

UltiMusE-III/K

The Ultimate Music Editor
Version 7.11.2

Graphic Music Score Editor and MIDI Player

INTRODUCTION

Congratulations on acquiring UltiMusE (tm), the advanced music editor and MIDI player for Coco-III OS-9L2 or MM/1 OSK. It lets you spread up to 16 musical voices over as many as eight staves, viewed in Hi-Res 640 x 192 graphics. Standard musical notations for repeats, multiple endings, and DaCapos make entering sheet music easy. Initial timing grids of rests help you place notes in time. "Overstrike" note editing automatically re-notates time fragments of notes. All voices can be instantly edited with the mouse at any time. Seven different styles of Clef allow Pitches to range from 4 octaves below Middle C to over 3 above. A Percussion Clef easily handles all synths. Search commands can find anything in your score. Staves, clefs, and parts can be added and re-assigned any time.

SHAREWARE and COPYRIGHT NOTICE

UltiMusE-III (Coco3/OS-9L2) and UltiMusE-K (MM/1) are now Shareware! Please feel free to give copies to others, upload to bulletin boards and Web sites, and include in collections of free software.

However, both versions of UltiMusE and this manual are Copyright (c) 1989, 1997 by Michael J. Knudsen, and in giving you permission to copy and pass around the software and files, I ask you to follow these rules:

(1) When giving out or uploading copies, be sure to include the ENTIRE package -- the program itself, the manual files, and the **.IMG** files. The Coco program comprises NINE files -- Umuse3, Fran, and seven files named "Um3" plus one letter. If you let someone get an incomplete package, they will be frustrated and give Umuse a bad reputation. If you got Umuse as a complete .AR or .LHA archive, pass that on as-is.

(2) Earlier, buy-ware versions must not be given away or uploaded. They have no up-to-date Manual files and no shareware money-begging startup screen (see No. (4)).

(3) Be very careful not to mix up files from different versions of Umuse, especially the Coco set. Save yourself and others some amazing crashes.

(4) If you really use Umuse, and haven't purchased it in the past, I'd appreciate a donation in the mail -- how about \$25 for the Coco and \$30 for the MM/1 version. In return for this "registration fee" I will send you one really major upgrade on disk when it comes ripe. It should be newer and better than anything floating around the Internet or bull boards. Send donation to

Mike Knudsen

**1411 E. Wakeman Ave
Wheaton, IL 60187.**

You can contact the author by EMail at:

mknudsen@lucent.com

or via the Coco mailing list at coco@pucc.princeton.edu.

(all above addresses now invalid)

DISCLAIMER

Neither the author nor the vendor can be held responsible for any damages, direct or consequential, arising through use or misuse of this program or its documentation, including lost sleep, divorce, missed deadlines or blown gigs. The user is cautioned that MIDI music hacking can be even more addictive than either computers or music alone.

This program and documentation are believed to be reasonably free of bugs, errors, and omissions. Questions and bug reports, complaints, and praise should be electronic-mailed to:

Michael J. Knudsen

mknudsen@lucent.com

(all above addresses now invalid)

SYSTEM REQUIREMENTS

To run UltiMusE-III you need a 512K (or more) Color Computer III and OS9 Level Two. A monochrome composite monitor is fine, though an 80-column RGB lets you customize your color scheme. Next best is a black & white TV set. If you must use a composite color monitor or color TV, use "**MONTYPE M**" (monochrome) mode.

Umuse3 now works fine with unpatched ShellPlus. For 6309 users, NitroOS9 really speeds up the menus, but the Nitro vendor should tell you the latest one-byte patch for our Um3P module to make it work with the serial port.

You need a mouse or joystick; they are the same to the CoCo but the mouse is much easier to use. You don't need the second button. The little Hi-Res Mouse Adaptor is highly recommended.

You can write and edit music with the above, but to hear them played you need a MIDI-equipped synthesizer and a way to connect the CoCo to it. This manual tells how to make a simple cable to feed CoCo's serial printer port to the synth. You may get better playing from a true hardware MIDI interface Pak in your Multi-Pak Interface, hooked to your synth with a standard MIDI cable. This Pak may be had from the Glenside Color Computer Club or bought used. Non-standard home-hacked units can be used if you have a matching OS9 device driver and descriptor.

Your synth must have a MIDI-In jack, but needn't have keys. Home keyboards with MIDI sell for under \$300, and "tone modules" without keyboards for under \$200. Try to get one with "General MIDI" instrumentation.

A 9-pin Tandy, Epson or IBM compatible dot matrix printer will dump graphics screens to hard copy and print whole scores.

INSTALLATION

NEW USER? SINGLE DRIVE? IN A HURRY? -- READ THIS FIRST!

If you're in a hurry to try UltiMusE-III or don't know much about OS9, just boot up OS-9. Type **LOAD PWD**.

Now **FORMAT** a scratch disk and **BACKUP** our UltiMusE-III disk to it. Plug mouse or joystick directly into the Left rear socket, or via the Hi-Res adapter into the Right one. Remove the OS-9 boot disk from Drive 0 and insert the UltiMusE-III backup copy. Now type:

```
chx /d0/cmds  
chd /d0/scores  
umuse3
```

and follow the prompts. See the "Troubleshooting" section if errors happen. You may pull out the Umuse3 disk and insert another for score files if you **LOAD** every module in our **CMDS** dir, but be sure to use the Files Menu to **CHD** to **/D0** after each disk change.

INSTALLATION

Installation is very simple, just copying some files and making sure your boot configuration has what's needed. You don't need to modify or add anything to your Boot file. But your boot must include **GrfInt** or **WindInt**, **/W**, and other window descriptors supplied on your Level 2 disk (and included in the original Tandy **OS9Boot**). Umuse3 no longer needs the old 32x16 VDG screen, but can still be started up from one.

Your boot must also include a **/DD** descriptor for one of your disks. The original Tandy bootfile satisfies all our requirements.

DISK CONTENTS: (MAKE A BACKUP COPY FIRST!)

Your Umuse3 disk is organized into **CMDS**, **SYS**, and **SCORES** directories. **CMDS** holds these executable binary programs: **Umuse3 Fran PlayMI** plus seven **Um3X**, where **X** = one letter.

Except for **PlayMI**, these must all be in your "Current Execution Directory" when running Umuse3. Never execute directly any of these except Umuse3!

SYS carries two files -- "**chars.img**" of character fonts, and "**AllUm3.img**" of cursors, notes, and other graphic symbols. These must be accessible under **/DD/SYS** whenever you start up Umuse3.

SCORES holds sample pieces of music plus some instrument patch files. Put these wherever you like, and **CHD** to wherever before running Umuse3.

TWO WAYS TO INSTALL AND USE ULTIMUSE-III

Depending on your Coco-III disk system, one of these two ways will be better for you.

(1) Add Umuse3 files to your existing file systems. If you have lots of room on your **/DD** drive and in your **CMDS** directory, just copy all of Umuse3's **CMDS** files into your **CMDS** directory, and everything in **SYS** to your **/DD/SYS**. You'll want to make one or more directories for our **SCORES** files plus the scores you'll create or get from other users, maybe on a separate drive.

(2) But if your **CMDS** or **/DD** space is tight, make a separate **CMDS** and **SYS** disk for UltiMusE work. Start by backing up your original Umuse3 disk. Then add to the backup's **CMDS** any other commands you'll be using. You must have **DIR**, **TMODE**, and **PWD**. You don't need any commands already booted into memory along with the Shell; do an **MDIR** to see what those are.

Keep the **SYS/*.img** files on this disk, or put them on another one, depending on whether you want the **CMDS** to be in your **/DD** drive. A disk with the **SYS** must be in **/DD** when you start up Umuse3, though you may pull it out once Umuse3 is running. **"/DD/SYS/*.img"** is the only hard-coded path in Umuse3.

IF YOU HAVE TWO SINGLE-SIDED FLOPPIES ONLY

You'll need to keep your score files on separate disks from the UltiMusE programs and images, which take up most of a 35 track SS diskette. Make a Commands Disk with our **CMDS** files plus the **PWD** command. Also copy our **SYS** directory to it. Format another Data disk; in fact, make several. Put the Commands disk in Drive 1, Data disk in Drive 0, and type

```
chx /d1/cmds
chd /d0
```

and go to work. Note that whenever you change diskettes in the Data drive you must use the File Menu's 'H' command to change directories to the new disk, even if its directory has the same name as the previous diskette.

RUNNING UltiMusE

You can start Umuse3 from any size or type of window, including the 32x16 VDG screen -- Umuse3 creates its own window. Make sure you're in lower-case mode. If not, type **TMODE -UPC** and hit **CTRL-O**. Umuse3 can't understand upper-case letters for most commands.

It's easier if before starting Umuse3 you **CHD** to where your scores are kept. Make sure your current exec directory includes the supplied program modules, and just type:

```
umuse3
or
umuse3&
```

where the & lets you keep using the original launch window after Umuse3 goes to its own. Don't add "**#32k**" -- Umuse3 already grabs all needed memory.

Or pick and choose from the full-blown command line:

```
umuse3 -OPTIONS infile outfile
```

where the option flags include (note the "poor man's" defaults):

- h** Using the High-Res mouse adaptor
- l** Low-Res, not using the adaptor (default)
- p** Enable MIDI plug-in pack instead of Coco rear serial port
- r** File will be edited in Read-Only mode (writes must be confirmed)

Infile and Outfile are also optional, but if only one name is given it's taken as Infile. Giving at least Infile skips some startup prompts and takes you straight to the score display of the Infile music file.

If Outfile is given, Umuse3's remembered "filename" is set to Outfile instead of Infile, so the first Save command you give will write to Outfile instead of Infile. This helps prevent you from mucking up the original of a score when you really wanted to edit a new copy of it.

Use -r when just looking or playing scores. This read_only mode doesn't prevent you from writing, but makes sure you want to (see "Files Menu").

Anything these options can do, you can do later inside Umuse3 -- they just save prompts, time and mistakes. Umuse3 also reads a special "init" file to set your favorite modes.

WHAT HAPPENS

Suppose you typed just "umuse3" to start the program. After plenty of disk thrashing the title and copyright screen appear; then a few seconds later a yes/no dialogue window asks whether you're using the Hi-Res mouse adaptor (unless you gave the -l or -h command line flag). Just type 'y' or 'n'.

Since you have nothing in memory yet, your Startup Menu options are limited to reading in an existing .UME music score file, reading a .INS instruments patch file, changing directories, or creating a new score from scratch.

Reading scores and instruments is straightforward and covered under "Files Menu." Practice at first by reading in one of the supplied score files; this will take you straight to the Score Screen, where you can play the music and practice editing with the mouse.

To create your own scores, read the chapters on "Parts and Staves," "Setup Prompts," and "Setup and Layout Screens."

Once you reach the Score Screen, you have the upper Menu Bar at your service. You may pull down the Options Menu to change the screen colors, set or change other modes -- and most important, save to a file these colors and the Joystick and MIDI port modes you gave on startup.

NOTE (CoCo only): As you try different menus and functions, Umuse3 will load one of its Um3x program routines from disk before proceeding. But once loaded, that function stays in memory (until you quit Umuse3) and you won't suffer that delay from the same function again.

SCREEN COLORS

You can change the Fore- and BackGround colors to anything the Coco-3 can generate. From the Options Menu, punch 's' and follow the prompts.

Inside the CoCo-III, each palette assigns each of the three primary colors an internal value of 0 thru 3. In the Options Menu, these values are given by typing the letters "RGBrgb." A small letter is worth 1 point and a capital letter counts 2 points towards that color's palette value. 'b' means dark Navy blue, 'B' medium blue, and "Bb" or "bB" bright blue. Same for the other primary colors R and G. Or click the mouse over the menu "buttons" to flip the color letters. Be careful not to give the same value for both fore and background! The colors don't "stick" unless you punch or type "OK, Keep" before exiting the menu with an ENTER or click outside the menu. You may save your favorite color scheme in the Init file.

PREFERENCES INIT FILE

Umuse3 starts up in your personal preferred modes as given in the file /DD/SYS/UM3.Init. This controls the screen colors, Hi-Res mouse adaptor, serial port and MIDI Pak enables, File Read_Only

mode, cursor snap, and some other modes. If this file exists, Umuse3 will skip the previous section's questions (whew!).

Your disk has no UM3.Init file supplied. To make one your way, start up Umuse3 as usual, answering the Hi-Res prompt to match your system. Use the MIDI Menu to enable your choice of MIDI ports, use the Options Menu to play with the screen colors, and Files Menu to set or clear Read_Only safety mode. Once you like the setup, type 'f' to the Options Menu to store away your preferences; Umuse3 will create the UM3.Init file. A disk with a SYS directory must be in /DD whenever you save or restore from UM3.Init.

You can change the settings any time, and rewrite the file as above, or type 'r' to restore your favorites from the file.

DEFINITIONS and GENERAL RULES

SOME MUSICAL TERMS

A "**part**" (or "voice") is one series in time of musical notes and rests. A part can sound only one note at a time. Keyboard players aren't restricted by this notion so it may take some getting used to. Think in terms of one-note instruments -- saxes, trumpets, bass, lead vocal, soprano, or early monophonic synthesizers; there is a sax part, 1st and 2nd trumpet parts, etc. You need to think in band or choir terms to use poly-timbral synths like the MT32 or FB01. And to write music in UltiMusE.

A "**staff**" is a group of five lines with four spaces in between them. These "**slots**" of lines and spaces represent musical pitches, or white keys on a keyboard, in order. A "**clef**" is a large sign at the beginning of a staff that tells what white key corresponds to the staff's bottom line, and thus defines the rest of the lines' and spaces' pitches.

A "**note**" is an image on a staff that represents a musical pitch, of a certain time length or "duration." This length is determined by the note's "**size**" (whole, half, quarter, etc.) and also maybe by "duration modifiers" (**durmods**) such as dot, double-dot, and triplet. Every note has a "body;" half-notes and smaller have a "**stem**," and 8th notes down to 64ths have "**flags**" or tails on their stems. Stems may point up or down but this does not affect playing. Vertical body position on the staff determines the note's playing "**pitch**" (frequency, MIDI note number).

A "**rest**" is like a note but represents the "sound of silence."

Rests have no pitch, so are always shown at a few standard lines of the staff. They have no stems or flags, but can take durmods, but not artics.

Time flows horizontally and is broken up into digestible chunks called "**measures**" or "**bars**," separated by vertical "**barlines**." The time duration per bar is given by a "**time signature**" written **N/S**, where N is the number of

"beats" (taps of your foot) and S is the size of the note that takes up one beat.

A note's pitch is given by its slot-height on the staff, and also by optional prefixed "**accidentals**" -- the familiar "**sharp**," "**flat**," "**natural**," and "**double sharp or flat**." A sharp raises a note's pitch by a semitone (one MIDI note number), and a flat lowers it by one. Double flats or sharps shift it by two semitones. An accidental keeps its effect thru the remainder of the measure until the next bar line, or until cancelled by another accidental. A "**key signature**" is a set of default sharps or flats that apply to all notes of certain names (letters A thru G) throughout all bars. These can be cancelled by naturals or overridden by sharps or flats.

SOME ULTIMUSE-III TERMS

A "**screen**" covers the entire monitor/TV screen.

A "**menu**" is a list of choices of things you can do at the moment. It may be a sub-part of a screen.

A "**text**" menu is simply printed in words and characters, and you make a choice by typing one or more keys. All but a few key commands (**G**, **L**, **R**) require lower case, and commands without arguments never need an **ENTER**. Most text menus let you select with the mouse; the line item under the cursor is blackened or inverted video.

A "**graphics**" menu draws pictures as well as text on the screen, and you can make choices or do more complex actions with the mouse. Some actions can still be triggered with keys.

The "**score**" is the music data file you're working on, or the part of it that's visible on the screen. UltiMusE-III is a "score processor" just as there are "word processors." (Except that word processors don't given dramatic poetry readings, but UltiMusE can

also play the musical score.) We'll use "**score**" to mean the music itself, the data in memory, or its visual representation on the screen.

An "**image**" is any single visible graphic item.

The "**cursor**" is a special image that moves around with the mouse position and shows what the mouse will operate on if the mouse "**fire**" button is pressed. Sometimes we say "**the mouse**" when we really mean "**the cursor**," since they move locked together.

"**Background**" or "**scenery**" is any part of a screen that is always the same and does nothing with the mouse, but helps guide your eyes to sort out and find more useful images.

An "**indicator**" is an image that changes to show you information, but is usually read-only.

An "**object**" is any image that's part of the score -- a note, clef, bar line, staff, etc. These can be added, deleted, moved, or changed, usually with the mouse. Objects are also used in menus.

An "**icon**" is any image that's part of a graphics menu. It may be an object, a tool, or a button.

A "**menu object**" is something that can be picked up with the mouse and inserted into the score at the cursor.

A menu "**tool**" is an icon that, when picked up on the mouse cursor, is used to change or delete score objects, but is not itself an object that can be inserted into the score. A tool lets you work on objects.

The "**brush**" refers to the cursor as a carrier of whatever tool or object is currently on it. A "**dry**" or "**clear**" brush is a cursor with no object or tool active (usually shown as an arrow or paintbrush cursor).

A "**button**" icon (not the mouse button) is like a tool but it acts instantly when selected by the mouse, instead of just arming the cursor with its action. Usually the action affects the whole score globally, or one object already selected. All text-menu choices act as buttons.

A "**button menu**" or "**button box**" is a graphics menu, or sub-part of one, consisting only of button icons.

SQUEAKING OF MOUSE BUTTONS --

"**Clicking**" the mouse means pressing the button and releasing it.

"**Clicking on**" some image means clicking while the cursor is over it.

"**Quick-clicks**" and "**Long clicks**" are used when it matters how long the button is held down.

"**Double clicking**" means two short clicks in rapid succession. MM/1 users must do a "**medium click**" instead.

"**Dragging**" means putting the mouse (cursor) over an image and holding the button down while moving the mouse, thus moving that image like a cursor.

PARTS and STAVES, UltiMuse STYLE

UltiMuse lets you spread the voice parts over as many staves as you need, each staff positioned where you want it. To create a piece from scratch or just modify an existing score file, you need to know how UltiMuse handles a staff and its parts.

A musical score (piece) consists of one or more staves, each with one or more parts (voices) of notes and rests on it. Each staff is marked with a clef, which defines the pitch-range of notes on that staff. A staff has a grid of five horizontal lines; these and the spaces between them measure the pitch of notes, which must fit centered on a line or in a space.

You already know the **Treble** and **Bass** clefs, used on almost all sheet music. Middle C is on the next line below a **Treble staff**, and on the next line above a **Bass staff**. (These extra lines, drawn only as needed for notes outside the staff, are called "**Ledger Lines**.") Our "**Guitenor**" (for Guitar or Choir Tenor) clef is just a Treble clef with an 8 at the bottom to show that its notes are played an octave lower than written. Use the Guitenor for voices whose notes hang too low below a Treble staff or fly too high above a Bass. The **Double_Bass clef** is a Bass clef with the same idea; use it for deep bass lines and Organ pedal parts. The "**Beta**" clefs (Alto and Tenor) need not be used unless used in the sheet music you're mousing in, or you're writing viola or high trombone parts. The **Percussion clef** (two vertical lines) is explained later.

A Umuse3 note can be placed up to 16 notches (lines and spaces) above the center of its staff, and 15 below, for a total of 31 possible "**diatonic**" (white key) pitches, or 4.5 octaves. Our clefs extend that to over 7. An "**octave**" is from one note to the next with the same name, or seven white keys or seven lines and spaces on a staff.

An UltiMusE staff has three positions for a part's notes and rests: Upper, Middle, and Lower. These positions do not affect the note or pitch range of a part, but only some details of how it is displayed. The different positions are easiest to see when a staff is first initialized with rests. A Middle part's rests will be centered in the staff as in printed sheet music. An Upper part's rests will be centered on the staff's top line, and a Lower part's on the bottom line.

Since the two or three parts' rests do not overlap, when laying notes over them you can easily pick which part to edit with the mouse, and write two or three independent parts per staff. This is a major advantage of UltiMusE, as long as you don't put more than three parts on a staff. For chords, use the "**Clone Parts**" features described later.

As you put notes in, the stems or tails of an Upper part's notes always point upwards, and a Lower part's stems always aim downwards. A Middle note's stem points either up or down towards the center of the staff, just as in printed music, automatically.

When following the Prompts, if you put just one part on a staff, it will be a Middle part. Two parts will be one Upper and one Lower. Three will be laid out Upper, Middle, and Lower.

Middle part notes are less likely to take up vertical space outside their staff and trespass on another staff's space. For fewer than six parts, making each part a Middle on its own private staff may use less space than packing parts on fewer staves.

A staff with just two parts, one each Upper and Lower, takes up lots of vertical space. However, since each part's notes' stems always point a consistent direction, you always know what part a note belongs to when editing later on. Middle-part notes masquerade as one of the other parts, so more than two parts per staff (not counting Clones, later) can get messy.

When starting a new piece, get an idea of how many parts you'll need and how you want to group them on staves. Solo lead parts should have a staff of their own; chords should share a single

staff, and a bass line should have its own Pedal-clef staff. Piano music comes written on two staves, but you should probably use more, at least while inputting and editing.

Don't try too hard to get it all right the first time, since you can change everything (really!) later in the Layout Menu.

The SCORE DISPLAY SCREEN

After setting up a new score or pulling in an existing music file, you reach the Score Screen, which you'll spend most of your Umuse3 time looking at. Most of the screen displays your staves and the notes and rests of a few bars (measures) of the piece. You can move this "**view port**" anywhere in the score.

The music display shares the screen with several important indicators and mouse target icons. The top border is the Main Menu Bar. Clicking any of its words pops up a menu, or takes an immediate action. See "The Main Menu Bar" for more details.

The bottom border is the Scroll Bar indicator, whose blacked-in portion shows where your current view screen fits into the entire score. At each end of the Scroll Bar is a horizontal arrow; clicking these icons shifts your view screen in that direction by an entire screenful. Trying to shift right off the end of the score adds some more rest-filled measures to extend the score.

TOOLBOX

Just above the scroll bar is the "**Floating Toolbox**" containing the major Palettes and indicators, boxed off by vertical lines. The left half is the Note/Rest palette, initially of notes ranging from Breve (double whole note) down to 64th. Hidden behind it is a corresponding palette of Rests. To its right is a quarter-rest icon; clicking it flips the Notes palette under the Rests, so the Rests are visible to you and the mouse. Then the single rest icon turns into a quarter note to represent the now-hidden Notes palette; click this again to get the Notes back, and the icon once again shows a Rest for the hidden palette.

To the right of this is the Duration Modifiers (DurMod) palette, ordered Nothing (written -), **Dot**, **Double Dot**, and **Triplet (3)**. Clicking these adds that DurMod to whatever note/rest value you have currently chosen. Choosing Triplet also adds triplet notation to the note/rest palettes.

Under the Durmods is the **Artics** (articulation) palette, where you pick up cursors that can be applied to any note to control how much "**breath**" or silence that note leaves before the next note or rest. The leftmost Artic icon is **Legato**, and makes the note sound its full value and glide smoothly into the next note. Next is the "**void**" artic, shown as a tiny circle; it means "**no Artic**" and will turn off any already showing on a note. Third is **Marcato**, shown as a dash; it makes the note leave about a 32nd note's worth of breath before the next note. Last is **Staccato**, which cuts the note off after sounding for half its full value.

Notes without artic markings continue to use the most recent artic played in that Part. Artics are very important in making a piece sound like real music and not a clunky, nerdy computer.

Unlike the DurMods in the palette above theirs, Artics are not part of the current Brush note. Instead, you apply them to notes already in the score. Pick one up, say **Marcato**, and click over a note with no artic. That note will now show the dash over or under its body. Clicking again on that note will toggle the artic back off. Clicking on a note with an artic already will replace the old artic with the cursor's one.

Beyond the DurMod palette is the double-decker Marker and Specials Palette, with the Left and Right Marker brackets [and], the Insert Marker |, the Delete **X**, the Expression Tool single-arrow ^, the **Tie** that looks like an eyebrow, and a lower row of "**power tools**." Some of these are objects to insert into the score; others are tools to make changes in the score. More about these later.

At the far right is the "**Current Brush Representative**" or "**Rep**", which shows your present selection. Click around on the four palettes just described and watch how this Rep changes. It always shows what you would put in the Score if you clicked on a rest or note there. Also see how the Cursor changes to match Special items, including Artics.

