

MI – Player Users Guide

1 Introduction

The MI-Player (MIP) is a tool for configuring **MPEG-Inspectors MI**.

It's task is to prepare the interfaces to DirectShow (DShow) for MI in a way that MI can't only analyze videos in a numerical way, but can also show the frames and play the video.

You'll find some background information regarding DirectShow here: [DirectShow_en.pdf](http://www.mpeg-inspector.de/download/DirectShow_en.pdf) (http://www.mpeg-inspector.de/download/DirectShow_en.pdf)

2 Components of MIP

MIP contains of 4 components which are presented to the user in the panels of the same name:

- **Player** for playing videos for test reasons
- **Configurator** for configuring of filter sets
- **FilterManager** for managing DirectShow filters
- **SessionReport** containing information about actions and events

MIP's Player isn't a Video-Player in the usual sense, since substantial features of a regular player are missing. There is e.g. neither a full screen presentation nor a playlist included. Nevertheless MIP can play videos in particularly precise way, if suitable DShow filters are available on the PC system and configured to a filter set.

If the System's Default Filter Set (1st position in the pull-down-menu) is selected while loading a video, MIP should be able to play a video formats for which filters are registered. The filter chain will be noted in the session report and includes in this case also the used audio filters.

If another filter set (not the 1st) is selected, the player in MIP can only play MPEG-2 videos (actually MPEG-2 Program Stream) and it's compatible formats like VOB and M2V. Here is the main task of MIP, the preparation of filter sets for analyzing MPEG videos with the MPEG-Inspector MI.

With the player's Import Function prepared filter sets can be tested for working on a particular system.

MIP's Configurator gives the possibility to create own filter sets based on the existing filters on the system

The FilterManager of MIP supports the user to find his way in the huge number of installed SourceFilters, Demuxers, Decoders and Renderers. He can detect which filters are installed, can modify the ranking of usage (merits) as well as create batch-files deregistrating single filters or group of filters from DirectShow

In MIP's SessionReport all relevant actions and events are noted for helping the user to keep the overview.

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3 Functions and usage of MIP's palyer

The player's main **task** is **testing of filter sets**. A **filter set** is a record of pointers to filters, which will be connected to a filter graph for playing videos with DirectShow.

This naturally happens with particularly material suitable for it, the **MIP_TestClips**. These are developed in such a way that the picture content of each frame indicates clearly the position in the video.

If the video is stopped at a specific frame, the **time indicated in the picture** shall be the same time indicated by the Player in the **video information**.

You can download these test clips from

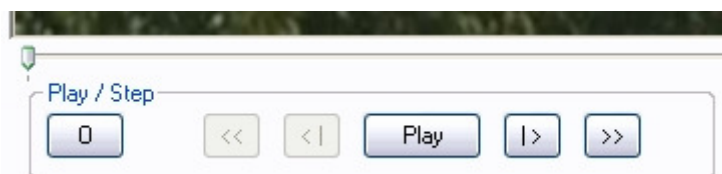
http://www.mpeg-inspector.de/download/MIP_TestClips_PAL.zip (**4.4 MB**)

The length of the Test Clips is exact 10 seconds (250 PAL frames). You can see whether a filter set recognizes the correct length of the video

Only a filter set, which does not or show only very few positioning errors, is suitable for the use in MI. Finally you want to have the certainty that a frame marked in MI actually contains the picture shown. All other filter sets are not to be used for the analysis in MI, but could be used for playing a video with the included audio.

With clicking the button **Load video** a dialogue for selecting a video file will be opened. If the System's Default Filter Set is selected all usual video types (mpg; mpeg; vob; m2v; mmv; wmv; avi; asf; mov; divx) can be opened. Is a certain imported or home created filter set selected, you can open only MPEG-1, MPEG-2, VOB or M2V files.

The player's user interface is self explaining. The buttons are enabled if usable or disabled if there is now sense for using it or the usage is not allowed.



The **Random** function [**O**] is suitable for testing the filter set's positioning accuracy. It will show the first picture, then the last and afterwards pictures in random order.

Please note:

Usually playing a video on a PC is continuously and will not be a problem for the transfer ratio of hard disks today. But it is another story if you want the system to jump from the beginning to the end of a 3.5GB file by one mouse click and expecting the frame to be shown without any delay.

