

# Net-X-Convert

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## User Guide



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A “Combined Work” is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the “Linked Version”.

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523 The Queensway, Suite 201  
Toronto, ON, M8V 1J7  
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## 2 Introduction

This manual is for Net-X-Convert version 7 software from Drastic Technologies, Ltd.

### 2.1 Conventions

This manual assumes the following:

That the user knows how to operate a mouse and keyboard and perform the basic functions of Microsoft Windows, macOS, or Linux operating system.

That the user is familiar with the video editing software in use.

That the user has access to technicians capable of placing the device on the network and setting up any SAN systems if necessary.

The name of a control or display present on the interface will be displayed in **bold** text.

Where a portion of the manual is referred to the name of section mentioned will be displayed in *italics*.

Certain images in this document may have been grayed out where it is useful or necessary to place indicator marks to show specific controls or displays above a darker background.

## 2.2 About Net-X-Convert Software

**Net-X-Convert** is a conversion software that can be run alone or as part of a distributed conversion system. There are two levels of Net-X-Convert:

1. Net-X-Proxy which allows all input types to be converted to MP4, fMP4, HLS or MP3
2. Net-X-Convert which adds broadcast outputs like MXF, MOV, AVI, DPX, DNG, etc.

The standalone version is normally called by command line.

Net-X-Convert is also included in our Net-X-Code Server software, which uses one or more Net-X-Base server instances to create groups of conversion servers. The various converts auto-detect and join user-defined enterprise groups on one or more servers within a network. Once connected, the controller/user can configure the system in real time via the HTTP/RESTful interface.

For the latest Net-X-Convert and Net-X-Proxy information, please see:

[www.net-x-convert.com](http://www.net-x-convert.com)

For the latest Net-X-Code Server information, please see:

[www.net-x-code.com](http://www.net-x-code.com)

## 2.3 System Requirements

### 2.3.1 Recommended Environment

Net-X-Convert software must be installed on a system at least as powerful as the configurations listed below.

#### **Minimum Hardware Platform**

Post 2000 multi core processor capable of running the host application.

#### **Recommended Hardware Platform**

Recommend hardware from the host application vendor. Multi cores and OpenCL, Cuda and shader GPUs will be used if available, but are not absolutely required.

Demo downloads of Net-X-Convert software are available for the user to test their application and to confirm their workflow. Faster and more powerful hardware will provide better performance. In some cases, specific hardware will be required in order to enable resource-intensive, advanced or optional features.

## 3 Theory of Operation

Net-X-Convert standalone software is a command line conversion system. Net-X-Convert as a component of Net-X-Code Server software is a comprehensive solution for ingest, transcoding, and delivery of media assets.

Net-X-Convert can be run on one or more servers and be controlled from one, central interface. This section of the manual will give an overview of how the various parts of Net-X-Convert interact to make it easier to design deployments and implement controllers using the API described in the next section.

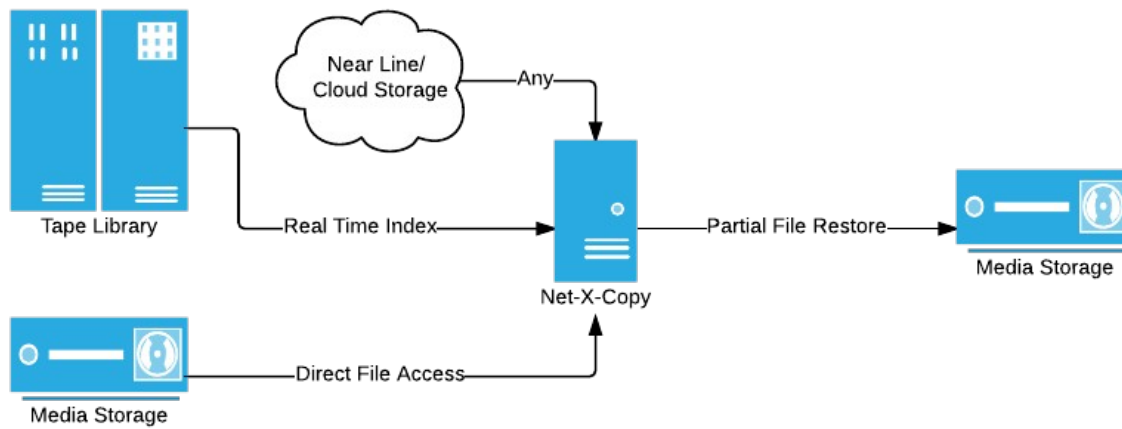
Net-X-Convert is made up of a number of servers, programs, and plugins:

**Net-X-Copy/Convert/Proxy:** file conversion, partial file restore, MP4 HLS DASH and MP3 proxy generation.

**Net-X-Player:** provides an HTML5 based web player that can play time coded, frame accurate MP4 files, including playback while they are still recording. Net-X-Player can also generate clipping commands to use on live, or recorded streams.

## 3.1 Typical Application

### Net-X-Convert Partial File Restore, Conversion and Proxy





## 4 Windows x64 Installation – Quick Start

Net-X-Convert should be installed on Microsoft Windows Server 2008 R2 64 Bit but also can be installed on Windows 7 x64 or 10 x64. You will also need to install a UwAmp server to host the web pages. This document will list the basic setup of Net-X-Convert in Windows.

### 4.1 Install OS and Net-X-Convert

- Install Windows 64 bit OS.
- Download and install UwAmp
  - <http://www.uwamp.com/en/?page=download>
  - Open the UwAmp application. This will automatically start up the server.
  - Navigate to localhost in a browser and confirm that the Apache server is running.
- Download and unpack Net-X-Convert/Proxy
  - <https://www.drastic.tv/thank-you-page/downloading-netxconvert>
  - <https://www.drastic.tv/thank-you-page/downloading-netxproxy>
  - This will install the Net-X-Convert servers to: C:\Program Files\Net-X-Convert\_7
  - It will also install the web pages into UwAmp: C:\UwAmp\www\
- Download NetXCodeDemoMedia.zip
  - (please send a request to [sales@drastictech.com](mailto:sales@drastictech.com))
  - Unzip it to C:\UwAmp\www\
  - (see next page for more information on this zip)
- License: You must get at least a trial license for Net-X-Convert/Proxy to function. Run 'License Net-X-Code', fill in the user and email, generate the code and email it to [authorization@drastictech.com](mailto:authorization@drastictech.com) with a request for temporary license for Net-X-Convert to test with. There is more information on licensing available here:  
  
<http://license.drastictech.com>
- If you are using RTP/UDP streams over 10 mbs, you should modify Windows buffers for higher multicast buffer sizes. In 'HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\AFD\Parameters' change or add the DWORDs 'DefaultReceiveWindow = 6679200' and 'DefaultSendWindow = 6679200'.
- Restart the system.