SUMMARY SO FAR:

The Brush Rep shows what is on your "**brush**." Hit the lone rest to get Rests menu; lone item turns to note. Hit that to flip back to Notes palette and so on.

Click on any palette note/rest body to get that item on your

brush. Optionally click the "-" palette to modify the note's duration. The '-' means just plain note, no dots or triplets.

MOVING and REMOVING the TOOL-BOX

Since the Toolbox covers valuable space, you can move it up or down on the score screen or get rid of it entirely. To move it, put the cursor (any brush) over the Brush Rep and hold down the mouse button while dragging the Toolbox up and down the screen. To remove the Toolbox and Rep, just quick-click on the Rep.

To get the Toolbox and Rep back on the screen, put any cursor in any blank area not inside a staff and double-click (medium click on MM/1). Also, clicking the TOOLS on Top Menu Bar or typing 't' toggles the Toolbox/Rep on/off.

Usually you concentrate on one or two staves at a time. Keep the Toolbox over a staff you're not working on, or invisible if you're doing "pick-up" editing of notes (next section).

WRITING and EDITING NOTES

To write a note or rest into the score, you must first get it onto the Brush cursor as shown by the Brush Rep. When the Brush carries a note or rest, the cursor is a small artist's paintbrush (or a '+' sign, see Advanced Topics). You next click on a note/rest already in the score.

To get a note from the Toolbox palette, first click over the desired note-size body, then click on the Duration Mod if needed. Dots and double-dot Mods are cleared whenever you click a note body, so if you have a dotted quarter on the brush and want a dotted 8th, you must still click the 8th-note body and then the Dot Mod. Triplets "stick to the brush" until you click another Mod or "pick up" a non-triplet note from the score (see below), so you can work with different sized triplet note/rests without clicking the Triplet Mod each time.

OVERLAYING (INSERTING) NOTES and RESTS

Now that your current Brush is a note or rest, how do you put it into the score? A fundamental rule of UltiMusE editing is that notes and rests can only be added at the left edge (starting time) of existing ones. More important, the new note/rest "overlays" the

previous one and takes over its place in time -- it is not "inserted". Notes downstream of this are not shifted in time. In word-processor terms, UltiMusE is always in "overstrike" mode rather than "insert/delete." You can't insert or delete TIME, or else the voice being edited would get out of sync with the other parts. This is why a score's new bars are always pre-filled with rests.

These initial rests serve as grids or guides to note placement in time and allow you to start anywhere. If you need a four-bar intro but don't want to write it now, start entering music at the 5th bar and do the intro later.

Your new note will have the same starting time and (unless you drag it) the same vertical position and pitch as the item it overwrote. (We'll say "note" but often mean "note or rest.")

CHIPPING

If the new note is shorter in time than the old one, it "takes a chip" out of the front of the old, but the remainder of the old note will still exist to the right of the new one. Maybe two or more notes will be needed to represent the remaining time; if so, they are "tied" together. Example: Lay a dotted eighth note over a quarter, and you get your dotted eighth followed by a 16th, which is what's left of the quarter. Umuse3 does all this automatically.

The remainder note or notes keep the same pitch as the original, no matter what you drag the new note to.

BOMBING

If the new note is longer, than it will overwrite ("bomb") as many old notes as needed to use up its duration; if the last note overlaid is not completely used up in time, the remaining time takes a chip out of the last note, and its remainder will pop up to the right as already described. A half note will bomb out 2 quarters, 4 8ths, or whatever adds up to a half note. The old notes are gone forever, so do take care (see ABORT below).

A new note will overwrite only notes in the same Part as the first note/rest that you clicked the mouse on. Other parts are not affected.

You can probably figure all this out quicker by trying it than by

reading. It's pretty simple, unlike our software that figures it out for you. (Yes, you can chip a triplet 32nd out of a dotted half and we figure out what it takes to fill out the beat). This feature lets you go back and modify early parts of a score without all the later notes hopping around whenever you insert or delete something.

USING THE MOUSE

To write the note/rest on your brush to the screen score, position the cursor right over an existing note/rest and push down the mouse button and KEEP IT DOWN till you see the object change. The slight delay is deliberate, to override the Pickup mode described below. If you're writing a rest, release the button and it stays. If a note, you can drag it up or down the staff quite a ways. It wraps around once if you go too far. If your mouse runs out of travel before you've pushed the note as far above/below the staff as you want, push the opposite direction until the note wraps around to the other extreme, then position it.

See that "ledger lines" are added if you push the note outside the staff lines. Also if this note is a "middle" voice (see "Parts and Staves"), its stem or tail will automatically flip into the staff's center.

If you lay a note over an existing note, the vertical pitch "stays put" till you move it, which makes it easier to change a note's pitch slightly. Likewise for its accidental marking if any.

Accidental marks (sharps, flats, natural) are added or changed by left-right mouse motion while dragging the note. This also wraps around several times for convenience. Notice the double flat and the double sharp that looks like a small 'x'.

Once you have the note adjusted right in both axes, let go the mouse button. If your new note/rest bombs or chips the old one(s), the screen refreshes (redraws). If the old and new duration are the same there is no refresh, which is quicker but may leave a few "holes" in the staff lines or nearby notes. Hit 's' to redraw if it bothers you, but your next bomb/chip or window move will refresh the screen anyway.

ABORTING NOTE/REST SELECTION

If you start to write a note/rest but realize you have the wrong duration on the brush or the mouse picked the wrong part, you can bail out, IF you are still holding the button. Drag the mouse all the way down and left, ignoring the note display. A text window will pop up to say "Release to Abort." Let go the button now and your graphics display comes back unchanged. Now try again.

If you were really dragging a note downwards and triggered the ABORT prompt accidentally, just keep holding your button and push the mouse back towards the center. You will still be dragging the note -- the abort is aborted. There is no UNDO for score overwriting -- once you let go the button while the score is showing, what's done is done!

NOTE PICKUP -- REVERSING THE BRUSH

To change the type of note/rest on your brush, you normally go down to the palette. But if you're making lots of little changes to a score, it's quicker to pick up (copy) an existing note onto the brush. Just put the cursor over an existing note/rest and Quick-Click the mouse ("staccato" for us musicians). The Brush Rep will briefly pop up and flash over the cursor, and the Toolbox's Rep will change to the type and duration of note/rest you picked up. So will the note/rest palette if need be. This is the reverse of the usual score-writing operation. Handy for moving an existing note's vertical pitch or changing its accidental -- first pick it up with a quick click, then without moving the mouse, use a firm press-and-hold to drag the note to where you want it.

Pickup works only when the Brush is already a note or rest, with the cursor showing as the small artist's brush.

OVERLAPPING NOTES/RESTS -- SHIFT and CTRL Keys

All notes, rests, and other items are always accessible to the mouse, no matter what part/voice they're in (unless you're using the Pick Filter, under Advanced Topics). This usually makes for fast editing convenience. Whenever two or more notes or rests overlap on one staff, the mouse normally picks the item belonging to the lowest-numbered part.

But, if you press and hold the SHIFT key before clicking the mouse, Umuse3 will skip the first item and instead take its

"second choice." So given two overlapping notes, use SHIFT to get the higher-numbered part's note.

The CTRL key works the same but makes the mouse take its "third choice." Holding both SHIFT and CTRL takes the fourth. So you can handle notes/rests piled up four deep. If you key in a higher-numbered choice than is there, no problem; Umuse3 will always take the last available choice. For example, if there are just two overlapping notes, holding either or both keys will force the second choice.

(The MM/1 does this differently. Instead of adding to the pick-depth by holding keys, pre-set the depth by holding the ESCape key while hitting a digit from 1 thru 4. A momentary window will flash with the new and old pick depth. Now use the mouse on your note pileup, without holding any other keys.)

This feature applies to both writing notes and picking them up. If the overlapping items have different time durations and you just want to change one of the notes' pitch, remember to "pick up" first with a staccato click. This also gives you a chance to check which one you got. You don't need to keep holding the keys while dragging a note with the mouse.

MOVING YOUR VIEW THRU THE SCORE & ADDING NEW BARS

Click inside the score area, hard against either screen edge but not inside any staff, to shift your view 1/2 screen width left or right. Click on the arrows at either side of the scroll bar to move a whole screen width (with a one-note overlap).

When the end of the piece is visible, trying to move a full screen to the right will add a few more new measures. These will be filled with Rests according to the last Time Signature in the score.

SPECIAL PALETTE TOOLS

Finally let's explain the Tools Palette on the right side of the Toolbox. The first three are the Markers: the LeftMark '[', the RightMark ']', and the ToMark '|' that shows as a rounded-off I-beam in graphics. '[' and ']' are used to bracket off a "block" of score for copying, moving, deleting, playing, or otherwise processing just the block. The '|' marks the destination for Block Moves and Copies and can be turned into a new Barline.

Markers are inserted by clicking the desired marker type from the palette onto the Cursor, and then clicking it over any object in the score. Left marker and | will insert to the left of what you hit, but right marker goes to its right.

Markers may not "slice" any notes (unless you give permission) -- they must fit in where all voices have stopped and are about to play new notes. Otherwise the score may get confused when you move, copy, or delete using markers that slice a note. There can be only one of each of [|] at a time; inserting another automatically deletes the old one. To get rid of markers you suspect are somewhere in the score, just (re-)insert them anywhere and then delete with the 'X'. Or find them with a 'g' search.

Markers left in a score will be saved to files and read back in just like notes and barlines.

MORE SPECIAL TOOLS

Select the X to delete almost any score object with a mouse click; the cursor shows as an X to remind you what you're doing. The only things X will not delete are clefs and staves (use the Layout Menu) and non-Clone Rests. Non-clone notes aren't deleted, but are changed to the corresponding rest. If you X-out the wrong object, type 'u' or pull down the Random Menu to undo it. Only the most recent deletion can be undone, and inserting or changing any score objects also "breaks the spell."

Choosing the Tie lets you tie a note to the next note in that part; these will play as one long note, if the second note is the same chromatic pitch as the first. As in real musical notation, ties across barlines carry accidentals over into the next measure. Several notes in a row can be tied together. UltiMusE puts the Tie on the first note of a pair, not the second. A Tie replaces any Artic on a note, and vice-versa.

Clicking an already tied note unties it; then you can tie it again, etc. See how the tie always goes on the opposite side of the note body from the stem. You can't "pick up" a note/rest while the Cursor is a Tie or any other Special Palette item.

EXPRESSION INSERT-MARKER (^) Sub-Menu

The Palette tool '^' (up-arrow) inserts objects from the Expression Menu that make your music sound less like a machine. Clicking the ^ cursor over certain kinds of score objects brings up this menu; after you type or mouse a choice and its argument, the menu disappears and the expression object is inserted to the left of the object you clicked on.

You can insert a Tempo anywhere by clicking on anything in the score; to the Expression Menu type 't' followed by a number between about 40 and 255 and ENTER. Tempos are exact "MM" metronome beats per minute as used in sheet music. Beats are in terms of the bottom of the Time Signature, or in triples of it if 6/8, 9/8, etc. If your piece has new time sigs in it, the tempo will adapt to each new one as the piece plays. All tempos are scaled up or down in speed by the global "seconds per minute" value set under the MIDI Menu. Tempos display at the top of the score and affect all parts equally.

Accelerando and Ritard will gradually change to the new tempo you specify, over a period of so many beats that you also give. "Accel" and "rit" are often seen in sheet music, but it's usually up to you to judge what tempo number to use. Experiment -- these make your music sound really "human."

Volumes (or Levels) are private to each part (voice) and can be inserted only on notes or rests, except that inserting one over an existing volume will overwrite the old one. You can type 'v' followed by one digit 0 thru 7 (no ENTER), but the score display will show the traditional ppp - p - mp - mf - f - fff notations. If you just click on Volume, a little pop-up menu lets you choose a level without ever letting go the mouse for the keyboard.

When playing, a volume remains in force for its part until changed by another volume. Parts start out with a default volume of mf = 4.

Instruments are inserted and operate just like Volumes, except you type 'i' and a number 0 thru 15 and ENTER (yes). The number is not sent to the synth during play, but indexes one of 16 entries in your Instrument Table that is. See the "Instrument Menu" chapter. If you just click Instrument, up pops a read-only copy of your current Instrument Table for you to choose from.

Clicking "MIDI chan hop" lets you type a new MIDI channel for this part to hop/jump to when playing gets here. This overrides the starting value MIDI Menu's Channel table.

MIDI "Events" are an Advanced Topic.

General volumes ("Genvols") are **ppp-fff** just like the per-part ones, but affect all parts of the score equally. Often you can do all your "**expression**" with Genvols and use the per-part levels just to balance the parts.

Crescendo and Diminuendo are Genvols that gradually increase or decrease to the level you specify, over a period of so many beats that you also give. They always start from whatever general volume was already in force, and creep to the level you give. Sheet music often shows "cresc" and "dim," but you should use these almost any time you change general volume -- hardly anything makes your music more natural and professional than these.

Accent and Layoff are special Genvols that temporarily make only the very next note (or chord of notes) louder or softer by about two levels of volume (adjustable in the MIDI Modes Menu). Accents can really give a piece "rhythm" and syncopation -- is it live or a computer? Layoffs should be used on the last note of a phrase, the way you'd sing it. On guitar chords, down-strums should be accented and up-strums laid off.

Next to last on the upper tool row is the '+' Plus-Brush (or the regular artist's Note-Brush if the cursor is currently a Plus). This is for inserting "Clone" chord notes and is covered under Advanced Topics. But, try playing with it, answering "Yes" to questions, but first turn on Note Carryover mode (Options Menu) for some real fun.

The plain Brush or Plus cursor (Note or Rest) acts as a Special Tool if you click it on a Barline or one of the Go_To's or Signature objects that hang around Barlines. This click gets you the Barline Menu (see its chapter) for inserting or changing such items. The 'X' tool deletes them.

The bottom row contains Power Tools under Advanced Topics. For now, the double-bar tool inserts Barlines anywhere, the Question-mark gives information about any score object clicked on, and the piece of window screen brings up the Finder Filter Menu. The square is Part Copy, a real powerhouse, but be careful!

MENUS and COMMANDS -- INTRODUCTION

TEXT MENUS

Some of the menus are text lists of command options, and you click on a line or type a character to make a selection. Each text line begins with its selection character. Most characters must be in LOWER CASE or UltiMusE won't understand your commands, though the Menus use capital letters to show the "hot" character. Some commands take an "argument" of one or more characters that you type right after the command character, with no BLANK or ENTER between.

I hate typing ENTERs. When only single keys are needed for a command, answer, or argument, the action is instant; you need not hit ENTER. Only when arguments (numbers, file names, etc.) of more than one digit or letter are needed must you use ENTER to terminate the line, since UltiMusE can't guess where it ends.

GRAPHICS MENUS

Most menus are graphic -- you select by clicking the mouse over your choice. The Main Menu Bar over the Score is always "live" and can be clicked with whatever cursor you have on the brush. Other pop-up (or drop-down) graphic menus (Setup, Layout, Random, and Options) are "PushButton" menus that switch to a solid diamond cursor when in effect.

Even graphic menus handle "keyboard accelerators," which is sales hype for single characters that you can type instead of using the mouse. The character for each selection is either the first capital letter or the first non-letter in the selection label (as in 'f' for "reFill"), but you must type a small letter. Exception: for any "Finished" or "Done" selection, hit ENTER.

DIALOGUE BOXES

Two standard "menus" worth mentioning are graphics boxes that can pop up at any time. Both temporarily turn the cursor to a solid diamond. One is the Alert Box, a horizontal window that prints a message and waits for you to either hit ENTER or click the mouse anywhere.

The other is the Yes/No box, which prints a message asking a question and then waits for you to type 'y' or 'n', or click either its YES or NO! buttons. Until you answer, you can do nothing else except hit BREAK and quit Umuse3 (via yet another Yes/No box).

For your convenience both pop up over your present cursor position.

NAVIGATION

You are "in" whatever menu is listed on the screen. Some commands will descend into another menu; these show "... " after their letter on the menu. Others get you into question/answer sessions. If a number value is asked for, there may be a "default value" in [square brackets]; if you hit just ENTER it's as if you typed that value. Yes/No questions must be answered 'y' or 'n'.

Any menu can be exited (back to graphics or the next higher menu that you came from) by typing just ENTER. When lost, keep hitting ENTERs till you see the score screen.

Some menus are reached only by clicking on certain score items (like bar lines) or by trying to insert certain special tools into the score.

Most commands are single characters. These need no ENTER but act instantly (so be careful, no chance to backspace) and exit their menu.

You can "type ahead" a command and argument to a menu even before it shows on the screen, once you're sure of the command. The Random Menu doesn't even show itself if one of its commands is typed while the score screen is showing, and the Main Menu bar (which officially handles such characters) funnels any character that doesn't match its selections down to Random, which displays only if it can't match the character either. So for example, to refresh the score display, you can just type 's' instead of typing 'r' to get the Random, wait for it to display, then typing 's'.

LIST OF MENUS

MENU HOW REACHED (from Graphics)

Main Always showing above Score as top Bar
Random Click Main, or type 'r', SPACE, or any unused character
Instruments 'i' or click Main Bar
Percussion 'p' from Instruments
Part/Staff Layout 'l' or click Main
Options 'o' or click Main
Startup Start Umuse3 from OS9 without filename arguments
BarLines Click on any Barline while Brush is any note/rest
Expression Click on any note/rest while Brush is ^ (up-arrow)
Block Operations 'b' or click Main
MIDI Chans 'm' or click Main
MIDI Modes 'm' in MIDI Menu
MIDI Volume Levels 'l' in MIDI
Files I/O 'f' or click Main, or 'r' from Startup

Goto/Search 'g' or 'G' to Main; type "g?" for Menu

Note: In this manual, we notate a command involving submenus by joining the Main Menu command and the submenu command characters; so "fs" means "hit 'f' to get Files Menu, then hit 's' to save the score."

The MAIN MENU BAR

Main Menu commands are triggered by clicking on the Bar or typing the first letter of the selection name. Most selections just descend into another menu, except for Play, which plays the score from the beginning, and Tools, which toggles the Toolbox and Rep on and off.

For speed, the Main Menu also recognizes all the commands belonging to the Options and Random Menus, except 'r' for Restart, which just brings up the Random Menu. Type "rr" to restart Umuse3.

If score items mess up the menu bar, type 's' to refresh the screen.

'g' calls up the Goto/Search Menu. This menu doesn't list its choices unless your argument (with its required ENTER) is invalid, so experienced users can think of 'g' as a Main Menu command. Type "g? ENTER" to get the full menu listing.

'G' is one command that accepts a capital letter -- works like 'g' but restricts the search to "Special" barlines. See the "Search Menu" chapter for details.

'L' is not shown, but typing capital 'L' will, for each Part, connect all notes of that part together with straight lines. Rests are ignored. To include Rests, type 'R' instead of 'L'. When finished looking, type 's' to redraw the screen.

The RANDOM Menu

The Random Menu is a graphic box of "pushbuttons" that you "punch" with the solid diamond cursor. Its commands can also be typed, even from the Score Screen's Main Menu Bar -- no other Menu allows this.

'p' plays the entire piece from the beginning to the end, or until you hit BREAK, CTRL-C, or SHIFT-BREAK.

'w' starts playing from the left edge of your current graphics view and goes to the end or until you hit one of the above stop keys.

's' refreshes the screen if it is messed up, as after inserting same-duration notes or note stems trashing the Main Menu Bar.

'n' re-numbers all the Barlines, starting at the beginning. It's smart enough to check for a short "pickup" measure at the beginning, which is numbered 0 instead of 1. The first full bar is numbered 1. Also, any two or more consecutive barlines without any time-occupying "meat" between them (meaning notes or rests) will all get the same number.

'u' undoes the most recent deletion made with the 'X' cursor on the Score Screen. It only remembers the last one.

CTRL-C or SHIFT-BREAK makes a hard-copy screen dump of whatever is showing on the screen to a 9-pin dot matrix printer. Hitting ENTER or BREAK during the printout should stop it.

'h' begins a hard-copy printout of the entire score, or the [marker-bracketed] portion. This will print as many "systems" or screens of staves per page as will fit, and automatically feed and print as many pages as needed. You'll be asked for two options -- first, whether to really print or just preview the print on the screen (this is fun to watch). Second, whether to vertically squeeze the staves as close together as the notes allow -- normally you want this, unless you need space between the staves to write lyrics or chord symbols. If really printing, be sure you have the correct printer selected in Options Menu, and the printer is on-line with the paper perforation right at the print head.

':' or '9' brings up a 78-column text window to the OS-9 Shell, in Umuse's present working directory. Type as many OS-9 commands as you want, to rename files, etc. Exit back to Umuse with a blank ENTER in Coco, or ESCAPE in MM/1.

'?' or '/' pops up a text window that lists status info about your current score, including the number of score-memory cells used and remaining, plus the Title Info banner, the score version-level, and the version of this copy of UltiMusE (tm).

'r' restarts UltiMusE-III clear back from the copyright message, after making sure you really want to. This clears out everything and reloads the graphics images, and is a last-gasp alternative to

quitting and starting over from OS9. It's as if you had, with no command-line arguments.

'q' quits Umuse3 and returns to OS9, after asking you to confirm this and giving a chance to save the score. You can also quit at any time or place other than playing by hitting BREAK.

'f' brings up the Finder-Filter Menu, the same as clicking the Toolbox's screen-door icon. This controls what your mouse can or can't "see" in the score screen, and is covered under Advanced Topics.

The OPTIONS Menu

The Options Menu lets you set "modes" that control some of the ways Umuse3 handles certain situations. Every mode set here is part of your Um3.Init preferences file, along with some other items from the MIDI Modes Menu.

The 'c' button lets you set or clear Display-Compacting mode. Compacting displays all notes with the same spacing regardless of their time duration. Turning compacting off spaces them proportionally to their time length, which can be helpful in editing complex multi-part bars. Normally compact mode is better, and fits more stuff on the screen; it's the startup default mode. Future versions may have intermediate spacing modes as well.

Type 'd' to set or clear the Play-Debugging mode, which prints out barline numbers, tempos, and signature changes during play. This tracing does not slow down play timing (thanks to OS9's multi-tasking), but the printout may lag behind the play by a measure or two. Tracing is a lifesaver when debugging scores with repeats, 2nd endings, and DS al Coda (yes, "debugging" -- music notation is the world's oldest programming language!).

'w' toggles "Watch Play" mode (MM/1 only). Each time the music being played goes off the screen, the screen is redrawn to follow the play, so the part of the score being played is always visible. Play halts for a moment while the screen refreshes, so don't use this mode except for debugging or demos. "Watch" and "Debug" modes should not be used together.

The Screen Colors and Preference File-save/Restore buttons are so useful that they were described in earlier sections. You can change the colors, update your Preferences file, or restore to its most recent mode and color settings at any time.

The '?' or '/' just duplicates the Random Menu's Show Status command.

'a' toggles Cursor Snap on/off. This mode causes any cursor in the Score Screen to sense when it is very close to a score object you could click on, and snap onto that object as if by magnetism, until you move the mouse more than a few pixels away from the object. Normally very handy, cursor-snap may be a nuisance when working with dense pileups of notes and rests. Also it eats up more CPU time, so may be turned off while downloading in another window.

'n' toggles Note Carryover mode. Without this mode, when you first place a note over a rest, the note starts out centered in the staff, until you move it up or down. But with Note Carryover on, the note will initialize to equal the last note to its left in the same Part. Really handy for repeated notes and parts that are far from the staff's center line. Especially valuable for "cloning" chords (see Advanced Topics).

'p' pops up the Printer Type submenu. You must choose a printer before doing any hard copy screen dumps or score prints, unless you've already done so and saved the Options.

The SETUP PROMPTS

There are three ways to get into creating a new score from scratch -- select "New Score" from the Startup Menu initially or from the Files Menu later, or do a Restart from the Random Menu. All ask whether you want to be led through some choices before being presented with the Graphics Setup. This Setup screen is very powerful in setting up a new piece, but while learning you should go the Prompts route. The Setup then shows what you've done so far, and you can change or add to it with point-and-click mouse operations.

The optional Prompts are a strictly text and keyboard sequence of questions, organized one staff at a time. For each staff you are asked to choose a clef, then how many voices to assign to that staff. You can put up to three per staff, and add more later.

Don't try too hard to get it all right the first time, since you can change everything later in the Setup or Layout Menus.