MI and MIP requirements to your system are not typical and DirectShow is not designed for these requirements. One should be patient by observing of the HDD LED (tip: O&O drive LED) in case of delays rather wait until the system calmed down.

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In **Frame Info** some information concerning the video and the player are indicated. These are information which are reported back from the used DirectShow filter graph. Unfortunately these information are sometimes contradictory and are different to the general figures reported in MI.

Frame Info	
Frame	0 <input type="button" value="Go"/>
Last	1448
Time	00:00:00.00
TotalTime	00:00:57.24
VideoSize	768 x 576
DisplaySize	clipped to 640 x 480
FPS	25.000

You can edit the field **Frame** and enter a frame number between 0 and the number indicated in the field **Last**. With clicking the button **Go** the player navigates to the selected frame number and shows the video content

The selection of a **Filter Set** is done in **MIP** by means of pull-down-menu which is only enabled if the player is stopped. You can select another filter set even if a video is already loaded. MIP tries to reposition the new filter graph to the previous selected position.

FilterSet Control	
Eleccard-Filter (Eleccard-Player) and VMR9	6
<input type="button" value="Rename"/>	<input type="button" value="Delete"/>
<input type="button" value="Details"/>	<input type="button" value="Save"/>
<input type="button" value="Import"/>	

After positioning the cursor to the visible part of the pull-down-menu the name of the filter set can be edited. With the button **Rename** the new name will be saved.

With the button **Details** the construction of the actual filter set can be shown. For deleting a filterset select it in the pull-down-menu and click the button **Delete**.

A **modification** in the list of filter sets will be noted and with closing MIP, it will ask the user whether **MI_DSFilter.ini** should be saved or not. With saving the previous version of **MI_DSFilter.ini** will be backed up with the actual date and time in MIP's auxiliary folder.

With the button **Save** one can save the filter sets at any time. **Save** and **Import** are interlocked. After modifying a filter set **Save** will become active and **Import** will be deactivated. One must save before importing new filters. This shall guarantee that an import of filters will be done on clean and secured conditions of the filter sets

Without the **MI_DSFilter.ini** MI and MIP can only use the System's Default Filter Set which isn't able for frame accurate positioning in the most cases. **MI_DSFilter.ini** will be created in program folder of MI and MIP after **Import** of **All_MI_DSFilter.ini**

The import function requires the **access to the Internet**. Please allow this access if your fire wall asks for. The import lasts only a few seconds and can be monitored in the pull-down-menu and the status indications of MIP. The number on the right hand side of the pull-down-menu and the corresponding lines in the SessionReport are indicating how many filter of the sets are recognized and usable on your system.

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The import function will only install filter sets which are not already installed and all needed filters are registered on the system. The customer created filter sets will not be modified. New filter sets will be added to the list.

If an automated import of the filters isn't possible for some reasons, the **MI_DSFilter.ini** can be created manually.

Here the steps how to:

- download the file http://www.mpeg-inspector.de/download/All_MI_DSFilter.ini
- save the file to program folder of MI/MIP (usually C:\Program Files\MI)
- rename the file to **MI_DSFilter.ini**
- launch MIP and let **save MI_DSFilter.ini** with **closing MIP**

MIP will eliminate the filter sets not working on the system automatically.

MI_DSFilter.ini can also be modified by hand. In **All_MI_DSFilter.ini** in MIP's auxiliary folder contains the syntax rules of the file.

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4 Functions and usage of Configurator

In the panel **Configurator** you can create own filter sets containing filters installed on your system for testing them with the **player**. There are two possibilities to create filter sets, the **semi-automatic** and the **manual** config (see below)

The result of a configuration will be activated with the button add to filter sets and can be tested in the panel **Player**

If you recognize a filter set as functional, you can change the default name to a more meaningful name by changing the name and clicking the button **Rename**. With saving the sets while closing MIP you can add the new filter set to the repertoire. Likewise the set can be rejected with the button **Delete** or not saving.

While building a filter graph MIP tries to **connect the output pin to the input pin** of the next filter. Before connecting the pins MIP queries the filters whether they will accept the connection or not. Is the result negative the next filter will be checked.

