

# Using DVD-RAM discs

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This manual contains the minimum information necessary to use DVD-RAM discs with the DVD MULTI Drive under Windows 98/Me/2000.

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# Using DVD-RAM Discs

You must logically format a DVD-RAM disc before writing files on the disc.

Once you have logically formatted a DVD-RAM disc, it can be used to write files just as you would do with a floppy disk or hard disk.

## Formatting

A DVD-RAM disc can be formatted using either UDF (Universal Disk Format) or FAT32 format.

Use the format appropriate to your needs.

Format 2.8 GB (8 cm) / 5.2 GB / 9.4 GB double-sided DVD-RAM discs one side at a time.

### ■ UDF (Universal Disk Format)

UDF is newly specified for DVD family products. This new format is optimized for big capacity files, such as Video and Audio capture and playback, to keep constant, high transfer rates.

### ■ FAT32 Format

FAT32 is the Windows OS embedded file system and used for hard disk drives.

#### Note:

- DVD-RAM discs cannot be formatted with the NTFS type supported by Windows 2000.
- You cannot format 2.6 GB (single sided) or 5.2 GB (double sided) non-cartridge type DVD-RAM discs whose Disc Type Identification of the control data is not set to the “Enable to write” mode.

#### Executing Format software on Windows 2000

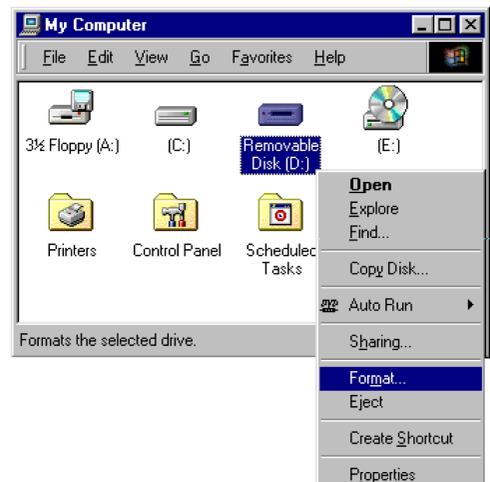
- When using the format software, you must login with the user name that belongs to the account of the administrator of the computer.
- You must close all applications used on a DVD-RAM disc prior to formatting.

**1** Insert the DVD-RAM disc you want to format.

**2** **1** Open [My Computer]

**2** Right click on the “Removable Disk” icon allocated to the DVD-RAM disc.

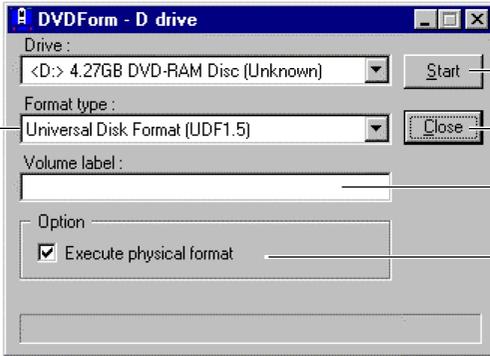
**3** Click [Format].



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**4** The following window is shown.  
Follow the instructions below.



Click to start formatting.

Click to close DVDForm.

Enter a volume name.

You must input a volume name when you select UDF format. When you do not input one, the volume name is set as "UDF" and the date automatically.

Select this when you want to perform physical formatting.

(There is no need to do this every time.)

This mode forces a check of all sectors for defects and allocates detected defective sectors to the spare area.

(Normally it takes about one hour for 4.7 GB/9.4 GB DVD-RAM discs, and 2.6 GB/5.2 GB DVD-RAM discs and takes about 20 minutes hour for 8 cm DVD-RAM discs.)

▼ Select the format type.  
(See the tables on page 5)

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## Recommended formats

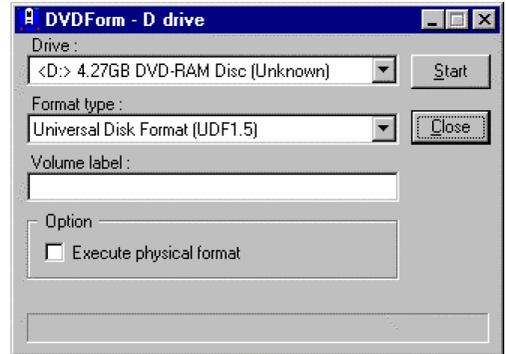
- Select “Universal Disk Format (UDF 1.5)” when you are going to use the DVD-RAM disc to write PC data.

This format allows the transfer of the data between different operation systems, such as between Windows and Mac OS\*1.

- 1 Select “Universal Disk Format (UDF 1.5)”.

- 2 Enter a volume name.

- 3 Click [Start].



\*1: Only MAC OS9 can read and write UDF 1.5 formatted DVD-RAM discs (as of May 31, 2002).

