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# What to do when your STL feed goes down



# Agenda

- What's built into my Nautel transmitter?
- An introduction to audio backup and mod loss
- Configuration of a Shoutcast or Icecast Stream
- Using the internal audio player
- The ENCO Enstreamer
- Your questions



**Chuck Kelly**  
Regional Sales Manager  
Asia Pacific, Nautel



**Scott MacLeod**  
Customer Service  
Technician, Nautel



**Josh Bohn**  
Bohn Broadcast  
Services



**Matt Walther**  
Product Manager, ENCO

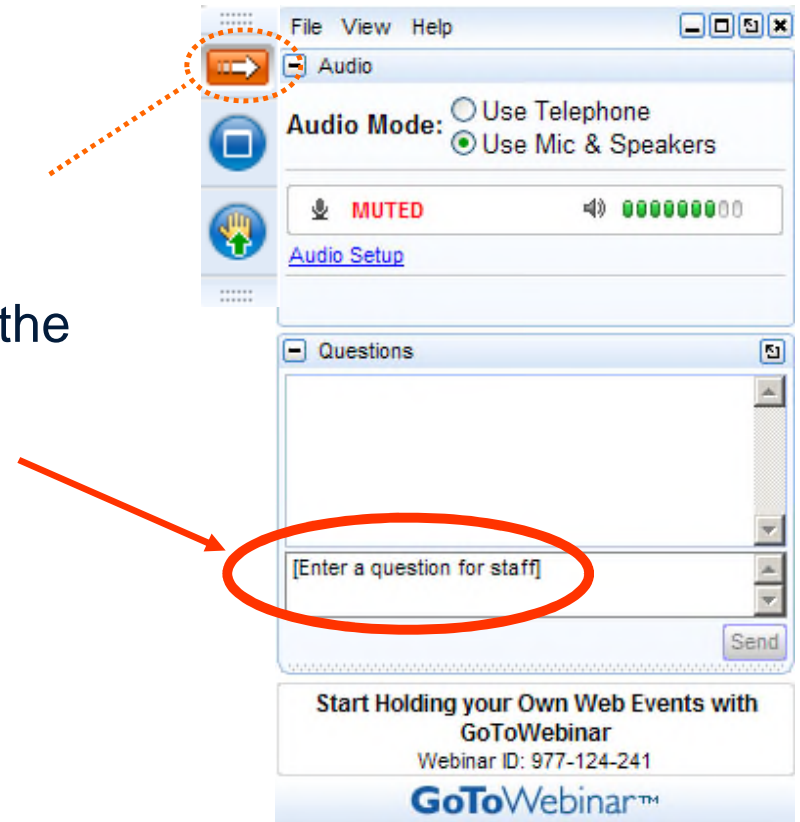
# Your questions please?

(If you don't see the control panel, click on the orange arrow icon to expand it)

Please enter your questions in the text box of the webinar control panel (remember to press send)



Remember: The completion of a Nautel webinar qualifies for ½ SBE re-certification credit, identified under Category I of the Re-certification Schedule for SBE Certifications.



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# What's built into my Nautel transmitter?

	NV	NX	NVLT	VS	GV
USB Audio Payout	---	4.0.1	3.0	pre-2.3	4.0
Shoutcast/Icecast support	---	4.0.1	3.0	4.0	4.0
OrbanInside	---	N/A	3.0.2	2.0	4.0
MPX over AES	4.0	N/A	4.2.2 CPLD 10	4.1.1 CPLD10	4.0
Audio Switchback	--	--	4.3	5.2	4.1
Mod Loss	2.6	4.0	All	All	All

# Audio backup and Mod loss

- Audio backup
  - Allows for a main and backup audio selection
  - Backup source is auto selected If the main audio is below limit and the backup audio is present.
  - Main audio is selected source if above the low limit for greater than 1 second
- Mod loss
  - Allows for preset change if modulation is below limit.
  - Presets can be configured for different audio sources
  - Does not allow for main audio switchback.
- To get new TGZ files and a more detailed upgrade procedure you can go to [ftp://www3.nautel.com/NVLT\\_Series/](ftp://www3.nautel.com/NVLT_Series/)
- Download the TGZ file onto your computer and connect to the transmitters remote AUI

# Backup Audio

- When enabled the backup audio source (if present) will replace the main audio if the main audio is less than the trip threshold.
- The main audio source will be restored as the active source if it returns and is present for at least 1 second.

**Presets : Current Settings** [Close]

**General** **Main Audio** SCA RDS Other Settings

Audio Source: Left/Right/Mono

Analog Level: 4.7 dBu

Audio Mode: Stereo

15kHz Lowpass: Off

Preemphasis: 0us

Main Audio Gain Adjust: 0.0 dB

Audio Backup: Enabled

Backup Source: Left/Right/Mono

Analog Level: 4.7 dBu

Audio Mode: Stereo

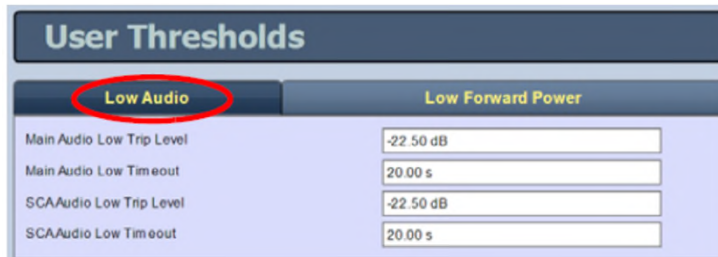
15kHz Lowpass: Off

Preemphasis: 0us

Main Audio Gain Adjust: 0.0 dB

# Setting Low Audio Thresholds

User defined audio thresholds set the limit for the low audio.



