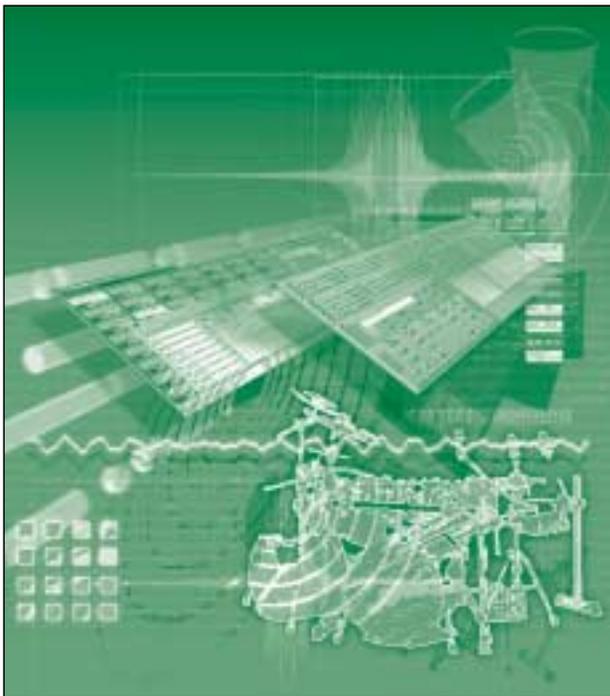




DR-008

Advanced Rhythm Production Station



User Manual version 1.10 - 07/06/2002

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1

Welcome.

Thank you for purchasing the DR-008 Advanced Rhythm Production Workstation from FXpansion Audio. DR-008 is a VST2.0 VST Instrument and Dxi DirectX Instrument compatible with all known VST2 and Dxi host applications, including:-

- Steinberg Cubase VST 3.7x and 5.x
- Steinberg Cubasis VST
- Steinberg Nuendo 1.5+
- Emagic Logic Audio series v4.5+
- Cakewalk SONAR and Home Studio 2002
- ImageLine Fruity Loops 3.x
- Sonic Syndicate Orion Pro

It is fully compatible with all current versions of Windows:- 95, 98, 98SE, ME, NT4, 2000 and XP.

This manual is divided in to three sections:-

Getting Started, which explains the basics of installing your DR-008 and navigating around it;

In Use, which explains the core functionality in detail; and **Modules**, which shows you how to operate each of the individual sound generator modules supplied with DR-008.

2

Getting Started

2.1 Installing

Insert the DR-008 CD into the CD drive. Use the Windows Explorer to open the CD and start the setup program by double clicking on DR008.exe. The setup program will take you through the installation procedure installing DR-008. You will be presented with two installation types - the Dxi version or the VSTi version. Select the version compatible with your host application.

The following files and folders will be installed:

- DR-008.DLL - the main engine and VST interface.
- Dr8Dxi2.DLL - the Dxi interface.
- MODULES Folder - the folder where all the modules are kept. New modules from FXpansion or third parties can be placed in here.
- WIZARDS Folder - the folder where DR-008's import wizards are kept. New wizards.
- PRESETS Folder - where presets for all DR-008's modules are stored.

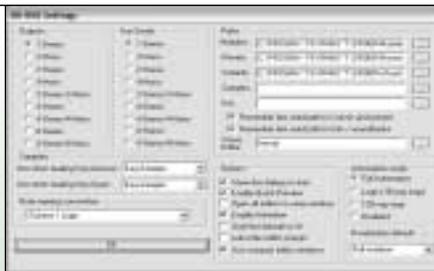
Please take time to register DR-008. Registration will give you access to free technical support and a host of new kits for DR-008.

The CD also contains GMEDIA Music's GForce Multi-Format Groove Library. The Groove Library has been specifically created for DR-008 and features fifteen different drum kits and more than 200 MIDI loops. Further information about loading these files can be found on page 32.

2.2 The Configuration Screen

The Configuration screen is displayed the first time your VST or Dxi host program loads DR-008. If you're using Logic Audio, you will need to press the ENTER key to dismiss this window the

first time you see it – for some reason Logic disables the mouse while it's loading, so you won't be able to change any of the settings the first time around. You can also access the Configuration screen at any time when using DR-008 – just press the CONFIG button in the menu area. **Note** that you'll have to re-load DR-008 after changing the output configuration, path locations, or automation mode. So, what do all these options do?



Continued on page 6

OUTPUTS and **AUX SENDS** let you set, respectively, the number of output and aux send destinations you want DR-008 to provide in the host's mixer. Note that this is only supported in multi-out enabled hosts – currently that means Cubase, Nuendo, Cubasis and Orion Pro. Outputs beyond the first stereo pair, as well as all Aux Sends, are unavailable in some versions of SONAR, Logic Audio and Fruity Loops. This is an unfortunate limitation of these hosts, and something they all plan to address at a later date.

PATHS allows you to instruct DR-008 where to look for Modules, Presets (*.drs), Wizards, Samples and Kits. If the Modules and Wizards paths are not set correctly, DR-008 will not work, and will warn you to that effect.

SAMPLERS allows you to choose which sampler modules you'd like to use by default when loading wave (WAV, AIFF) files from the drag-drop Browser window and Explorer-style Open dialog. See the Modules section for more information on the capabilities of each of these sampler modules.

AUTOMATION MODE lets you choose four different configurations for automating DR-008's various functions. Full Automation is good if you want to automate lots of controls, but don't need to edit them afterwards; Logic (16-way map) is a special mode for Logic Audio users providing 16 channels of 'mapped' automation; 128-way map is a good general-purpose automation setup providing 128 channels of mapped automation and 16 assignable MIDI Continuous Controllers; and Disabled switches off all VST/Dxi automation. Further options for configuring automation can be found in the Controllers menu on the main screen.

SHOW THIS DIALOG ON START causes the Config dialog to appear every time you load the DR-008. Unchecking it means that the Config dialog is shown only when you use the Config button in the main menu.