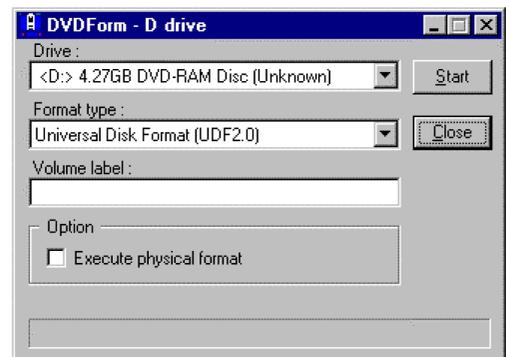
- Select “Universal Disk Format (UDF 2.0)” when you are going to use the DVD-RAM disc to write audio-visual data.

Select this format only if the disc is to be played in a DVD Recorder that uses the DVD Forum's video recording standard or with the recording software designed for personal computers that is based on the above standard, or if an 8-cm DVD-RAM is to be used in a DVD video camera.

- 1 Select “Universal Disk Format (UDF 2.0)”.

- 2 Enter a volume name.

- 3 Click [Start].



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## Format types

### • 4.7 GB / 9.4 GB DVD-RAM discs

<b>Universal Disk Format (UDF 1.5)</b>	<ul style="list-style-type: none"><li>• This is the standard format type for DVD-RAM. Data can be transferred between different operating systems, for example Windows and Mac OS<sup>※1</sup>.</li><li>• DVD-RAM formatted with UDF1.5 cannot be used with DVD Video recorders that use the DVD Forum's video recording standard or with the recording software designed for personal computers that is based on the above standard.</li></ul>
<b>Universal Disk Format (UDF 2.0)</b>	<ul style="list-style-type: none"><li>• This format is designed to be used with DVD Video recorders that use the DVD Forum's video recording standard and with the recording software designed for personal computers that is based on the above standard.</li></ul>
<b>FAT32</b>	<ul style="list-style-type: none"><li>• This is the additional format type on Windows 95 (OSR2<sup>※2</sup>) / Windows 98 / Windows Me / Windows 2000 / Windows XP.</li><li>• FAT32 formatted discs cannot be used with Windows 95 (other than OSR2<sup>※2</sup>) / Windows NT.</li></ul>

### • 2.6GB / 5.2GB DVD-RAM discs

<b>Universal Disk Format (UDF 1.5)</b>	<ul style="list-style-type: none"><li>• This is the standard format type for DVD-RAM. Data can be transferred between different operating systems, for example Windows and Mac OS<sup>※1</sup>.</li></ul>
<b>FAT32</b>	<ul style="list-style-type: none"><li>• This is the additional format type in Windows 95 (OSR2<sup>※2</sup>) / Windows 98 / Windows Me / Windows 2000 / Windows XP.</li><li>• FAT32 formatted discs cannot be used with Windows 95 (other than OSR2<sup>※2</sup>) / Windows NT.</li></ul>

### • 8-cm DVD-RAM discs

<b>Universal Disk Format (UDF 1.5)</b>	<ul style="list-style-type: none"><li>• This is the standard format type for DVD-RAM. Data can be transferred between different operating systems, for example Windows and Mac OS<sup>※1</sup>.</li><li>• DVD-RAM formatted with UDF1.5 cannot be used with DVD Video recorders and DVD video cameras that use the DVD Forum's video recording standard or with the recording software designed for personal computers that is based on the above standard.</li></ul>
<b>Universal Disk Format (UDF 2.0)</b>	<ul style="list-style-type: none"><li>• This format is designed to be used with DVD Video recorders and DVD video cameras that use the DVD Forum's video recording standard and with the recording software designed for personal computers that is based on the above standard. Perform this format for a disc used for a DVD video recorder or a DVD video camera.</li></ul>
<b>FAT32</b>	<ul style="list-style-type: none"><li>• This is the additional format type on Windows 95 (OSR2<sup>※2</sup>) / Windows 98 / Windows Me / Windows 2000 / Windows XP.</li><li>• FAT32 formatted discs cannot be used with Windows 95 (other than OSR2<sup>※2</sup>) / Windows NT.</li></ul>

※1: DVD-RAM formatted with UDF 1.5 can only be read by Mac OS 9.0 (as of May 31, 2002).

※2: Windows 95 whose system property is "4.00.950 B" or "4.00.950 C".

Confirm the system properties in [Start] → [Setting] → [Control Panel] → [System].

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The formats you can use with the Windows operating systems and free space and used space after formatting.

There are 4.7 GB of capacity on a side on 4.7 GB and 9.4 GB DVD-RAM discs. There are 2.6 GB of capacity on a side on 2.6 GB and 5.2 GB DVD-RAM discs. There are 1.4 GB of capacity on a side on 8-cm DVD-RAM discs.

The following chart shows the free space and used space on one side after formatting.