## 5 Operations Guide

This section describes how to use Net-X-Convert.

### 5.1 Theory of Operation

**Net-X-Convert** is a distributed capture, stream, restore, and conversion system. It can be run on one or more servers, and still be controlled from one, central interface. This section of the manual will give an overview of how the various parts of Net-X-Convert interact to make it easier to design deployments and implement controllers using the API described in the next section.

Net-X-Convert is made up of a number of servers and programs:

**Net-X-Copy** – this program is called to index (RTIN), clip, restore, re-wrap and convert files on disc, tape, cloud or other sources to local or network storage.

**Net-X-Player** – is an HTML5 web video based player that allows frame accurate time code playback of proxy assets and can be used to send clipping commands for the proxy or original video files.

### 5.2 Installing Net-X-Convert

Installing Net-X-Convert in Windows

GUI: Double click on the installer

Cmd: `installer.exe --mode silent`

Installing Net-X-Convert/Net-X-Proxy macOS:

GUI: Double click on the installer

## 5.3 Net-X-Copy Command Line

NetXCopy -s <sourcefile> -t <targetfile> [-a <ackfile>] -p <profile> [-in <00:01:00:00> -out <00:02:00:00> -fg]

-s <sourcefile> The source file name and path

-t <targetfile> The target file name and path

-a <ackfile> The ACK file name and path. This is the XML acknowledgment file made after a copy

-p <profile> One of the following profile settings

- copy – copy the whole file
- wrap – re wrap file or part of a file
- index – create an RTIndex for a file
- mp3-128kbps - Audio only MPEG Layer 3 audio
- mov-YCbCr8Bit – QuickTime MOV 8 bit uncompressed YCbCr file
- mov-dvcprohd - QuickTime MOV DVHD 100
- mp4-h264 - MP4 with h264, original size
- mxf-xdcam-720p - MXF Sony XDCam 720p
- mxf-dvcprohd-720p - MXF DVHD 720p
- mxf-xdcam-1080i - MXF Sony XDCam 1080i
- mxf-dvcprohd-1080i - MXF DVHD 1080i
- mxf-OP1a-MPEG - MXF OP1a MPEG (XDCam like, 16 audio channels)
- mxf-op1a-h264 - MXF h.264
- mxf-OP1a-HDF - MXF MPEG HDF
- mxf-as-11-sd-dpp - MXF DPP SD IMX
- mxf-as-11-hd-dpp - MXF DPP HD AVCi
- mov-proreshq - QuickTime MOV ProRes HQ
- mov-prores422 - QuickTime MOV ProRes 422
- mxf-as-11-sd-pal-dpp - MXF AS-11 SD PAL DPP
- mxf-as-11-sd-ntsc-dpp - MXF AS-11 SD NTSC DPP
- scaledown2000k - MP4 264 960x540, 2mbs
- scaledown500k - MP4 264 480x272, 0.5mbs
- hd1080-5000kbs - MP4 - HD 1080 with a target bitrate of 5 mbs
- hd720-2500kbs - MP4 - HD 720p with a target bitrate of 2.5 mbs
- hd360-1250kbs - MP4 - HD 360p with a target bitrate of 1.25 mbs
- h264-7500kbs - MP4 - Any resolution with a target bitrate of 7.5 mbs
- Proxy-h264-5000kbs - MP4 high quality proxy for web
- LBR-h264-10000kbs - Low bit rate, high quality local MP4
- mxf-OP1a-JPEG2K - Samma style JPEG2000 YCbCr
- mxf-AS-02-h264-10 - 10 bit 50 Mbs h.264 in AS-02 MXF
- DASH-MP4-Multibitrate - Multi bitrate MP4s with DASH files
- HLS-TS-Multibitrate - Multi bitrate TS streams with M3U8 files

- TS-TR-01-JPEG-2000 - TR-01 JPEG-2000 transport stream
- mxf-OP1a\_HBR\_50 - MXF OP1a h264 4:2:2 10 bit
- OP1a\_HBR\_50 - OP1a MXF h264 4:2:2 10 bit
- mp4-XAVC-S\_4\_2\_0 - MP4 Sony XAVC-S 4:2:0
- mp4-XAVC-S\_4\_2\_2 - MP4 Sony XAVC-S 4:2:2

-type mxf-op1a -- the exact file type to write, otherwise auto

- mxf-op1a – standard OP1a
- mxf-sonyhd – Sony XDCam compatible
- mxf-as02 – AS-02 spec MXF
- mp4-fmp4 – Fragmented MP4 (normal MP4 if not set)

-in <00:01:00:00> the starting point for the output file in time code or absolute position

-out <00:02:00:00> the ending point for the output file in time code or absolute position

-absin <200> the absolute (zero based) start time for the output file (overrides -in)

-absout <400> the absolute (zero based) end time, exclusive, for the output file (overrides -out)

-tcoffset <100> an offset to apply to all time code operations

-tc <100> time code

-width <width> the width of the video output, overrides when not fixed by codec

-height <height> the height of the video output, overrides when not fixed by codec

-copy make a copy of the file section we need, instead of reading directly

-dest folder or folder and file name for the temp file when using copy

-cc <mcc/scc file> -- replacement closed caption file>

-afile <path-audio-file> -- replacement source audio track<s>

-v <path-video-file> -- replacement source video track

-stereo - Mix all the audio channels into a single stereo pair

-aroute <7812345> - Route each channel from an incoming channel (default 12345678)

-uuid <uuid string> - override the UUID of the file with this one

-kilobitrate <kbit rate> - override the kilo bit rate

-h26xprofile <baseline/main/high/high10/high422/high444> override the profile type

-h26xlevel <51> override the level

-encodemode <0/1> 0 normal, 1 fastest

-gopsize <15> size of encoded gop

-tempfolder – Temporary folder to store partial file

-fg force the GUI on

-fc force command line

For JPEG picons

-pisrc <file-to-picon> -- source for the picon

-pidst <where-to-make-picon> -- target folder and name

-pisize <size> -- size of picon, 100%-10%

-width <width> the width of the picon output, overrides piSize

-piframe <frame-offset-into-file> -- frame to use to make the picon

-piskip <Number of frames to skip between picons> If set, a series of picons will be produced at 'skip' intervals

NOTE: the parameters in [square brackets] are optional.

