Sega Dreamcast

Dreamcast GD Workshop User Guide

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GD Workshop User Guide

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First release, March 1998

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About GD Workshop

The Katana GD Emulator and GD Workshop streamlines your Sega GD product development cycle.

Using GD Workshop you can create a “virtual” GD and emulate it on the Katana development box. This virtual GD can be edited and recreated instantly so that you can test the effect of changes to the project in seconds.

The Katana development box contains all the hardware required for real-time GD emulation and GD Workshop provides remote control and logging of emulation and GD writing, plus a GD editing suite.

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Installing GD Workshop

Installing GD Workshop

To install GD Workshop:

1) Connect the Katana development box to your development computer in accordance with the setup guide from Sega DTS.
2) Insert the Dreamcast SDK CD into the development computer.
3) Run Setup.exe and follow the instructions on screen to install GD Workshop.

NOTE: *If you are running GD Workshop on Windows NT(tm) you must be running in Administrator mode.*

System Requirements

GD Workshop requires:

- An IBM(tm) PC or compatible with Pentium(tm) P90 processor or above.
- Windows(r) 95 or Windows NT(tm)
  If you are running GD Workshop on Windows NT(tm) you must be running in Administrator mode.
- 32 MB or more of RAM.

The hard disk space required on the development computer depends on the number of projects you want to work on. A GD-ROM has 1.2 GB capacity.

Customising GD Workshop

To customise GD Workshop:

1) On the Configuration menu select Workshop...
2) On the Workshop Settings dialog box specify the settings you want.

Expand tree on load	This tells GD Workshop to automatically expand the project tree and show all tracks and files when you open an existing project.
Check for updated files	This tells GD Workshop to check the date and version of all project files on the emulation drive against the source files on the development computer, so that you can see if they have changed since the project was last opened. If any files have changed, a dialog box informs you of their status and you can choose to update the files or ignore the changes.
Auto re-load last project	This tells GD Workshop to automatically open the last project you were working on when it starts up.

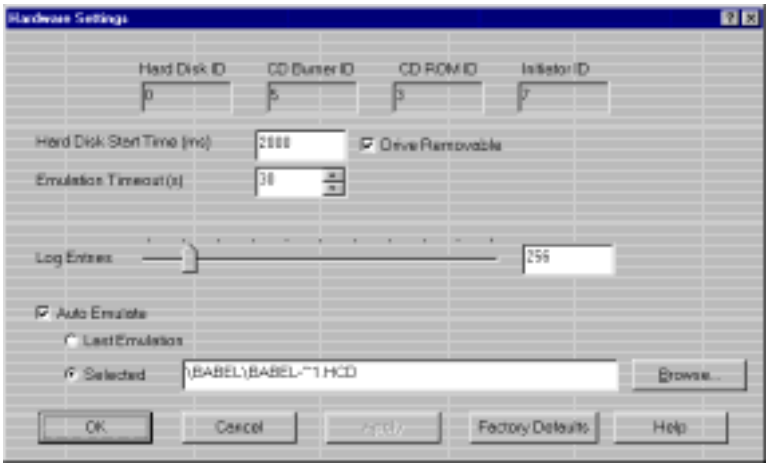
Follow last file on drop	This gives you control over the way that multiple files are dropped onto the project tree. If you are doing lots of large drops onto the tree this option should be unchecked.* When checked, you can see each file as it is added to the tree, and when the drop is finished, the last file which was added is selected in the tree.* When unchecked, the tree is built instantly and you are returned to the top of the tree when the drop is finished.
Show log data in decimal	This tells GD Workshop to show numerical data in the log window in decimal. If it is not checked numerical data is shown in hexadecimal.Some error messages in the log are always given in hexadecimal.
Create small file archives	This tells GD Workshop to use Small File Archives if your project contains lots of small files less than 32K. This improves the emulator's performance when emulating and writing small files.
Show sector numbers as LSN	This tells GD Workshop to show sector numbers as logical sector number (LSN) or absolute sector number relative to the start of the GD. You must reboot the Katana development box for this to take effect.The result of this can be seen in the File Name tab and in the log. Only Read(10) log messages are displayed as LSN.The logical sector number is the absolute sector number plus 150, because there is a 150 sector lead-in at the beginning of the GD which cannot be accessed.
Show sector numbers in decimal	This tells GD Workshop to show sector numbers on the File Name tab in decimal. If it is not checked sector numbers are shown in hexadecimal.
Update before door close	This tells Workshop to automatically check for updated files and to update the data on the emulator when you close the emulator door.
Force door open on execution	This tells GD Workshop to always open the emulator door on start up.
Real Katana speed	This specifies the emulation speed.* Real Katana Speed emulates a GD with a variable data retrieval rate from 4x at the inside of the disc to 12x at the outside of the disc.* No Speed Restrictions emulates at constant data retrieval rate at the full speed of the emulator with no seek delays. Full speed is 12x or above depending on the complexity of the data.
Auto maximize/auto tile/auto cascade	These buttons control the arrangement of windows in GD Workshop when you open new or existing projects.
Restore state	This tells GD Workshop to save the position of the project tree in the project window when you exit GD Workshop. You must also have Auto re-load last project selected for this to work.
Appearance	Here you can specify the font used for each part of the display in GD Workshop.

Configuring the emulator hardware

To configure the emulator Hardware:

1) On the Configuration menu, select Hardware.
2) On the Hardware Settings dialog box specify the settings you want.

Refer to the Katana development box setup instructions for more details of how to configure the SCSI IDs.



Hard Disk ID/CD Burner ID/CD ROM ID/ Initiator ID	These show the SCSI IDs for devices on the Katana development box SCSI bus. Refer to the Katana development box setup instructions for details of how to configure SCSI IDs.
Hard disk start time	This lets you specify the time, in milliseconds, that GD Workshop waits after sending a start up command to the emulation drive. If the drive does not reach operating speed within this time a Drive Not Found message is reported in the log in the control window.
Emulation Timeout	This lets you specify the time that GD Workshop waits after sending an emulate command to the emulator. If the emulator does not start the emulation within this time an Emulation Failed message is displayed. The default is 30 seconds and the maximum is 6000 seconds. For complex projects with lots of files and/or directories, you may need to increase the emulation timeout.
Drive removable	This specifies whether the emulator appears to the development computer as a fixed or removable drive. It should be set to Removable unless you are formatting the emulation drive, when you must temporarily change it to fixed.

Log Entries	This sets the size of the log output buffer of the emulator. The emulator can store up to this number of log entries before it overwrites the buffer. An enquiry is made to the emulator every second, so if this is set to 256, GD Workshop can receive a maximum of 256 new messages every second. Currently the maximum number of messages the log can report is 64K, at which point it begins to overwrite the old messages.
Auto Emulate	This lets you specify a project which the emulator will automatically emulate on start up. Check the Auto Emulate button and browse for the name of the emulation file or check Last emulation.
Factory defaults	This resets the defaults for the emulator back to the settings when the hardware was manufactured. Note: It does not reset the SCSI ID of the emulation drive.

Configuring additional SCSI devices

If you have more than one GD writer or an additional emulation drive attached to the SCSI bus on the back of the Katana development box, use this dialog box to select the devices you want to use.

1) Select SCSI Bus from the Configuration menu.
   Any available devices attached to the Katana development box SCSI bus are shown connected to the emulator (GD-M) in the tree.
2) Highlight the device you want to use and click Select.
   The selected devices are shown in bold.
3) Click OK and reboot both the Katana development box and the development computer.

The emulator will use the devices you selected as the default devices until you return to this dialog and make a new selection. Refer to the Katana development box setup guide for details of how to configure SCSI IDs.

The internal emulation drive is preset to SCSI ID 0 and the emulator's initiator ID is set to SCSI ID 7 on the SCSI bus. Any additional devices you connect to the SCSI bus must be configured with SCSI IDs between 1 and 6. All devices on the SCSI bus must have different SCSI IDs.

Click Sys Info on the About Workshop box to get more information about your development system configuration.

NOTE: *IDE devices are also shown in the tree as SCSI devices but you cannot select them to be active devices.*

Configuring device drive letters

NOTE: *This dialog box appears automatically when GD Workshop detects more than one emulator or removable drive. Under some operating systems and configurations, GD Workshop can assign drive letters automatically and you will not see this dialog box.*

If there is more than one removable hard drive attached to the development system, you must tell GD Workshop which one is the emulator (GD-M):

1) Select an emulator in the tree.
2) In the drop down list, select the drive which is the GD-M's emulation hard drive and click Add.
   The drive is added to the list of current drive selections and GD Workshop will communicate with this drive from now on.
3) Click OK.

IMPORTANT NOTE

If a particular device is not shown in the drop down box or the list of Current drive selections, but you know the device is connected to the development system, check the following:

- The drive is connected to the development PC.
- That you can see all the devices connected to the development system listed in Device Manager.
  Right click <My Computer> <Properties> <Device Manager> and click Refresh.
- The emulation hard drive is formatted with FAT16, FAT32 or NTFS depending on the operating system on the development computer. FAT16 is compatible with all three.
- The drive is set as Removable.
- The SCSI IDs are correctly configured and the SCSI bus is correctly terminated.
- Click Sys Info on the About Workshop box for detailed information about the development system configuration.

Upgrading the emulator firmware

On the Help menu click About Workshop to see the current firmware and software versions.

Upgrades to the emulator firmware are available from Sega DTS, contact technical support for details.

To install the new firmware:

1) Copy the new firmware (*.FSH) to a local drive on the development system.
2) Select Update Firmware on the Configuration menu.
   Browse for the new version of the firmware on the development system.
3) Click Open to overwrite the current emulator firmware with this version.

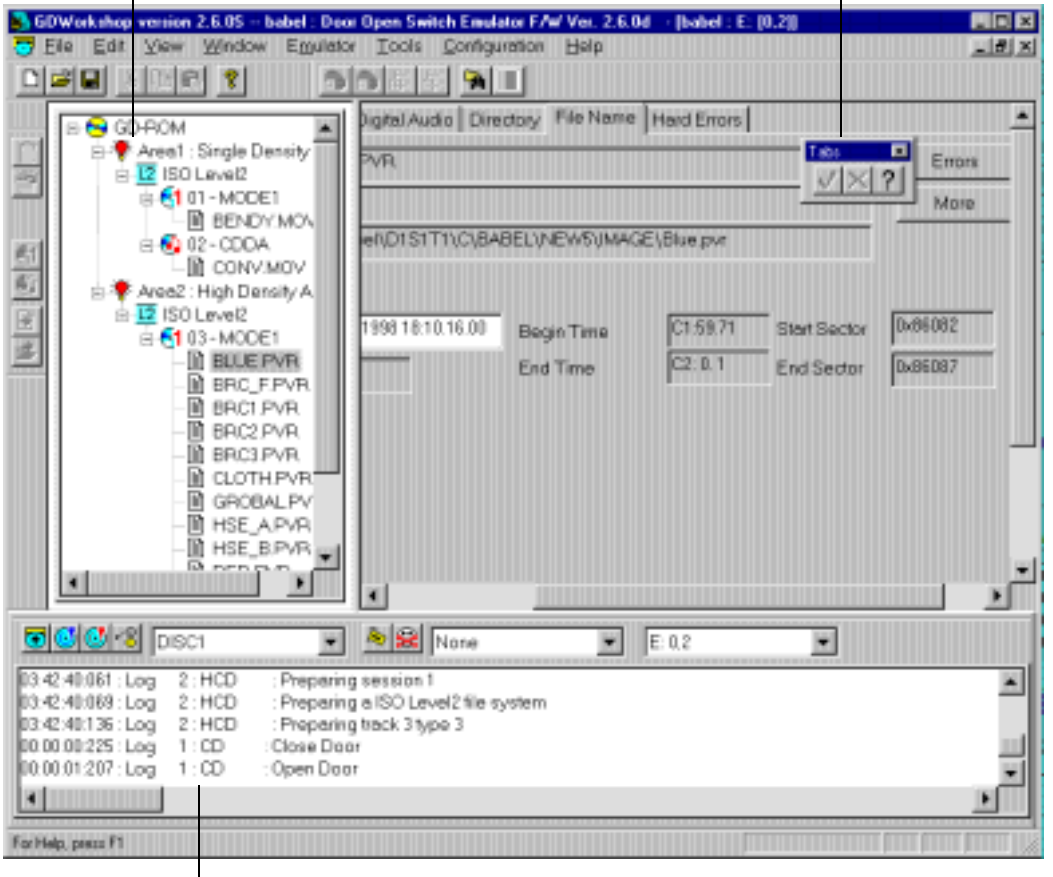
Project window

This area shows a tree representation of the content of your project. You can add files to the tree by dragging them onto the tree at the appropriate node from another program such as Windows(r) Explorer. You can also use the Project toolbar or the right-click menu.

