	Mobile phone:							
SnapCast	Sex:	Male						
Client provisioning	Date of birth (yyyy-mm-dd):							
System configuration	VoD active:	No						
System Information Change password Log out	Customer status: Active Billing type PAYEX Customer fee type DEFAULT Comments: CPEs: 00:12:9b:42:xa:55 (Motorola - VIP1003)] Delete							
	Payments							
User and Asset Organizer Manage Site Manage Products Manage Users Create User List/Search Users Manage CPEs Manage content Manage content Manage recording SnapCast Client provisioning System configuration System configuration Change password Log out	Payment date		Payment type	e Payment deta	ls			
	2012-09-07 16:17:06.236	009+02:00	auto	Product Snapcast TV	Price 222.00	Valid to 9999-01-01 00:00:00+01:	00	

Delete user

To delete customer simplay click on *Delete* button. You will be asked to confirm deletion.

Edit user information

If you wish to edit user information click on *Edit User* link. You will be presented with edition form.

Manage inputs	Edit evetemen	
User and Asset Organizer	Euri customer	
Manage Site	Customer ID:	19
Manage Products	First name:	Thore
Manage Users Create User	Last name:	Stenvik
List/Search Users	Address:	Lunde 115
Manage CPEs	Zip:	4885
Messages	City:	GRIMSTAD
Manage live signals	External customer number:	4539
Manage content	Telephone:	
Manage recording	Mobile phone:	
SnapCast	Mobile profile.	
Client provisioning	Email:	
System configuration	Password:	New password
System information	Sex:	Male *
Change password	Date of birth (yyyy-mm-dd):	
Log out	VoD active:	
	Customer status:	Active
	Billing type:	Pavex 1
	Customer fee type:	Default 1
	Comments:	
	C Add Edil as Save	CPEs: 00:12:9b:42:ca:55 (Motorola - VIP1003) 1CPE ssets

Delete

Simply edit any of the information and save changes.

From that page you are able to delete user too as well as access assets edit page and add new CPE page.

26.5 Manage CPEs (customer premises equipment)

In order to allow customer to use purchased producuts specific CPE has to be assigned to customer. Admin interfaces allows to register CPEs and assign them to customer and managing CPE types.

CPEs management interface is available from **User and Asset Organizer -> Manage CPEs** menu.

However registering new CPEs is done from user management interface.

26.5.1 Manage CPE Types

CPE type defines what kind of device registered equipment is, so before any CPE can be registered the type of that CPE must be registered.

Add new CPE type

By opening **CPE Types** page from menu you will be presented with list of defined types. If any type was defined list will be of course empty.

Manage inputs	Man
User and Asset Organizer	Man
Manage Site	Numb
Manage Products	ID
Manage Users	1
Manage CPEs	-
CPE Types	4
Search CPEs	<u>J</u>
Messages	INCW
Manage live signals	
Manage content	
Manage recording	
SnapCast	
Client provisioning	
System configuration	
System information	
Change password	
Log out	

Manage cpetypes

Number of cpetypes: 3

ID	Name
1	VIP1003
2	VIP1903
3	aminet130h
New	cpetype

Click on *New cpetype* to access new CPE creation form. Enter the name and vendor of the CPE in the form. Make sure to use proper spelling and capitalization as the name and vendor

is used during client authentication. You have to also select what kind of device type it is a set-top-box or other.

Manage inputs	New epotype		
User and Asset Organizer	new cherybe		
Manage Site	Name:		
Manage Products			
Manage Users	Vendor:		
Manage CPEs		L	
CPE Types			
Search CPEs	Set Top Box	÷	
Messages	Create		
Manage live signals			
Manage content			
Manage recording			
SnapCast			
Client provisioning			
System configuration			
System information			
Change password			
Log out			

Here are examples of CPE types that currently are being supported.

The Motorola VIP1003 box

- Name: VIP1003
- Vendor: Motorola

The Motorola VIP1903 box

- Name: VIP1903
- Vendor: Motorola

The Motorola VIP1910 box

- Name: VIP1910-9
- Vendor: Motorola

The Amino 130H box

- Name: aminet130h
- Vendor: Amino Communications Ltd

The Amino Ax4x box

- Name: Ax4x
- Vendor: Amino Communications Ltd

For those types select Set Top Box in the drop down box.

Click on *Create* button to complete adding new CPE type.

Edit and delete CPE type

You can edit registered CPE types and delete it if needed. To do that open **CPE Types** page and click on ID link next to CPE type you wish to edit. You will see CPE type information page.

Manage inputs	Edit opotypo			
User and Asset Organizer	Edit operype			
Manage Site	cpetype ID:	1		
Manage Products				
Manage Users	Name:		VIP1003	
Manage CPEs				
CPE Types	Vendor:		Motorola	
Search CPEs				
Messages	Save			
Manage live signals	Delete			
Manage content	Delete			
Manage recording				
SnapCast				
Client provisioning				
System configuration				
System information				
Change password				
Log out				

Click on *Edit* to open edition form.

You can edit any information and save changes.

To delete CPE type simply click on *Delete* button and confirm operation.

26.5.2 Assign CPE to Customer

Registering CPEs for specific customer it is done in customer management interface. To add new CPE *open customer summary page* by clicking on wanted customer ID on **Manage Users** -> List/Search Users page.

Click on Add CPE link. You will see creation form.