## 5.4 Net-X-Copy - Metadata Extraction

Net-X-Copy supports our standard range of proxy and broadcast file formats for extracting metadata to XMP XML.

### 5.4.1 Metadata Extraction Command Line

```
NetXCopy -m -s <sourcefile.r3d>
```

### 5.4.2 Metadata Extraction To A File

```
NetXCopy -m -s <sourcefile.r3d> -t <metadataout.xmp>
```

## 5.5 Command Line Parameters

```
netxcopy -m -s "M:\t3media\Streams\R3D - Red\Raven 4K\scarletw-standard-5k-24fps\
A106_C037_0118G5_001.R3D"
<x:xmpmeta xmlns:x="adobe:ns:meta/" x:xmptk="XMP Core 5.1.2">
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#">
  <rdf:Description rdf:about="" xmlns:aux="http://ns.adobe.com/exif/1.0/aux/">
    <aux:SerialNumber>130-246-CE5</aux:SerialNumber>
  </rdf:Description>
  <rdf:Description rdf:about="" xmlns:tiff="http://ns.adobe.com/tiff/1.0/">
    <tiff:Model>SCARLET-W</tiff:Model>
  </rdf:Description>
  <rdf:Description rdf:about="" xmlns:xmpMM="http://ns.adobe.com/xap/1.0/mm/">
    <xmpMM:DocumentID>{0ACB8429-67BB-46F6-8555-CFFCE5F0777B}</xmpMM:DocumentID>
    <xmpMM:VersionID>6.1.0.225</xmpMM:VersionID>
  </rdf:Description>
  <rdf:Description rdf:about=""
xmlns:xmpDM="http://ns.adobe.com/xmp/1.0/DynamicMedia/" xmlns:stDim="http://ns.adobe.com/
xap/1.0/sType/Dimensions#">
    <xmpDM:audioSampleRate>48000</xmpDM:audioSampleRate>
    <xmpDM:duration rdf:parseType="Resource">
      <xmpDM:value>872</xmpDM:value>
```

```

    <xmpDM:scale>1001/24000</xmpDM:scale>
  </xmpDM:duration>
  <xmpDM:videoFrameSize rdf:parseType="Resource">
    <stDim:unit>pixel</stDim:unit>
    <stDim:w>5120</stDim:w>
    <stDim:h>2560</stDim:h>
  </xmpDM:videoFrameSize>
  <xmpDM:startTimecode rdf:parseType="Resource">
    <xmpDM:timeFormat>23976Timecode</xmpDM:timeFormat>
    <xmpDM:timeValue>12:01:17:17 </xmpDM:timeValue>
  </xmpDM:startTimecode>
  <xmpDM:altTimecode rdf:parseType="Resource">
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    <xmpDM:timeValue>12:01:17:17 </xmpDM:timeValue>
  </xmpDM:altTimecode>
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  <xmpDM:audioSampleType>16Int</xmpDM:audioSampleType>
</rdf:Description>
<rdf:Description rdf:about="" xmlns:dt="http://www.drastictech.com/metadata/elements">
  <dt:File rdf:parseType="Resource">
    <dt:track>
      <rdf:Bag>
        <rdf:li rdf:parseType="Resource">
          <rdf:value/>
          <dt:type>General</dt:type>
          <dt:CompleteName>M:\t3media\Streams\R3D - Red\Raven 4K\scarletw-standard-5k-24fps\
A106_C037_0118G5_001.R3D</dt:CompleteName>
          <dt:Format>Red R3D</dt:Format>
        </rdf:li>
        <rdf:li rdf:parseType="Resource">
          <rdf:value/>
          <dt:type>Video</dt:type>
          <dt:Format>BI RGB</dt:Format>
          <dt:Display_aspect_ratio>16:9</dt:Display_aspect_ratio>
          <dt:Frame_rate>23.976 (24000/1001) FPS</dt:Frame_rate>
          <dt:Width>5 120 pixels</dt:Width>
          <dt:Height>2 560 pixels</dt:Height>
        </rdf:li>
      </rdf:Bag>
    </dt:track>
  </dt:File>
  <dt:FileName>M:\t3media\Streams\R3D - Red\Raven 4K\scarletw-standard-5k-24fps\
A106_C037_0118G5_001.R3D</dt:FileName>

```

```

<dt:DeviceSerialNum>130-246-CE5</dt:DeviceSerialNum>
<dt:FullName>A106_C037_0118G5_001</dt:FullName>
<dt:Model>SCARLET-W</dt:Model>
<dt:NativeLocator>M:\t3media\Streams\R3D - Red\Raven 4K\scarletw-standard-5k-24fps\
A106_C037_0118G5_001.R3D</dt:NativeLocator>
<dt:Title>037</dt:Title>
<dt:UniversalLocator>M:\t3media\Streams\R3D - Red\Raven 4K\scarletw-standard-5k-24fps\
A106_C037_0118G5_001.R3D</dt:UniversalLocator>
<dt:VersionString>6.1.0.225</dt:VersionString>
<dt:Planes>1</dt:Planes>
<dt:BitCount>32</dt:BitCount>
<dt:Compression>00000000</dt:Compression>
<dt:CompressionString>BI RGB</dt:CompressionString>
<dt:VideoHandler>00000000</dt:VideoHandler>
<dt:AudioHandler>736F7774</dt:AudioHandler>
<dt:SizeImage>52428800</dt:SizeImage>
<dt:Reserved>32</dt:Reserved>
<dt:Scale>1001</dt:Scale>
<dt:Rate>24000</dt:Rate>
<dt:SuggestedBufferSize>52428800</dt:SuggestedBufferSize>
<dt:SampleSize>0</dt:SampleSize>
<dt:Pitch>20480</dt:Pitch>
<dt:FileType>182</dt:FileType>
<dt:FileTypeString>Red R3D</dt:FileTypeString>
<dt:A-Frame>0</dt:A-Frame>
<dt:AspectRatio>16:9</dt:AspectRatio>
<dt:PosterFrame>0</dt:PosterFrame>
<dt:TimeCode>1866642</dt:TimeCode>
<dt:VITCTimeCode>1866642</dt:VITCTimeCode>
<dt:VersionNumber>60100225</dt:VersionNumber>
<dt:TimeCodeType>1866642</dt:TimeCodeType>
<dt:LTCTimeCodeType>128</dt:LTCTimeCodeType>
<dt:VITCTimeCodeType>128</dt:VITCTimeCodeType>
</rdf:Description>
<rdf:Description rdf:about="" xmlns:dtdev="http://www.drastictech.com/metadata/deviceelements">
<dtdev:DTDeviceMetadataType>RED</dtdev:DTDeviceMetadataType>
<dtdev:anamorphic_mode>0</dtdev:anamorphic_mode>
<dtdev:brightness>0</dtdev:brightness>
<dtdev:camera_acceleration_x>0.094</dtdev:camera_acceleration_x>
<dtdev:camera_acceleration_y>0.094</dtdev:camera_acceleration_y>
<dtdev:camera_acceleration_z>0.956</dtdev:camera_acceleration_z>
<dtdev:camera_firmware_revision>98555</dtdev:camera_firmware_revision>
<dtdev:camera_firmware_version>6.2.34</dtdev:camera_firmware_version>