Tab controls

This area lets you edit the attributes of tracks and files on the GD. When you select a branch of the tree in the project window, the relevant tab appears and you can edit its attributes.

Click Apply or Cancel at the bottom of each tab window or on the Tabs toolbar to implement any changes you have made. Detailed information is available for each tab when you click Help at the bottom of the window or in the Tabs toolbar.



Control window

This area enables you to control and log events on the emulator. You can instruct the emulator to emulate or write a GD from the toolbar and the results are logged in the window.

The log is updated every second.

GD Workshop graphical user interface

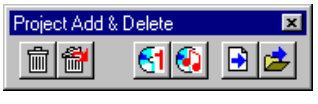
A quick tour of GD Workshop

A quick tour of GD Workshop

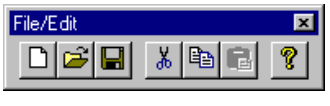
Once GD Workshop is installed and a Katana development box is connected to your development computer, you are ready to start creating a GD project.

The screen layout of GD Workshop is shown opposite.

The interface includes the usual Windows(r) features. All the main functions can be driven from toolbars, menus, right-click menus, or keyboard short-cuts.



These tools add and delete tracks, directories and files to the project.



These are standard file and edit tools.

These tools let you navigate and find files in your project.

These tools control the emulator.

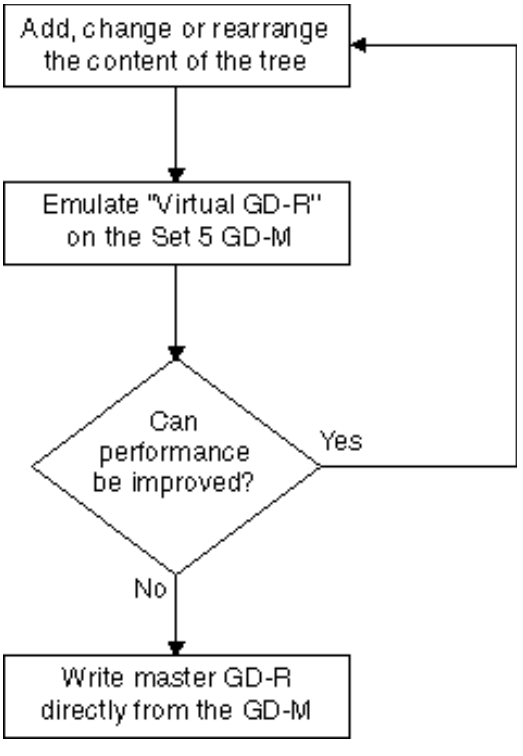
A typical project

The basic idea is to add your prepared source files to the tree in the project window. The tree shows a hierarchical representation of the tracks and files which form the content your GD. You can edit the tree to change the order that the files are arranged on the GD, and when you are happy with the arrangement, emulate the GD.

If the emulation shows errors or running problems, you can make further edits to the tree or your source files and repeat the process until you are satisfied with the emulation results.

The flowchart shows a typical project using GD Workshop to produce a tested GD master. All of the main tasks can be done from within the GD Workshop interface.

If you have a Sega GD Writer HKT-04 you can write a GD directly from the emulator.



Building a GD project

Creating a new GD

To start a new project:

1) In GD Workshop click  on the File/Edit toolbar or select New on the File menu.
2) Name the project and click OK. Project names must be contiguous and can contain up to 64 characters.

A project window is created containing an empty structure of a GD. You can add tracks and files here to build up the content of the GD.

NOTE: *If you open an old project that does not conform to the GD specification, GD Workshop allows you to open it and view it but emulation will probably fail and you will not be able to write a valid GD from the project.*

Saving a GD project

To leave a project and save your work:

1) Click  on the File/Edit toolbar or select Save on the File menu.
   If it is a new project, a standard Save As dialog box appears.
2) Browse for the location where you would like to save the project and click Save.

The project is saved in a file with the extension .cpj. The .cpj file contains all the current information about the project so that you can pick up where you left off when you next open the project.

NOTE: *You can also save a project as a script compatible with CD Craft. See the section on Working with CD Craft at the end of this maual.*

Adding tracks, directories, and files to a GD

Before you can add data to a GD, it must contain the required number of tracks where the data can be recorded.

When you start a new project, GD Workshop automatically builds the basic structure of a GD which contains the minimum number of tracks needed for the GD to be valid. You can add files to this structure and you can add extra tracks to the high density area of the GD if needed.

See also Rules governing the format and content of a GD.

To add a track:

1) Select the ISO Level 2 file system node  in the second session in the tree. The second session is the High Density area of the GD.
2) Click  or  on the Project toolbar for the type of track you want to add (Mode 1 or Audio).

To add a directory:

1) In the project window select the track where you want to add a directory and click  on the Project toolbar.
2) In the dialog box name the directory and click OK.
   Alternatively, if the directory exists on the development PC and contains the files you want to add to the GD, just drag the directory into the project tree at the appropriate place.
   See also Relative paths.

To add a file:

- In Windows browse for the file(s) you want to add to the project and drag them into the appropriate track or directory in the project tree.

Padding a track to the end of the disc

In the high-density area of a GD-ROM the first Mode 1 track can be padded with zero data so that any data that follows it is located at the outside edge of the disc.

To do this:

1) Select the first track of the high-density area in the project tree.
2) On the Track tab check the Pad Track option.

The following happens:

- The track is filled with zero data beginning at its first sector.
- Any data files in the track are forced to occupy the end of the track.
- The size of the track is calculated by GD Workshop so that any data which follows it is located at the outside edge of the disc.
- If you add more tracks after the padding track, the size of the padding track is automatically recalculated.

Editing a GD project

Finding files and getting project information

Getting project information

For a summary of the contents of your project, click Project Information on the Tools menu.

Click Save As to the save the project information as a text file.

Finding files in a large projects

The Navigation toolbar shown here has buttons to collapse and expand the tree in the project window. It also allows you to switch between tree view and list view.

To find files in a large project:

1) Click  .
   The Find Files dialog box appears.
2) Enter the name (or part of a name) you want to look for and click Find First or Find Next.
   GD Workshop highlights any occurrence of that name in the tree.

Adding and deleting tracks, directories, and files

Adding

At any time you can add a track, directory or file to your project:

1) Select the place in the project tree where you want to add the item.
2) Click the relevant Add button on the Project toolbar  .
   You can also the right-click menu in the project window, the Insert option on the Edit menu, or drag and drop items directly on to the project tree at the appropriate place.

NOTE: *You cannot copy and paste items into the tree from other applications, only drag and drop is valid.*

Deleting

To delete an item from the tree

- Select it and then click  on the Project toolbar, the right-click menu in the project window or the Delete key on your keyboard.

If you delete something by mistake click  on the Project toolbar. There is no limit to the number of undo operations. If you have deleted several items from the tree and you want to bring them all back in one operation, click the Undo All option on the Edit menu.

NOTE: *If you delete a track there is no undelete, in this way GD Workshop can preserve track order. File systems can only be deleted if they have no content.*

Renaming files and directories

It is best to give your files and directories correct Sega compliant names on the development computer before you add them to the GD.

See also File naming conventions and restrictions.

However, if you need to edit a file or directory name after it has been added, follow the procedure below.

NOTE: *You cannot have two files with the same name in a single directory. Similarly, you cannot have two directories with the same name at the same level.*

1) In the project tree select the file or directory you want to rename and press F2. Alternatively, double click on the file or directory leaving a pause between clicks.
2) Type in the new file or directory name and press Enter on your keyboard. The new name must comply with the Sega file system.

NOTE: *There is no Undo after you have typed over a name in the tree, you must rename the file or directory again if you make a mistake. While you are typing over the name you can press ESC to cancel the operation.*

Checking file versions

This feature allows you to check the status of the emulation files while you are working on a project. You cannot do a Check File Version when the emulator door is closed or when writing a GD-R.

- Select Check File Versions on the Tools Menu.

NOTE: *You can also tell GD Workshop to automatically perform a check each time you open a project if you select Check for updated files in the Workshop Settings dialog box on the Configuration menu.*

When it performs a version check, GD Workshop looks at the source files for the project on the development computer and the same files on the emulation drive. The version numbers and modification date of corresponding files are compared. If differences are detected a dialog box appears showing the status of the files.

The progress bar will be green, red or yellow depending on the status of the files:

- Green, if all the files are present and correct.
- Red, if some or all of the emulation files are not present on the emulation drive. In this case the emulation will fail.
- Yellow, if some or all of the original files are not present on the development computer or the file versions do not match. In this case the emulation will not fail but the files may need to be updated).

There are three ways to update the files:

- Cancel, to leave everything as it is.
- Update to emulator, if you have edited a source file on the development computer and not updated the file on the emulator.
- Restore from emulator, if you have edited or deleted a source file on the development computer and you want to restore it with the version that is on the emulator.

Checking only selected files

You can tell GD Workshop to check for only selected files by defining wildcards in the Filter text box. The wildcards you can enter are * and ?, and each filter is separated by a semicolon

For example:

.txt; p.bmp; picture?.*

will search for:

- all files with the extension .bmp
- all files that start with p and have the extension .bmp
- all files with the letters picture followed by another single character and any extension (eg picture1.*, picture2.*, Picture3.* and so on)

When you click Refresh, GD Workshop searches the project on the emulator for these files and reports any that have been modified on the development computer. You can then update the files as described above.

Re-mapping the emulator hard drive

If the drive letter of the emulator changes, the path to the emulation files is lost. This can happen under some operating systems where the drive letters are automatically assigned at start up.

If this happens:

1) On the Tools menu, select Check File Versions and select the emulator's drive letter in the drop down list.
2) Click Re-Map Drive to update the path to the emulator with this drive letter.

Copying and moving files

Selecting files and directories

Select items in GD Workshop using standard windows techniques. A selected item is shown highlighted in the tree.

Single click	selects a single item.
Shift + click	selects everything between two points.
Control + click	selects multiple items.
Shift + up/down arrow	walks through the tree at the current level selecting everything at that level and beneath it.

Tree view and list view

There are two views in which you can see the content of your GD in the project window; Tree view and List view. You can switch between these two views on the View menu or by clicking Switch Views on the Navigation toolbar.

Tree view

In tree view the hierarchy of the emulated GD is shown and you can see the full structure of directories, tracks and file systems. Files are shown inalphabetical order, not their actual positions on the GD.

In this view you can add and delete files, directories and tracks. You can also move files between directories and tracks.

You move and copy items in the tree using standard windows techniques. There is no undo for the operations below.

Drag and drop	moves the selected items.
Control + drag and drop	copies the selected items.
Cut and paste	moves the selected items.
Copy and paste	copies the selected items.

List view

In list view the files are shown in the order that they are written on the emulated GD. Only one track is shown at a time, to view another track return to tree view, select another track and return to list view.

When you select a file in this view, its exact position is given on the File Name tab where the start sector and end sector are shown.

You can rearrange the order of files in list view but you cannot add or delete files.

To move a file to a new position in the track:

1) Select the file or files in list view that you want to move
2) Drag them to the new position.
   The red line indicates the insertion point.

To move a single file to the last position in the track:

1) Select the file in list view that you want to be last in the track.
2) Right-click on the file and select Move File to be Last.

