Manual Emergency Tuning of PRSS® ContentDepot® Streaming Decoders

The PRSS ContentDepot is designed to tune live streaming decoders (SR2000pro, manufactured by International Datacasting Corporation) at stations with commands sent from the Network Operations Center (NOC). In an emergency, a station operator may need to take local control of a streaming decoder. The ContentDepot streaming decoders provide the capability of being tuned locally through the device’s web interface, front control panel, and asynchronous serial data port.

This document explains how to set up your streaming decoder to support emergency operations and enable local stream selection.

A Few Words of Caution

The instructions below give you the ability to “disconnect” a decoder from the PRSS network by telling it to ignore commands from the Network Control Channel (NCC). Once the NCC is disabled by a station operator, the streaming decoder ports can be manually tuned to other multicast streams based on program/“channel” information PRSS will publish and the decoder’s internal Channel Guide. Please note the following cautions:

1. Once manually tuned, a streaming decoder will not respond to either manual or automatic commands from the NOC. It will ignore the automatic process that sends commands throughout a program, and the decoder *will not* accept subsequent tune/detune commands for other programs.
2. This state cannot be reversed by the NOC. A streaming decoder must be configured locally to reacquire the network addressing and tuning information before automatic tuning operations are restored.
3. Disabling the NCC affects BOTH ports of a streaming decoder. It is not possible to disconnect one port independently of the other. You cannot manually “tune” port 1 and port 2 of the same device to the same multicast address (program). Although the streaming decoder interface may report that both ports are tuned alike, only the first tuning will apply.
4. The NCC is used by PRSS to distribute new firmware upgrades to the streaming decoders. Decoders for which the NCC has been disabled will not receive these upgrades.
5. The NCC is also used to command a decoder to move to a backup frequency in an emergency or to accommodate a planned change of carrier. If an emergency requires the PRSS to make transponder changes or move carrier signals, manually tuned streaming decoders will not make this adjustment automatically. New parameters will need to be locally entered to find the new carrier(s).

Even though your decoder will not be controlled by the ContentDepot, PRSS recommends that your station still subscribe via the ContentDepot to any programming you take. This ensures that your station will receive important program messages and rundowns, and gives the program producer a way to track program usage.
Because the streaming decoders have two carriers programmed to each unit, the NCC on the alternate carrier should also be disabled. Both channels are set to the same center frequency and symbol rate because there is currently only one ContentDepot stream carrier at this time. This configuration also provides a much faster re-synchronization time if the decoder loses lock due to impulse noise. When decoders re-synchronize, some decoders will come up on Carrier A and some on Carrier B. Since the carriers are identical, it will not be apparent which carrier a decoder has locked onto unless you look at the carrier page in the device’s web interface (see procedures below).

Please note that the instructions below are intended for emergency operations and remove decoders completely from the network. Alternatively, we are working on procedures to enable locally “fixed tuned” streaming decoders. For this option, a headend configuration change can be made by PRSS staff to enable a specific decoder to remain in the ContentDepot databases so it will continue to receive all firmware updates and carrier changes via the NCC. Only the tuning control feature of a fixed tune streaming decoder would be disabled. Instructions for this option will be available soon on the PRSS ContentDepot BaseCamp site. We do not recommend using the emergency tuning procedures below to permanently tune decoders to full-time services.

Instructions to Tune Streaming Decoders Locally

The ContentDepot streaming system is based on the Digital Video Broadcasting (DVB) standards suite. All content transmitted via the system is associated with a DVB PID (Packet Identifier). This applies to audio streams, metadata, cueing, or control commands from the ContentDepot portal. Each audio stream has its own DVB PID. A separate PID exists for control commands from the ContentDepot NOC to your decoders.

Under normal operation, a streaming decoder responds to commands from the NOC to start decoding a particular stream, based on the multicast IP address and the UDP port number of that stream. Each PID carries one stream (program “channel”). An additional PID, called the NCC (Network Control Channel) PID, carries all commands from the ContentDepot headend to your decoders. The NCC PID carries information about the RF tuning, general configuration, PID structure, and particular stream to decode for each streaming decoder in the system. This information is continuously transmitted in a rotation called the broadcast wheel. Any changes to the settings on your decoder that you make from its front panel automatically revert back to the “proper” settings within a few minutes due to this broadcast wheel.