The 'User Thresholds' dialog box is shown with the 'Low Audio' tab selected. The 'Low Forward Power' tab is also visible. The 'Low Audio' tab contains four input fields: 'Main Audio Low Trip Level' (set to -22.50 dB), 'Main Audio Low Timeout' (set to 20.00 s), 'SCAAudio Low Trip Level' (set to -22.50 dB), and 'SCAAudio Low Timeout' (set to 20.00 s). The 'Low Forward Power' tab is currently empty.

Low Audio	Low Forward Power
Main Audio Low Trip Level	-22.50 dB
Main Audio Low Timeout	20.00 s
SCAAudio Low Trip Level	-22.50 dB
SCAAudio Low Timeout	20.00 s

Valid range -100 to -3 dB  
Valid range 0 to 600 s  
Valid range -100 to -3 dB  
Valid range 0 to 600 s



The 'User Settings' dialog box is shown with the 'User Thresholds' tab selected. The 'User Thresholds' tab contains four input fields: 'Main Audio Low Trip Level' (set to -22.50 dB), 'Main Audio Low Timeout' (set to 20.00 s), 'SCAAudio Low Trip Level' (set to -22.50 dB), and 'SCAAudio Low Timeout' (set to 20.00 s). The 'Low Forward Power' tab is also visible. The 'User Settings' dialog box has a list of settings on the left: Network Setup, Email Configuration, Notifications, Engine Settings, Nautel Phone Home, SNMP Configuration, Critical Parameters, External 10MHz, Spectrum Mask, Time Setup, NTP Servers, User Thresholds, Call Sign/ID, and Turn-On Behaviour. The 'User Thresholds' tab is currently selected.

Low Audio	Low Forward Power
Main Audio Low Trip Level	-22.50 dB
Main Audio Low Timeout	20.00 s
SCAAudio Low Trip Level	-22.50 dB
SCAAudio Low Timeout	20.00 s



# Backup audio limitations

## GV and VSHD

- If the exciter has an OrbanInside installed and enabled, then only one AES source can be used for either the primary or backup source.
- If MPX over AES is used for either the primary or backup, the other source cannot be AES (either primary or secondary).
- If MPX SCAs are enabled, then audio backup cannot be used with MPX as either the main or backup source.



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# Backup audio limitations

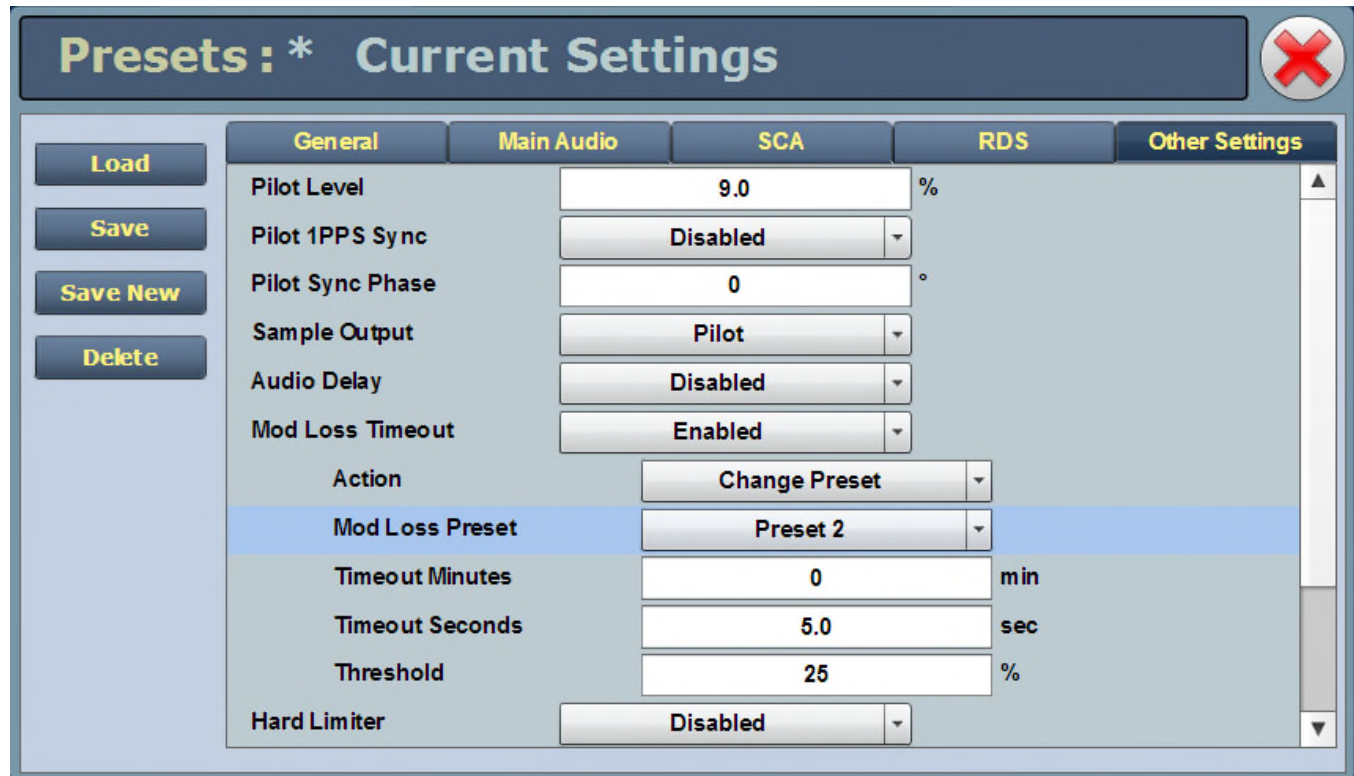
- NVLT and VS

Note: All GV and VSHD limits apply. The following are additional limitations

- If running AES as either primary or backup source, then the other source cannot be the audio player
- If MPX over AES is used for either the primary or backup, the other source can only be composite