ENABLE QUICK-PREVIEW – when this checkbox is activated, the DR-008 'pre-loads' samples and presets in the Open dialog as you highlight them with the mouse or arrow keys. This feature is particularly useful if you want to be able to find the right sounds for a track quickly and with the minimum number of clicks; it's explained in more detail under Workspace 'Common Features' (page 12)

Continued on page 7

OPEN ALL EDITORS IN SAME WINDOW – when this box is checked, all popup Editor Windows are opened in the same window frame - so in effect, as you open a new popup editor, the last one closes. Good if you're short on screen space and/or hate 'screen clutter'.

ENABLE ANIMATION – when checked, the pads in the workspace light up whenever that pad is triggered. This uses a small amount of CPU; if your system is low on power, especially if it has an old PCI graphics card such as an 'S3'-based card, this feature could cause clicks or dropouts - unchecking the box disables it.

ONESHOT DEFAULTS TO ON – when checked, the pads are initialized with the HOLD button switched on (which causes them to play in 'one-shot' mode, ignoring any MIDI Note-Off messages and playing the sound to the end). When unchecked, the pads are initialized with the HOLD button switched off, and respond normally to MIDI Note-Offs. If you're using the Cubase Drum Grid editor, you should be sure to check this box.

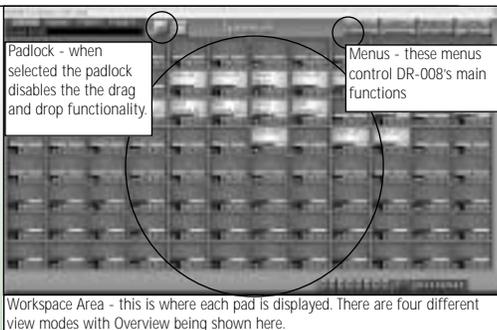
SHOW PADS AS NUMBERS – by default, DR-008 displays the pad identifiers as note names as used by Cubase - 'C' to 'B7'. Checking this box shows them as MIDI note numbers instead, which may be less confusing if your host application does not follow the same conventions as Cubase.

3 In use

Finding your way around

The diagram (right) shows the functions of each of the different areas of the main screen. Each of these will be explained in detail in the next section ('In Use').

Viewmode Selector - choose the Viewmode you would like to view your Workspace in. Also displays the name of the currently loaded soundbank.



Multimutes - these buttons allow you to mute a number of pads with a single click.

Rude Solo Light Lights up red if any pads are selected.

Octave Selectors - these buttons allow you to hop about in Mix and Edit modes.

3.1 Main Controls

This section deals with the various controls on the 'frame surround' the grey outer area around the outside of the Workspace Area.

3.1.1 View Modes



These controls let you select which view mode the Workspace is currently in. 'Overview' allows you to see all the pads on screen at once; 'Details' provides more information about each pad, at the expense of not being able to see them all at once; 'Mix' provides larger and easy-to-use controls for adjusting volume, pan and suchlike; 'Edit' allows you to edit the settings of the currently-loaded modules, as well as the main workspace settings.

3.1.2 Program Name



Shows the name of the currently-loaded patch. Use the host application to edit the name of the patch.

3.1.3 Menus



3.1.3.1 Loading a kit

The 'Load' menu button is where you load in a pre-made DR-008 kit and all its associated settings. You can either load it normally, or 'Merge' the new kit in to the current kit. When merging, sounds from the new kit are only loaded in to slots where there is no sound loaded in the currently-open kit. Future versions of DR-008 will support a wider variety of merge options.

3.1.3.2 Saving a kit

This menu allows you to save all the current settings (including automation and Multimute configuration, and settings for all currently-loaded Modules) in a DR-008 Bank File (*.db8). There are three options when saving:-

- 'Save settings only' saves all the above settings, and stores a reference to each of the wave files used in the project. If you move the wave files afterwards and reload the kit, the DR-008 will try to

find the files; because only references to the files are stored in the bank, not the files themselves, editing or deleting the wave files used in the bank will change the way the banks sounds.

- **‘Save settings and clone samples’** saves the bank as above, but creates a new copy of all the wave data (in a subdirectory relative to wherever you save the new bank file), and stores references to the new copy of the wave data in the file. So you can safely move or delete the old samples, if you want to. This is also convenient for ‘rounding-up’ all the samples used in a project in to one place.
- **‘Save bank with samples’** saves the bank as above, but also stores all the wave data in the file. **Note** that this can create very large files, but it’s very convenient for archiving bankfiles, sharing them with friends or colleagues, or moving them between computers. If you want to share these bank files with friends over the Internet, we recommend that you compress them with the WinRAR utility, as it compresses them a lot better than WinZIP meaning shorter download times.

3.1.3.3 Wizards

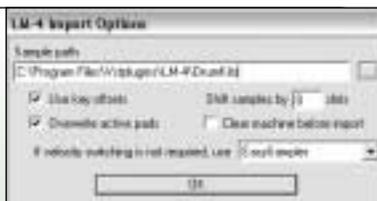
The Wizards menu allows you to access any installed DR-008 Wizard modules. Currently available are wizards for importing LM-4 kits, and resetting the DR-008 by clearing all the pads. Future Wizards will provide functionality such as beat slicing, pitch scaling, and import of further formats such as Battery *.kit, E-mu SF2 and others.

Importing an LM-4-kit

This Wizard allows you to import drum kits made for Steinberg’s LM-4 drum sampler.

There are a wide variety of high-quality multisampled kits available in ‘LM-4’ format.

The Wizard also allows you to ‘shift’ the location of the pads as they’re imported, allowing you to import multiple LM-4 kits at once by shifting them up or down by one or more octaves. The LM-4 Wizard normally uses the VeloSampler module for sample playback, as it’s the only module that supports the 128-way velocity switching contained in many LM-4 kits. However, not all kits require this – the wizard allows you to use an alternative sampler module where possible.