```



<dtdev:camera\_id>A</dtdev:camera\_id>  
<dtdev:camera\_model>SCARLET-W</dtdev:camera\_model>  
<dtdev:camera\_model\_id>12</dtdev:camera\_model\_id>  
<dtdev:camera\_network\_name>S-WEAPON</dtdev:camera\_network\_name>  
<dtdev:camera\_pin>130-246-CE5</dtdev:camera\_pin>  
<dtdev:camera\_rotation\_x>0</dtdev:camera\_rotation\_x>  
<dtdev:camera\_rotation\_y>-9.003</dtdev:camera\_rotation\_y>  
<dtdev:camera\_rotation\_z>0</dtdev:camera\_rotation\_z>  
<dtdev:clip\_aspect\_ratio>2</dtdev:clip\_aspect\_ratio>  
<dtdev:clip\_aspect\_ratio\_denominator>1</dtdev:clip\_aspect\_ratio\_denominator>  
<dtdev:clip\_aspect\_ratio\_numerator>2</dtdev:clip\_aspect\_ratio\_numerator>  
<dtdev:clip\_default\_color\_version>2</dtdev:clip\_default\_color\_version>  
<dtdev:clip\_id>037</dtdev:clip\_id>  
<dtdev:contrast>0</dtdev:contrast>  
<dtdev:digital\_gain\_blue>1</dtdev:digital\_gain\_blue>  
<dtdev:digital\_gain\_green>1</dtdev:digital\_gain\_green>  
<dtdev:digital\_gain\_red>1</dtdev:digital\_gain\_red>  
<dtdev:dropped\_frame\_count>0</dtdev:dropped\_frame\_count>  
<dtdev:exposure\_compensation>0</dtdev:exposure\_compensation>  
<dtdev:exposure\_time>20833.3</dtdev:exposure\_time>  
<dtdev:flip\_horizontal>0</dtdev:flip\_horizontal>  
<dtdev:flip\_vertical>0</dtdev:flip\_vertical>  
<dtdev:flut\_control>0</dtdev:flut\_control>  
<dtdev:frame\_guide\_enabled>1</dtdev:frame\_guide\_enabled>  
<dtdev:frame\_guide\_height>1</dtdev:frame\_guide\_height>  
<dtdev:frame\_guide\_topleft\_x>0</dtdev:frame\_guide\_topleft\_x>  
<dtdev:frame\_guide\_topleft\_y>0</dtdev:frame\_guide\_topleft\_y>  
<dtdev:frame\_guide\_width>1</dtdev:frame\_guide\_width>  
<dtdev:framerate>23.976</dtdev:framerate>  
<dtdev:framerate\_denominator>1001</dtdev:framerate\_denominator>  
<dtdev:framerate\_numerator>24000</dtdev:framerate\_numerator>  
<dtdev:genlock\_setting>0</dtdev:genlock\_setting>  
<dtdev:gmt\_date>20160118</dtdev:gmt\_date>  
<dtdev:gmt\_time>213555</dtdev:gmt\_time>  
<dtdev:hdr\_mode>0</dtdev:hdr\_mode>  
<dtdev:image\_height>2560</dtdev:image\_height>  
<dtdev:image\_width>5120</dtdev:image\_width>  
<dtdev:iso>1280</dtdev:iso>  
<dtdev:iso\_calibration\_version>1</dtdev:iso\_calibration\_version>  
<dtdev:jamsync\_setting>0</dtdev:jamsync\_setting>  
<dtdev:lens\_aperture>49</dtdev:lens\_aperture>  
<dtdev:lens\_aperture\_units>0</dtdev:lens\_aperture\_units>  
<dtdev:lens\_distance\_units>1</dtdev:lens\_distance\_units>

```

<dtdev:lens_focal_length>24</dtdev:lens_focal_length>
<dtdev:lens_focus_distance>4294967295</dtdev:lens_focus_distance>
<dtdev:lens_mount>Canon</dtdev:lens_mount>
<dtdev:local_date>20160118</dtdev:local_date>
<dtdev:local_time>213555</dtdev:local_time>
<dtdev:media_serial_number>15240FC80DE7</dtdev:media_serial_number>
<dtdev:monitor_sharpness>0</dtdev:monitor_sharpness>
<dtdev:original_filename>A106_C037_0118G5_002.R3D</dtdev:original_filename>
<dtdev:pixel_aspect_ratio>1</dtdev:pixel_aspect_ratio>
<dtdev:record_framerate>23.976</dtdev:record_framerate>
<dtdev:redcode>REDcode 8:1</dtdev:redcode>
<dtdev:reel_id>106</dtdev:reel_id>
<dtdev:reel_id_8_character>A106C037</dtdev:reel_id_8_character>
<dtdev:reel_id_full>A106_C037_0118G5</dtdev:reel_id_full>
<dtdev:resolution_format_name>5K 2:1</dtdev:resolution_format_name>
<dtdev:saturation>1</dtdev:saturation>
<dtdev:sensor_id>9</dtdev:sensor_id>
<dtdev:sensor_name>DRAGON 5K S35</dtdev:sensor_name>
<dtdev:sensor_olpf_interchangeable>1</dtdev:sensor_olpf_interchangeable>
<dtdev:sensor_olpf_name>STANDARD</dtdev:sensor_olpf_name>
<dtdev:shadow>0</dtdev:shadow>
<dtdev:shutter_degrees>180</dtdev:shutter_degrees>
<dtdev:shutter_fractions>48</dtdev:shutter_fractions>
<dtdev:start_absolute_timecode>21:36:16:18</dtdev:start_absolute_timecode>
<dtdev:start_edge_timecode>01:49:54:11</dtdev:start_edge_timecode>
<dtdev:stereo_setup>0</dtdev:stereo_setup>
<dtdev:user_curve_black_x>0</dtdev:user_curve_black_x>
<dtdev:user_curve_black_y>0</dtdev:user_curve_black_y>
<dtdev:user_curve_high_x>0.75</dtdev:user_curve_high_x>
<dtdev:user_curve_high_y>0.75</dtdev:user_curve_high_y>
<dtdev:user_curve_low_x>0.25</dtdev:user_curve_low_x>
<dtdev:user_curve_low_y>0.25</dtdev:user_curve_low_y>
<dtdev:user_curve_mid_x>0.5</dtdev:user_curve_mid_x>
<dtdev:user_curve_mid_y>0.5</dtdev:user_curve_mid_y>
<dtdev:user_curve_white_x>1</dtdev:user_curve_white_x>
<dtdev:user_curve_white_y>1</dtdev:user_curve_white_y>
<dtdev:user_timecode_preference>1</dtdev:user_timecode_preference>
<dtdev:white_balance_kelvin>4800</dtdev:white_balance_kelvin>
<dtdev:white_balance_tint>0</dtdev:white_balance_tint>
</rdf:Description>
</rdf:RDF>
</x:xmpmeta>