The prompts are self-explanatory and your responses are checked

for safety. To exit with fewer than eight staves or 16 parts, just hit ENTER on the next "Clef" prompt. Using more than six staves causes messy overlapping of clef signs. Answering 'n' to the "Satisfied?" prompt makes you start all over. Better to say 'y' and change things later in the Setup Menu, which covers the screen as soon as you hit 'y'.

The SETUP and LAYOUT SCREENS

The Setup and Layout Screens are almost the same, except that Setup is used before any notes or other objects are put in the score, so many tools for working on Parts and their notes in the Layout Screen are not available in Setup. On the other hand, only Setup can define the initial Time and Key signatures. We'll describe them both together.

The screen is divided into two sections. The left two-thirds displays the current setup, and some of its objects can be dragged with the mouse. On the right is the Menu, with with a button submenu and boxes of tool and object icons. Objects include seven styles of clefs and four types of parts. These part icons look like notes, but they aren't what they seem. Tools include the delete "X" in its own box, plus several buttons on the submenu.

The first few columns of the display side show the staves, their clefs, and time and key signatures exactly as they appear on the actual music score screen. The labeled top and bottom borders are the same thickness as on the score, and their labels show what goes in each column.

STAVES AND CLEFS

Clefs represent staves. To add a staff, pick up one of the seven clef signs by clicking inside the bottom box in the Menu. The cursor becomes the chosen clef sign. Move it over to the leftmost column in the display side, position its height where you want it (not on top of a clef already there) and click. Umuse will redraw the display with the new clef and staff added.

If you lay the clef right over an existing staff's clef (give or take some up/down tolerance), no new staff is added but instead the existing staff's clef is changed to the new clef type. If you miss, drag the staves apart and delete the unwanted new one.

[Layout only]: When you change a staff's clef type, all notes in all parts already on that staff are shifted up or down in the score as needed to keep their note pitch values in the new clef.

For example, Middle C is the first line above the Bass clef, but if you changed its staff to Treble clef, the same note would now display on the first line below the staff.

Be careful not to change clefs radically when the score already has notes on that staff. Notes shifted too far are rewritten back one or more octaves towards the center of the staff.

[Both]: To shift a staff's position up or down, first make sure the brush is clear (arrow cursor). Clear the brush by clicking anywhere in the Menu that isn't over an icon, or anywhere in the Display beyond the last Part defined ("no man's land"). Then place the cleared cursor over the staff's clef, anywhere within the staff lines, and drag it up or down. Release at the desired position. You can do this directly on the Score Screen too.

To delete a staff, pick up the X-out tool and click it over the clef. Umuse3 will reject this if there are any parts still assigned to that staff; first delete or move the parts to other staves.

PARTS

Most of the display side covers the 16 columns for the Parts. Each part has its own column. Parts are numbered 1-9 and then A-G, or Hex extended by one extra letter. This single-character notation saves hitting ENTERs in some other menus. A thick gray vertical line marks off the right border of the highest-numbered part you can add, which is one higher than the highest-numbered part already defined. The remaining part-column area is called "no man's land" and is useless -- except for clearing the Brush.

Part numbers are strictly for your and Umuse3's reference, and have nothing to do with their pitch ranges. You don't need them in the mouse-driven Setup and Layout Menus, but you use them in the MIDI Menu.

Parts are added, moved, and deleted much like Staves and Clefs. Each part is represented by a Note object in its column on one staff (one only). That note's position on the staff shows whether the part is displayed as Upper, Middle, or Lower (see "Parts and Staves") and its stem points accordingly. Middle parts show stems both ways.

Delete a part by clicking the X cursor over its "note." In Layout you'll be destroying real notes and rests, so Umuse3 asks you to confirm. Both menus bubble down any higher-numbered parts, decreasing their numbers by 1, and adjust the MIDI Menu tables to

keep up.

To move a part to a different position (one of 3) on its staff, or to any position on another staff, clear the Brush and drag its "note" up or down. Release it over the desired position on the desired staff. Again (Layout only), if the new staff has a different Clef than where the part came from, some of its notes may be shifted an octave up or down.

Changing a part's other characteristics requires picking up one of the four part "note" types from the Parts Palette. The note values (8th thru Whole) have nothing to do with the values of real Score notes in these parts, but have special meanings in the Setup and Layout screens.

Usually you'll stick with the leftmost type, the 8th note with a black body, stem, and flag tail -- this is a normal, regular part.

PERCUSSION: "Notes" with hollow bodies represent Percussion parts. Many synths assign one "note pitch" to the bass drum, another to the snare drum, etc. Real notes in parts designated as Percussion will not be shifted up or down in playing pitch by the MIDI Transposer (MIDI Menu), which normally adds an offset to each note's MIDI pitch number sent to the synth. Thus you can play your piece in different keys without your cymbal crashes turning into cowbells and your toms into bird tweets.

HOWEVER -- PLEASE use the newer Percussion Clef, the two vertical lines, for such parts. Not only does this clef protect all parts on its staff from transposition, but it is used with a special Instruments sub-menu to make it easy to transfer percussion parts between different makes and models of synths (see Advanced Topics). For example, on the Percussion Clef the bottom space is always Bass Drum on any synthesizer. The "hollow" notes are obsolete and kept in UltiMuse only to allow working with older scores.

CLONE NOTES (NO FLAGS): The palette includes "Clones" of both regular and percussion notes with and without stem flags. Leaving the flags off just controls how that part's notes are displayed in the Score screen. If a part is designated "no flags" (regular "quarter" icon, percussion "whole"), then all note values that should have flag tails (8th thru 64th) will show stems but no flags, and look like quarter notes in the score.

This is used to make chords of notes more readable on a staff. If you put two stem-up 8th notes on a staff, on two adjacent staff

lines, the two flags' tails will combine to look like a 16th note. A three-note chord will look even worse. So, if you will have 2-4 parts on one staff making up chords, where each part's notes are always the same duration as the others', make sure to give one part's notes all the highest pitches (or lowest, if stems down). There are new Umuse functions to help with this, explained later. Your chords will now look much more professional. You can still mouse on notes as usual.

Back to the Palette. You can pick up one of these four combinations of the two characteristics (Percussion and Flagless Clone) and lay it over an existing part's "note" to change its type. You can't add it anywhere else in an existing part's column. There is no danger of permanently messing up a part by changing its type; just change it back.

But when you change a part to/from a Clone (hiding/showing flags), you'll be asked whether to delete or restore all of that part's Rests. Modern Clone parts have no rests, just missing gaps in time between notes. When in doubt, say 'n'. Restoring rests to a de-cloned part is done by Refill (below) and Fixup (see Block Menu).

NEW PART: To add a new part, click one of those four "note" types in the empty column just left of the gray border, over the desired position on a staff. The gray border will move over one part unless all 16 are in use.

Unlike the Prompts, the Setup and Layout screens let you put more than three parts on a staff, and more than one in the same position of the same staff. Also the Prompts don't cover percussion and clones' hidden flags.

TOOLS and COMMANDS

The remaining tools and actions are on the pushbutton sub-menu in the top half of the menu side. You can punch buttons with any cursor on the Brush, but your aim is better with just the "cleared" little arrow.

[Setup Only]: The Setup button box is smaller, but it alone includes the Time and Key Signature buttons. Punching one of these with the mouse (or typing 't' or 'k') brings up a text dialogue window.

Enter your initial Time Signature as two integers, N/S. Top number N tells how many beats per measure (bar); bottom S is the

size of note to be considered a beat. When you emerge from the Setup Menu, your score will be initialized to a few bars, each with N Sth-rests per part.

But if N is a multiple of 3 and greater than 3, you'll get N/3 rests, where each rest is twice the size S plus a Dot. Each dotted rest is worth three S-rests. Example: 6/8 gives two dotted quarter rests. This is standard music notation and easier to read as a timing grid.

Optionally you may enter an initial Key Signature to go at the very beginning of the score. You can add these later anywhere in the score from the Barline Menu. Likewise with Time Signatures, but you must give one initially so Umuse3 can fill the first few bars with rests. The Setup Menu won't let you exit until you give one or settle for the "common time" default of 4/4.

[Both]: Both menus have a "Staves..." button, which lets you renumber the staves from top to bottom and/or spread them equally. Spreading repositions all staves for equal vertical spacing, and is handy after you've added or deleted staves, or just want to start over with fine-tuning the placements.

Initially, staves and parts are numbered in the order you created them, minus any deletions. Staff numbers are just to the left of their Clefs. If you've rearranged the staves' order by dragging, and want to keep that order, be sure to renumber them, especially before Spreading, or else they'll go back into the old numerical order.

You can also renumber the Parts so that all parts on one staff have consecutive numbers, and the Layout Menu will look a lot neater. You'll be asked whether to segregate Clone parts -- just say No until you study Clone Parts in Advanced Topics. Both Menus have a "Ready" or "Back To Score" button (type ENTER) that exits and takes you to the Score Screen for some real music editing. From the Setup Menu you will see a few bars full of rests at the beginning; from the Layout you'll return to wherever you were in the score, with any changes made visible.

[Layout Only]: You visit the Layout Menu whenever you want once there are some notes or at least rests in the score. These tools all work on Parts.

Clear Part ('c') deletes from the score all notes, rests, volume levels, and instruments relating to that part number. But the now-

invisible part is still "open" in memory and can be re-filled. Clear usually operates only between bracket markers [], but will assume beginning and end of the score if either is missing, after asking you about this.

Remember the X-out tool deletes (forgets) a Part completely, and down- numbers any higher-numbered parts. Sometimes just Clearing a part is a handy alternative.

Tacetize Part ('t') makes tacet "measures-out" within the marker [] range. Less destructive than 'c', Tacetize modifies only whole measures (between barlines) where that part has no Notes, just Rests and expression objects. The rests are deleted, but any instruments or volumes remain (these may look funny "floating" inside empty measures). Unlike 'c', 't' can be used to clean up a finished score where some parts go for many measures without playing. This looks more professional, and reclaims precious memory! Good practice is not to tacetize the first bar of a piece, so all parts remain visible at the beginning.

ReFill Part ('f') is the opposite of 't' and refills with Rests any measures that contain nothing of the given part. The bars are refilled with as few rests as possible, meaning big ones. A 4/4 bar would refill with one Whole rest, not the 4 Quarter rests initially supplied. If you don't want any blank parts in any bars of a finished score, it will look more professional if you Tacetize all parts anyway but then Refill them. This saves memory (as when one Whole rest replaces 4 quarters) but still lets you add notes in those bars later. 't' and 'r' work well together, along with the Block Menu's "Fixup". Refilling and fixing-up Clone parts should normally not be chosen when you are asked.

The Octave Transposers ('+' and '-') will move all the notes of a part (within the [markers]) up or down one octave (12 semitones). Unlike the MIDI-Menu's play-time transposing, these actions really do change that part's note in the score. Any notes that would be moved out of range are left unchanged. As long as no unchanged notes occur, '+' and '-' can "undo" each other. It's easy to move lead parts and bass lines up or down to find the best sound on different synth patches and bring out lead parts.

SUMMARY: Both the Setup and the Layout Menus let you add, delete, change, move and re-assign parts and staves. The Layout tools let you control memory usage without radical surgery and keep your score editable and professional looking. Consider using temporary layouts to input and edit a piece and finally converting to a better looking format. It's better to finish writing a new part on

a less crowded staff and move it to its final staff when finished.

The BAR-LINE Menu

This menu is reached in an unusual way, by clicking on a score BarLine while the Brush is a note or rest (arrow cursor). Here you can either change the type of an existing barline, or insert certain items that only make sense next to a barline.

(To insert a new barline into the score, get the Toolbox icon that looks like a double bar, and click it on a note/rest that you want to insert the barline ahead of. Use the 'X' Brush to delete a barline.)

Most of the Barline items are standard musical "**Go-To's**" that change the usual left-right flow of play. Support for these standard symbols is a major advantage of UltiMusE for both the expert musician and the beginner just copying sheet music, and reduces wasteful duplication of sections.

Most Barline Menu commands can be typed without the **SHIFT** key. Just hit **8** and **9** for (and), **4** for \$, etc. Or just mouse-click them.

The first group of menu options changes barlines to **double bars**, **repeats**, **1st**, **2nd**, ..., **Nth** endings, and **FINEs**. The ':' lets you convert a barline to back-to-back repeats.

Double barlines are mostly just visual landmarks for you and the 'G' command, but one must be used to terminate the last ending after **1st**, **2nd**, ..., **Nth** endings. Double barlines can't be used inside such endings. Tradition says to use a double barline when changing time or key signatures, and to begin a new musical section or idea.

The second group inserts **DC**, **DS**, **Sign (\$)** and **Coda** labels, **Spaces**, or **Time** and **Key** Signatures. Except for \$ and Signatures, these inserts go to the left of the existing barline, which remains.

'**Space**' is just visual punctuation for you, like before a Coda section, and has no musical meaning or effect.

'**K**' for Key Signature should be followed (no blank) by the number of Sharps, or a minus sign and number of Flats, and then ENTER.

'/' prompts for a Time Signature exactly as in the Setup Menu.

Repeats can be nested. |: |: |: stuff :| :| :| will play "stuff" 8 times. More than 6 deep will blow the internal stack. In accord with sloppy but standard sheet music practice, a Left Repeat |: at the beginning of a piece can be left out. Repeats can be used inside an Nth ending, and repeated sections can contain multiple endings. Just make sure that one nests entirely inside the other.

DC means "**Da Capo**" or back to the beginning. **DS** means "**Dal Segno**" or back to the Sign, which must occur earlier in the score. These ask whether you want **SR** ("**Senza Repitizione**", without repeats).

Coda jumps and FINEs are recognized only after doing a DC or DS. Only one Coda jump and one later Coda label will be recognized. A FINE is really needed only inside the piece (to keep a DS or DC from repeating the whole thing), but it never hurts to put one at the very end as a visual reminder to you. UltiMusE will always stop playing if it runs off the end of the score. Using a DS or DC with no FINE or Coda in the score is a good way to play a piece over and over forever.

"Go-To" items (most of the above) should be kept in meaningful order. For example, repeats must be balanced. None of this gets checked until you play the score. If you get stuck in an infinite loop, hit **BREAK** or **CTRL-C** to get back to the menu. Like a computer program, a music score can have "buggy" wrong notes and unbalanced structure. But do use musical "gotos" to avoid inputting and storing the same music twice.

The FILES Menu

When you exit UltiMusE or read in another score, any editing you've done is lost unless you save it to disk. All file reading, writing, and saving uses the point-n-click FILES menu that saves typing file names after creation. Four types of "side information" tables can be saved and loaded independently of main score files.

SCORE FILES -- READING and WRITING

READ ('r') in the Files Menu loads in a score file that replaces everything in memory, so when it prompts for filename, hit ENTER if you change your mind.

When you hit READ, Umuse3 will open a window just big enough to

show all Score files in the current data directory -- that is, all files ending in ".ume" (any mix of upper/lower case letters is OK). *ALL SCORE FILES MUST END IN ".UME"*. But the ".ume" extent doesn't show in the list, and you never type it in.

Moving the mouse over a name highlights it in inverse video. Click on that name to read it in. You can also type a name into the small box at the bottom -- useful for a pathname to a file in another directory. Omit the ".ume" extent; Umuse3 adds it for you. Your Backspace (<-) and Line-Erase (**SHIFT <-**) keys work normally. Hit ENTER or click "**(Read File)**" to load the file. Clicking "**(CANCEL)**" or anywhere outside the big window returns you to the Files Menu without reading anything. So does hitting ENTER when the little box is blank.

WRITE ('w') writes your current score to a new name. Same window and list, with a difference. Clicking a name copies it into the box, but does no more until you hit **ENTER** or click "**(Write File)**", or bail out as above. Instead of overwriting an existing file, you'll usually type a new name into the box, while seeing the names already in use. Take time to type a meaningful name like "Back_In_the_USSR" instead of "baknussr", since you won't need to type it again later to read or delete it.

Want a new name that's like an old name except for a different version number or letters on the end? Then click that old name into the box, delete any unwanted end characters with Backspace, then add new final characters. Now hit ENTER or click Write. If nothing else, seeing all existing names when Writing shows what names are already in use.

WRITE checks whether the file already exists and makes sure you want to overwrite it. After writing, you have the option to keep this name as the current filename.

SAVE ('s') writes your current score and side info to the current filename with no window and no questions (unless Read_Only Mode is on; then you must confirm overwrite). If the current filename is still blank, it prompts you. Save early, save often! Especially before block deletes and moves.

Each score file has a "**level**" depending on the version of Umuse that last edited it. The middle digit of the Umuse version is the level, so 6.10.3 writes Level 10 scores. All lower-level scores can be read and used with no problems (except a bogus error message on old shareware scores). Just write the score back out ('s' command) to update it to Level 4, after adding a Title screen

if you like. Higher level scores may or may not read, display, and play right. Don't overwrite them, but Write to a new name.

Note: hitting just ENTER to any command's "filename" prompt will safely abort that operation.

READ-ONLY ('o') toggles the safety mode on/off, which merely asks you to confirm each Save (not Write). Keep 'o' on when just browsing.

KILL ('k') deletes the selected file. Like Write, it waits until you click "Kill file" or hit ENTER.

DIR ('d') opens the window and lists only those files that DON'T have the ".ume" extent. Good for finding subdirectories, and all the side-info files at once. You can't read or write, just return when ready. Future version may let you click a directory to CHD to it.

INSTRS, ETC. ('i') -- SIDE-INFO FILES:

These are data tables in the Score that can also be saved and loaded separately to customize a score for different equipment setups or tastes. Umuse handles four types, given with their .extents:

- .ume** Full score file
- .ins** Instrument Menu names & patch numbers
- .per** Percussion slot MIDI notes numbers and Synth name
- .mid** MIDI Part --> Channel assignments
- .lev** Volume Levels MIDI velocities for ppp - fff

Use "Instrs etc." to get a new sub-menu with a slide selector for the four side-info types and three buttons for Read, Write, and Dir. From here, everything works just as for Score files, except the selected extension replaces ".ume". Instrument files will all end in ".ins".

The .ins and .per files can also be handled from their own menus, with the same handy window interface.

NEW SCORE ('n') clears score memory and starts you on a new score, deciding how many parts on what staff with which clef and so on. It does not affect the Instrument Table or MIDI Volume Levels.

FILE NAME ('f') reminds you what the filename is and lets you change it. Hit ENTER to keep it as is (just looking). Filenames must not exceed 28 characters.

TITLE ('t') lets you view and edit the Title Banner of information lines. For human consumption only, these are handy for the piece's title, band, composer, who moused it in, suggestions for playing, recommended synth setup, and Copyright notices. The Title submenu shows how many lines you can use and how wide they are. To replace a line, type its number and then retype the whole line. ENTER when finished.

PWD ('p') shows the present working dir, then flows to CHD below. Use CHD when you know the PWD, to save time.

CHD ('c' or 'h') lets you change the working directory. You can use full absolute or relative path names in filenames, but these are a pain to type and rapidly blow the 28-character limit. So use 'c' to get into a directory where you'll be working. Note that using the OS9 shell escape (Random Menu '9') to "CHD" will not work. Give 'c' a pathname relative to Umuse3's present working directory, which is either where you started Umuse3 or the result of your previous 'c' command. Use absolute paths (starting with /d0, /dd or /h0, etc.) if you lose track.

APPEND ('a') is an Advanced command to splice a disk file score onto the end of the score currently in memory.

The MIDI Menu -- PLAYING MUSIC

PLAYING MUSIC

You can play either the whole piece from the beginning ('p'), or from the start of your viewscreen ('w'), or just the marked block between [and] from the Block Menu ('p'). These also work from the MIDI Menu.

While playing music, you can press the **SHIFT** key to "shift into" Fast Forward -- the music plays twice as fast until you release the key. Handy to skip thru parts you know are right and you're sick of; also helps you hear the overall form of a piece.

Press **CTRL** to "control yourself" for the opposite effect, slow-motion playback. This is handy for finding bugs in your score, and you're ready to pounce on the 'C' key for **CTRL-C** to stop play when you hear the error. Note: **SHIFT-BREAK** is the same as **CTRL-C**.

To stop play before the end, hit **BREAK** to stop, or **CTRL-C** to stop and move the view screen to where the music stopped. Your synth should stop sounding notes after the current chord releases.

Hitting **BREAK** at any time other than playing gets you the **QUIT** prompt, just like typing 'q' to the Random or Files Menu. "Just Say No" to return to where you were. If you say 'y' you get one last chance to save your score file. UltiMusE is pretty well "break-proofed".

THE MIDI MENU

This menu lets you control aspects of actual synthesizer playing that are not covered in the score. Enter here to adjust parameters like speed, transposing pitch, output ports (hardware Pak or serial cable), MIDI channel assignments, and volume levels for pp, mf, etc. Channels are handled by the main MIDI Menu, the rest by two sub-menus -- Modes and Levels, but we'll cover the main MIDI first.

MIDI CHANNELS

The MIDI standard allows notes, patch changes, and other commands to be encoded into any of 16 logical channels. The upper half of the MIDI Menu shows the current assignment of UltiMusE parts to these channels. (It's just a coincidence that there are 16 of both, and also 16 patches.)

If you have just one, monotimbral synth (all notes play the same patch), these channels are of less use to you, and the startup default (all parts assigned to Channel 1) is fine. Just set your synth to receive channel 1 or put it in "Omni mode," where it "listens" to all 16 channels equally.

Polytimbral synths, which can play different patches or instruments on separate MIDI channels, open up a whole world of orchestration and arranging and are well worth the money for computer-driven synthesis.

ASSIGNING MIDI CHANNELS

There are several ways to set up Part-->MIDI Channel assignments. Most direct is to just type or click on a Part number, where Parts are "numbered" as in the Setup/Layout screen -- from 1 thru 9 and A thru G. The letters mean 10 thru 16, but our single-digit Hex notation means you needn't hit ENTER. Typing a number prompts you with a --> to type the channel number. These are written 1 thru 16 and yes, you must hit ENTER.

To set a group of parts to the same channel (like all the rhythm

guitar chord notes), type 'o' as in "Omni." Give the common channel number and hit ENTER. Then type the lowest and highest part numbers of the group; these and all in between get set to that channel. Hit ENTER for the lowest part to set all 16 parts to that channel.

The '**i**' "**Individual**" option assigns each part to the channel with the same number. Great starting point for polytimbral.

You can make mistakes and mess this up. If so, type '**n**' (Never Mind) to exit with no assignment changes. Or '**r**' to restore them to whatever they were when you entered the MIDI Menu or last hit '**u**'. '**u**' means Update and lets you save your changes whenever you're sure of them so far. Hitting ENTER or '**k**' for Keep makes your changes "stick" and leaves the MIDI Menu.

Channel assignments get saved and loaded to disk files along with the scores. Unlike Instrument tables, they can't be filed separately (yet).

Turning certain parts or channels on or off is useful for checking accompaniment parts or finding mistakes. To turn a certain part off, type or click its number as if assigning a new channel, but instead of a channel number, type '-'. To turn it back on, use '+'.

To turn a channel on or off, reverse the above -- type (or click) the '-' or '+' first, then the channel number. Watch the +/- signs change in the Menu table.

"Tutti" turns everything back on, and **"Quiet"** turns all off.

'p' and 'w' play just as from the Random Menu.

The MIDI MODES Sub-Menu

Most important is the choice of output ports: the Coco-MIDI plug-in hardware pack ('m'), the Coco's own serial port out the back ('r'), or a user-supplied /MIDI device driver ('/' or 'm'). Both Serial and the Pak may be on at once, but not the Pak and /MIDI. The same MIDI data come out of each port, but if you connect a different synth to each port you can turn them off and on separately. Use the Pak if you have one, with Serial turned off. CAUTION: enabling Pak mode without a Pak installed can hang Umuse3.

MIDI FILE ('f') turns off all outputs and directs the MIDI bytes to a disk file with extra timing bytes according to the Standard MIDI File Format. This file can be played on PCs, Macs, and other computers with MIDI player utilities. Its default name is your score name with extension .MID instead of .UME, but you can change it at the prompt. Please upload your .MID files to bulletin boards and Web sites, and not just Coco ones!

dxi speed factor

Type '**s**' to scale the overall speed of the piece. This time-scale-factor is called "seconds per minute" and works backwards -- big numbers go slower. True tempo values in the score are still respected, but are scaled faster or slower in playback without changing the score. Although the scale factor does not appear on the score, it is saved and reloaded with the file.