Manage inputs	Now CPE		
User and Asset Organizer	New CPE		
Manage Site	Owner:	Jorund Hvidsten	
Manage Products	MAC:		
Manage Users	Serial number:		
Create User	oornan nambor.		
List/Search Users	Vendor - Type:	Motorola - VIP1003	-
Manage CPEs	Create		
CPE Types			
Search CPEs			
Messages			
Manage live signals			
Manage content			
Manage recording			
SnapCast			
Client provisioning			
System configuration			
System information			
Change password			
Log out			

Provide correct MAC address, device serial number and select correct CPE Type. Complete operation by clicking on *Create* button.

Added CPE will be visible on customer summary page.

26.5.3 Search for CPE

To search for specific CPE open **Search CPEs** page from menu. You will see list of existing CPEs and search fields.

Manage inputs	CDE		
User and Asset Organizer	OFE		
Manage Site	11 C	PEs	
Manage Products	Sear	ch for CPEs with this	s MAC
Manage Users	suffix:		
Manage CPEs	Sear	ch for CPEs with this	sserial
CPE Types	num	ber:	
Search CPEs	Q	uery	
Messages	ID	MAC	Owner
Manage live signals	1	00:12:9b:42:ca:55	Thore Stenvik
Manage content	2	00:02:9b:4c:d7:dc	Gregus Husdal
Manage recording	3	10:12:9b:42:ca:55	Marion Egge
SnapCast	4	00:02:95:42:d7:dc	Tryggvi Rudi
Client provisioning	5	10:12:9b:02:ca:cc	Nico Skille
System configuration	<u>6</u>	00:15:9b:42:ca:55	Sølvy Rogne
System information	7	11:12:9b:22:ca.cc	Nico Skille
Change password	8	00:00:9b:42:ca:57	Thore Stenvik
Log out	9	00:02:00:42:d7:dc	Liesel Thrane
	10	00:00:9b:33:ca:57	Ottil Flo
	11	63:00:9b:33:2a:57	Alban Oftedal

You have two options of making CPE queries:

- Search for CPEs with this MAC suffix search for CPEs that MAC address ends with given set of characters, for example *00:00:9b:92:54:57*, you can search for *54:57* or *9b:92:54:57*
- Search for CPEs with this serial number search for those CPEs that contain given characters in their serial number

This view allows you to access following pages:

- · CPE edit page by clicking on ID link
- Customer summary page by clicking on Owner link

Note: If you want to display all assinged to specific customer CPEs you have to *open customer summary page*.

26.5.4 Edit and delete CPE

CPE edit page can be accessed from Search for CPE page by clicking on ID link of wanted to edit CPE. You will presented with edition form.

Manage inputs	Edia ODE			
User and Asset Organizer	Edit CPE			
Manage Site	CPE ID:	1		
Manage Products	Owner:	Thore Stenvik		
Manage Users	MAC:	00:12:9b:42:ca:55		
Manage CPEs CPE Types	Serial number:	47292643		
Search CPEs	Vendor - Type:	Motorola - VIP1003	*	
Messages	Save			
Manage live signals				Delete
Manage content				
Manage recording				
SnapCast				
Client provisioning				
System configuration				
System information				
Change password				
Log out				

Edit CPE and save changes.

You can delete CPE by clicking on *Delete* button and confirming operation.

You can also edit and delete CPE from customer summary view. This page you can access in few ways:

- from Search for CPE page by clicking on *Owner* link
- from List/Search Users page by clicking on ID link of customer

On customer summary page all belonging to customer CPEs are listed.

CPEs:	00:12:9b:42:ca:55 (Motorola - VIP1003)	Delete
	00:00:9b:42:ca:57 (Motorola - VIP1003)	Delete

In that view you can easly delete CPE by clicking on Delete button.

To open edit page click on MAC address of listed CPE. You will see CPE summary page. Click on *Edit* link to access CPE edition page.

26.6 Product management

The Organizer allows to create and manage following products:

- · Channel Pack product set of TV and Radio channels
- · Recorder Product allows user to record and store private recordings
- VoD Catalogue set of movies
- · Master Product set of created Channel Packs, Recorder Products and VoD Catalogues

Product management interface is available from **User and Asset Organizer -> Manage Prod-ucts** menu.

26.6.1 Products creation and edition form

All products have common set of information that you need to provide in in order to create or edit product. In this paragraph common section of product create/edit form will be described in order to not duplicate infomation in relevant product paragrafs. Product specific form fields and options are described in relevant product paragrafs.

Common from for all products:

Name:	
External ID:	
End user price:	
Tax:	
Available for purchase:	
Logo path:	
Comments:	
Sites:	Site name Enable on site Mandatory for all customers on site
	Default site

It is required to provide at least product *Name*, *End user price* and *Tax*. If product should be free or not taxed it is enough to set price and tax value to 0.

Product must be marked as *Available for purchase* if customers should be able to buy the product through a self-care interface.

External ID is used in case product is registered in external system.

Logo path is a path to uploaded product logo image.

Before a product can be assigned to any users it must be enabled for the site of that user. To do that click on *Enable on site* checkbox next to *Default site* in *Site* section.

Mandatory for all customers on site will make product mandatory to all users on site.

26.6.2 Channel Packs

Channel Packs are containg choosen set of Radio and TV channels. It is possible to to include in one Channel Pack other existing Channel Pack product.