# Mod Loss

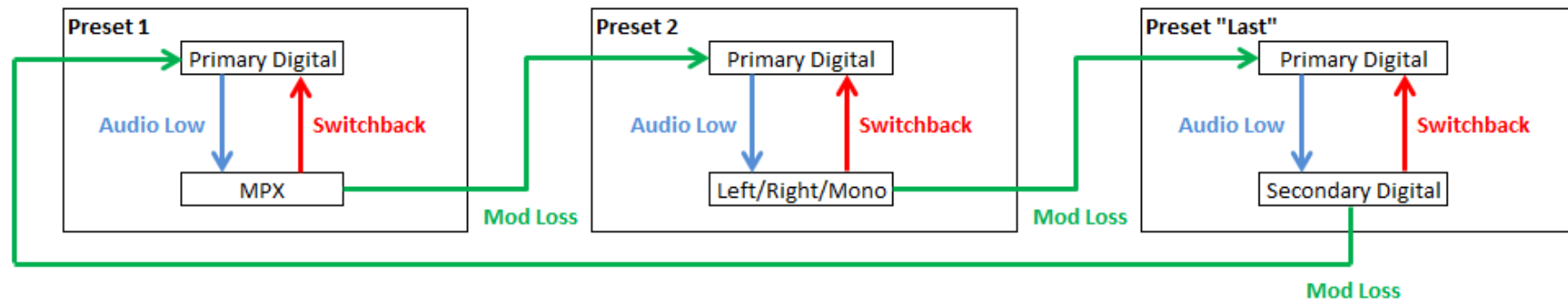
- If Mod loss timeout is enabled in the preset, the action will be applied if the limit is reached.
- The Mod loss Preset should have a different audio source selected.



Presets : * Current Settings				
General	Main Audio	SCA	RDS	Other Settings
Pilot Level	9.0		%	
Pilot 1PPS Sync	Disabled			
Pilot Sync Phase	0		°	
Sample Output	Pilot			
Audio Delay	Disabled			
Mod Loss Timeout	Enabled			
Action	Change Preset			
Mod Loss Preset	Preset 2			
Timeout Minutes	0		min	
Timeout Seconds	5.0		sec	
Threshold	25		%	
Hard Limiter	Disabled			

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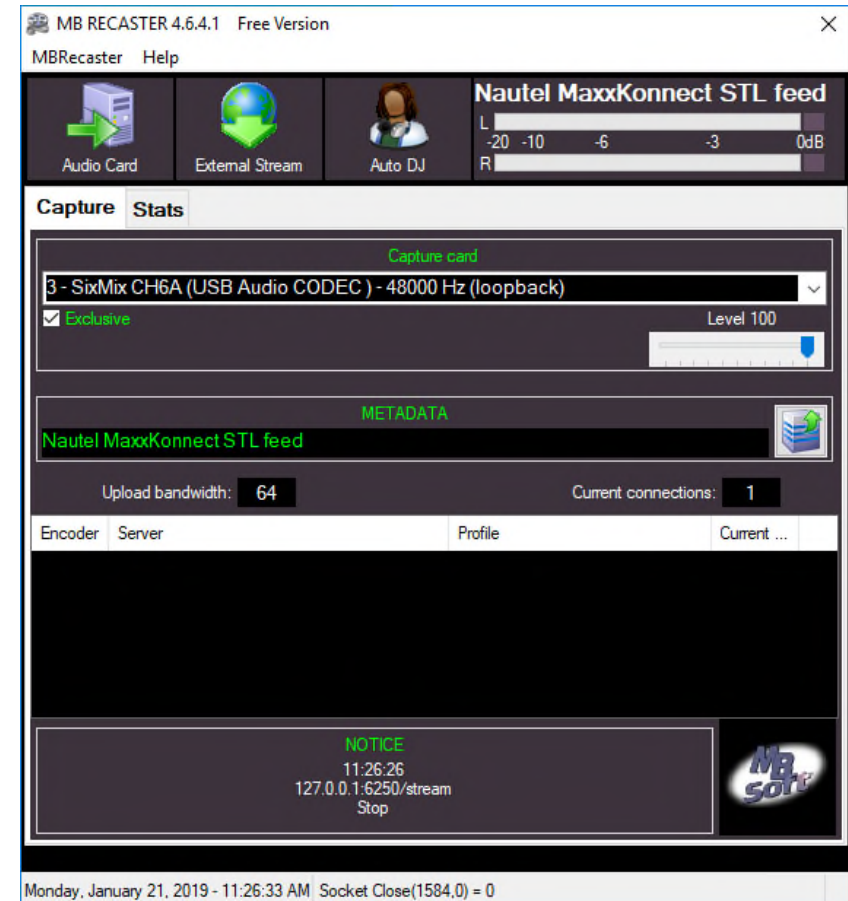
# Audio backup and Mod loss together



- Preset 1; Main audio source is AES, backup is MPX. Mod loss set to activate Preset 2.
- Preset 2; Main audio source is AES, backup is analog. Mod loss set to activate Preset 3.
- Preset 3; Main audio source is AES, backup is secondary digital (Playlist or stream). Mod loss set to activate Preset 1.

# Using a Shoutcast/Icecast Stream with your Nautel

- Icecast server can be downloaded for free from [www.icecast.org](http://www.icecast.org)
- SECaster encoder can be downloaded at <http://www.mediafire.com/file/f5bcpe1lt1kfsq/SECaster.zip>
- Quick & easy setup
- Encoder and server can be installed on the same PC



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# Install & configure Icecast server



1. Visit [www.icecast.org](http://www.icecast.org). Click Download and choose Icecast for Windows. Download and execute the file.
2. Once installed, browse to C:\Program Files (x86)\Icecast
3. In the Icecast folder, find icecast.xml. Right click and choose Edit.