Clear All

This Wizard clears all the pads and resets the DR-008. Before doing so, it will ask 'are you sure', so that you don't accidentally lose work.

3.1.3.4 Controllers

This menu allows you to access the automation and MIDI Controllers settings. See the 'Automation' section for more information.

3.1.3.5 Config

This menu displays the Config dialog box. See 'Config' under 'Getting Started' for details.

3.1.3.6 Samples

This menu is reserved for future functionality.

3.1.3.7 Browser

This menu toggles (shows/hides) the 'Tree View'-style Browser window, which allows you to drag and drop samples and presets from your drives on to the DR-008's pads.

3.1.3.8 About

Displays information about the current version of DR-008.



3.1.4 Padlock

The Padlock enables/disables the drag-and-drop functionality between pads. When illuminated, the DR-008 is 'locked', and all inter-pad drag-and-drop is disabled (drag- and-drop from the Browser to the pads is still allowed). When disabled or 'unlocked', modules/samples can be dragged and dropped between pads; hold CTRL and drag to 'clone' a pad, leaving the original in place and creating a copy in the new location.



3.1.5 Multimutes

The Multimutes are eight programmable mute buttons which allow you to mute and unmute multiple pads at once. Right-click a Multimute to pop up a list of all the pads – any currently-ticked entries are controlled from that Multimute. Click on a note name in the popup menu to add that pad to the current Multimute. Left-click a Multimute button to toggle it on/off. When the Multimute changes state, it applies the same change to all pads assigned to it. – they are all muted or unmuted together.



3.1.6 Rude Solo Light

The Rude Solo Light is a simple indicator, as found on many mixing consoles, to show whether any pads are currently soloed. If it's lit, one or more pads is soloed.



3.1.7 Octave buttons

The Octave Buttons allow you to jump quickly between any of the eight octaves of pads in either Mix or Edit modes. Click a button to be taken instantly to that octave.



3.1.8 Window Selectors

The Window Selectors work much like the Task Bar next to the Start menu in Windows. They allow you to select between any currently-active popup module editor, and bring it to the foreground by clicking on it. The currently-selected module editor window is highlighted.



3.2 Workspace and View Modes

The Workspace is where each of the pads is displayed, along with its settings such as volume, pan, mute, solo – exactly what gets displayed depends on the view mode. There are four view modes available:-

Overview – which shows every pad on screen, in a 12x8 grid.

Details – shows more information than Overview, but can't show all the pads at once. Has a vertical scrollbar for navigating between pads.

Mix – provides large, graphical volume and pan faders for fine-tuning the levels of each pad. Has a horizontal scrollbar, and allows you to jump between groups of pads using the octave buttons.

Edit – provides a compressed version of the information in Mix mode, plus an edit area where you can modify the settings for the individual modules loaded on each pad.

3.2.1 Common features

Regardless of which view mode you're currently working in, some functionality is the same:-

3.2.1.1 Loading a module in to an empty pad

Right-clicking an empty pad brings up a popup menu similar to the one shown here. This menu shows a list of currently-available module objects, be they samplers, synthesizers or DrumDeploy performance objects. Simply select a module from the menu, and it will be loaded in to the pad. If there is suitable data in the DR-008 Clipboard, the PASTE option will also be available, allowing you to paste a previously-selected module and its settings in to the pad.



3.2.1.2 Loading a preset or wave file in to an empty pad

To load a preset or wave file in to an empty pad, simply double click the dark-blue area of the pad and an Explorer-style 'Open' window will appear. Browse through the disk as you normally would, and select the file you want to load – it can be a WAV, AIFF or DRS (DR-008 Module Settings) file. If it's a .DRS file, the right module to handle the settings will automatically be loaded. The directory the 'Open' window defaults to depends on the following:-

- plain doubleclick: opens at the last-used path.
- Ctrl+doubleclick: opens at the 'Presets Path' specified in Config.
- Shift+doubleclick: opens at the 'Samples Path' specified in Config.

You can also load in a preset or wave using the drag-and-drop Browser, see the 'Browser' section for more information on that.

3.2.1.3 Using Rapid-Preview Mode Rapid Preview Mode

is provided as a way of quickly finding the right sounds or samples for your

track. What it does, when activated (see Config) is to pre-load sounds or samples in to a pad as soon as you highlight them in the Open dialog box. This means that any MIDI data coming in to that pad now triggers the new, highlighted sound.

Typically, how you'd use it is to set up a pattern in your sequencer with some basic sounds, run the sequencer, and then load new samples in to the DR-008 as the sequencer runs.

Especially useful is the fact that the Open dialog box allows the use of the keyboard arrow keys – you can scroll through a whole directory of samples at the touch of a button, listening to them all in turn in the context of your track.

Pressing the 'Open' button then confirms the loading of the currently selected sample, and dismisses the dialog; the 'Cancel' button dismisses the dialog and restores the old sound back to the pad.

3.2.1.4 Previewing an active pad

Left-clicking on an active pad will trigger the sound, the same as MIDI trigger data from your sequencer or keyboard would. A Note-off message is sent when you release the mouse button.

3.2.1.5 Modifying settings for an active pad

Right-clicking an active pad – that's to say, one which has a module, sample or preset loaded in to it – brings up the following menu.

Open/Close Editor toggles the popup editor window for that pad.

Presets pops up a menu showing all presets available for the currently-loaded module in the Presets folder, and allowing you to select a new preset for the module.

Name allows you to set the name of the pad.

Load - allows you to load a new wave or preset file in to the pad (see above).

Save - allows you to save the pad's settings as a new preset (*.drs) file.

Objects pops up the same menu as you would get by rightclicking an empty pad.

Clear, Copy, Cut and Paste provide the standard Clipboard operations at pad level; they work exactly as normal Windows clipboard functions.