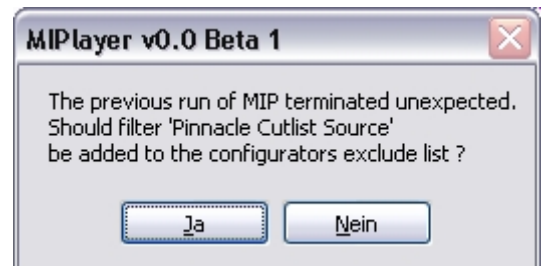
Some filters will report that the connection will be accepted, but will crash MIP while trying to connect them. In some cases MIP will become not responsible and must be killed via Task Manager, in other cases MIP will go AWOL.

Just before the critical phase MIP saves the filter ID in the clipboard.

Launch MIP immediately after the crash MIP will ask you to add the affected filter to the exclude list (**MIP_ExcludeFilters.ini** in MI's program folder). In the following runs, MIP will **ignore** this filter while building a graph.

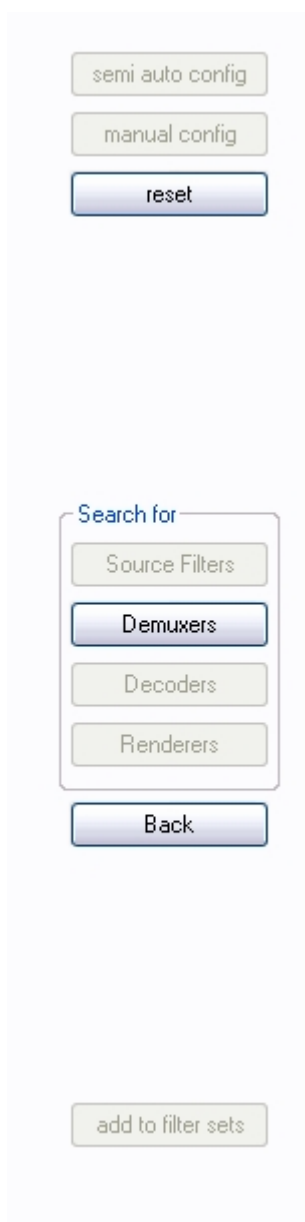
If you know, that this filter is in principle a "good" filter, but doesn't work in this particular filter combination you shouldn't add it to the excludes list, but you shouldn't try this combination again.

Probably on all systems a number of trial-and-error sessions are required before all "faulty" filters will be in the exclude list. Up to now we didn't find a way to solve this problem, but we're working on it.



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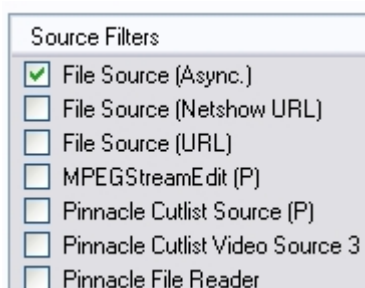
4.1 Semi automatic configuration



With this procedure, on the basis of a source file, a filter set can be developed **step-by-step** from Source Filter over Demultiplexer and Decoder to the Renderer.

In each step only the filters will be presented which are suitable for building the filter chain (FilterGraph). Here a crash can happen as described above.

First the suitable **Source filters** are listed. .



Since this procedure can last quite a long while, you can store the found source filters by clicking the button **save source filters** in **MIP_SourceFilters.ini** for later re-use if all suitable source filters are found. Searching new source filters is only necessary when new filters

were registered or existing filters were deregistered. This can happen e.g. when specific software was installed.

After checking one of the shown filters, the next step is released. With the button **Demuxers** a search for matching demultiplexers will be initiated.

In this way the matching **decoders** and **renderers** will be found also.

Sometimes you'll end in a dead-end-street because no matching filters are found. By using the **Back** button you can go one step back.

With the **button** reset the procedure can be canceled.

Finally you have a set of filters that can be connected to a filter graph and you can make it active by clicking the button **add to filter sets**. Whether it is **useable** or not can be tested in the panel **Player**. We suggest deleting unusable filter sets immediately

Please rename usable filter sets to a expressive name and send it with the Session Report to the MI-Team. We will add this set to **All_MI_DSFilter.ini** and we will add the name of the "discoverer" if wanted.