```

## 5.6 Configuration

The configuration files/settings are stored in different places for different operating systems:

### 5.6.1 App Specific Configuration

Windows:

Registry

\HKEY\_CURRENT\_USER\Software\Drastic\NetXCopy

### 5.6.2 General Configuration

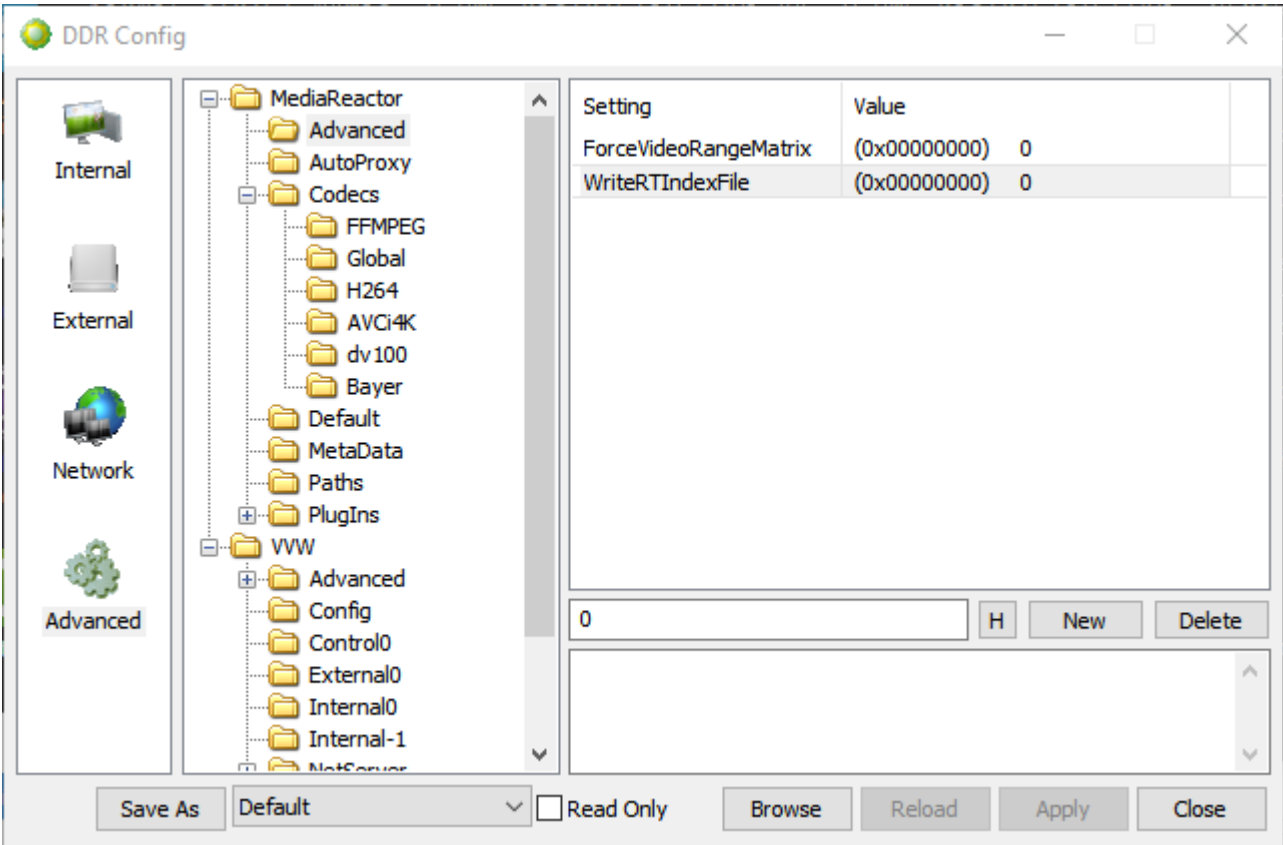
Windows:

C:\ProgramData\Drastic\config.xml

Alt - C:\Documents and Settings\<username>\Drastic\config.xml

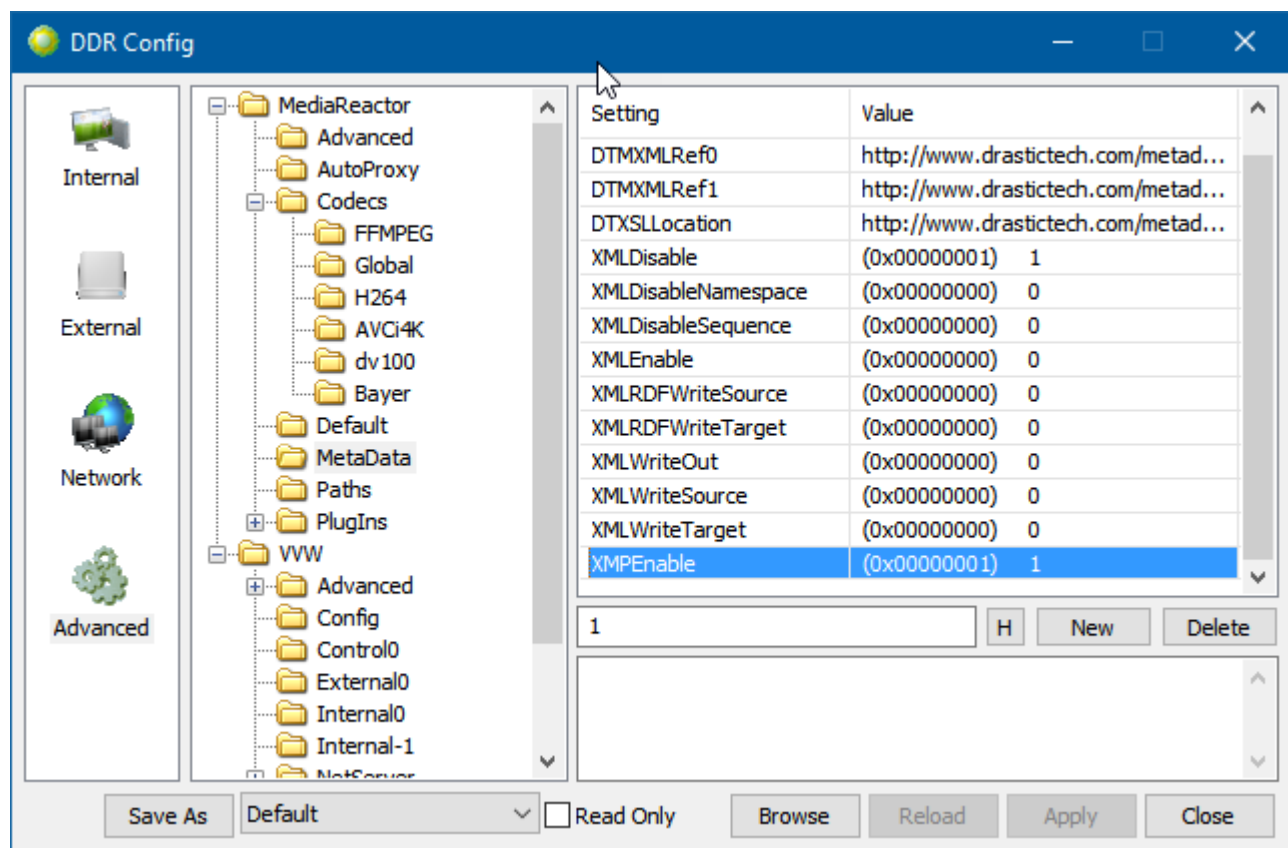
### 5.6.3 Enable/Disable RTIN File Generation

Use **DDRConfig | Advanced** to change \MediaReactor\Advanced WriteRTIndexFile



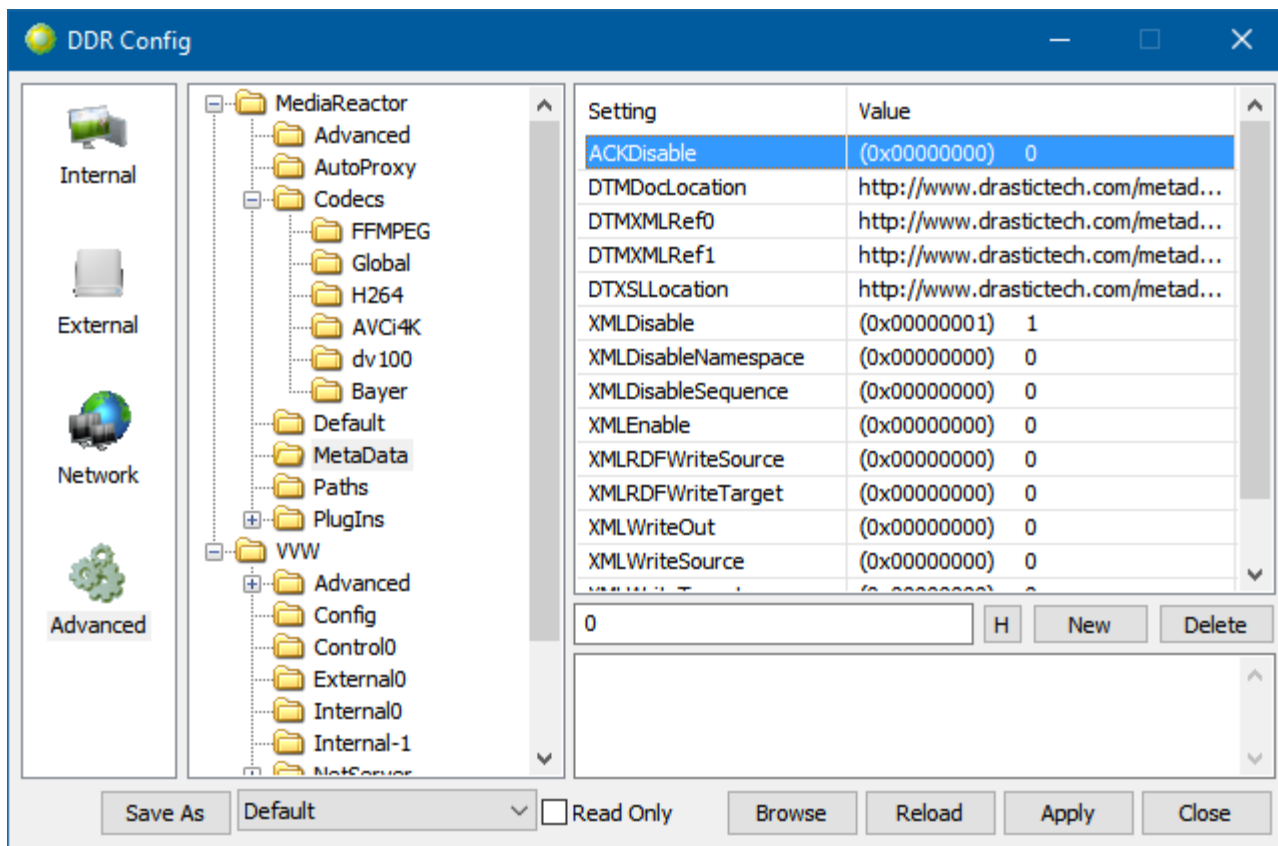
## 5.6.4 Enable/Disable XMP File Generation

