Nero Recode Manual

Contents

1   General information

1.1   Conventions of the manual

This manual is intended for all users who want to find out about how to use Nero Recode. It is task-based and explains how to achieve a particular objective on a step-by-step basis.

In order to make best use of this manual, please note the following conventions:

Symbol	Meaning
	Indicates warnings, preconditions or instructions that have to be followed strictly.
	Indicates additional information or advice.
1. Start …	A number at the beginning of a line indicates a request for action. Carry out these actions in the order specified.
➔	Indicates an intermediate result.
➔	Indicates a result.
OK	Indicates text passages or buttons that appear in the program interface. They are shown in bold print.
Chapter	Indicates references to other chapters. They are executed as links and are shown in red and underlined.
[…]	Indicates keyboard shortcuts for entering commands.

1.2   About Nero Recode

Nero Recode enables you to copy non-copyright DVD videos onto DVD for archiving purposes.. If the source video is larger than 4.7 GB, it is compressed to fit on a single layer DVD disk without loss of quality. You can also exclude unwanted material on the source DVD from the copying process (including subtitles or soundtracks) thereby making space for additional videos or for better video quality. As an alternative, the target DVD can also be recorded on the hard drive in the form of a DVD video directory or can be created on the hard drive as a so-called disk image.

Naturally, you can also choose to produce your own compilation from the contents of various (non-copyright) DVDs and then export it to the pioneering Nero Digital™ MPEG-4/ H.264 AVC, for example, and then to burn it onto disk. It doesn't matter whether the video is intended for portable devices or HDTV because the different export profiles enable you adapt the output size to your requirements and you will always receive the best quality relative to the file size.

So, Nero Recode lets you copy, recompile and recode the contents of DVs and DVDs and then to burn the results onto disk.

1.3   Versions with different ranges of functions

Nero Recode is not just available in the full version. The versions differ from the full version in terms of the range of functions, i.e. not all the tasks described in this manual can be resolved and the user interface is adapted to the specific version.

The following versions are available:

Nero Recode

- Full version

Nero Recode Essentials

The following features of the full version are not included:

- PSP export function
- iPod export function

Nero Recode Essentials SE

Exclusive features:

- Recode complete DVD to DVD
- Burn function (via Nero API)

Nero Recode Essentials CE

The following features of the full version are not included:

- Recode complete DVD
- Recode Main Movie to DVD
- Change the structure of a DVD

1.4   Terminology

- Encoding means the conversion of a video of any format into another format, e.g. MPEG-2 or Nero Digital™ (MPEG-4). A corresponding encoder is required for every target format.
- Transcoding means converting a video from a particular format into another particular format, e.g. from Xvid to MPEG-2.
- Recoding involves converting an existing video with certain properties (e.g. bit rate 2500 kbit/s) into the same format with different properties (e.g. bit rate 1990 kbit/s).
- Decoding means opening or playing a video that has been encoded in a particular format.

In this manual transcoding is used synonymously with encoding.

2   Technical information

2.1   System requirements

In addition to the general system requirements for Nero Suite, the following individual system requirements apply to Nero Recode:

- Microsoft® DirectX® 9.0b or later

Optional:

- DVD video plug-in for DVD video recordings and the "DVD-9 to DVD-5" function
- Multi-core processor

3 Program start

3.1 StartNero Recode using Nero StartSmart

To start Nero Recode with Nero StartSmart, proceed as follows:

1. Click on the Nero StartSmart icon.

→ The Nero StartSmart window is opened.

2. Click on the arrow button on the left side of the window.

→ The extended dialog box is opened.

Fig. 1: **Nero StartSmart**

3. Select the entry **Nero Recode** in the **Applications** drop-down list.

→ The **Nero Recode** window opens.

➔ You have now started **Nero Recode** using Nero StartSmart.

3.2 Start Nero Recode directly

To start Nero Recode directly, proceed as follows:

1. If you are using the Microsoft® Windows® XP Start menu, click on **Start > All Programs > Nero 7 (Premium) > Photo and Video > Nero Recode.**
If you are using the classic Start menu, click on **Start > Programs > Nero 7 (Premium) > Photo and Video > Nero Recode**.

→ The **Nero Recode** window opens.

➔ You have now started Nero Recode.

4   The Nero Recode start screen

After you launch Nero Recode the **Nero Recode** start screen will appear..

This is where you can choose what you want to do with Nero Recode. Choose the appropriate menu icon to call up a wizard that will guide you through the required task step-by-step.
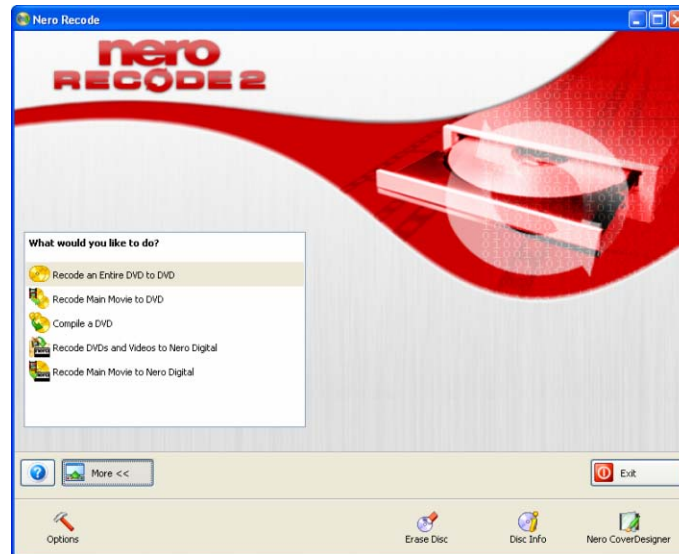
Fig. 2: **Nero Recode** start screen

The **Nero Recode** start screen offers the following options:

Menu icons	
Recode an Entire DVD to DVD	Imports DVDs including their menus and extras. Unwanted audio tracks, subtitles or video content can be removed and the structure of the video titles can be changed.
Recode Main Movie to DVD	Imports the main movie contained on a DVD without menus or extras. Unwanted audio tracks, subtitles or video content can be removed and the structure of the video titles can be changed.
Compile a DVD	Imports video titles and creates an individual DVD from one or more DVDs. Unwanted audio tracks, subtitles or video content can be removed and the structure of the video titles can be changed.
Recode DVDs and Videos to Nero Digital	Imports video titles from one or more DVDs and converts these into Nero Digital (MPEG-4) files. Unwanted audio tracks, subtitles or video content can be removed and the structure of the video titles can be changed.
Recode Main Movie to Nero Digital	Imports the main movie on a DVD without menus or extras and converts this into Nero Digital (MPEG-4) files. Unwanted audio tracks, subtitles or video content can be removed and the structure of the video titles can be changed.
Buttons	
More	Opens and closes the extended area in which the basic Nero Recode settings can be made.

?	Displays the online help, version and manufacturer information.
Exit	Closes Nero Recode.
Buttons in the extended area	
Options	Calls up a window containing various tabs that allow you set the way the program operates (see Basic settings).
Erase Disc	Erases a rewritable disc.
Disc Info	Calls up information about the disk in the drive.
Nero CoverDesigner	Launches Nero CoverDesigner in a separate window. Nero CoverDesigner allows you create covers and labels for your DVDs and CDs. You will find further details in the Nero CoverDesigner manual.

Each screen contains quick references, detailed information and explanations for the various buttons, icons and menus. Hold down the mouse button over a control for a few seconds to see the quick reference.

5 Nero Recode wizards

All the tasks you can perform with Nero Recode can be divided into four steps:

▪ Define the basic settings

▪ Import the files you want to recode

▪ Set the options for Nero Digital and/or for burning a disk.

▪ Burn the disk.

The wizards also follow this four-step structure, so that a separate screen appears for each step. You can use the **Next** and **Back** buttons to move back and forth through the three screens while performing a task. This means that you can also change settings that you have already made and undo actions.

Nero Digital™ is an MPEG-4 codec. It is compatible with MPEG-4 Video and MPEG-4 High Efficiency AAC and offers high quality Surround Sound and high resolution image signals for your home cinema.

5.1 Basic settings

The basic settings are made on the tabs in the **Nero Recode Options** window. This is opened using the **Options** in the extended area.
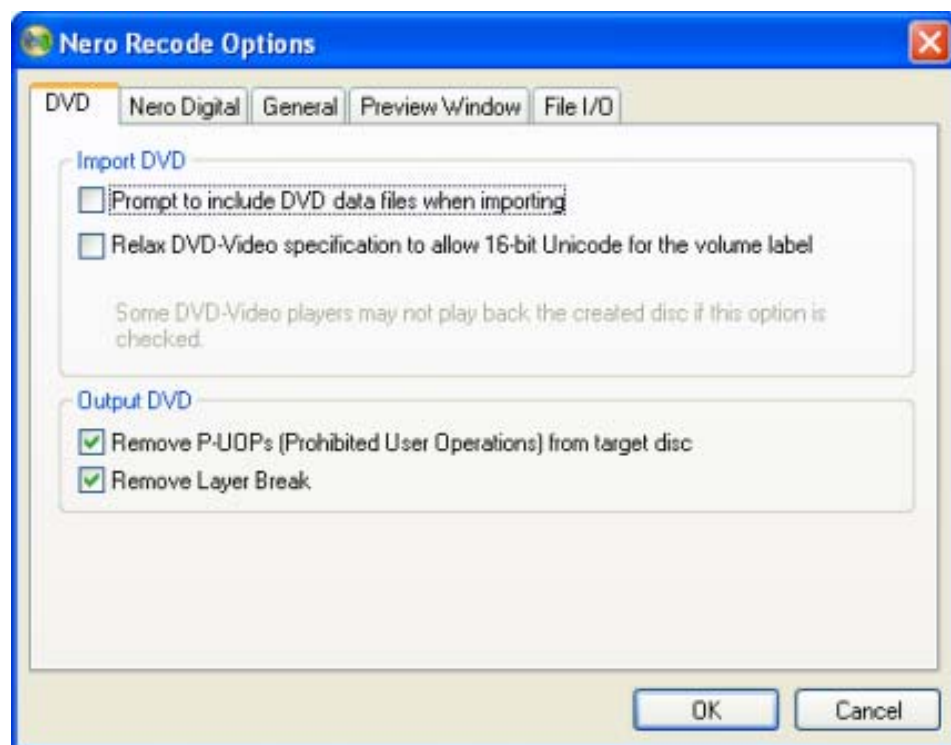

Fig. 3: **Nero Recode Options** window

5.1.1 DVD tab

This tab is used to define the settings for importing DVDs.
The following input options are available:

Prompt to include DVD data files when importing check box	This decides whether this content is included in copying when importing a DVD with data content. This box must be checked if the data content is also to be copied.
Relax DVD-Video specification to allow 16-bit Unicode for the volume label check box	This relaxes the restrictions on the use of character sets. Nero Recode does not use characters from languages like Japanese or Korean, which have a 16-bit Unicode character set-that does not comply with DVD video requirements.
Remove P-UOPs (Prohibited User Operations) from target disc check box	This decides whether the prohibited areas on a DVD are to be made available to the user while copying. For example, if the original DVD contains an area that cannot be skipped, you can use Nero Recode to remove the block, so that users can skip or fast forward through the area.
Remove Layer Break check box	This removes the layer interrupt. If the original DVD consists of two layers, there is a command on the DVD to freeze the image briefly to allow the laser to switch from the first layer to the second. When Nero Recode is used to copy to a DVD with just one layer, this command is redundant and can be removed.