To transpose the playing pitch, type '**t**' followed by a number of semitones; by +12 to play an octave higher, -12 an octave lower, or other values for different "keys." This affects only playing, not the score, but IS saved and reloaded with score files. Percussion parts (either type) are not transposed.

MIDI LEVELS SUB-MENU

Type '**l**' to the MIDI Menu to enter this sub-menu and adjust the MIDI key-velocity values that correspond to the eight Expression Levels '**ppp**' thru '**fff**'. By setting '**ppp**' to the softest part of your composition (even though it's really mp) and '**fff**' to the loudest (though it's really just f), you can get the smoothest loudness changes out of the 8 levels. Some synths respond much more to changes in MIDI velocity than others, so use this feature to adapt others' scores to your equipment.

You can set each level separately, or save time with the '**e**' command -- set ppp (Level 0) to the softest value you want, set fff (Level 7) to the loudest, then hit '**e**'. Umuse3 will compute evenly spaced values for all levels 1 thru 6 (if you hit <ENTER> in answer to the next prompt) or for those levels between the two levels you type in answer to the prompt.

All values must be between 0 and 127, and will wrap around to stay in this range. Zero will not sound at all. You can even set the levels backwards -- if ppp is louder than fff, typing '**e**' will fill in descending values! Use to check rhythm guitar or other background accompaniment parts. Your levels table is saved and read as part of the score file, or separately as a ".LEV" file from the Files Menu.

The INSTRUMENT Patches and PERCUSSION Menus

This Menu lets you edit the Instrument Table and the Percussion instruments in its sub-menu. To reach it from the score screen, click the Main Menu Bar or type 'i'. Instrument patch changes inserted in a part in the score (see "Special Palette Tools") will select a new synth sound-patch for that part. The score objects look like an "I" followed by a number from 0 to 15. These numbers are not sent via MIDI to the synth, but instead select a slot in the Instrument Table to get the patch-number value actually transmitted.

Each table entry lists its Patch Number to send, plus a 9-character name. To edit an entry, highlight it with the mouse and click, or type its number -- if 0 or 1, you must also hit ENTER.

The patch numbers are either Decimal 1-128, or in Korg format, a funny Octal (base 8) notation where each digit can be 1 thru 8. You enter names in Korg format by starting the number with a 0 or small letter 'o'; otherwise you get normal decimal. Don't use 0 or 9 in a Korg format number.

If your synth is not polytimbral, each change will affect all parts together. Even on a polytimbral machine, if two or more parts share one MIDI channel, any instrument change sent by one of these parts will affect the others. You can't program new patches from scores, just select among patches already in the synth. (But in OS9 you can run a patch librarian in another window and zap your synth!)

The Instrument Table is saved and loaded with each score file, and can also be saved/loaded independently from either the Instruments or Files Menus as a .INS file. Likewise for the Percussion Table, as a .PER file.

Your patch names are unrestricted and for human reference only, but if a name starts with a '+' (or '-') that patch will play an octave higher (or lower) than written in the score. This feature not only lets you equalize 16' and 4' patches across your synth(s), but also is an alternative to octave-transposing a voice up or down in the score (Layout Menu), especially if some notes would go out of range of their staff. A good substitute until we get +8va, -8va, and Loco score objects.

You can even play a part once thru a repeated section, then play

it up or down an octave the second time thru. Just list the same patch under more than one table I-number, with and without the leading '+' or '-'.

Example:

```
0 17 FuzzBass
1 17 -FuzzBass
2 17 +FuzzBass
3 ..... (rest of table)
```

All are patch #17 on your synth, but I1 will play an octave below I0, and I2 an octave above. This works for each individual part whether or not the synth is polytimbral.

THE PERCUSSION CLEF and STAVES

A major innovation of UltiMuseE is the Percussion Clef, which assigns each line and space of its staff to a known percussion instrument (snare drum, ride cymbal, etc.) regardless of what make or model synthesizer is used. Any synth model can be matched to the Perc Staff by a separate data table similar to the Instruments Patch Number table. Percussion Clef and table files do for percussion sounds what the Instrument Menu and files do for other instruments. Also Perc Clef notes can't get sharpened or flattened by melody parts on other staves during Play.

So when you download a score arranged for PSS-480 percussion, you don't have to change every percussion part's notes to match your MT-240 or MT-32 (although the Note Translator tool makes that feasible). Instead, if the score was created using Percussion Clefs, you simply load your MT32.per file instead of the PSS480.per data that came with the score. All UltiMousers are asked to please use Percussion Clefs for all new music files!

The Percussion Clef defines 17 slots in its staff -- 5 lines and 4 spaces, plus two ledger lines and space on top and bottom. Each line and space should be used only to play its type of instrument. After much agonizing soul, jazz and rock searching, we have assigned the slots as follows:

```
LINE/SPACE SOUND
----- Triangle Open
          Triangle Muted
----- Crash Cymbal
          HiHat Open
|----- HiHat Closed
|          Ride Cymbal
|----- Rim Shot
|          Snare
```

```
|----- High Tom
|           Mid Tom
|----- Low Tom
|           Bass Drum
|----- Wood Block
|           Cow Bell
----- Hand Clap
|           High Bongo
----- Low Bongo
```

This covers the most important sounds and assigns them to the inner staff. Odd sounds are farther out on the ledger lines. You might re-assign some of those to other sounds for a certain piece, but please note that in the Title screen for your own sake and others'. Latin or Rap devotees may want to get together and work out an alternative standard. Just tell us what it is.

PERCUSSION TABLES

To set up a Percussion Table for your synth, enter the Instruments Menu and hit 'p'. You'll get a sub-menu like the list above, but with a MIDI note number (initially zero) before each sound name. To select a name to edit, you must use the mouse. Move the arrow cursor to blacken the selected name and click. Now enter its MIDI note number in Decimal, which you must get from your synth's manual or by counting keys from Middle C, which is 60. If you hit the wrong line, just type ENTER to leave it as is.

At the bottom is the synth make and model name. Click to retype it, or hit ENTER to leave it. It gets saved and reloaded along with the 17 MIDI note values. At any time you can save your table by clicking "Write to File" or typing 'w'. You can read an existing Perc file and replace your memory data, or just clear it to zeros. Perc tables can also be saved and loaded from the new integrated Files Menu. Either way, they always have ".per" extension.

Make a Perc table once for each of your synths, save it, and just reload it each time you create a new piece. The table and synth name are also saved and loaded as part of the score.

SCORING with PERCUSSION STAVES

The Layout Menu now includes Percussion as a 5th clef, shown as two vertical lines. Set up any number of staves with it just like any other Clef. One special rule: When you move a part from one staff to another, or change the clef on a staff, notes are automatically transposed to keep the pitches the same. But since a Perc Clef has no actual pitches, NO translation is done when

moving into or out of a Perc-Clef staff. The lines and spaces just stay the same. So do accidentals, although these are IGNORED on a Perc Staff during Play. That includes "accidental" accidentals that "bleed thru" from other parts, a headache that stays away when you use the new Perc Clef.

There's no need to use the old Percussion part types (hollow notes in Layout Menu) on a Perc Staff. Their only function was to protect percussion MIDI pitches from the MIDI-Mode Transposer, which does not affect Perc Clefs either.

The BLOCK-MARKERS Menu

Reached from the Score Screen's Main Menu Bar, this menu performs edits and other operations on "blocks" of score between Marker brackets that you've inserted (see "Special Palette Tools"). If needed markers are missing, you get an error or are asked whether to assume beginning and end of the score, or maybe just what's on the screen.

Delete takes out absolutely everything (but clefs and staves) between the [] markers, including the markers themselves.

Move and Copy require [], plus a | to whose right side the bracketed block will be moved or copied. The | can't be inside the marked block. Copy leaves the [] where they were, but Move brings them along with the moved block.

Block-Playing changes nothing; it just plays the score, but you hear it only when the music is between the [] markers. Notes outside the markers are skipped in zero time. If the block is inside a repeated section, it plays as many times as it would in a full play. If the instruments or volume levels are supposed to be different on the 2nd or 3rd time thru, you can quickly audition the differences.

You can insert a plain BarLine or a Coda Jump at the |, no [] needed for this. The Coda Jump looks just like the Coda Label that occurs later in the score, but the Label can be inserted only at a Barline.

Barlines are much easier to add with the || tool. Then use the Brush cursor on the Score to get the Barline Menu and change the plain barline to a special barline, or add barline-related objects.

"**Fixup**" repairs, in the Part you specify, minor errors left over in older scores, like long notes straddling a barline or missing rests leaving "holes" in time.

"**Transpose**" rewrites all or the marked-off portion of the score to a new key. It's covered in the Advanced manual, but is simple to use.

The SEARCH-GOTO Menu

The Search-Goto Menu helps you find places in the score by locating certain kinds of score objects and moving the view screen to them. This "menu" is really just a list of reminders for a couple of commands' arguments, but they're so powerful they need their own chapter.

You may click the GOTO on the Main Menu Bar, but it's quickest to just type 'g' or 'G' followed by the search-target arguments and a required ENTER. A text window pops over part of the Score Screen so you can see your typing, but the whole menu of choices doesn't display unless you type "g?"; then you can enter the real arguments.

The simplest 'g' command just goes to a given Barline by number. "g14" (note NO spaces!) puts barline #14 at your left edge. Precede the number by + or - to mean "relative to present bar on screen," so "g+5" means "move ahead 5 bars" and "g-10" means "go back 10 bars." "g0" gets you the beginning, and "g*" or any number greater than the number of bars in your score gets you the end.

If you've done a Block Copy and haven't renumbered yet, there may be two bars with the same number; 'g' always finds the first. If you Deleted a block or X'ed out the only bar so numbered, you'll get "None Found" and the view won't move.

Using 'G' (a rare capital-letter command in Umuse) restricts the search to "Special" Barlines (doubles, repeats, endings, and others on the first half of the Barline Menu). These landmarks are very handy in finding the next section of a piece. Unlike small 'g', 'G' ignores the displayed bar numbers and counts the special bars (after all, if you knew the number you'd just use 'g'). So "G3" means "find the 3rd special barline from the beginning," and "G+1" means "find the next special." So does "G+" -- keep reading.

UNIVERSAL SEARCH COMMANDS

The 'g' command's arguments can be given to search for almost

anything of interest. The general format is:

```
g SIGN NUMBER WHAT <ENTER>
```

where there are no spaces between the arguments and all arguments are optional in any combination. Omitting WHAT gives the barline finding commands, and using capital 'G' instead of 'g' finds only special barlines. SIGN is + or - meaning "count from current screen, forward or reverse." No sign gives an absolute search from the beginning of score. If NUMBER is omitted it defaults to 1, not 0. So "G+" means "G+1" or "find next special barline" and "G-" means "preceding."

WHAT is a single character telling what to look for other than a barline, as follows. If the table shows two characters you can use either one (not both at once). Unlike some other UltiMusE menus, you must use the shift or CTRL key to get the actual character, since numerals would be taken as the NUMBER arg.

```
[ ( Left Marker (either '(' or '[' will do)
] ) Right Marker
| ! To (Center) Marker
* End of score
. Return to scene of last 'g' command
space Repeat last 'g' command text
? Just print the menu of possible commands
```

All the above ignore SIGN and NUMBER, but the rest can be used with any combination of SIGN and NUMBER:

```
lv Level or Volume (mf, pp, fff, etc)
i Instrument
t Tempo
x^' any expression (Level, Instrument, or Tempo)
k Key signature
/ Time signature
en any Nth Ending
f Fine.
s$ Segno sign
o Coda sign
```

Two special formats are "g." and "g ". The first (dot) means to return to wherever you gave the last 'g' command. The second (space) means "repeat the last 'g' command as typed before." So you can type "g+x" once and then step thru the expression marks by typing just "g " over and over.

Some special cases: "g" gets Bar #1, which is the beginning IF

the first bar is not a short "pickup" measure; "g0" guarantees the beginning, and "g*" the end. "g+0 WHAT" jams the leftmost currently visible WHAT against the left screen edge, and substituting '-' right-justifies the rightmost. Handy to view a whole long measure.

See the Advanced manual for finding exact Parts, Instruments, etc.

Relative (signed) searches read the screen intelligently. Saying "g+" to find the next bar means "the next barline NOT SHOWING ON THE SCREEN." So if barlines 3, 4, and 5 are visible when you type "g+", the new screen will show bar 6 at its left edge. Likewise "g-" there would put barline 2 near the right edge. This applies to anything else you search for, such as Instruments with "g+i", so be sure to look the screen over carefully for targets before repeating a relative 'g' command. And if a "g+i" fails to move the screen, it means there are no more Instruments beyond there.

Positioning: absolute (unsigned) and '+' searches reposition your view to show their target at the left screen edge. '-' searches show their result near the right edge. Markers [and] show near their edges and the | marker goes smack in the middle.

HINTS and HELPS

FREE REPEAT and BARLINE #0

To support a questionable but standard sheet music practice, Umuse3's player spots you a free Left_Repeat at the beginning of the score. You can't see it, but a right repeat will find it. You can convert the opening barline #0 (far left of screen) to other types of barlines, but it always displays as a plain single barline. If you insert your own "real" Barline #0, it will display as whatever you make it, and be easier to hit with the mouse.

MULTIPLE REPEATS

Pop music often calls for a section to be repeated 4X or some other factor besides 2. You can get any power of 2 repeats by nesting balanced repeats;

```
|: |: |: stuff :| :| :|
```

will play "stuff" 8 times. For odd values, try using 1st, 2nd, 3rd endings where the endings contain no notes or rests; use | and "bb" to insert several adjacent barlines and convert them to the special ending barlines.

LEVELS and INSTRUMENTS in REPEATED SECTIONS

Sometimes you want a section to repeat with the same volume levels and instruments as the first time, even though they may have been changed partway thru the repeated section. If so, the levels and instruments objects at the start of that section should be "inside" it, to the RIGHT of the Left_Repeat barline. This is where "normal" Umuse3 usage will put them.

But suppose you want the section repeated on different instruments or levels. Then put the expression objects for the first time "outside" to the LEFT of the Left_Repeat barline, so when the section repeats they will be skipped. New levels and instruments for the second pass must be set up at the end of the section, just before the Right_Repeat or Second_Ending barline. Problem: what notes can you hook these on? Answer: on Rests at the end of the last measure. If a part has no rest, shorten its final note just a bit, say by a 16th or 32nd rest, and click the new level or instrument on that rest. Such rests usually make for cleaner music anyway.

Getting back to the beginning of the section, how can you control whether the expression signs go to left or right of the left_repeat barline? First just try and see where they go. If not what you want, use the Insert Marker '|' and turn it into a new barline ("bb" command) after getting it where you want, and X-out the original barline. Umuse3 has its own ideas of where to put things, but the Markers are the exception -- you can put them anywhere that does not slice notes or rests.

Try this: make a three-part staff, put a 3-note chord on it, and put level (say, ff) on each note. They'll display in a straight vertical column. Now get the | on the brush and try clicking the mouse on each of the ff's and each note. You'll find you can split the stack of ff's anywhere, with the | marker in between (works with [and] too). Now you can "bb" the | to a barline and use the Barline Menu to upgrade it to a Left_Repeat.

BLOCK-PLAY HINTS

To check or "practice" just a subsection of score, Block Play "bp" plays only the block between [and] markers. Nothing outside will play. But there is one exception -- if your] is missing, or the last thing in the score, and the end repeats (repeat, DC, DS, etc.) to an earlier part of the score to the left of your block, the sound will keep playing. If not desired, put your] to LEFT of the repeating object at the end, and the sound will turn back off until the score catches up with your block at the [. Once again, the exact ordering of special items is important!

FAKING OTHER MUSIC NOTATIONS

Umuse3 supports more notation items than the competition, but not everything. Tricks can be used to fake unsupported notations.

Breath marks or breaks, written as apostrophes, mean to cut off the preceding note early and finish its time with silence. Use our "marcato" (horizontal line) artic for this. Careful attention to articulation makes the difference between "studio sound" and "oh how cute, a computer playing music!"

For a fermata or hold over a chord, simply precede it with a very slow Tempo. After the chord, put the original tempo (or whatever you want). Experiment (using Window_Play and BREAK) with tempo values until you get the delay that sounds right to you. See score file SSB.UME.

+8va and -8va mean to play an octave higher or lower. If some part is so marked throughout the entire piece, use the Layout Menu's octave transpose tools. But if the part is octave-shifted only sometimes in the piece, use the trick given under "Instruments Menu."

ADDING BARS INSIDE A SCORE

To add bars inside a piece (like a new bridge between existing sections), go to the end of the piece with "g*" and click the Scroll Bar's arrow to add bars at the end as usual. Bracket the new measures with []. Now insert a | marker where you need the bars and use Block Move "bm." If the end of the song is in a different Time Signature from the section where you'll add the bars, then temporarily add the section's time signature to the end before creating the new bars.

MARKER HINTS

To get rid of any Markers []^ that may be lurking in the piece, just place new ones where you are and X them out. Remember there can be only one of each of the three kinds at a time, so adding the new ones removes the old. Since a 'g' command followed by '(', ')', or '|' takes your viewport to a marker, use markers just to tag places you'll come back to later.

SCORING HINTS

When beginning a new score, don't just start off with the lead part without first taking a good overall look. Check for patterns of rhythm or bass lines that repeat over and over throughout the piece. If you find one, start by putting this pattern in once; then use Block-Copy and Part-Copy to "rubber stamp" it over and over to make the full length of the piece. Then adjust individual

notes in each bar as needed. It's easier to tweak note pitches than than rhythms, and much easier than mousing in notes from scratch.

Some pieces have irregular time signatures -- a 4/4 bar here, next a 3/4, then a 6/4, etc. Don't put all these in except where the sheet music shows them. Just use the Barline_inserter || Tool to insert barlines and the X tool to delete them as needed.

TECHNICAL INFO

When playing several notes that start at the same time, UltiMusE sends the parts' MIDI commands in ascending order of part numbers. So higher numbers are more likely to be left unplayed by a synth, or "overflowed" by a Roland MT-32 to a downstream synth. "Running Status" is exploited to drop "note-on" bytes whenever a chord uses the same MIDI channel for all notes, another reason to use Clones.

UltiMusE quantizes notes internally to "ticks" scaled 2 to a triplet 64th note, 3 to a straight 64th, and 48 to a straight quarter.

I started working on UltiMusE in 1985. It is written entirely in MicroWare C, with just enough assembler for the serial port and some graphics. This manual was typeset with DynaStar, DynaForm, and DynaSpell.

COMPATIBILITY Among VERSIONS

Any version of UltiMusE-III will read, play, and edit score files made with any earlier version of ULtiMusE, including the ancient shareware copies. But really early versions will choke on pices with more than 4 or 5 staves.

Old versions may work on scores from newer versions -- the middle number is the key (4.6.4 means a Level 6 score) -- but will miss out on newer expressive features.

Never overwrite a score from a lower-level version of UltiMusE without first making a backup copy, or info in the newer score will be lost.

MAKING A SERIAL MIDI CABLE

If you don't have a hardware MIDI interface plug-in pack, you can make your own low-cost serial cable. You need two male connector

Accidentals stay in force thru the remainder of their measure until the next barline, as they're supposed to in sheet music. However, each should affect only its own staff. Currently, an accidental will also affect the same note pitch on all other staves as well, even if on a different line or space using a different clef. This can play some "blue" notes and confuse the obsolete "hollow" percussion parts. You can protect any afflicted notes by prefixing their own naturals or whatever is needed. We guarantee that any note with its own accidental will play as notated.

Sometimes OS9 doesn't set up the mouse hardware as specified in your Um3.Init file. So, type your way to Options and re-Read the options.

The "senza repitizione" option of Da Capo and Dal Segno suppresses ordinary repeats properly during the replay, but does not force multiple endings to take the last ending as it should. These will repeat just like the first time thru the section.

Notes that would display off the top or bottom of the score screen are not graphically clipped, but instead drawn complete just inside the screen. If the stems are pointing outward, a telltale track of ledger lines marching over the note's body may warn you that the note is not really where it appears to be. When in doubt, or when working on the top or bottom staff, pull that staff in enough to have some visual headroom for extreme notes.

TROUBLESHOOTING

We've tried to anticipate the most common problems, based on our own experience. Installation problems stay away once fixed.

On Startup:

Error #207

You need at least 128K free to load and run UltiMusE-III.

Error #216

Missing Play or Fran from present execution directory.

Error #214

Play and Fran's attributes 'p' and 'pe' must be set.

"xxx.img" errors

/DD/SYS non-existent or missing some .img files

Error #214 or #216 or "can't link" message

Missing some Um3x file from PXD, or "e pe" attributes not set.

Editing and Display:

No mouse response
Wrong Hi-Res adaptor mode; type "rr" to restart,
or "or" to restore Preferences from Um3.Init file.
Wrong joystick port. Hi-Res to Right, direct to Left.
Composite monitor picture is blurry
Do a MONTYPE M to OS-9
Only 4 sizes of notes available
You're still in the Setup/Layout Menu; hit ENTER.
Score is too thick, can't see straight
Move parts being edited to temporary working staff
Hide flags (Clone) of chord parts; Rearrange staves vertically.
Tacetize to get rid of unneeded rests
Notes too high or low, way off staff
Change clef
Use Layout's '+' or '-' to move them inward an octave,
then use prefix + or - to instrument names to transpose play.

Playing:

No sound
Wrong port enabled -- use MIDI Menu
Synth not manually switched to MIDI mode
Synth on wrong MIDI channel
Custom hardware MIDI pak -- use matching /MIDI driver
Music plays slowly or jerkily or locks up completely
MIDI Pak enabled (MIDI Modes Menu) but not installed
Shut down other OS9 tasks
Synth batteries or AC adapter weak
Poor quality or too long cable
BREAK or CTRL-C doesn't stop play
Wait for long chord to finish sounding.
Note tied to previous note plays anyway
Make sure Tie is on first note of pair
Music plays at "warp speed"
Add a proper Time Signature at very beginning
General:
Can't find score files
Use Files Menu 'd' and 'c' commands to get right directory.
Lost in menu tree
Hit ENTERs till you see the score screen.
Can't save or restore mode Preferences from Options Menu
A disk with a SYS directory must be in /DD drive
Out of score memory (all 32,767 items? I'm impressed!)
Tacetize parts to delete Rests
"Clone" parts to delete Rests
Join rests (e.g., quarter + eighth = dotted quarter)
Combine percussion parts -- let one "voice" play several sounds
Look for places to use Repeats, etc.

ADVANCED FEATURES

The rest of this manual covers UltiMusE capabilities that were developed after the original release. Many of the following sections belong with earlier menus, but we've kept them here so you could read the basic features of all menus without having to wade thru all the newer features.

You will understand and appreciate the advanced features more after understanding and working with the basics. But feel free to check these out as soon as possible, before inputting any major scores, since they'll save you lots of work.

>>>> THE END <<<<

Copyright (c) 1989, 1997 by Michael J Knudsen

This extended portion of the docs gives a list of major new features and bug fixes by version, with dates when known.
Last Update: by M.J.K. 97/4/17

For details, read these sections:

Readme.Zer Version 4.6.0 -- Major Improvements
Readme.One Installation and Versions 4.4.1 thru 4.7.2
Readme.Two Version 4.7.5 thru 4.9.0
Readme.Tre Versions 4.10.0 thru 4.10.0a and 10.10.1
Readme.For Versions 5.x.x and 11.x.x and above

Bug & Feature History by Version:

Version 10.11.4B (by Bill Pierce, 05/26/2014)

(I put these here as the latest enhancements aren't listed anywhere in the manual. I hope to write a new manual with all up to date info soon)

- DriveWire4 MIDI Device Manager added. Only available when using the DriveWire4 File Server. Under "Midi", hit 'v' and select your DW4 Midi device.
- DriveWire4 MIDI Profile Manager. Only available with DW4. Select the keyboard emulation to match the score's original synth.
- DriveWire4 Internet Update. Only available with DW4. Update Ultimuse 3 from the internet update site straight from your Coco 3 and Ultimuse 3. DW4 server must have an active internet connection.
- The external OS9 commands, Tmode & PWD, are no longer required for Ultimuse3. Umuse3 now has these routines internally to avoid "tmode bug" issues some people were having due to different versions of tmode with different syntax.
- A new "Bell" sound has been added, replacing the annoying "OS9 tone" used before. Also, a "bell on/off" option has been added to the "Options" menu. This flag is saved with the "preferenced" and persists thereafter.
- As the new "Caretaker" of Ultimuse 3, Mike's masterpiece, I hope to be adding many more features in the future. Use the new DW4 internet update to keep a check for new versions :-)

Version 4.4.1 (over 3.3.0 thru 3.4.1d)

- 32,767 score objects (notes, etc.)
- Menus mostly point and click
- Instrument (Patch) Changes can be disabled from the MIDI Menu

Version.450 December 03, 1989

- General Volume Levels (Genvols) much
- Ties now carry accidentals over barlines, as in written sheet music.
- All Menus can be exited with a Mouse Click or ENTER.
- MIDI "Volumaster" velocity level offset (master volume)
- Menus are much more convenient with some New Items:
 - Slide Selectors choose one of several alternatives;
 - Check-Boxes that toggle and indicate on/off modes;
 - Fill-in-the-Blanks for variable quantities like Transpose.
- MIDI "running status" reduces the data rate to your synths.
- Umuse3 warns at startup if GrfDrv is not in memory or in CMDS.
- Player handles /MIDI device as a Modes Option
- Separate MIDI Modes options menu

Version 4.6.0 -- MAJOR IMPROVEMENTS

MAJOR:

- Percussion Clefs to fit all Synthesizers
- MIDI Clock for Drum Machines, etc.
- Point-n-Shoot file load & store.
- Separate Side-info files available.
- Point-n-Click on some Text menus.