3.2.1.6 Using Drag and Drop

DR-008 supports drag-and-drop between pads. When the padlock icon is disabled (un-illuminated and 'unlocked'), you may drag any pad's settings to any other, moving the module loaded in to that pad in the process. Hold down CTRL and drag to clone the settings, creating a new copy of the module in the destination pad.

3.2.1.7 Keyboard Modifiers

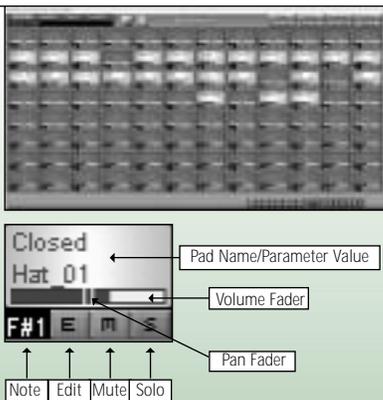
The readout that normally shows the pad name can also show different information – when dragging a control, it shows a numerical readout for that control. Depending on the key combination, it may also show the following:-

- CTRL: Aux send destination, mode, level (CTRL can also reset any parameter e.g. vol., pan - CTRL+click the fader to reset it)
- SHIFT: Output destination
- CTRL+SHIFT: Volume and pan
- ALT: Name of module generating the sound (instead of name of preset or wave)

3.2.2 Overview Mode

Overview mode is so called because it gives you an overview of all the pads, and all currently-loaded modules.

- The 'Edit' button toggles a pop-up editor window for the pad.
- The Mute button mutes the pad causing it not to sound.
- The Solo button solos the pad, causing all other pads – except other already-Soloed pads – to be muted.



3.2.3 Details Mode

Details mode gives you a more detailed view of each pad, showing the choke group, hold, aux, and output settings for the pad.

The volume, pan, edit, mute, etc. controls work exactly as in Overview Mode.

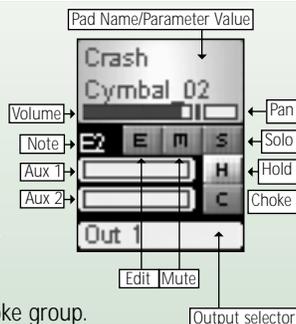
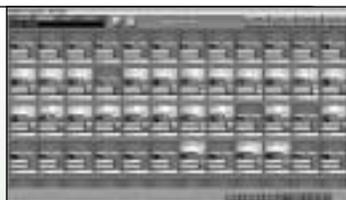
The Hold button, when activated, causes the pad to ignore any MIDI note-off messages and play to the end of the sound or sample. This is very useful when working with the Cubase Drum Editor, which sends note-offs after a very short time causing some samplers to 'cut' the sound.

The Choke button is used to assign the pad to a choke group.

When a pad assigned to a choke group is triggered, it 'cuts' all other pads in that group. This is very useful for programming authentic-sounding HiHats - it allows you to cut any open hats whenever a closed hat is played.

The Output button allows you to assign the pad to one of the DR-008's multi-outs (multi-out enabled host applications only).

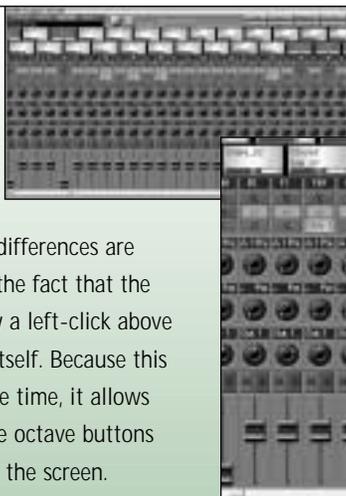
The Aux faders control the level of signal sent to the selected Aux Output (multi-outs enabled host applications only). Right-click the Aux fader to select the operating mode (pre or post fader) and destination output for the aux signal.



3.2.4 Mix Mode

Mix mode provides large faders for fine control of the volume of each pad, and larger, easier-to-use mute, solo, aux, etc. controls. Aside from their appearance, the controls work

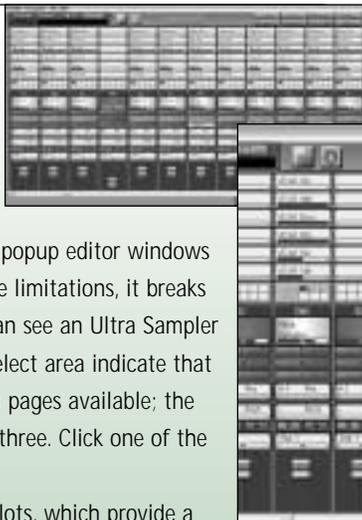
largely the same as Details mode. The important differences are the additional volume faders and pan knobs, and the fact that the Aux Send destinations and modes are assigned by a left-click above the knob, rather than by right-clicking the knob itself. Because this mode shows 24 out of the 96 channels at any one time, it allows you to navigate between the fader banks with the octave buttons or with the horizontal scroll bar at the bottom of the screen.



3.2.5 Edit Mode

Edit mode provides the same controls as Mix mode, albeit in a somewhat compressed form. However, in addition it also provides an editor for the parameters of whatever module is loaded in to the pad (equivalent to the floating popup editor windows accessible from the 'E' button). Because of space limitations, it breaks them in to 'pages' of six parameters. Here we can see an Ultra Sampler module; the light-grey highlights in the page-select area indicate that there are a total of seven (out of a possible ten) pages available; the dark-grey highlight shows that we are on page three. Click one of the other boxes to change the current page.

Above the page selector are the six parameter slots, which provide a fader and a (read-only) text readout for editing the parameter – this shows the name of the parameter when the fader is idle, and the value when the fader is active. As in Mix mode, navigate using the octave buttons and/or horizontal scroll bar. Right-clicking in the parameter area of Edit Mode will trigger the sound.