NOTE: *Zero byte files are treated differently to other files and are always recorded at sector 16 in the single density area and at 45016 in the high density area.*

Deleting unused data on the emulation hard drive

When you have used the emulator for several projects, the emulation hard drive will contain files from projects which are no longer used. You can delete unused data from the GD-M using GD Workshop as follows:

1) On the Tools menu click Purge Emulation Drive.
2) Click the Browse button and browse for the project file(s) (.CPJ) which are currently in use (i.e. the projects you want to keep).
3) Click Add for each of these project files to make a list of projects which you want to keep.
4) When you have made a list of all the projects you want to keep, click Scan. GD Workshop scans the emulation hard drive for all files NOT referenced in the list of projects and makes a list of files to delete. In the second list, GD Workshop includes all the paths in all projects (including the ones you want to keep) and shows them containing a dot. This is the result of the way GD Workshop scans the emulation drive for empty directories. Directories containing a dot that are also in the Projects To Keep list are not deleted.
5) If there are any files in this list that you want to keep, select them and click Remove.
6) Click Delete Files to delete all the files in this list from the emulation hard drive. Any empty directories are also deleted.

NOTE: *Any project files (.cpj) or files which are marked read only are not deleted.*

You cannot remove all the data on the emulation hard drive using this method. To completely remove all data, access the drive directly from Windows and delete everything or reformat it.

See also Formatting the emulation drive.

If you keep your original files on the GD-M and not on your PC, you can easily delete them by mistake when using this feature. We recommend that you keep your original files on a local drive on your development PC.

Emulating and testing a GD project

Emulating a GD

When you are happy with the arrangement of the content of your GD and you want to test that it works:

1) Switch the Emulator/GD-Drive switch  on the control toolbar to Emulator (up position).
2) Select the speed at which you want to emulate the GD.
   See also Selecting the emulation speed.
3) Select the emulator you want to use in the drop down list in the control toolbar (only if you have more than one emulator connected to the development computer).
4) Click  on the control toolbar.

NOTE: *The above controls are also available from the task bar using the right-click mouse button when GD Workshop is minimised.*

The emulator now appears to the Katana development box or the target computer as a GD drive which is playing your "virtual" GD-ROM.

To halt the emulation at any time click  on the control toolbar.

You can make changes to your project and re-emulate as many times as you like until you are completely satisfied that your GD has no running problems before you write a gold master.

NOTE: *Moving, adding or deleting files in a project while the project is emulating can cause GD Workshop to crash. Before making changes to the tree, the emulator door must be open.*

Turning off warnings before you emulate

When you close the door to emulate, you are given various warnings in the log if, for any reason, the project does not conform to the GD-ROM format specification.

You can turn off these warnings if you start GD Workshop from the command line and add the switch -nowarning as follows:

```
Gdworkshop -nowarning
```

If you turn off warnings you cannot test write or write a GD-R, you can only emulate.

Selecting the emulation speed

There are four settings of emulation speed.

- To change the emulation speed, select Workshop on the Configuration menu and in the drop down box select the emulation speed you want to use.

With this set to Real Katana Speed, the emulator will mimic a GD in a CAV machine where the data retrieval rate is 4x in the single-density area and 6x at the inside edge of the high-density area, increasing to 12x at the outside edge.

You can also set Real Katana Speed + or - 5%.

With the option set to No Speed Restrictions, the emulator will emulate at full speed. Full speed is 12x or above depending on the complexity of the data.

Emulating errors on a GD

There are three types of errors which GD Workshop can add to test how errors affect the data on your GD.

NOTE: *Before you write a gold disc always make sure that all errors are disabled.*

Hard errors

To add hard errors in a file, you specify sectors in the file that contain bad data. This mimics data that has been recorded on bad media (a faulty or scratched GD) or sections of data that are corrupt for some other reason.

To specify a hard error:

1) Select the file in the tree where you want the error to be.
2) In the Hard Errors tab, specify the start sector of the error in the From box, and the end sector in the To box.
3) Click Add.
   The error is added to the list on the Hard Errors tab.
4) Repeat these steps for all the errors you want to include in the file.

NOTE: *The maximum number of hard errors you can add is 64 per project.*

Each file containing hard errors is indicated in the tree by , and hard errors can be switched on and off before or during emulation by clicking in the control toolbar.

During emulation errors are shown in the log by a warning message which reports the number of sectors which were not retrieved from the GD due to the error.

NOTE: *If you enable hard errors during emulation you may not see errors in the log until after the next read command, this is because the data being read from the emulation may already be cached. If you enable hard errors before emulating you will see all the errors as they occur.*

Soft errors

To add soft errors, you specify the ratio of good sectors to bad sectors for the whole GD. Soft errors are introduced randomly by the emulator at the rate you specify.

To specify a soft error:

1) Click on the Soft Errors drop down box on the emulator control toolbar.
2) In the drop down box select an error rate.
   For example, 1 in 100 would introduce one bad sector in every one hundred sectors.

Soft errors can be switched on and off before or during emulation.

During emulation errors are shown in the log by a warning message which reports the number of sectors which were not retrieved.

NOTE: *If you enable soft errors during emulation you may not see errors in the log until after the next read command, this is because the data being read from the emulation may already be cached. If you enable soft errors before emulating you will see all the errors as they occur.*

Nudge

A nudge error mimics what happens when someone physically nudges the GD player while playing the GD.

To emulate a nudge:

- Click Nudge on the emulator control toolbar while emulating the GD, or press "F5" on the keyboard.

NOTE: *The nudge has a 0.5 second timeout. If there is no read command by the emulation within 0.5 seconds of clicking Nudge, the nudge is cancelled.*

NOTE: *If you click nudge during an emulation, the error might not be recorded in the log if the data being read from the emulation is cached. If you nudge when the cache is empty, you will see the error reported in the log. This mimics the operation of the real GD mechanism.*

Auto-emulating a GD

To auto-emulate a GD:

1) Select Hardware on the Configuration menu.
2) Check the Auto Emulate option.
3) Check Last Emulation or browse the emulation drive for the project you want to emulate and select the file with the .HCD extension. The .HCD file is shown in 8.3 format in the browse window.
   See also Files generated by GD Workshop
4) Click Open.

NOTE: *The HCD file for a project is created by GD Workshop when you click*  *in the control window. If you have not previously emulated the project you will not be able to find the .HCD file.*

With the Katana development box set to auto-emulate, you can disconnect it from the development computer.

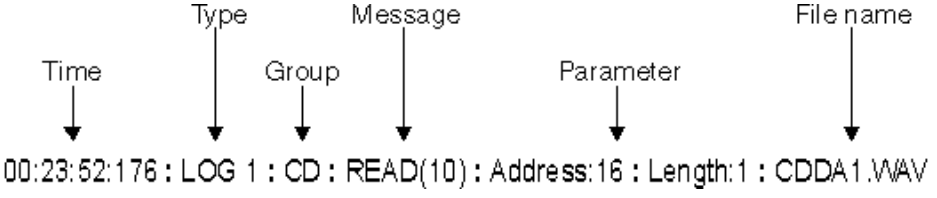
When the Katana development box is rebooted, the emulator appears on the SCSI bus as a GD drive with its door closed, playing the GD you specified in the Emulation Name box. The Katana looks for the file which is alphabetically first on the GD and emulates this file.

Understanding the log information

Communications between the Katana and the emulator are displayed in a real-time log in GD Workshop during emulation.

NOTE: *If you start an emulation and then open a different project file (.cpj) in GD Workshop, the information in Workshop does not match the information in the emulation and the log will give incorrect information or crash.*

A typical log message is shown below.



Log message definitions

The messages described below are common SCSI commands sent to the emulator by the Katana during emulation. You will see these during normal emulation.

If the emulator cannot understand or complete the command, it will return an error to Workshop that is also given in the log. A full alphabetical list of error messages is given in the Error messages section.

Log message	Meaning
Inquiry	SCSI bus scan to see what devices are on the bus.
ReadSubChannel	Request for position of GD and current audio status.
Read(10)	Read request for a specific number of sectors from a specific address.
ModeSense(6)	Request for drive parameters of the GD emulation drive such as drive speed.
ModeSelect(6)	Instruction to change those parameters above which can be changed.
Seek(10)	Instruction to go to sector n or address mm:ss:ff.

Log message	Meaning
ReadTOC	Read request for Table of Contents of the GD.
ReadCDCapacity	Request for capacity of data on the GD.
PlayAudioMSF	Play track from mm:ss:ff to mm:ss:ff.
PlayAudio(10)	Read(10) for an audio GD.

See also GD-ROM layout and sector addresses.

How to use the log information

The log information can be used as a useful diagnostic tool to help you overcome running problems due to badly positioned files on your GD.

For example, if your GD project shows unacceptable pauses when moving between certain files, you can see from the log which files the emulator is trying to read when pauses occur. You can optimise performance by positioning the files which cause the problem closer together.

Saving the log

You can save the log to a text file with the extension .log.

To save the log:

1) Right click in the log region.
2) From the shortcut menu select one of the following options:
   Save to File...
   This saves the log up to the present time as a text file.
   Start File Logging...
   This saves the log up to the present time as a text file and continues to add logging information to the file until you click Stop File Logging.
3) In the Save As dialog box browse for the location where you want to save the log file and click OK.

NOTE: *If you choose Start File Logging you cannot open the log file until you subsequently click Stop File Logging.*

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Writing a GD-R

Writing a GD-R

You can write a GD-R directly from the emulator with a Yamaha GD writer HKT-04 connected to the Katana SCSI bus.

There are two Write buttons on the toolbar in the control window, Test Write and Write.

NOTE: *If you try to access the emulation drive directly during the time when the GD writer is preparing to write the GD (approximately the first two minutes before the progress bar begins to move), you will get a SCSI command time out because the emulation drive cannot respond. This can make the development system unstable but should not effect the writing progress.*

Test Write 

We recommend that before you write a GD-R, you carry out a test write to make sure that there are no communication problems between the emulator and the GD writer.

A test write is exactly the same as an actual write, except that the laser in the GD writer is disabled so that a GD-R is not wasted if there is a problem.

To do this:

1) Click Test Write.
2) In the Test Write progress box select the writing speed and click OK.
   The test write is done at 2x by default. If you select 1x the test write will take over two hours.
   If the test write is successful, a confirmation message appears in the control window.

Write 

To write a GD-R with the laser enabled click Write.

Switching between different GD writers

If you have more than one GD writer connected the Katana development box SCSI bus, select the one you want to use as follows:

1) Select SCSI Bus from the Configuration menu.
2) The available GD-Rs attached to the Katana development box SCSI bus are shown connected to the emulator in the tree.
3) Highlight the device you want to use and click Select.
4) Click OK and reboot both the Katana development box and the development computer.

Refer to the Katana development box setup guide for details of how to connect external devices.

GD-ROM data format and technical information

The capacity of a GD project

A GD-ROM has 1.2 GB capacity and a conventional CD has 650 MB capacity.

The number of GD projects you can work on at one time using GD Workshop depends on the capacity of the emulation drive, but you can connect additional hard drives to the Katana development box SCSI bus for extra capacity.

There must also be some capacity on the emulator for system files created by GD Workshop. This depends on the information you are recording but can be as much as 5 MB for a complex GD.

The maximum number of files the emulator can emulate is 20,000.

Rules governing the content and format of a GD

The following rules must apply for a GD to be valid:

Overall GD

- Can contain a maximum of 99 tracks.
- Each track must contain a minimum of 4 seconds of data.
- The maximum number of files the emulator can emulate is 20,000.