5.1.2 Nero Digital tab

This tab is used to define the settings for conversion to Nero Digital format.

Once Nero Recode has created an MPEG-4 file, a check is automatically made to see whether the video quality of would improve by converting the file a second time. The selection menu is used to define how Nero Recode should proceed in this case.

The following selection options are available:

Ask me to confirm which files need a second pass.	If a second conversion would improve the quality, a dialog box opens before the second conversion takes place. This can be used to define whether or not the second step is to take place.
Do not ask me. Always do a second pass for those files which need it.	If a second conversion would improve the quality, this is carried out automatically without checking.
Do not ask me. Never do a second pass.	A second conversion never takes place, not even if this would improve the quality of the resulting MPEG-4-file..

The following input options are also available:

Standard button	This restores the default settings.
Enlargement/ **Reduction Method** drop-down list	This enables the method for changing the video resolution to be selected if necessary. The default setting is **Automatic** which means that the best method is chosen automatically.
Analyze files while importing check box	Analyzes the video file while importing it.
Auto-close iTunes after iPod transfer check box	Automatically closes iTunes after transcoding to Apple iPod video.

5.1.3 General tab

This tab is used to define general Nero Recode settings.
The following input options are available:

Enable All button	This enables all warnings if these have been disabled manually
If minimize, **minimize to tray** check box	Specifies that the program should appear in the status bar when minimized.
Do not eject the disc after encoding/burning is complete check box	Prevents the disk from being ejected after burning.
Offer to save detailed report after successful burn process check box	This enables the report generated about the burning process to be saved.
Language drop-down list	Sets the language for Nero Recode.

5.1.4 Preview window tab

This tab can be used to set the audio quality in the DVD preview.
The following input options are available:

Preview window area	Specifies the audio quality of the preview.

5.1.5 File I/O tab

This tab is used to define the method for accessing the drive for direct conversion.
The following input option is available:

File I/O area	Specifies the method for accessing the drive during direct conversion.

When reading-copyright DVDs that have a copyright bit with **SPTI/ASPI**, a message occasionally appears in Nero Recode indicating that the DVD cannot be copied. In this case, select the **Windows File System** option when reading.

5.2 Import Files screen

The screen for importing files changes, depending on the task chosen. The input options available in this screen are explained below.
The explanation of the input options displayed, which differ depending on the task selected, can be found in the description of the individual tasks.
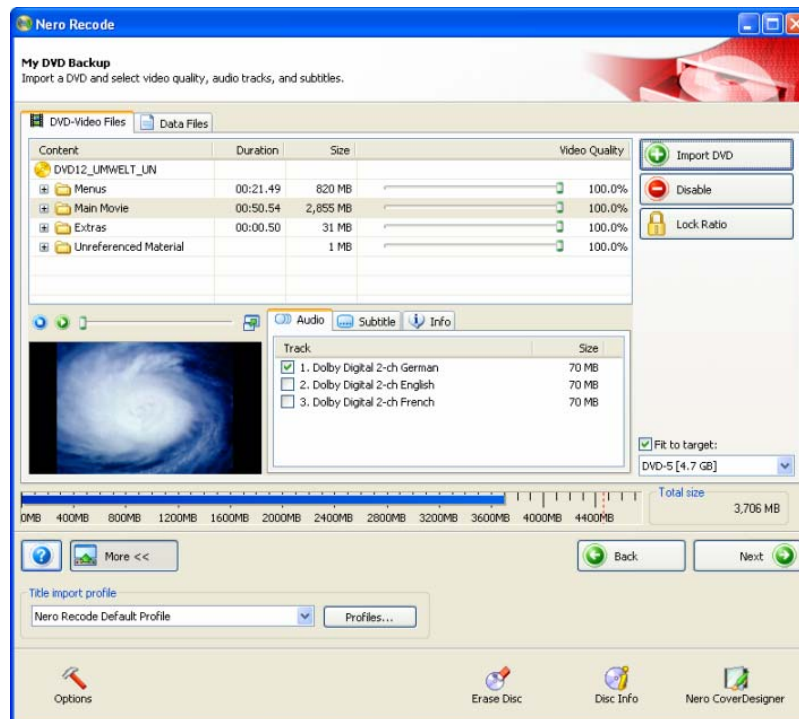
Fig. 4: Importing video titles in Nero Recode

The following input options are standard in the screen for importing files and are available in the context of every task:

Fit to target check box	This recodes the imported disk automatically so that it fits onto the blank disk. The box is checked off as standard. If the check box is deactivated, the size of the copy can be defined, irrespective of the limitation of a disk. Although it may not be possible to burn the resulting DVD structure onto a typical commercial blank disk, the DVD video title could certainly be played from the hard drive.

Fit to target drop-down list	This shows the target medium. The capacity bar in the lower area of the screen shows the volume of data selected. The drop-down list is active when the check box is checked.
Total size area	Shows how much space on the disk is used.
Capacity Bar area	Shows how much space on the disk is used. Provided the bar is blue, the entire content will fit on the disk. If a red bar appears, the volume of data is greater than the capacity of the disk.
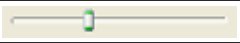
5.2.1 DVD-Video Files/Nero Digital Titles tab

The following input options are contained on the DVD Video Files tab as standard and are available in the context of every task:

Import DVD button	This opens a dialog for importing the required file.

Preview area

The following input options are contained on the DVD Video Files tab as standard and are available in the context of every task:

	Ends playback.
	Starts playback.
	Skips to particular points.
	Enlarges the preview area..

Audio/ Subtitle Information tabs

Among other things, the **Audio/Subtitle Information** tabs in the middle of the screen show the audio tracks. The audio and subtitle tracks have been imported in line with the profile selected during importing. The following tabs are available:

Audio tab	Displays the imported audio tracks in line with the import profile.
Subtitle tab	Displays the imported subtitle tracks in line with the import profile.
Info tab	Displays information about the imported video title.

5.2.2 Data Files tab

Data files can be burned onto the disk as well as the film. These files are imported using the **Data Files** tab. The following input options are available in the context of every task:

Add Files button	This opens a dialog for adding data files.
Delete button	This deletes a data file and is only active if at least one data file has been added.
🔼	Displays the contents of higher folders and is only active when the user is located in a subfolder.
📁	Opens the dialog to create a folder in the disk's data area..
🗂 ▾	Opens a menu in which the way in which the files are displayed in the folders can be changed.

5.2.3 Title import profile

The **Nero Recode Profile** area allows you to switch to the **Title import profiles**. A new profile can be created there.

The following input options are available in the **Title import profile** area:

Current profile selection menu	Indicates the current profile.
New button	Calls up a dialog box in which a new profile can be created.
Delete button	Deletes the current profile displayed in the **Current Profile** drop-down list.

The following tabs are available in the **Title import profile** window:

Video tab

Quality distribution area	Defines the quality ratio between the main movie and the extras.
Menus area	Specifies whether the menus are to be copied in original quality.

Audio tab

Preselect the following audio tracks check box	Defines whether the DVD is to contain audio tracks in specific languages only, or in all languages.
Add button	This opens a dialog window where audio tracks can be added in different languages. This button is only active if the **Preselect the following audio tracks** box is checked.
Remove button	Deletes the highlighted audio tracks. This button is only active if at least one audio track has been marked in the overview of selected audio tracks.
From multiple tracks of the same language select drop-down list	Specifies the audio format used of there are several audio tracks in the same language on the DVD.

| **Select all tracks if none meets my selection criteria** check box | Selects all audio tracks of the tracks on the DVD if the tracks on the DVD do not meet the set criteria. |

Subtitles tab

Preselect the following subtitle tracks check box	Defines whether the DVD should only contain subtitles in certain languages or in all languages.
Add button	This opens a dialog window where subtitle tracks in different languages can be added. This button is only enabled if the **Preselect the following subtitle tracks box** has been checked.
Remove button	Deletes the marked subtitle tracks. This button is only active if at least one subtitle track has been marked in the overview of selected subtitle tracks.
Select all tracks if none meets my selection criteria check box	This selects all subtitle tracks if the tracks on the DVD are not to have any subtitles with the set criteria.

5.3   Set Burn Options screen

The screen for setting burning options changes, depending on the task selected. The standard input options in this screen are explained below.
The descriptions of the various tasks contain explanations of the input options displayed, depending on the selected task.
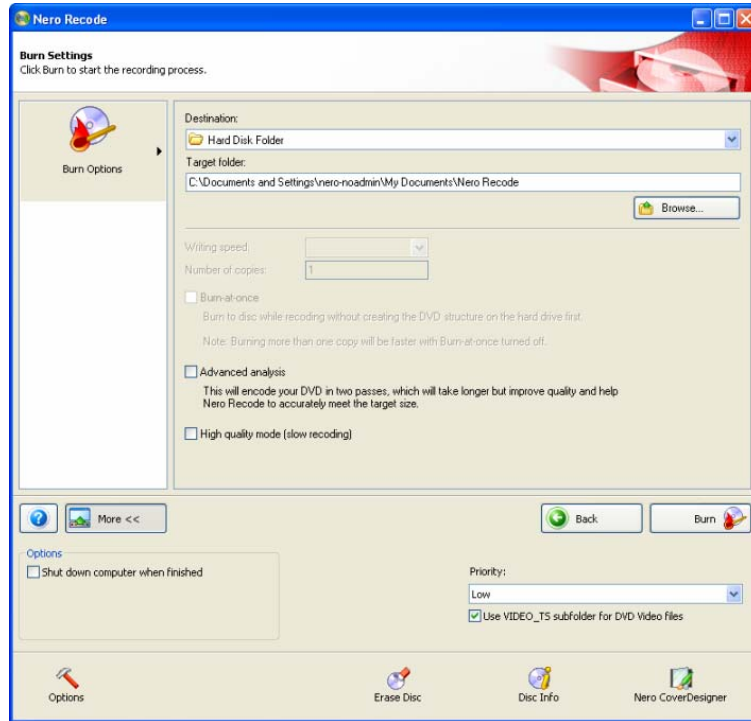
<div align="right">Fig. 5: Nero Recode burning settings</div>

The **Burn Settings** screen contains following default input options and are available in the context of each task:

Target drop-down list	This specifies the target for assembling the data. You can use a CD/DVD recorder to burn the data, store the data on a hard drive, or generate an image file.
Target Directory input box	Specifies the target directory in which the compilation is stored and in which the temporary files created during burning are stored. These are automatically deleted after burning.
Browse button	Opens a window showing the computer's directory tree. The destination directory where the compilation is to be stored or in which the temporary files are to be held during burning can be selected here. The path is automatically referenced in the **Destination Directory** input field. The temporary files are automatically deleted after burning.
Writing Speed drop-down list	Specifies the write speed. The drop-down list is only active if a CD/DVD recorder is selected in the **Target** drop-down list.
Number of copies input box	Specifies the number of copies to be burned. The drop-down list is only active if a CD/DVD recorder is selected in the Destination drop-down list.
Burn button	Launches the burning process.