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4.2 Manual configuration

Source Filters
<input type="checkbox"/> .RAM file Parser
<input type="checkbox"/> 9x8Resize
<input type="checkbox"/> AC3 Parser Filter
<input type="checkbox"/> ACELP.net Sipro Lab Audio Decoder
<input type="checkbox"/> ACM Wrapper
<input type="checkbox"/> Acorn Source
<input type="checkbox"/> Allocator Fix

Demuxers
<input type="checkbox"/> .RAM file Parser
<input type="checkbox"/> 9x8Resize
<input type="checkbox"/> AC3 Parser Filter
<input type="checkbox"/> ACELP.net Sipro Lab Audio Decoder
<input type="checkbox"/> ACM Wrapper
<input type="checkbox"/> Acorn Source
<input type="checkbox"/> Allocator Fix

Decoders
<input type="checkbox"/> .RAM file Parser
<input type="checkbox"/> 9x8Resize
<input type="checkbox"/> AC3 Parser Filter
<input type="checkbox"/> ACELP.net Sipro Lab Audio Decoder
<input type="checkbox"/> ACM Wrapper
<input type="checkbox"/> Acorn Source
<input type="checkbox"/> Allocator Fix

With this way you can establish **one of all** existing filters **on each position** (source, demuxer, decoder, renderer). The connectivity of the selected filters will not be checked.

Whether a specific filter makes sense on the selected position results in the most cases on the name of a filter. E.g. it is not useful, and will not work, to select a filter, named as demultiplexer, on the position of a source filter.

This procedure gives you the opportunity of the definition of filter sets, which work very well. Thus for example alone with the filters "Pinnacle MPEG Video Source" and "Pinnacle Video Renderer" a filter set can be built, which fulfils the requirements of the MI for frame exact positioning up to the last frame.

We do hope that further "fine" filter sets are found in this way, particularly on "Non Studio Systems"

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5 Task and Functions of FilterManager

A record of a filter set contains of pointers to filters. These are active parts in form of DLLs (dynamic link libraries) or AX (DirectShow Filters). Popularly they are called “Codec”, “Decoder” or “Encoder” and are basic parts of DirectX and will usually be installed by programs which are using DirectX or the sub-part DirectShow.

Each user had installed such programs in the past and removed it later. A bad habit, but a conventional behaviour is, that the uninstall procedure of those programs will left the filters registered on the system.

As time went on there will be a lot of filters installed, but no program is using them and in some cases these filters will impair other programs. The information of these filters are stored in the registry and contain a lot of data (e.g. Filterdata) which will blow out the registry.

During the start of Windows and the activation of DirectX/DirectShow the system analyzes which filters are suitable for a specific task. These filters will be registered then for their task. The ranking of the filter will be gathered from a value named “**Merit**”, which belongs to each filter. The filter with the highest merit value will be noted as the system’s default filter for this task.

When, for example, Filter “xyz” is suitable for playing a MPEG video stream and has the highest merit value, this filter will be destined as default for playing MPEG-Video.

Playing a video stream usually needs more than one filter. In general a source filter, a demuxer a decoder and a renderer is needed and some additional filters for the audio part of the stream.

The function of a filter can be identified by the name of the filter, but some filters are having cryptic or meaningless names and can’t be sorted in a specific category.

MIP’s Filter Manager offers the possibility to select registered DirectShow filters by different points of view, e.g. creation date, file path, name of supplier or name of the product.

In this way you can group filters together for creating a batch file (.bat) for unregistering these filters from DirectShow. The Filter Manager supports the user by creating a session report containing which filters will be unregistered. **It is highly recommended to save this session report to file.**

The unregistering itself is not done by MIP, but with means of the batch file which is stored in MI/MIP’s auxiliary folder.

Unregistering filters is a deep intervention in the system. While doing this you have to know what you are doing. You should unregister only filters you’re sure that these filters aren’t needed for any program.

The MI-Team reserves the right not to be responsible for any problems resulting in using the created batch file for unregistering filters. Liability claims regarding damage caused by using this file will therefore be rejected.

During running the batch for unregistering filters no other applications shall run on your system. We recommend to run the batch file on a fresh booted system and to reboot the system after running the batch.

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The batch file can be copied and edited to the users requirements and for re-registering all or some of the filters. You'll find some hints how to do in the batch file itself.

You can also copy lines from the batch file to the clipboard and run them in Windows command box (Start -> Run -> cmd).

Filters can exist as a single filter in an .ax file or combined with other filters in a .dll. Filters in a .dll can only be registered or unregistered all together. Registering and unregistering is done by means of the windows function **regsvr32**. Run regsvr32 in the command box to find the syntax how to use it.

The path to the filters is either a global folder e.g. C:\windows\system32 or a specific program folder. So the complete path including the file name is needed.