The file should open in Notepad.

4. Scroll through the file and find the <authentication> section
5. Edit the username and passwords to something more secure than the default 'hackme'

```
<authentication>
  <!-- Sources log in with username 'source' -->
  <source-password>hackme</source-password>
  <!-- Relays log in with username 'relay' -->
  <relay-password>hackme</relay-password>

  <!-- Admin logs in with the username given below -->
  <admin-user>admin</admin-user>
  <admin-password>hackme</admin-password>
</authentication>

<!-- set the mountpoint for a shoutcast source to use, the default if not
      specified is /stream but you can change it here if an alternative is
      wanted or an extension is required
<shoutcast-mount>/live.nsv</shoutcast-mount>
-->
```

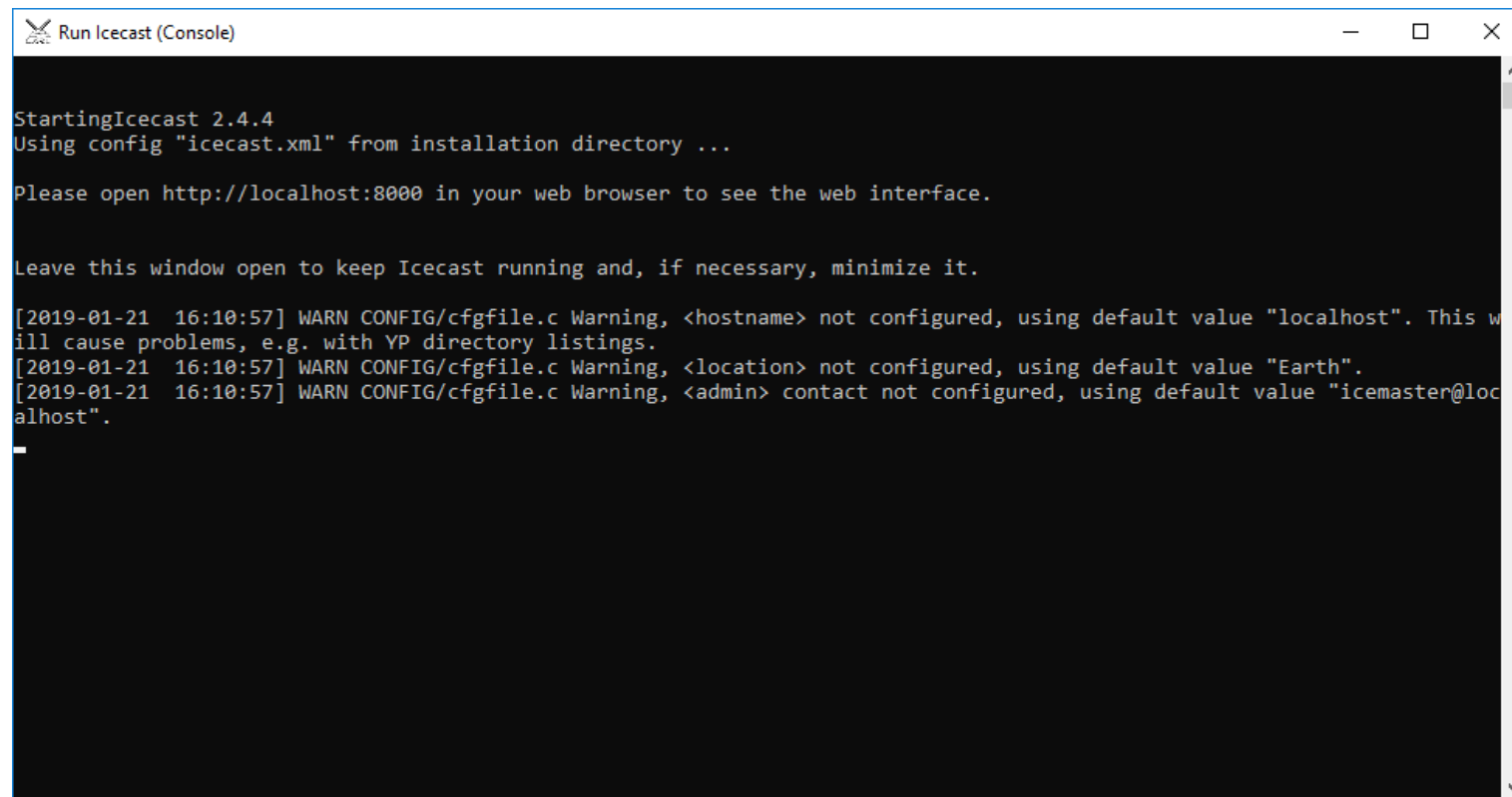
TIP: Use different passwords for admin, relay and source. This reduces the risk of hacking.

# Configure the Icecast server

6. Click Start, find Icecast. Then choose 'Run Icecast (console)'

A command window will open. This shows that the Icecast server is running.

