Serban Nichifor

Composer, Teacher

Roumania, Bucarest

About the artist

http://www.voxnovus.com/composer/Serban_Nichifor.htm

Born: August 25, 1954, in Bucharest, Romania

Married to Liana Alexandra, composer: http://www.free-scores.com/partitions_gratuites_lianaalexandra.htm#

Studies

National University of Music, Bucharest, Doctor in Musicology
Theology Faculty, University of Bucharest
International courses of composition at Darmstadt, Weimar, Breukelen and Munchen
USIA Stipendium (USA)

Present Position

Professor at the National University of Music, Bucharest (Chamber Music Department);
Member of UCMR (Romania), SABAM (Belgium), ECPMN (Holland)
Vice-president of the ROMANIA-BELGIUM Association
Cellist of the Duo INTERMEDIA and co-director of the NUOVA MUSICA CONSONANTE-LIVING MUSIC FOUNDATION INC.(U.S.A) Festival, with Liana ALEXANDRA

Selected Works

OPERA, SYMPHONIC, VOCAL-SYMPHONIC AND CONCERTANTE MUSIC:

Constellations for Orchestra (1977)
Symphony I Shadows (1980)
Cantata Sources (1977)
Cantata Gloria Heroum Holocausti (1978)
Opera Miss Christina (libretto by Mircea ELIADE,1981... (more online)

Qualification:	PROFESSOR DOCTOR IN COMPOSITION AND MUSICOLOGY
Personal web:	http://romania-on-line.net/whoswho/NichiforSerban.htm
Associate:	SABAM - IPI code of the artist : I-000391194-0

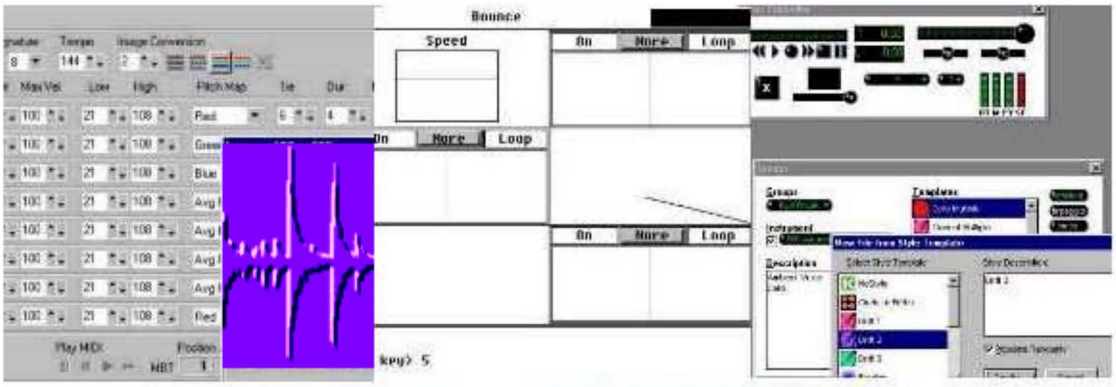
About the piece

Title:	INTRODUCTION TO COMPUTER MUSIC [Compendium - Second Edition]
Composer:	Nichifor, Serban
Licence:	Copyright (c) by Serban Nichifor
Publisher:	Nichifor, Serban
Instrumentation:	Music theory
Style:	Contemporary

Serban Nichifor on free-scores.com

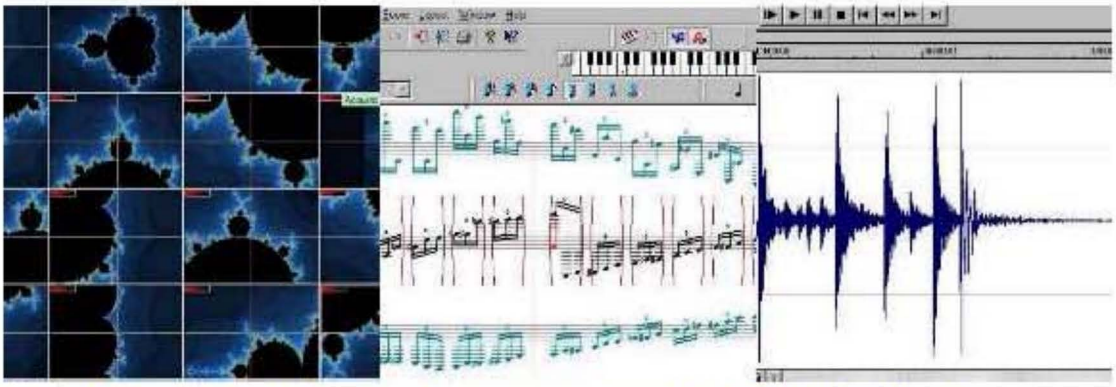
SERBAN NICHIFOR

LIANA ALEXANDRA



INTRODUCERE IN COMPUTER MUSIC

Compendiu



Thank you so much for sending me your updated Introduction to Computer Music. It is a great achievement, and will be of much use to your students and people working in the field. Congratulations.
BARRY SCHRADER
Professor - CALARTS: California Arts School of Music

Dear Serban,
Thank you very much for sending your book. I appreciate it very much.
BEN BIERMAN
Professor - Center for Computer Music at Brooklyn College

Editura Stephanus
2009

SERBAN NICHIFOR

LIANA ALEXANDRA

INTRODUCERE IN COMPUTER MUSIC
Compendium

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ISBN

SERBAN NICHIFOR

LIANA ALEXANDRA

INTRODUCERE IN COMPUTER MUSIC
Compendium

INTRODUCERE

Adresat in principal studentilor Universitatii Nationale de Muzica din Bucuresti, dar si tuturor celor interesati in investigarea complexului fenomen „COMPUTER MUSIC“, acest *compendium* incearca sa surpinda, intr-o imagine eminamente sintetica, coordonatele unui nou gen muzical aflat in plina evolutie - cu consecinte majore in prezentul, dar mai ales viitorul artei sunetelor. Nascut, ca si *jazz*-ul, in atat de fecundul spatiu cultural nord-american (ponderea muzicienilor din U.S.A fiind de peste 90 % !), genul „*Computer Music*“ reprezinta acum o dimensiune unanim recunoscuta – dinamica dezvoltarii sale fiind impresionanta, mai ales printr-o perpetua expansiune in cele mai inedite domenii ale cunoasterii, determinand si elaborarea unor proiecte inter-disciplinare – in planurile creatiei, interpretarii si cercetarii - imposibil de realizat cu mijloacele traditionale. De aceea, prezentul compendiu nu poate avea un caracter exhaustiv – el reflectand in mod pragmatic, din perspectiva practicii muzicale, doar trei elemente constitutive, ce sunt structurate in capitolele: *(A) „Evolutia mijloacelor de prelucrare a informatiei, cu aplicatie la arta sunetelor“*, *(B) “Elaborarea audio-numerica“* si *(C) „Muzica de camera asistata de calculator“*. Avand o configuratie interactiva (determinata si de evolutia extraordinar de rapida a genului, in multiplele lui ipostaze), compendium-ul evidentiaza in acest sens si o serie de legaturi („*links*“-uri) cu unele dintre cele mai documentate surse de informare accesibile prin Internet.
Dedic aceasta lucrare sotiei mele, distinsei compozitoare si profesoare Liana ALEXANDRA (http://www.romania-on-line.net/whoswho/AlexandraLiana.htm).

- Capitolul A -
EVOLUTIA MIJLOACELOR DE PRELUCRARE A INFORMATIEI, CU APLICATIE IN ARTA SUNETELOR

- I.)– a.) Mijloace manuale in sistem zecimal: 1.) Abacul (inventat in China antica si preluat de cultura greco-romana); 2.) Instrumentele de navigatie;- b.) Mijloace mecanice in sistem zecimal: 1.) Rigla de calcul (1620, William Oughtred, logaritmi); 2.) Masina de calcul inventata de Leonardo da Vinci (sec.XV, operationala cu numere pana la 13 cifre); *3.) “Arca Musarithmica”- sintetizorul pneumatic (cu partitura montata pe un tambur-program) imaginat in 1640 de Athanasius Kircher (teoretician al manieristilor si autor al primei enciclopedii) in “Musurgia Universalis”*; 4.) Masina de calcul inventata de Blaise Pascal (1642 – bazata pe adunare si scadere); 5.) Aritmometrul inventat de Gottfried von Leibnitz (1671 – cu cele 4 operatii aritmetice) si perfectionat de Xavier Thomas (1820) si *Charles Babbage (1822 – “Analytical Engine” - masina diferentiala cu cartele perforate, operationala pana la 8 secimale si capabila sa genereze structuri muzicale, asa cum remarca in 1847 Lady Ada Lovelace)* - evoluand pana la diferitele masini de calcul mecanice si electromecanice utilizate inclusiv in a doua jumatate a sec. XX (bazate pe principiul rotilor Odhner si pe stocarea informatiei pe banda de hartie perforata); *6.) “Würfelspiel” (“Joc de zaruri”) de Wolfgang Amadeus Mozart (1756-1791) – primul experiment de aleatorism controlat in muzica (Appendix 3);* 7.) Sisteme mecanice cu program: a.) Razboiul de tesut cu cartele perforate (1802, Joseph Jacquard); b.) Echipamentul mecanografic cu cartele

perforate inventat de americanul Herman Hollerith si folosit in 1890 la prelucrarea datelor referitoare la recensamanatul populatiei din S.U.A.;

- II.) Calculatoarele din generatia 0 (1931-1944), cu program si in sistem zecimal: 1.) calculatoarele electromecanice Z1 – Z3 (1931-1941, Konrad Zuse); 2.) calculatorul Colossus (cu 2000 de tuburi electronice, realizat in 1943 la British Intelligence Establishement si utilizat in descifrarea codului secret german "Enigma"); 3.) calculatorul cu relee electromagnetice si cartele perforate ASCC (Automatic Sequence Controller Computer) realizat in 1937, la Universitatea Harvard, de Howard Aitken si perfectionat cu sprijinul IBM in 1944, prin calculatorul "Mark 1 Harvard" (primul calculator electromecanic complet automatizat si dirijat prin program – operational pana in 1949).

- III.) Calculatoare electronice in sistem binar:

- 1.) Calculatoarele electronice din generatia 1 (1946-1958), bazate pe o arhitectura sintetizata de americanul John von Neumann (in sistem binar si logica booreana): 1.) ENIAC/Electronic Numerical Integrator and Calculator (1946, U.S.A., John V. Manchly, J. Presper Eckert, John von Neumann – Universitatea Pennsylvania – operational pana in 1955); in anul 1957 Departamentul Apararii din S.U.A. organizeaza initiaza proiectul ARPA, reprezentand prima retea cibernetica de comunicatii; 2.) UNIVAC-1/Universal Automatic Computer (1950, U.S.A. – primul calculator electronic comercializat); 3.) MANCHESTER MARK 1 (1948, Marea Britanie – cu program memorat): 4.) EDSAC/Electronic Digital Sequential Automatic Computer (1949, Universitatea din Cambridge – folosind efectiv primul sistem de operare); *5.) apar primele studiouri de computer music – in 1957 la Bell Laboratories din Murray Hill (New Jersey), iar in 1958 la Illinois University, unde este elaborata prima compozitie muzicala pe computer – "Illiac Suite" for string quartet (1956) de Lejaren Hiller si Leonard Isaacson; apar primele programe din seria "MUSIC" realizate de Max Matthews la Bell Labs;* **6.) in Romania – CIFA/Calculatorul Institutului de Fizica Atomica, 1957), MECIPT (Institutul Politehnic din Timisoara) si DACICC 1 (Institutul de Calcul din Cluj);