Single Density Area

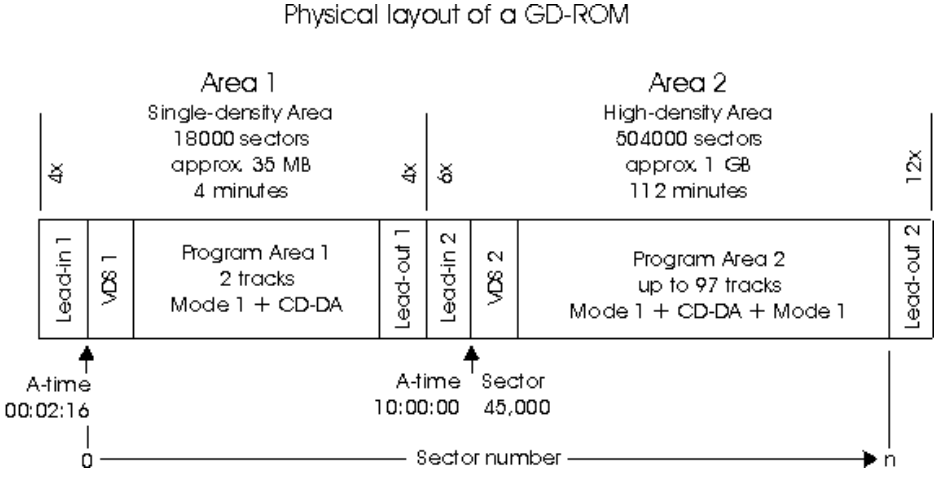
- Must contain one Mode 1 and one Audio track only.
- Can have an optional System Area File specified in the Disc tab.

High Density Area

- Must contain at least one Mode 1 track.
- Can be padded so that the data occupies the outside edge of the GD.
- Must contain a minimum of 30 minutes of data.
- Must have a System Area File specified in the Disc tab.
- Can have up to 95 Audio tracks followed by another Mode 1 track.

GD-ROM layout and sector addresses

The diagram below shows the basic layout of the content of a GD-ROM. The content is written in a single, continuous, spiral track that starts at the centre of the disc and reads outwards.



A GD-ROM always contains a single-density area and a high-density area.

Single-density area

This has the same layout as a conventional CD, except that it has approximately 35 MB capacity.

User data and audio is written in the program area which contains one data and one audio track. This area can be read by a PC and is used to record a message which is displayed if the user tries to play the GD-ROM in a standard CD drive.

The single-density area must contain a data track (track 1) and an audio track (track 2), each of which must contain at least four seconds of data.

High-density area

This is located after the lead-out of the single-density area and starts with a second VDS at A-time 10:00:00.

The high density area contains one Mode 1 track and up to 95 GD-DA tracks followed by another Mode 1 track. There must be at least 30 minutes of recorded data in the high-density area for the GD to be valid.

A GD-ROM is played at constant angular velocity (CAV), which means that the speed at the inside edge of the disc is slower than at the outside edge. Therefore, the disc speed (and data retrieval rate) of the high density area is 6x at the beginning increasing to 12x at the end.

Sector addresses on a GD (mm:ss:ff)

Expressed as time

Sector positions on a GD are expressed on the File Name tab in minutes, seconds and frames (a frame is the same as a sector) in the format mm:ss:ff (also written as MSF) relative to the start of the GD.

Above 99 minutes the notation uses letters where 100 to 109 is A, 110 to 119 is B and 120 to 129 is C. So a time on a GD of 123 minutes, 14 seconds and 12 frames is expressed as C3:14:12.

Expressed as sector number (LSN)

Sector positions are also expressed as the sector number relative to the start of the GD. You can choose to view logical sector number (LSN) or absolute sector number by specifying the option on the GD Workshop configuration screen.

The logical sector number is the absolute sector number plus 150 because there is a 150 sector lead-in at the beginning of the GD which cannot be accessed.

Relative paths

When you drag and drop files into an empty project window the relative paths to the files are copied into the project, not the absolute paths.

For example, if all your project files are in a directory called "PROJECT" on the development computer, all the files will appear in root on the GD when they have been copied. The "PROJECT" part of the path is not copied because it is the same for all the files.

Any sub-directories of "PROJECT" will appear in root on the GD as they appear on the development computer.

File naming conventions and restrictions

ISO9660 and its extensions

There are various file naming systems for directories and files which form the content of a CD. These systems are based on ISO9660 Level 1 which is the basic standard for CD-ROM information exchange as defined by ISO9660.

ISO9660 Level 1 interchange uses only d-type characters in 8.3 format.

See also Reference Documents.

Sega GD-ROM file naming system

GD Workshop supports Sega's own file naming system which is based on Level 1. It uses the restricted character set, but it allows longer file and directory names:

- This file naming system uses only d-type characters.
- Up to 30 characters for file names. When a file name has no extension, the file name must end with a Period ".".
- Up to 31 characters for directory names.

File name fixing

If you add files to a GD which do not comply with the file system, GD Workshop automatically fixes the file names to make them comply.

GD Workshop tries to make a meaningful name by substituting illegal characters and spaces with underscore "_" and using numbers when duplicate names occur, for example a file called:

very long file name that is more than thirty characters long.txt

is automatically fixed to become:

VERY_LONG_FILE_NAME_THAT_IS_.

NOTE: *The fixed file name is shown in the project tree and the fixed and original file names are shown on the File Name tab when you select the file in the tree.*

Permitted ISO 9660 characters

ISO 9660 d-type characters

Uppercase letters A to Z, numbers 0 to 9 and the underscore symbol "_".

ISO 9660 a-type characters

Uppercase letters A to Z, numbers 0 to 9 and symbols (space) _ * + ? ! ; % & - = > < ' " ( ) , / : .

Date and time format

Date

Dates are given as day, month, year in the format DD/MM/YY.

The year is restricted to 1970 to 2037.

Time

Times are given as hours, minutes, seconds, milliseconds and GMT offset in the format hh:mm:ss:gmto.

GMT offset is the difference between local time and Greenwich Meantime in 15 minute units. For example, Japan which is 9 hours ahead of GMT has an offset of 36 (9x4). It is not necessary to enter the date and time in full, if you just enter the date, the time will be ignored and this will have no impact on the emulation or recording process.

Files generated by GD Workshop

NOTE: *If you start an emulation and then open a different project file (.cpj) in GD Workshop, the files listed in the .cpj no longer correspond to the files on the emulation drive and the log will give incorrect information or crash.*

The .CPJ file is created by GD Workshop when you save a project:

- .CPJ - This contains details of the files and the directory structure of the project and is used by GD Workshop to create the .HCD.

The files below are created when you click  :

- .HCD - This is used by the emulator when emulating the project and contains the table of contents (TOC) and run time information such as the begin and end time (sector number on the GD) of each file.
- .VDS - This is part of the ISO9660 specification and is used by the operating system of the Katana. It contains the PVD and also contains information about each file and its position on the GD.
- .SFA and .SFI - These files are created if your GD contains lots of small files and you have instructed GD Workshop to use small file archives.

Project directory structure on the emulation drive

For each project you create in GD Workshop, a directory is created by GD Workshop on the emulation drive with the same name as the project title. This directory contains all the project files except for the .CPJ file which is saved to a destination of your choice when you save the project.

The .HCD, .VDS, .SFA and .SFI are created in the relevant project directory on the emulation drive. They are created each time you start an emulation. The size of these files depends on the complexity of the project but can be several megabytes for a complex GD.

In the project directory there is a subdirectory for each track in the project labelled D1s1t1, where D, s and t correspond to the disc, session and track numbers. This directory contains all the data files that are in the track, these are the files GD Workshop reads during an emulation. The data files are grouped according to the drive letter from where the original file was copied.

NOTE: *Files on the emulation drive should not be edited directly. Always use the GD Workshop interface to make changes to the project.*

File and directory structure and limitations of the emulation drive

Due to memory and speed limitations in the emulator hardware there are various limits which have been imposed to ensure the emulator can prepare an emulation within an acceptable time frame.

These limits are as follows:

- The maximum number of files in any project is 20,000 (except where SFAs are used).
- The maximum number of file extents over an entire project is 64,000.
  If the extent limit is reached before the file limit (for example, when the disk is heavily fragmented) then the emulator will refuse to emulate the project even though it contains less than the maximum number of files.
- The maximum number of files in a directory on the emulation drive is 4,000.
  It is possible to have more than 4000 files in a directory on the emulated GD by pulling source files from several directories on the emulation drive into a single directory on the emulated GD, but any single directory on the emulation drive must contain less than 4,000 files.
- The maximum number of directories on the emulation drive is 512.
  It is possible to have more than 512 directories in the emulated GD by pulling files from the same directory on the emulation drive into different directories on the emulated GD, but the total number of directories on the emulation drive for each project must be less than 512.

In general:

If the time taken to prepare an emulation is becoming too long, then move any unused directories and files away from the directories and files used in emulation. Move them into a separate directory at a lower level.

Working with files

The mechanism for finding files during prepare to emulate tries to walk each directory only once in its search for emulation files. Therefore, having a few extra files on the disk or in a directory that are not used in the emulation will not seriously impair the time to prepare an emulation.

If however you had a directory of, say, 4,000 files of which only one is used in the emulation, all 4,000 can be walked through before the emulator finds the appropriate file. This will obviously have an effect on the preparation time, so we recommend that you keep the emulation drive reasonably tidy and free from unused data.

See also Deleting unused data on the emulation hard drive.

Working with directories

The mechanism for finding directories on the emulation drive, in the worst case, can walk a whole directory for every sub-directory it looks for. Therefore, having unused directories in the project tree can seriously impair the time to prepare an emulation.

How and when to use small file archives (SFAs)

If your project contains small files less than 32K (the cluster size of the emulation drive), emulation can be compromised at high speeds. GD Workshop solves this problem by combining small files into larger files called SFAs. Using SFAs improves the data retrieval rate from the emulator during emulation.

To use SFAs:

1) Select Workshop... on the Configuration menu.
2) Select Create Small File Archives on the Workshop Settings dialog box.

When this is set, GD Workshop looks at the files in the project when it prepares to emulate and where there are two or more contiguous files which are smaller than 32K each, they are combined into an SFA. For each SFA created, an index of its contents is also created, (SFI). These files reside on the emulator's emulation drive and should not be edited directly.

Formatting the emulation drive

The Katana development box is always shipped with it's emulation drive formatted with a single 2 GB FAT16 partition so that it is compatible with Windows 95, OSR2 and NTFS operating systems. However, the emulation drive fitted is actually 4 GB capacity.

If you want to reformat the internal drive or add an external drive for extra capacity, the emulation drive must be formatted with a cluster size of 32K or above.

CAUTION: *If the emulation drive is formatted with a cluster size smaller than 32K, the emulator will not emulate.*

NOTE: *If you are running GD Workshop on Windows 95 (non-OSR2), you can only format the emulation drive using FAT16 with a maximum 2 GB partition size, regardless of the size of the emulation drive.*

To format the emulation drive with NTFS using Windows NT operating system:

1) From the Windows NT Start menu select Programs > Administrative Tools > Disk Administrator.
2) In Disk Administrator select the emulation drive you want to format.
3) On the Partition menu select Delete and answer Yes to delete the current partition.
4) On the Partition menu select Create.
5) Enter the size of the new partition you want to create, click OK, and answer Yes to create a new partition.
6) On the Partition menu select Commit Changes Now and exit Disk Administrator.
7) On the Start menu select Programs > Command Prompt.
8) At the Command Prompt use the following command line:

   format [drive letter]: /fs:ntfs /a:32k

   where:

   /fs is the switch to set the file system

   /a is the switch to set the cluster size

   32K = cluster size.
9) Press Enter to start formatting.

To format the emulation drive with a FAT32 file system using Windows 95 OSR2 operating system:

1) In GD Workshop select Hardware from the Configuration menu.
2) Uncheck the Drive Removable option.
3) In Windows set the emulation drive to Non-removable and Int13:
    - right-click My Computer,
    - select Properties,
    - select Device Manager,
    - under Disk Drives double click the emulation drive you want to format,
    - select Settings and uncheck Removable and check Int13.
4) Reboot the development computer.
5) In a DOS box use FDISK or AFDISK to create a partition on the emulation drive of the required size. Note that if you have checked Int13 FDISK will not see the drive.
6) Reboot the development computer.
7) In a DOS box use the following command line to format the emulation drive:

    format [drive letter]: /z:64

    where:

    /z is an undocumented switch to set the number of sectors per cluster

    64 sectors of 512 bytes = 32K cluster size.
8) When formatting is complete, reset the drive properties in Windows to Removable, see step 3 above.
9) Reboot the development computer.
10) Start GD Workshop and reset the drive properties to Removable, see steps 1 and 2 above.