This MUST remain open. Closing it will stop the Icecast server. You can minimize it.



```
Run Icecast (Console)

StartingIcecast 2.4.4
Using config "icecast.xml" from installation directory ...

Please open http://localhost:8000 in your web browser to see the web interface.

Leave this window open to keep Icecast running and, if necessary, minimize it.

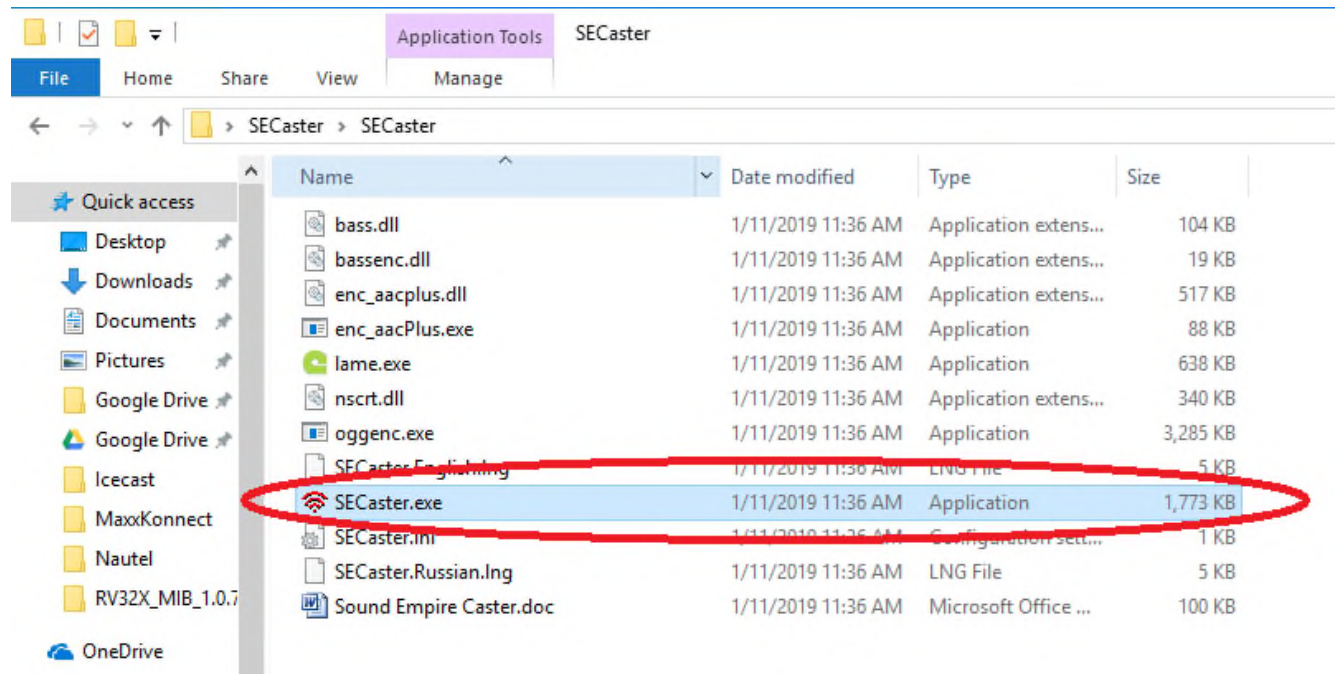
[2019-01-21 16:10:57] WARN CONFIG/cfgfile.c Warning, <hostname> not configured, using default value "localhost". This will cause problems, e.g. with YP directory listings.
[2019-01-21 16:10:57] WARN CONFIG/cfgfile.c Warning, <location> not configured, using default value "Earth".
[2019-01-21 16:10:57] WARN CONFIG/cfgfile.c Warning, <admin> contact not configured, using default value "icemaster@localhost".
```

# Setup SECaster as your encoder

7. SECaster downloads as a .zip file. Upon extraction, find the SeCaster folder and double click SECaster.exe.

SeCaster is NOT an installer – just an executable.

You may want to create a desktop shortcut to SECaster.exe for easier accessibility.

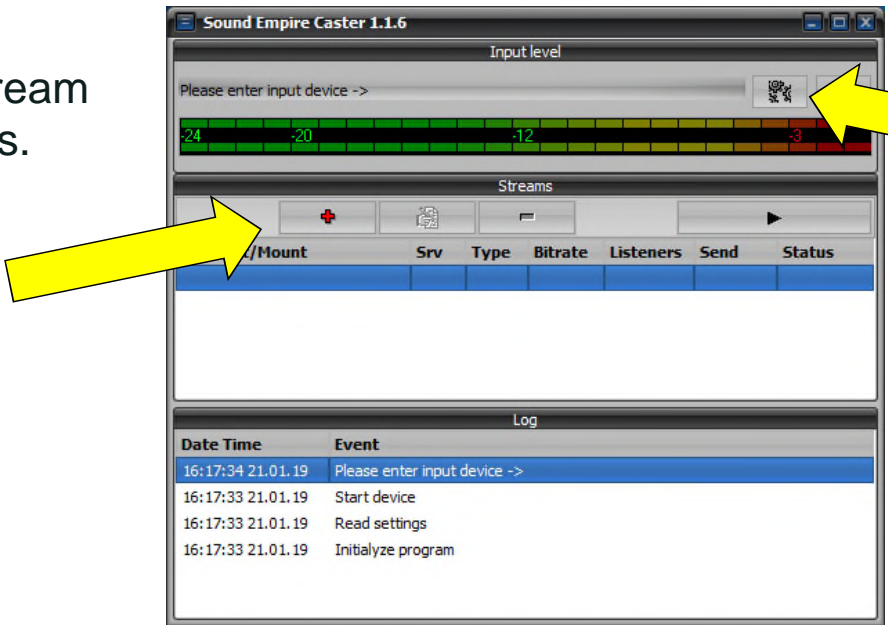
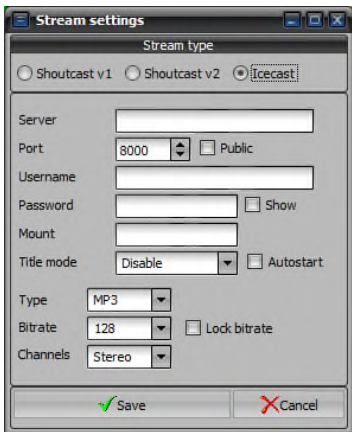





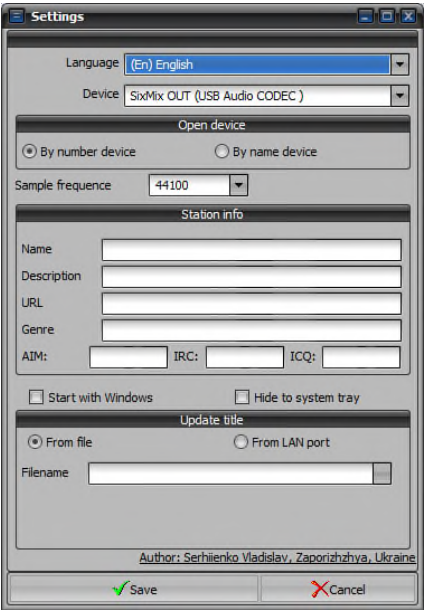
# Setup SECaster as your encoder

8. Once open, you can set up your audio input and encoder.

Click the **+** to setup stream encoder parameters.