The following task-specific input options are also available:

Burn-at-once check box	If this box is not checked, the DVD structure is saved on hard drive before burning. Burning takes longer in this case. This method is faster if more than one copy is required because recoding only occurs once. The check box is only active if a CD/DVD recorder is selected in the **Destination** drop-down list.
Extended Analysis check box	Dramatically improves the quality of the encoding process of a DVD. Recoding takes place in two steps and therefore takes longer. The check box is only active if a CD/DVD recorder is selected in the **Destination** drop-down list..
High Quality Mode check box	Improves recoding quality. This means that recoding takes longer. The check box is only active is a CD/DVD recorder is selected in the destination drop-down list.

The following additional setting options are available when converting into Nero Digital:

Current Profile drop-down list	Displays the **Nero Digital Profile** that you have selected in the **My Nero Digital Disk** screen. Just one profile is available as the default, however a new one can be created.
New button	Creates a new profile. This can then be selected in the **Current Profile** drop-down list.
Delete button	Deletes the profile selected in the **Current Profile** drop-down list.
Encoding method input box	Selects the method to be used to encode the MPEG-4 file.
Expert Mode check box	Switches to the Nero Digital expert settings.

Users who are very experienced in converting video and audio files can use expert mode for advanced setting options (see Nero Digital expert settings).

5.3.1 Additional settings

The expanded window also offers the following additional setting options:

Shut down computer when finished check box	The computer automatically closes down after burning is complete. Only displayed in the **Burning Settings** screen.
Priority drop-down list	Defines how the resources available in the computer are to be used when burning the disk. The drop-down list is only displayed in the **Burning Settings** screen.

5.4 Recoding and Burning screen

The **Recoding and Burning** screen changes depending on the task selected. The standard input options in this screen are explained below.
The descriptions of the various tasks contain explanations of the input options displayed, depending on the selected task.
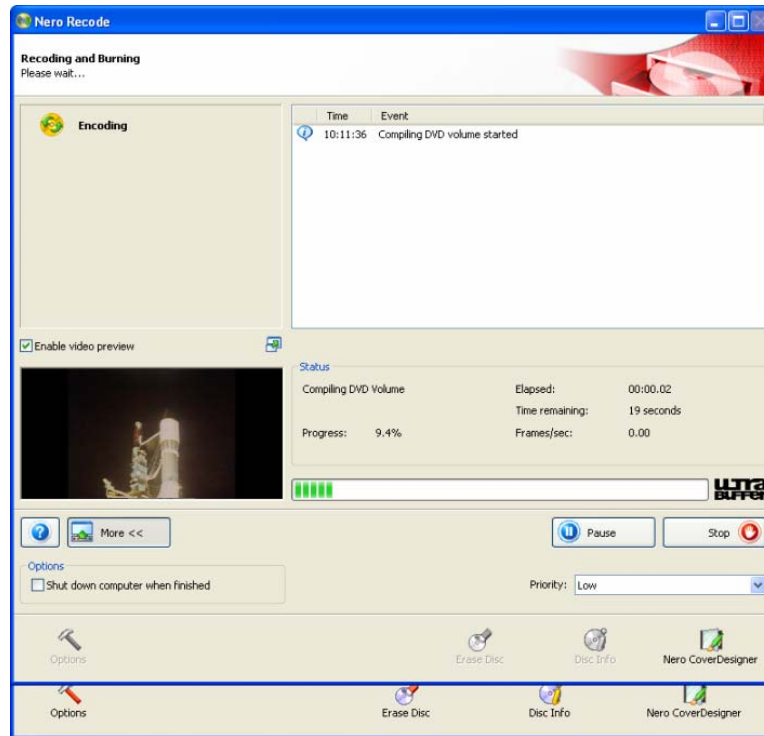
Fig. 6: Nero Recode burning process

The following input options are contained in the **Burn Disc** screen and are available in the context of every task:

Enable video preview check box	Activates the video preview during burning.
🔲	Enlarges and reduces the area of the video preview.
Status area	Indicates the progress of the burning process.
Progress Bar area	Shows the progress of the burning process in graphical form
Pause button	Interrupts the burning process
Stop button	Ends the burning process.
Resume button	Continues the burning process. This button is only displayed if the burning process was interrupted using the **Pause** button.
Back button	Displays the previous screen..
More button	This displays the **What do you want to do now?** screen. There are various options here for implementing further actions.

If you are recoding files for Nero Digital, the following input options will be available.

Show Nero Digital compatible devices check box	This opens a browser window containing a list of devices that can reproduce the Nero Digital profile during the encoding process. This function requires a fully functional Internet connection.

6 Recode an Entire DVD to DVD

Nero Recode allows you to adapt and change the structure of a DVD while copying it, so that the data can be burned onto a commercial blank disk.

> ⚠ Unless you possess the copyright yourself, or at least have the permission of the copyright holder, the unauthorized reproduction of discs may be a breach of national or international law and may lead to severe penalties!

> 💡 The best way to produce a simple 1:1 copy of a DVD is to use Nero Express or Nero Burning ROM. The data is not compressed in this case, so that the blank disk used must have enough space for the content of the original DVD as displayed. For further details on using Nero Express or Nero Burning ROM see the relevant manuals and/or help files.

6.1 Task-specific input options
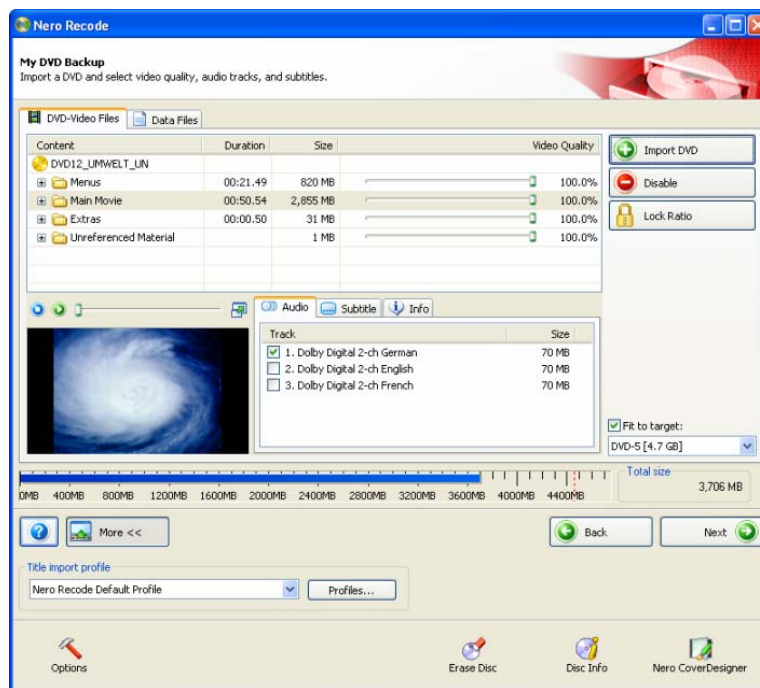
Fig. 7: **My DVD Backup** screen with already imported DVD

In addition to the input options described in the chapter on the Import Files screen (see Import Files screen), the following buttons are available in the **My DVD Backup** task in the **Recode an entire DVD to DVD** screen:

🔴 **Disable**	Removes video titles contained in the original. These are not transferred when burning the copy. The button is only active when a DVD video title has been imported.
➕ **Enable**	Enables video titles that were previously disabled. These titles are then transferred when burning the copy. The button is only active if an imported DVD video title has already been disabled.

🔒 **Lock**	Locks the automatic change of recoding quality for a DVD video title. It is still possible to make manual changes to the quality settings by moving the control. It may make sense to block individual video titles if the quality of other content is to be improved, necessitating a proportionate deterioration in the rest of the content. The button is only active if a DVD video title has been imported.
🔓 **Unlock**	Removes the lock on the automatic change of recoding quality. This button is only enabled when a DVD video title has been imported.

The columns in the upper area of the **DVD-Video Files** tab have the following significance:

Content	Shows the structure contained on the DVD.
Duration	Shows the length of the relevant area.
Size	Shows the size of the relevant area.
Video quality	Shows the quality. The higher the number, the better the quality of the file recoded with Nero Recode.

6.2   Recode

To recode a DVD, proceed as follows:

1. Start Nero Recode.

→   The start screen will appear (see).

2. In the Nero Recode start screen select the **Recode an Entire DVD to DVD** task.

→   The **My DVD Backup** screen will appear.

3. Insert the DVD you want to recode in the DVD drive on your PC.

4. Insert a blank disk if you want to burn the data onto CD/DVD.

5. Check the **Fit to Target** box as required.

→   The content of the source DVD is then recoded to fit on the blank disk that has been inserted.

If the **Fit to Target** box is not checked, the DVD video is imported in its original size. In this case the volume of data can be so great that it can only be burned onto a double-layer DVD or saved on the hard drive.

6. Select the required import profile in the **Title import profile** area (see).

7. Click on the **Import DVD** button.

→   The **Find Folder** dialog window is opened.

8. Select the drive or hard drive folder containing the DVD that you want to recode and click on the **OK** button.

→   You have imported the DVD.
The capacity bar at the bottom of the screen shows how much memory the imported DVD files use. If the source DVD is larger than the target medium, the central area of

the **DVD Video Files** tab shows how the DVD will be recoded in line with the selected profile.

9. Mark the audio tracks you want to copy on the **Audio** tab.

10. Mark the subtitle tracks you want to copy on the **Subtitle** tab.

11. If there is an individual video title you do not want to copy:
    1. Mark the required video file on the **DVD Video Files** tab.
    2. Click on the **Disable** button.
       → The **Remove Element** dialog window appears.
    3. Select the required deletion method in the dialog window and confirm this with **OK**.
       → The video title has been deactivated.

12. If you want to reactivate an already deactivated video title for copying purposes:
    1. Mark the disabled video title on the **DVD Video Files** tab.
    2. Click on the **Enable** button.
       → The video title is active again and can be copied.

13. If you wish to lock the individual video titles to protect them from loss of quality when recoding:
    1. Mark the video title you want to lock.
    2. Click on the **Lock** button
       → The marked video title is locked.