General:

- Parts can hop to different MIDI channels dynamically.
- Notes no longer straddle Barlines.
- Score cursors change to reflect current tool selected.
- Brush cursor really looks like a brush for notes/rests.
- Menu button shapes indicate function.

Setup/Layout Menu:

- Setup Prompts removed (restored in later versions!)
- Rangefinder finds highest and lowest notes per Part.

New Integrated Files Menu:

- 5 file types -- Score, Instrs, Percussions, MIDI Chans, Vol Levels
- Overwrite question gives file name
- Point n shoot, with type & edit options. No .ext needed.
- "fd" shows non-.ume files only
- Also Save & Load directly from Instrument and Percussion Menus.

Block-Edit Menu:

- Fixup function cleans up barline overhangers & holes

Score ToolBox:

- Simplified toolbox on/off control -- menu bar, clicks.
- Brush Rep can be viewed instantly under cursor.

POWER TOOLS -- new lower deck:

- Insert Barline
- Chisel Smasher speeds up writing many notes
- Part Copy stamps a pattern of notes anywhere
- Join two adjacent note/rests into one
- Squawker shows current instrument, volume, etc.
- Note Translator, good for converting Percussion parts

Version 4.6.2

- Play handles "triplet" time signatures (6/8 etc.) right.
- More Printer types supported: Gemini 10X and Epson compatibles.
- Two big image files in /SYS replace /IMAGES's dozen .img files
- Plug mouse or joystick into either port, with or without HiRes box.
- Fast change-directory
- Auto-sleeping of Umuse when in some other window

Version 4.7.0

- Note Articulations -- Staccato, Marcato, Legato for crisper playing.
- Continuous Printing of Full Score
- Automatic Crescendo and Diminuendo
- MIDI Clock can be turned on and off within score anywhere
- Improved Search Goto commands
- Setup Prompts are back!
- MIDI Transpose Value saved and read with score, used by Jukebox
- Tied note before Tacetized or Cleared measure no longer keeps sounding

Version 4.7.1

- Can insert Barline that slices notes/rests
- Oil Spills bug gone for good!
- Hardcopy dumps stopped by 'q', not BREAK.

Version 4.7.2

- Keys adjust note sizes and duration-mods

Version 4.7.5 91/09/29

- Transpose scores to new keys
- Individual enable/disable of each Part and each MIDI Channel

- User-set upper & lower limits on MIDI Note Numbers
- Playing more accurate, never loses time
- Tempos greater than 127 no longer show as Zero
- Bell "beep" sounds correctly
- No more Tied notes from nowhere

Version 4.7.5B

- Play no longer crashes 1-Meg systems.
- Umuse3 now works with unmodified Shell+ 2.1.
- Right edge of screen easier to click on with mouse

Version 4.8.0: (92/02/11)

- Alto and Tenor Clefs added, for Viola, Cello and some Trombones **WARNING:** -- any Level 8 score (.ume) file using these clefs will not play properly on any earlier version of UltiMusE. YOU MUST UPDATE SYS/AllUm3.img file to use version 4.8.0 and above.

Version 4.9.0 and 10.9.0 93/4/29, from 9/92

- MIDI Events -- send any desired byte sequence to your synths.
- Hard Copy Printing added to MM/1 version (already in Coco)
- All Menus now under Mouse Control -- less typing required.
- New sub-menus for Expression volume levels, Instrs, etc.
- < and > keys (Shifted) scroll Left & Right.
- "Brush" note cursor calls up Barline or Expression menus

Version 4.10.0 and 10.10.0

- Append (Splice) two scores together -- at last!
- Accents and Layoffs for easier volume expression
- Letter Labels in Scores
- Score Printing vertical squeezing can be turned off
- Score Printing supports CGP-200 printer
- Barline Menu gives mouse separate choices of Begin and End Repeats.
- Cursor Snap (MM/1 only)

Versions 4.10.0a (Coco) and 10.10.1 (MM/1)

- Time Signature now defaults to 4/4 on startup instead of 0/0.
- Draw lines to connect notes of each part (MM/1 only)

Versions 4.10.2 and 10.10.2

- Sort "chord" notes on a staff

Versions 5.10.0 and 11.10.0 95/4/20

- NEW VENDOR takes over from Kala Soft
- Play can write output to Standard MIDI (.MID) files!
- Files Menu Improvements:
 - 3 columns show up to 78 files, vs 52 in 2 columns
 - Kill (delete) files from menu
 - File names are Sorted in menus

Version 6.10.0 95/9/18

- VDG Screen not needed anymore, even in Boot!

Version 6.10.3 and 12.10.3 96/3/30

- NEW VENDOR -- Glenside Coco Club
- "Clone part" Chord Features:
 - + cursor pulls new notes out of old
 - Flagless notes now mean something in Layout Menu
 - MIDI channel assign by clone groups
 - part reorder
 - "Sort Notes" now "Parts", respects stems, clones
 - Note pitch carryover option
 - Part-copy transposes to fit target clef
 - L and R cmds to connect notes of same part
- Smaller Toolbox with simpler mouse control
- Finder-Filter for sorting out note/rest pileups
- Cursor-snap option
- Dialogue boxes pop where cursor is
- Less drift of notes on redisplay
- Fast -flash on note pickup
- Bug fix re chip/bombing of notes

Version 7.11.1 (same number 7 now used for MM/1 OSK) 97/2/25

- SHAREWARE -- no Vendor
- New "Basic" Manual doc, with "Advanced" planned
 - interim Advanced Manual is ReadMe.Zer thru ReadMe.For
- Instruments (Patches) greatly improved:
 - 64 instruments, vs old 16
 - Names up to 15 characters, vs old 9
 - Menu tools to move and swap instrs around for quick changes
 - option for "sticky" tool cursors
 - Menus show which instrs are currently used in score

- o Menus scroll to show all 64 instruments
- Titles Comment Box now up to 9 lines from old 4
- Squawker "?" Tool shows Part affected by Partwise Expressors
- MIDI Events don't waste memory on duplicate byte sequences No mouse-dirt on MM/1 startup screen

Version 8.11.0 (Coco and MM/1) 97/4/12

- BEAMS drawn to connect stems in groups 8th and smaller notes
 - o adds another module, Um3B
- Printer options for ForMfeeds and automatic forced margins
- Leading Barline bug removed from Print

At 7, OSK (MM/1) version numbers stopped adding 6 to corresponding CoCo version, and both went to 7.x.x.

SUMMARY of SCORE LEVELS (Middle Digit):

- 8=Beta Clefs, 9=Events, 10=Accents, Labels;
- 11==extra Instrs and Title lines

MISC MINOR FEATURES & BUG FIXES

- 4.9.1 for fixing 2 bugs and separate (and)
- 4.10.1 for no ,Y opcodes
- 4.10.2 for Partsort, Kill
- 5.10.0 SMF .MID files, North eX
- 5.10.1 1st attempt at soowee(); (unreleased)
- 6.10.0 Non-VDG; better Play clock compensation
- 6.10.0A = bug in soowee macros shut down score printing!
- 6.10.0B = adding/killing Part updates partens[]
- 6.10.1 R and L lines commands
- 6.10.2 Plus-parts, filter, & other MM/1 catchup
- 6.10.3 reOrder parts & staves
- 6.10.3A = notesort does Rests right; Patience on clone rests
- 6.10.3B = default Perc synth is "no synth named." and Random Menu's 'f' is one col wider.
- 6.10.3C = Instr Menus show in-use with '+', but no Swaps yet

The original booklet Manual covers Versions 4.4.0 (don't use that one!) and 4.4.1. The newer manual covers through 4.7.0, but is hard to get these days.

This "**ReadMe.Zer**" doc covers improvements made from 4.4.0 thru 4.6.0, regardless of when they were made, but most came in with 4.6.0. For a version by version summary of major changes, see Features.Doc (above) and ReadMe.One (below).

IMPROVEMENTS of Version 4.6.0 over 4.5.0:

MAJOR:

- Percussion Clefs to fit all Synthesizers
- MIDI Clock for Drum Machines, etc.
- Point-n-Shoot file load & store.
- Separate Side-info files available.
- Point-n-Click on some Text menus.

General:

- Parts can hop to different MIDI channels dynamically.
- Notes no longer straddle Barlines.
- Score cursors change to reflect current tool selected.
- Brush cursor really looks like a brush for notes/rests.
- Menu button shapes indicate function.

Setup/Layout Menu:

- Setup Prompts removed (restored in later versions!)
- Rangefinder finds highest and lowest notes per Part.
- LayGo file replaces Staves in CMDS.

New Integrated Files Menu:

- 5 file types -- Score, Instrs, Percussions, MIDI Chans, Vol Levels
- Overwrite question gives file name
- Point n shoot, with type & edit options. No .ext needed.
- "fd" shows non-.ume files only
- Also Save & Load directly from Instrument and Percussion Menus.

Block-Edit Menu:

- Fixup function cleans up barline overhangers & holes

Score ToolBox:

- Simplified toolbox on/off control -- menu bar, clicks.
- Brush Rep can be viewed instantly under cursor.
- POWER TOOLS -- new lower deck. Ignore artics for now.
 - o Insert Barline
 - o Chisel Smasher speeds up writing many notes
 - o Part Copy stamps a pattern of notes anywhere
 - o Join two adjacent note/rests into one

- o Squawker shows current instrument, volume, etc.
- o Note Translator, good for converting Percussion parts

PERCUSSION CLEF and STAVES

A major innovation of UltiMusE-III 4.6.0 is the Percussion Clef, which assigns each line and space of its staff to a known percussion instrument (snare drum, ride cymbal, etc.) regardless of what make or model synthesizer is used. Any synth model can be matched to the Perc Staff by a separate data table similar to the well-known Instruments Patch Number table. Percussion Clef and table files do for percussion sounds what the Instrument Menu and files have done for other instruments. Also Perc Clef notes don't get sharpened or flatted by melody parts on other staves during Play.

So when you download a score arranged for PSS-480 percussion, you no longer have to change every percussion part's notes to match your MT-240 or MT-32 (although our new Note Translator tool makes that much easier). Instead, if the score was created using Percussion Clefs, you simply load your MT32.per file instead of the PSS480.per data that came with the score. All UltiMousers are requested to please start using Percussion Clefs for any new music files!

The Percussion Clef defines 17 slots in its staff -- 5 lines and 4 spaces, plus two ledger lines and space on top and bottom. Each line and space should be used only to play its type of instrument. After much agonizing soul, jazz and rock searching, we have assigned the slots as follows:

LINE/SPACE	SOUND
----	Triangle Open
	Triangle Muted
----	Crash Cymbal
	HiHat Open
-----	HiHat Closed
	Ride Cymbal
-----	Rim Shot
	Snare
-----	High Tom
	Mid Tom
-----	Low Tom
	Bass Drum
-----	Wood Block
	Cow Bell
----	Hand Clap

High Bongo
---- Low Bongo

This covers the most important sounds and assigns them to the inner staff, much like a PSS-480. Odd sounds are farther out on the ledger lines. You might re-assign some of those to other sounds for a certain piece, but please note that in the Title screen for your own sake and others'. Latin or Rap devotees may want to get together and work out an alternative standard. Just tell us what it is.

PERCUSSION TABLES

To set up a Percussion Table for your synth, enter the Instruments Menu and type 'p'. You'll get a sub-menu like the list above, but with a MIDI note number (initially zero) before each sound name. Moving the arrow cursor over the names blackens the selected name. Click on a name to edit its MIDI note number, which you must get from your synth's manual. Not the pitch or staff line/space, but its numeric value sent by MIDI, in Decimal, not Hex. Middle C is 60, the C just below the middle of a Bass staff is 48, and bass C is 36. But remember not to think of a Percussion Staff's lines/spaces as any note or pitch, just their percussion sounds.

If you hit the wrong line, just type ENTER to leave it as is. At any time you can save your table by clicking "Write to File" or typing 'w'. You can read an existing table file and replace your memory data, or just clear it to zeros with the other text buttons. You can type 'w', 'r', or 'c', but percussion sounds must be selected with the mouse (a new first for Umuse3).

At the bottom is the synth make and model name. Click to retype it, or hit ENTER to leave it. It gets saved and reloaded along with the 17 MIDI note values. Perc tables can also be saved and loaded from the new integrated Files Menu. Either way, they always have ".per" extension.

Make a Perc table once for each of your synths, save it, and just reload it each time you create a new piece. The table and synth name are also saved and loaded as part of the score.

SCORING with PERCUSSION STAVES

The Layout Menu now includes Percussion as a 5th clef, shown as two vertical lines. Set up any number of staves with it just like any other Clef. One special rule: When you move a part from one staff to another, or change the clef on a staff, notes are usually

transposed to keep the pitches the same. But since a Perc Clef has no actual pitches, NO translation is done when moving into or out of a Perc-Clef staff. The lines and spaces just stay the same. So do accidentals, although accidentals are IGNORED on a Perc Staff during Play. That includes "accidental" accidentals that "bleed thru" from other parts, a headache that stays away when you use the new Perc Clef.

There's no need to use the old Percussion part types (hollow notes in Layout Menu) on a Perc Staff, but no harm either. Their only function was to protect percussion MIDI pitches from the MIDI-Mode Transposer, which does not affect Perc Clefs either.

CONVERTING OLDER SCORES TO PERCUSSION CLEFS

But those hollow Percussion parts are easy to spot in scores written before Perc Clefs, which makes conversion that much easier. An old score may have about three perc parts, each playing two or three sounds, hopefully no more. First we recommend adding to new staves -- one permanent Perc Clef, and one temporary of the same clef as the old part for working on one part at a time. Shove all the non-perc staves up to the top of the screen for now, and untangle them later when finished.

Move one old perc part to the temporary staff; its line/space slots won't change. Use the Rangefinder to guess how many pitches it's hitting. Now for each separate pitch, find out what percussion sound it played on the synth this score was arranged for, and use the Note Translator (up-down arrow tool on Score Screen) to move that pitch to the slot that sound would use on a Perc Clef. Finding its sound can be tricky if you don't have a manual for the original synth.

When all pitches have been converted, go to Layout and pull the part onto the permanent Perc Clef staff. Play the piece, and listen for the newly converted sounds on your synth. Go back and convert another part. When all are converted, delete the old staff (if no non-perc parts on it) and your temporary staff. Or change it to another Perc Clef if the one looks too messy.

MIDI CLOCK for AUTOMATIC DRUMMERS

By popular demand, we've added MIDI Clock mode to the Play routine.

Along with the usual MIDI music stream, this mixes in a steady series of pulse bytes at the rate of 24 per quarter note. These can synchronize or "slave" a Drum Machine to UltiMusE so that

the automatic drum rhythms follow all changes in Tempo and even double or halve in speed when you hold the Shift or Control keys.

Many home consumer keyboards like the Yamaha PSS-480 include sophisticated rhythm and bass/chord accompaniment sections that can now be controlled directly from UltiMusE. [PSS-480 users, check out Demo488 in SCORES. It selects different rhythm styles and even sets the chords -- be sure to use MIDI Mode 00, External Clock, and Fingered Chord settings.]

Clock is controlled from the MIDI Modes Sub-Menu. To send clock, it must be both enabled by "Clock Enable" and requested by the score as "Use Clock." Click those lines so both boxes show an X. "Clock Enable" is an UltiMusE mode that is saved and restored in your Preferences Init file under the Options Menu. But "Use Clock" is a feature of the score and is saved and loaded with it. Note the title headers on the three sections of the MIDI Modes Menu.

Technically, the MIDI Clock rate of 24 per quarter note is equal to a part filled solid with Triplet 64th notes, the fastest thing UltiMusE-III can play. So far, we notice no slowdown when CLock is on. UltiMusE sends Clock only when playing, and sends a standard MIDI "Start" signal at the beginning and a "Stop" when play ends or is interrupted by BREAK or CTRL-C. Would you like a score object to turn CLock on and off at certain parts of a piece? Let us know.

A *slight bug* -- if you use 'w' (Window Play) and the current screen display doesn't start right on a barline, the rhythm machine will be out of sync with the music. Interesting effects to check out till we fix this.

NEW "POWER" TOOLS

The right-hand side of the Toolbox now has twice as many tools, arranged in two rows. The older ones are in the top row, in their same old order. The new ones underneath are truly "Power Tools" that you shouldn't use without reading further. Here they are, from left to right:

BARLINE INSERTER:

The first is pretty safe -- it just inserts a Barline anywhere, subject to the same note-splitting restrictions as Markers. It looks like a double barline but inserts plain singles. After insertion these can be promoted to other types by clicking with a note/rest brush.

SMASHER:

Next is the Smasher or Chisel icon. You know that inserting a series of 8th or 16th notes over a measure of four quarter rests is slow and distracting, since almost every new note causes a screen refresh. But when you click the Smasher on a rest, whatever size note or rest you had on the Brush Rep is overlaid repeatedly over the rest you click on, until the overwrites would run out of the measure or chip/bomb a Note. The Smasher only overwrites Rests, within its bar.

You can put down rests or notes, and adjust their pitch later. Dots, double-dots, and triplets all work. This should save you lots of time. Just remember to first select the size and type of note/rest as usual before picking up the Chisel. The Chisel's center of action or "hot spot" is at its bottom tip.

PART BLOCK COPY:

The Square is the most powerful of the new tools -- Part Block Copy. Before selecting it, have a block of score set off with Left and Right Markers. When you pick up the Square, you'll be asked to select a Source part to copy from. Click any note/rest in your chosen Source part. The hollow square will turn solid, meaning you can now stamp out copies of the marked-off section. This solid square is a "super brush" that, when clicked over any note/rest in the score, will overwrite that note/rest and following note/rests in that Destination part, replacing them with the section of Source part between the Markers. This "urban renewal" blows away as much of the old Destination as needed to use up the Source between the Markers. New notes are automatically broken up as needed to fit around barlines.

Repeated percussion patterns and bass riffs can be written once and then stamped throughout the score. Even though the notes change, stamp the same rhythm and change the pitches afterwards. Rounds and canons, from "Three Blind Mice" to Pachelbel's "Canon in D" can be written out in just one part, and the other parts stamped out. You can duplicate a part at odd time offsets (like half a beat) from the original, for special effects. Or simply duplicate a whole part, to double it on another instrument or an octave off.

The only restrictions are that the block must fit in the time from where you click to the end of the score, and you can't overlay any portion of the Source Part inside the marked block. Expression items are not copied, but the original ones remain.

Also be aware that PartCopy works by staff lines and spaces, not note pitches, and doesn't translate if you copy to a part on a

staff with a different Clef. To do that, create a temporary staff of the same Clef as the Source, with a temporary part on it; stamp the part block onto that staff, just after the Left Marker. Then change the temporary staff to the same Clef as the destination; this will translate the intermediate copy's notes. Now re-select Part Copy and copy from the temporary part.

Part Copy can take a while to finish. And power is dangerous -- don't leave a Solid Square on your brush, but treat it like a loaded gun.

NOTE JOINER:

Its hot spot is the little center area common to both of the interlinked wedding rings. When clicked on a note/rest, the Joiner tries to make one note/rest of this one plus the next one of the same Part. The note pitch or "rest-ness" of the clicked one takes over. Use Join to clean up unnecessary Ties and fragments of Rests -- like a dotted quarter out of an 8th and a quarter. Join cannot be undone (no Divorce icon), so don't keep it on the Brush when not in use.

SQUAWKER:

The Question Mark is the safest -- does absolutely nothing to the score -- but knowledge is power. Ever try inserting Volume or Instrument expressions in the middle of some long piece, only to wonder what level and instrument are already in force? Or even what part some note belongs to? What channel? Just click the Squawker over any score object (the hot spot is upper center, where the peg would be if it hung on the wall) and a window pops up with the Part, Index, Time, Instruments, MIDI Channel, and individual and General Volumes. If not a note/rest, many of these are omitted.

You may see two Instruments, "says" and "plays." Remember, a MIDI synth can play only one instrument per channel for the same note range. When two or more parts share a channel, the most recent Instrument patch change sent on that channel will cause all parts on the channel to "play" that instrument, regardless of what those parts "say" most recently. We show both, but the Play is what counts. [Any octave-shifting effects of instrument names beginning with '+' or '-' will remain though, even on the new instrument -- a source of useful tricks!]

The '?' is great for browsing thru downloaded scores, and not just for its safety!

NOTE TRANSLATOR:

The hot spot is the upper tip of this double-ended arrow. Use this to find and change all notes in a given part of a certain pitch to another pitch. Optionally only those notes within a marked block will be changed, but if either marker is missing you'll be asked whether to go from the beginning and/or to the end. Once you pick up this tool, grab any note (not rest) of the pitch you want to change, by holding the mouse down and dragging the note to the new pitch. Move left and right to adjust the accidental (sharp, flat, natural, nothing, etc.). When you let go, all notes of that part and pitch within the block will change.

If the note you grabbed is not inside the block, it won't change. If no notes were affected, you'll see a message to that effect. To be changed, notes must match the pitch exactly -- staff position and accidentals. "Nothing" and "Natural" are not the same here. However, size and duration don't matter.

This is useful mostly for converting older percussion parts to work with a different synth's percussion, preferably on the new Percussion Staff.

Be careful not to convert a pitch to another pitch that already includes some notes yet to be converted. It's best to convert one part at a time using a temporary staff, checking the part's note content on the Layout Menu's Rangefinder. Take care while the Note Changer is on the brush.

INTEGRATED FILE SYSTEM and SIDE INFO FILES

All file reading, writing, and saving now uses a standard menu that replaces most file-name typing with point-and-clicking. Four types of "side information" tables can be saved and loaded independently of main score files.

SCORE FILES

Pull down the Files Menu. If you click READ, Umuse3 will open a window ust big enough to show all Score files in the current data directory. That is, all files ending in ".ume" (any mix of upper/lower case letters is OK). *YES, ALL SCORE FILES MUST END IN .UME for Version 4.6.0 to read or even find them!* Time to use "rename" on your stuff? But the ".ume" extent doesn't show in the list.

Moving the mouse over the names will highlight a name in inverse video. If you click over that name, it will be read in. You can also type a name into the small box at the bottom -- useful for a

pathname to a file in another directory. Omit the ".ume" extent; Umuse3 adds it for you.

Your Backspace (<-) and Line-Erase (SHIFT <-) keys work normally. Hit ENTER or click "(Read File)" to load the file. Clicking "(CANCEL)" or anywhere outside the big window returns you to the Files Menu without reading anything. So does hitting ENTER when there's no file name in the little box.

Now try Files Menu WRITE, formerly known as "Save As." Same window and list, with a difference. Clicking a displayed name copies it into the box, but does no more until you hit ENTER or click "(Write File)", or bail out as above. Instead of overwriting an existing file, you'll usually type a new name into the box. But what if you want a new name that's like an old name except for a different version number or letters on the end? Then click that old name into the box and add characters to it, using the Backspace key as needed. Now hit ENTER or click Write. If nothing else, seeing all existing names when Writing shows what names are already in use.

SAVE works as before -- it always writes to the current file name, and bypasses the file-list window.

DIR now opens the window and lists only those files that DON'T have the ".ume" extent. Good for finding subdirectories, and all the side-info files at once. You can't read or write, just return when ready.

APPEND isn't working yet.