Create Channel Packs

To create Channel Pack open **Create Channel Packs** from menu. You will be presented with product creation form as described in Products creation and edition form paragraph.

Channel Pack product creation form in addition gives possibility to include channels:

Filter by site	Filter
	Untuned channels
	Default site
Include channels	Include
	<u>NRK 1</u>
	NRK 2
	BBC News
	BBC Knowledge
	BBC Entertainment
	AXN
	AXN Crime
	AXN Comedy
	Euronews
Include Channelpacks	Norwagian Channels
Conflict with Channelpacks	Norwegian Channels
	Conflict
Create	

In *Include channels* you can see all existing channels. By marking checkboxes you select channel that will be included in the pack.

With *Filter by site* options you can filter channel list and display channels enabled on specific sites.

It is possible to include other existing Channel Packs by marking their checkboxes under *Include Channelpacks*.

Note: Conflict with Channelpacks is not being used at the moment.

Edit, delete Channel Packs

Open Manage Channel Pack from menu and see Edit, delete products paragraph.

26.6.3 Recorder Product

Recorder products provive users with access to them a number of hours added to their recording quota. When personal recordings are available on the site, a user can record and store programs but no more than their current quota allows.

Create Recorder Product

To create Recorder Product open **Create Recorder Product** from menu. You will be presented with product creation form as described in Products creation and edition form paragraph.

Recorder Product in addition has *Hours* field that represents customer recording quota. That field limit amout of hours customer can record and store as private recording.

Create Recorder Product	
Name:	
Hours:	
External ID:	

Confirm product creation with save button.

Edit, delete Recorder Product

Open Manage Recorder Product from menu and see Edit, delete products paragraph.

26.6.4 VoD Catalogues

The VoD support in the Organizer allows conditional access to content uploaded to the VoD server. As content is added to the VoD server, the Organizer will automatically be updated, showing the available content in Organizer.

VoD Catalogues are collections of VoDs, available for purchase as a single product. To include a VoD in a catalogue, either select the catalogue when uploading the content or edit the VoD catalogue in the Organizer and tick the checkbox associated with the wanted content.

Create VoD Catalogue

To create VoD Catalogue open **Create VoD Catalogue** from menu. You will be presented with product creation form as described in Products creation and edition form paragraph.

VoD Catalogue creation from in addition gives possibility to include movies:

	VoDs Defa	with no site 📋 ult site 🧭
clude VoDs		Name
		Troy sample
		Bruno
		Ghost Town
		The Incredible Hulk
		Kung Fu Panda
		Iron Man
	TV2 Recording	

In *Include VoDs* you can see all existing in Organizer movies. By marking checkboxes you select movie that will be included in the pack.

With *Filter by site* options you can filter movies list and display movies enabled on specific sites.

Manage VoDs

You can view all existing in Organizer movies by opening Manage VoDs page from menu.

Manage inputs	
User and Asset Organizer	
Manage Site	
Manage Products	
Create Channel Packs	
Create Master Product	
Create Recorder Product	
Create VoD Catalogue	
Manage Channel Packs	
Manage Master Products	
Manage Recorder Products	5
Manage VoD Catalogues	
Manage VoDs	
Manage Users	
Manage CPEs	
Messages	
Manage live signals	
Manage content	
Manage recording	
SnapCast	
Client provisioning	
System configuration	
System information	
Change password	
Log out	

Manage VoDs

Number of products: 6

D	External ID	Name	Price	Тах
86		Bruno	50.00	0.00
89		Ghost Town	0.00	0.00
92		Iron Man	0.00	0.00
91		Kung Fu Panda	0.00	0.00
117		TV2 Recording	0.00	0.00
90		The Incredible Hulk	0.00	0.00

Edit, delete VoD in Organizer

From Manage VoDs page it is possible to access VoD edit form by clicking on *ID* link.

Manage inputs	Edit VoD	
User and Asset Organizer	Edit VOD	
Manage Site	VoD ID:	86
Manage Products	Name:	Bruno
Create Channel Packs Create Master Product	Asset:	/opt/snaptv/rec/snapcast/8b1eb6e154434d6fc87de77fac15c
Create Recorder Product	External ID:	
Create VoD Catalogue	End user price:	50.00
Manage Master Products	Tax:	0.00
Manage Recorder Products	Available for purchase:	
Manage VoD Catalogues	Logo path:	
Manage VoDs	Comments:	
Manage Users	oonnonto.	
Manage CPEs		
Messages		
Manage live signals		
Manage content	Sites:	Site name Enable on site Mandatory for all customers on site
Manage recording		Default site 👿
SnapCast	Save	
Client provisioning	Save	
System configuration		
System information		
Change password		
Log out		

VoD edit form is simialr as Products creation and edition form. Additional field here is *Asset* which is a path to media file.

To delete VoD click on *Delete* button and confirm operation.

Note: VoD deleted from Organizer is not deleted from VoD database.

Edit, delete VoD Catalogues

Open Manage VoD Catalogues from menu and see Edit, delete products paragraph.

26.6.5 Master Products

Master products are logical groupings of other resources in the Organizer, such as channel packs and recorder access.

When a users purchases this master product, they will then get access to all the included products.

Create Master Product

To create Master Product open **Create Master Product** page from menu. You will be presented with product creation form as described in Products creation and edition form paragraph.