- 2.) Calculatoarele electronice din generatia a II-a (1959-1963) - bazate pe tranzistori (in locul tuburilor electronice) si pe limbajele de nivel inalt COBOL si FORTRAN – au fost realizate de companiile americane Honeywell, IBM, Burroughs si Univac; in 1962, US Air Force realizeaza prima retea decentralizata (prin fragmentarea informatiilor trimise, ce sunt reasamblate, in ordine, la receptor) ; *in 1959 sunt infiintate "The Columbia-Princeton Electronic Music Center"(dotat cu un RCA Mark II Synthsizer si coordonat de Vladimir Ussachevsky, Otto Luening si Milton Babitt) si "The San FranciscoTape Music Center" (fondat de Morton Subotnick, Ramon Sender, Pauline Oliveros si Terry Riley – studioul fiind echipat cu sistemul electronic "100-series" proiectat de Donald Buchla); experimentele sonore realizate de Max Mathews la Bell Labs (cu RCA Mark II si IBM 7090) sunt gravate pe discul "Music from Mathematics" (Decca DL 79103); apar noi compozitii generate pe calculator - "Stochastic Quartet" de James Tenney (1963, Bell Labs) si "Computer Cantata" de Lejaren Hiller si Robert Baker (1963, Illinois University);* **in Romania apar computerele MECIPT II (Institutul Politehnic Timisoara), CET 500 5I.P.A. Bucuresti) si DACICC 200 (Institutul de Calcul din Cluj);**

- 3.) Calculatoarele electronice din generatia a III-a (1964-1970) – bazate pe circuite integrate, pe limbajele de nivel foarte inalt PASCAL, LISP si pe limbajele cu interfata grafica – au fost produse in S.U.A. de firmele IBM (International Business Machines) si DEC (Digital Equipment Corporation); *la Princeton Studio apare "Quartets in Pairs" (1964) de J.K. Randall – o lucrare muzicala ce trateaza computerul ca instrument in timp real; la Bells Lab este elaborata – in baza programului "MUSIC V" – lucrarea "Mutations I" (1969) de Jean-Claude Risset (relationand frecventa si timbrul sonor), iar la"San FranciscoTape Music Center" sunt realizate 3 piese antologice semnate de Morton Subotnick: "Silver Apples if the Moon" (1966), "The Wild Bull" (1967) si "Touch" (1968) – toate beneficiind de oportunitatile echipamentului Buchla; programul "MUSIC 360", creat de Barry Vercoe la Princeton Studio, va determina si aparitia unor noi si importante compozitii – "Synthesism" de Barry Vercoe (1969) si "Earth's Magnetic Field" de Charles Dodge (1970 – lucrare bazata pe "diagrama Bartels", ce ilustreaza schimbarile activitatii magnetice a Pamantului); in aceasta perioada apar si sintetizatoarele analogice concepute de Paolo Ketoff ("Syn-Ket" – utilizat de John* **Eaton)** *si Robert A. Moog (introdus de Walter/Wendy Carlos in muzica populara) – sistemele acestora fiind ulterior comercializate pe scara larga de firmele ARP, Korg/Unicord, Oberheim,Roland si EML; in 1969 UCLA organizeaza reteaua ARPANET (precursoarea INTERNET-ului), la care se conecteaza principalele universitati americane; este infiintat – in cadrul Stanford University – renumitul Center for Computer Research in Music and Acoustics, sub coordonarea lui John Chowning (compozitor si inovator in domeniile modulatiei de*

frecventa si spatializarii); in cadrul cercetarilor efectuate la acest prestigios centru, compozitorul Prof.Emeritus Leland Smith creeaza "SCORE", primul program de redactare a partiturilor muzicale, ce este utilizat si astazi la cele mai importante edituri din lume; in Franta se infiinteaza in anul 1970, sub coordonarea compozitorilor Françoise BARRIERE si Christian CLOZIER, celebrul "Groupe de Musique Expérimentale de Bourges" (GMEB), devenit mai tarziu "Institut International de Musique Electroacoustique de Bourges" (IMEB), cu o prodigioasa activitate in difuzarea muzicii electronice (festivaluri, concursuri, concerte, cursuri de specializare, editare de discuri, etc.); **in Romania au aparut calculatoare foarte performante, precum FELIX C-256 (1971, realizat, dupa licenta franceza IRIS-50, la Fabrica de Calculatoare Electronice Felix din Bucuresti), CORAL- 4011 (minicalculator dupa licenta americana DEC, realizat de F.C.E.Felix-Bucuresti) si INDEPENDENT-I-100 (minicalculator proiectat integral la Institutul de Tehnica de Calcul din Bucuresti si realizat de F.C.E. Felix-Bucuresti);** ***in domeniul interferentelor informaticii cu arta, se remarca contributiile extrem de pretioase datorate matematicienilor romani Grigore C. Moisil si Solomon Marcus, ce au colaborat in aceasta directie si cu importanti compozitori, precum Anatol Vieru si Aurel Stroe;***

- <u>4.) Calculatoarele electronice din generatia a IV-a (1971-prezent)</u> – bazate pe microprocesoare (procesoare integrate intr-un circuit integrat – CIP, inventat in 1971 de americanul Marcian Ted Hoff si realizat de firma INTEL) – se numesc microcalculatoare, utilizand memoriile cu bule magnetice, discurile optice, programe de tip ADA si programe orientate pe obiecte; ***in 1971, la Bell Labs se experimenteaza sinteza digitala a vocii umane – printr-o tehnica originala aplicata pentru prima data in compozitia "Speech Songs" de Charles Dodge; in 1972, compozitorul Jon APPLETON impreuna cu inginerii Sydney ALONSO si Cameron JONES construiesc primul sintetizor digital – DDS (Dartmouth Digital Synthesizer) – perfectionat in 1976 prin seria "Synclavier", dezvoltata in paralel cu "Con Brio ADS 200", "Fairlight Computer Music Instrument", "Crumar General Development System" si "Alpha Syntauri" – toate aceste instrumente oferind importante facilitati in travaliul componistic, dar si in domeniul performantei in timp real ("live/electronic music"); la Paris este infiintat – dupa redutabilul model oferit de catre Stanford-CCRMA*** (<u>www-ccrma.stanford.edu/planetccrma/</u>) ***– mult apreciatul IRCAM (Institut de Recherche et Coordination Acoustique/Musique –*** <u>www.ircam.fr</u> ***) condus, sub patronaj american, de compozitorul francez Pierre BOULEZ; deosebit de active sunt si institutiile similare din Belgia (renumitul Instituut voor Psychoacustica en Elektronische Muziek-IPEM din Gent, precum si nu mai putin notoriul Institut « Musiques & Recherches" din Bruxelles -*** <u>www.musiques-recherches.org</u> ***), Olanda (Institute of Sonology din Utrecht), Anglia (BBC Studio), Italia (RAI Studio), Polonia (Studio of Polish Radio), Ungaria (Studio of Radio Budapest), Germania (NWDR Studio din Köln) si Japonia (NHK Studio) – ce au urmat cu consecventa modelul american, ilustrand adevarata avangarda si in acest domeniu*** **; in perioada 1972-1979, "Working Group" din S.U.A. (coordonat de Vinton Cerf) sintetizeaza fundamentele protocoalelor TCP (Transmission Control Protocol) si IP (Internet Protocol) referitoarele la transferurile de fisiere intre grupurile de dialog ("newsgroups") si la posta electronica; din 1983 ARPANET-ul (la care s-au conectat institutiile guvernamentale, universitatile, bibliotecile si muzeele americane) ramane o retea exclusiv civila - Pentagonul utilizand propria retea MILNET; in perioada 1987-1993, INTERNET-ul (coordonat de MICHIGAN UNIVERSITY, de IBM si de MCI) se extinde catre Europa si apoi in intreaga lume – prin aparitia WORLD WIDE WEB (www), ca sistem unanim recunoscut de navigare cu ajutorul unor programe speciale (MOSAIC, NETSCAPE, INTERNET EXPLORER); tot in S.U.A se dezvolta principalele sisteme de operare pentru supercalculatoare (UNIX, cu extensiile Berkeley-1986 si cu programul derivat LINUX; realizat in 1991 de studentul Linus Torvalds), pentru mainframe-uri (IMB OS/400), pentru minicalculatoare (RSX11M, cu versiunea romaneasca MIX), pentru microcalculatoare IBM-PC (MICROSOFT-DISC OPERATING SYSTEM/MS-DOS, din care a derivat seria WINDOWS) si Apple MacIntosh (Mac OS) si pentru calculatoarele portabile miniaturizate (WINDOWS CE);** ***apar in U.S.A. doua lucrari teoretice de referinta in domeniul muzicii electro- acustice: "Electronic Music. Systems, Techniques, and Controls" de Allen STRANGE si "Introduction To Electro-Acoustic Music" de Barry SCHRADER; <u>in U.S.A., disciplina "Computer Music" este inclusa in programele curente de studiu ale celor mai importante universitati si colegii, precum</u>:***

- Stanford University-CCRMA <u>www-ccrma.stanford.edu/planetccrma/</u>;
- MIT Media Lab <u>http://sound.media.mit.edu</u> ;
- Brooklin College Center for Computer Music <u>www.brooklyn.cuny.edu</u> ;
- Columbia-Princeton Electronic Music Center <u>http://www.columbia.edu</u> ;
- Cal State Univ/Northridge Music <u>http://www.csun.edu/~dwh50750/tech_classes/MUS191/;</u>
- Northwestern University <u>http://faculty-web.at.nwu.edu/music/webster/D34/;</u>