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6 Using the Filtermanager

With the first selection of the panel “FilterManager” MIP will gather the information for the DirectShow filters installed on the system. This can take some time, usually up to one minute. After that, the filters will be shown in alphabetic order.

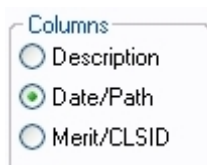
It can happen that several filters are listed with an identical name, but will differ in other data. Relevant is the filter’s key, usually it’s Class ID (CLSID), with which the filter is registered in DirectShow.

Friendly name	Product	Company
<input type="checkbox"/> Cirrus Logic USB-DVR2 Sink	USB-DVR2 5.5.2	Magnum Semiconductor
<input type="checkbox"/> Cirrus Logic USB-DVR2 Sink	USB-DVR2 5.0	Cirrus Logic, Inc.
<input type="checkbox"/> Cirrus Logic USB-DVR2 Splitter	USB-DVR2 5.3	Cirrus Logic, Inc.
<input type="checkbox"/> Cirrus Logic USB-DVR2 Splitter	USB-DVR2 5.3	Cirrus Logic, Inc.
<input type="checkbox"/> Cirrus Logic USB-DVR2 Splitter	USB-DVR2 5.3	Cirrus Logic, Inc.
<input checked="" type="checkbox"/> Color Space Converter	DirectShow 6.05.2600.2749	Microsoft Corporation
<input type="checkbox"/> Deinterlace Filter	1.1.0	DScaler Project, see http
<input type="checkbox"/> DivX Decoder Filter	DivX® Decoder Filter 6.0.0.1571	DivXNetworks, Inc.
<input type="checkbox"/> DivX Decoder Filter	DivX® Decoder Filter 6.0.0.1571	DivXNetworks, Inc.
<input type="checkbox"/> DivX Demux	DivX® Media Filter 0.0.0.026	DivXNetworks
<input type="checkbox"/> DivX Subtitle Decoder	DivX® Media Filter 0.0.0.026	DivXNetworks
<input checked="" type="checkbox"/> DV Muxer	DirectShow 6.05.2600.2180	Microsoft Corporation
<input checked="" type="checkbox"/> DV Splitter	DirectShow 6.05.2600.2180	Microsoft Corporation
<input type="checkbox"/> DV Video Decoder	DirectShow 6.05.2600.2180	Microsoft Corporation

The list of DirectShow filters can be saved to file by means of the button **save**. The columns in the list are separated with TABs. With external programs, e.g. Microsoft Excel, the list can be sorted to the user’s requirements.



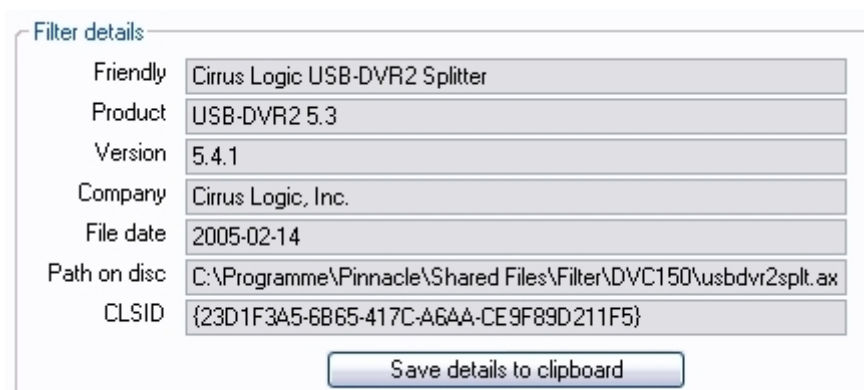
With **refresh** the list can be refreshed if filters were added or removed during a run of MIP. After unregistering filters with MIP, the list will be automatically refreshed.



With the option buttons, shown on the left hand side, the appearance of the table’s columns can be modified. The selection of an option affects the usability of the buttons for selecting filter groups.

By mouse click you can select filters (in the example above the line with the gray background) or check-on filters (see the checkboxes in the example above). Both is possible simultaneously, but only one filter can be selected at a time.