14. If you want to unlock an already locked video title to adjust the quality proportionately to the changes in quality in the other titles:
    1. Mark the video title you want to unlock.
    2. Click on the **Unlock** button.
       → The marked video title will be unlocked.

15. Move an area control in the **Video Quality** column until the required video title quality is reached.

The quality of the rest of the content of the DVD will deteriorate proportionately to the improvement in the improvement in the quality of an individual video title.

16. Click on the **Next** button to continue to define the burn settings.
    → The **Burn Settings** dialog appears.

17. Make the required settings for the burning process (see Set Burn Options screen)

18. Click on the **Burn** button to start the burning process.
    → Burning has started.
    The **Recoding and Burning** screen appears and you can follow its progress on the progress bar

19. To cancel burning, click on the **Stop** button. To pause/ resume burning, click on the
Pause/Restart button.

➔ The burning process is complete when the relevant message appears in the information
window.
You can now return to the burning settings and burn the compilation again. The **Next**
button takes you to the **What do you want to do now?** screen, where you can select
the other options or close Nero Recode.

7 Recode Main Movie to DVD

Nero Recode allows you to copy the main movie on a DVD without the extras. You can adapt and change the structure of the main movie so that the data can be burned onto a commercial blank disk.

Unless you possess the copyright yourself, or at least have the permission of the copyright holder, the unauthorized reproduction of discs may be a breach of national or international law and may lead to severe penalties!

The best way to produce a simple 1:1 copy of a DVD is to use Nero Express or Nero Burning ROM. The data is not compressed in this case, so that the blank disk used must have enough space for the content of the original DVD as displayed. For further details on using Nero Express or Nero Burning ROM see the relevant manuals and/or help files.

7.1 Task-specific input options
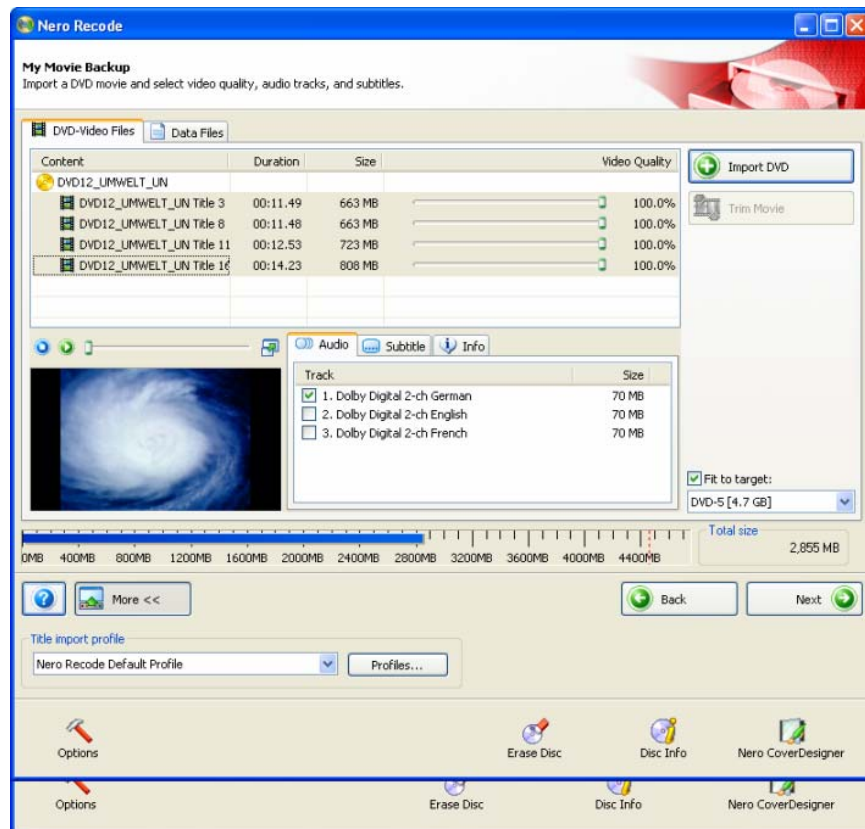
Fig. 8: **My Movie Backup** screen with main movie already imported

In addition to the input options described under Import Files screen,:the following buttons are available in the **My Movie Backup** screen in the **Recode a Main Movie to DVD** task:

Trim Movie	This opens a window where the selected video title can be trimmed. The button is only enabled when a DVD video title has been imported (see Trim Movie).

The columns in the upper area of the **DVD-Video Files** tab have the following meaning.

Content	Shows the structure on the DVD
Duration	Shows the length of the relevant area.
Size	Shows the size of the relevant area.
Video quality	Shows the quality. The higher the number, the better the quality of the file recoded with Nero Recode.

7.2 Recode

To recode a DVD, proceed as follows:

1. Start Nero Recode.

   → The start screen appears (see The Nero Recode start screen).

2. Select the **Recode Main Movie to DVD task** in the Nero Recode start screen..

   → The **My Movie Backup** screen will appear.

3. Insert the DVD you want to recode in the DVD drive on your PC.

4. Insert a blank disk onto which the CD/DVD content is to be burned..

5. Check the **Fit to target** box.

   → The content of the source DVD is then recoded to fit on the blank disk that has been inserted.

If the **Fit to Target** box is not checked, the DVD video is imported in its original size. In this case the volume of data can be so great that you can only burn it onto a double-layer-DVD or store it on the hard drive.

6. Select the required import profile in the **Title import profile** area (see Title import profile).

7. Click on the **Import DVD** button.

   → The **Find Folder** dialog window is opened.

8. Select the drive or the folder on the hard drive containing the DVD you want to recode and click on the **OK** button.

   → You have now imported the main movie of the DVD.
   The capacity bar at the bottom of the screen shows how much memory the imported fields of the DVD take up. If the source DVD is larger than the target medium, the middle area of the **DVD-Video Files** tab shows how the DVD is recoded in line with the selected profile

9. Mark the audio tracks you want to copy as required on the **Audio** tab.

10. Mark the subtitle tracks you want to copy on the **Subtitle** tab.

11. If you want to shorten a video title:

   1. Mark the video title in the **DVD Video Files** tab.

   2. Click on the **Trim Movie** button.

      → The **Trim Movie** window opens.

   3. Trim the video title by defining the first and last frame (see Trim Title).

4. Click on the **OK** button.

→ You have now shortened the video title.

12. Move an area control in the **Video Quality** column until the required video title quality is reached

The quality of the rest of the content of the DVD will deteriorate proportionately to the improvement in the improvement in the quality of an individual title.

13. Click on the **Next** button to continue to define the burn settings.

→ The **Burn Settings** dialog appears.

14. Define the settings you require for the burn procedure (see Recoding and Burning screen).

15. Click on the **Burn** button to start burning the disk.

→ Burning starts.
The **Recode and Burn** screen appears and you can follow its progress on the progress bar.

16. To cancel burning, click on the **Stop** button. To pause/ resume burning, click on the **Pause/Restart** button.

→ The burning process is complete when the relevant message appears in the information window.
You can now return to the burning settings and burn the compilation again. The **More** button takes you to the **What do you want to do now?** screen, where you can select the other options or close Nero Recode.

7.2.1 Trim Title

If you do not want to use the whole of a video title in the imported main movie, you can just use a special clip by trimming the video title.

The **Trim Movie** window where video titles can be trimmed is divided into two areas, the first showing the first frame where the video title is to begin and the second containing the last frame where the video title is to end.
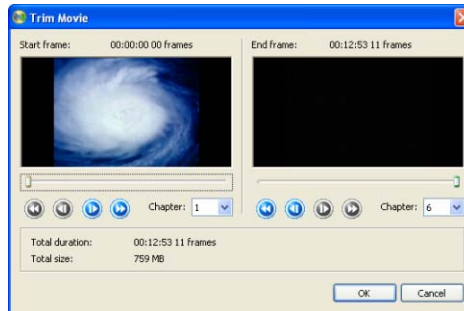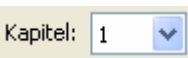

Fig. 9: **Trim Movie** window

The following input options are available in the **Trim Movie** window:

	Button for skipping forward a few frames.
	Button for skipping forward 6 seconds.
	Button for skipping back 6 seconds.
	Button for skipping back a few frames.
	Control for setting the required frame manually.
	Select the chapter markers of the video title in the drop-down list. This is only possible if the video title contains chapter markers.
First Frame input	Indicates the first frame of the video title.
Last Frame input	Indicates the final frame of the video title.
Total Duration input	Indicates the length of the video title.
Total Size input	Indicates the overall size of the video title

8   Compile a DVD

Nero Recode allows you to compile your own DVD from imported video titles and data files.

8.1   Task-specific input options

Fig. 10: **My Own DVD Compilation** screen with already imported files

In addition to the input options described under Import Files screen, the following buttons are available for the **Compile DVD** task in the **My DVD Compilation** screen.

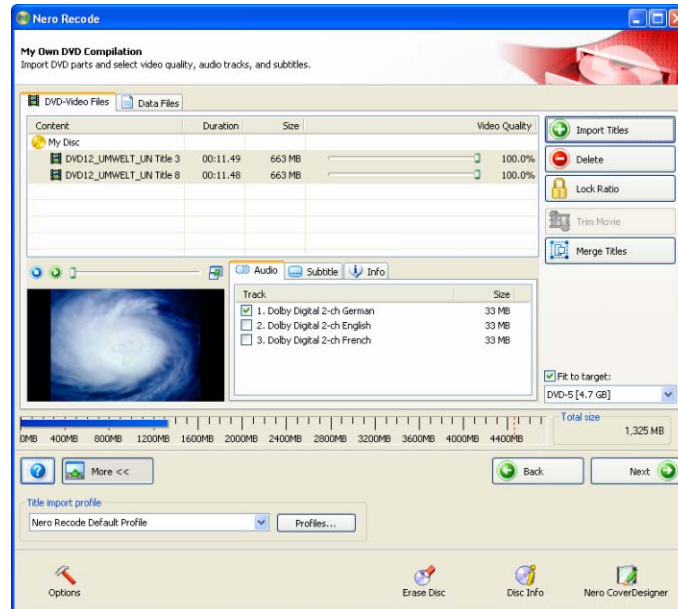|	
🔴 **Delete**	Removes video titles. The button is only enabled if a DVD video title has been imported.
🔒 **Lock**	Locks the automatic change of recoding quality for a DVD video title. It is still possible to make manual changes to the quality settings by moving the control. The button is only enabled if a DVD video title has been imported.
🔓 **Unlock**	Removes the lock on the automatic change of recoding quality. This button is only enabled when a DVD video title has been imported.
🎬 **Trim Movie**	Opens the **Trim Movie** window where the selected video title can be trimmed. This button is only enabled if a DVD video title has been imported.
🔳 **Merge Titles**	This merges marked video titles. The button is only enabled if at least two DVD video titles have been marked.
🔳 **Separate**	This separates merged video titles. The button is only enabled if at least two DVD video titles have been merged to produce a single title.