When creating, the menu will contain lists of the other products defined in the Organizer, allong with message feeds, with the possibility of including these in the master product.

Filter by site	Filter
	Products with no site
	Default site 🧭
Include VoD Catalogues	Name
	Standard VoD Catalogue
Include Channel packs	
instate entities paole	Name
	Norwegian Channels
Include Recorder products	Nome
	<u>Shirecordings</u>
	10h recordings
Include message feeds	Name
	<u>News</u>
Save	

To include products in Master Product simply click on relevant checkboxes.

With *Filter by site* options you can filter product list and display those enabled on specific sites.
Edit, delete Master Product

Open Manage Master Products from menu and see Edit, delete products paragraph.

26.6.6 Edit, delete products

Editing and deleting products in Organizer is done in similar way for all kinds of prdoucts. This paragraph descirbes this common procedure for editing and deleting projects.

You need to access manage product page from menu, for example **Manage Recorder Prod-ucts**. You will be presented with list of all created products in our example, all Recorder Products.

Manage inputs	Ma	nade Reco	rder Producte				
User and Asset Organizer	IVIG	hage neco	Idel Floducia				
Manage Site	Number of products: 2						
Manage Products	ID	External ID	Name	Price	Tax		
Create Channel Packs	6		10h recordings	30.00	0.00		
Create Master Product	5		5h recordings	20.00	0.00		
Create Recorder Product	9		onnoonanigo	20.00	0.00		
Create VoD Catalogue							
Manage Channel Packs							
Manage Master Products							
Manage Recorder Products							
Manage VoD Catalogues 😽							
Manage VoDs							
Manage Users							
Manage CPEs							
Messages							
Manage live signals							
Manage content							
Manage recording							
SnapCast							
Client provisioning							
System configuration							
System information							
Change password							
Log out							

Click on the *ID* link of product you wish to edit or delete. Product summary page will be shown.

Manage inputs	10h recordings	
Manage inputs User and Asset Organizer Manage Site Manage Products Create Channel Packs Create Master Product Create Recorder Product Create VoD Catalogue Manage Channel Packs Manage Master Products Manage Recorder Products	10h recordings <u>Edit</u> Id: External product ID: End user price: Tax: End user price w/Tax: Available for purchase: Direct expenses (when mandatory) Total expenses	6 30.00 0.00 30.0000 Yes Total: 0 (0) <u>Add expense</u>
Manage VoD Catalogues Manage VoDs Manage Users Manage CPEs Messages	Comments:	
Manage live signals		
Manage content		
Manage recording		
SnapCast		
Client provisioning		
System configuration		
System information Change password		
Log out		

Click on *Edit* link to open product edition form. You can edit any information you wish and save changes.

See Products creation and edition form and in addition relevant product paragraph about product creation to get form field descriptions.

To delete product simply press *Delete* button and confirm operation.

26.7 Edit assets

The Organizer allows to manualy assign products to customer and also delete them from customer assets.

26.7.1 Assign products to customer

To assign product to customer you need to *open customer summary page*. Open **Manage Users -> List/Search Users** page from menu.

Manage inputs	0												
User and Asset Organizer Manage Site Manage Products Manage Users Create User	Sea Sea Sea	rch for custo rch for custo rch for custo rch for custo	mers contain mer by intern mer by extern	ing:									
LisuSearch Users	Q	uery											
Manage CPEs	ID	First name	Last name	Address	Zip	City	External ID	Billing	Status	CPEs	VOD	Assets	Site
Messages	41	Gregus	Husdal	Grønland plass 210	3919	PORSGRUNN		PAYEX	Active	0	False	Assets	Default site
Manage live signals	42	Liesel	Thrane	Bratnerveien 41	1785	HALDEN		PAYEX	Active	0	False	Assets	Default site
Manage content	2	Ottil	Flo	Blindheimsvegen 2	6012	ÅLESUND		PAYEX	Active	0	False	Assets	Default site
Manage recording	3	Alban	Oftedal	Malmgruvebakken 178	1354	BÆRUMS VERK		PAYEX	Active	0	False	Assets	Default site
SnapCast	4	Kjelborg	Melheim	Slettumvegen 136	2825	GJØVIK		PAYEX	Active	0	False	Assets	Default site
Client provisioning	5	Marion	Egge	Hogstadveien 239	1383	ASKER		PAYEX	Active	0	False	Assets	Default site
System configuration	6	Oddlaug	Mohamed	Mellombrottet 103	3737	SKIEN		PAYEX	Active	0	False	Assets	Default site
System information	7	Idun	Aspaas	Moenskogen 52	1739	BORGENHAUGEN		PAYEX	Active	0	False	Assets	Default site
Change password	8	Toruly	Utgaard	Nedre Ullevål 198	0850	OSLO		PAYEX	Active	0	False	Assets	Default site
Log out	9	Jorund	Hvidsten	Kullebunnbakken 101	3616	KONGSBERG		PAYEX	Active	0	False	Assets	Default site
	10	Adelin	Pollestad	Peckels gate 205	3616	KONGSBERG		PAYEX	Active	0	False	Assets	Default site
	11	Eilert	Karim	Liaveien 161	8210	FAUSKE		PAYEX	Active	0	False	Assets	Default site
	12	Tryggvi	Rudi	Sledeveien 45	1615	FREDRIKSTAD		PAYEX	Active	0	False	Assets	Default site
	13	Elisabeth	Engevik	Fiolvegen 17	2409	ELVERUM		PAYEX	Active	0	False	Assets	Default site
	14	Finnbjørn	Aarø	Simon Darres veg 137	2624	LILLEHAMMER		PAYEX	Active	0	False	Assets	Default site
	15	Sølvy	Rogne	Spinnestredet 80	1767	HALDEN		PAYEX	Active	0	False	Assets	Default site
	16	Eydis	Skadberg	Nordlandsgata 132	0483	OSLO		PAYEX	Active	0	False	Assets	Default site
	17	Nico	Skille	Vear Øvre 49	3173	VEAR		PAYEX	Active	0	False	Assets	Default site
	18	Karolina	Sjaastad	Bjørnebærveien 96	8026	BODØ		PAYEX	Active	0	False	Assets	Default site
	19	Thore	Stenvik	Lunde 115	4885	GRIMSTAD		PAYEX	Active	0	False	Assets	Default site
	013	2											