Click the  to setup audio input & encoder parameters.



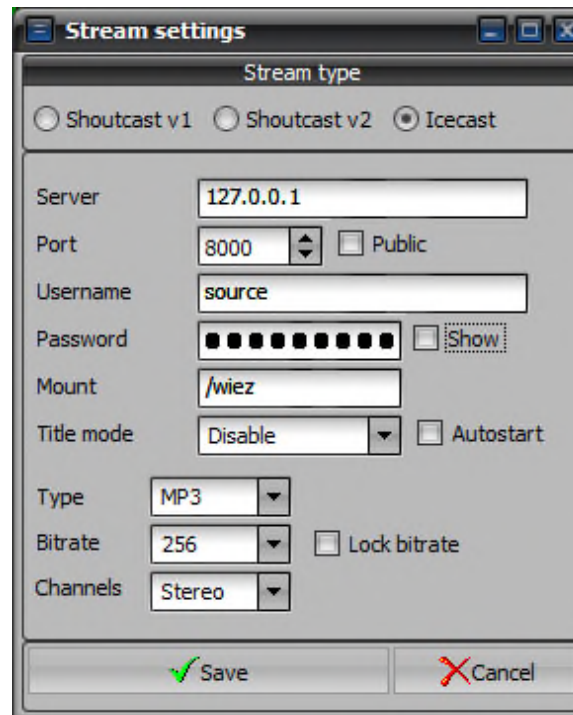
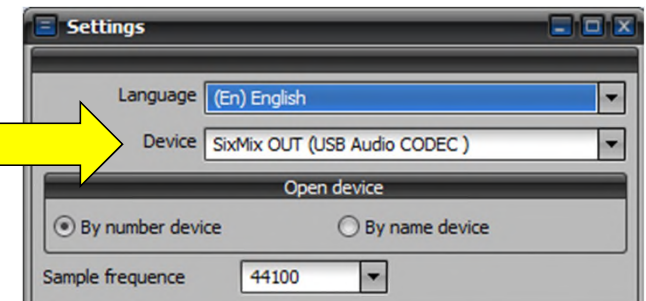
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# Setup SECaster as your encoder

10. In  Audio setup, select Your audio input device.

11. In  the Stream settings, specify your server address and port number.

If server & encoder are on the same PC, server is **127.0.0.1**  
SECaster default port is **8000**.  
Username & password were what you specified in the XML file.

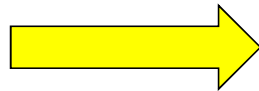


Mount is CRITICAL for Icecast streams.  
This is the unique identifier for the stream, as multiple streams can use the same port.  
Typically it would be your callsign – formatted as **/wiez**

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# Setup SECaster as your encoder

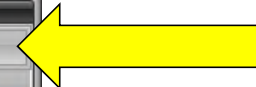
12. Once configured, close out of the settings. Then, on the main page, you'll see the stream you configured.




URL:Port/Mount	Srv	Type	Bitrate	Listeners	Send	Status
127.0.0.1:8000/wiez	Ice	MP3	256	0 (1)	13.61 MB	Online

Date Time	Event
16:52:52 21.01.19	Stream start successfully
16:52:51 21.01.19	Manual stop
16:15:59 21.01.19	Stream start successfully
16:15:25 21.01.19	Error 2. Can't open the stream
15:25:37 21.01.19	Stream start successfully
15:25:29 21.01.19	Manual stop

Input levels are critical! Stay out of the **RED**!



To begin encoding, click the  Play button

# Setup SECaster as your encoder

12A. If streaming via the internet, you MUST open the appropriate port (8000 typically) on your router. This should correspond to the IP address of your Icecast server machine.

Every router is different. If you're unfamiliar with how to forward a port, consult the manufacturer – or ask your Engineer.

12B. If streaming via a local network, IP radio, VLAN, WAN or other private network, please disregard step 11a.

Port Address Translation

Port Address Translation Table			
<input type="checkbox"/>	Service	Name or IP Address	Status
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	StreamTCP[TCP/8000~8000]	192.168.37.170	Enabled
<input type="checkbox"/>	StreamUDP[UDP/8000~8000]	192.168.37.170	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled
<input type="checkbox"/>	[REDACTED]	[REDACTED]	Enabled



# Configure your Nautel to decode the stream you configured

13. In the AUI, click Menu, then Audio Player

Once, in the Audio Player screen, click the “Streams” tab.

Then, click “Add” at the bottom.

When “Add Audio Stream” appears, choose “Icecast/Shoutcast” as the Type.

Name is the friendly name you’ll reference in the Preset for backup audio.

The URL is the full stream address

A typical Icecast stream address would be



→ <http://XXX.XXX.XXX.XXX:8000/callsign>

# Configure your Nautel to decode the stream you configured

14. In Menu, select Presets, then load your preset.

Select, the Main Audio tab. Then set Audio Backup to Enabled.

Choose Audio Source as Audio Player -> AES 2

Select the name you created for your stream as the Audio Player Source.

You may have to adjust the Digital Level depending on your audio encoding level, preprocessing, Orban card, etc.