3.3 The Browser

DR-008's Browser is a tree-style popup window capable of displaying WAV, AIFF and DRS (DR-008 module preset format) files. The browser exists to allow you to arrange kits quickly by simply dragging and dropping the samples or presets on to the pads in the workspace. It works just like a simplified version of the Windows Explorer's 'tree' view – a '+' next to a folder indicates that it has one or more subfolders or DR-008 compatible files contained within; click the '+' to open the folder.



3.4 Automation and controllers

DR-008 has a comprehensive automation system with three different operating modes to suit different requirements, plus MIDI NRPN-based automation. Automation mode can be set in the Config screen. **Note** to Dxi users:- the 'VST Parameters' referred to in this section are mapped by the Dxi shell to DX8 parameters; in SONAR you can use either DX8-style

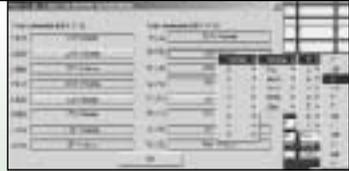
automation, or take advantage of SONAR's superior NRPN handling and use the NRPN system.

3.4.1 Full Automation

Full automation provides 128 automation channels for every pad, plus automation of volume, pan, aux1 level, aux2 level, mute and solo. This means that you can automate every single parameter, but with a total automation-count in excess of 12,000, if your host has a list-based automation system, editing it afterwards can be rather cumbersome and you may prefer a mapped automation mode.

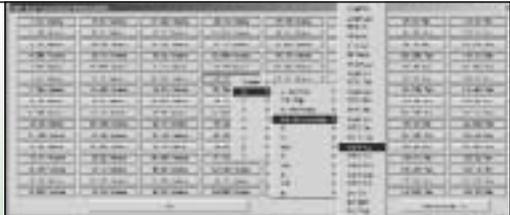
3.4.2 16-way Mapped Automation

16-way mapped automation is provided for Logic Audio users. Logic (as of v4.7) only allows 16 VSTi parameters to be automated; this mode allows you to assign any DR-008 parameter to one of the 16 available slots. The parameters are grouped as 'system parameters' – volume, pan, aux, mute, solo and 'module parameters', which are arranged by octave (0.7). A parameter can only be automated when it's assigned in the map; the mapper settings are saved as part of the DR-008 bank file, or with your song.



3.4.3 128-way Map and Controllers

128-way mapped automation is like an extended version of the 16-way automation mode, with 128 channels instead of 16. In addition, the 128-way automation mapper has a 16 channel mapper for assigning MIDI Continuous Controllers (CC# 64..CC# 79) to DR-008 parameters.



3.4.4 MIDI NRPN Implementation

All DR-008 parameters can be controlled with MIDI NRPN messages. DR-008 understands the full 14-bits of controller select messages, but only 7-bit data entry messages (i.e. controller #6 only). The NRPN message is interpreted as follows:-

Coarse = 0..95: Pad select; Fine = 0..127: Pad parameter select
Data = 0..127: Pad parameter data (0..1)

Coarse = 96: Pad volume; Fine = 0..95: Pad select
Data = 0..127: Pad volume data (0..1 = -inf..+12dB)

Coarse = 97: Pad pan position; Fine = 0..95: Pad select
Data = 0..127: Pad pan position data (0 = 100% L, 127 = 100% R)

Coarse = 98: Pad Aux1 level; Fine = 0..95: Pad select
Data = 0..127: Pad aux1 data (0..1 = -inf..+0dB)

Coarse = 99: Pad Aux2 level; Fine = 0..95: Pad select
Data = 0..127: Pad aux2 data (0..1 = -inf..+0dB)

Coarse = 100: Pad Mute switch Fine = 0..95: Pad select
Data = 0..127: 0..63 = off, 64..127 = on

Coarse = 101: Pad Solo switch; Fine = 0..95: Pad select
Data = 0..127: 0..63 = off, 64..127 = on

Note that some hosts and MIDI devices do not split the coarse and fine values as shown above. If they only allow a single NRPN number (usually 0..16383), you can calculate the equivalent with:

$$\text{NRPN-address} = (128 * \text{Coarse}) + \text{Fine}.$$

So, for example, parameter 3 of pad 14 would be at address $(14 \times 128) + 3 = 1795$. Note that pads are counted from zero for the purposes of this calculation, so pad C1, or MIDI note 36, is pad number 12.

4

The Modules

4.1 Working with modules

If you haven't already gathered, modules are of central importance to the DR-008 concept. DR-008 does not on its own possess any sound generating capability whatsoever – this is all provided by the various modules.

- Samplers, which are used to play and manipulate sampled wave data (WAV or AIFF format);
- Synthesizers, which use mathematical algorithms and/or digital models of vintage equipment to generate the sound;
- Drum Deploy modules, which do not generate any sound in themselves, but instead act as MIDI processors for incoming note data before redirecting it to other pads.

Each pad holds a single module, and each module can be re-used as many times as you like. Because of the way DR-008 is designed, memory-intensive items (such as wave data) are managed centrally; using the same wave in two different modules will not use any extra memory.

To edit a module's settings, either use the 'Edit' view mode, or 'pop up' its editor window using the 'E' button. You can preview the sound by right-clicking anywhere on the editor window, or in the parameter area of the 'Edit' view mode. This version of DR-008 comes with around 20 modules, however the design is such that new modules can and will be made available – many of them for free – at regular intervals.

Each of the module header (see right) features a useful set of shortcut icons. (For a full description see page 31)



4.2 Samplers

4.2.1 Easy Sampler

As its name suggests, Easy Sampler is the easiest-to-use of the sampler modules, and consumes the least CPU – less than 0.5% on a P3-500. It holds a single wave file, mono or stereo. To load a wave in to the Easy Sampler, click on the 'folder' icon; to unload a wave, click the 'x' icon. Easy Sampler has the following controls:-
 Pi – Pitch (+/- 1 oct)



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Vpi – Velocity to Pitch. When turned up, this control causes louder notes to be played at a relatively higher pitch.