You need to find user you wish to assign products to. Click on customers *Assets* link. You will see page with listed created products, channels and VoDs lists, so you are able to assign to customer not only Channel Packs or VoD Catalogues but also single channels and movies.

No Curre	ent Assets					
Add Mas	ster Products					ſ
ID Produ	uct name Subs	cribe from Subscription dur	ation (days) Subscribe forever	Ĺ		
Add Cha	annel packs					
ID Prode	luct name vegian Channels	Subscribe from	Subscription	duration (days)	Subscribe forever	
Add VoD	Catalogues					
ID Prode	luct name dard VoD Catalo	Subscribe from	Subscript	tion duration (days)	Subscribe for	ever
Add Rec	order Access	ses				
ID Produ	uct name Sub	scribe from	Subscription duratio	n (davs)	Subscribe forever	
6 <u>10h m</u> 5 <u>5h ree</u>	ecordings					
6 <u>10h m</u> 5 <u>5h re</u> Add VoD	recordings					
6 <u>10h m</u> 5 <u>5h ree</u> Add VoD	recordings	cribe from Subscription dur	ation (days) Subscribe forever			
6 <u>10h m</u> 5 <u>5h rev</u> Add VoD ID Produ Add Cha	recordings cordings D Movies uct name Subs annels	cribe from Subscription dur	ation (days) Subscribe forever			
6 <u>10h r</u> 5 <u>5h red</u> Add VoD ID Produ ID Produ ID Produ 12 <u>AXN</u>	recordings coordings decordings decordi	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever	iration (days)	Subscribe forever	
6 10h m 5 5h rev Add VoD ID Produ Add Cha ID Produ ID Produ ID Produ IA AXN	recordings record	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever	rration (days)	Subscribe forever	
6 10h m 5 5h rev Add VoD ID Produ ID Produ ID Produ 12 AXN 14 AXN 13 AXN	coordings	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever Subscription du	uration (days)	Subscribe forever	
10h m 5 5h rei Add VoD ID Produ ID Produ ID Produ ID Add ID Produ ID Add	coordings	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever Subscription du	uration (days)	Subscribe forever	
10h m 5 5h res Add VoD ID Produ ID Produ ID Produ ID Add ID Produ ID Add	recordings coordings coord	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever Subscription du	iration (days)	Subscribe forever	
International International 5 Shire Add VoD Product ID Product ID Product ID Product ID Product ID Product ID Add Char ID Product I12 AXN I13 AXN I11 BBC I10 BBC I11 BBC	recordings cordings c	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever	iration (days)	Subscribe forever	
IDh re 5 Sh re Add VoD ID Product Add Char ID Product ID Product ID Product ID Product ID Product ID BC ID BBC ID BBC ID BBC	recordings coordings coord	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever	iration (days)	Subscribe forever	
Ohn 5 5h rei 4 700 10 Produ 10 Produ 11 200 12 2XN 13 2XN 14 2XN 15 2BC 16 2BC 17 15 18 2UNN	recordings coordings coord	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever Subscription du	iration (days)	Subscribe forever	
Ohne 5 Shreit 6 Shreit 10 Produ 10 Produ 11 ACM 12 AXN 13 AXN 14 BBC 15 CNN 16 BC 17 ASS 18 CNN 19 BC 10 BC 11 BC 12 ANN 13 ANN 14 BC 15 CNN 16 Euror 7 NRK	recordings coordings D Movies ut name Subs annels ut name Comedy Crime Entertainment Knowledge News L	cribe from Subscription dur Subscribe from	ation (days) Subscribe forever Subscription du	In (days)	Subscribe forever 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

Note: Assets page can be also accessed from customer summary page - click on *Edit assets*

link.

.

To assign a product you need to create subscription. subscription can exprire after specific amount of days or do not have any time limits.

To create product subscription that will exprire you need to provide date when subscription starts and how many days should ve active.

Add	Add Channel packs					
ID	Product name	Subscribe from	Subscription duration (days)	Subscribe forever		
17	Norwegian Channels	2012-09-12	90			

To create product subscription without any expiry date simply click on *Subscribe forever* checkbox.

Add	d Channel packs			
ID	Product name	Subscribe from	Subscription duration (days)	Subscribe forever
17	Norwegian Channels			

After choosen kind of subscription was set click on *Save* button. The page should reload and the channel packs listed on top as "ACTIVATION REQUESTED". Reloading the page after a few seconds should show the status as "ACTIVATION CONFIRMED". The customer now has access to the product.