A selected filter will force MIP to show it’s details and its merit and this filter’s data will be used for selecting filter groups

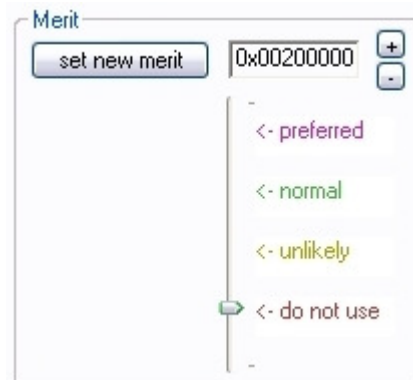


The filters details can be copied to the clipboard, e.g. for sending them to another person by email.

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In the frame “Merit” the ranking of a filter can be modified, but the user has to know, what he is doing.

A modification of the merit will become active after the next start of windows.



In opposite to selecting a filter, **checking** a filter will add it to a group of filters. Whether a filter is member of a group is clearly visible by the cyan background color. All checked filters, even the filters actually not visible in the list, are building this group.

How many filters are actually member of this group is shown in the select frame. In the shown example the group contains of 98 filters of 372 registered DirectShow filters in total.



Clicking **uncheck all** unchecks all checked filters

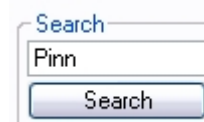
Depending on which column set is active the selection buttons shown on the left hand side will be enabled or disabled. Is e.g. the column set **Description** selected it is enabled to add filters of a supplier with means of the button **by company**. All filters of the company of the selected filter will be added to the group. In the same way other filters can be added by using other selection criteria. Building groups is always cumulative; i. e. new selected filters will be added to an existing group. The group can be used e.g. for creating a batch file for unregistering.

Mode	Button	selects all Filter, ...
Path/Date	by folder	which are installed in a particular folder*
Path/Date	by DLL	which are included in a particular DLL*
Path/Date	by file date	which are having the same modification date*
Description	by company	which are from a particular supplier**
Description	by product	which have the same product description*
Search	by search string	where the search string is found

* = has to match completely

** = the beginning has to match (Pinnacle Systems = Pinnacle Systems GmbH)

In the field **Search** term fragments can be entered, with which all data of all filters are scanned. The shown fragment **Pinn** would find all filters successively, contains **Pinn** in the name, folder, product designation etc.. The search fragment can be used also for selection (**by search string**).



As mentioned in chapter 5 unregistering filters is a deep intervention in the system.

We recommend expressively considering chapter 5.

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For unregistering a group of filters MIP creates a batch file only.

The unregistering itself happens outside of MIP by means of running a batch file. We recommend **closing MIP** before running the batch.

Before creating the batch file a group has to be selected in the frame **Select**. With clicking the button the batch file will be created in MI/MIP's auxiliary folder. The process will be shown in a message box and noted in the Session Report. In the batch file you will find hints how to re-register the filters, as long as they are existing physically on your system.

Unregistering a single filter is performed directly by MIP with the Windows service regsvr32 after clicking the button **Single filter**. The filter which shall be unregistered has to be selected before. The column view has to be switched to **Date/Path**, otherwise the button **Single filter** is deactivated.

If the filter is stored in a DLL all other filters in this DLL will be unregistered too. MIP notes this in the Session Report and gives hints how to re-register the filters again.

For example copy the following line

```
regsvr32 "C:\Programme\Movie Maker\wmm2filt.dll"
```

in the Start -> Run command line and press return.

After unregistering filters the MIP internal list will be updated. The indicated number of registered filters will be decremented with the number of unregistered filters. A possibly started configuration procedure in the panel **Configurator** will aborted.

Adding filters during a run of MIP results in not knowing these filters. With clicking the button **refresh** MIP updates it's internal book-keeping.

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7 Session Report

In panel **Session Report** all relevant actions and results are noted.

You can save it by clicking the Save button or by terminating MIP

The reports will be saved in the folder for auxiliary files and the name will contain date and time for later identification.

We suggest saving the Session Report of all sessions with creating new filter sets or creating batch files for the deregistration of filters.

Were filters unregistered or a batch file for unregistering filters created, MIP will save the Session Report without any further inquiry.

These reports may give important hints to the MI-Team in case of problems. Please send us the Session Reports in such cases.

8 Helpfully Tools

A helpful tool for inquiring DirectShow Filters and how they work is GraphEdit. It is part of the DirectX SDK. If you're interested, you can download it e.g. from <http://www.videohelp.com/tools?tool=GraphEdit>