- **Rutgers University http://mmlweb.rutgers.edu/imtmw.html;**
- **Furman University http://www.furman.edu/~dkoppelm/Tech/17/mus17.html;**
- **Dartmouth College - Bregman Electronic Music Studio http://music.dartmouth.edu ;**
- **University of Northern Colorado http://arts.unco.edu/musictech/mus209/index.html;**
- **SUNY Plattsburgh http://faculty.plattsburgh.edu/richard.davies/courses/mus_305syl.htm;**
- **Univ of Southern Cal http://www-rcf.usc.edu/~kds/courses/mued_452.pdf;**
- **Southwest Texas State http://147.26.106.74/tech/MusTechsyllabus.html;**
- **Lebanon Valley College http://csunix1.lvc.edu/~snyder/mme803/mtfesyl.htm;**
- **Louisiana Tech Univ. http://performingarts.latech.edu/music/MusicTechnology/TechnologySyllabusLankford.html;**
- **Metropolitan State College of Denver http://clem.mscd.edu/~worster/mtech1/1900syl.html;**
- **Unversity of Washington http://depts.washington.edu/smccweb/courses/400/syl.html;**
- **Kennesaw State University http://ksumail.kennesaw.edu/~lsherr/2100syllabus.html;**
- **Palomar College http://www.palomar.edu/performingarts/midilab/music180.html;**
- **University of Illinois,Champaign-Urbana http://www-camil.music.uiuc.edu/classes/210/syllabus/syllabus.html;**
- **Brown University http://www.brown.edu/Departments/Music/Music11/syllabus.html;**
- **University of Texas at San Antonio http://music.utsa.edu/technology/mat/;**
- **University of South Carolina http://www.music.sc.edu/ea/mued/mued554/syllabus.html;**
- **University of Wisconsin at Whitewater http://facstaff.uww.edu/craggsj/techsyl.html;**
- **Northern State University (Aberdeen, SD) http://lupus.northern.edu:90/wieland/mus321.htm;**
- **Eastern Kentucky University http://www.music.eku.edu/faculty/davis/Mus584Syllabus.html;**
- **Cal State, Chico http://www.csuchico.edu/~seppanen/103/syllabus103.pdf;**
- **Auburn University http://www.auburn.edu/~wallski/CTM650/CTM650syllabus.html;**
- **Radford University http://www.runet.edu/~rscohen/Music127/syllabus.htm;**
- **McMurray http://cs1.mcm.edu/~dshea/comped.html;**
- **Case Western Reserve University http://www-midischool.cwru.edu/MUSC308/syllabus.html;**
- **Dordt College (IA) http://homepages.dordt.edu/~hduitman/musicstudent/musictechnology.html;**
- **Alma College http://www.alma.edu/academics/music/mus215/syllabus.htm;**
- **Youngstown State University http://www.fpa.ysu.edu/music/crist/came.pdf;**
- **Georgia State University http://www.trombonelessons.com/syllabus.html;**
- **East Carolina State http://www.music.ecu.edu/courses/6300/6300syllabus.html;**
- **University of North Carolina, Greensboro http://www.uncg.edu/~vltrolli/courses.html;**
- **Elmhurst College (IL) http://www.elmhurst.edu/~markh/musicedtech/;**
- **Central Michigan State http://blackboard.cmich.edu:80/bin/common/course.pl?course_id=_39_1&frame=;**
- **University of Delaware http://amy.music.udel.edu/faculty/mmorgan/index.html;**
- **Berklee School of Music http://classes.berklee.edu/mbierylo/mtec111.html;**
- **Flordia State University http://otto.cmr.fsu.edu/%7Emus2360/Schedules/Syllabus.html;**
- **James Madison University http://www.lib.jmu.edu/users/cockbuba/mus150/;**
- **Peabody http://mambo.peabody.jhu.edu/%7Emdboom/itc/;**
- **University of Montevallo http://www.cfa.montevallo.edu/mtech/Su2000/mu676/syllabus.htm;**
- **SUNY at Stonybrook http://www.sinc.sunysb.edu/Class/lta208/syllabus.html;**
- **University of California at Irvine http://www.arts.uci.edu/music/mzed/Music_51/M51_syllabus.html;**
- **University of Central Florida http://pegasus.cc.ucf.edu/~jgardner/m&t.html;**
- **University of Michigan http://www-personal.umich.edu/~msimoni/Sp98PAT201.html;**
- **Alma College http://academics.alma.edu/music/mus214/syllabus.html;**
- **Penn State University Music http://www.courses.psu.edu/courseweb/courses/index.cgi?course=music497d_meb26;**
- **University of Hawaii at Manoa http://www.outreach.hawaii.edu/programs/2001/EVENT-L04269.htm;**
- **Dakota State University http://www.homepages.dsu.edu/mortensd/MUS_600/MUS600syl.htm;**
- **St. Cloud State http://www.stcloudstate.edu/~slmiller/101syllabus.htm;**
- **St. Olaf College http://www.stolaf.edu/people/hamlin/elmus/em99/syllabus.htm;**
- **Univ. of Texas San Antonio http://multimedia.utsa.edu/index-mp.html;**
- **New York University http://www.nyu.edu/classes/gilbert/cai/ ;**
- **University of Michigan http://www-personal.umich.edu/~msimoni/F97PAT441.html;**
- **UC Berkeley http://media2.bmrc.berkeley.edu/classes/m198/;**
- **Northwestern http://www.northwestern.edu/musicschool/classes/webAuthoring/;**
- **University of Utah http://www.finearts.utah.edu/artstech/FA3000/index.html;**
- **Loyola New Orleans http://music.loyno.edu/cd/mugnm450.pdf;**
- **University of Houston http://www.uh.edu/~tkoozin/techseminar.html;**

compozitorul Dwight WINENGER infiinteaza in U.S.A renumita "LIVING MUSIC FOUNDATION" (http://www.e-universe.com/lmfhome/) - unul dintre cele mai importante centre internationale de promovare a muzicii noi (inclusiv in genul "Computer Music") , ce este coordonat actualmente de catre compozitorul si profesorul Charles Norman MASON; dintre membrii L.M.F. mentionam pe Liana ALEXANDRA, Charles ARGERSINGER, Christy BANKS, Rusty BANKS, Heskel BRISMAN, Madeline BYRNE, Barry L. COHEN, Dinos CONSTANTINIDES, George CRUMB, Greg D´ALESSIO, David DEL TREDICI, Aurelio DE LA VEGA, Carlos DELGADO, Emma Lou DIEMER, Violeta DINESCU, Donna Kelly EASTMAN, Grant FLETCHER, Lukas FOSS, Orlando GARCIA, David McGUIRE, Dorothy HINDMAN, Craig HULTGREN, Ladislav KUBIK, Dennis KAM, Hye Kyung LEE, David LIPTAK, Tom LOPEZ, Serban NICHIFOR, Rodney OAKES, Pauline OLIVEROS, Aaron J. RABUSHKA, Bruce REIPRICH, Wieslaw RENTOWSKI, Andrew RINDLFLEISCH, Elliott SCHWARTZ, Nicolas SLONIMSKY, Gregg SMITH, Erich H. STEM, Augusta READ THOMAS, Catherine TOWBIN, Mary Jeanne VAN APPLEDORN, David

*VAYO, Rob VOISEY, Olly WILSON, Paul WITNEY, Scott WYATT; in anul 1984 se infiinteazanu mai putin celebra SOCIETATEA DE MUZICA ELECTRO-ACUSTICA DIN STATELE UNITE/THE SOCIETY FOR ELECTRO-ACOUSTIC MUSIC IN THE UNITED STATES-SEAMUS (*http://seamus.Isu.edu *), avand ca presedinte fondator pe compozitorul Barry SCHRADER, profesor la California Institute of the Arts; sunt dezoltate noi programe speciale de redactare a partiturilor (CAKEWALK, ENCORE, FINALE, NOTE WORTHY, MUSIC WRITE, MUSIC PUBLISHER si INTELLISCORE – printre altele - in S.U.A.; MOZART si SIBELIUS in Anglia; PIZZICATO in Belgia), precum si numeroase programe de editare muzicala, in baza sistemelor de operare WINDOWS (ca de pilda bogata serie a aplicatiilor elaborate de firmele americane SONIC FOUNDRY, REAL, DIGIDESIGN si ADOBE, precum si de firma germana MUSICMATCH) si APPLE (in aceasta directie recentul program american "MetaSynth" ilustrand noi modalitati de convertire a imaginii in sunet); in Noiembrie 2003 se desfasoara in Romania primul festival de COMPUTER MUSIC, coordonat de compozitorii Liana ALEXANDRA si Serban NICHIFOR in cadrul Universitatii Nationale de Muzica din Bucuresti, sub genericul "NUOVA MUSICA CONSONANTE-LIVING MUSIC FOUNDATION" – fiind prezentate lucrari apartinand unor compozitori din U.S.A. (Ben BIERMAN, George BRUNNER, Madelyne BYRNE, Chris CHAFE, Douglas COHEN, Bob FANELLI, Matthew HAY, John J.A. JANNONE, Peter KIRN, Tom LOPEZ, Miguel MACIAS, Charles Norman MASON, David McGUIRE, Rodney OAKES, Marco OPPEDISANO, Udi PLADOTT, Mark PRIEST, Patricia REPAR, Barry SCHRADER, Martin SIMON, Dirk Johan STROMBERG, Robert VOISEY, Dwight WINENGER, Amnon WOLMAN), Belgia (Kris DE BAEDERMACKER, Joris DE LAET, Raoul DE SMET, Todor TODOROFF, Dick VEVLEMANS, Wilfried WESTERLINCK), Anglia (David WEBBER), Italia (Gianluca CANGEMI) si Romania (Liana ALEXANDRA, Octavian NEMESCU, Serban NICHIFOR, Livia TEODORESCU, Sever TIPEI, Dan VOICULESCU); apare pe Internet primul curs interactiv in domeniul "MUSIC AND COMPUTERS", conceput la Darmouth College (U.S.A.)– sub coordonarea compozitorului si profesorului Jon APPLETON – de catre Phil BURK, Larry POLANSKY, Douglas REPETTO, Mary ROBERTS si Dan ROCKMORE. (http://eamusic.dartmouth.edu/~book/MATCpages/tableofcontents.html); Facultatea de Interpretare Muzicala din cadrul Universitatii Nationale de Muzica din Bucuresti initiaza, in anul universitar 2003-2004, primul curs de Computer Music din Romania;*

- 5.) Calculatoarele electronice din generatia a V-a se bazeaza pe dezvoltarea -incepand din 1981, in S.U.A. si in Japonia - a inteligentei artificiale dupa modelul uman (interfata vocala, sensibilitate vizuala, auditiva, tactila) - ele fiind inca in faza experimentala. O alta dimensiune este determinata de perspectivele fascinante ale INTERNET-ului. ***In prezent, redutabilul compozitor si profesor Chris CHAFE – director al Stanford- CCRMA – a initiat impresionantul experiment* SoundWIRE*, utilizand o serie de aplicatii originale ale sistemului LINUX in realizarea pe INTERNET a unor legaturi audio complexe (permitand, de pilda, interpretilor sa cante impreuna in timp real, de la mari distante, in conditii acustice ideale – realizandu-se astfel un proces de* audio-teleportare *!). In acest context, aplicandu-se standardul* ping *(ca metoda de testare a conectivitatii computerelor, ce consta in masurarea* RTT=round trip time*), s-a observat ca reteaua (respectiv, INTERNET-ul) reactioneaza la fluxul (traficul) variabil de mesaje ca o* coarda muzicala *(avand lungimea direct proportionala cu distanta dintre cele doua computere conectate) – aceasta coarda virtuala producand (la excitarea ei prin mijloace specifice tehnicii* SoundWIRE*) diferite sunete (waves) in functie de "modul de atac" prin* ping*-uri in real-time. Inaltimea (deci frecventa=f) acestor sunete este invers proportionala cu RTT-ul* ping*-ului:***

$$f = 1/sR' \text{ , unde } s = \{1 : R \leq 5ms \quad k : R > 5ms\} \; k = 0{,}025.$$

(cf. Chris CHAFE and Randal LEISTIKOW – *Levels of Temporal Resolution in Sonification of Network Performance*, CCRMA,Music Department,Stanford University,Stanford, CA USA 94305, cc@ccrma.stanford.edu randal@ccrma.stanford.edu)

Reteaua (INTERNET-ul) devine astfel si un autentic instrument muzical ce executa o partitura conceputa prin conectarea specifica a doua computere aflate la o distanta cat mai mare (pentru a se sintetiza o coarda virtuala cat mai ampla ca spectru armonic) – compozitia rezultata fiind difuzata public in timp real. Totodata, tehnica *SoundWIRE* reprezinta si o confirmare a viabilitatii perceptiei holistice quasi-acustice a Universului – demonstrand o data in plus caracterul cosmogonic al Vibratiei Transcendentale.

- Capitolul B -
ELABORAREA AUDIO-NUMERICA

1.) PROLEGOMENE

- ***Ciclul creatiei prin analogie (in perspectiva panenteista si prin reductie fenomenologica):*** **DUMNEZEU (« LOGOSUL CREATOR », « MARELE ARHITECT AL UNIVERSULUI ») > Continuumul realitatii informational-energetice (« *Panarmonios Kosmou Sintaxis* », « *Musica Caelestis* » - cf. *Appendix 2*) > Creatia Muzicala (componistica si interpretativa) > Creatia Instrumentala > Creatia Electro-Acustica > Computer Music.**

- ***Definirea Informatiei* : a.) ontologic (sub aspect existential) = *componenta a traidei « informatie-energie-materie »* (ca principiu universal) ; b.) cibernetic (matematic, prin analogie formala) = *cantitatea de noutate* (dependenta si de gradul de interes al receptorului) ; epistemologic (prin cunoastere stiintifica) = *componenta a dihotomiei « realitate-informatie »* (realitatea manifestandu-se prin informatie in procesul delimitarii « adevar/eroare ») ; semiotic (sub aspectul logicii simbolice) = *un ansamblu logic de semne (sau « semnificanti ») purtatoare de sensuri (sau « semnificati »), in contextul comunicarii*.**