26.7.2 Delete a product subscription

To delete product subscription open customer assets page as it is described in Assign products to customer paragraph and click on *Delete* button next to subscription you wish to delete on *Current Assets* list.

Cu	rrent Assets				
ID	Product name	Status	Valid from	Valid to	
6	Norwegian Channels	ACTIVATION_CONFIRMED	2012-09-12 02:00:00+02:00	2012-12-11 01:00:00+01:00	Delete
8	Standard VoD Catalogue	ACTIVATION_CONFIRMED	2012-09-12 08:14:52.957508+02:00	Forever	Delete

26.8 Messaging

The messaging system provides both non-intrusive and intrusive messaging directly to the TV screen of the end users. Messages can be sent to single users or to groups.

Messages admin interface is available from Messages menu.

26.8.1 Message Feeds

A message feed is a grouping feature that allows administrators to send messages to groups of users.

Create Message Feed

Open **Create Message Feed** page from menu and you will be presented with creation form.

Manage inputs	New Message Food	
User and Asset Organizer	New Message Feeu	
Messages	Name	
Create Message		L
Create Message Feed	Comment	
Manage Message Feeds		
Message Archive		
Manage live signals	Create	
Manage content		
Manage recording		
SnapCast		
Client provisioning		
System configuration		
System information		
Change password		
Log out		

Users are assigned to message feeds by including the message feed in master products. This is done in the edit master product page by selecting the checkbox associated with the wanted feed under "include message feeds".

All users with access to the master product at the time a message is sent will recieve messages to that feed.

Edit, delete Message Feeds

It is possible to list all created Message Feeds, edit them and also delete.

Open **Manage Message Feeds** page from menu. You will be presented with list of all created feeds. From that page you can access also Message Feed creation form by clicking on *New Message Feed*.

Manage inputs

User and Asset Organizer

Messages

Create Message

Create Message Feed

Manage Message Feeds

Message Archive

Manage live signals

Manage content

Manage recording

SnapCast

Client provisioning

System configuration

System information

Change password

Log out

Manage Message Feeds

Number of Message Feeds: 3

ID	Name
4	News
19	Special offers
20	SnapTV

New Message Feed

Click on *ID* of feed you wish to edit. Page with Message Feed information will be shown.

Manage inputs	Neuro	
User and Asset Organizer	News	
Messages	Edit	
Create Message		101
Create Message Feed	Id	4
Manage Message Feeds	Comment	All recent news
Message Archive		
Manage live signals		
Manage content		
Manage recording	_	
SnapCast		
Client provisioning		
System configuration		
System information	_	
Change password		
Log out		

Click on *Edit* link to display Message Feed edition form.

Manage inputs	Edit Massage Food		
User and Asset Organizer	Eult Message Feeu		
Messages	ID:	4	
Create Message			
Create Message Feed	Name	News	
Manage Message Feeds	Q		
Message Archive	Comment	All recent news	
Manage live signals			
Manage content	Save		
Manage recording	Save		Delete
SnapCast			
Client provisioning			
System configuration			
System information			
Change password			
Log out			

You can edit any information and save changes.

To delete Message Feed simply click on *Delete* button.

26.8.2 Sending Messages

To send a message open **Create Message** page from menu. You will see Message creation form.

Manage inputs	Croate Massage		
User and Asset Organizer	Gleate Message		
Messages	From Default Admin Us	er	
Create Message	To individual usors		
Create Message Feed	To individual users		Add
Manage Message Feeds	To feeds	News	
Message Archive		Special offers	
Manage live signals			
Manage content			-27
Manage recording	Message title		
SnapCast	Message		5.1
Client provisioning	- Wessage		
System configuration			
System information			
Change password			
Log out			
	Notification type	Popup Window 🛟	
	Publish	Now	
		O Later	
		Date:	
		Time: 00 🗘 : 00 🌻	
	Publish		
	Message list		

To add individual users, start typing the user's name in the *To individual users* text box, select the correct user from the dropdown box when it appears and press *Add*.

To add message feeds, select their checkbox under To feeds.

You can choose the way portal user is notified about new message by selecting wanted option in *Notification type*. There are three options.

- Popup window this option will display message in portal popup window so customer can read it immediately
- Notification icon this option will display in portal small icon in the upper corner notifying user that received new message
- No notification this option will not display anything in portal that would indicate that new message was send. New message will be listed in Message Browser in portal.

Click on *Publish* button to send message.

26.8.3 Delaying messages

When sending messages to message feeds, the delivery can be delayed by chosing a later date or time. Note that messages sent directly to single users cannot be delayed and will be delivered immediately.

Message Archive

You can view all previously send message by opening **Message Archive** page from menu.

Manage inputs	Manage messages				
User and Asset Organizer					
Messages	Number of messages: 2				
Create Message	Author	Published	Title	Total recipients	Read by
Create Message Feed	Default Admin User	Not published yet	News from SnapTV	1	1
Manage Message Feeds	Default Admin User	Not published yet	Hello	1	1
Message Archive	New message				
Manage live signals	-				
Manage content					
Manage recording					
SnapCast					
Client provisioning					
System configuration					
System information	-				
Change password					
Log out					

This page display all send messages. You can see who send message, it's delivery status, title, amount of recipients and if it was read by user.