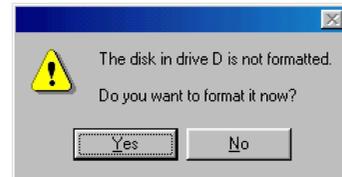
DISC	Format Type	Free space	OS version and used space	
			Windows98/Me	Windows 2000
4.7 GB 9.4 GB (one side)	UDF1.5	4.26 GB*3	384 KB	282 KB
	UDF2.0	4.26 GB*3	384 KB	282 KB
	FAT32	4.25 GB*3	4 KB	4 KB
2.6 GB 5.2 GB (one side)	UDF1.5	2.32 GB	128 KB	158 KB
	FAT32	2.31 GB	4 KB	4 KB
1.4 GB 2.8 GB (one side)	UDF1.5	1.3 GB*3	96 KB	92 KB
	UDF2.0	1.3 GB*3	96 KB	92 KB
	FAT32	1.3 GB*3	4 KB	4 KB

\*3: This is the capacity if 4.7 GB / 9.4 GB DVD-RAM discs or 8-cm DVD-RAM discs manufactured by Panasonic are formatted using the formatting software included with the DVD MULTI Drive.

**Note:**

- Do not format a DVD-RAM disc with the standard formatting software that starts if you click on [Yes] when the following window appears in Windows 98 or Windows Me.

Formatting a DVD-RAM disc with the standard format program included in Windows 98 / Windows Me results in a FAT16 format that exceeds the 2.0 GB limit, which can interfere with subsequent use.



## Accessing DVD-RAM discs recorded on a DVD VIDEO Recorder

When you record onto a DVD-RAM disc with a DVD video recorder, a DVD video camera, or computer software that follows the “Video Recording Standards” developed by the DVD Forum, a folder labeled “DVD\_RTAV”, in which all the relative video recording standard files are stored, is created. Do not access this folder and the files it contains with a computer.

Some of the files inside this folder exceed 2 GB. Due to limitations Windows 98, such files cannot be copied and their size may not be displayed correctly.

If any of the files are erased or changed, you may not be able to play the video on a DVD video recorder or with the video software for computers.

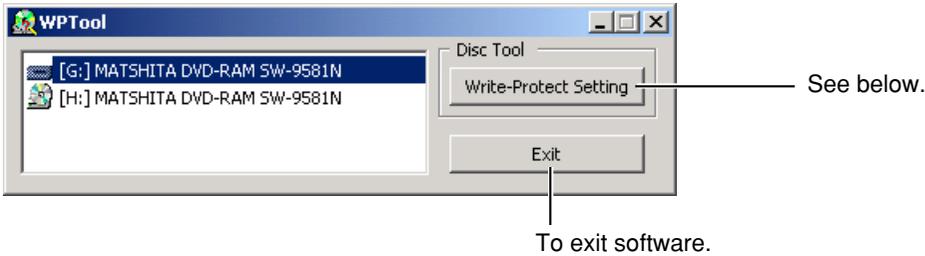
To access these files with a computer, you will need special software.

# Using Write-Protect Tool

## Starting WPTool

From the Start menu, select [Programs] → [DVD-RAM] → [DVD-RAM driver] → [WPTool].

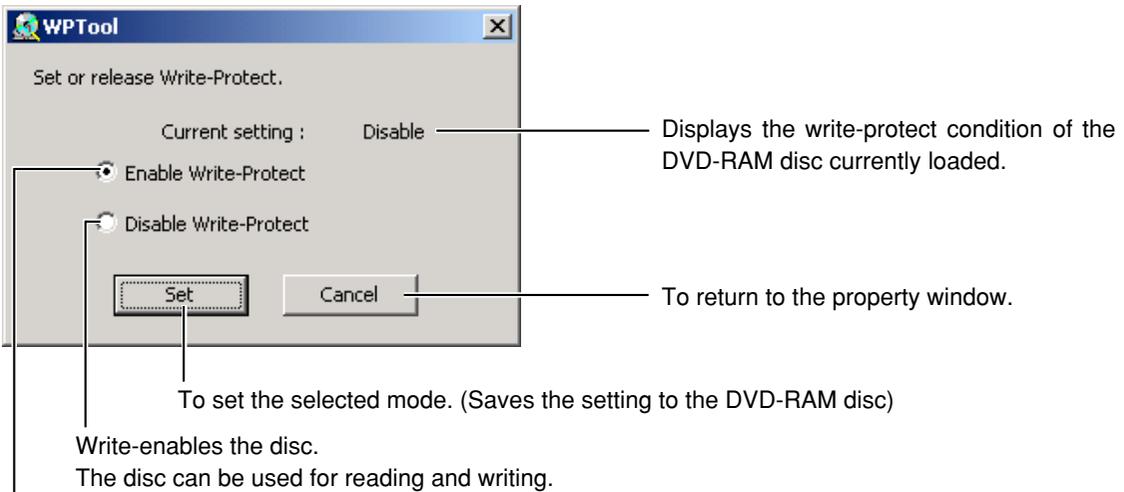
The following window is shown.  
Select the drive.



## Write-protect setting/release

Insert a 4.7 GB DVD-RAM disc or 8-cm DVD-RAM disc and click [Write-Protect Setting] in the window shown above.

The following window is shown.



Write-protects the disc.  
The disc can only be used for reading.