Fragmentation of the emulation drive

If the emulation drive becomes severely fragmented emulation can become unreliable. We recommend that you occasionally defragment the emulation drive.

Using an external hard drive

Attaching an external hard drive to the Katana development box SCSI bus allows you to easily switch between projects by keeping your projects on separate drives.

Refer to the Katana development box setup guide for details of how to connect external devices.

NOTE: *If you want to reformat the internal drive or add an external drive for extra capacity, the emulation drive must be formatted with a cluster size of 32K or above.*

See also Formatting the emulation drive.

Switching between different emulation drives

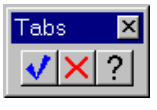
If you have more than one emulation drive connected the Katana development box SCSI bus, select the one you want to use as follows:

1) Select SCSI Bus from the Configuration menu.
   The available drives attached to the Katana development box SCSI bus are shown connected to the emulator in the tree.
2) Highlight the device you want to use in the tree and click Select.
3) Click OK and reboot both the Katana development box and the development computer.

Using the tab controls

The tab controls let you edit various properties of your GD. When you click on a branch in the project tree, the relevant tab appears and you can edit its properties.

The Apply, Cancel and Help buttons that appear at the bottom of each tab window are also available on the Tabs toolbar shown here.



This toolbar is docked at the top of the screen when you first start GD Workshop, but you will find it useful to have it floating above the tabs when making edits so that you do not have to scroll to the bottom of the tab window each time you want to apply or cancel a change.

To get detailed help about what the options on a particular tab mean click Help at the bottom of the tab window or on the Tabs toolbar.

Disc

This tab defines the outer most level of the GD you are creating.

Disc Name

Up to 32 d-type characters

Enter a title for the GD.

This defaults to the name you gave to the project and is the same name as the Volume Identifier on the PVD tab.

System Area File

ISO 9660 a-type characters

In each box enter the name and the path, or browse for the System Area File which contains the territory identifiers for the GD. Once the system area file is specified in this dialog, you do not need to reload it again unless you change its location on the development computer. It is automatically copied to the GD each time you click Close Door.

Click View to view the contents of the system area file.

NOTE: *A valid System Area File must be specified for the high-density areas or the disc will not be valid. The single density area system area file is optional. The system area file must be prepared in accordance with the GD-ROM Format Basic Specification.*

Primary Volume Descriptor (PVD)

This tab defines the header information which goes in the PVD. This is information about the GD such as the creator, creation date and copyright.

The PVD information is broken down into the following categories:

- Volume Information
- Copyrights
- Miscellaneous
- File Name Information

Volume Information

Identifier

Up to 32 d-type characters

Enter the title of the GD-ROM.

This defaults to the name you gave to the project and is the same name as the Disc name on the Disc tab.

Set Identifier

Up to 128 d-type characters

Enter the overall name of the volume to appear on each GD if it is part of a multiple GD set. If there is only one GD in the set, the Identifier and Set Identifier are the same.

For example, a three CD set could have the Set Identifier CD, and the CDs in the set could have Identifiers CD1, CD2 and CD3.

Creation Date

DD/MM/YY hh:mm:ss:gmto

This defaults to the date and time when you started the project. You can enter a different date and time.

Modification Date

DD/MM/YY hh:mm:ss:gmto

This defaults to the date and time when you last saved the project. You can enter a different date and time.

Expiration Date

DD/MM/YY hh:mm:ss:gmto

If the GD contains data that may become obsolete in the future, you can set an expiration date after which the data will no longer be accessible. The default is the creation date plus 9 years.

Effective Date

DD/MM/YY hh:mm:ss:gmto

If you do not want the data on the GD to be accessed before a certain date you can set the effective date here. The default is the creation date.

Copyrights

Publisher

Up to 128 a-type characters

Enter the name of the publisher or organisation who owns the copyright of the GD.

Data Preparer

This is automatically set by GD Workshop to give the version number of the firmware and software used to create the GD.

Application

Up to 128 a-type characters

Enter the name of the application that can use the data on the GD.

Miscellaneous

System ID

Text string

This defines the system that the GD is intended to be played on.

Logical Block Size

This is the logical block byte length for the data on the GD.

File Name Information

Copyright

Fixed file name

COPYRIGH.TXT - this is specified in the single density area only. The copyright file must be added to the single density area for the GD to be valid.

Abstract

Fixed file name

ABSTRACT.TXT - this is specified in the single density area only. The abstract file must be added to the single density area for the GD to be valid.

Bibliographic

Fixed file name

BIBLIOGR.TXT - this is specified in the single density area only. The bibliography file must be added to the single density area for the GD to be valid.

Application Use

The information required in this field is not defined. It is available for future additions to the ISO9660 specification.

Track

This tab shows the position of the track selected in the tree.

NOTE: *The position of a track cannot be changed, but you can move the contents of a track into a new track and then delete the original track. See also Copying and moving files.*

Pre-gap

Fixed number of sectors

A pre-gap assists transition of the read head between tracks of different types. Enter the number of empty blocks (user data that is all zeros) to be added as a pre-gap at the beginning of a data track. One block lasts for one seventy-fifth of a second and a pre-gap should be at least 150 blocks or two seconds.

A pre-gap is required:

- on the first data track after an audio track.
- between data tracks of different types.

A pre-gap is not required between data tracks of the same type or before the first track on the GD.

Post-gap

Fixed number of sectors

A post-gap assists transition of the read head between tracks of different types. Enter the number of empty blocks (user data that is all zeros) to be added as a post-gap at the end of a data track. One block lasts for one seventy-fifth of a second and a post-gap should be at least 150 blocks or two seconds.

A post-gap is only required:

- on the last data track before the lead-out at the end of GD.
- on a data track followed by an audio track on a mixed mode GD.

Pad Track

Check box

Check this if you the track to be a padding track.

See also Padding a track to the end of the disc.

Digital Audio

This tab lets you specify certain attributes which apply to digital audio tracks (GD-DA).

Pause

Fixed number of sectors

Enter the number of empty blocks to be paused (audio silence) at the beginning of a GD-DA track. This assists transition of the read head between GD-DA tracks. One block lasts for one seventy-fifth of a second and a typical audio pause is 150 blocks or two seconds.

Pre-emphasis

This specifies whether the source file for the audio track was recorded with pre-emphasis applied.

2/4 Channels

This specifies the number of channels for the audio track. This can be two or four for a GD-DA audio track and defaults to two.

Copy Protect

This tells GD Workshop to record the audio track with a copy protect mechanism switched on. When it is checked digital copying is not permitted.

Track Number

This shows the position of the audio track selected in the tree and allows you to change the track order.

To change the position of an audio track:

1) Select the track you want to move in the tree.
2) On the Digital Audio tab, click the up or down arrow next to the track number until the track is in the required position.
   The other tracks on the GD are re-arranged automatically.
3) Click Apply.

Directory

This tab lets you set various properties which apply to the selected directory.

Directory Name

This shows the directory name on the GD. Usually this will just be "\" if the files are placed in root on the GD.

See also Relative paths.

Hidden/Record Directory

Check these if you want the directory to be a hidden or record directory.

Recording Date

DD/MM/YY hh:mm:ss:gmto

This is the date that the directory was added to the project.

File Name

This tab lets you edit various attributes which apply to the selected file in the tree.

File Name

This is the name given to the file by GD Workshop when it is added to the tree. This may be different from the name of the source file if it has been fixed to comply with the Sega file naming system. *See also File naming conventions and restrictions.*

Errors

This is a shortcut to the Hard Errors tab.

Directory

This is the directory on the GD where the file is recorded.

Click More for a short-cut to the directory tab.

File Source

This is the directory and file name of the file on the emulation drive. This is the file that is read during emulation.

Hidden/Record File

Check these if you want the file to be a hidden or record file.

Recording Date

DD/MM/YY hh:mm:ss:gmto

This is the time and date when the file was last modified.

Begin Time/End Time

mm:ss:ff

This is the start and end position of the file on the GD expressed in time.

Above 99 minutes the notation uses letters where 100 to 109 is A, 110 to 119 is B and 120 to 129 is C. So a time on a GD of 123 minute, 14 seconds and 12 frames is expressed as C3:14:12.

File Size

This is the size of the selected file read from the emulation drive. This information is provided to give you an indication of the final size of the CD as you add files to it. It also provides a useful way to check that files have copied correctly, by comparing the file size given here with the file size on the development computer.

Start Sector/End Sector

These show the start and end position of the selected file, which is given as the sector number relative to the beginning of the GD. This can be expressed in decimal or hex and can be the absolute sector number or the logical sector number.

The logical sector number is the absolute sector number plus 150, because there is a 150 sector lead-in at the beginning of the GD which cannot be accessed.

NOTE: *Zero byte files are treated differently and are always recorded at sector 16 in the single density area and at 45016 in the high density area.*

Hard Errors

This tab lets you add errors into a file to test how well the data on your CD performs when errors are present.

See also Emulating errors on a GD.

Filename

This is the selected file in the tree to which you can add errors.

Start/End Sector

These are the start and end sectors of the selected file.

From/To

Specify the range of bad sectors which you want to add to the file.

Add/Delete/Remove All

Use these buttons to add and delete the errors in the file.

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Reference documents

Available from Sega DTS

- GD Workshop User Guide
- Katana development box setup guide
- GD-ROM Format Basic Specifications

ISO Specifications

- ISO 9660 Volume and file structure for CD-ROM for information exchange

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Keyboard shortcuts

The keys listed below have been assigned to speed up frequently used commands.

Command	Function keys
Open help	F1
Edit selected item in tree	F2
Cancel F2	ESC
Check File Versions	F3
Emulator/CD-ROM switch	F4
Nudge	F5
Enable errors	Control+F6
Collapse	F7
Collapse All	Shift+F7
Expand	F8
Expand All	Shift+F8
Door Open/Close	F9

Command	Shortcut keys
Ope	Control+O
New	Control+N
Save	Control+S
Copy	Control+C
Cut	Control+X
Paste	Control+V
Undo	Control+Z
Add CD	Control+Shift+C
Add file system	Control+Shift+S
Add level1 file naming system	Control+Shift+1
Add level2 file naming system	Control+Shift+2
Add data track	Control+Shift+D
Add audio track	Control+Shift+A
Add directory	Control+D
Add file	Control+Shift+F

Task bar controls

The following emulator controls are available from the right-click menu when GD Workshop is minimised on the task bar.

- Open/Close Door.
- Switch between GD-ROM drive and GD emulator.
- Select the GD you want to emulate.

Troubleshooting and error messages

Troubleshooting

Defragmenting the emulation hard drive

If GD Workshop is taking a long time to prepare to emulate it could be that the emulation hard drive is severely fragmented. To defragment the emulation hard drive use a standard disk tool such as Windows' Defrag.exe.

Common problems

Most problems encountered are due to communication and configuration problems between the emulator and the development computer.

These type of problems are usually indicated by a "SCSI error" message or a "Cannot find an emulator" message and you will not be able to open GD Workshop or begin an emulation. Below is a list of common problems and what you should do.

As a starting point always check the following:

- The development computer and the Katana development box are connected and powered up.
  Right click <My Computer> <Properties> <Device Manager> and click Refresh.
- Make sure you can see all the devices connected to the development system listed in the tree.

- There are no SCSI ID clashes on the SCSI bus.
- If you have more than one SCSI bus, that they are configured correctly.
- You are using the latest versions of GD Workshop software and firmware and the first two digits of the firmware and software version numbers match.
- You have installed the latest ASPI software on your development computer. You can download this from Adaptec.
- The emulation drive is formatted with FAT16, FAT32 or NTFS depending on the operating system on the development computer. FAT16 is compatible with all three.