Note: You can create new message from *Message Archive* page by clicking on *New message* link.

By clicking on *Title* link you can display more detailed information.

Manage inputs	Name (name Constant)				
User and Asset Organizer	News from Snap I v				
Messages	ld	2			
Create Message	Maaaaaa	CoopTV has fer you you interesting neural View your apparts for more information			
Create Message Feed	Message	Shap i v has for you very interesting news! view www.shap.tv for more information.			
Manage Message Feeds	Requested publishing time	2012-09-12 14:37:18.126791+02:00			
Message Archive	Not published yet				
Manage live signals	Recipients	Anna Lena Status: Read			
Manage content					
Manage recording					
SnapCast					
Client provisioning					
System configuration					
System information					
Change password					
Logout					

26.9 Instant Message Delivery

For immediate message delivery to work efficiently, the UAO server needs to be able to find out where to publish messages so that they are delivered to the clients.

There are two ways this can be achieved. First, if UAO is installed on a SnapTV gateway on the same site as the STB portal server, it will automatically detect this, and publish messages via the portal server.

However, if running UAO on a central server, and one or more site connects to it remotely, it requires manual configuration as explained in the following section.

26.9.1 Manual configuration for off-site UAO server

Manual configuration of message publishing is stored in the file /opt/snaptv/etc/sms/config.xml on the UAO server. The file typically contains something like this be default:

```
<sms>
<db>
<connector>postgresql://sms@localhost/sms</connector>
</db>
</sms>
```

To configure one single publish URL for all messages, add it like this:

```
<sms>
        <db>
            <connector>postgresql://sms@localhost/sms</connector>
            </db>
            <messages>
                 <publish_url>http://10.0.0.5/publish</publish_url>
            </messages>
            </sms>
```

The URL must point to the IP address of the STB portal server, followed by /publish. If the portal server IP address is not reachable, this must be handled externally, for instance by setting up an SSH tunnel.

Multiple publish URLs can be configured by adding a prefix that must match the site name. The list is read from the top until a matching prefix is found for the site name:

In this example, messages to users at site "foo" and "foobar" are sent to foo_site, but messages to users at other sites, such as "bar" or "fo" are sent to default_site.

26.10 Configuring Portal to use the organizer

By default the portal gives all channels to everyone, to make it look up personal channel lists you need to tell it where the organizer is running. Log on to the admin interface of the portal server. Open **System configuration -> Portal -> Servers** page.

Manage Inputs	SMS Host
User and Asset Organizer	- 5005 1050
Messages	SMS server disabled: Enable bere
Manage live signals	Sivis server disabled. Litable nere
Manage content	Specify other SMS host
Manage recording	
SnapCast	OK
Client provisioning	- Devtel Heat
System configuration	- Portal Host
Network	The second second second
Cluster	Portal enabled on this server: disable
Epg Service	Specify other Portal hast
Mini Browser server	specity other Portainost
Monitoring	OK
PAGA Mute	
Portal	Portal Debug
Servers	
Factory Settings	Portal debug disabled: Enable here
Languages Selection	Favourite Channels
Enable Components	
Content Provisioning Server	Favourites channel in portal are disabled: Enable here
Set time zone	Info IIPI
Unicast radio services	INOURL
Audio Media Player	
Manage administrators	OK
Manage SSL	
Configuration profiles	
System information	
Change password	
Log out	
	Logged in as admin
	Back to frontbade

If the portal and the asset and user organizer is running on the same server you can click on *Enable here* under *SMS Host*. Otherwise enter the IP address of the server where the organizer is running in the Specify other SMS host text box and click OK.

26.11 Backup and restore database

When the system is being reinstalled or updated it is important to make backup copy of the UAO database to not loose data and be able to restore database.

26.11.1 Backup database

To backup the existing UAO database, login to the server terminal and run the following command::

sudo -u postgres pg_dump --format t uao > uao_backup.tar

This command will create uao_backup.tar file that should be stored in a safe place.

26.11.2 Restore database

To restore Organizer database, run the following commands in the server terminal::

```
sudo stop snaptv-uao
sudo -u postgres pg_restore --clean --dbname uao --single-transaction uao_backup.tar
sudo start snaptv-uao
```

This will stop all processes accessing the database, import the backup and then restart the stopped processes, using the newly imported database.

Final Notes

Well, that's it. If you made it this far, you are up and running with an IPTV service. Now proceed to add the remaining channels - we hope you make a good fortune out of it and want to thank you for selecting SnapTV!

Regards, the SnapTV TEAM.