TITLE EDIT and FILENAME? havn't changed.

SIDE-INFO FILES:

These are data tables in the Score that can also be saved and loaded separately to customize a score for different equipment setups or tastes.

Instrument names and their patch numbers are the familiar example, but we now handle four types, given with their .extents:

- .ins - Instrument Menu names & patch numbers (same as before)
- .per - Percussion slot MIDI notes numbers and Synth name
- .mid - MIDI Part --> Channel assignments
- .lev - Volume Levels MIDI velocities for ppp - fff

Only the .per table is new, but the MIDI channels and volumes could not be filed separately before 4.6.0.

Use "Instrs etc." to get a new sub-menu with a slide selector for the four side-info types and three buttons for Read, Write, and Dir. From here, everything works just as for Score files, except the selected extension replaces ".ume". Of course your Instrument files must all end in ".ins" now.

The .ins and .per files can also be handled from their own menus, with the same powerful look-point-click-type interface.

NEW EXPRESSION ITEMS

Two new features let you add more interest to your music with less work and memory consumption. You'll find them on the Expressions Menu that pops up whenever you click a score item with the Expression Inserter (up-arrow) tool.

MIDI CHANNEL HOPS

Choose 'c' and a MIDI channel from 1 to 16 to insert a Channel Hop, which will dynamically switch its Part to the given channel when Play gets to it. This is needed to have a voice switch between two different synths, or the normal and percussion channels of one synth. Suppose your lead voice is to play sax in the verses and guitar in the choruses. Your one synth has great sax and lousy guitar; the other synth is the reverse. Now you can have it both ways without using two separate parts. As with Instrument and Volume changes, careful placement around Repeat barlines can get you a different channel on the 2nd time thru, etc.

GENERAL DYNAMICS VOLUME LEVELS

Tired of entering an "mp" or "fff" in front of all eight parts' notes every place that you want a change in volume (MIDI velocity)? This wastes memory and your time, and makes changes much harder.

Now we have General Volumes (Genvols) to make this easy. Like Tempos, they apply to all voices at once. They also display at the top of the score like Tempos, showing the same ppp-fff as partwise volumes. Enter them the same way -- get the up-arrow cursor, click on a note or rest to bring up the Expression Menu, and type 'g' followed by a digit 0 thru 7 or by ENTER to get a refresher menu. If you click on a Genvol and enter a new one, it will replace the old. You can 'X' out a Genvol and 'u' (undo) it back.

Genvols work off the same MIDI Volume Levels Table as the individual parts' dynamics. Each genvol raises or lowers the

overall level by the difference between its table entry and the average of the "mp" and "mf" levels. Example: using "even spacing" the mp and mf (slots 3 and 4) MIDI levels are 55 and 73. Their average is 64. Somewhere in the piece you put a general "ff". Its table entry is 109, so until the next genvol every note's MIDI velocity is increased by $109-64 = 45$. If a "pp" genvol is played every note is softened by a difference of $19-64 = -45$. And so on. All velocities are limited to 1 thru 127, after being further adjusted by the Master Volume, another new feature.

See "OCanada.ume" under your Program Disk's SCORES for a simple example of genvols. Of course not all synths respond to dynamics.

You can also think of a genvol as shifting the reference point of all individual volumes. If you begin a piece with a genvol "p", then every individual "mf" means "a little louder than p" and every "mp" is "a little softer than p" and so on.

Use the old individual part volumes to accent one voice over another and to set and change the balance between lead solo parts and 'comp backgrounds. But usually when the solo voices swell and fade, the background can go up and down with them, so Genvols are effective.

MASTER VOLUME

This is not a Score Item, but a performance setting on the MIDI Modes Sub-Menu. It isn't even saved along with the score, but is best described here with General Volumes. MIDI "Volumaster" velocity level offset (master volume) is like a Transpose but for loudness. Its value (-127 to 127) is added to whatever MIDI note-on velocity each note would naturally have, and the result limited to 1 thru 127. Use this to boost or cut the overall loudness of a piece. Note that setting 127 will make every note play at full volume regardless of expression, and -127 at minimum volume. Like the Transpose, Volumaster is NOT saved with a score file nor the Um3.Init options file.

MENU IMPROVEMENTS

In general the menus are much easier to use than in the Manual. All menus can be exited with a Mouse Click or an ENTER. New convenience features include:

- Slide Selectors choose one of several alternatives;
- Check-Boxes that toggle and indicate on/off modes;
- Fill-in-the-Blanks for numeric quantities like Transpose.

SCREEN-COLORS SUBMENU

A Slide selector lets you edit Fore or Background. Check-boxes toggle the RGB and rgb primary colors. Unlike most other Umuse3 menus, this one does not update the colors unless you explicitly punch the "OK, Keep" button. This lets you "panic" out of this menu by hitting ENTER or clicking outside it, either of which you can easily do "blind" if you somehow set Foreground = Background!

MIDI MODES SUB-MENU and /MIDI DRIVERS

The built-in Play routine now supports any /MIDI device driver directly, without loading any special alternate Play routine. Control of this and other MIDI "modes" (other than channel assignments) has been moved to a Modes Sub-Menu with three sections.

The first section lets you toggle the three output ports -- Coco serial, MIDI-Pak, or /MIDI custom device driver. Any combination is legal, except MIDI-Pak and /MIDI can't both be on at once.

Section 2 controls several Enable switches plus performance parameters that aren't saved with the Score, such as Transpose. The enables determine whether certain info in the score is sent to the synth.

The third section is like the second but its quantities and enables are part of the Score file. Both sections control the new MIDI CLock.

MISCELLANEOUS IMPROVEMENTS

PREFERENCES INIT FILE

As of Version 4.6.0, the /DD/IMAGES/Um3.Init file initializes your custom settings of screen colors, Hi-Res Mouse adapter usage, three MIDI output ports, File Read-Only mode, printer type, Instrument-Change enable, and MIDI Clock Enable.

SETUP LAYOUT PROMPTS

The old text-only questions that nursed you thru setting up a new score's parts and staves have been deleted to save memory space. The graphics Setup/Layout Screen is easy to use, especially if you read the now-obsolete Manual section on the Prompts as a guide to making decisions when using the Screen.

NO MORE BARLINE STRADDLERS; FIXUP

Umuse3 no longer lets notes or rests stretch in time over the barline into the next measure. Instead, any attempt to insert these (by you directly, or by Part Copy) is automatically broken into the right amount of note/rests on both sides of the bar, all Tied together.

Older scores with straddlers can be fixed with the new "Fixup" button on the Blocks Menu. If in doubt, run it from beginning to end on each part in the score.

SCORE SCREEN -- TOOLBOX and CURSORS

The mouse cursor now changes to show exactly what tool is on your Brush. An artist's paintbrush means any Note/Rest; quick-click on nothing to briefly flash the full Brush Rep and see the note/rest type. The old arrow cursor is no longer used in the Score Screen.

Toolbox control is simpler.

It and the Brush Rep can be toggled on/off from the top Menu Bar. All the "positive" actions in the Manual still work, but the "negatives" for getting rid of the Toolbox are now short and sweet -- a quick click on the Brush Rep while it's joined to the Toolbox removes both of them from the screen at once. Double-clicking on nothing still restores the Rep out of nowhere or breaks it loose from the Toolbox. Dragging works as before.

Really nice is a single quick click on nothing; this momentarily flashes the Brush Rep at the cursor position, whether it was anywhere on the screen or not. Good for doing lots of "note pickup" adjustments with the Toolbox off. Note that a successful pickup blinks the paintbrush cursor off for a moment, but does not flash the Rep -- a Rep flash means you hit nothing.

REALLY MISCELLANEOUS:

Ties now carry accidentals over barlines, as in written sheet music. Delete this from the manual's "Known Bugs" section.

MIDI "running status" reduces the data rate to your synths, by not repeating the "note on" command when turning on or off more than

one note on the same channel. To get the most benefit (and make your scores more readable), assign parts with the same instrument (like three-part chords) to the same MIDI channel.

Umuse3 now warns you at startup if GrfDrv is not in memory or on your current CMDS directory. Unlike 4.4.1 you can keep it in your Umuse3 CMDS directory and not have to pre-LOAD it.

The left and right arrows in the bottom corners, which move the view a full screen's worth, are now duplicated at the top also.

Button icons in pushbutton menus have different shapes to reflect their functions. Rounded at both ends is a button that does an immediate action. Square ends imply a dialog box will pop up. A right-pointing arrow shape leads to a full-blown submenu. Hexagonal ends simply put a different tool on the cursor, as in the Setup/Layout Menu.

HINTS AND SUGGESTIONS

The middle number of any Umuse version is its Score Level, so Version 4.6.0 makes Level 6 scores, which include a Percussion Table, Percussion Synth Name, and MIDI Clock usage switch, all lacking in Level 5 scores. Level 5's only difference from Level 4 is General Volumes. Level 5 scores will display and play fine on earlier Umuse versions except of course the general dynamic expressions won't be seen or heard. Early shareware versions may blank out the screen on gen vols, but will play.

The supplied Score Disk files may include Level 4 or 5 that will give a warning box when first loaded. Just Save each one back out (to your BACKUP disk) to end this nuisance.

If a old piece plays at "warp speed," make sure there is a Time Signature at the beginning. If not, get a Note on the brush and click just to the right of the leftmost Barline to get the Barline Menu; hit '/' to enter the two numbers. The old ShareWare Umuses let you enter pieces without time signatures; the new Setup Menu tries not to let you make this mistake.

You can play from inside the top MIDI Menu to check modes, levels, values, and channel assignments. But remember, channel assignments don't actually change unless you hit "Update" or exit clear back to the score screen. This is for your own safety if you mess up channels, but it's had me tearing out synth cables more than once!

If you run out of memory in a large score, none of your other OS9 windows will work -- even "unlink whatever" to free up space gets a #207 error. You've run out of office forms to order more forms with. Save your score, or Write to a new file; then read a small one or create a new one with nothing but a 4/4 Time Signature (easy). Now you use windows or our '9' Shell menu to UNLINK modules from memory. Then reread your big piece and go back to work. DO NOT try to Change Directory in Umuse3 until memory has been freed, or the failed PWD command that Umuse3 first runs may lock up Umuse3 so you must BREAK and Quit, losing your work.

<END of **ReadMe.Zer**>

Readme.One Installation and Versions 4.4.1 thru 4.7.2

SETUP/INSTALLATION for all version 4.6.2 and above:

What you need from our Umuse3 (UltiMusE-III) System Disk:

SYS Directory:

This replaces and eliminates the old IMAGES directory. Now there are only two files. If you have an earlier version of Umuse3, you can delete the IMAGES directory, but first copy your Um3.Init file (if any) to SYS on your working-copy disks.

CMDS Directory:

You need all the files in the CMDS directory to run Umuse3, except for UBox3 (the "JukeBox") and MIDI.dddr (used only to run a non-standard hardware MIDI interface).

You must have GrfDrv and PWD available when running Umuse3 or UBox3. Either LOAD them into memory right after booting OS9, or copy them to the CMDS of your Umuse3 working disk from your OS9 boot disk's CMDS directory and then forget about them.

UBox3 is the latest "Juke Box" program. It is "freeware" that you may give away. Run it in an 80x24 Text OS9-Level-2 Window, *not* the 32x16 VDG screen used for UltiMusE-III.

To get such a window, type:

```
shell i=/w7&
```

Now hit CLEAR to get into that window. There type:

```
ubox3
```

No mouse is used with UBox3.

BOOT:

Besides TERM and VDGInt, your OS9 Boot must also have GrfInt (or WindInt) plus at least one Window descriptor (/W1, etc.) beyond any that you have opened. Also GrfDrv must be LOADED or in your current CMDS directory when starting Umuse3. But DON'T put GrfDrv in your Boot!

If you use a /MIDI driver and descriptor, install them in your Boot for best results. It's handy to always be able to say at any time

```
display xx xx ... xx >/MIDI
```

to adjust a synth's parameters. The driver software should be written to transfer multiple bytes (up to 256) at a time for smoothest play.

<end setup/install>

-----version.450-----

Version 4.5.0 December 03, 1989

The original Manual covers up to Version 4.4.1. This *Update Addendum* covers improvements made in 4.5.0. If you've been using any Version 3.x.x, here are the major changes at a glance:

IMPROVEMENTS of 4.4.1 over 3.3.0 thru 3.4.1d:

- 32,767 score objects (notes, etc.)
- Menus mostly point and click
- Score no longer creeps to the right when editing
- Instrument (Patch) Changes can be disabled from the MIDI Menu, under "Midi ports." Your Preferences Init file holds your desired startup value (on/off).

Now for Version 4.5.0's improvements over 4.4.1, with instructions on using them:

"General Volume Levels" make entering loud/soft expression dynamics much easier. See the separate section below for details.

Ties now carry accidentals over barlines, as in written sheet music. Delete this from the manual's "Known Bugs" section.

MIDI "running status" reduces the data rate to your synths, by not repeating the "note on" command when turning on or off more than one note on the same channel. To get the most benefit (and make your scores more readable), assign parts with the same instrument (like three-part chords) to the same MIDI channel.

Umuse3 now warns you at startup if *GrfDrv* is not in memory or on your current CMDS directory. You must keep it in your Umuse3 CMDS directory but need not pre-LOAD it.

All Menus can be exited with a Mouse Click.

Menus are much more convenient with some New Items:

- Slide Selectors choose one of several alternatives;
- Check-Boxes that toggle and indicate on/off modes;

- Fill-in-the-Blanks for variable quantities like Transpose.

Improved Menus:

Startup and Files Menus -- Read-only is a Check-box.

Options Menu:

- Check Boxes for Compact display and Trace playing.
- Printer Sub-menu uses Slide selectors.
- Screen Colors Sub-menu
 - o Slide selector for Fore & Background
 - o Check-boxes for the RGB primary colors. Colors don't update if you "panic" out of this menu by hitting ENTER or clicking outside it; this saves you if you get foreground = background! You must hit the "OK, Keep" to make changes stick.

MIDI Menu:

- Modes now have their own Sub-menu
 - o Check-boxes for on/off modes including /MIDI device output and MIDI "events."
 - o Fill-ins for numeric quantities, including old Transpose and Seconds/Minute, plus new Volumaster.

MIDI "Volumaster" velocity level offset (master volume) is like a Transpose but for loudness. Its value (-127 to 127) is added to whatever MIDI note-on velocity each note would naturally have, and the result limited to 1 thru 127. Use this to boost or cut the overall loudness of a piece. Note that setting 127 will make every note play at full volume regardless of expression, and -127 at minimum volume. Like the Transpose, Volumaster is NOT saved with a score file nor the Um3.Init options file.

<end of improvements>

GENERAL DYNAMICS -- VOLUME LEVELS

Tired of entering an "mp" or "fff" in front of all eight parts' notes every place that you want a change in volume (MIDI velocity)? This wastes memory and your time, and makes changes much harder.

Now we have General Volumes (**Genvols**) to make this easy. Like Tempos, they apply to all voices at once. They also display at the top of the score like Tempos, showing the same ppp-fff as partwise volumes. Enter them the same way -- get the up-arrow cursor, click on a note or rest to bring up the Expression Menu, and type 'g' followed by a digit 0 thru 7 or by ENTER to get a refresher menu. If you click on a Genvol and enter a new one, it will replace the old. You can 'X' out a Genvol and 'u' (undo) it back.

Genvols work off the same MIDI Volume Levels Table as the individual parts' dynamics. Each genvol raises or lowers the overall level by the difference between its table entry and the average of the "mp" and "mf" levels. Example: using "even spacing" the mp and mf (slots 3 and 4) MIDI levels are 55 and 73. Their average is 64. Somewhere in the piece you put a general "ff". Its table entry is 109, so the MIDI velocity of every note following that "ff" is increased by $109-64 = 45$. If a "pp" genvol is later encountered, it overrides the previous genvol and every note is softened by a difference of $19-64 = -45$. And so on. All velocities are limited to 1 thru 127, after being further adjusted by the Master Volume, another new feature.

You can also think of a genvol as shifting the reference point of all individual volumes. If you begin a piece with a genvol "p", then every individual "mf" means "a little louder than p" and every "mp" is "a little softer than p" and so on.

Use the old individual part volumes to accent one voice over another and to set and change the balance between lead solo parts and 'comp backgrounds. But usually when the solo voices swell and fade, the background can go up and down with them, so Genvols are effective.

<end of genvols>

HINTS AND SUGGESTIONS:

The middle number of any Umuse version is its Score Level, so this Version 4.5.0 makes Level 5 scores. Their only difference from Level 4 is they may contain General Volumes. Level 5 scores will display and play fine on earlier Umuse versions except of course the general dynamic expressions won't be seen or heard. Early shareware versions may blank out the screen on genvols.

If a old piece plays at "warp speed," make sure there is a Time Signature at the beginning. If not, get a Note on the brush and click just to the right of the leftmost Barline to get the Barline Menu; hit '/' to enter the two numbers. The old ShareWare Umuses let you enter pieces without time signatures; the new Setup Menu tries not to let you make this mistake.

You can play from inside the top MIDI Menu to check modes, levels, values, and channel assignments. But remember, channel assignments don't actually change unless you hit "Update" or exit clear back to the score screen. This is for your own safety if you mess up channels, but it's had me tearing out synth cables more than once!

<end version 4.5.0>

For Version 4.6.0's major additions, see ReadMe.Zer file.

-----version.462-----

Installation is simpler; disregard the IMAGES stuff in manual, and replace with instructions below.

BUGS FIXED in 4.6.2 from 4.6.0:

- Starting up by typing "umuse3 SCOREFILE" now works, where SCOREFILE is any real music file name. 4.6.0 broke this.
- Saving the score when you quit now works again; 4.6.0 broke it.
- Part-Copy sometimes copied only the first note.
- Play didn't always handle "triplet" time signatures (6/8 etc.) properly. This was an old bug, not a new 4.6.0 special!

IMPROVEMENTS in 4.6.2 over 4.6.0:

- More Printer types supported: Gemini 10X and Epson compatibles can print either narrow (much like the screen) or wide, on the same printer.
- No more IMAGES directory with its dozen .img files. Only two files are needed now -- chars.img and allUm3.img, and these must be put in the SYS directory of any disk from which you'll start UltiMusE. Most OS9 working disks already have SYS. This makes for easier installation, less clutter, and MUCH FASTER STARTUP of UltiMusE-III. If you already have an older Umuse3 working disk, copy its
- IMAGES/Um3.Init file to SYS/Um3.Init, since this "preferences" file now goes under SYS too.
- You may now plug your mouse or joystick directly into either the Left or Right port, or the Hi-Res Adapter into either port. (Used to be that Hi-Res went in the Right port, direct to the Left.) The Options Menu now lets you choose both port and resolution. You may need to use the keyboard when making changes. If you have no mouse control when you start up, hit ENTER to get the blank Score Screen, then 'o' for the Options Menu, where you hit the 'h' and 'l' keys as needed to toggle the mouse modes. Then use 'f' to save
- the new options.
- You can now use 'c' or 'h' in the Files Menu to change to another directory without waiting for the present dir to be

looked up. To get the PWD (and a chance to change it), type 'p' or click on "Present dir".

- If you're running another task from another window and not playing music with UltiMusE for a while, you can speed up the other task by putting Umuse to sleep. Just flip to another window. Umuse will consume no machine cycles until you wake it up by returning to its window.
- When you quick-click over nothing in the Score Screen, the Brush Rep flashes to show you what's on the Brush -- but now only if you have a Note/Rest or the Chisel Smasher on the brush.
- Please remember to use the new Percussion Clef for all new percussion parts. And upload your masterpieces. Thanks.

-----version 4.7.0-----

BUGS FIXED in 4.7.X from 4.6.0:

- Starting up by typing "umuse3 SCOREFILE" now works, where SCOREFILE is any real music file name. 4.6.0 broke this.
- Saving the score when you quit now works again; 4.6.0 broke it.
- Part-Copy sometimes copied only the first note.
- Play didn't always handle "triplet" time signatures (6/8 etc.) properly. An old bug.
- Tied note before a Tacetized or Cleared measure no longer keeps on sounding (old bug).
- "FD" command gave funny report for "No such files found."

IMPROVEMENTS in 4.7.0 over 4.6.0:

- Note Articulations -- Staccato, Marcato, Legato for crisper playing.
- Continous Printing of Full Score
- Automatic Crescendo and Diminuendo
- MIDI Clock can be turned on and off within score anywhere
- Improved Search Goto commands
- Setup Prompts are back!
- Transpose Value is saved and read with score, and the UBox3 Jukebox uses it.

NOTE ARTICULATIONS

Staccato, Marcato, Legato for crisper, more expressive playing. You can pick up the Tools in the lower cetner of the Toolbox and click them over notes to turn the "Artic" on or off for that note.

The curved item (like a Tie) is Legato -- smooth, full-length note play as in earlier versions; the default. The dash is Marcato, meaning leave a little breath space after the note. Good for marches, rock, and the end of any musical phrase. Dot is Staccato, meaning half the note value. The little circle means to cancel whatever Artic is showing on a note. It will also cancel Ties. It doesn't show on the note afterwards.

Clicking any Artic tool on a note that already has that Artic set will toggle it Off. Next click turns it back On, etc.

Any note with no Artic keeps the same Artic as the most recently played note of that part, except for Ties. The "squawker" ? tool shows what Artic any note will play.

CRESCENDO/DIMINUENDO

These give you a smooth transition from loud to soft or the reverse. They are part of the "general volume" expression and affect all parts equally.

A cresc/dim item has two values -- the target volume level, given 0-7 but showing as ppp-fff just like a GenVol -- and the number of beats it will take to get to that level, where a beat is the 2nd number of the current Time Signature, unless it's a "triplet" type like 6/8 or 9/16, where a beat is 3 such note times.

Insert a cresc/dim just like a Genvol with the up-arrow tool, with the level number 0-7. You'll be asked for the number of beats, which will be limited to 1-99 no matter what you type.

Whether you type '<' or '>' is up to you, but both work exactly the same when playing. A cresc/dim always starts from the current general volume playing when it was hit, and figures whether to go up or down to reach the given target level. If the target is 4 (mf), the music may get louder (if it was mp or less) or softer (if it was f-fff).

If another cresc/dim is hit while one was still working, the new one takes over at whatever volume the old had reached, and the old one is terminated. Hitting a regular GenVol also ends the cresc/dim and instantly goes to the new volume.

Cresc/dims are best for making volume dynamics smooth and less jerky, so your music sounds less like a machine. Also handy for fade-outs at the end of pop songs, where a couple bars just keep repeating but fade away. See "California Girls" score. Drum rolls are great with fast cresc/dims of 4 beats or less.

Accelerando/Ritard does for Tempo what Cresc/Dim does for loudness.

NEW SEARCH COMMANDS and FEATURES

New "whats" added to find new items, and some old ones we overlooked:

- a any Articulated note (other than Tied)
- _ any Tied note
- p# any note or rest of part # 0-9, a-g
- P# like p# but must be a Note, not Rest
- < any Crescendo or Diminuendo
- > ditto
- r any Accelerando or Ritard
- c any Clock on or off (Was any MIDI Channel Hop)
- m any MIDI Channel Hop (was 'c')
- : any Repeat
- d any DC, DS, with or without repeats

The p and P are for finding where a voice plays, when it plays only in a few places in a large score. P ignores the Rests.

You can now add a number after many search characters to limit the search to only those items with the same value. Example: "g+i" finds the next Instrument change to the right of the screen, but "g+i4" finds the next I4 or change to instrument #4. You can add numbers to i, g, v, m, <, r, and t -- and of course p and P, which aren't worth much without a number.

For any expression item applied to a particular part (voice), namely i, v, and m, you can also add on 'p' or 'P' followed by a part number or letter. To find where part 14 gets switched to instrument 12, type "gi12p14" or "gi12pe".

To find the 3rd place from the screen where that happens, "g+3i12p14".

CONTINUOUS SCORE PRINTING

Print your entire score while you duck out for pizza.

Hit 'h' or Hard Copy under the Random Menu.

This will print the entire score, or the portion between [and] (the brackets themselves are not printed).

You can abort at any time by hitting 'q', but the program will finish printing the present screen, so be patient.

If you answer "N" to "Really want to Print?", it will just display each line of music on the screen as it would be printed, to "preview" the breakdown into lines. It's fun to watch the stretching and compression.

The first page includes the file name and 4-line Title block. All pages are numbered, and the folds between sheets are skipped. Be sure to position the paper with a fold crease just below the print head before starting.