- ***Comunicarea Muzicala* : DUMNEZEU – CREATORUL >[comunicarea unui Sens Mistic, soterilogic –exprimat prin Semn Divin]> Compozitor >[a.) decodificarea quasi-hermeneutica a Semnului Divin prin descoperirea « irationala » (pnevmatologica) a Sensului Mistic (« mysterium tremendum »); 2.) codificarea Sensului Mistic in semn grafic muzical (partitura), prin procesul de « creatie componistica »; 3.) comunicarea partiturii (in manuscris sau prin intermediul editorului)]> Interpret [a.) decodificarea partiturii (rationala la nivel formal, intuitiva/« irationala » la nivel conceptual) si decelarea Sensului Mistic-muzical; b.) codificarea Sensului Mistic-muzical in semn acustic (sunet), prin procesul de « creatie interpretativa » ; c.) comunicarea interpretarii (prin concert sau inregistrare)] > Public [a.) decodificarea individuala (in functie de cultura muzicala, dar si de intuitie) a semnului acustic in Sens Mistic ; b.) asimilarea personala dar si in comuniune (« ab alio in alis ») a Sensului Mistic al muzicii in procesul soteriologic al perfectionarii spirituale, conform Planului Divin].**

- ***Dimensiuni sonore : 1.) fizice (obiective)* : spatiul sonor [frecventa (audibilila la om : 16 20000Hz) x amplitudine (perceptibila/suportabila la om : de la 10 la puterea –16 W/cm² pana la 12 W/cm²) x structura spectrala (« naturala » si « artificiala » - acustica/electroacustica) x locatie (inchisa/deschisa)] x timpul fizic-infinit (‘’, ’, h, d, m, y, etc.) ; *2.) muzicale (subiective)* : spatiul muzical [inaltime (netemperata - in sistemele extraeuropene si in cele europene de sorginte pitagoreica ; temperata in sistemul european occidental, incepand din sec.al XVIII-lea) x intensitate (relativa : ppppp-fffff, valorile depinzand de sursa, stil, acustica topos-ului, etc.) x timbru (vocal, instrumental-acustic/electroacustic, mixt) x topos (amplasamentul sursei : scenic/extra-scenic, mono-/stereo-/qudrofonic/panoramic/multi-dimensional)] x timpul muzical-finit : ritm, agogica, forma [evolutiva/non-evolutiva ; repetitiva/non-repetitiva ; catenata (mono-/bi-/tri-/tripentapartite/rondo/suita/forma “mozaic”)/contrastanta (sonata) ; variationala/meta-(ana-)morfotica ; monodica/polifonica/heterofonica; omogena/mixta ; inchisa/deschisa; supra-/juxtapusa ; determinista/stochastica (aleatorie - controlata/necontrolata) ; micro-/macrostructurala (de la celula, motiv, fraza, perioada, sub-sectiune si sectiune la parte si intreg)].**

***- Evolutia Muzicii Electro-Acustice:* 1.) Tape Music (Musique Concrète; Electronic (Acousmatic) Music (Synthesizer Music: - analog-RCA, Buchla, Moog, Korg, etc.; - digital-Synclavier,**

Yamaha, etc.)]; 2.) Live-Electronic Music (Tape and Instruments; Electronics and Instruments); 3.) Computer Music (Bell Labs, Princeton Studio, CCRMA, IRCAM, etc.)]; 4.) Cyber-Art (Digital Music; Computer Animation/Audio-Visual Effects; Interactive Art; Net Vision (SoundWIRE Project-CCRMA, etc.).

- *Calculul algoritmic in sinteza audio-numerica* :

1.) Daniel CUMMEROW: *„The Sound of Mathematics“* [combinari (*triunghiul lui Pascal*), constante (*e, pi, omega, numarul lui Ramanujan*), functii (*phi-Euler, mu-Möbius, functii trigonometrice*), numere (*Niven, prime, tripletii primitivi ai lui Pitagora*), siruri (*fluturele lui Lorenz, sirul lui Fibonacci, sectiunea de aur*)] (www.geocities.com/Vienna/9349/ ; daniel.cummerow@stockholm.mail.telia.com);

2.) Chris K. CALDWELL :"*Prime Number Listening Guide*" (www.utm.edu/research/primes/programs/music/listen/);

3.) Ivars PETERSON: *Dancing chaos* (MAA Online, Jan. 11, 1999), *Prime listening* (MAA Online, June 22, 1998) –*The Mathematical Association of America* (webmaster@maa.org , ip@sciserv.org);

4.) José Oscar MARQUES: "*The Strange Beauty of Fractal Music*" (www.midiworld.com/c/jmarques.htm);

- 2.) SINTEZA SUNETULUI DIGITAL

- Tipuri de sunete electro-acustice (waveforms/waveshapes): sinusoidal (sine - ~), “dinti de ferastrau” (sawtooth – I\), rectangular (square – I_I) si triunghiular (triangle - /\) .

- Anvelopa sunetului: Attack-Decay-Sustain-Release (ADSR).

- Conversia sunetului: ADC sau A->D = “Analog to Digital Conversion” [transformarea imaginii acustice in imagine numerica binara (0 si 1)]; DAC sau D->A = “Digital to Analog Conversion” [transformarea imaginii numerice binare (0 si 1) in imagine acustica]. Sunetul analog are un caracter continuu, iar cel digital este gradual, format din “trepte” succesive de informatii (numite “samples”) - a caror viteza este direct proportionala cu fidelitatea (calitatea) reproducerii; astfel, “*Teorema Nyquist*” a stabilit ca respectiva viteza (“sampling rate” sau “sampling frequency” - masurata in Hz) trebuie sa aiba o valoare cel putin dubla in raport cu cea mai inalta frecventa cuprinsa in semnalul sonor.

- Sampling frequency: Unitatea de masura a informatiei in teoria statistica a comunicatiei este “BIT”-ul (ca prescurtare a “Binary digIT”). [Considerand doua evenimente cu probabilitati egale de realizare, BIT-ul reprezinta informatia obtinuta asupra unui eveniment prin realizarea sa, sau incertitudinea asupra evenimentului inlaturata prin realizarea sa.] Multiplii BIT-ului sunt: 4 bits = 1 nibble; 8 bits = 2 nibbles = 1 byte; 16 bits = 2 bytes = 1 word; 1024 bits = 1 kilobyte (K) ; 1000 K = 1 megabyte (MB) ; 1000 MB = 1 gigabyte (GB) ; 1000 GB = 1 terabyte (TB) . Formula standard de reproducere sonora (utilizata si in realizarea CD-urilor audio) este aceea a unei viteze (“sampling frequency” sau “sampling rate”) de 44100 Hz la 16 bits [conform “*Teoremei Nyquist*” enuntate mai sus, “sampling frequency” de 44100 Hz este raportata la pragul auditiv superior (la om), ce este situat la cca 20000 Hz]. NB - data fiind constitutia exclusiv numerica a sunetului digital, imaginea sonora este perfect conservata, eliminandu-se zgomotele complementare ce apar in cazul inregistrarilor analoge.

- Dimensiunile audio si compresia digitala: o secunda de muzica reprodusa in formatul standard “audio-CD Stereo” este alcatuita din doua “samples” (cate unul pentru fiecare canal) de 16-bit (= 2 bytes) totalizand asadar 4 bytes derulati cu viteza de 44100 Hz – consumand in consecinta un spatiu de 176.400 bytes (= 176,4 kilobytes). Un minut va consuma asadar 10. 584 kilobytes (= 10,584 MB), iar o ora – 635,04 MB. In aceste conditii, necesitatile transmiterii muzicii pe Internet au determinat realizarea unor noi formate audio ce sunt comprimate dupa algoritmi specifici. De pilda, aplicand principiul de codificare “mu-law” (conform caruia auzul uman este mult mai sensibil la schimbarile joase de amplitudine decat la cele inalte), formatul MP3 reduce spatiul ocupat de fluxul sonor “citindu-l” printr-o grila cu numai 256 de elemente.

- 3.) TIPURI DE FISIERE DIGITALE AUDIO

ACID Project Files (acd, acd-bak), ACID Projekt With Embedded Media (acd-zip), Ad Lib Sample (smp), Amigo SVX (svx, iff), Audacity projects (aup), Audition Loop (cel), CAKEWALK Files (wrk, bun), CD Audio (cda), Covox V8 (v8), Creative Labs VOC (voc), Dialogic VOX ADPCM (vox), Gravis Patch (pat), ENCORE File (enc),FINALE Coda Notation File (mus),

FINALE ENIGMA Transportable File (etf), FINALE Coda Template File (ftm), InterVoice (ivc),IRCAM Files (snd), Main Concept MPEG 1 (mpg, mpeg, m1a), Main Concept MPEG 2 (mpg, mpeg, m2a), Macintosh Audio Interchange File Format/AIFF (aif, snd), Macintosh Resource (snd), Macromedia Flash (swf),MIDI SDS (sds), MIDI Files – Format 1 [all instruments saved to separate tracks] si Format 2 [all instruments saved into a single track] (mid, smf, rmi), MidiScan File (mnd), MOZART File (mz), MP3 Audio (mp3), Mp3PRO FhG (mp3), OggVorbis (ogg), Music Write 2000 File (mwk), NeXT/Sun (Java) File (au, snd), NoteWorthy Composer (nwc), PIZZICATO File (piz), QuickScore File (qsd), Quick Time (mov, qt, dv, gif), Raw File (raw),RealMedia (rm, ra), RealNetwork G2 (rm), RHAPSODY File (rhp), Sample Vision (smp), SmartScore File (fin), SCORE File (pge, pag, mus), SIBELIUS File (sib), SIBELIUS Scorch Web Page (htm), Sonic Foundry (sfr), Sound Designer 1 (dig, sd), Sounder/Sound Tool (snd), Video for Windows (avi), Tune Smithy Fractal Tunes (ts),TwinVQ ver 2.0 format (vqf), Windows Media Audio (wma), Windows Media Format (asf), NIFF (Notation Interchange File Format - format standard pentru notatia muzicala).

- **4.) PRINCIPALELE FISIERE DIGITALE AUDIO UTILIZATE IN ACEST CURS:**

- **MIDI [Musical Instrument Digital Interface] (mid) a aparut in 1983 (lansarea sa a avut loc la Los Angeles – The First North American Manufacturers Show) si cuprinde: (1) Protocolul de comunicatii (limbajul codificat in forma binara), (2) Conectorul (interfata hardware – ce este de tipul „5 pins DIN MIDI“) si (3) Formatorul de distributie „Standard MIDI Files“ (SMF sau „mid“), ce contine „Status Byte“ (format din „Note On“, „Note Off“, „System Exclusive“/„SysEx“ si „Path Change“) configurat in „Chains“ si „Loops“ distribuite pe cele 16 canale – „MIDI Chanels 0-15“ – fie in forma mixata intr-un singur traiect („MIDI O“), fie in cea spatializata pe 16 voci separate („MIDI 1“). Fisierul este foarte redus, iar celelalte coordonate (dinamica, timbrul, panoramarea) sunt mobile, putand fi precizate de catre utilizator – aceste aspecte constituind principalele diferente in raport cu celelalte tipuri de fisiere audio (wav, mp3, aiff, rm, etc.), ce sunt cu mult mai voluminoase (deci mai greu de transmis prin Internet) si au toti parametrii inamovibili. Formatul MIDI are numeroase aplicatii: instrumente muzicale electronice, sintetizoare digitale, sequencers, programe de redactare muzicala („MIDI Notation Software“ – ca de pilda „MOZART“, „FINALE“, „CAKEWALK“, „SIBELIUS“, etc.), „MIDI Show Control“ (in spectacole), „MIDI Machine Control“ (in studiourile de inregistrari) – toate putand fi interconectate prin noile protocoale „GENERAL MIDI 1“ (GM1 din 1991) si „GENERAL MIDI 2“ (GM2 din 1999) stabilite de catre „MIDI Manufacturers Association Incorporated“ din Los Angeles.**

- WAVE (wav) – formatul standard audio-digital necomprimat CD-DA [aplicat in realizarea CD-urilor – format CD-Audio (cda)], ce a fost asimilat in sistemele de operare MICROSOFT WINDOWS. Este formatul cel mai voluminos (1 minut = 10 MB – contraindicat asadar in transmisiile prin Internet), dar si cel mai fidel sub aspect acustic – fiind singurul format utilizat in procesul de editare a CD-urilor.

In sistemul Macintosh, formatul standard necompresat (deci echivalentul formatului “Wave” din Windows) este “AIFF” (Audio Interchange File Format).