- support@snap.tv
- http://www.snap.tv

Indices and tables

- genindex
- search

Index

Add channel, 22 Add external multicast, 26 Add looped file channel, 26 Admin. 4 Administration, 9 Amino, 47, 61, 64 Analog source, 25 Analog sources, 16 Applicability, 1 apt-get, 11 Audio language, 20 Audio Media Player, 95 Audio streaming, 67 Backup, 70, 118 Backup and Restore, 107 Backup configuration, 118 Bad Audio/Video, 117 Bad patch cable, 115 Beep sounds, 114 Bitrate, 21, 115 Bootcast, 47 Browse EPG data, 57 Browser, 56 Built-in ethernet ports, 115 CA module, 16, 20 channel, 68 Channel address, 20 Channel descrambling, 20 Channel Down Issues, 116 Channel listing, 25 Channel name, 20 Channel statistics, 116 Channel test, 116 Channels, 19, 22 Clean installation, 118 Client, 64 Client provisioning, 46 Cluster, 55

Concurrent playbacks, 38 Configuration, 53, 70 Configuration remap, 52 Configuration version, 55 Console, 3, 81, 82 content, 68 Crypto, 55 date command, 117 Debug, 64 Default gateway, 6 Default settings, 5 Defect harddrive, 113 Defect power supply, 114 DEGRADED, 113 Descrambling, 20 Descrambling issues, 117 DHCP, 6, 53 DHCP server, 53 DLNA, 67, 95 DNS, 7 Down channels, 116 Download configuration, 118 Drives, 113 DVB, 15 DVB card drivers, 116 DVB-C, 25 DVB-S, 15, 23 DVB-S2, 15, 23 DVB-T, 15, 25 EIT aggregation, 57

Electronic Program Guide, 57 EPG, 4, 57, 82 EPG/Clock out of sync, 117 eth0, 115 eth1, 115 Ethernet interface, 115 ethtool command, 115

Factory settings, 64

Factory settings sheet, 8 Faulty drive, 113 Faulty ethernet interface, 115 Fetch from URL, 26 Fingerprint, 55 Frequency, 23 Getting started, 9 Handbook, 1 Harddrive, 113 Hardware changes, 118 Hardware RAID, 113 Healthy drive, 113 Help, 1, 75 Host IP, 9, 51 Host monitoring, 59 Hostname, 7, 55 Hot swapping, 114 Identifyer, 55 IGMP, 54 IGMP Queries, 119 IGMP Snooping, 119 Importing XMLTV data, 82 Infocast, 48 INITIALIZING, 113 Input, 15 Input card, 15 Installation, 1, 3 Installed software, 74 internet uplink, 119 IP address, 5, 6, 55 ip address command, 5, 115 IP phones stopped, 119 ip route command, 6, 7 IP settings, 51 Keyboard, 4 Keymaps, 4 Language, 20 Legacy portal, 63 License, 73 License issues, 118 List channel, 19 Logging, 64 Ispci command, 116 MAC address, 47 Main board replacements, 115 Media Catalog, 39 Mini browser, 34

Mini browser pages, 56 Mini browser server, 56 Models, 1 Modulation type, 25 Monitoring, 59, 119 Motorola, 48, 61, 62, 64 Multi program transport stream, 26 Multicast, 54 Multicast address, 26 Multicast monitoring, 61 Multicast routes, 6, 7 nano command. 81 Nano editor, 7, 81 Netmask, 5, 6 Network, 5, 7, 53, 54, 74, 119 Network address, 6 Network interface, 5, 7, 51, 55 Network PVR, 38 Network routes, 6 Network switch configuration, 119 Notification, 59 nPVR, 4, 38, 55 NTP, 4 NTP server, 117 ntp.conf, 4 OK. 113 Online, 1 Online resource, 1 **PAGA**, 91 Panel-PC, 48 passwd command, 4 Password, 4, 8 Performance, 113 PID. 20 PID dropping, 20 Pid Structure, 21 **PIM-SM**, 119 PIMD server, 54 Polarity, 23 Portal, 61–64 Portal Debug, 64 Portal Host, 61 Power supply, 114 Power up, 3 Provisioning, 46 PuTTY, 81 Radio, 67, 95 RAID, 113 rc-status command, 116

Reboot, 48 reboot command, 115 **REBUILDING**, 113 Record channel, 38 Recorder, 38 RecorderManager, 37 Recording delays, 117 Redundance, 114 related problems, 119 Remote access, 119 Renew license, 73 request license.sh command, 115, 118 Reset CAM, 117 Restart services, 116 Restore, 70, 118 role, 68 Root, 4 Routers, 119 Routing tables, 7 Satellite channel maps, 23 Satellite connection, 15 Sensors, 74 Service type, 26 Services, 74 Setting password, 4 Signal error, 21 Signal strength, 116 Signal strength monitoring, 60 Smart card, 20 Snap dvb services, 116 Software changes, 118 Software Upgrades, 11 Software version, 74 Status, 74 STB, 47, 48, 64 Stream full transport stream from input, 26 Subscription status, 117 Subtitle language, 20 Support, 75, 150 Swamped, 119 Symbol rate, 23 System configuration, 118 System information, 74 System time, 117 Teletext, 20 Terminal, 81

Terrestrial, 81 Terrestrial, 15 Time zone, 9, 67 trafic, 119 Troubleshooting, 75 TTL, 20 Tuning data, 23 tw_cli command, 113

Ubuntu, 1 UHF transponders, 25 Undesired broadcast traffic, 119 Unicast, 67 Unicast Radio Server, 95 Unicast radio services, 67 Unique license identifier, 118 Up. 62 Update license, 118 Upload, 26 Upload license, 73 UPnP, 67, 95 UPS, 93 Uptime, 74 user, 68 Username, 8 username, 68 Using nano, 81

VERIFYING, 113 Versions, 74 Video on demand (VoD), 33, 39 Video source, 25 VoD, 55

Wand, 26 Warning messages, 21 Web browser, 8 Web pages, 34, 56 Webinterface, 8 Wireless access points stopped working, 119 working, 119 Wrong EPG data, 117

XMLTV, 82