Umuse3 tries not to split any measures, or split them in the middle if possible.

<end 4.7.0>

-----version 4.7.1-----

Extra Notes for 4.7.1

SLICING NOTES PERMITTED

Markers cannot be inserted where they would slice into the time duration of a note or rest. This can be a pain when trying to set up a [block] for Part Copy.

It's now legal to insert a Barline (the || tool in Toolbox) anywhere. If it would slice, you're asked whether you want to insert it anyway; if you answer Y, the barline is inserted and notes/rests are automatically split up and tied over the new barline. Now you can insert markers or other items onto the barline, and delete the barline if no longer needed.

NO MORE OIL SPILLS

A bug duet in the C Library and OS-9's memory management sometimes caused graphic junk to smear the top of the screen when large menus popped up. I wrote my own memory allocator and bypassed the bug for sure this time.

SAFE PRINTER ABORTS

Another OS-9 "feature" broke Umuse3 when you used BREAK to abort a score printing run, even a Preview. You now may hit 'q' to stop the printing after the current screen. Previews are controlled by a Yes/No box.

<end 4.7.1>

-----version 4.7.2-----

IMPROVEMENTS for Version 4.7.2

ARROW KEYS ADJUST NOTE SIZES:

To speed up inputting and editing of scores, you may now change the type of note/rest on your "brush" without going down to the Toolbox palette every time.

Often you just want the next larger or smaller note than what's on the brush. For this just use the arrow keys. Left and right arrows change the size of the note/rest by one step in the palette. If you run off either end of the range, it wraps around to the other extreme.

Likewise the up and down-arrow keys move you thru the "dur-mod" options of dotted, double-dotted, triplet, and straight. These also wrap around. Remember that with extreme note sizes (double, 32nd, and 64th) you aren't allowed all the options, and may be able to reach allowed ones from only one "direction" up or down.

Both ENTER and the numeral '0' toggle between Note and Rest of the current size and durmod. So, with your non-mouse hand positioned over the arrow keys, you can now enter and edit music without taking your eyes off the flow of the music voice you're concentrating on.

OTHER KEYS SET NOTE SIZES:

Sometimes it may be quicker to hit one key for the size note you want.

Owners of numeric keypads will like these new key actions:

- 1 -- Whole note
- 2 -- Half note
- 3 -- adds Triplet to existing note
- 4 -- Quarter note
- 5 -- 32nd note (think 2⁵)
- 6 -- 16th note (say "SIXteenth")
- 7 -- 64th note (might as well use the key)
- 8 -- 8th note
- 9 -- (escape to OS-9 Shell as before)
- 0 -- flip between Note and Rest of same size

ENTER -- same as 0.

. -- add Dotted to existing note. (No quick way for rare Double-dotted).

SPACE -- cancels Dotted or Triplet, makes straight note

All the above and the Arrow keys will briefly flash the Brush Rep over the mouse cursor to show what you got. Also these keys work no matter what your current Cursor or Brush is; Umuse3 remembers your last note size. They work only in the main score screen, not inside menus. And they don't affect your score, just your Brush.

<end 4.7.2>

<end Readme.One>

Readme.Two Version 4.7.5 thru 4.9.0

----version 4.7.5-----

Improvements to Version 4.7.5 91/09/29

1. Transpose scores to new keys
2. Individual enable/disable of each Part and each MIDI Channel
3. User-set upper & lower limits on MIDI Note Numbers
4. Automatic "Sleep" when you view another Window
5. Playing more accurate, never loses time

BUGS FIXED IN 4.7.5

1. Tempos greater than 127 no longer show as Zero
2. Bell "beep" sounds correctly
3. No more Tied notes from nowhere

BUGS FIXED IN 4.7.5B:

1. Play no longer crashes 1-Meg systems.
2. Umuse3 now works with unmodified Shell+ 2.1.
3. File writes should be a little faster.
4. Right edge of screen should be easier to click on with mouse to move a full screen to right, even without the Hi-Res mouse adapter.

NEW FEATURES and How to Use:

Individual enable/disable of each Part, and each MIDI Channel

Individual Parts (or Voices) can now be turned off, to make it easier to check the other parts, for multi-track recording, or play-alongs.

Likewise each MIDI Channel can also be turned off, meaning any part currently assigned to it will not sound. This is handy for shutting up a given synthesizer in a multi-synth setup, or silencing all the percussion parts (usually all on channel 10 or 16), or hearing nothing but percussion.

To use these new features, go to the MIDI Menu to see the new plus '+' and minus '-' signs before the Part and Channel numbers. Plus means that part or channel is turned on.

To turn a Part on or off, type the Part's number or letter just as if assigning it to a new MIDI channel, but after the --> prompt type '+' or '-' instead of a channel number. To turn a Channel on or off, type the '+' or '-' first and then the Channel number.

Typing 't' for Tutti ("all") lets you turn on all the parts and/or channels, and 'q' for Quiet lets you turn all off.

When you first read a score or create a new one, all Parts used are initialized on, as is each Channel with at least one Part assigned to it. Since Part and Channel enabling is just how you're currently playing, it is **not** saved or restored along with the score file. It does not affect the score displays.

Transpose scores to new keys

You can now transpose all or part of a score to any new key. Unlike the MIDI playing transpose that just shifts the played pitches up or down, this new feature really rewrites the score in the new key, moving the notes up or down on their staves and changing the key signatures.

To transpose the entire score, first use the "g[" and "g]" search commands to make sure you have no Left or Right Markers. Then from the BLock Menu click on Transpose or hit 't'. You'll be asked "How many Semitones" up or down to move the notes; type a minus sign before the number to move down. Semitones count both white and black piano keys between the old and new keynotes, so to go from key of C to E-flat is 3 semitones, from C to E is 4, from C to G is 7 (or down -5).

Umuse3 will figure the new key signature and adjust all the accidentals (sharps, flats) correctly. Any key signatures already in the piece will be corrected; if your piece started in E-flat (3 flats) and went to A-flat (4 flats) halfway through, and you transpose it up 4 semitones, then it will now start in G (one sharp) and change later to C (nothing). You'll be asked whether to use 6 flats (Gb) or 6 sharps (F#) if either of these equivalent keys turns up.

If you use a marked block with [and/or], only the inside portion of the score gets transposed. A new key signature is inserted at the [, and the original signature is re-inserted after the].

CAUTION: If transposing would move any note more than 15 lines and spaces from the centerline of its staff, that note gets pulled back an octave to keep it in range, so its part might play the way most people sing "And the rockets' red glare..." Use the Layout Menu's Range command to check for possible problems before transposing by large amounts.

To test whether any notes got pulled back in a Transpose, without listening to the whole piece, try this: After transposing, transpose the piece right back to the original key, using the negative of the number of semitones you first used. Now save the restored piece under a new name. Then use the OS9 shell escape (type '9') window to run `cmp original.ume original.transp.ume` or whatever you called the scores, to check for any changed bytes. (Make sure the original has already been upgraded to current score level 7, or you'll get lots of false differences.) If "cmp" shows no differences, then you know you can re-do the transpose and keep it.

Upper & Lower Limits on MIDI Note Numbers

The MIDI Modes submenu now lets you type 'n' or 'x' to adjust the minimum and maximum note numbers that will be sent to any synth during MIDI play. Note numbers out of this range will be "folded" (pulled back) into range by an offset of 12, or one chromatic octave, or more octaves if needed.

Do you need this? Most synthesizers receive and recognize all MIDI note numbers in the range 1 thru 127, and do the folding themselves to get notes they can actually play. However, some synths (like the excellent Yamaha PSS-480) simply ignore notes below 25 or 12 and just drop deep bass notes. Check your synth's MIDI Implementation Chart under "Note On: RECOGNIZED" and set the new Min and Max Limits to be at least inside those numbers. Actually you could set them to equal the PLAYED limits listed in the Chart without affecting the sound. Normally you shouldn't even touch the limits unless you suspect notes are being dropped.

But even if your synth works fine with all notes, you may want to restrict the deep bass or extreme treble just because your cassette recorder or speakers can't handle the extremes. Also you can turn a block-chord chorale piece like "O Canada" into accompaniment chords by setting ridiculous limits of one octave (min and max only 12 apart) around Middle C, or about 55 thru 68.

These limits are not part of a score, but are part of your system setup, so they are saved and restored with your default preferences in the SYS/Um3.Init file. If your Init file does not yet exist or is a previous version, the built-in default values are 13 and 108.

Automatic "Sleep" when you view another Window

Umuse3 automatically puts itself to sleep (unless playing or reading or writing files) whenever a different window is showing

on your monitor. This keeps it from hogging processor power while not interacting with you. The earlier "Zzzzzz" command and its Dune quote are gone.

Playing Timing Doesn't Lose Time

Pieces with many voice parts used to gradually lose time and fall farther and farther behind a strict time accounting such as maintained by a commercial MIDI recording sequencer. A professional recording studio noticed this. Umuse3 now peeks at the OS9 system timer to detect whenever it's slipped a clock tick or two, and compensates for it. Even without a MIDI sequencer, your ears may notice better playing of percussion patterns.

BUGS FIXED

Tempos greater than 127 no longer show as Zero. We apologize to any users who got the idea from this bug that Umuse3 only takes tempos up to 127, when the real top limit is about 240. Tempos above 127 played and saved perfectly, but displayed as 0.

Bell "beep" now sounds whenever it's supposed to.

Notes freshly created over rests no longer start out Tied. This same problem with Smashed rests and notes is also fixed.

-----version 4.8.0-----

Changes to upgraded UltiMusE-III version 4.8.0: (92/02/11)

Alto and Tenor Clefs added, for Viola and some Cello and some Trombone parts in classical scores. Check out the Clefs palette in the Layout Menu. They look like "Betas" centered on the middle staff line (Alto) or the 2nd line from the top (Tenor). The line each is centered on is the position of Middle C in its staff.

In pitch, these new clefs are just one note above and below our "Guitenor" or "Ottava" clef (the Treble clef with '8' under). You shouldn't use them unless they're in sheet music you're copying, or you're scoring for Viola or a trombone part that was well above the Bass-clef staff.

Our Tenor clef includes a line beneath for you to align with the bottom line of any existing staff that you're trying to convert to Tenor clef.

The Alto clef is centered just as it looks.

WARNING: -- any Level 8 score (.ume) file using these clefs will not play properly on any earlier version of UltiMusE.

YOU MUST UPDATE your SYS/AllUm3.img file to use version 4.8.0!

-----version 4.9.0-----

93/4/29, from 9/92

MAJOR FEATURES New to UmuseK 10.9.0 and Umuse3 4.9.0

1. MIDI Events -- send any desired byte sequence to your synths --pedals, volumes, SysEx, big CASIO Sound Bank switches.
2. Hard Copy Printing, both single screen dump (Ctrl-C) and full scores, now provided in the MM/1 version.
3. All Menus now under Mouse Control -- less typing required. Especially the MIDI, INSTRS, and Expression (^) menus! New sub-menus for Expression volume levels, Instrs, etc.

Miscellaneous small improvements:

1. Can QUIT from Files menu.
2. Hit the < and > keys (Shifted) to scroll Left & Right.
3. "Brush" note cursor calls up Barline or Expression menus when clicked on a barline or expression item.
4. next Play is always at normal default 'd' speed. MM/1)
5. OSK Shell Escape window (hit '9') is true KWin overlay. (MM/1)

MIDI EVENTS -- Details of New Feature

The MIDI Standard allows many kinds of commands and data to be sent to a synthesizer. An UltiMusE "Event" is any such command that is not already covered by some more convenient or natural method. (You don't need events to play notes or change instruments in Umuse, but you *can* do these with Events just to see how they work.)

Any MIDI command or event starts with a command or "Status" byte whose MSB (most significant bit) is set to 1, that is, a byte ranging from Hex 80 up to FF, or decimal 128 thru 255.

This may be followed by a few "Data" bytes whose MSB must not be set, thus ranging from Hex 00 to 7F or decimal 0 to 127.

HEX NOTATION:

All synthesizer manuals and MIDI books use Hex notation, and so does Umuse, so we'll stick to it here. A Byte represents 8 binary bits of data, each bit being 1 or 0. The right-hand, least

significant 4 bits are the "low nybble" and the left-hand most significant 4 bits are the "high nybble." In Hex notation a byte is written as two characters, one for each nybble. Each character is from 0-9 or A-F, where A-F mean 10 thru 15.

MIDI conveniently divides the functions of a byte between the two nybbles.

EVENTS:

MIDI Events are of two types: Partwise ("Channel"), and System. System events start with a Status byte of F0 thru FF, and affect all channels on all synthesizers connected. The low nybble tells what the command means to do.

Partwise events' status bytes range from 80 thru EF. A Partwise high nybble tells what the command is to do, and the low nybble is the MIDI Channel to be affected. Note that this nybble goes from 0 to F or decimal 0 to 15, so mentally add 1 to get human channel numbers 1 thru 16.

Normally Umuse automatically fills in the channel number belonging to the Part you assigned the event to.

Here's what the commands do, where 'n' means Channel Number. Keep in mind the neat high-low nybble split. (Commands in (parentheses) were already available in Umuse by easier means.)

Status	Data1	Data2	
-----	-----	-----	
(8n)	note	velo	(Turn a note off)
(9n)	note	velo	(Turn a note on)
An	keypressure		Polyphonic key pressure (after-touch)
Bn	ctrl_no	value	Change a given control to new value
(Cn)	instr		(Change instr. patch on channel n)
Dn	pressure		Channel pressure "Monophonic aftertouch"
En	HiVal	LoVal	Pitch-Bend wheel or joystick
F0	MfgrID	lots more.	System Exclusive message begins
F1	message		Quarter-Frame message
F2	HiPos	LoPos	Song-Position Pointer for sequencer
F3	SongNo		Song Select for sequencer
F4	not used		
F5	not used		
F6			Please Tune Yourself
F7			End of System Exclusive message
(F8)			(Timing CLock tick)

F9	not used	
(FA)		(Start sequencer, drum machine, etc.)
FB		Continue sequencer, drum machine
FC		Stop the sequencer
FD	not used	
FE		Active Sensing ("I'm alive")
FF		System Reset (not advised)

HOW TO ENTER EVENTS IN SCORES:

Use the up-arrow cursor from the Toolbox, the same as for Instruments, Volumes, and other Expression items. Click it on any score item you want to insert an Event ahead of; this pops up the Expression Menu as usual. Mouse the black bar over either of the Event entries (they work the same) and click, or type 'e'.

You'll be prompted to type in the bytes, in Hex. Do that and hit ENTER. Separate the bytes with spaces. You may omit leading 0 high nybbles.

If you entered a single command, of no more than 4 bytes, Umuse will check your entry for some errors -- the first nybble must be 8 thru F, and the number of data bytes must agree with the table above. Umuse will fix these errors for you, except where you gave too few data bytes; then Umuse warns you to come back and re-enter the event.

You should enter only one command per event-item at first, till you get some experience. But you may type any number of Hex bytes, up to 255, into one Event item in the score. If so, you are responsible for getting the numbers of data bytes right. Synths are supposed to recover quickly from mismatches, fortunately.

Long events are handy for combining several related Partwise events, but are absolutely necessary for "System Exclusive" messages. For example, the notorious command to make a Casio CT-650 (did I get that right?) switch between tone banks of instruments is:

F0 44 3 0 7n 51 21 F7	to switch to the "Other" bank
F0 44 3 0 7n 51 20 F7	to switch back to the usual bank

where the 'n' in "7n" is the "Basic Channel No." and is probably 0 unless you set it to something else from the control panel. So use "70" above.

Partwise Events (that don't start with F) can be entered only if you clicked on a Note/Rest or an Expression item belonging to a note/rest and so belonging to a Part or voice. This includes Instrument changes, Levels (ppp-fff), Channel Hops, and other partwise Events -- anything hanging out in front of a note/rest. If you clicked on a Barline or other non-Part item, you may enter only System (start with 'F') events.

PLAYING EVENTS

When you enter a Partwise event, Umuse remembers the Part Number of whatever you clicked on and stores that in the event. When the event is played, Umuse finds the Status bytes 80 thru EF in your event string and slips that Part's current Channel number into their low nybbles on the way out to the synth.

So you needn't worry about channels -- just always type 0 for the low nybble on any Status bytes. Remember, a Part's channel is set up in the MIDI Menu and can be changed on the fly by Hops.

(We built in a loophole in case you want to "hard code" an event to a particular channel. If you type a Status byte's low nybble as non-zero, then that byte is sent exactly as you typed it and its low nybble plus 1 determines its channel. This loophole won't work on Channel 1, since its low nybble is 0 and Umuse will patch in the part's channel.)

Any System (F) bytes in a long Partwise event will be sent as-is. What about Partwise status bytes in a System event string? They are all sent as-is, even if the low nybble is 0, since the score has no Part and Channel associated with the System event item.

You can disable Events from playing at all in the MIDI Modes Menu, right next to the Instruments and Clock controls.

VIEWING EVENTS -- WHAT THE HECK DID I PUT IN THERE?

If you clicked on an Event to enter another, you'll get an extra dialogue box before entering your bytes. This box prints out the existing event (very handy) and then you may enter your new one ahead of, after, or over the old one -- or just look and leave.

Events display as capital E's in the score. Partwise events display in front of their note/rests, and System events are up top with other general expressions like Tempos.

To see what you have in an Event, have either the note/rest Brush or up-arrow Expression cursor on the mouse, click on the 'E', and

click on the Event entry in the menu. Read the Event's contents in the dialogue box, then click anywhere or ENTER to exit.

SUMMARY -- RAH-RAH-RAH

MIDI Events open up new worlds. You can get inside your synths and change sounds and modes not accessible from the front panel controls, and automate drum machines, sequencers, mixers, tape decks, and other professional studio gear.

Talk to other MIDI users and read books and magazines to learn what you can do with events. Be aware, though, that many actions are specific to each make and model of synth, so scores arranged for your setup may do nothing (or worse) on someone else's equipment. Be sure to describe the events you've used when uploading a score to a bulletin board service.

PRACTICE

Just to try out Events, take a score that has some Instrument changes in it. Play it. Go to MIDI Modes menu and disable Instruments. Play it again, notice no sound changes.

Now click on a note or rest and enter an Event:

C0 nn

where nn is the Hex for some Instrument number valid for your synth. (If your synth numbers sounds from 1 instead of 0, subtract 1 before converting to Hex).

Play it again, Sam, and you should hear the sound change. Add some more, have fun. Then go to MIDI Modes and disable Events. Play again, no sound changes. Re-enable Instruments to get your old piece back.

Some things to play with that Umuse couldn't do before include the invisible Volume control (B0 7 vv) and Sustain Pedal (B0 40 oo, where oo = 7F on, == 00 off). To release the Sustain Pedal when harmonies change and instantly apply it again, enter one Event as b0 40 00 b0 40 7f.

TECHNICAL NOTE

Event items of 4 bytes or less are stored right in the score objects. Longer event strings are stored in a separate memory array, with a pointer to each one in each score object. These data

are written at the end of disk files, following a 16-bit count and an "EA" byte. This is all automatic and invisible and you needn't worry about it.

<end of 4.9.0>

<end of Readme.Two>

**Readme.Tre (Three) versions 4.10.0 thru 4.10.0a and 10.10.1
plus general info on Options and Printers.**

----version 4.10----

IF YOU HAVE 4.9.0, TRASH IT and REPLACE WITH 5.10.0!

Features Added to Version 4.10.0 from 4.9.0

1. Append (Splice) two scores together -- at last!
2. Accents and Layoffs for easier volume expression
3. Letter Labels in Scores
4. Score Printing vertical squeezing can be turned off
5. Score Printing supports CGP-200 printer
6. Barline Menu gives mouse separate choices of Begin and End Repeats.
7. Cursor Snap (MM/1 only)

BUGS FIXED from 4.9.0 to 4.10.0 (and 10.9.0 to 10.10.0)

1. After one Block Play, you got a freebie block play (and maybe a crash!) with any Goto_Search, Transpose, or adding bars at end. This bug was born when we moved some more operations out of Umuse-3's main body and into the Um3TranGo subroutine module.
2. Barline Menu wouldn't respond to typed Keyboard characters (Coco)
3. Barline Menu's inverted-video "cursor" misaligned with text by one vertical pixel, looked sloppy (also in 10.9.0).
4. In 10.9.0, keyboard selection of repeats allowed unshifted '8' and '9' for '(' and ')'. These matched the Coco keyboard but not the MM/1's PC keys, so these are now '9' and '0'.

-----DETAILS OF NEW FEATURES-----

APPEND TWO SCORES

You can now splice a .UME score file to the end of the score currently in memory. This lets you edit a large piece in smaller sections. To append, simply type F-A or mouse Append on the Files Menu, and select the file to be added on.

You can't splice just any two random scores together. The Append function first checks the file score for compatibility with the current score, and cancels out if any of the tests fail.

First, the file score cannot have more Parts than the current score in memory. Fewer parts is OK but you'll be warned anyway so

you can Refill the empty parts from the Layout Menu later if desired.

Second, remember Parts are numbered from 1 up to 16. Each part in the file score must have the same Clef type as that same number's part has in the current score. They don't have to be on the same staff, but the clefs must match.

Also, either both or none of the same-number Part must be the old-fashioned Percussion type, shown as "hollow" half notes in the Layout Menu's lower right-hand corner palette. Notes in such a Part are not affected by either form of Transposing. (These old hollow percussion types are not recommended for new scores; instead, use the Percussion Clef.)

Any mismatches or warnings show in a large window while Append is working. If the window appears and disappears, that's good. Now the actual reading and splicing of the file score takes place.

Append inserts a Double Barline and either a 2nd such barline or a Time Signature to mark the "joint" between the scores. You can X these out afterwards if not needed. It's wise to begin the file score with a time signature, and also key signature if different.

Warning -- almost all non-score info in the file score is thrown away.

This includes instrument table, MIDI Channel assignments, volume levels, sec/min, MIDI Transpose, and Title Banner. So make sure that any Instrument changes in the file score agree with the current score's instrument numbers. Likewise the MIDI channels and other items.

The file name stays the same as the first score, so be careful about saving with F-S; maybe use F-W instead.

ACCENTS and LAYOFFS

New to the Expression Menu is the Accent. You can insert one on a Note/Rest, a Barline, or before just about anything. It's a "general volume" expressor that displays as caret or up-arrow '^' at the top of the screen. In printed sheet music accents are notated the same, or sometimes the 'V' symbol is lying sideways.

On Play, all notes that begin at the same time as the Accent (shown just after it on the screen) will be struck with a MIDI volume level N points higher than each note would have played without the accent. The value of N is the "Accent Weight" that you

have set in the MIDI Modes Menu. Default is 12, but your own setting is saved to your Preferences Init file if you Save in the Options Menu.

A Layoff is a "negative" accent that reduces the volume of affected notes by the same Accent Weight value. It displays as a minus sign '-', but is usually printed in sheet music as a horizontal parenthesis hugging its note body.

The MM/1 lets you set Layoff Weight separately from Accent.

Accents and layoffs can work wonders in making your scores sound more "live" and less mechanical. Usually the first note in a musical phrase is accented, and the last note laid off. A more subtle accent can be faked by laying off the preceding note -- never fails. If it's a vocal piece, speak the lyrics as normal English and hear which syllables are accented or laid back. Two-syllable words like "table" and "lover" always benefit from laying off the second syllable. Amazing things can be done to percussion parts -- for example, given 4 4/4/ beats worth of 16th note snare drum hits, try accenting every 3rd one. The measure of 16 dull notes takes on a whole new rhythm.

LABELS IN SCORES

You can now insert Labels of one or two characters on any Barline, using the Barline Menu that you get by clicking the regular Note Brush on a barline. Displayed at the top of the score, these labels are handy rehearsal markers in hardcopies, and can be Goto'ed while editing.

Future versions may let the music player jump to or call these labels. Your ear and the sheet music will suggest where to stick labels for help in finding sections later.

Use any characters except star '*' and question '?', since these have special meanings in Goto search expressions.

You search for any label by typing "gl", or the next label offscreen with "g+l", previous label with "g-l", etc. You can limit the search to a given label by typing its character(s) after the "gl", as in "glA1" to find A1.

You can do even better with wildcard symbols. Question means "any one character" and Star means "any zero, one, or two characters." So "glA?" will find any two-character label beginning with capital A, but "glA*" will match a lone A or A followed by any character. But "glA" finds only lone capital A.