The significance of the columns in the upper area of the **DVD Video Files** tab is as follows.

Content	Shows the structure contained on the DVD.
Duration	Shows the length of the relevant area.

Size	Shows the size of the relevant area.
Video quality	Shows the quality. The higher the number, the better the quality of the file recoded with Nero Recode.

8.2   Recode

To recode a DVD, proceed as follows:

1. Start Nero Recode.

→   The start screen appears (see The Nero Recode start screen).

2. Select **Compile a DVD** in the Nero Recode start screen.

→   The **My Own DVD Compilation** screen appears.

3. Insert the DVD you want to recode in the DVD drive on your PC.

4. Insert a blank disk if you want to burn the data onto CD/DVD.

5. Check the **Fit to Target** box.

→   The content of the source DVD will then be recoded to fit on to the blank disk you have inserted.

If the **Fit to Target** box is not checked, the DVD video is imported in its original size. In this case the volume of data can be so great that it can only be burned onto a double-layer DVD or saved on the hard drive.

6. Select the required import profile in the Title import profile area (see Title import profile).

7. Click on the **Import Title** button.

→   The **Import Title** dialog window is opened.

8. Select the video titles you want to recode and click on the **OK** button:

→   You have imported the DVD.
The capacity bar at the bottom of the screen shows how much memory the imported files require. If the file volume is greater than the target medium, the central area of the **DVD-Video Files** tab shows how the files are recoded in accordance with the selected profile.

9. Mark the audio tracks you want to copy on the **Audio** tab.

10. Mark the subtitle tracks you want to copy on the **Subtitle** tab.

11. To delete a video title:
   1. Mark the video title you want on the **DVD Video Files** tab.
   2. Click on the **Delete** button.

   →   The video title has been removed from the compilation.

12. If you want to lock an single video title to prevent loss of quality when recoding:
   1. Mark the video title in the **DVD Video Files** tab.
   2. Click on the **Lock** button.

   →   The marked video title is locked.

13. If you want to unlock an already locked video title to adjust the quality proportionately to the changes in quality in the other titles:
  1. Mark the video title in the **DVD Video Files** tab.
  2. Click on the **Unlock** button.

   → The marked video title is unlocked.

14. To trim a video title:
  1. Mark the video title in the **DVD Video Files** tab.
  2. Click on the **Trim Movie** button.

   → The **Trim Movie** window will open.

  3. Trim the video title by defining the first and last frames (see Trim Title).
  4. Click on the **OK** button.

15. If you want to merge several video titles:
  5. Mark at least two video titles on the **DVD-Video Files** tab.
  6. Click on the **Merge Titles** button.

   → The merged video titles are grouped together in a new folder named **Merged Titles**.

Video titles can only be merged if they all have the same audio track.

16. Separate the previously merged video titles as required.
  1. Mark the **Merged Titles** folder in the **DVD Video Files** tab.
  2. Click on the **Split Titles** button..

   → The merged video titles are shown separately again.

17. Move an area control in the **Video Quality** column until the required video title quality is reached

The quality of the rest of the content of the DVD will deteriorate proportionately to the improvement in the improvement in the quality of an individual video title.

18. Click on the **Next** button to continue to define the burn settings.

   → The **Burn Settings** dialog appears.

19. Make the required settings for the burning process (see Recoding and Burning screen).

20. Click on the **Burn** button to start the burning process.

   → Burning starts.
    The **Recode and Burn** screen appears and you can follow its progress on the progress bar.

21. To cancel burning, click on the **Stop** button. To pause/ resume burning, click on the **Pause/Restart** button.

➔ The burning process is complete when the relevant message appears in the information window.
You can now return to the burning settings and burn the compilation again. The **Next** button takes you to the **What do you want to do now?** screen, where you can select the other options or close Nero Recode.

9   Recode DVDs and videos for Nero Digital

Nero Recode allows you to encode all video formats supported by Nero in Nero Digital files. The Nero Digital Codec conforms to MPEG-4. These files can be played back in Nero ShowTime and other commonly available programs.

9.1 Task-specific input options
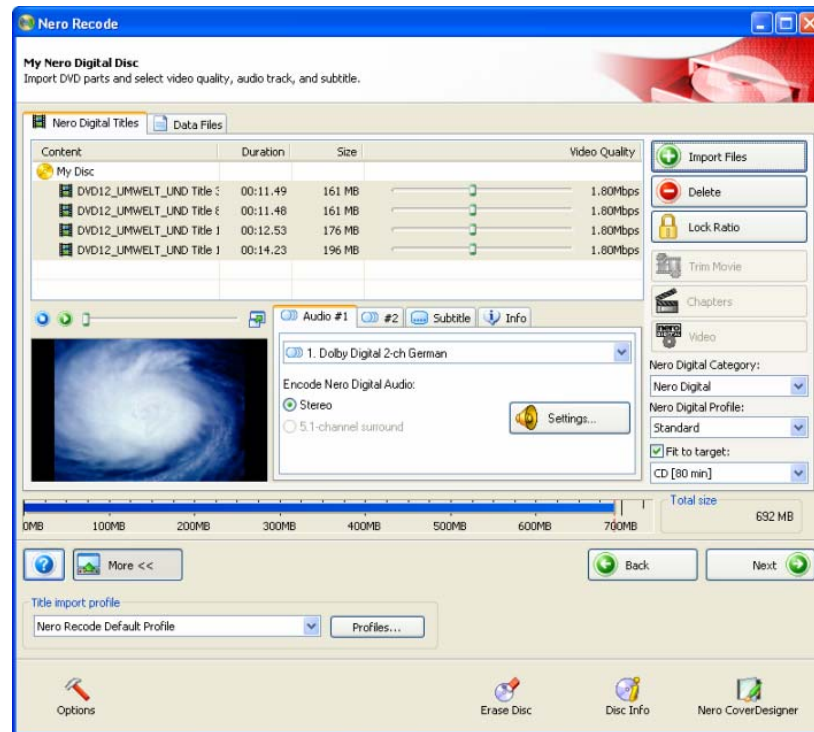
Fig. 11: **My Nero Digital Disk** screen with already imported files

In addition to the input options described under Import Files screen, the following input options are available for the **Recode DVDs and Videos for Nero Digital** task in the **My Nero Digital Disc** screen.

Delete	Removes video title. The button is only enabled if a DVD video title has been imported.
Lock	Locks the automatic change of recoding quality for a DVD video title. It is still possible to make manual changes to the quality settings by moving the control. The button is only enabled if a DVD video title has been imported.
Unlock	Removes the lock on the automatic change of recoding quality. This button is only enabled when a DVD video title has been imported.
Trim Movie	This opens a window where the selected video title can be trimmed. The button is only enabled when a DVD video title has been imported.
Chapter	This opens a window where chapter markers can be set. This button is only enabled if a DVD video title has been imported and marked.
Video	Opens a window in which the video settings used for conversion are defined. The button is only enabled if a DVD video title has been imported and marked.

Nero Digital Category	Changes the **Nero Digital Category**. The setting relates to the relevant target medium for which encoding is being carried out. The size of the result varies, depending on the selection.
Nero Digital Profile	Changes the **Nero Digital-Profile**. The setting relates to the target medium for which encoding is carried out.

The columns in the upper area of the **Nero Digital Title** tab have the following meaning.

Content	Shows the structure contained on the DVD.
Duration	Shows the length of the relevant area.
Size	Shows the size of the relevant area.
Video quality	Shows the quality. The higher the number, the better the quality of the file recoded with Nero Recode.

9.2   Recode

To recode a DVD or video for Nero Digital, proceed as follows:

1. Start Nero Recode.

→   The start screen appears (see The Nero Recode start screen).

2. In the Nero Recode start screen select **Recode DVDs and Videos for Nero Digital**.

→   The **My Nero Digital Disc** screen will appear

3. Insert the DVD you want to recode in the DVD drive on your PC.

4. Insert a blank disk if you want to burn the data onto CD/DVD.

5. Check the **Fit to Target** check box.

→   The content of the source DVD is then recoded to fit on the blank disk that has been inserted.

> If the **Fit to Target** box is not checked, the DVD video is imported in its original size. In this case the volume of data can be so great that it can only be burned onto a double-layer DVD or saved on the hard drive.

6. Select the required import profile in the **Title import profile** area (see Title import profile).

7. Click on the **Import Files** button.

→   The **Import Title** dialog window is opened.

8. Select the drive or hard drive folder containing the DVD or the individual video titles that you want to recode and click on the **OK** button.

→   You have imported the DVD.
    The capacity bar at the bottom of the screen shows how much memory the imported files require. If the file volume is greater than the target medium, the central area of the **DVD-Video Files** tab shows how the files are recoded in accordance with the selected profile.

9. Mark the audio tracks in Dolby Digital format that you want to copy on the **Audio** and **#2** tabs and specify the format to which the audio files are to be converted (stereo or 5.1 channel surround).

10. If you want to change the audio settings, click the **Settings** button (see Audio settings).

11. Mark the subtitle tracks you want to copy on the **Subtitle** tab.

12. Create your own subtitle track as required (see Create your own subtitle track).

13. To delete a video title:
   1. Mark the video title you want to delete on the **Nero Digital Title** tab.
   2. Click on the **Delete** button.

   → The video title will be removed from the compilation.

14. If you want to lock an individual video title to prevent loss of quality during recoding:
   1. Mark the video title you want to lock on the **Nero Digital Title** tab.
   2. Click on the **Lock** button.

   → The marked video title is locked..

15. To unlock an already locked video title so as to adjust the quality proportionately to the changes in quality in the other titles:
   1. Mark the video title you want to unblock on the **Nero Digital Title** tab
   2. Click on the **Unlock** button.

   → The marked video title is unlocked..

16. To trim a video title:
   1. Mark the video title you want to trim in the **Nero Digital Title** tab.
   2. Click on the **Trim Movie** button.

   → The **Trim Movie** window will be opened..

   3. Trim the video title by defining the first and last frames (see Trim Title).
   4. Confirm your selection by clicking on the **OK** button.

   → The video title is trimmed.

17. If you want to add additional chapters to individual video titles:
   1. Mark the video title to which you want to add additional chapters in the **Nero Digital Title** tab.

   → The **Chapter** window opens.

   2. Add more chapters to the video title (see Set chapter markers).
   3. Click on the **OK** button.

   → The video title now contains new chapters.

18. To change the Nero Digital video settings for particular video titles:
   1. Highlight the video title whose settings you want to change in the **Nero Digital Titles** tab.
   2. Click on the **Video** button.
   3. Change the required settings (see
   4. Define video settings).
   5. Click on the **OK** button.

   → The video settings are changed.