Fc – Filter Cutoff. This controls the cutoff frequency of the Easy Sampler's simple Low Pass filter. When turned down, this control removes some of the treble frequencies from the sound, making it less 'bright'.

VFc – Velocity to Filter Cutoff. When turned up, this control causes louder notes to sound brighter than quiet notes, by increasing the cutoff frequency for the filter on loud notes.

Adc – Amplitude Decay. This control can be used to 'shorten' the sound by making the amplitude decrease with time.

PDc – Pitch Decay. This control 'bends' the sound by making the pitch decrease over time.

4.2.2 Ultra Sampler

Ultra Sampler is, like Easy Sampler, a single-wave stereo sampler module. However, it has a much more complex and powerful signal path. This enables it to do some quite drastic things to your sound, but at the expense of consuming considerably more CPU time. The upper area of the screen controls the main oscillator – it supports reversed sample playback, offset of the sample start point (adjustable from velocity), looping (with control over the loop points – automatically snapped to a zero crossing – and number of repetitions), pitch control (+/- 2 octaves), velocity-to-pitch (positive or negative), and a pitch envelope capable of generating a variety of slopes – the initial pitch slope is controlled with the 'slope' parameter; the 'sweep' parameter controls how the slope changes (becoming steeper, shallower or even turning back on itself) over time. Both looping and pitch EG can be switched off via the switches provided.

Beyond the oscillator, the Ultra Sampler has a five-stage signal path, using terminology that may be familiar to you from analog synthesis:- VCA1, VCF1, Drive, VCF2, VCA2.



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VCA1 and **VCA2** are amplifiers and amplitude envelope generators. The controls are fairly self-explanatory: attack rate, decay rate, release rate (rate of decay after note-off), gain, and velocity->gain. This last control is used to make the Ultra Sampler respond to velocity in the normal way, playing higher velocities louder (or it can be set to work in reverse, if you prefer!).

VCF1 and **VCF2** are 'Moog-style' 24dB resonant filters, switchable from low pass to high pass (via the 'response curve' button at the top of each filter). Cutoff and resonance are as you would expect; Sweep controls the amount of enveloping (positive or negative) that's applied to the cutoff frequency; Decay controls how quickly the envelope decays.

Note that UltraSampler does not have a Band Pass or Notch filter, but these can be accomplished with the existing filters, using one as a high-pass and one as a low-pass and overlapping the cutoff frequencies.

The Drive unit sits between the two filters on the signal path; it's a fairly straightforward waveshaping distortion unit with 'positive' or 'negative' shaping depending on the position of the Drive knob. The Sweep knob controls the behaviour of the distortion unit over time – to the right of center, distortion increases with time; to the left of center, it decreases.

4.2.3 Quad Sampler

Quad Sampler provides four Easy Sampler units in a single module. In addition, it allows you to set velocity response ranges for the four channels (top screen area – velocity 0 is on the left, 127 on the right, and the Y-axis represents volume – so in this case oscillator 2 fades in towards vel.30, increases up to about vel. 60, then fades out as oscillator 3 fades in). It also provides an 'X-Y' vector mixing pad for crossfading between the oscillators; the 'VX' and 'VY' allow you to control the vectoring 'crosshair' position from the note velocity.



4.2.4 Velo Sampler

The final sampler in the current version of DR-008 is the 'Velo Sampler'. This is a velocity-switching sampler, providing up to 128-way velocity switching between samples. This is essential for realistic-sounding acoustic kits. Velo Sampler is also the only one of the current sampler modules to support 'multi-triggering'. What this means is, the module is polyphonic, and when it starts to play a new sound, the old one is not 'cut'. This is again important for realistic acoustic kits, but can use quite a lot of CPU – disable it by activating the 'Mono' (monophonic) button. As with the Easy Sampler and Quad Sampler, a simple Low Pass filter is provided, with velocity control; in addition there is a 'Velocity Sensitivity' slider to adjust how much the sampler's gain control responds to velocity. It's important to note that some velocity-switched drum kit libraries are already scaled according to velocity (with low-velocity hits being much quieter), and so don't need to use the Velo Sampler's gain control (turn the slider right down). Others, however, are level-normalized, and rely on the sampler to provide velocity-based level adjustment – turn the slider up when working in this way. To add a wave to the Velo Sampler, click the '+' button; to remove the currently highlighted wave use the 'x' button. You can adjust a wave's properties using the green 'tools' button, and replace the current wave with a new one while keeping the properties the same with the blue 'replace' button.



4.3 Synthesizers

4.3.1 The Eights Bass

A fat, smooth, versatile synthesized kick. The Eights Bass uses 'two-stage' decay envelopes for both pitch and amplitude. For the Pitch envelope, the first stage envelope – 'Pitch Init' and 'Pitch DC1' – controls a fast, exponential decay from the initial pitch – 'Pitch Init' – towards a 'target' pitch (set initially by 'Pitch Base'); the second envelope – 'Pitch Base' and 'Pitch DC2' controls a slow, linear envelope. Values for Pitch DC2 above 64 actually cause the base pitch to increase with time, instead of decreasing. The amplitude envelope works on a similar principle – a fast, exponential initial decay



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(‘Amp DC1’), and a slower linear decay ‘Amp DC2’ The ratio between these two envelopes – which, in effect, controls the shape of the overall amplitude decay envelope – is set by the ‘Amp Ratio’ control.

4.3.2 HiHat

An analog-style hi hat tone generator, based on a tone signal and noise signal mixed and then fed through a high-frequency bandpass filter. NoiseDcy and ToneDcy control the decay rates of, respectively, the noise signal and the tone signal. The tone signal is in fact generated from two ring-modulated sinusoid waves – Freq A and Freq B control the frequencies of these two oscillators. Cutoff and Resonance control the filter, as you would expect; Mix controls the relative levels of the noise and tone components of the signal.