- MP3 [MPEG I – layer 3 Audio Codec] (mp3, mpeg, mpg) este unul dintre cele mai eficiente si mai populare fisiere de compresie audio - “compresia Hoffman” utilizata implicand analizarea muzicii prin grila pragurilor de audibilitate umana (2 Hz – 20 KHz) si eliminarea elementelor inaudibile. Marimea fisierului este determinata de numarul de kilobiti per secunda (8, 16, 18, 20, 24, 32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 kbps – configuratia optima - in raportul fidelitate/dimensiune - fiind cea de 128 kbps). Acest tip de fisier este format din milioane de cadre, fiecare cadru continand titlul (de identificare a punctelor de reper), eticheta (cu informatii despre muzica respectiva) si datele propriu-zise (compresate si inregistrate sub forma de biti).

O alternativa free la MP3 este reprezentata de formatul “Ogg Vorbis” (marcat prin sufixul “ogg”).

- 5.) PROGRAME DE CONVERTIRE UTILIZATE IN ACEST CURS:

- **MIDI-WAV (Midi2Wav Demo - www.midi2wav.com);**

- **WAV-MIDI (IntelliScore Poliphonic Demo – www.intelliscore.net; AmazingMIDI Demo - www.pluto.dti.ne.jp/~araki/amazingmidi/);**

- **WAV-MP3-WMA (Shuffler Music Convertor – www.illustrate.org ; MusicMatch Jukebox Demo - http://mmjb.musicmatch.com ; Sound Forge 4.5 Demo - www.sonicfoundry.com ; ACID Pro 4.0 Demo - http://sonicfoundry.com/acid ; Adobe Audition 1.0 Demo - www.adobe.com/audition);**

- **WAV-AIFF si WAV-OggVorbis-WAV (Audacity 1.2.0.-pre2 Free Digital Audio Editor – www.sourceforge.net)**

1 minut de muzica stereo = 10 MB WAV = 10 MB AIF = 973 KB OGG = 950 KB WMA (128 kbps) = 937 KB MP3 (128 kbps) = 253 KB AUD (Audacity Projects) = 122 KB RM (16 kbps).

1' WAV = 1' AIF = 10,27' OGG = 10,53' WMA (128 kbps) = 10,67' MP3 (128 kbps) = 39,53' AUD = 82' RM (16 kbps) = 1100,1' MIDI (format 0) = 10 MB.

- 6.) PROGRAME MUZICALE

NB - Prezentul compendium are un caracter strict didactic. ***Programele de calculator analizate fac obiectul dispozitiilor legale (interne si internationale) in materie de copyright – utilizarea lor impunand respectarea conditiilor specificate de producatori pe site-urile indicate la fiecare software.***

- a.) Programe de redactat partituri (Music Notation Programs):

ABC, Braeburn Software products (Noteworthy 2, Music Publisher, Music Publisher 32), Brahms (Koobase), Cakewalk family, Capella, CodaMusic products (Finale, Finale Allegro, PrintMusic), CSound, CuBase, Graphire, Music Press , GVOX products (Encore, MusicTime Deluxe), Igor , LilyPond , Lime , Melody Assistant , MidiScore , Mosaic , Mozart , MTX , MUP , Muse , Musicator , MusicEase , MusicWrite , MusiXTeX , NIFF , Nightingale , Noteworthy Composer , Object Composer , Opcode products (Fermata, Studio Vision Pro 4.5.1, Vision DSP 4.5.1 – pentru Macintosh -, la www.opcode.com) , OpusTeX , Personal Composer , PMX , Rosegarden , Sibelius, Sionsoft (QuickScore Elite 9.0, Copyst 6.0).
(cf. http://www.mulveyfamily.com/Katy/Music/Notation/contents.html**)**

Site-urile principalelor programe: Mozart (www.mozart.co.uk**), Finale (**www.codamusic.com**), Sibelius (**www.sibelius.com**), Score (**www.scoremus.com , http://ace.acadiau.ca/score **si adresa autorului Prof. Leland SMITH** lcs@ccrma.stanford.edu**), Encore (**www.gvox.com**), Pizzicato (** www.arpegemusic.com**), Sion QuickScore Elite(**www.sionsoft.com**), Nightingale Music Notation Software for Macintosh Entrance (**www.ngale.com**), MusEdit Powerful Notation Software (**www.musedit.com**) , Music Publisher (**www.braeburn.co.uk**), NoteWorthy (**www.braeburn.demon.co.uk**), MusicWrite Professional (**www.voyetra-turtle-beach.com**), NoteWorthy Composer (**www.noteworthysoftware.com**) , Opcode (**www.opcode.com**), Sionsoft (**www.sionsoft.com **), OpusTeX (**ftp://ftp.tex.ac.uk/incoming/opustex/arwork**), Csound, Rosegarden si SNDAN (**www.csound.com**), NIFF (Notation Interchange File Format) Notation File Standard (**www.musitek.com/niff.html**), Lime Notation Software (**www.cerlsoundgroup.org **)**

- b.) Programe audio de fonotecare (Music Editors):

AudioEdit Deluxed , Digitonix Element, DubIt, FruityLoops , Midi Quartet , Midi Works, Mobius, Music Publisher 32, QUARTET X2 Music Studio, Song Writer, TablEdit Tablature Editor, XG-Gold, Blaze Media Pro, ezMP3edit, MP3 Audio Mixer,MP3 File Editor, Advanced MP3 Cutter, AAA Wave , Ace of WAV 2.6, Acoustic Labs Mixer 2.5 , Adobe Audition , All Editor 2.2 , Anvil Studio 2003 , Audio Edit 3.4 , AudioEdit Deluxe , AVI Splitter , AVS Audio Utilities , Blaze Audio RipEditBurn , Blaze Media Pro , BlazeAudio Wave Creator , BPS Audio Converter Pro , Cakewalk, Claudio Complete luxury audio recorder with MP3 , Cool Edit 2000 1.1 , Cool Edit Pro 2.0 , DART XP, Digidesign, GoldWave, MagicScore, n-Track Studio, Wave Splitter, Midi Tracker, Sound Forge, Native Instruments, Propellerhead, Steinberg, etc.
(cf. http://www.freefunfiles.com)
Site-urile principalelor programe: Sound Forge (www.sonicfoundry.com**), Pro Tools (**www.digidesign.com**), Audacity (http://audacity.sourceforge.net), MusicMatch Jukebox (**http://www.musicmatch.com**), Real (**www.real.com**), Cakewalk (**www.cakewalk.com**), Voyetra Digital Orchestrator Pro (**www.voyetra.com**),**

Adobe Audition (www.adobe.com**), Magix (**www;magix.com**).**

Alte site-uri cu programe muzicale : www.rocketdownload.com**,** www.zdnet.com**,** www.hitsquad.com**,** www.sonicspot.com**,** www.asp-shareware.org**,** www.square1music.com**,** http://garbo.uwasa.fi**,** www.freefunfiles.com **,** www.simplythebest.net/shareware/music **.**

PROGRAME AUDIO IN SISTEMUL DE OPERARE LINUX
(Audio software for LINUX)

Majoritatea sunt prezentate pe site-ul http://linux-sound.org/ **, cele mai utilizate fiind :**

- **Ardour (free software multi-channel –** http://ardour.sourceforge.net/ **) ;**
- **FinalScratch (generator de sunete ce ruleaza atat pe Linux cat si pe MacOS X –** www.finalscratch.com/fs4 **/) ;**
- **MusE (sequencer MIDI/Audio pe Red Hat, ce proceseaza date MIDI controland device-urile de sunet - realizat la Center for Computer Research in Music and Acoustics (CCRMA) - Department of Music, Stanford University (USA) -** www.ccrma.stanford.edu/planetccrma/software/ **) ;**
- **Rosegarden 4 (editor de partituri, de tip KDE3 – bazat pe bibliotecile « kdelibs3 » -** www.all-day-breakfast.com/rosegarden/ **) ;**
- **Sweep (editor de sunet - inclus in distributia « SuSE 8.2 » - utilizat pentru post-procesarea inregistrarilor digitale prin lectorul virtual « Scrubby » -** www.metadecks.org/software/sweep **);**
- **NoteEdit (editor de partituri si sintetizor de instrumente muzicale virtuale – inclus in distributia « SuSE » -** http://rnvs.informatik.tu-chemnitz.de/~jan/noteedit/noteedit.html **);**
- **FluidSynth (sintetizor software bazat pe samples/ «wavetable synthesis » -** www.fluidsynth.org **) ;**
- **AlsaModularSynth [sintetizorul software ALSA (« Advanced Linux Sound Architecture ») utilizeaza module pre-definite, precum MCV (« MIDI Controlled Voltage Supply » - ce converteste timbrele MIDI in valori de tensiune), VCO (« Voltage Controlled Oscillator » - generator de sunete determinate de valorile de tensiune), PMC (« Pulse Code Modulation » - converter analog/digital si digital/analog, ca interfata pentru difuzoare) si VCA (« Voltage Controlled Amplifier » - amplificator bazat pe valorile de tensiune) -** http://alsamodular.sourceforge.net/
- **NB – revista *« LINUX MAGAZIN »* (**www.linux-magazin.ro **) Nr.4/Decembrie 2003 (pag.21-35) include o prezentare amanuntita a acestor noi programe audio.**

PROGRAME AUDIO IN SISTEMUL DE OPERARE MACINTOSH
(Apple MacIntosh – Mac OS Audio Software)

Numeroase programe specifice pot fi procurate pe Internet, ca de pilda pe site-ul www.hitsquad.com/smm/mac **, atat in categoria *« Music Notation »* (Cubase Score 5 ; Lime Music Notation Software 8.08 ; NoteAbility Pro v.1.996 ; ScoreWriter 2 ; Sibelius 3.1 ; Finale 2003 ; Vivaldi Gold Mac ; Sonata 4.0, etc.), cat si in categoria *« Audio Editors »* [Ableton Live 3.0.2 (real-time audio production) ; Amadeus II 3.6.1 (direct-to-disk sound editor and analyser with MP3 support) ; Audacity 1.1.1 for Mac (free cross-platform miti-track sound editor) ; Sound Sculptor II (multi-track sound editor), Peak (**http://eamusic.darmouth.edu/masters.courses/Music24/software.htmp **), etc.].**

PROGRAME AUDIO IN SISTEMUL DE OPERARE WINDOWS
(Windows Audio Software)
NB- Sunt prezentate doar programe disponibile in versiunile „Free“ si „Demo“

- a.) PROGRAME MIDI DE REDACTARE MUZICALA

„MOZART VIRTUOSO 6“ THE MUSIC PROCESSOR BY DAVID WEBBER
© David WEBBER 1994-2004
http://www.mozart.co.uk
dave@mozart.co.uk
484 Warrington Rd., Culcheth, Warrington, WA3 5RA, UK

FUNCTIILE PROGRAMULUI „MOZART 6“

I.) GENERALE

- File: ***New*** **(+ Template: None, Alto Sax Jazz Quartet, Brass Band, Brass, Quintet, Clarinet and Piano, Clarinet Choir, Clarinet Jazz Quartet, Clarinet Quartet, Crumhorn Quartet, default Part., Fake Book, Flute and Piano, Flute Jazz Quartet, Guitar, Jazz Band 1, Jazz Band 2, Oboe and Piano, Orchestra [2 Fl., 2 Ob., 1 C:I:, 2 Cl., 1 Cl.B., 2 Fg., 4 Hr., 3 Trbe, 3 Trbn., Tuba, Timp., 2 Perc., Archi = 29 staves], Piano solo, Recorder Consort, Recorder Quartet, Sax Quartet, Solo bass clef, Solo treble cleff, Song Sheeet, Soprano Sax Jazz Quartet, String Quartet, Tenor Sax Jazz Quartet, Trombone and Piano, Trumpet and Piano, Trumpet Jazz Quartet, Viola and Piano, Violin and Piano, Voice and Piano, Wind Band, Wind Octet, Wind Quintet),** ***Open*** **,** ***Import*** **(Open clipboard,Play in new piece, Re-import played-in piece, Import MIDI),** ***Print Setup, Stop playing, Exit.***

- View: ***Tool bars, Keyboard shortcuts, Colour scheme, Global preferences: Metronome,Chord symbols,Autosave,Settings,Music,Playback,MIDI echo, MIDI port.***

- Help: Mozart help topics, Search for help, Lesing help,Command list,Editing commands,Getting started,Tip of day,Optaining support,About Mozart.