Use DDRConfig | Advanced to change \MediaReactor\Advanced XMPEnable



## 5.6.5 Enable/Disable ACK Generation

Use DDRConfig | Advanced to change \MediaReactor\Advanced ACKEnable



## 5.6.6 OAuth 2.0 Configuration

For oauth 2.0 access, the oauth access file should be placed in the same directory as the general configuration (config.xml) file. They should be named with their access identifier (e.g. google cloud would be [www.googleapis.com.oauth](http://www.googleapis.com.oauth)). This file should be security protected so that only the server components can read them. The format of the file is the same as the OAuth 2.0 JSON return:

```
www.googleapis.com.json
{
  "access_token":
  "WRQmiEjibDX3XYrIV4wfKNkg1h70hfnWQZbjYibxdkeyGu4tSbUFIpSBTLsr9ADCy7K_U",
  "token_type": "Bearer",
  "expires_in": 3600,
  "refresh_token": "hpOe0hALfn2RdnS5bSkwr8zL7IACVatZ-A"
}
```

For cloud access, the BASE64 encoded secret and client\_id must also be added to the config.xml at /MediaReactor/oauth2/<name of access point> (e.g. /MediaReactor/oauth2/www.googleapis.com)

For more information, see: <http://www.drastic.tv/support-59/supporttipstechnical/273-cloud-api-oauth-2-net-x-code-pfr>

## 5.7 SysLog Output

There is also an optional syslog output for Windows. Please contact [support@drastictech.com](mailto:support@drastictech.com) for more information.

## 5.8 ACK(R) Files

After capturing or converting files, Net-X-Convert generally creates an ACK or ACKR file that contains information on the file's source, video and audio parameters, length, time code, UUID and other metadata information. Internally, it is an XML file. For more information on its format, please see the Net-X-Convert\_API manual.

## 5.9 RTIN (real time index) Files

While Net-X-Convert is capturing it will create an RTIN file alongside the actual media file. These files



contain metadata for the media files as well as information on the locations of video and audio data within the media file. This allows Net-X-Player to play the files while they are being captured. They also allow for more efficient access to the files for editing.

## **5.10 MediaReactor Workstation**

For more information on editing live, recorded and offline files in Avid, Adobe, Assimilate, Nucoda, Autodesk, QuickTime and other products, please see:

<http://www.mediareactor.ws>

## **5.11 videoQC**

For reviewing, checking and clipping live, recorded and offline files from Windows, macOS and Linux, including full waveform, vectorscope, video and audio tools, please see:

<http://www.videoqc.com>

## **5.12 Setting up Cloud (OAuth 2.0) Access for Drastic software**

Drastic software supports direct access to cloud resources using http, http2, ftp and other file sharing methods. For cloud providers like Google, an authentication system is also required to access the stored files. All of Drastic's version 6 or greater software supports authenticating via OAuth 2.0 across an https transport. This is most useful for Net-X-Convert's partial file restore system, but can also be used from videoQC or MediaReactor. Accessing these resources requires a second level of setup, beyond the basic software setup, and this article provides an overview on that process.

### **5.12.1 Cloud file access - Direct**

The simplest way to set up access to a cloud is to use a file system redirector (If this is not possible in your scenario, please see the next section of this article). In the case of Google, the easiest way to do this is with their FUSE file system add on. For more information on setting this up, please see:

<https://cloud.google.com/storage/docs/gcs-fuse>

### **5.12.2 Cloud file access - https**

As an example, this section will go over the steps required to set up access to a Google cloud 'bucket' from Drastic software. The steps are operating system independent, other than the directories in which the access files are stored. With the access file, they should be set up to be read only by the Drastic software, as they will contain sensitive information that could be used to access your cloud files. For the purposes of this article, you will need to use one of the following directories:

Windows:

C:\ProgramData\Drastic\

Alt - C:\Documents and Settings\<username>\Drastic\

In order to set up OAuth 2.0, you will need to get information and data from your cloud account. In this case, we will use Google's cloud service as an example.

First you need to authorize and get the application credentials' json. Using the gcloud command from the Google cloud SDK is the easiest way to do this. Run this command on your server:

```
gcloud auth application-default login
```

Alternately, you can create this json file from Google's developer API at:

<https://console.developers.google.com/apis/credentials>

This will let you log into the Google OAuth server, and then save a 'application\_default\_credentials.json' on you system. It should have data similar to this in it:

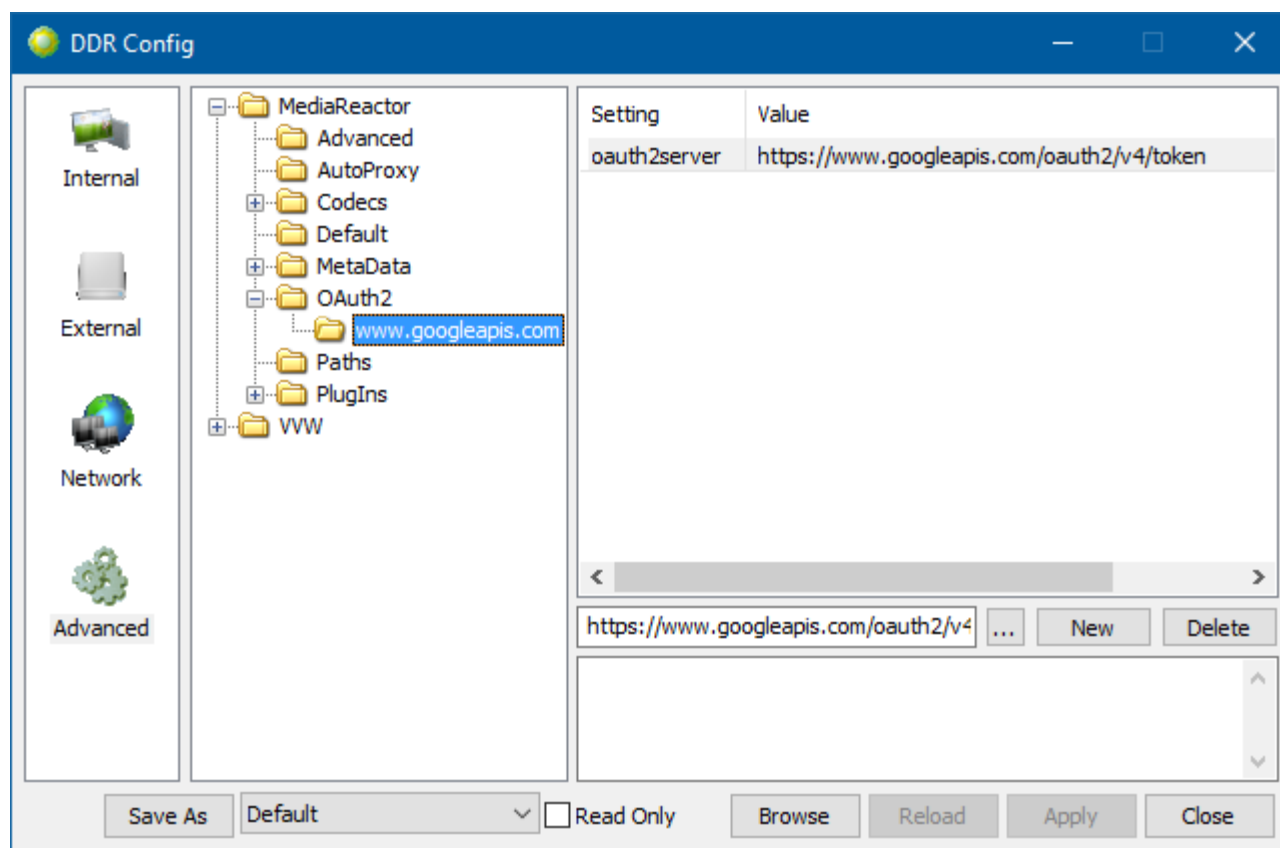
```
{
  "client_id": "dasdsa850-6qr4p6gpi6hnwe654yrtjuq83di341hur.apps.googleusercontent.com",
  "client_secret": "mgfei9jgf19q7MsssTy",
  "refresh_token": "fw98jsduTmScuUjavQzchmf8wssssu5y5f85mAmcvaa",
  "type": "authorized_user"
}
```

This file needs to be copied to the correct directory above, and renamed:

www.googleapis.com.json

Once you have the correct json file, you will also need to specify which OAuth 2.0 authentication server to use. This is done in the config.xml, normally with the DDRConfig utility. For each json file, there should be a matching folder under \MediaReactor\OAuth2\. Within that folder should be an oauth2server entry with the URL of the server you want to use, For Google cloud, this would normally be

\\MediaReactor\\OAuth2\\www.googleapis.com\\oauth2server =  
"<https://www.googleapis.com/oauth2/v4/token>"



Drastic software will use this config to create and refresh the access as needed so that it can access your OAuth 2.0 protected files. To access them, simply specify them as URLs. For a bitbucket on Google called 'netxcode-pfr' with a file called 'sourceABR.mp4', the file URL to send would look like:

<https://www.googleapis.com/storage/v1/b/netxcode-pfr/o/sourceABR.mp4?alt=media>

The alt=media is recommended but optional in most cases. Not including it will cause a secondary request to be sent, based on the JSON return from google. Other cloud systems' URLs will vary, but the basic structure will be similar to this.

## 5.13 Setting up Amazon S3 AWS Access for Drastic software

Drastic software supports direct access to cloud resources using http, http2, ftp and other file sharing methods. For cloud providers like Amazon, an authentication system is also required to access the stored files. All of Drastic's version 6 or greater software supports authenticating directly with Amazon via AWSAccessKeyId/SecretKey through an https transport. This is most useful for Net-X-Code's partial file restore system, but can also be used from videoQC or MediaReactor. Accessing these resources requires a second level of setup, beyond the basic software setup, and this article provides an overview on that process.

### 5.13.1 Amazon S3 Cloud file access – https

As an example, this section will go over the steps required to set up access to an Amazon S3 Cloud 'bucket' from Drastic software. The steps are operating system independent, other than the directories in which the access files are stored. With the access file, they should be set up to be read only by the Drastic software, as they will contain sensitive information that could be used to access your cloud files. For the purposes of this article, you will need to use the following directory:

#### 5.13.1.1 Windows:

C:\ProgramData\Drastic\  
Alt - C:\Documents and Settings\<username>\Drastic\

In order to access Amazon, you will need to generate a rootkey.csv with the AWSAccessKeyId and AWSSecretKey, and save it in the OS specific directory above. The file should look something like this:

```
AWSAccessKeyId=MGIEOWJDSIONGFSUIGNW  
AWSSecretKey=djjFASjfowjgwof8473sdjhHFDJSHFSO
```

Once that file is present, Drastic software will use it whenever accesses to Amazon S3 AWS is attempted. This does mean it will not be able to access public resources when the key is in place. If you need to access public S3 data, then simply rename or delete the rootkey.csv.

To generate the key, log into [aws.amazon.com](https://aws.amazon.com). Under your username at the top right, select 'My Security Credentials'. On that page, expand the 'Access keys (access key ID and secret access key)'. There you can create new access key(s) and save them to rootkey.csv on your server.

## 5.14 Error Returns – Net-X-Copy

- 0 – Success
- 1 – unable to create file (EPERM)
- 2 – no such file or directory (ENOENT).
- 5 – read or write error (EIO)
- 6 – no such device or address (ENXIO)
- 12 – unable to allocate memory (ENOMEM)
- 22 – invalid argument (EINVAL)
- 86 – unable to complete copy or conversion.
- 255 – unable to create index file or unable to index source.
- 256 – unable to acquire information from source file
- 257 – unable to set conversion center information
- 258 – unable to find TS associated with RTIN
- 259 – unable to retrieve frame information from RTIN
- 260 – start position in file greater than end position
- 261 – unable to set target file information
- 261 – DMF get bytes error
- 275 – general timecode error (deprecated)
- 276 – in timecode greater than out timecode
- 277 – tcin before first timecode in file
- 278 – timecode is invalid
- 279 – tcout after last timecode in file
- 290 – in timecode not in file range
- 291 – out timecode not in file range
- 1155 – insufficient permissions to use dmPut

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This manual has been compiled to assist the user in their experience using **DrasticScope** software. It is believed to be correct at the time of writing, and every effort has been made to provide accurate and useful information. Any errors that may have crept in are unintentional and will hopefully be purged in a future revision of this document. We welcome your feedback.

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