19. Select the required Nero Digital category in the **Nero Digital Category** drop-down list.

20. Select the required Nero Digital profile in the **Nero Digital Profile** drop-down list.

21. Move an area control in the **Video Quality** column until the required video title quality is reached

The quality of the rest of the content of the DVD will deteriorate proportionately to the improvement in the improvement in the quality of an individual video title.

22. Click on the **Next** button to continue to define the burn settings.

→ The **Burn Settings** dialog appears.

23. Make the required settings for the burning process (see Recoding and Burning screen).

24. Make the required settings in the Nero Digital options (see Set Nero Digital options).

25. Click on the **Burn** button to start the burning process.

→ Burning starts.
The **Recode and Burn** screen appears and you can follow its progress on the progress bar.

26. To cancel burning, click on the **Stop** button. To pause/ resume burning, click on the **Pause/Restart** button.

→ The burning process is complete when the relevant message appears in the information window.
You can now return to the burning settings and burn the compilation again. The **Next** button takes you to the **What do you want to do now?** screen, where you can select the other options or close Nero Recode.

9.2.1 Audio settings

Define the settings for the audio encoder in the **Nero Digital Audio Settings** window.

The following input options are available:

Audio channels drop-down list	Audio channels are available for selection in the **Audio Channels** drop-down list. These are the same channels available in the selected **Nero Digital-Profile** for converting the DVD video title to MPEG-4 format.

Nero Digital Audio Profiles area

Automatic Settings radio button	Automatically adapts to the **Nero Digital Profile**, so that the quality of the audio track best corresponds to the output medium.
Own Profile radio button	Enables the selection of the available audio profiles. Clicking on the drop-down menu activated in this way will show the available audio profiles for the selected **Nero Digital Profile**. In addition, the quality of the audio track can also be changed by changing the bitrate and the pitch (in Hz).
Volume menu	Sets the required volume.

9.2.2 Create your own subtitle track

The **Second Subtitle Track** drop-down list in the **Subtitle** tab allows you to create a subtitle track. This option is only available if you are converting titles into Nero Digital.

You can also import an already existing subtitle track. For an import of this kind, the file must be saved in the following format: .SRT; .SUB.

The individual subtitles in files in .SUB format consist of a single line. The lines are separated from each other by paragraph marks and must have the following form:

{0}{50}Sample subtitle text	The first and last frames in which the text is to appear, in curled brackets. Followed - without a blank - by the subtitle text.

Files in.SRT format consist of blocks of 3 lines. They are separated from each other by blank lines and must have the following form:

1	Continuous number, beginning with one, increases by one per block.
00:01:36,480 --> 00:01:38,360	Precise time in hours, minutes and seconds after which the text is to be displayed. The thousandths of a second are separated by a comma. Blank. Arrow, consisting of two hyphens and an angled bracket. Blank. Precise time in hours, minutes and seconds after which the text should no longer be displayed. The thousandths of a second are separated by a comma.
Sample subtitle text	The text of the subtitle.

You can only insert your own subtitle if you either select the Nero Digital category **Nero Digital** or **AVC** and the Nero Digital profiles **Standard**, **Cinema** or **HDTV** for encoding.
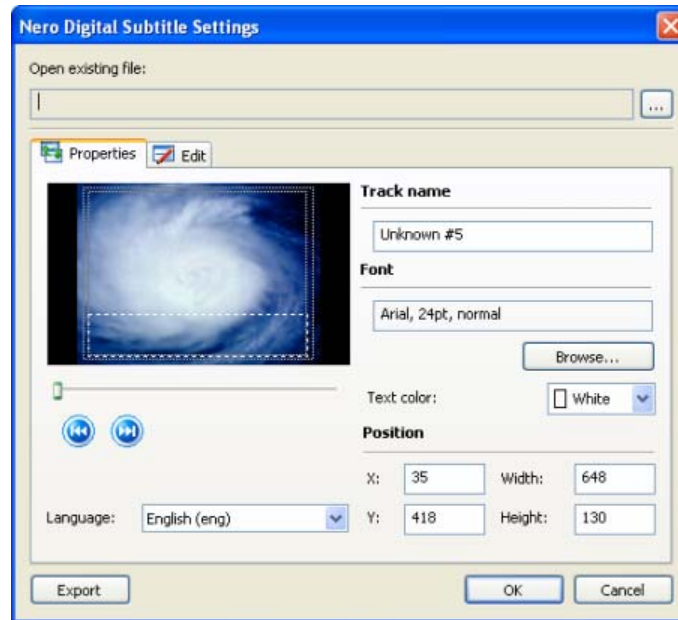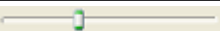
Fig. 12: **Nero Digital Subtitle Settings** window

The following input options are available:

Open existing file button	Opens the **Open** dialog window. Already existing subtitle files can be selected there.
Export button	This opens the **Save As** dialog window. This is where you can export a subtitle file you have created yourself.
OK button	Saves the changes in the **Nero Digital Subtitle Settings** dialog window**.**
Cancel button	Discards the changes in the **Nero Digital Subtitle Settings** dialog window.
Properties Tab	
Track-Name input box	Allocates a name to a subtitle track you have created.
Font input box	Displays the settings from the **Font** dialog window.
Browse button	Opens the **Font** dialog window. Make the settings for the font of your subtitle track here.
Text color drop-down list	Specifies the color of your subtitle track.
Position area	Specifies the coordinates of the text box where the subtitle track is displayed.
Language drop-down list	Specifies the subtitle track language to be declared.
	Goes to the end of the current subtitle line or the beginning of the next.
	Goes to the beginning of the current subtitle line or the end of the next
	The control can be used to skip the required frame.

Change tab	
Export button	Adds a new line to the end of the frame. In the standard setting the interval between the start and end of the time code is 4 seconds.
Edit button	Opens the **Edit Subtitle Line** dialog window This button can be used to enter the subtitle text for every interval in the **Text** column.
Delete button	Deletes a previously highlighted line.

9.2.3 Set chapter markers

The **Set Chapter Markers** function allows you to add your own chapter markers to those already on the DVD.
The advantage of chapter markers is that they can be selected at the press of a button on a DVD player.

Chapter markers divide the content of a DVD. You can use the DVD player to skip to these directly.

The following input options are available in the **Chapter** window:

Current Frame display field	Shows the current playing time of the video displayed in the preview window.
Chapter display field	Shows the already set chapter markers and the starting time for every chapter marker.
Add button	Adds a chapter marker at the marked point in the video.
Delete button	Deletes the marked chapter marker.
—	The control can be used to skip the required frame
▶	Starts playback.
⏸	Pauses playback.
⏪	Skips 6 seconds back
◀|	Skips a few frames back
|▶	Skips a few frames forward
⏩	Skips 6 frames forward

9.2.4 Define video settings

You can use the **Nero Digital Video Settings** dialog box to define the settings for the video encoder.

9.2.4.1 Deinterlace tab

The following input option is available:

De-Interlace Video area	Nero Recode automatically recognizes when a DVD video title is made up of half frames (see interlaced). If a video is interlaced, Nero Recode recommends de-interlacing to increase Nero Digital image quality. The **Enable** option converts the video title.

The Interlacing process, which is used to display a TV image in PAL standard, displays two half frames in succession. As the frame is generated, only the odd lines from the output device are displayed for the first half frame and, one this is complete, the second half frame is generated from the even lines. The two frames are coded separately. The relatively high refresh frequency means that the eye picks this up as a single frame.
Modern screens (e.g. LCD, Plasma, DLP) can only reproduce the Interlacing process with a restricted image quality. For this reason, the half frames of videos can be converted into full frames in the Nero Digital video settings.

9.2.4.2 Crop tab

If the DVD video has black borders on the sides, these can be automatically edited out. This reduces the size of the video and thereby improves its quality. Nero Recode recognizes these borders automatically and edits them out automatically.

The following input options area available:

Automatic radio button	Detects black borders and edits these out. Default setting.
Custom Crop radio button	Enables the four input fields for Crop (top, bottom, right, left) and the **Adjust** button.
Adjust button	Opens a dialog window and displays a frame from the video. You can use the mouse to define the four cropping areas (top, bottom, left, right) by hand. The button is only enabled if the **Custom Crop** option is enabled.
Disable radio button	Allows the video to be converted without cropping the borders.

9.2.4.3 Resolution tab

Selecting a **Nero Digital Profile** for converting the DVD video title to MPEG-4 format defines the size of the frame to be generated as standard.

The following input options area available:

Automatic radio button	Automatically adjusts the frame size to the **Nero Digital Profile** so that the frame size generated matches the output medium.
Custom resize radio button	Activates the two input fields for the page format (width and height). The values to be entered must be multiples of 16 and must be in the range 16 to 720 pixels for width and 16 to 576

	pixels for height.
Disable radio button	Allows the video to be converted without changing the frame size.
Letterboxed check box	Creates a Nero Digital file consisting of square pixels. Some, players require square pixels.

9.2.5 Set Nero Digital options

The following additional setting options become available when converting to Nero Digital:

Current Profile drop-down menu	Displays the **Nero Digital Profile** you selected in the **My Nero Digital Disc** screen. Only one profile is available by default, however you can create another one.
New button	Creates a new profile. You can then select this in the **Current Profile** drop-down list.
Delete button	Deletes the profile selected in the **Current Profile** drop-down list.
Coding Method input box	Specifies the method to be used to code the MPEG-4 file.
Expert Mode check box	Switches to Expert Settings mode (see Nero Digital expert settings)

Users who are very experienced in converting video and audio files can use expert mode for advanced setting options (see Nero Digital expert settings).

You should only change the expert settings if you are sufficiently familiar with the area of video encoding

Incorrect settings can have a major negative impact on the quality of the output file.

10   Recode main movie to Nero Digital

Nero Recode allows you to encode DVD video files as Nero Digital files. The Nero Digital codec is MPEG-4-compatible. This option allows you to encode just the main movie on a DVD without the Extras. You can then play this back, for example in Nero ShowTime.

10.1 Task-specific input options
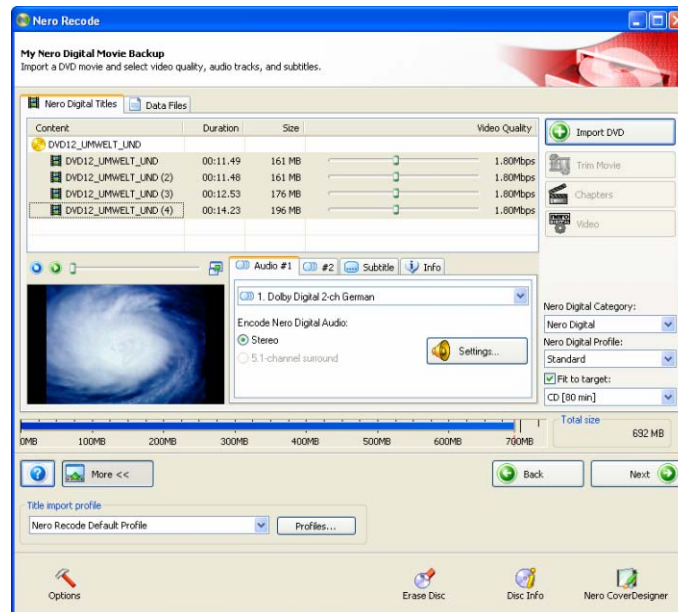
Fig. 13: **My Nero Digital Movie Backup** screen with already imported files

In addition to the input options described under Import Files screen, you can also use the following input options with the **Recode DVDs and Videos to Nero Digital** in the **My Nero Digital Movie Backup** screen.