II.) SPECIALE

- **File**: ***New, Open, Close, Save, Save as, Import*** **(Open clipboard,Play in new piece, Re-import played-in piece, Import MIDI)),** ***Export*** **(Save MIDI, Save MIDI as, Save Template),** ***Duplicate, Print, Print preview, Print setup, Play*** **(Play & track, Play, Play & track forword, Play forword),** ***Send, Exit.***
- **Edit:** ***Undo, Redo, Cut Copy, Paste, Copy image, Copy print image, Insert bars, Delate bars, Cut bars, Insert beat, Delate beat, Select all staves, ,Select whole piece, Go to bar.***
- **View:** ***Music font, Zoom in, Zoom out, Tool bars, Keyboard shorcuts, Visible music items, Colour scheme, Global preferences, MIDI options, Swing, MIDI in connection, MIDI out connection, Tune properties, Refresh.***
- **Item:** ***Note*** **(Enter note, Enter rest, Sharpen, Flatten, Accidental, Enharmonic, Enharmonic default, Dot, Double dot, Octave up, Octave down, Pitch, Convert to note, Convert to rest),** ***Partition*** **(Merge notes, Split note (#), Split note (‘), Split note (\), Multiplet, Triplet, Soublet, Remove multiplet),** ***Tails*** **(Joint, Invert, Default direction, Flip note head),** ***Accents*** **(Accent, Attack, Staccato, ,Tenuto, Open, Closed, Pause, Accent below, Attack below, Staccato stem, Tenuto stem, Pause below),** ***Ornaments*** **(Trill, Mordent, Inverted Mordent, Turn, Inverted Turn, Appoggiatura, Grace note, Reiteration-0,1 /, 2 //, 3 ///),** ***Phrasing*** **(Phrase mark, Phrase mark below, Tie, Tie…, Invert Tie),** ***Bar lines*** **(Bar line, Repeat, Final bar line, Line break, Music break, Number, Rehearsal mark, First time. Second time),** ***Dynamics*** **(fz, fff, ff, f, mf, mp, p pp ppp, cresc., dim., swell, fade),** ***Symbol*** **(Chord symbol, Chord repeat, Text, Down bow, Up bow, Pedal, Pedal off, Break, Tempo),** ***Control*** **(Mute, Unmute),** ***Properties*** **(Offset, Hide/Show, Properties),** ***Spacing*** **(Insert, Compress end).**
- **Bar:** ***Joint Tails, Invert Tails, Default Tails direction, Accidents, Enharmonic default, Octave up, Octave down, Compress bar, Whole bar repeat (./.), Whole bar rest, n bar rest, Pad with rests.***
- **Score:** ***Transpose piece, Key, Time signature, Tempo, Stave, Clef, Instrument, Concert octave (up, down), Combine strands, Separate strands, Score layout, Lyric lines (Add lyric line, Remove lyric line, Move lyric line up, Move lyric line down), Style options (Chord symbols, Clefs), Written pitch.***
- **Layout:** ***Titles, Page format, Music font, Bar numbering, Print empty stave, Justify.***
- **Window:** ***New window, Cascade, Title, Arrange items, Close all, Next window, Previous window, n Mozart n.***
- **Help:** ***Mozart help topics, Search for help, Lesing help,Command list,Editing commands,Getting started,Tip of day,Optaining support,About Mozart.***

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OPERATII CURENTE

1.) O noua lucrare:

File-New- precizand Template/Formatul de solist sau ansamblu pre-existent, Key/Tonalitate, Time/Masura, Tempo -OK; apoi:

Layout Titles (precizand Title/Titlu, Composer/Compozitor, Reference/Denumirea si/sau caracterul Tempo-ului);

- sau:

File-New- precizand Template <None>, Staves (Portative) “n” (de la 1 la 64)-OK; apoi

Score-Clef/Cheie,Instrument,Score layout (precizand Score si Style), eventual Lyric lines; apoi: Layout Titles (precizand Title/Titlu, Composer/Compozitor, Reference/Denumirea si/sau caracterul Tempo-ului);

2.) O lucrare pre-existenta:
File-Open; sau File-Import MIDI.

3.) Redactarea textului muzical:
Scrierea efectiva a notelor implica urmatoarele trei operatii: precizarea duratei (longa = 0, nota intraga = 1, doimea = 2, patrimea = 3, optimea = 4, saisprezecimea = 5, etc.), precizarea inaltimii cu butonul stang al mouse-ului (sau cu tastele de orientare sus/jos/stanga/dreapta, sau cu claviatura virtuala ce apare in imaginea programului) si fixarea notei prin apasarea tastei de spatiu a keyboard-ului. Pentru stergerea rapida a unei note se utilizeaza tastele de orientare si apoi tasta Delete, iar pentru stergerea mai multor note, acestea se selecteaza cu mouse-ul, dupa care se apasa aceeasi tasta Delete. Pentru anularea unei/unor masuri se utilizeaza comanda Edit-Delete bars, iar pentru adaugarea unei/unor masuri - comanda Edit-Insert bars.

4.) Alte operatii frecvente:

ItemPartitionMultiplet (pentru formule ritmice exceptionale), ItemTails (pentru orientarea "cozilor"), ItemAccents (pentru accente), Item Ornaments (pentru ornamente), ItemPhrasing (pentru indicarea legaturilor de frazare), ItemBarline (pentru barele de masura, de repetitie, precum si pentru bara finala), ItemDynamics (pentru nuante), ItemSymbolText (pentru textele integrate in partitura, ca de pilda indicatiile de expresie), ScoreTranspose (pentru transpunerea lucrarii). Schimbarile de tonalitate, masura, tempo si chei se realizeaza cu comenzile din Score: Key, Time signature, Tempo si, respectiv, Clef.Transpunerile la octava superioara sau la cea inferioara - prin comenzile din Bar: Octave up si Octave down, numerotarea masurilor - prin comanda Layout - Bar numbering, repetarea masurilor ("lenesii") - prin Bar-Whole bar repeat, extragerea stimelor - prin File-Duplicate, iar tiparirea – prin File-Print.Explicatii suplimentare se pot obtine prin activarea functiei Help, sau prin accesarea site-ului www.mozart.co.uk

Functiile programului
FINALE 2003
The Art of Music Notation
© 2002 by MakeMusic! Inc
Coda Music Technologies
www.codamusic.com

"Keyboard Shortcuts and Special Mouse Clicks"
(material extras din "Finale User Manual")

- File Menu:New (Ctrl-N),Open (Ctrl-O),Close (Ctrl-W),Save (Ctrl-S),Import (Ctrl-I),Print Score (Ctrl-P),Quit (Alt-F4);
- Edit Menu:Undo)Ctrl–Z),Redo (Ctrl–Y),Undo List (Ctrl-shift–Z),Cut (Ctrl–X),Cut-create Clip file (Press ctrl when choosing Cut),Cut-display Items to Clip dialog box (Press shift when choosing Cut),Cut-create Clip file *and specify* items (Press ctrl-shift when choosing Cut),Copy (Ctrl–C),Copy-create Clip file (Press ctrl when choosing Copy),Copy-display Items to Clip dialog box (Press shift when choosing Copy),Copy-create Clip file *and specify*items (Press ctrl-shift when choosing Copy),Insert-insert from a Clip file (Press ctrl when choosing Insert),Replace Entries Ctrl-V),Replace Entries-paste from a Clip file (Press ctrl when choosing Replace Entries Select All Ctrl-A),Update Layout (Ctrl–U),Update Layout and remove measure groupings (Press shift when choosing Update Layout);
- View Menu:Page View (Ctrl-E),Scroll View (Ctrl-E),Home Position (Home key),End Position (End key),Redraw Screen (Ctrl–D),View at 400% (Ctrl–4),View At 200% (Ctrl–2),View At 100% (Ctrl–1),View At 75% (Ctrl–7),View At 50% (Ctrl–5),View At X % (Ctrl–0),View At Last Size (Double-right-click on the score),Define a Staff Set (Press Ctrl when choosing Staff Set-in Scroll View only),Change layers (Alt-Shift-layer number 1-4);

- General Keyboard Shortcuts: OK all open dialog boxes (Ctrl-click the OK button),Cancel all open dialog boxes (Ctrl-click the Cancel button), Redraw Interrupt (Esc),Apply a Metatool (Press a number or letter and click the score),Program a Metatool (Press shift-number or shift-letter),Program a keyboard equivalent for a tool (Press shift-Function key F2-F12),Switch to a tool you've programmed (Press Function key F2-F12),Select Yes or No in dialog boxes (Type N for "no" and Y for "Yes"),Move to top of page/score (Page Up),Move to bottom of page/score (Page Down),Next or Previous Page (Ctl-PageUp or Ctl-PageDown),Change layers (Alt-Shift-layer number);

- Articulation Tool:Display the Articulation Selection dialog box (Click on, above, or below a note or rest that doesn't have an articulation attached, or click on a note whose articulation handles are visible,OR drag-enclose a group of notes),Display articulation handle (Click a note to which an articulation has been attached),Select an (Click, or shift-click the handle),Move an articulation (Drag the handle -ctrl-drag the handle to move without using dynamic drawing),Delete an articulation (Select the handle and press delete, or right-click the handle and select Delete from the contextual menu. Drag-enclose a group of notes while holding delete to delete articulations on all the notes),Display the Articulation Designer dialog box (Double-click an articulation handle, or right-click the handle and select Edit Articulation Definition from the contextual menu);

- Chord Tool:Display positioning arrows (Click the staff - but not on a note or rest),Display the Chord Definition dialog box (Click a note with no chord symbol attached - with Manual Input selected in the Chord Menu -, or double-click a chord symbol handle,or right-click the handle and select Edit Chord Definition from the contextual menu),Display a handle on chord symbols (Click a note with a chord symbol attached or select Show All Chord Handles from the Chord Menu -when Manual Input is selected in the Chord Menu), Delete a chord symbol (Select the handle and press delete, or right-click the handle and select Delete from the contextual menu),Move a chord symbol (With Manual Input selected in the Chord Menu, drag the symbol handle or ctrl-drag the handle to move without using dynamic drawing),Input chord symbols using MIDI keyboard (With MIDI Input selected click a note and play chord on the MIDI keyboard),Analyze chord in one or two staves (With One- or Two-Staff Analysis selected in the Chord Menu, click on a note in the chord);

- Clef Tool:Display the Change Clef dialog box (Click a measure without a mid-measure clef), Display handles in mid-measure clefs (Click a measure with a mid-measure clef),Adjust the mid-measure clef position (Drag the handle of the mid-measure clef),Delete a mid-measure clef (Select the handle and press delete, or right-click the handle and select Delete from the contextual menu),Change a mid-measure clef to another clef (Double-click the mid-measure clef's handle and drag left or right, or right-click the handle and select Edit Clef Definition),To insert another mid-measure clef (Double-click in the measure),Display the mid-measure clef dialog box (Ctrl-click a mid-measure clef's handle, or right-click the handle and select Edit Clef Definition from the contextual menu);