The screenshot displays the Nautel web interface for configuring a transmitter. The 'Presets: \* Current Settings' window is open, showing the 'Main Audio' tab. The settings are as follows:

Setting	Value	Unit/Label
Audio Source	MPX	
MPX Level	3.50	Vpp
Audio Backup	Enabled	
Audio Source	Audio Player -> AES 2	
Audio Player Source	MaxxConnect Backup	
Digital Level	0.0	dBFS
Audio Mode	Mono L+R	
15kHz Lowpass	Disabled	
Preemphasis	0us	
Backup Audio Gain Adjust	0.00	dB

The interface also shows transmitter information at the top: Date & Time (Mon Jan 21 2019, 14:15:00), Transmitter (244 W), and Exciter (Internal). The bottom of the interface has buttons for RF On, RF Off, Menu, Status, Logs, Local Remote, Reset, and Log Out.



## as an alternative STL option

- Data is pooled on like plans to create an aggregate data cap which helps avoid overage charges.
- **Commercial class service. Higher QOS and prioritization on the LTE network!**
- **Static IP address** provided with EVERY access point at no extra charge!
- **No contracts**—cancel anytime with 30 days written notice.
- No early termination fees!
- You can buy our hardware, or provide your own!
- We use Cradlepoint MBR, IBR & AER IoT M2M-class routers – no proprietary hardware!
- **No port blocking** or restrictions on what you can do.
- We can open any or all ports on the router to accommodate your needs!
- **VPN capable.** Compatible with Cisco, SonicWall and others!
- We can provide external antennas - omni or directional - to get connectivity even at remote sites!

*Service available on all 3 major carriers.*



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# Using the internal audio player

## Capabilities:

1. Can play MP3 or WAV files
2. Multiple playlists are supported
3. Up to 300 cuts can be accessed on the USB storage
4. Cuts can be uploaded through the AUI

## Limitations:

1. Only 16 bit
2. Sample rates of  $\leq 48\text{kHz}$
3. Bit rates of 384 kbps+
4. No segue
5. If the power is interrupted the playlist starts at the beginning

The screenshot displays the Nautel 50 web interface. At the top, there's a header with the Nautel logo and several status sections: 'Date & Time' (Tue Sep 3 2013, 19:30:38, Scheduler: Off), 'Transmitter (VS)' (0 W, FM, 98.50 MHz, Reflected 0 W, Set Point 25.0 W, Preset: \*Preset 2), and 'Exciter' (Active Exciter Internal, FM Modulation 89.5%). Below this is the 'Playlist Manager' section with tabs for 'Playlists' and 'Streams'. The 'Playlists' tab is active, showing a table with columns 'Type', 'name', and 'Path'. The table lists three playlists: 'PRTEST', 'PRLONG', and 'PROCLAIM'. To the right of the playlist table is a 'Manage Files' section with a table of 'Available Files on USB'. This table lists various MP3 files such as 'Come\_On\_Nature.mp3', 'I'm\_Gonna\_Be\_(500\_Miles).mp3', 'I'm\_on\_my\_way.mp3', 'It's\_Saturday\_Night.mp3', 'My\_old\_friend\_the\_blues.mp3', 'ATC\_Hour\_1\_Tuesday.mp3', 'ATC\_Hour\_2\_Tuesday.mp3', 'DAY\_TO\_DAY\_Tuesday.mp3', 'Detroit's\_Nicest\_Rock.mp3', 'Oh\_Jean.mp3', 'Sean.mp3', and 'Sunshine\_on\_Leith.mp3'. At the bottom of the interface, there's a navigation bar with buttons for 'RF On', 'RF Off', 'Menu', 'Status', 'Logs', 'Local Remote', 'Reset', and 'Log Out'. The 'Status' button is highlighted in red.

Type	name	#	Path
Playlist	PRTEST	2	Detroit's_Nicest_Rock.mp3
Playlist	PRLONG	3	ATC%2C_Hour_1_Tuesday.mp3
Playlist	PROCLAIM	4	UPN_Promo.mp3
		5	ATC%2C_Hour_2_Tuesday.mp3
		6	Star_100.7_Music_promo.mp3
		7	DAY_TO_DAY_Tuesday.mp3
		8	OLDIES_94.9_%233.mp3