Problem	Cause	Action
Emulator does not start. CD and HD access LEDs are flashing on the front of the unit.	A fatal hardware or firmware error has occurred at start up.	Contact technical support.
GD Workshop reports that it cannot find the emulation files but you can see them if you access the emulation drive directly.	The drive letter of the emulator has changed so the paths to the files in the project are now incorrect. This happens mainly under Windows NT when drive letters are automatically reassigned.	Press F3 (Check file versions) and update the files to the emulator. This will correct the drive letter in the path. Re-emulate
GD Workshop reports that it cannot find an emulator but you can see it as hard drive in My Computer in Windows.	GD Workshop expects the emulator to be a removable drive.	Right-click My Computer, go into Properties>Device Manager and double click the emulation (CPL GD-M) drive. Set it to Removable, reboot the development computer and try again.
The log reports incorrect file names or invalid read sectors.	You have opened a different .CPJ or moved some data files in Workshop after you started the emulation and Workshop does not know which files correspond to the appropriate sectors in the emulation. This will also break the degug stub in Codescape and you must do a hard reset and reload the project.	Close the current project in GD Workshop and open the correct .CPJ file for the emulation.

Error messages

If the emulator fails and reports a message in the log that is not included in this list, make a note of the message and contact technical support.

Error Message	Cause	Action
Access denied	The file you have requested has access restrictions.	Change the file properties.
An error has occurred whilst accessing [file name]	GD Workshop is unable to access the file for reading or writing.	Make sure the file is not read only or corrupt.
ASM GENERAL : [error code] DRAM : [error code]	Problems with the emulator hardware.	Reboot the emulator and retry. Contact technical support.
Attempt to access .HCD file before it's on the disk	GD Workshop has tried to access the .HCD file before it has been written to the emulation drive.	Re-emulate. If you are using Windows NT make sure that you are in administrator mode.
Attempt to remove current working directory	You have tried to delete a directory which is currently running an application's executable file.	Abort the operation, close the application and retry.
Auto-Emulation failed	The emulation file specified in the Hardware setup dialog box did not start usually because the .HCD file or the emulation files are missing.	Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry.
Bad logical block requested sector : [number] sector size : [bytes]	Problem relating to the emulator being sent a bad request during the emulation.	Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Contact technical support.
Bad logical sector numbers	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Bad Offset, requested offset : [sector number] file size : [bytes]	The offset requested is not inside a file on the emulation.	Re-emulate the project. Check emulator firmware and software versions and update if necessary. Contact technical support.
Bad path	The file you have requested cannot be found.	Make sure that the path to the file is correct and that the drive can be accessed.

Error Message	Cause	Action
Bad Pathname :	The path to an emulation file cannot be found.	Press F3 (Check File Versions) and check the paths.
Bad SCSI read on block [address] device [drive letter] status	The block requested on the emulation drive may be bad.	Do a Scandisk on the emulation drive to check for disk errors. Check that the development computer can see the emulation drive. Contact technical support.
Bad size	Problem relating to the emulator being sent a bad request during the emulation.	Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Contact technical support.
Bad Table of contents Bad Leadin Bad Track Bad Lead Out	Error returned by the GD Writer during a write or test write.	Check the firmware of the emulator and the GD-R and upgrade if necessary. Contact technical support.
Bad TOC Session [number] Track [number] Status [error code] Command Status [error code] Key [error code] Code [error code] Qualifier [error code]	Message returned by the GD Write during a write when it does not understand the data passed by the emulator.	You will not see this message if you have emulated the CD and done successful test write. If you do, rebuild the project and do a test write before writing the CD.
Buffer Compromised [time in ms]	The timing model of the emulation has been compromised. You may occasionally see this message when emulating at high speeds. The compromise should never be for more than 1 or 2 ms and indicates how much a read or seek command etc has been compromised trying to keep up with high emulation speeds.	No action required. This does not effect emulating or CD writing from the emulation.
Buffer Time-out [time in ms]	The emulator buffer has timed out during an operation.	The emulator may recover from this. If it does not reboot the emulator and retry. Contact technical support.
Buffer underrun	Error returned by the GD Writer during a write or test write. The emulator has not provided data fast enough for the GD-Writer to write the GD.	Set a lower write speed and retry. Check the firmware of the emulator and the GD-R and upgrade if necessary. Contact technical support.
Burn a new flash from .fsh file not on emulator drive	GD Workshop cannot find the .fsh file to reflash the firmware.	Copy the .fsh file to the emulator drive or browse for it and click open.
Cannot move : [directory]. The destination is a sub directory	You have tried to move a directory in a subdirectory of itself.	You cannot make this move.
Can't find directory : [directory name]	GD Workshop cannot find a directory on the emulation drive.	Press F3 (Check File Versions) and make sure that all the directories in the project are present on the emulation drive.

Error Message	Cause	Action
Command Error	Error returned by the GD Writer during a write or test write.	Check the firmware of the emulator and the GD-R and upgrade if necessary. Contact technical support.
Couldn't find the Hard Disk	The emulator cannot see the emulation drive.	Reboot the emulator and retry. Contact technical support.
Couldn't read FAT Status :	The emulator cannot understand the File Allocation Table on the emulation drive.	Do a Scandisk on the emulation drive to check for disk errors and re-emulate the project. Contact technical support.
Couldn't read master boot record status : Couldn't read boot record status :	The emulator cannot read the boot record on the emulation drive.	Do a Scandisk on the emulation drive to check for disk errors and re-emulate the project. Contact technical support.
Current emulation disk has an invalid file system on it	GD Workshop does not support the file system on the emulation drive.	Reformat the emulation drive with a valid file system.
Directory name change failed	GD Workshop cannot change the directory name.	Check that another directory is not using that name or that the name is valid.
Disk full	The hard drive on the development computer is full.	Free up some space on the hard drive.
Emulator not responding	There is a hardware problem with the emulator.	Check the SCSI connections, status of the emulation drive, that the emulator is powered up etc. Contact technical support.
Emulator took longer than we expected please check settings in Configure Hardware	The emulation timeout is set too low in the Hardware Settings dialog box.	Increase the emulation timeout and re-emulate.
Error collecting logging information	GD Workshop is receiving unrecognised logging information from the emulator.	Check the software and firmware versions and upgrade if necessary. Contact technical support.
Error during test write	There is a problem with the GD-R.	Check the GD-R technical support.
Error during write	There is a problem with the GD-R.	Check the GD-R. Contact technical support.
Error reading from device	The emulator has returned an error after a read command.	Do a Scandisk on the emulation drive to check for disk errors and re-emulate the project or contact technical support.
Error trying to set the file pointer	Where you have specified a section of a file to be a source file on the host drive, the seek command to that sector within the file has failed.	Do a Scandisk on the host drive, check for disk errors and retry.

Error Message	Cause	Action
Error updating firmware	The firmware did not update.	WAIT 30 SECONDS. Reboot the emulator and retry. Contact technical support.
Failed to initialise	The emulator failed to initialise.	Check the emulator firmware and software versions and update if necessary and retry. Contact technical support.
Failed to prepare an emulation	The emulator cannot prepare an emulation from the project files created by GD Workshop.	Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Contact technical support.
Failed to read Hard Disk	The emulator cannot read the emulation drive.	Reboot the emulator and retry. Contact technical support.
FAT copies do not match	The File Allocation Tables on the emulation drive do not match.	Do a Scandisk on the emulation drive to check for disk errors. Reformat the emulation drive and retry. Contact technical support.
File not found	The file you have requested cannot be found.	Make sure that the file is present on the drive and that the drive can be accessed.
File size / LSN mismatch, file size [number of sectors] start sector [number] end sector [number]	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
File size mismatch : [filename]	A file in the project does not match the file on the emulation drive.	Press F3 (Check File Versions) and update the files in the project and re-emulate. DO NOT EDIT FILES ON THE EMULATION DRIVE DIRECTLY.
File size of zero on :[file name]	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Flash burn failed	Problem with the eprom or the .fsh file.	DO NOT REBOOT THE EMULATOR. Retry. Contact technical support.

Error Message	Cause	Action
Generic / Unspecified Error	An unknown error has been returned by the emulator or reported by the development computer.	Contact technical support.
Hardware I/O error	Problem with a hardware device.	Check the SCSI connections, status of the emulation drive, that the emulator is powered up etc.
Initiator SCSI chip failed to initialise	The iniator SCSI chip on the emulators expansion bus did not initialise.	Contact technical support.
Invalid file handle	Windows or GD Workshop tried to open the file but did not recognise it.	Contact technical support.
Invalid file system : [file system]	The file system in the emulation drive is not supported.	Reformat the emulation drive with a supported file system. FAT16, FAT32 or NTFS.
Invalid read at sector.[number] requested sectors [number of sectors] Invalid play at sector [number] requested sectors [number of sectors]	Some operating systems ask for spurious sectors that are not in a valid track in the emulation.	No action required. This is not a problem and the emulation will continue as normal.
LeadIn Error Session [number] Track [number] Status [error code] Command Status [error code] Key [error code] Code [error code] Qualifier [error code]	Message returned by the GD Write during a write when it does not understand the data passed by the emulator.	You will not see this message if you have emulated the CD and done successful test write. If you do, rebuild the project and do a test write before writing the CD.
LeadIn Error Session [number] Track [number] Status [error code] Command Status [error code] Key [error code] Code [error code] Qualifier [error code]	Message returned by the GD Write during a write when it does not understand the data passed by the emulator.	You will not see this message if you have emulated the CD and done successful test write. If you do, rebuild the project and do a test write before writing the CD.
LeadOut Error Session [number] Track [number] Status [error code] Command Status [error code] Key [error code] Code [error code] Qualifier [error code]	Message returned by the GD Write during a write when it does not understand the data passed by the emulator.	You will not see this message if you have emulated the CD and done successful test write. If you do, rebuild the project and do a test write before writing the CD.
LSNs calculated for emulation don't make sense	The logical sector numbers calculated for the emulation from the .HCD do not make sense.	Reboot the emulator and retry. Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Contact technical support.
Mis-Compare	Error returned by the GD Writer during a write or test write.	Check the firmware of the emulator and the GD-R and upgrade if necessary. Contact technical support.

Error Message	Cause	Action
Missing .HCD file	GD Workshop cannot find the .HCD file on the emulation drive.	Re-emulate the project and check that the .HCD file is present on the emulation drive.
Missing emulation file : [file name]	GD Workshop cannot find a file on the emulation drive.	Press F3 (Check File Versions) and make sure that all the files in the project are present on the emulation drive.
Missing File : [file name]	Problem relating to the emulator being sent a bad request during the emulation.	Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Contact technical support.
No Emulation	Error returned by the GD Writer during a write or test write.	Check the firmware of the emulator and the GD-R and upgrade if necessary. Contact technical support.
Not ready	The emulator is still looking at the emulation drive.	Wait.
Offset [sector number] goes past end of file [file name]	Problem relating to the emulator being sent a bad request during the emulation.	Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Contact technical support.
Overflowed lost [number of entries] entries	The log count is set too low for GD Workshop to read all the log messages.	Reset log entries in the Hardware Settings dialog box to a higher number.
Problem building the file table for emulation	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Problem parsing .HCD	The emulator cannot read or understand the .HCD file.	Check the emulator firmware and software versions and update if necessary and retry. Do a Scandisk on the emulation drive to check for disk errors. Reformat the emulation drive and retry. Contact technical support.
Rejected Command	A command has been passed by the operating system that the emulator does not understand so the command cannot be executed.	Contact technical support.
Requested sector does not lie within a file, sector [number] sector size	Mainly a problem with Windows NT. NT is requesting a sector that is outside the area of the emulated CD.	No action required.