4.3.3 SnareDrum

An analog-modelled snare drum with a three-oscillator architecture. Oscillator 1 and 2 are identical:- noise generators with Decay, Cutoff, Resonance and Mix parameters. These set, respectively, the amplitude decay time; the cutoff frequency of a bandpass filter; the resonance or Q of the bandpass filter; and the level of the oscillator in the overall output signal. Usually you would use one of these oscillators to create a high-frequency ‘snappy’ sound, at around 3KHz with a short decay time, and the other at a lower frequency – say 700Hz – lower overall volume, and longer decay time to create a irsnare reverblc sound. The final oscillator is a swept pitch oscillator, with ‘Pitch’, ‘Pitch Amount’ (pitch envelope amount), ‘Decay’ (pitch envelope decay), ‘AmpDecay’ (amplitude decay rate) and ‘Mix’ (overall level). This oscillator is used to create the ‘body’ of the snare sound. In addition to the oscillators, the Snare Drum has controls for Drive (a simple distortion unit), and ‘Main’ (overall signal level).



4.3.4 809 Kick

The 809 Kick module is modelled on the classic Roland 808 and 909 drum boxes. Frequency' controls the base pitch; 'Sweep' controls the amount of pitch envelope; 'Dirt' adds harmonic noise to the signal; 'Click' controls the level of the initial attack click; 'Decay' and 'Release' control how quickly the sound dies away.



4.3.5 809 Snare

A snare drum based on the circuitry used in the classic Roland drum boxes. Parameters are tone (controls the frequency of the main oscillator), Noise (controls the ratio of the noise generator to the tuned oscillator), Filter (similar to the 'Snappy' parameter on the 808 and 909), and Decay (controls the amplitude decay time).



4.3.6 808 Hat

808 Hat is, as you might expect, a hi-hat model based on the TR-808. It uses a set of tuned pulse oscillators to generate a complex metallic tone, and then passes the signal through a bandpass filter and envelope generator. You can change the sound from closed hi-hat to open by adjusting the Decay parameter.



4.3.7 HX-Bass

HX-Bass uses the same algorithm as 'The Eights Bass' (see above), but with the addition of a distortion unit and some internal fine-tuning to provide a harder, more aggressive bass drum sound, suitable for hard-house and other styles requiring seriously punchy bass drums. The distortion unit is a 'swept waveshaper', with positive and negative distortion, and increasing or decreasing distortion level.



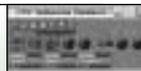
4.3.8 HX-Drum

HX-Drum is similar to HX-Bass (see left), but is tuned differently for producing hard-hitting synth tom sounds, rather than bass drums.



4.3.9 Tambourine

A fairly simple module for generating tunable tambourine sounds. Parameters are tune, amplitude decay, and volume compression (allowing you to add sustain).



4.3.10 Stompin' Kick

Stompin' Kick is a big, heavyweight kick drum generator, ideal for trance 'four-on-the-floor' kicks and suchlike.

Stompin' Kick features a variable-shape envelope (similar to that used on the Waldorf Attack), waveshaper/distortion unit for adding thickness and harmonics, and a variable low-pass filter with velocity modulation.



4.3.11 DrumSynth008

Overview

Sounds are created using two bandpass filters with an extraordinary bandwidth range: from completely open (no filtering) right down to a single frequency (sine wave). The filters are fed with a mixture of noise and sampled waveform and each have their own envelope generator. The first bandpass filter has some additional controls that are particularly useful for kick drum and tom sounds:

A pitch envelope for producing a swept-frequency sine wave, and waveshaping distortion to produce odd or even harmonics. The second bandpass filter envelope has an adjustable attack, and decay shape variable from logarithmic to linear which is useful for snare drum and hi-hat sounds. Multiple triggering is available for clap and guiro sounds, and when set for no decay between triggers this holds the envelope at maximum level for extra 'punch'. Hard clipping can be achieved



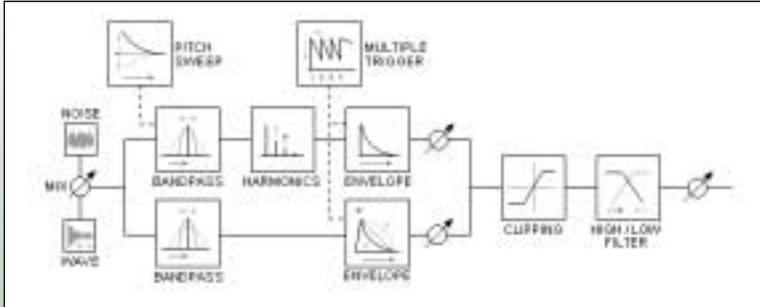
Continued on page 26

by increasing the output level of each bandpass filter. This is useful for rim-shot sounds, and like the harmonics control can add 'bite'. This is followed by a simple tone control filter. See the next two pages for more information on DrumSynth008.

PARAMETERS

1 Level	Osc1 amplitude (pre hard clipping)
1 Freq	Osc1 centre frequency
1 Decay	Osc1 envelope decay time
2 Level	Osc2 amplitude (pre hard clipping)
2 Freq	Osc2 centre frequency
2 Decay	Osc2 envelope decay time
1 Harmonics	Osc1 waveshaping distortion (left=odd, right=even)
1 Width	Osc1 bandwidth (or sweep startpoint if following parameter set)
1 Sweep	Osc1 frequency sweep time
2 Shape	Osc2 envelope shape from logarithmic (sharp) to linear (full)
2 Width	Osc2 bandwidth
2 Attack	Osc2 envelope attack time
Filter	Tone control filter (left=lowpass, right=highpass)
Level	Trim Output level trim (post hard clipping)
Waveform	Select waveform: TR-808 cowbell/ride, TR-909 open hat/closed hat/crash/ride
WaveTune	Waveform transpose
Wave	Mix Waveform mix with white noise generator
Trigger	Number of triggers
Trig Delay	Time between each trigger
Trig Decay	Decay rate between each trigger
Key Release	Release time (100% = ignore key release)
Polarity	Invert Osc1 polarity - some filter settings will phase against each other
Start Phase	Starting phase for both oscillators - adds an adjustable DC click
Vel > Frq1	Velocity control of Osc1 frequency
Vel > Lev1	Velocity control of Osc1 level
Vel > Frq2	Velocity control of Osc2 frequency
Vel > Lev2	Velocity control of Osc2 level
Vel > Wave	Velocity control of waveform transpose
Vel > Tone	Velocity control of tone control filter