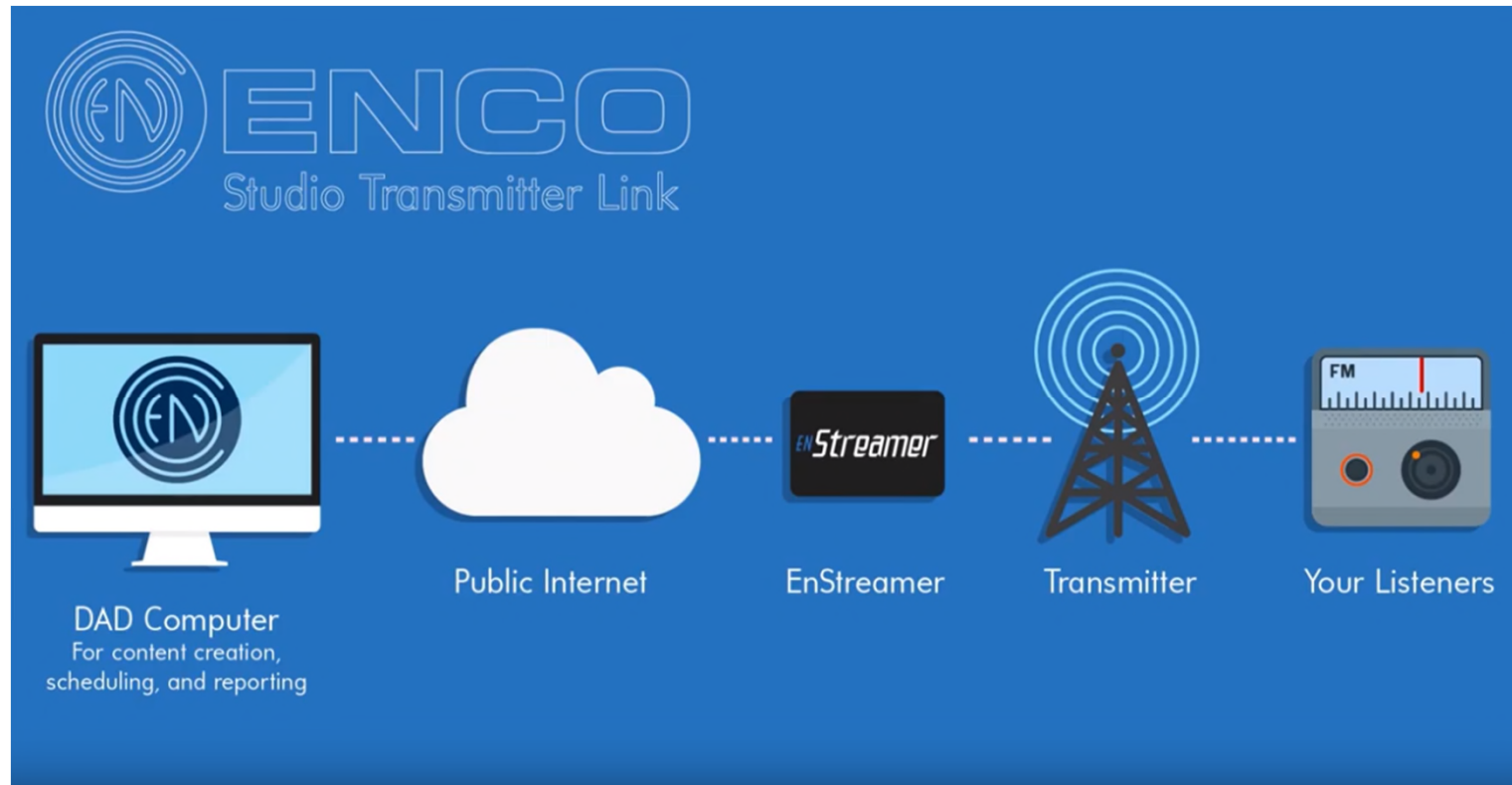
Path
Come_On_Nature.mp3
I'm_Gonna_Be_(500_Miles).mp3
I'm_on_my_way.mp3
It's_Saturday_Night.mp3
My_old_friend_the_blues.mp3
ATC_Hour_1_Tuesday.mp3
ATC_Hour_2_Tuesday.mp3
DAY_TO_DAY_Tuesday.mp3
Detroit's_Nicest_Rock.mp3
Oh_Jean.mp3
Sean.mp3
Sunshine_on_Leith.mp3

# ENCO EnStreamer



- EnStreamer is a dedicated hardware solution for broadcast, studio transmitter links, in-store radio and digital signage applications
- EnStreamer can decode a continuous stream of audio or receive audio and video files with playlists and store them locally for automated playout
- Interfaces with the ENCO DAD Automation
- Changes made via the Studio ENCO are be pushed automatically to the EnStreamer unit

# ENCO EnStreamer



# ENCO EnStreamer

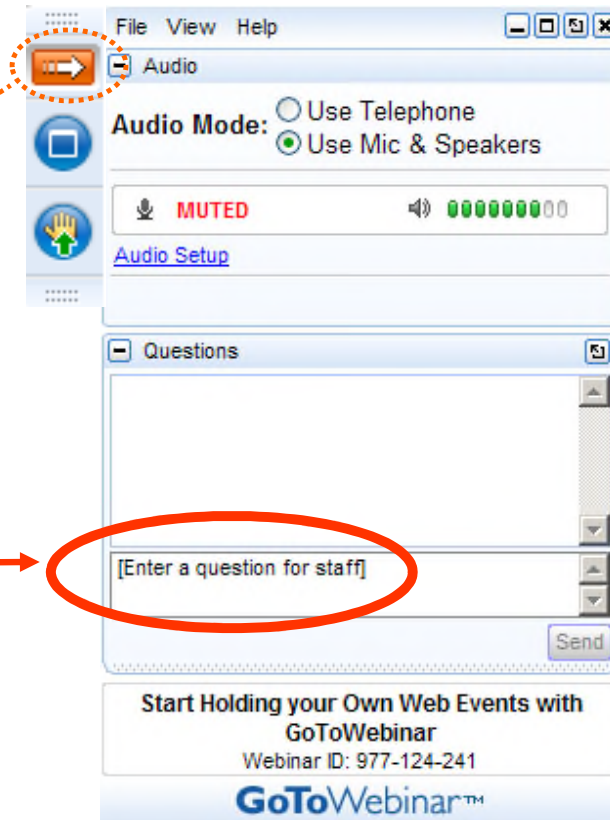


- Transmitter can change audio source on an alarm condition to have EnStreamer take over automatically
- Supports Segues and Timed Events
- Built in 64 Gig CF drive
- Support for USB based audio devices
- Can still playout from stored audio even if Internet is lost
- For more information visit: [www.ENCO.com](http://www.ENCO.com)

# Questions?

Click on  to  
open/close webinar panel

Enter questions here  
...then press **Send**



# For additional information:

Nautel Support <http://support.nautel.com/>

Chuck Kelly [ckelly@nautel.com](mailto:ckelly@nautel.com)

Brochures <https://www.nautel.com/brochures/>

Spec Sheets <https://www.nautel.com/spec-sheets/>

Tech Manuals (Need NUG Login) <http://support.nautel.com/technical-documentation/>

Nautel Webinars <https://www.nautel.com/resources/webinars/>

## ***Thank you!***



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