Error Message	Cause	Action
Reset eprom defaults failed	There is a hardware problem.	Contact technical support.
SCSI Error	A SCSI error has been reported.	Increase the emulation timeout on the Hardware Configuration dialog box. Check the firmware is up to date, upgrade if necessary and retry. Contact technical support.
SCSI Error Disconnecting from emulator	There has been a SCSI error and GD Workshop has disconnected from the emulator.	See other error messages given by GD Workshop. Rectify the problem and reboot the emulator.
SCSI Error logging suspended	An error or unknown command has been reported on the SCSI bus.	Increase the emulation timeout on the Hardware Configuration dialog box. Check the firmware is up to date, upgrade if necessary and retry. Contact technical support.
Sharing violation	You are trying to open a file which is already in use by another user.	Do not allow file sharing for files you are copying to the emulation drive.
The errors values didn't make sense	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
The file you are loading was not created using this version of the GD Workshop Press OK to continue	The GD Workshop software has been updated since you created this project.	Click OK and save the file to make it compatible with the current version.
The sub channel format requested is not supported	The application that is reading the emulated CD has requested sub channel data not supported by GD Workshop.	No action required.
There are no more directory entries	You have tried to make too many directories for the File Allocation Table on the emulation drive.	Use less directories than the maximum limit for the operating system you are using.
Too many errors (maximum is 64)	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.

Error Message	Cause	Action
Too many files to emulate maximum is 20,000	There are too many files in the emulation.	Reduce the number of files. If a lot of the files are less than 32 Kb, use the Small File Archive option and re-emulate the project.
Too many open files	There are too many open files in Windows.	Increase the number of files Windows can open in Config.sys.
Track [number] is less than 4 seconds	Message returned by the GD Write during a write when it does not understand the data passed by the emulator.	You will not see this message if you have emulated the CD and done successful test write. If you do, rebuild the project and do a test write before writing the CD.
Unable to build rel table	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Unable to find an emulator	GD Workshop cannot find an emulator.	Check that the emulator is powered up. Check the SCSI connections to the emulator and that the latest ASPI software is installed on the development computer.
Unable to load toolbar information from .INI file using defaults	The INI file containing the toolbar settings cannot be found or read and default setting will be used.	Update the GD Workshop software and firmware and set up your toolbars again.
Unable to open [file] for reading	GD Workshop cannot access the file on the development computer for reading.	Make sure that the file is not read only and that GD Workshop can see the hard drive.

Error Message	Cause	Action
UNKNOWN : INITIATOR : SCSIPORT : SCSICHIP : DMA : BUFFER : FAT : CD : HOST : MAIN : EMULATOR : HCD : REL TABLE : FILLER : SCSI MOD : GENERAL : TOC : HFS : LOG : CDR :	These are displayed in the log and indicate the category that the log message belongs to.	Action required depends on the message in the log.
Unknown : [drive letter]	The partition or drive is not recognised by GD Workshop.	Re-format the partition or drive with a valid file format.
Unknown CDR Status [status]	GD Workshop does not understand the status being reported by the CD-R.	Check the CD-R is compatible with GD Workshop. Check the current software and firmware versions of the emulator and the CD-R and upgrade if necessary. Contact technical support.
Unknown entry [error code]	The emulator does not understand Windows commands or GD Workshop does not understand the emulator firmware.	Check the software and firmware versions and upgrade if necessary. Contact technical support.
Unknown Error : [error code]	An unknown SCSI error has been reported.	Contact technical support.
Unknown error [error code]	There is an unknown error on the emulation drive bus.	Reboot the emulator and retry. Contact technical support.
Unknown Error Session [number] Track [number] Status [error code] Command Status [error code] Key [error code] Code [error code] Qualifier [error code]	Message returned by the GD Write during a write when it does not understand the data passed by the emulator.	You will not see this message if you have emulated the CD and done successful test write. If you do, rebuild the project and do a test write before writing the CD.

Error Message	Cause	Action
Unknown file system type [file system]	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Unknown session marker [session code]	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Unknown track type on track [number] type [track type]	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Unrecognised media descriptor byte [device type]	This occurs if you have swapped the emulation drive for one which is not formatted correctly or not supported.	Make sure that the drive is formatted with a supported operation system.
Unsupported disk sector size of :	The sector size on the emulation drive is not supported.	Reformat the emulation drive with a sector size of 512 bytes.
Version number mismatch on HCD file and Firmware	Message returned when the emulator did not understand part or all of the .HCD file passed to it by GD Workshop.	Check the emulator firmware and software versions and update if necessary and retry. Press F3 (Check File Versions) and update the files in the project and re-emulate. Reboot the emulator and retry. Do a Scandisk on the emulation drive to check for disk errors. Contact technical support.
Workshop was unable to determine your emulation configuration you will be taken to the configuration screen	You have multiple emulators or removable drives connected to the same SCSI bus or some of the devices are not recognised.	Assign drive letters to devices in the Configure Drive Letters dialog box.

Appendix A
Working with CD Craft

GD Workshop fully support scripts written for CD Craft.

Loading a CRI script into GD Workshop:

1) On the File menu select Load CRI Script...
2) Browse for the script you want to open and click Open.
   GD Workshop reads the script and loads the data files referenced into a project. The files referenced in the script must reside in the same relative directory as the script, if not, the script must include full paths to all the data files.

Editing and emulating a CRI script in GD Workshop:

Once the project has been built from the script, you can edit it and emulate in the normal way until you are happy with the results.

NOTE: *The data files are place in the project in GD Workshop in the order that they are referenced in the script. If a file needs to be placed on the GD at a particular start time, such as the 1ST_READ.BIN, you must position it manually by creating a padding track or using List View in GD Workshop.*

Writing CRI scripts from GD Workshop

To save a project as a script:

1) Select Save CRI Script... from the file menu.
2) Browse for the location where you want to save the CRI script and click Save. The project is written as a CRI script to the location you chose.

NOTE: *The positional information of individual data files is not written in the script by GD Workshop, just the order of the files. This is because GD Workshop and CD Craft handle the VDS information differently. If a file needs to be placed on the GD at a particular start time, such as the 1ST_READ.BIN, you must edit the script after you have saved it.*

NOTE: *Some settings you can make in GD Workshop are not supported by CD Craft, anything that is not supported by CD Craft is ignored when you save a project as a CRI script.*

Appendix B
JScript and VBScript

Writing scripts to automate tasks

Workshop's script commands let you run Microsoft(r) JScript(tm) and VBScript macro scripts to automate routine tasks. Workshop's script commands are listed below. You can use the functions available in either JScript or VBScript to add commands of your own.

For details about using JScript and VBScript connect to the scripting area on the Microsoft Developer Network at: http://msdn.microsoft.com/scripting

GD Workshop's scripting commands

GetFirmwareVersion

GetSoftwareVersion

GetEmulatorCount

SelectEmulator

OpenDoor

DoorIsOpen

CloseDoor

LoadProject

LoadScript

SaveScript

CloseProject

CloseWorkshop

MinimizeWorkshop

RestoreWorkshop

WriteMessage

UpdateFilesToEmulator

SetFilter

GetCurrentEmulation

SwitchIsEmulator

SwitchToEmulator

GetAutoEmulationFlag

SetAutoEmulationFlag

IsWarningsOn

EmulationWarnings

ClearLog

SaveLog

LogToFile

StopFileLogging

IsCDRAttached

SetWriteSpeed

SelectDisc

TestWrite

WriteDisc

void OpenDoor (void)

Return Value

N/A

Parameters

N/A

Remarks

Opens the emulator door and stops the current emulation.

Example

Java Script Example

```
OpenDoor ();
```

Visual BASIC Script Example

```
OpenDoor ()
```

See also,

CloseDoor

IsDoorOpen

SwitchIsEmulator

SwitchToEmulator

BOOL CloseDoor (void)

Return Value

Nonzero if the door has been closed, otherwise zero.

Parameters

N/A

Remarks

Door close can fail for a variety of reasons, the main one being no project has been loaded.

Example

Java Script Example

```
LoadProject (“C:\\TEST.CPJ”);
CloseDoor ();
```

Visual BASIC Script Example

```
LoadProject (“C:\TEST.CPJ”)
CloseDoor ()
```

See also,

OpenDoor

DoorIsOpen

void WriteMessage (LPCTSTR strMessage)

Return Value

N/A

Parameters

strMessage

Message string to be displayed in Workshop's log.

Remarks

Allows direct text messaging into Workshop log region, any text displayed is also saved when logging is saved.

Example

Java Script Example

```
WriteMessage ("Workshop Version " + GetSoftwareVersion ());
```

Visual BASIC Script Example

```
WriteMessage ("Workshop Version " & GetSoftwareVersion ())
```

See also,

ClearLog

SaveLog

LogToFile

StopFileLogging

BOOL LoadProject (LPCSTR strFileName)

Return Value

Nonzero if the project was successfully loaded, or zero if the project was not loaded.

Parameters

srFileName

Name of project (.CPJ) file to load

Remarks

Loads a project into Workshop and sets it to be the currently active project. Multiple projects can be loaded, the last project to be loaded is set to be the active project.

Example

Java Script Example

```
LoadProject (“C:\\TEST.CPJ”);
```

Visual BASIC Script Example

```
LoadProject (“C:\TEST.CPJ”)
```

See also,

LoadScript

SaveScript

BOOL LoadScript (LPCTSTR strFileName)

Return Value

Nonzero if the script was successfully loaded, or zero if the script was not loaded.

Parameters

strFileName

Name of CRI script (.SCR) to load.

Remarks

LoadScript parses CRI scripts to produce a workable project, it is not intended to load Java/ Visual BASIC scripts.

Example

Java Script Example

```
LoadScript ("C:\\TEST.SCR");
```

Visual BASIC Script Example

```
LoadScript ("C:\TEST.SCR")
```

See also,

LoadProject

SaveScript

BOOL SaveScript (LPCTSTR strFileName)

Return Value

Nonzero if the script was successfully saved, or zero if the script was not saved.

Parameters

strFileName

Name of CRI Script (.SCR) file to save.

Remarks

SaveScript creates a CRI script, this script can be built using CDCRAFT build utilities, however, your files will probably have changed position, so you may need to hand edit the scripts.

Example

Java Script Example

```
SaveScript ("C:\\TEST.SCR");
```

Visual BASIC Script Example

```
SaveScript ("C:\TEST.SCR)
```

See also,

LoadScript

LoadProject

void UpdateFilesToEmulator (void)

Return Value

N/A

Parameters

N/A

Remarks

All files in the currently selected project are updated to the emulation disk. The file check is passed through the default filter which is *.* if no filter is set. When a filter is set in Workshop, it becomes the default filter, and it is applied unless you specify a different filter using the SetFilter command.

Example

Java Script Example

```
UpdateFilesToEmulator ();
```

Visual BASIC Script Example

```
UpdateFilesToEmulator ()
```

See also,

SetFilter

void SetFilter (LPCTSTR strFilter)

Return Value

N/A

Parameters

strFilter

Filter you wish to apply.

Remarks

Filters are used to reduce the time taken on check file versions or on UpdateFilesToEmulator () by checking only those files specified by the filter.

Example

Java Script Example

```
SetFilter (“*.PVR;A*.BIN”);
```

Visual BASIC Script Example

```
SetFilter (“*.PVR;A*.BIN”)
```

See also,

UpdateFilesToEmulator

LPCTSTR GetCurrentEmulation (void)

Return Value

Name of currently emulating project.

Parameters

N/A

Remarks

If there is no project currently emulating an empty string is returned.

Example

Java Script Example

```
WriteMessage ("Current Emulation " + GetCurrentEmulation ());
```

Visual BASIC Script Example

```
WriteMessage ("Current Emulation " & GetCurrentEmulation ());
```

See also,

OpenDoor

CloseDoor

BOOL DoorIsOpen (void)

Return Value

Nonzero if the door is open.

Parameters

N/A

Remarks

Used to determine the status of the emulation door.

Example

Java Script Example

```
if (DoorIsOpen ())
      WriteMessage (“Door Is Open”);
else
      WriteMessage (“Door Is Closed”);
```

Visual BASIC Script Example

```
If DoorIsOpen () Then
      WriteMessage (“Door Is Open”)
Else
      WriteMessage (“Door Is Closed”)
End If
```

See also,

OpenDoor

CloseDoor

BOOL SwitchIsEmulator (void)

Return Value

Nonzero if the switch is set to emulator, otherwise switch is actual GD mechanism.