- Expression Tool:Display the Expression Selection dialog box (Double-click on, above, or below a measure or note that doesn't have an expression attached),Display an expression handles (Click on a measure or note with an xpression attached - when show all handles is not selected);Select an expression handle (Click, or shift-click to select multiple handles or press ctrl-A to select all available handles),Move selected expressions (Drag the selected handles),Move selected expressions without using dynamic drawing (Ctrl-drag the selected handles),Delete selected expressions (Press delete, or right-click the handle and select Delete from the contextual menu),Resize a shape expression (Double-click an expression handle, or right-click the handle and select Edit Score Shape Expression Graphically from the contextual menu),Display the Text Expression Designer dialog box (Double-click an expression handle - text expression -, or right-click the handle and select Edit Text Expression Definition from the contextual menu),Display the Shape Expression Designer dialog box (Ctrl-double-click an expression handle - shape expression -, or rightclick the handle and select Edit Shape Expression Definition from the contextual menu),Display the Measure or Note Expression Assignment dialog box (Shift-double-click an expression handle, or right-click the handle and select Edit Expression Assignment from the contextual menu);

- Graphics Tool:Align Left (Ctrl-Shift- [-left square bracket),Center Horizontally (Ctrl-Shift- ' -apostrophe), Align Right Ctrl-Shift-] -right square bracket),Align Top (Ctrl- - -minus),Center Vertically (Ctrl-Shift- = -equals),Align Bottom Ctrl-Shift- - -minus),Place a graphic in the Shape Designer (Click in the Shape Designer display area, the Place Graphics

dialog box appears),Select a graphic or graphics (Click a graphic or drag-enclose graphics, shift-click a graphic),Display the Graphic Attributes dialog box (Ctrl-Shift- T or double-click a graphic),Place a graphic in the score (Double-click in the score, the Place Graphics dialog box appears),Select a region containing the musical example to Export (Double-click and drag to enclose a region in Page View),Delete the selected graphics (Press delete for one or more selected graphics),Adjust the graphic's position in the score (Drag a selected graphic),Resize the graphic horizontally or vertically (Drag a graphic's bounding handle);

- Hand Grabber Tool:Temporarily switch to Hand Grabber Tool (Press the right-button);

- HyperScribe Tool:Indicate where to begin transcription (Click a measure), End HyperScribe in the middle of measure (Ctrl-click anywhere on the score);

- Transription Tool:Display the Transcription window (Click a measure or ctrl-click a measure if you had Transcribe in Measures selected while transcribing),Transcribe a measure at a time (Click a measure with Transcribe in Measures selected);

- Lyrics Tool:Click Assign lyrics one syllable at a time (Click within the staff lines at the position of the note),Click Assign lyrics all at once (Ctrl-click within the staff lines at the position of the first note),Display a Word Extension handle(Click within the staff lines at the position of the sustained syllable With), Edit Word Extension selected from the Lyric Menu),Move Syllables Click within the staff lines at the position of the syllable with Adjust Syllables selected from the Lyric Menu),Move to the previous or next verse, chorus or section("up arrow" or "down arrow" using Type into Score),Left Justify syllable (Ctrl- [-left square bracket),Right Justify syllable (Ctrl-] -right square bracket), Center Justify syllable (Ctrl- ' -apostrophe),Align syllable block to the Left (Ctrl-Shift- [-left square bracket),Center syllable block Horizontally (Ctrl-Shift- ' -apostrophe),Align syllable block to the Right Ctrl-Shift-] -right square bracket);

- Mass Edit Tool:Display the Fit Measures dialog (Ctrl- M -with measures selected in Page View),Lock currently selected systems (L),Unlock currently selected systems (U),Select a measure or measures (If "Select Partial Measures" is selected in the Edit Menu, doubleclick a measure; If "Select Partial Measures" is off, a single click selects a measure; drag-enclose a region),Extend a selection of measures vertically (Double-click a selected measure to include the entire vertical measure "stack" -that measure in all staves; If "Select Partial Measures"is turned on, the first double-click selects a single full measure, and the second double-click selects the measure stack; Shift-click a measure or a beat within a measure),Extend a selection of measure horizontally to end or beginning(While holding down Shift, press"right arrow" or "left arrow". If "Select Partial Measures"is turned on, Shift-"right arrow" or Shift-"left arrow" selects the end or beginning of the measure, then to the end or beginning of the score),Select a staff or staves Click to the left of a staff; Shift-click to the left of a staff to extend the selection),Move or Copy a selected section of music (Drag the region so it is superimposed on the beginning of an unselected region, which elements and whether you are moving or copying are selected in the Mass Edit Menu before you drag; Ctrl-shiftclick the place where the selected elements should be copied or moved to),Display the Items to Clip dialog box (Press ctrl or shift while choosing Cut or Copy from the Edit Menu),Display the Paste dialog box (Press ctrl while choosing Insert or Replace Entries in the Edit Menu),Delete selected music (Press delete),Move selected measures to the previous or next staff system("up arrow" or "down arrow"),Erase selected music (Press backspace),Cancel a Mass Edit operation (Press esc), Implode Music -displays the Implode Music dialog box(Select the measures you want to affect, then press 1 on your computer keyboard),Drag-Implode Music for multiple staves -displays the Implode Music dialog box(Press I while dragging selected measures to their destination),Drag-Explode Music for multiple staves -displays the Explode Music dialog box (Select the measures you want to affect, then press 2 on your computer keyboard),Explode Music -displays the Explode Music dialog box(Press E while dragging selected measures to their destination),Respace notes, lyrics, and accidentals -Apply Beat Spacing command - using the settings in Document Options-Music Spacing (Select the measures you want to affect, then press 3 on your computer keyboard),Respace notes, lyrics, and accidentals - Apply Note Spacing command - using the settings in Document Options-Music Spacing (Select the measures you want to affect, then press 4 on your computer keyboard),Show elapsed time based on current tempo –displays the Elapsed Time dialog box(Select the measures you want to affect, then press 5 on your computer keyboard),Transpose –programmable(Select the measures you want to affect, then press any number between 6 and 9 on your computer keyboard),Select or deselect the SmartFind Source Region (Control-F),Display the Apply SmartFind and Paint dialog box (Control-Shift-F);

- Measure Tool:Display the Add Measures dialog box (Ctrl-click the Measure Tool, or right-click the Measure Tool and select Add Measures from the context menu), Add single blank measure to the score (Double-click the Measure Tool, or right-click the Measure Tool and select Add One Measure from the context menu),Display the Measure Attributes dialog box (Double-click the top barline handle or measure, or right-click the handle -or upper handle- and select Edit Measure Attributes from the contextual menu),Make the Measure wider or narrower (Drag the top barline handle right or left),Display a beat chart Click the second barline -or middle if there are three- handle, or rightclick the handle and select Edit Beat Chart from the contextual menu),Display a split-point bar (Click the third –bottom- barline handle, or right-click the handle and select Edit Split Points from the contextual menu),Move a beat horizontally in all staves (Drag one of the lower handles in the beat chart), Move a beat and all subsequent beats horizontally in all staves(Shift-drag one of the lower handles in the beat chart),Add another pair of beat positioning handles (Double-click between two upper handles of a beat chart),Display the Beat Chart Element dialog box (Double-click an upper handle in the beat chart),Delete a beat chart pair from the beat chart (Click on an upper handle to select it and press delete),Change a barline (Right-click the handle and select the desired barline type -Normal, Double, Final, Solid, Dashed, Invisible, Tick- from the contextual menu),Display a handle on every measure number (Click the Measure Tool),Reset measure number positioning (Press backspace, or right-click the handle and select Restore Default Position from the contextual menu),Delete a measure number (Press delete, or right-click the handle and select Delete from the contextual menu),Move a measure number Drag the measure number's handle Display the Enclosure Designer dialog box (Double-click a measure number's handle, or right-click the handle and select Edit Enclosure from the contextual menu),Force a measure number to appear (Ctrl-click a measure without a measure number),Force measure numbers on a measure in all staves of a staff system(Ctrl-shift-click on a measure • Break a multimeasure rest (Right-click the handle and select Break a multimeasure rest from the contextual menu);

- Mirror Tool:Display Mirror and Placeholder icons (Click the Mirror Tool),Display the Placeholder dialog box (Click a measure with notes or with a Placeholder icon),Display the Tilting Mirror dialog box (Click an empty measure or a measure with a Mirror icon),Display the Mirror Attributes dialog box (Shift-click a measure with a Mirror icon);

- Note Mover Tool:Display a handle on every notehead in the measure (Click a measure); Select a handle or handles (Click, shift-click, drag-enclose or shift-drag-enclose the handles),Delete selected notes -still in their original measure (Press delete, or right-click the handle and select Delete from the contextual Menu),Move or Copy notes to another measure (Drag a note or a group of notes to the end of the measure and the selected action in the Note Mover Menu will take place),Copy notes to the beginning of a measure (Drag a note or a group of notes to the beginning of the measure –if the measure isn't rhythmically full);

- Ossia Tool:Display handles on every ossia measure (Click the Ossia Tool in Page View),Display a handle on a measure-assigned ossia measure (Click the Ossia Tool in Scroll View and click the measure to which the Ossia measure is attached),Display the Ossia Measure Designer dialog box (In Page View, double-click anywhere on the document; In Scroll View click a measure with no ossia measure attached, or double-click a measure with an ossia measure attached; Double-click a floating measure's handle, or right-click the handle and select Edit Ossia Definition from the contextual menu),Select an ossia measure (Click the ossia measure's handle); Move a selected ossia measure (Drag the handle),Delete a selected ossia measure (Press delete, or right-click the handle and select Delete from the contextual menu),Display the Page Assignment for Ossia Measure dialog box (Shift-double-click a page-assigned floating measure's handle, or right-click the handle and select Edit Ossia Assignment from the contextual menu -in Page View),Display the Measure Assignment for Ossia Measure dialog box (Shift-double-click a measure-assigned floating measure's handle, or right-click the handle and select Edit Ossia Assignment from the contextual menu);

- Page Layout Tool:Display Page and System margins (Click the Page Layout Tool), Resize page, margins or system (Drag a handle in Page View), Move a system (Drag the system in Page View), Move a system without moving other systems(Hold down Ctrl and drag the center of a staff system), Select handles (Drag-enclose to select handles),Select all handles (Ctrl-A);

- Repeat Tool:Display the Repeat Selection dialog box (Click a measure without a repeat or double-click a measure with a repeat), Display handles on a repeat (Click a measure with a repeat), Delete a text repeat, repeat barline (Click on the handle and press delete, or right-click the handle and select Delete from the contextual menu), Move a text repeat (Select the handle

and drag), Change the size of a repeat barline's bracket (Drag the repeat bracket handle up or down, left or right), Display the Repeat Designer dialog box (Double-click a text repeat handle, or right-click the handle and select Edit Repeat Definition from the contextual menu), Display the Backward Repeat Bar Assignment dialog Box (Double-click a repeat barline handle, or right-click the handle and select Edit Repeat Assignment from the contextual menu), Display the Ending Repeat Bar Assignment dialog box (Double-click a repeat ending number handle, or right-click the handle and select Edit Repeat Assignment from the contextual menu), Display the Repeat Assignment dialog box (Shift-double-click a text repeat handle, or right-click the handle and select Edit Repeat Assignment from the contextual menu);

- Resize Tool:Reduce or enlarge a notehead (Click on the notehead or right-click and select Resize Notehead from the contextual menu),Reduce or enlarge an entire note or beam group (Click on the note stem or right-click and select Resize Note or Rest from the contextual menu), Reduce or enlarge a staff (In Page View, click to the left of the staff or right-click and select Resize Staff from the contextual menu), Reduce or enlarge a system (In Page View, click between any two staves in the system or rightclick and select Resize System from the contextual menu), Reduce or enlarge a page, or a range of pages (In Page View, click the upper-left corner of the page or right-click and select Resize Page from the contextual menu);

- Selection Tool:Switch to Selection Tool (Ctrl-Shift-A),Select an item (Click on the item), Select the appropriate tool to edit item With item selected, double-click or press enter), Select between overlapping items (Click on the item then press plus or minus to cycle through overlapping items);