DrumSynth008 signal flow diagram



4.4 Drum Deploy performance modules

Drum Deploy modules provide a way to process incoming MIDI data in various ways, and re-route a single note to several different sound generator modules. **Note** that in the current version, DR-008 does not support 'chaining' of Drum Deploy modules – you can't, for example, control a DD Layer from a DD Autoroll. Drum Deploy modules only allow you to control sampler or synthesizer modules.

4.4.1 DD Layer

DD Layer allows you to layer up to four pads and trigger them with a single key. Click the 'note' controls to select which pads to layer, and the 'vol%' controls to adjust the velocity response of each pad. Once set-up, any note event sent to the DD Layer will be relayed to all four selected pads.



4.4.2 DD Autoflam

DD Autoflam allows you to create 'Flam' effects where several sounds are triggered (or the same sound retriggered) within a short space of time. It operates identically to DD Layer, except that there is an additional 'Delay' parameter. This delay is in milliseconds, and in each case is relative to the arrival of the original note event.



4.4.3 DD Alternator

DD Alternator causes hits to be re-routed to one of up to four different pads. The first hit is routed to the first pad, the next to the second, and so on. Any empty entries in the DD Alternator's selection boxes are skipped, so if only entries I and II are used, it will give a simple two-way alternation effect. DD Alternator is useful for creating 'left-stick, right-stick', effects, as well as breathing life in to otherwise 'static-sounding' patterns by providing variation in the hits.



4.4.4 DD Autoroll

DD AutoRoll provides a way of creating automatic 'Drum Roll' effects. The length of each stage of the roll – 'ramp up', 'hold' and 'ramp down' can be set (in terms of the number of hits), and the roll rate can be set in milliseconds. DD AutoRoll allows you to alternate between two different pads on alternate 'hits' of the roll – select these with the 'Pad A' and 'Pad B' controls.



4.4.5 DD Sequencer

DD Sequencer is the most powerful Drum Deploy module included in the current DR-008, and gives some idea of where DrumDeploy technology is going in the future. DD Sequencer is a 16-step pattern sequencer, with eight assignable channels. It automatically syncs to the tempo of your host application's song. Click in a grid square to toggle a note in that square; drag up/down on a grid square to increase/decrease the velocity of that square (it will get darker or lighter to indicate the current velocity). Click the 'destination' area to the left of the grid to assign each sequencer track to a pad; DD Sequencer also allows you to enable/disable looped playback, and to adjust the 'Swing' aka Shuffle of the track. Because DD Sequencers are triggered by MIDI notes from your host



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sequencer, you can use the host to 'chain' patterns by triggering different DD Sequencer modules in sequence. Also, because DD Sequencers can be triggered/cut at any time, you're not limited to a 16-step grid – you could equally well use it for 12-step or 8-step by adjusting the note length in your host sequencer.

5 Credits and Thanks

Concept, engine design and main program code: Angus Hewlett

Module design and coding: Paul Kellett, Bram de Jong, Angus Hewlett

This Manual: Angus Hewlett - Ian Legge (Artwork)

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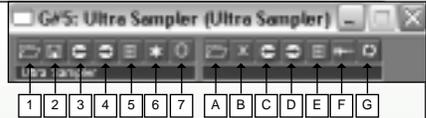
DR-008 Advanced Rhythm Production Workstation

Manual version 1.10 - 07/06/2002



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Module Header



There are a number of useful functions that can be accessed by clicking on

these module header icons. Below is a description of the function of each icon:-

1. Load Preset - load a preset file in to the current module via an explorer-style dialog.
 2. Save Preset - save the current preset.
 3. Previous Preset - loads the previous preset in the current folder.
 4. Next Preset - loads the next preset in the current folder.
 5. Load Preset By Menu - displays the available presets in the current folder in a menu, allows you to load one.
 6. Randomize - click to create a new random patch or mutate the existing one; CTRL+click to set the randomization mode for this patch.
 7. MIDI Learn - arms the current module for MIDI controller learn.
-
- A. Load Wave - loads a sample via an explorer-style dialog.
 - B. Unload Wave - clears the sample from memory.
 - C. Previous Sample.
 - D. Next Sample.
 - E. Load Sample By Menu.
 - F. Launch WAV editor with current sample.
 - G. Reload Sample.



GMEDIA Music's GForce Multi-Format Groove Library bundled with the DR-008 features fifteen different drum kits and more than 200 MIDI loops and grooves. Each MIDI groove triggers the appropriate drum samples either by loading in the whole kit as a .DR8 file, or by loading in the individual samples according to their note numbers (the number in brackets within the name of each sample).

Utilising both the MIDI Files and the corresponding DR-008 banks it's possible to achieve sonic excellence and yet retain the all important flexibility. For example, how many times have you wanted to remove a single drum from an audio loop? With MIDI it's easy, simply open up your sequencer's edit page and delete the appropriate notes. Similarly, changing the tempo of a loop or even assigning different plug-in effects to different drums is a cinch.

All MIDI Grooves are saved with each drum on its own track and when opened, each track will list the instrument and note number. If you want to audition all the grooves within a particular section or kit, simply load in the MIDI File marked 'ALL'. This will play each groove sequentially with a bar gap between each groove.

All loops and grooves found here have been customised for DR-008 from the GMEDIA Music range of sample products (past, present and future) each consisting of MIDI, WAV, AIFF and SoundFonts.

For more information visit: www.gmediamusic.com