Parameters

N/A

Remarks

Returns the state of emulation switch.

Example

Java Script Example

```
if (SwitchIsEmulator())
      WriteMessage (“Switch is emulator”);
else
      WriteMessage (“Switch is real mechanism”);
```

Visual BASIC Script

```
If SwitchIsEmulator () Then
      WriteMessage (“Switch is emulator”)
Else
      WriteMessage (“Switch is real mechanism”)
End If
```

See also,

SwitchToEmulator

void SwitchToEmulator (BOOL fSwitch)

Return Value

N/A

Parameters

fSwitch

Nonzero switches to emulator, zero switches to real GD drive.

Remarks

You must first open the door before performing a switch change.

Example

Java Script Example

```
SwitchToEmulator (1);
```

Visual BASIC Script Example

```
SwitchToEmulator (1)
```

See also,

SwitchIsEmulator

OpenDoor

void ClearLog (void)

Return Value

N/A

Parameters

N/A

Remarks

Clears all current text from the log window.

Example

Java Script Example

```
ClearLog ();
```

Visual BASIC Script Example

```
ClearLog ()
```

See also,

SaveLog

LogToFile

StopFileLogging

BOOL SaveLog (LPCTSTR strFileName)

Return Value

Nonzero if log is saved successfully, zero if the log is not saved.

Parameters

strFileName

Name of file to save the log text in.

Remarks

Saves current log text.

Example

Java Script Example

```
if (SaveLog (“C:\\TEST.LOG”))
      WriteMessage (“Log Saved”);
else
      WriteMessage (“Failed To Save Log”);
```

Visual BASIC Script Example

```
If SaveLog (“C:\TEST.LOG”) Then
      WriteMessage (“Log Saved”)
Else
      WriteMessage (“Failed To Save Log”)
End If
```

See also,

ClearLog

LogToFile

StopFileLogging

BOOL LogToFile (LPCTSTR strFileName)

Return Value

Nonzero if log is saved successfully, zero if the log is not saved.

Parameters

strFileName

Name of file to save the log text in.

Remarks

Current text in the log window is saved and any new logging information is also saved until you either quit Workshop or issue a StopFileLogging () call.

Example

Java Script Example

```
if (LogToFile (“C:\\TEST.LOG”))
      WriteMessage (“Logging Started”);
else
      WriteMessage (“Failed To Start Logging”);
```

Visual BASIC Script Example

```
If LogToFile (“C:\TEST.LOG”) Then
      WriteMessage (“Logging Started “)
Else
      WriteMessage (“Failed to Start Logging”)
End If
```

See also

ClearLog

LogToFile

StopFileLogging

void StopFileLogging (void)

Return Value

N/A

Parameters

N/A

Remarks

Stops logging to a file and closes the open file handle.

Example

Java Script Example

```
StopFileLogging ();
```

Visual BASIC Script Example

```
StopFileLogging ()
```

See also,

SaveLog

LogToFile

void MinimizeWorkshop (void)

Return Value

N/A

Parameters

N/A

Remarks

Minimizes Workshop. If you minimize Workshop as the first call in your script, when you restore Workshop, your toolbars will not be in their original position because they were drawn whilst minimized.

Example

Java Script Example

```
MinimizeWorkshop ();
```

Visual BASIC Script Example

```
MinimizeWorkshop ()
```

See also,

RestoreWorkshop

void RestoreWorkshop (void)

Return Value

N/A

Parameters

N/A

Remarks

Causes Workshop to restore to the state it was in before it was minimized. If you minimize Workshop as the first call in your script, when you restore Workshop, your toolbars will not be in their original position because they were drawn whilst minimized.

Example

Java Script Example

```
RestoreWorkshop ();
```

Visual BASIC Script Example

```
RestoreWorkshop ()
```

See also,

MinimizeWorkshop

void CloseWorkshop (void)

Return Value

N/A

Parameters

N/A

Remarks

Closes Workshop.

Example

Java Script Example

```
CloseWorkshop ();
```

Visual BASIC Script Example

```
CloseWorkshop ()
```

See also,

CloseProject

void CloseProject (void)

Return Value

N/A

Parameters

N/A

Remarks

Closes the current project, this allows you to load another project into the workspace.

Example

Java Script Example

```
CloseProject ();
```

Visual BASIC Script Example

```
CloseProject ()
```

See also,

CloseWorkshop

BOOL GetAutoEmulationFlag (void)

Return Value

Nonzero if auto emulation is on, zero if auto emulation is off.

Parameters

N/A

Remarks

When auto emulation is set, the emulator will automatically emulate the last project when it is powered up.

Example

Java Script Example

```
if (GetAutoEmulationFlag ())
      WriteMessage (“Auto Emulate Set”);
else
      WriteMessage (“Auto Emulate Not Set”);
```

Visual BASIC Script Example

```
If GetAutoEmulationFlag () Then
      WriteMessage (“Auto Emulate Set”)
Else
      WriteMessage (“Auto Emulate Not Set “)
End If
```

See also,

SetAutoEmulationFlag

BOOL SetAutoEmulationFlag (BOOL fAutoEmulate)

Return Value

Nonzero if auto emulation has succeeded, zero for failure.

Parameters

Nonzero to auto emulate on boot, zero to clear auto emulation.

Remarks

When auto emulation is set the emulator will automatically emulate the last project when it's powered up.

Example

Java Script Example

```
if (SetAutoEmulationFlag (1))
      WriteMessage ("Auto Emulate Set");
else
      WriteMessage ("Auto Emulate Not Set");
```

Visual BASIC Script Example

```
If SetAutoEmulationFlag (1) Then
      WriteMessage ("Auto Emulate Set")
Else
      WriteMessage ("Auto Emulate Not Set ")
End If
```

See also,

GetAutoEmulationFlag

LPCTSTR GetFirmwareVersion (void)

Return Value

Current version of firmware.

Parameters

N/A

Remarks

Returns the current version and build date of the firmware running on the emulator.

Example

Java Script Example

```
WriteMessage (“Current Emulation “ + GetFirmwareVersion ());
```

Visual BASIC Script Example

```
WriteMessage (“Current Emulation “ & GetFirmwareVersion ());
```

See also

GetSoftwareVersion

LPCTSTR GetSoftwareVersion (void)

Return Value

Current version of software.

Parameters

N/A

Remarks

Returns the current version of Workshop.

Example

Java Script Example

```
WriteMessage (“Current Emulation “ + GetSoftwareVersion ());
```

Visual BASIC Script Example

```
WriteMessage (“Current Emulation “ & GetSoftwareVersion ());
```

See also,

GetFirmwareVersion

void EmulationWarnings (BOOL fWarnings)

Return Value

N/A

Parameters

fWarning

Nonzero switches warnings on, zero switches warnings off.

Remarks

This refers to the warnings given in the log after the close door command, such as "Track 1 does not contain 4 seconds of data". If warnings are on, you can only emulate/burn a valid GD if they are off you can emulate/burn anything.

Example

Java Script Example

```
EmulationWarnings (1);
```

Visual BASIC Script Example

```
EmulationWarnings (1)
```

See also,

CloseDoor

TestWrite

WriteDisc

BOOL IsCDRAttached (void)

Return Value

Nonzero if a GD Writer is attached to the GD writer bus of the emulator, zero if there is no GD Writer present.

Parameters

N/A

Remarks

Returns zero if a GD Writer is attached but not communicating with the emulator.

Example

Java Script Example

```
if (IsCDRAttached ())
      WriteMessage (“Burner Found”);
else
      WriteMessage (“Burner Not Found”);
```

Visual BASIC Script Example

```
If IsCDRAttached () Then
      WriteMessage (“Burner Found”)
Else
      WriteMessage (“Burner Not Found”)
End If
```

See also,

SetWriteSpeed

TestWrite

WriteDisc

BOOL SetWriteSpeed (short sSpeed)

Return Value

Nonzero if speed is set successfully, zero if speed is not set.

Parameters

sSpeed

Speed of burning 1=1X, 2=2X...

Remarks

Sets speed for TestWrite/WriteDisc

Example

Java Script Example

```
if (SetWriteSpeed (4))
      WriteMessage (“Burn Speed Set to 4”);
else
      WriteMessage (“Failed to set burn speed”);
```

Visual BASIC Script Example

```
If SetWriteSpeed  (4) Then
      WriteMessage (“Burn Speed Set to 4”)
Else
      WriteMessage (“Failed to set burn speed “)
End If
```

See also,

TestWrite

WriteDisc

BOOL SelectDisc (short sDiscNumber)

Return Value

Nonzero if the disc is selected successfully, zero it is not selected.

Parameters

sDiscNumber

Disc you wish to select (Zero Based)

Remarks

For projects containing multiple discs you can select a particular disc for emulating/burning etc.

Example

Java Script Example

```
if (SelectDisc (2))
      WriteMessage (“Image Number 3 Has Been Selected”);
else
      WriteMessage (“Failed to select disc”);
```

Visual BASIC Script Example

```
If SelectDisc  (2) Then
      WriteMessage (“Image Number 3 Has Been Selected”)
Else
      WriteMessage (“Failed to select disc “)
End If
```

See also,

TestWrite

WriteDisc

CloseDoor

BOOL TestWrite (void)

Return Value

Nonzero if test write is successful, zero if test write fails.

Parameters

N/A

Remarks

Starts a test write.

Example

Java Script Example

```
if (TestWrite ())
      WriteMessage (“Test Burn Succeeded”);
else
      WriteMessage (“Test Burn Failed”);
```

Visual BASIC Script Example

```
If TestWrite () Then
      WriteMessage (“Test Burn Succeeded”)
Else
      WriteMessage (“Test Burn Failed “)
End If
```

See also,

WriteDisc

SetBurnSpeed

BOOL WriteDisc (void)

Return Value

Nonzero if write was successful, zero if write fails.

Parameters

N/A

Remarks

Starts a write.

Example

Java Script Example

```
if (WriteDisc ())
      WriteMessage (“Burn Succeeded”);
else
      WriteMessage (“Burn Failed”);
```

Visual BASIC Script Example

```
If  WriteDisc () Then
      WriteMessage (“Burn Succeeded”)
Else
      WriteMessage (“Burn Failed “)
End If
```

See also,

TestWrite

SetBurnSpeed

BOOL SelectEmulator (short sEmulatorNumber)

Return Value

Nonzero for success, zero for failure

Parameters

sEmulatorNumber

Emulator you wish to select (zero based).

Remarks

This lets you select to currently active emulator for systems with more than one emulator. The emulators are counted in the same order as they appear in the list in the log region toolbar.

Example

Java Script Example

```
if (SelectEmulator (1))
      WriteMessage (“Emulator #2 has been selected”);
else
      WriteMessage (“Failed to select emulator”);
```

Visual BASIC Script

```
If SelectEmulator  12) Then
      WriteMessage (“Emulator #2 has been selected”)
Else
      WriteMessage (“Failed to select emulator”)
End If
```

See also,

TestWrite

WriteDisc

CloseDoor

OpenDoor

GetEmulatorCount

short GetEmulatorCount (void)

Return Value

-1 for failure, otherwise the number of emulators attached to the system.

Parameters

N/A

Remarks

Returns the number of configured emulators available to Workshop.

Example

Java Script Example

```
WriteMessage ("You have " + GetEmulatorCount () + " Emulators attached to your PC");
```

Visual BASIC Script

```
WriteMessage ("You have " & GetEmulatorCount () & " Emulators attached to your PC");
```

See also,

SelectEmulator

BOOL IsWarningsOn (void)

Return Value

Nonzero for yes zero for no

Parameters

N/A

Remarks

Returns state of warnings flag.

Example

Java Script Example

```
if (IsWarningsOn ())
      WriteMessage (“Warnings are on”);
else
      WriteMessage (“Warnings are off”);
```

Visual BASIC Script

```
If (IsWarningsOn ())
      WriteMessage (“Warnings are on”);
Else
      WriteMessage (“Warnings are off”);
End If
```

See also,

SelectEmulator

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