

**NAME**

L3Mux - DVB-S2(X) L3 Multiplexer

**SYNOPSIS**

L3Mux **-f** numframes **-o** outfile configfile

**DESCRIPTION**

L3Mux is a tool to multiplex one or more transport-stream files into a single file with BB-Frames with a small extra L3 header. This L3 format can be modulated by a DekTec modulator card. The purpose of this tool is to create test files to test VCM and ACM configurations that are not possible using the default DVB-S2(X) modulation options. The resulting L3 files can be played using the DekTec StreamXpress player or using a custom application via the DekTec DTAPI.

**OPTIONS**

The following options are supported:

**-f** numframes    The number of frames to generate.

**-o** outfile       Sets the output filename.

Configfile       The name of the xml configuration file. The contents of this file are described in the section CONFIGURATION.

**CONFIGURATION**

The complete syntax of the configuration file is described by the scheme file L3Mux.xsd.

The root element must be "L3Mux". There are 4 valid child elements. Each of those has a "val" attribute and they must occur in this order:

1. SymbolRate: The symbolrate at which this stream will be played out.
2. SisMis: Single/multiple input streams, value can be either "sis" or "mis".
3. RollOff: The rolloff factor that will be used to playout this stream. Valid values are "5", "10", "15", "20", "25" and "35".
4. Coding: How the coding of this stream will be announced in the BB-headers. Can be "ccm", "vcm" or "acm".

After these elements there must be one or more "stream" elements. There are no attributes and the following sub-elements can be used

- Source: Required element. There are two required attributes:
  - o Type: can be "ts", "gfps" or "gcs" (both gfps and gcs are future extensions and not supported at this moment).
  - o Rate: The bitrate of the file.

The "Source" element has several sub-elements:

- o Filename: "val" attribute holds the name of the file to be used as input for this stream.
- o PacketSize: Optional element, can be used to indicate the packet size in bits for non-TS streams using the "val" attribute. If specified for TS files it must be 188\*8.
- o SyncByte: Optional element, can be used to indicate the sync byte for non-TS streams using the "val" attribute. The value - 1 indicates that there is no sync byte in the stream at all.
- Npd: Null packet deletion, attribute "val" with values "true" or "false". This element is optional.
- Isi: "val" attribute with integer value in range 0..255. This element is optional.

- Modulation: The modulation element is used to specify the modulation parameters for the stream. There are 4 required and one optional attribute:
  - o Coderate: can be "1/2", "2/3", "3/4", "4/5", "5/6", "6/7", "7/8", "1/4", "1/3", "2/5", "3/5", "8/9", "9/10", "1/5", "1/5", "2/9", "11/45", "4/15", "13/45", "14/45", "9/20", "7/15", "8/15", "11/20", "5/9", "26/45", "28/45", "23/36", "29/45", "31/45", "25/36", "32/45", "13/18", "11/15", "7/9" or "77/90".
  - o Modtype: can be "QPSK", "8PSK", "16APSK", "32APSK", "QPSK-VLSNR", "BPSK-VLSNR", "BPSK-S-VLSNR", "8APSK-L", "16APSK-L", "32APSK-L", "64APSK", "64APSK-L", "128APSK", "256APSK" or "256APSK-L". Only those combinations of coderate and modetype are supported that are listed in the DVB-S2(X) specification.
  - o Pilots: can be "true" or "false" to enable or disable pilots.
  - o Fecframe\_size: can be "SHORT", "MEDIUM" or "LONG".
  - o Num\_frames: Optional attribute. You can use this to generate L3 files with ACM streams. If you use num\_frames you can have multiple modulation elements. The parameters specified in the first one will be used for "num\_frames" number of frames, then the parameters will be switched to the second "modulation" element etc. As soon as the parameters from the modulation element are used L3Mux will start over with the first one.

**EXAMPLE CCM CONFIGURATION**

```

<L3Mux>
  <SymbolRate val="27500000"/>
  <SisMis val="sis"/>
  <Rolloff val="35"/>
  <Coding val="ccm"/>
  <Stream>
    <Source type="ts" rate="48016344">
      <Filename val="Inputfile.ts"/>
    </Source>
    <Modulation coderate="9/10" modtype="QPSK" pilots="true"
      fecframe_size="LONG"/>
  </Stream>
</L3Mux>

```

**EXAMPLE ACM CONFIGURATION**

```

<L3Mux>
  <SymbolRate val="27500000"/>
  <SisMis val="mis"/>
  <Rolloff val="25"/>
  <Coding val="acm"/>

  <Stream>
    <Source type="ts" rate="19000000">
      <Filename val="Inputfile.ts"/>
    </Source>
    <Npd val="true"/>
    <Isi val="1"/>
    <Modulation coderate="9/10" modtype="QPSK" pilots="false"
      fecframe_size="LONG" num_frames="100"/>
    <Modulation coderate="5/6" modtype="QPSK" pilots="true"
      fecframe_size="SHORT" num_frames="200"/>
  </Stream>

  <Stream>

```

```
<Source type="gfps" rate="500000">
  <Filename val="input2.bin"/>
  <PacketSize val="123"/>
  <SyncByte val="-1"/>
</Source>
<Isi val="2"/>
<Modulation coderate="1/4" modtype="8PSK" pilots="true"
  fecframe_size="LONG"/>
</Stream>
</L3Mux>
```