SCORE PRINTING SQUEEZING NOW OPTIONAL

To save paper and improve readability, hardcopy has always compressed each score screen vertically as much as possible. However, some users set up space between staves to handwrite lyrics or guitar chords, and didn't want it squeezed out. Hardcopy now asks if you want the compression. Normally you do.

CGP220 PRINTER SUPPORT

Hardcopy now makes a better attempt at spacing pages correctly on the Tandy CGP-220 color inkjet printer. Its nonstandard vertical graphics pitch made the pages too long before.

Some new printers also use wider vertical pitches, and some do tricks like adding their own formfeeds when too close to the page bottom. The next version of UltiMusE will allow for these and other printer variations and user options.

CURSOR SNAP (MM/1 only)

Cursors "snap" to the center "hot spot" of whatever item would be selected if you pushed the mouse button. This works only on the main Score screen. The pull-in range is small, same as the original selection range, so the effect is pretty subtle. So there's no way to turn it off.

<end 4.10.0>

-----versions 4.10a (Coco) and 4.10.1 (MM/1)-----

Time Signature now defaults to 4/4 on startup instead of 0/0, which had been confusing both musicians and the play routine for years!

MM/1 version has a "hidden treat" -- any time the main score screen is showing, hit capital 'L' or 'R'. 'L' draws lines to connect all the notes of each part separately, skipping over rests. 'R' does same but includes rests. These lines help you sort out parts in chords faster than plugging away with the '?' tool. This is really a warmup for "beaming" groups of notes together, and uses real K-Windows system calls.

Versions 5.10.0 (Coco) and 11.10.0 (MM/1) [Note: new leading digit!]

FEATURES ADDED:

1. New Vendor, replaces Kala Soft
2. "Play" creates a Standard MIDI File
3. Files Menu improvements
4. Part-Sort cleans up "chord" parts on a staff

DETAILS OF 5.10.0 Improvements

NEW VENDOR will provide better service and support than previously. Pricing will stay about the same. Upgrades will now cost a nominal fee (from \$5 to \$15) except for a major bug fix. A 3rd edition of the Manual will be published later this year. We incremented the Version number's leading digit to mark this event.

STANDARD MIDI FORMAT FILES

These .MID files have become the standard interchange format between PCs, AMigas, Ataris, and Macs. Now the Coco and MM/1 join the club with UltiMusE, so you can write out your work in .MID format and export it to users of these other machines.

Creating a .MID file from a score is as easy as Playing it. Just use the MIDI MODES Menu to select the new output option (hit 'f' or click on "std midi File"). This also turns off normal synth playing, and turns on the "Debug play" option so you can follow the action.

Then exit that menu and Play as usual. You'll be prompted for a file name; hit ENTER to cancel. Otherwise Umuse appends ".mid" to the name you gave, and Play writes the encoded bytes into the new file in your current working directory (PWD). It will silently overwrite an old file by the same name.

The name you type can include a leading device and/or path, as in "/d2/export/yankee_doodle" (is OS-9 great or what?).

There are no other modes or options involved. But -- all of your MIDI MODES options do control what goes into the file! If you want Instrument changes and Events in the file but not Clocks, be sure to set those modes accordingly. Likewise the quantities like Accent weight, Transpose, etc.

The .MID file will get exactly what your synth would have gotten in a normal direct Play.

Please take this new opportunity to share your work with the rest of the MIDI world.

FILES MENU IMPROVEMENTS

You can now Kill (delete) files from the same form of menu that you read or write from. Like Write and unlike Read, Kill requires you to click on the KILL word after clicking the file name into the box. Now you can easily clean up after a session that leaves a lot of slightly different backup versions of a score, without typing long names.

To fit more files (up to 78), three columns are now used. MM/1 will use 2 columns if there aren't many files. Both versions clean up the screen better afterwards.

File names are now sorted alphabetically, reading horizontally across the columns. Note that capital letters come before their small mates.

We stomped a bug that started off the list of files with a blank item, and probably threw in filenames that didn't belong.

NOTE-SORT OF "CHORDS"

A new function lets you clean up the appearance of a staff that has 2 or more parts that are just different notes of chords, as in a rhythm guitar or left-hand piano part, where the different parts' notes have the same rhythm timing and duration, just different pitches.

To make these readable, the Umuse tradition is to use the Layout Menu to make only the top part in such a group show the "flags" on its 8th notes and smaller notes -- the lower voices are made stem-only (Yes, that's what the 2nd of the 4 note styles in Layout Palette is for. And see ReadMe.For for their new Clone function).

But many Ultimousers weren't careful to put the highest-pitched notes in the uppermost part on the staff, so when you do the above, sometimes the flags belong to a note in the middle or on the bottom, making a strange, hard to read score.

Note-sort fixes all the notes on one staff so the lowest-numbered part on that staff has the highest-pitch note, and so on. Afterwards, make sure only the lowest-numbered part shows note flags (but if all stems are downwards, put the flags on the highest-numbered part).

NOTE: *Rules have changed in versions 6.10.3, 12.10.3 and above!*

To sort a staff, set end markers [and] if desired, then get the Block Menu and click "Sort notes" or hit 's'. You can use the hidden capital-L command to connect the parts with lines before and after using the command, just to see if it was needed.

Note-sort is smart enough not to adjust notes whose timing doesn't match the other parts on the staff. However, if you have any such parts on a staff along with the chord parts you want to sort, you should temporarily move them off onto another staff (easy in Layout Menu) before applying Note-sort.

<end of 5.10.0 and 11.10.0 updates>

----all versions -----

SETTING UP YOUR OPTIONS PREFERENCES

Some customizing you will need to do yourself, to create an options file, hidden in the SYS directory. We didn't make one for you since we don't know your exact setup. Here's how:

After starting up Umuse3, you'll be asked two questions about your mouse.

Answer these, and then your mouse cursor should work smoothly. Now go to the Options Menu and hit "File the options" to save the mouse settings. If you mess up the mouse questions, you can still go to Options and fix them from the keyboard.

If you don't like the screen, re-enter Options Menu and go to Screen Colors. Set the slider to Background, and turn on RED. If this is too bright, turn off GREEN. Once you like the colors, be sure to hit the "OK--Keep" button; then click outside the menu or hit ENTER to get back to Options. Hit "File" to save the colors along with the mouse and MIDI settings.

Many other options from the MIDI Modes Menu can be saved too, but the save must be done from the Options Menu.

From now on, each startup of Umuse3 will know about your mouse and start up in your chosen colors, etc.

You need never do this again unless you change some option(s) and want to update the options file.

Last revised at Version 4.7.1 90/11/06:

PRINTERS and FREE LINEFEEDS

When using the new Score Print function ('h' key on Random Menu) to print a full score, remember that Umuse3 assumes that all Tandy (Radio Shack) printers add a free Linefeed (LF) for every Carriage Return (CR), and sets them up that way. Some Tandy printers, like the CGP-220, have no way to turn off the free LF, so it's simplest to make sure all Tandy printers add the LF. Umuse3 turns ON the free-LF mode of all Tandy printers.

Also Umuse3 assumes that any non-Tandy printers (beyond the first three on the Options Printer Menu) will not add a freebie LF to any CR. Umuse3 turns off the LF mode on IBM compatibles, but for Epson types you must make sure it is off yourself.

So -- if you select a NON-Tandy printer (beyond the first three), make sure its Auto-LineFeed Mode is OFF.

The XMODE /P LF or -LF mode in OS9 has no effect on Umuse3's score printing, but if you have -LF set then you're depending on your printer's free LF. Good if it's a Tandy model; otherwise you'll have to twiddle your printer switches to turn off the LF.

In the future we'll provide an LF mode within Umuse; meanwhile remember that some Tandys can't turn it off, and you must turn on Epsoms by hand.

TROUBLESOME TANDY PRINTERS

Some users report vertical page slippage on Tandy DMP-105 series printers. Our own DMP-105 works fine. If yours is not feeding enough paper per page, make sure the paper feed is not slipping. If the problem really is in Umuse3, please check the printed music carefully to see whether anything has been left off the bottom of any line of music -- this clue will help us find the bug when you call us.

Some DMP-130 thru 133 printers try to add a left margin, even though we send no margin code. If this happens, abort the print, turn printer off and back on again, and try again. Don't buy on of these printers for any grafix use!

The CGP-220 shifts to an increased vertical pitch when in Grafix mode, so its scores always run down into the next page. When we figure out just what the grafix pitch is, we may allow for this. Chalk up another win for Tandy's manual, which says nothing about this.

ABORTING PRINTS in 4.7.1

Due to problems with OS-9's Pipes, Versions 4.7.1 and up no longer uses BREAK or CTRL-C to abort prints in progress. Instead, type a small 'q' at any time. You won't see any echo of it, but printing should stop neatly after printing the current screen. Preview printing now uses a "yes/no" dialogue to allow early quitting.

<end readme.tre>

Version 6.10.0

95/9/18

VDG Screen not needed anymore, even in Boot!

Version 6.10.3 and 12.10.3 **96/3/30**

1. NEW VENDOR -- Glenside Coco Club
2. "Clone part" Chord Features
 - a. + cursor pulls new notes out of old
 - b. Flagless notes now mean something in Layout Menu
 - c. MIDI channel assign by clone groups
 - d. part reorder
 - e. "Sort Parts" now "Sort Notes", respects stems, clones
3. Note pitch carryover option
4. Part-copy transposes to fit target clef
5. L and R cmds to connect notes of same part
6. Smaller Toolbox with simpler mouse control
7. Finder-Filter for sorting out note/rest pileups
8. Cursor-snap option Dialogue boxes pop where cursor is
9. Less drift of notes on redisplayFast Rep-flash on note pickup
10. Bug fix re chip/bombing of notes

NO MORE VDG SCREEN

Coco3 users need no longer keep VDGInt in their boot or use a separate "games" boot disk to run UltiMusE-III. Umuse3 creates its own official L2 window to run in, and can be started in any window type (including VDG). If you type Umuse3& and two ENTERs, you can keep using the parent window too.

CLONE-PARTS MAKE CHORD WRITING EASIER

It's a nuisance writing chord-accompaniment tracks like rhythm guitar or left-hand piano chords. If you've been writing 3-part chords and need a 4th voice, you have to go to Layout Menu to add it. Maybe you remember to put its stem the right direction and use a non-flag note. And now this 4th part lays a smudgey Rest over all your 3-part chords.

It's lots easier now. Start off a rhythm/chord track in Layout by creating only ONE Part, with flags and stem Up or Down but not Middle. Put in the first note of the first chord, or one note of several chords. Now change the usual Brush cursor to a '+' by clicking the new + icon in the Toolbox or typing '+' or '='. See that the + icon in the Toolbox changes to the old Brush. Put the + cursor over the first note and press and hold the button. A dialogue box asks whether to add another "Clone" part -- say yes.

Again press and hold the mouse button over the note, then drag up

or down. The original note won't change, but you'll pull a new note out of it! Set its staff line and sharp/flat as usual.

You can now do this on some of the other one-note chords, or repeat on the first chord (either note) to add another Clone part (3rd voice), then 4th, etc. Best to set up all the voices first on the first chord.

Better yet, turn on the new Note Carryover mode in Options Menu. Now go to a chord that's still just a Rest, with the + cursor, and give a long click over the Rest without moving the mouse. It will turn into the first note of the previous chord. Still without moving the mouse, give another long click, and the 2nd note of the previous chord is duplicated! Keep clicking till you've cloned the whole chord. You can change each note by moving the mouse while you're still holding that note.

Once you've let go of a "plus" or "cloned" note, you can't adjust any note at all with the + cursor (but you can lay a Note over a Rest). Get back to the good old Brush by punching it in the Toolbox or typing '+' or '=' again.

Go check the Layout Menu, and you'll see the extra Clone parts (no flags) added. You could also pre-define clone parts there before writing chords; they will not add more Rests to the score screen. You can still convert between "Flagship" parts and clone parts by picking up the new type of "note" from the palette and dropping it on the part in its column, same as before. However, you'll be asked whether to remove all Rests, or restore Rests back in. This is a handy way to clean up useless Rests from old scores. Restoring rests really fills them in every nook and cranny between notes, unlike the existing Refill.

Those flagless parts now really mean something. You can delete clone parts with the 'X' cursor. They don't leave Rests anywhere. But don't use clones with Middle-stem notes (stem both up and down in Layout) -- that would end up making a mess later.

The new auto-cloning from the Plus cursor means you don't have to plan ahead how many voices per chord staff or track. But after working on a piece, your parts will look pretty messed up in the Layout, and confusing when you use the '?' cursor to check Part numbers. To sort things out, use the new ReOrder Parts in the Layout Menu to renumber the parts in a logical order. You can regroup all parts, or just those on one staff. If you choose all, there's a choice of keeping all clones with their flagship leaders (usually best), or segregating the clones to the right-hand

columns (makes it easier to see how many Flagship tracks you have). All MIDI Channel and part-enable tables are automatically updated for the new part numbers.

The old Block Menu's "Sort Notes" (formerly Sort Parts) now works really well with cloned-up chord voices. It sorts groups separately by stem up or down, and ignores middle-stem notes. As before it keeps note flags from appearing at "half mast."

The MIDI Menu has a new "Klone chans" that will assign each Clone part the same MIDI Channel as its flag leader. You want this for most synths. To get best use of low channel numbers, do this:

- a. Layout Menu: ReOrder all staves' parts, segregated. This puts the flag leaders for each track up front.
- b. MIDI Menu: 'I' for Individual Parts.
- c. Layout Menu: Optionally ReOrder all again, say No to segregation.
- d. MIDI Menu: 'K' to clone the channels. The highest channel used will equal the number of flag parts.

All the above features are great for cleaning up old scores and making sure that new ones don't get messed up, and of course you'll write them much faster. If there's a "Frances_Rag.ume" on your new disk, check out the Clone usage in there.

STAFF SORT

If you add more staves or drag the old ones up and down, they might no longer be numbered in order from the top down. This causes confusion on commands like Sort Parts that prompt for a staff number -- you count down from the top but are wrong. Left edge of Layout Menu shows you their numbers. To fix this, in Layout Menu punch "Staves" or type 's'; you'll have a chance to renumber the staves, followed by a chance to spread them evenly as in older versions.

FINDER-FILTER

Tired of trying to pick a particular Note or Rest out of a pile of them on the same screen location? The good old Pick Depth (SHIFT and/or CONTROL on Coco, ALT-1,2,3 on MM/1) still doesn't guarantee what you'll get. Now you can tell the mouse to find certain note/rests and ignore others. Click on the Toolbox's new Filter icon (looks like a piece of screen door) or type 'F' or '#' to bring up the Finder Filter Menu.

Here you can turn on or off recognition of notes versus rests, stem directions, and Flagships versus Clones, and/or restrict the

picking to a single Part. If you hit "One part" a slider submenu lets you choose the part.

Sometimes you'll be unable to pick a certain note or rest -- be sure to check the Filter Menu to make sure you haven't turned that item off. Hit 'e' for "Everything" to enable all selections.

CURSOR SNAP

Options Menu can turn on a mode whereby the cursor is "magnetic" and snaps over to the nearest item that you could click on. You may find the mouse or joystick easier to use this way, especially if not using the little Hi-Res Interface box. This mode does eat extra processing power, so you may want it off when running a terminal program or other time-critical job in another window. The MM/1 version has had this feature for a while, but until now no way to turn it off.

TOOLBOX and "REP" CHANGES

The Toolbox is now not as wide, even though offering more icons (the Plus/Brush and Filter Screen). The "Rep" at its right side still shows your current active cursor and note/rest size. But the rules of operation are simpler and better now:

The Rep can no longer be detached from the Toolbox, and shows if and only if the Toolbox is showing. It can still be flashed with a quick click over nothing to show the current note/rest size, and flashes on for about 1/2 second.

The Rep also flashes when you "pick up" a note/rest with a quick click as before, but now for a VERY SHORT TIME so you can tell the pickup was successful.

You still dismiss the Toolbox with a quick click to its Rep, but bring it back with a double-click over nothing (MM/1 users please see below). The double-click will also move the Toolbox to the cursor if it's already showing. Drag it up and down by the Rep as before. The top Menu Bar still turns Tools on/off, but with the new double-click you can bring it up and dismiss it so easily that you needn't keep the Toolbox on the screen all the time.

A long click or drag over nothing still has no effect, unless you slide into something -- same as before. Future versions may have "stroke commands."

MM1 users can't double-click yet, but instead use a "medium click" over nothing to bring up the Toolbox. This is a bit longer than

the staccato click used to pick up a note/rest or flash the Rep. Windio 54 should allow the double click in the next version.

SMALL STUFF

To draw lines connecting all the notes of each Part together on the screen, type 'L'. To include Rests, type 'R' instead. Great to use before and after a Sort Notes on the Block Menu.

Yes/No and Alert dialogs now pop up where your mouse cursor is at the time, helping keep your eyes focussed on the job at hand.

BUGS & MIS-FEATURES FIXED

Part-Copy (with the black square cursor) now transposes the notes to match their new staff.

Score display doesn't drift sideways as much when you chip/bomb rests near the side edges.

Alto and Tenor Clefs were mixed up in the Layout Menu.

A rare bug with large "bomb outs" is fixed.

Version 7.11.1 96/2/25 (same number 7 now used for MM/1 OSK)

- a. SHAREWARE or maybe Freeware -- no Vendor
- b. New "Basic" Manual doc, with "Advanced" planned
- c. Instruments (Patches) greatly improved:
 - a. 64 instruments, vs old 16
 - b. Names up to 15 characters, vs old 9
 - c. Menu tools to move and swap instrs around for quick changes
 - d. option for "sticky" tool cursors
 - e. Menus show which instrs are currently used in score
 - f. Menus scroll to show all 64 instruments
- d. Titles Comment Box now up to 9 lines from old 4
- e. Squawker "?" Tool shows Part affected by Partwise Expressors
- f. MIDI Events don't waste memory on duplicate byte sequences
- g. No mouse-dirt on MM/1 startup screen

SHAREWARE/FREWARE

Enough fooling around with vendors! UltiMuse-3 and -K are now to be freely distributed by anyone, on BBS, Internet, or copying disks. It's still copyrighted, and one restriction applies -- you must pass on the ENTIRE package, meaning all 9 executables, Images, and the Docs (so new users don't get frustrated). Details are in the Basic Manual.

INSTRUMENTS

MORE and BIGGER: You can now use up to 64 instrument names and numbers. The Menu can't show them all, so you can scroll forward and backwards with the mouse, the arrow keys, and PgUp and PgDn on the MM/1. Likewise on the submenu that pops up if you choose Instrument in the Expression Menu. Names can have up to 15 characters. Your score files will be longer, but will contain only instruments that are defined in the table.

COMPATIBILITY: Old scores will read in just fine. Scores written under Level 11 will read OK on older Umuse versions, but only the first 16 instruments will show and play, truncated to 9 characters. If the score contains I16 or higher, random instruments will get selected on the synthesizer. If you want others with older versions to play your work, please restrict yourself to I0 - I15 in the score; the new in-use tag and new Tools will help.

IN-USE TAGS: Both menus tag, with a '>', those instruments currently in use in the score. This is helpful with the new tools and lets you clean out unused instruments and check for usage above I15 for compatibility with old versions.

NEW TOOLS let you copy, move, swap, or delete instruments from the Menu table (not the score). When you select Kopy, Move, or Swap, the cursor turns to a hollow square. Click this on the "source" instrument to move, and the cursor turns solid as it "picks up" that instrument.

Now click it on the "destination" or "victim" instrument, which gets replaced by the source. The source also gets clear (if Move) or changed to the destination (if Swap) or left alone (if Kopy). X-out (delete) gives an X cursor.

After each use the cursors revert to the usual arrow and must be selected again for more instrument moving -- unless you've gone to the Options Menu and turned on "Sticky Instrument Tools". Then your chosen tool stays active so you can keep moving or deleting instruments. Clear it back to the normal arrow by clicking once or twice on nothing (or hitting ENTERs); then one more nothing or ENTER will exit the menu as usual, or you can select another Tool.

A lot of time gets spent trying out different instrument combinations to get the best effect for a piece. But now, instead of going thru the score changing I-expressions, you can just once set up I0 as the solo voice, I1 as the rhythm accompaniment, I2 as the bass, etc. -- and then just swap different instruments on the

Instrument Menu in and out of those active slots. No need to tinker with the score during "auditions". You can load up dozens of your favorite sounds in the higher slots and try them out in I0, I1, etc.

TITLE BOX

You can now have up to 9, versus old 4, title lines to describe your piece (still 51 characters long). Only the first 4 lines will show up in older Umuse versions. Hardly any bytes are added to your file unless you use lines above 4.

MISC.

When you click the Squawker '?' cursor on a score item like an Instrument, partwise volume leve (mp, ff, etc.), MIDI Channel Hop, or partwise Event, the pop-up box now tells what Part it applies to. On all objects the word "Environment" separates info about the item itself from that about its surroundings.

MIDI Events longer than 3 or 4 bytes are now stored such that if you use identical byte sequences in many places, only one copy of each sequence is stored in memory and your disk file. This in no way affects backwards compatibility (whew!).

The MM/1's text and mouse cursors no longer leave holes in the startup screen.

Lots of little buglets have been fixed that you may not have noticed yet (I'll never tell :-).

Version 8.11.0 97/4/12

- a. Note Beaming
- b. Halftone Staves option
- c. More Printer Options, bug fixed
- d. Faster OS-9 Pipes
- e. Visual Beep Bell

NOTE BEAMING

At last, UltiMusE closes the last big gap between it and published sheet music. Groups of 8th, 16th, or smaller notes now can have their stems connected by horizontal or sloping "beams" in place of their individual flags; this is much easier to read and more professional, and rates a new version number from 7. to 8.

Note groups are beamed within each Part. Stems still face up or down according to your Layout Menu steup as before, except

"middle" parts are now smarter about which way their stems face -- the decision is made not individually by note, but "voted on" by each beam group -- again, easier to read. "Clone" parts have no flags and so are never beamed.

Beams do not cross Barlines, Rests, Quarter notes or larger, nor time-zone "beat" boundaries -- meaning, for example, that if the time signature is 2/4, 3/4, or anything/4, beams will not connect more than two 8th notes, four 16ths, or any combination that crosses one of the "down beats" within the measure.

Beam drawing does take more time to refresh the screen, and may hide some details in complex scores, so beaming can be turned off and on in the Options Menu. Also you can select "Thin Beams" for temporary viewing, although "Thick" looks more standard. These options are saved in your Preferences Init (SYS/um3.init) file, as is Halftone Staves.

To support beaming an 8th subroutine module Um3B has been added.

HALFTONE STAVES

Another new option is to draw the 5 lines of each staff in halftone gray instead of solid black. This usually makes the notes and other objects more readable, and is definitely recommended for hard copy. But on some monitors the staves may look fuzzy, so try it both ways.

NEW PRINTER OPTIONS

In the Options/Printers Menu you can now specify whether your printer executes FormFeeds (Control-L or Hex C) by seeking to the top of the next page. Most printers do, and if yours does you should always use this option to avoid "drift" of paper getting out of line with the score pages. You can check your printer from any OS9 window with

```
display c >/p
```

and seeing whether it ejects a page.

Another option handles printers that insist on adding their own top margin to a new page, and spitting out a page when about three lines are left at the bottom, as if you'd sent a FormFeed. This is common on new printers using separate sheets of paper instead of fanfold connected pages. Be sure to set this option if your printer does this.

UltiMusE "knows" about the printer choices on the menu and may turn these two options on and off as you change printers. You can always change the options AFTER selecting a printer if you disagree. Both options are saved and restored with your Preferences Init file.

BETTER OS-9 PIPES (CoCo3 Only)

In the CMDS directory you'll find a new PipeMan module. If you replace the PipeMan in your OS9 boot with this new one, it will speed up screen redraws noticeably. This is because Umuse3 feeds the drawing commands to Fran thru a pipeline.

This module is part of Alan DeKok's "TuneUp" package, available from Farna Systems, and by gracious permission of Alan we are including it with the UltiMusE-III shareware package.

VISUAL "BEEP" (MM/1 Only)

Most MM/1s don't make an audible "BEEP" when the software says to, due to lack of audio hookup either on the motherboard or to the monitor. Thus you may not know that you have hit an illegal key for the current menu, or the program needs you to answer a question. To make up for this, UltiMusE-K now flashes (inverts) the screen for 1/5 second whenever it tries to ring the bell. If this really bothers you, we'll make it an option on the next release.

<end of 8.11.0>