To override the broadcast wheel settings to tune your decoder to a particular stream (e.g., breaking news), you must make the streaming decoder stop listening to the commands in the NCC PID.

The easiest way to tune a streaming decoder locally is by using the Channel Mode feature.

To turn off the NCC PID and tune the streaming decoder locally, use the web-based interface that is available on the Ethernet port on the rear panel on the device. Connect a computer to the Ethernet port and set the IP address of the computer to the same subnet as the address of the port. Open a web browser and point it to the IP address of the port.
Setting Your Streaming Decoder to the Channel Mode:

1. Disable the NCC PID through the web interface: (Note: Make sure you do these steps first.)

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LOG IN (user name: admin - password: 12345)</td>
</tr>
</tbody>
</table>
From the top line menu, Choose DVB CARRIER

Select CARRIER DEFINITION puddle

Two sets of carrier parameters are shown on the screen. In the ContentDepot, both parameters are currently the same, because we have only one streaming
carrier. One carrier title line will be green; the second will be black. The one that is green is the active one in your decoder. It does not matter which carrier parameter is active in your decoder, but only changes to the active one will affect what your decoder receives.
2. Edit the active carrier via the menu button

<table>
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</table>
| 4    | Select the active carrier (indicated in green) edit button labeled EDIT CARRIER A or EDIT CARRIER B  
 Highlight the NCC PID number **4151**  
 Change the number to **4150** (Currently reserved for this purpose). |

<table>
<thead>
<tr>
<th>Carriers</th>
<th>Description</th>
<th>Frequency</th>
<th>Symbol Rate</th>
<th>Viterbi Rate</th>
<th>NCC PID</th>
<th>Modulation Type</th>
<th>Enable 22kHz Tone</th>
<th>Polarization</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>RSS Audio Subsystem</td>
<td>1391.700000 MHz</td>
<td>1250.000 kHz</td>
<td>3/4</td>
<td>4150</td>
<td>QPSK</td>
<td>Disabled</td>
<td>Horizontal</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

To determine if this receiver is supplying voltage to the LNB to select polarization, click on the DVB Carrier text near the top of the page, and then click on the LNB Attributes icon.
Select SEND CHANGES
Check that the NCC PID # has changed to **4150**

If you intend to operate in the local mode for any length of time, you need to protect against the possibility that your decoder may switch to the other set of carrier parameters. Use the proper COPY button to copy the settings for the carrier you have changed into the other set of carrier parameters. If your decoder loses RF lock, you cannot predict which set of parameters will lock up first, so you are now covered either way.
From the top line menu, select METRICS
At the metrics page, select SHOW PID METRICS

In the list of active PIDs, 4151 should be gone replaced by 4150
The control light (on the front panel) should stop flashing
You are still tuned to the last event

3. Enabling the Channel Mode (PID 4153)

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>From the menu choose DATA DELIVERY</td>
</tr>
</tbody>
</table>
Select the PIDS and PORTS puddle
Select ADD PID Type 4153
Choose ENABLE
For PID type, select NET PORT

Write in a description if you wish (e.g. Channel Mode)
Select SEND CHANGES
4. Tuning in the Channel Mode

**Step 14**  
Select CHANNEL GUIDE from the top line menu. (The channel choices will display.)
Step 15
Select the Channel # button that is currently assigned to the decoder port that you want to tune.

Step 16
Change that channel’s state to disabled.
Select the CHANNEL # button you want to tune to and change the state from DISABLED to the decoder audio port (AUDIO STREAM 1 or 2) that is desired.
SEND CHANGES (you should now be “tuned” to the channel of your choice. This will not change until you select another channel or re-enable the NCC PID (4151))

If you stay in the channel mode, you will only need to repeat the “Tuning in the Channel Mode” instructions to change tuning.

5. Returning to Network Control

To manually return the streaming decoder to ContentDepot control, re-activate the control PID (4151). It’s a good idea to do this regularly for at least a 24 hour period to make that you get the latest firmware upgrades.