![icon] **Trim Movie**	Opens a window where the selected video title can be trimmed. The button is only active if a DVD video title has been imported.
![icon] **Chapter**	Opens a window in the context of which chapter markers can be set. The button is only enabled if a DVD video title has been imported and marked.
![icon] **Video**	Opens a window in the context of which the video settings used during conversion can be defined. The button is only enabled if a DVD video title has been imported and marked.
Nero Digital Category	Changes the **Nero Digital Category**. The setting relates to the relevant target medium for which encoding is being carried out. The size of the result varies, depending on the selection.
Nero Digital Profile	Changes the **Nero Digital profile**. The setting relates to the target medium for which encoding takes place.

The columns in the upper area of the **Nero Digital Title** tab have the following meaning.

Content	Shows the structure contained on the DVD.
Duration	Shows the length of the relevant area.
Size	Shows the size of the relevant area.
Video quality	Shows the quality. The higher the number, the better the quality of the file recoded with Nero Recode.

10.2 Recode

To recode a main movie for Nero Digital, proceed as follows:

1. Start Nero Recode.

→   The start screen appears (see The Nero Recode start screen).

2. Select the **Recode Main Movie to Nero Digital** task in the Nero recode start screen**.**.

→   The **My Nero Digital Movie Backup** screen appears.

3. Insert the DVD you want to recode in the DVD drive on your PC.

4. Insert a blank disk if you want to burn the data onto CD/DVD.

5. Check the **Fit to Target** box.

→   The content of the source DVD is then recoded to fit on the blank disk that has been inserted.

If the **Fit to Target** box is not checked, the DVD video is imported in its original size. In this case the volume of data can be so great that it can only be burned onto a double-layer DVD or saved on the hard drive.

6. Select the required import profile in the Title import profile area (see Title import profile).

7. Click on the **Import DVD** button.

→   The **Find Folder** dialog window is opened.

8. Select the drive or hard drive folder containing the DVD and click on the **OK** button.

→   DVD video titles will be imported.
The capacity bar at the bottom of the screen shows how much memory the imported files require. If the imported files are greater than the target medium, the central area of the **Nero Digital Titles** tab shows how the files are recoded in accordance with the selected profile.

9. Mark the audio tracks you want to copy as required on the **Audio** and **#2** tabs in Dolby Digital format and specify the format to which the audio files are to be converted (stereo or 5.1-channel surround).

10. To change an audio setting, click on the **Settings** button (see Audio settings).

11. Mark the subtitle tracks you want to copy on the **Subtitle** tab.

12. Create a subtitle track of your own as required (see Create your own subtitle track).

13. To trim a video title:
   1. Mark the video title you want to trim in the **Nero Digital Title** tab.
   2. Click on the **Trim Movie** button.

      → The **Trim Movie** window is opened.

   3. Trim the video title by defining the first and last frames (see Trim Title).
   4. Confirm your selection by clicking on the **OK** button.

      → The video title is trimmed.

14. If you want to add additional; chapters to individual video titles:
   1. Mark the video title to which you want to add more chapters in the **Nero Digital Title** tab.

      → The **Chapter** window is opened.

   2. Add additional chapters to the video title (see Set chapter markers).
   3. Click on the **OK** button.

      → The video title contains new chapters.

15. If you want to change the Nero Digital Video settings for certain video titles:
   1. Mark the video title whose video settings you wish to change in the **Nero Digital Title** tab.
   2. Click on the **Video** button.
   3. Change the required settings (see
   4. Define video settings).
   5. Click on the **OK** button.

      → The video settings have been changed.

16. Select the required Nero Digital category in the **Nero Digital Category** drop-down list.

17. Select the required Nero Digital profile in the **Nero Digital Profile** drop-down list.

18. Move an area control in the **Video Quality** column until the required video title quality is reached

The quality of the rest of the content of the DVD will deteriorate proportionately to the improvement in the improvement in the quality of an individual video title.

19. Click on the **Next** button to continue to define the burn settings.

   → The **Burn Settings** dialog appears.

20. Make the required settings for the burning process (see Recoding and Burning screen).

21. Make the required settings in the Nero Digital options (see Set Nero Digital options).

22. Click on the **Burn** button to start the burning process.

   → Burning has started.
      The **Recode and Burn** screen appears and you can follow its progress on the progress bar

23. To cancel burning, click on the **Stop** button. To pause/ resume burning, click on the **Pause/Restart** button.

➔ The burning process is complete when the relevant message appears in the information window.
You can now return to the burning settings and burn the compilation again. The **Next** button takes you to the **What do you want to do now?** screen, where you can select the other options or close Nero Recode.

11   Nero Digital expert settings

You can define additional settings for the **Nero Digital Options** in the **Burn Settings** screen.

> You should only change the expert settings if you are sufficiently familiar with the area of video encoding, in particular MPEG-4 encoding.
>
> Incorrect settings can have a major negative impact on the quality of the output file

11.1 MPEG-4 terminology

To clarify the options available in expert mode, a number of terms are defined in greater detail below:

AVC	Advanced Video Coding. Complies with H264 standard. See H264.
ASP	Advanced Simple Profile. Complies with H263 standard. See H263.
B-Frame	Bidirectional coded frame.. Only uses the difference information relative to previous and subsequent key frames (I frames). Because only the difference information is used, rather the full frame information, compression is greater.
B-VOP	Bidirectional coded Video Object Plane (see B-Frame). VOP is only referred to in the context of coding in the H263 standard.
CABAC	Context Adaptive Binary Arithmetic Coding. The name of a process for arithmetically coding digital video data as part of coding standard MPEG-4 AVC and H.264.
Data compression	Process in which data is compressed so that it needs less storage space and shorter transmission times in data networks.
EPZS	Enhanced Predictive Zonal Search. An algorithm for finding motion in video sequences.
GOP	Group Of Pictures. The interval from one I-Frame to the next.
H264	ITU standard for video decoding and compression.
H263	Video compression standard which uses a similar approach to MPEG-2, but is much more efficient.
I-Frame	Intra coded Frame. Contains the complete integral information for a particular frame.
I-VOP	Intra coded Video Object Plane. See I-Frame. VOP is only referred to in the context of coding in the H263 standard.
Interlace	Horizontal skip process. Used when recording, processing and displaying images. Mainly used for displaying television signals on receivers based on the CRT principle.
ISO	International Organization for Standardization.
ITU	International Telecommunication Union.
Keyframe	See I-Frame.

Macroblock	A macroblock describes 16 x 16 pixels and is the elementary unit in the MPEG standard on which motion coding is also based.
Matrix	A matrix is a rectangular pattern whose elements are usually numbers, although they can be other mathematical elements such as variables of functions. It consists of m lines and n columns. In relation to qualification: the values in the matrix are factors that control the value of the compression. The higher the number the greater the compression.
Motion Estimation	Motion estimation/ motion search.
MPEG 4	An MPEG standard (ISO/IEC-14496) that describes the process of video and audio compression, among other things. Video compression is divided into MPEG-4 AVC (see H264) and MPEG-4 SP/ASP (see H263).
NC	Not Coded.
P-Frame	Predictive Frame. Uses only the difference information relative to the previous and subsequent key images (I-Frames). Because only the different information is used, not the complete image information, the degree of compression is greater.
P-VOP	Predicted Video Object Plane. See P-Frame. VOP is only referred to in the context of coding in the H263 standard.
Prediction	Prediction/estimate
Quantization	General: The generation of a digital signal from an analog signal. In video compression: Quantization controls the degree of compression. It involves the reduction of the value range by a division-type operation.
Noise	Interference in image or sound. Generally an interfering parameter with a broad, unspecified frequency spectrum. It can thus be interpreted as the overlayering of numerous oscillations or waves of varying amplitude and frequency or wave length.
Keyframe	See I-Frame.
VOP	A video frame. This is how a frame is referred to in the context of MPEG-4 SP/ASP.

11.2 MPEG-4 profiles

MPEG-4 SP/ASP is mainly available in two different profiles, Simple Profile (SP) and Advanced Simple Profile (ASP). Nero Recode allows you to choose the profile in which the files are to be output (see Simple Profile (QuickTime™ compatible)).

The functions are supported by the various profiles as follows:

Functionality	Profile	
	Simple	Advanced Simple
I-Frame	x	x
P-Frame	x	x
B-Frame	–	x
AC/DC Prediction	x	x
4 motion vectors per macroblock / unlimited motion vectors	x	x
H.263 / MPEG quantization	–	x
Global Motion Compensation	–	x
Interlace process	–	x

Various entries are available for selection in the **Profile** area in the navigation tree. The entries under the MPEG-4 encoder main point are explained below.

The option for changing settings depends on the selection made in the **Nero Digital Profile and Nero Digital Category** drop-down list. Some selection options cannot be changed and are therefore grayed out.

11.2.1 Create a new profile

To create a new profile for the Nero Digital settings, proceed as follows:

1. Click on the **New** button.

   → The **New Profile** dialog window will open.

2. Enter the name for the new profile.

3. Select the profile from which the settings are to be copied from the drop-down list.

4. Click on the **OK** button.

   → You have now created a new profile. You can now continue to make more settings in expert mode.

11.2.2 Encoding mode

The **Encoding mode** setting allows you to choose between the **Real-time encoding (1 pass)** and **High quality encoding (2 pass)** settings.

Coding in a single pass may take less time, but it does not offer the same quality as coding in two passes.

If coding in a single pass is selected, two fields are available, **Min. quant.** and **Max. quant..** You can use these to set the range for the permitted quantization factor. This determines the degree of compression for the output file.

Remember that while greater compression reduces the output, it also involves a loss of quality.
For this reason you should never exceed a quantization factor of 31.

This setting option is only available if you have selected **Nero Digital, Sony Memory Stick-Video** or **Apple iPod** in the Nero Digital category.

11.2.3 Quality/Speed

The **Quality/Speed** entry enables you to make settings in relation to the quality and speed of the coding process.

The **Performance/Quality** drop-down list can be used to select settings for the best possible configuration of the options. When you choose **Custom** you can select the options yourself. These options are explained below.

This setting option is only available if you have selected **Nero Digital, Sony Memory Stick-Video** or **Apple iPod** in the Nero Digital category.

11.2.3.1 Motion search

In the **Motion search** drop-down list you can choose between **None, EPZS** (**E**nhanced **P**redictive **Z**onal **S**earch) and **EPZS²**. These are algorithms for reducing image information in P and B-VOPs.

EPZS² produces the best results in this setting, but requires more time for encoding.
The **None** setting produces the lowest coding efficiency. For this reason it is not recommended.

11.2.3.2 NC Prediction

You can use the **NC Prediction** drop-down list to set the speed of the prediction of non-coded macroblocks.

If you choose **Fast**, an attempt will be made to use a fast process to close the current macroblock from neighboring, non-coded macroblocks. However, the quality of the output file is poorer.
The **None** setting delays the coding process because the non-coded blocks are not predicted but are rather analyzed in detail. This produces the best possible quality.
The **Normal** setting is recommended as it is the middle way.

11.2.3.3   Scene cut

If you check the **Scene cut** box, you can use the control to set the sensitivity with which the encoder detects scene changes. For efficiency, it inserts keyframes at these points whose information is used by the P- and B-VOPs. This is necessary in scenes involving a lot of fast movement in order to reproduce the details of the picture accurately.
We advise a central control setting because inserting too many keyframes is inefficient.

11.2.3.4   Fast ME

The **Fast ME** setting speeds up the encoding process by accelerating motion prediction.

11.2.3.5   Low/High noise

The **Low/High noise** setting requires you to judge for yourself whether your source features minor or major interference. If your source does have such interference, you should check the corresponding box. The encoder will then try to resolve the problems during encoding.

11.2.3.6   High B-VOP quantization

If you check the **High B-VOP quantization** box, you will increase the quantization of the B-VOPs.
The increase in quantization will improve the compression of the output file, making it smaller. However, this also means a reduction in quality

This option is only relevant if B-VOPs are permitted in the **Advanced** entry (see Advanced).

11.2.3.7   Rate distortion optimization

The **Rate distortion optimization** setting enables the encoder to guarantee the ratio between quality and targeted compression level with automatic decisions.

11.2.3.8   Maximum MV range

The **Maximum MV range** drop-down list allows you to use predefined values to set the maximum range for motion vectors.

11.2.3.9   Psycho visual quality level

The **Psycho visual quality level** setting uses human perception patterns to achieve better overall quality.

This means, for example, that the quality is better in the middle of the frame than at the edges because the eyes tend to focus more on the middle and a slight lack of detail on the edge will not be noticed. Because quality is "saved" on the edge, it is possible either to improve the overall quality or to increase compression.

11.2.4 Advanced

You can make further settings relating to various areas of the encoding in the **Advanced** entry. These are explained below.

These setting options are only available if you have selected **Nero Digital, Sony Memory Stick-Video** or **Apple iPod** in the Nero Digital category.

11.2.4.1   Simple Profile (QuickTime™ compatible)

If you check the **Simple profile** box, a number of options in expert mode are grayed out and cannot be changed. The output file is thus encoded in the MPEG-4 simple profile (see MPEG-4 profiles).

11.2.4.2   Quantization

The **Quantization** drop-down list allows you to choose between **H236 Quantization** and **MPEG Quantization**.

Select **MPEG** if you want to use your own quantization matrix or change the existing one. If you do not want to do this, leave the setting at **H263 quantization**.

11.2.4.3   Pixels

You can choose between **Half** and **Quarter Pixel** in the **Pixel** drop-down list.

Motion is then sought in quarter or half pixel steps. If estimation is in quarter pixels, the coding process takes longer, but the quality is better

11.2.4.4   Spatial prediction

The **Spatial Prediction** setting is used to encode macroblocks in correlation with neighboring macroblocks. In other words, they are coded with difference information relating to these neighboring macroblock and on the basis of the probability of similarity. The information from several intracoded neighboring macroblocks is used to be able to predict a macroblock more accurately.

11.2.4.5   P-VOP

The **P-VOP** setting enables encoding using P-VOPs.

11.2.4.6   Unrestricted Motion Vectors

If you check the **Unrestricted motion vectors** box, you allow the motion vectors also to relate to points outside the frame.

This option improves coding efficiency on the edge of the frame.

11.2.4.7   4 motions vectors per macroblock

The **4 motion vectors per macroblock** setting allows the encoder to divide the macroblocks of 16x16 pixels into four 8x8 pixel macroblocks for the motion search. This means that there are now four motion vectors instead of one.
This option improves the quality but slows down the encoding process.

11.2.4.8   Bidirectional VOP

The **Bidirectional VOP** setting permits encoding with the help of B-VOPs.

11.2.4.9   Support of interlaced VOP

The **Support of interlaced VOPs** setting allows the Interlaced process.

This process, which is used to display a TV picture in PAL standard, displays two half frames in succession. As the frame is generated, only the odd lines from the output device are displayed for the first half frame and, one this is complete, the second half frame is generated from the even lines. The two frames are coded separately. The relatively high refresh frequency means that the eye picks this up as a single frame.

This function is not supported by all hardware.

11.2.4.10   Global Motion Compensation

The **Global Motion Compensation** setting is used to compensate for camera movement. This is achieved by means of pre-set vector fields for motion vectors. The vector corrections required if the vector fields are incorrect are less complex than the creation of a completely new vector field..

This setting requires a lot of time with little increase in quality.

11.2.5 Keyframes

The **Keyframes** entry allows you to set the intervals between keyframes.

These setting options are only available if you have selected **Nero Digital, Sony Memory Stick-Video** or **Apple iPod** in the Nero Digital category

11.2.5.1   Smallest/largest keyframe interval

The **Keyframe Interval** setting defines the maximum and minimum values for the GOP size.

Remember that the value for the largest interval may not be greater than 300, but should not be set too low either because the coding efficiency at other locations can become poorer if there are too many keyframes.

11.2.6 Matrices

The user can edit existing qualification matrices or upload their own matrices under **Matrices**.

The matrices determine how the various frequencies in the macroblocks are displayed.

These setting options are only available if you have selected **Nero Digital, Sony Memory Stick-Video** or **Apple iPod** in the Nero Digital category

11.2.6.1   Intra

The matrix in the **Intra** entry is responsible for the quantization of I macroblocks because this is intracoded.

11.2.6.2   Inter

The matrix in the **Inter** entry is responsible for the quantization of P and B macroblocks because these are intercoded.

11.2.7 AVC Encoder

The **AVC** (Advanced Video Encoding) entry and its subentries can be used to make AVC encoding settings for your data.

11.2.7.1 Thread Count

Nero Recode supports multi-core processors. If you have one of these, you can distribute the encoding process to the required number of threads.

The **Thread Count** drop-down list allows you to choose whether to allow the encoding process to be performed by several threads. This means that you can use a multi-core processor system to optimum effect.

The number of processor cores used corresponds to the number of threads you have selected.

11.2.8 Bitrate mode

The **Bitrate mode** entry can be used to make settings in relation to the bit rate mode and quantization (see Encoding mode).

11.2.9 General settings

The **General Settings** entry is used to make settings for the **Decision Quality**, the **Motion Vectors** and the **GOP Properties**.

These setting options are only available if you have selected **Nero Digital AVC** in the Nero Digital category.

11.2.10 Decision quality

The **Decision Quality** control indicates the required quality of the output file in relation to the time expended.
High Quality produces the best quality with the longest encoding period.
High Speed requires the shortest encoding period with the poorest possible quality.
We recommend a medium value in the **Best** range.

11.2.10.1 Motion vectors

See Maximum MV range .

11.2.10.2 GOP properties

A GOP (**G**roup **O**f **P**ictures) is an interval from one I-Frame to another.

- Maximum reference frames
  The number in the **Maximum Reference Frames** field indicates the number of frames from which a P or B-Frame may draw its information.
  If B-Frames are permitted, the number must be at least 2.

- Maximum GOP size
  The number in the **Maximum GOP Size** field indicates the number of frames permitted between I-Frames.

- Maximum B-Frames
  The number in the **Maximum B-Frames** field indicates the maximum number of consecutive B-Frames that can be used in a GOP.

11.2.11　Encoder Tools

You can make the settings for the encoder process in the **Encoder Tools** entry.

These setting options are only available if you have selected **Nero Digital AVC** in the Nero Digital category.

11.2.11.1　CABAC

CABAC (**C**ontext **A**daptive **B**inary **A**rithmetic **C**oding) is a particular coding method. Instead of bit sequences of variable length, it uses better arithmetic coding to achieve a 10 to 20% data rate saving.
This is only used with MPEG-4 AVC.

11.2.11.2　Bidirectional prediction

The **Bidirection Prediction** setting permits encoding using B frames.

11.2.11.3　Macroblock Partitions

The **Macroblock Partitions** setting allows you to split macroblocks (see 4 motions vectors per macroblock).

11.2.11.4　Weighted Prediction

The **Weighted Prediction** setting allows reference frames to be weighted when predicting motion. This increases coding efficiency, particularly in the case of cross-fading.

11.2.11.5　8x8 Transform

The **8x8 Transform** setting allows the encoder also to use an 8x8 transformation as an alternative to the standard 4x4 transformation (see 4 motions vectors per macroblock).

This setting permits better compression, particularly for HD resolution.

11.2.11.6　Deblocking Settings

Deblocking Settings operates like a soft focus on the sharp edges of the macroblocks. You can use the control to change the intensity of this effect.

11.2.12 Visual Enhancements

The settings in the **Psycho visual quality level** entry use human perception patterns to achieve better overall quality.

This means, for example, that the quality is better in the middle of the picture than at the outer edges because the eyes tend to focus on the middle and do not notice slight blurring at the edge. Because quality is "saved" at the edge, you can either improve overall quality of achieve greater compression.
This means that you can achieve greater compression without any appreciable loss of quality.

These setting options are only available if you have selected **Nero Digital AVC** in the Nero Digital category.

11.2.12.1 Picture Level

The **Picture Level** setting takes account of human perception so as to achieve better compression for individual video frames in particular areas of the picture.

11.2.12.2 Macroblock Level

The **Macroblock Level** setting takes account of human perception so as to achieve better compression for individual video frames in particular areas of the picture.

11.2.12.3 Advanced

The **Advanced** setting provides more ways to achieve higher compression, however these may be evaluated by different viewers in different ways.

11.2.12.4 Enhanced Chroma Prediction

Traditionally, only brightness information was used for video compression, enabling compression decisions to be made in the encoder.
The **Enhanced Chroma Prediction** setting includes extensive color information in these decisions, making for better compression.

12 List of figures

13   Index

14   Contact

14.1 Contact details

Nero Recode is a product of Nero AG.

nero RECODE 2

Nero AG
Im Stoeckmaedle 18
76307 Karlsbad
Germany

Web: www.nero.com
Help: http://support.nero.com
E-mail: techsupport@nero.com
Fax: +49 724 892 8499