- Simple Entry Tool:128th Note through Double Whole (0-8)• 128th Rest through Double Whole Rest(Shift and a number key (0–7) or Enter-0 through Enter-8 on the Number Keypad) • Switch Tools and clear other selections (Double-click tool or quickly repeat tool selection keyboard shortcut) • Erase selected Note or Rest or select the Eraser Tool to delete accidentals, ties, dots or tuplets (Delete) • Make a selected note sharp or select the Sharp Tool (S or + plus) • Make a selected note flat or select the Flat Tool (F or - minus) • Make a selected note natural or select the Natural Tool (Shift-8 or N or * asterisk) • Add double-flat to selected note(V) • Add double-sharp to selected note (X) • Lower selected note by half step or select the Half Step Down Tool (Shift-F or Enter- -minus With selection,"down arrow"• Raise selected note by half step or select the Half Step Up Tool (Shift-S or Enter-+ plus With selection,"up arrow"• Change selected note to a rest or toggle between Note and Rest Tools ® • Add an augmentation dot to the selected note or select the Dot Tool (. period) • Tie selected note to the next note or select the Tie Tool (T or = equals or Enter-/)• Tie selected note to the previous note or select the Tie Tool (Shift-T) • Toggle grace note state of selected note or select the Grace Note Tool (G or / backslash) • Toggle tuplet state (create new one or erase existing tuplet) of selected note or select the Tuplet Tool (9) • Access Simple Entry Tuplet Definition dialog box for duplet, septuplets or other tuplets (With the Tuplet Tool, shift-click the staff)• Show/Hide a courtesy accidental on selected note (A) • Break/Join Beam on selected note (B) • Restore default beaming (Shift-B) • Show/Hide selected note or rest (H) • Flip stem on selected note (L) • Restore stem direction to "floating" status on selected note (Shift-L) • Flatten beams for selected note (M) • Add or remove parentheses around accidentals for selected note (P) • Select a note or rest (Control-click the note or rest) • Select a note or rest within a chord without clearing previous selection (Control-shift-click the note or rest)• Move selection one note/rest to the left If no selection, select the last edited note/rest ("left arrow") • Move selection one note/rest to the right("right arrow") • Move selection one note up, if chord selected Control -"up arrow")• Move selection one note down, if chord selected Control-"down arrow") • Select all notes in selected chord (Ctrl-A-click the chord) • Clear selection (Escape or Backspace);

- Smart Shape Tool:Flip a selected Slur (Ctrl- F), Change a selected Slur back to Automatic (Ctrl-Shift- F), Display handles on all smart shapes (Click the Smart Shape Tool, Edit or Delete a Smart Shape Click the handle of the Smart Shape) • Control-A (Select all Smart Shapes on the page) • Drag or nudge an endpoint handle Change the slur's ending or starting note • Drag or nudge a center curve handle Change the slur's arc height • Shift-drag a center curve handle Change the slur's arc height and angle • Drag or nudge an inner curve handle (Change the slur's arc and inset asymmetrically) • Control-drag an inner curve handle (Change the slur's arc and inset symmetrically) • Control-double-click and drag (Create an inverted bracket with the hook pointing away from the staff instead of toward the staff. It will also change the text for an 8va or 15ma below the staff or 8vb or 15mb above the staff), Display the Smart Line Style Selection dialog box (Ctrl-click the Custom Line Tool), Add a slur (S) • Add a dashed slur (V), Add a

crescendo (<),Add a decrescendo (>) • Add a trill (T) • Add a trill extension (E) • Add an 8va or 8vb marking (8) • Add a 15ma or 15mb marking (1) • Add a double-ended bracket (O) • Add a dashed double-ended bracket (H) • Add a bracket (K) • Add a dashed bracket ® • Add a line (L) • Add a dashed line (D) • Add a glissando (G) • Add a bend (N) • Add a tab slide (A) • Add a custom line (C);

- Speedy Entry Tool:Display the Edit Frame dialog box (Ctrl-click any measure that contains music), Remove note, rest or chord (delete),Hide/show note or rest (letter O or H), Add or remove accidental parentheses (P), Jump to previous measure ([-left square bracket- or shift "left arrow"), Jump to next measure (] -right square bracket- or shift "right arrow"), Flip stem in opposite direction (L),Restore stem direction to "floating" status (Ctrl-L) • Change to/from a grace note (; -semicolon- or G) • Change to/from a slashed flagged grace note (` -accent- or ; -semicolon- or G), Voice 1/2 (' -apostrophe) Switch to next layer (shift–' -apostrophe) Move editing frame down a staff (shift "down arrow"), Move editing frame up a staff (shift "up arrow"), Add or change note 64th–double whole note (1–8), Add or change 128th note (ctrl-0 -zero) Insert 64th note–whole note (shift-1 through shift-7 -on keyboard only-with MIDI, while playing note) Insert 128th note -without MIDI (ctrl-0 –zero-in insert mode only),Add 64th rest–whole rest -with MIDI (shift-1 through shift-7 without pressing note). Add rest -with or without MIDI (ctrl-shift-1-7 on keyboard only) Add 128th rest with MIDI (ctrl-0 -zero) Add a rest with Hands-Free MIDI(play any three note cluster), Toggle Insert mode (insert or shift-0 -zero) Constrain dragging a note horizontal/vertical(shift-drag),Begin a tuplet -duplet–octuplet(ctrl-2 through ctrl-8), Define a tuplet (ctrl-1) • Raise by a half step (+ plus or shift-S)• Lower by a half step (– minus or shift-F), Raise by a half step for entire measure(ctrl- + plus) Lower by a half step for entire measure(ctrl- – minus) • Flat note (F) • Sharp note (S) • Natural note (N)• Double-sharp (X) • Double-flat (V),Previous note("left arrow),Next note("right arrow"),Move to first note or rest in measure (ctrl-"left arrow"), Move just beyond last note or rest in measure (ctrl-"right arrow"), Down a step("down arrow"),Up a step("up arrow"),Remove note from chord (backspace) • Change single note to rest (backspace or R) • Tie/untie to next note (= equals or T) • Tie/untie to previous note (ctrl = equals or shift-T), Flip a tie (ctrl-F),Restore tie direction to automatic (ctrl-shift-F) • Break/join beam from previous note (/ -backslash or B) • Restore default beaming (Shift-B) • Flatten a beam (\ -forward slash or M), Show/hide any accidental (* asterisk) • Show/hide a courtesy accidental (A), Restore courtesy accidental to optional status (ctrl-* asterisk) Return a rest to its default position (* asterisk), Exit measure and redraw/re-enter measure (0 zero) Flip a note to its enharmonic equivalent (9), Flip enharmonic throughout measure (ctrl-9 - cursor on first note in measure), Add a dot (. period) Add a note to a chord (enter), Change a rest to a note (enter) • Specify a pitch, high C–B without MIDI (Q-W-E-R-T-Y-U - with Caps Lock) • Specify a pitch, middle C–B without MIDI (A-S-D-F-G-H-J - with Caps Lock) • Specify a pitch, low C–B without MIDI (Z-X-C-V-B-N-M - with Caps Lock) • Raise all pitch keys an octave (, comma with Caps Lock) • Lower all pitch keys an octave(I -letter I with Caps Lock) • Restore all pitch keys to normal register(K with Caps Lock);

- Special Tools Tool:Display handles in the measure (Click the Special Tool you want to use and click on the measure), Select a handle or handles (Click, shift-click or drag-enclose, or ctrl-A), Reset the note to its original state (Press delete or backspace), Move selected items very slightly (Use the arrow keys), Flip a selected tie (Ctrl-F), Restore tie direction to automatic (Ctrl-shift-F);

- Staff Tool: Display the Staff Menu and handles (Click the Staff Tool), Select a staff or staves(Click a staff or a staff handle, or drag-enclose staff handles), Add the staff to the selection. If a staff is already selected, remove the staff from the selection (Shift-click a staff or a staff handle), Display the Staff Attributes dialog box(Double-click a staff or a staff handle, or double-click a full or abbreviated staff name handle, or right-click the handle and select Edit Staff Attributes from the contextual menu), Add a staff without repositioning the lower staves to make room for the new staff. (Double-click in the score in Scroll View), Insert a staff between staves, repositioning the lower staves to make room for the new staff(Shift-double-click below a staff in the score in Scroll View), Display the Group Attributes dialog box(Double-click a group handle, or double-click a bracket handle, or right-click the group or bracket handle and select Edit Group Attributes from the contextual menu. right-click the staff handle and select Add Group and Bracket from the contextual menu),Delete the selected staves without repositioning the remaining staves(Press delete for selected staves, or right-click the handle and select Delete Staves from the contextual menu),Delete the selected staves and reposition the remaining staves(Press shift-delete for selected staves, or right-click the handle and select Delete Staves and

Reposition from the contextual menu).Adjust the staff's position in Scroll View only. The placement of staves remains unchanged in Page View. When you choose Special Part Extraction from the Edit Menu, Finale removes the checkmark by the command, and displays the full score using the new positioning in Scroll View.(Drag a staff or a staff handle in Scroll View -when Special Part Extraction is selected in the Edit Menu), Adjust the staff's position in every staff system in Page View and the position of the staff in Scroll View. When the top staff is adjusted, Finale adjusts the distance between staves, as well as staff systems(Drag a staff or a staff handle in Page View -when Special Part Extraction is not selected in the Edit Menu. Note: If two handles appear on a staff, drag the top handle),Adjust the staff's position in every staff system in Page View; leave the position of the staff unchanged in Scroll View. Finale adjusts the distance between staves, as well as staff systems(Drag a staff or a staff handle in Page View -when Special Part Extraction is selected in the Edit Menu. Note: If two handles appear on a staff, drag the top handle), Adjust the staff's position only in the current staff system -drag the top handle to adjust the position of the staff in all staff systems in Page View(Drag the staff's lower handle in Page View. Note: If a staff system has been optimized using the Page Layout Tool, two handles will appear on each staff in the optimized staff system), Select a group or groups(Click a group handle, or drag-enclose group handles),Add the group to the selection. If a group is already selected, remove the group from the selection(Shift-click a group handle), Edit a full or abbreviated group name using the Edit Text window.(Ctrl-click a group handle, or right-click the handle and select Edit Full Group Name or Edit Abbreviated Group Name from the contextual menu.), Position a group name using the Position Full Group Name or Position Abbreviated Group Name dialog box. (Ctrl-shift-click a group handle, or right-click the handle and select Position Full Group Name or Position Abbreviated Group Name from the contextual menu.), Revert the position of the group names to their default position.(Press backspace for selected groups), Remove the selected group definitions.(Press delete for selected groups, or right-click the handle and select Delete Group from the contextual menu.), Adjust the position of a group name. (Drag a group handle), Select a staff name or names. (Click a staff name handle, or drag-enclose staff name handles), Add the staff name to the selection. If a staff name is already selected, remove the staff name from the selection. (Shift-click a full or abbreviated staff name handle), Edit a full or abbreviated staff name using the Edit Text window. (Ctrl-click a full or abbreviated staff name handle, or right-click the handle and select Edit Full Staff Name or Edit Abbreviated Staff Name from the contextual menu), Position the selected staff name using the Position Full Staff Name or Position Abbreviated Staff Name dialog box. (Ctrl-shift-click a full or abbreviated staff name handle, or right-click the handle and select Position Full Staff Name or Position Abbreviated Staff Name from the contextual menu.), Revert the position of the full or abbreviated staff name to its default position.(Press backspace for a selected staff name handle), Adjust the position of the selected staff name. (Drag a full or abbreviated staff name handle), Select a bracket or brackets (Click a bracket handle, or drag-enclose several bracket handles), Add the bracket to the selection. If a bracket is already selected, remove the bracket from the selection.(Shift-click a bracket handle), Remove the selected brackets. (Press delete for selected brackets, or right-click the handle and select Delete from the contextual menu.), Revert the selected brackets to their default length. (Press backspace for selected brackets), Make a bracket taller or shorter. (Drag a bracket handle vertically), Move a bracket closer to or away from bracketed staves.(Drag a bracket handle horizontally) Select a clef for the staff. (Right-click the staff handle and select Select Clef from the contextual menu.), Remove Staff Styles from selected region. (Backspace);

- <u>Text Tool</u>: Left Justify text in a text block (Ctrl- [left square bracket), Right Justify text in a text block (Ctrl-] right square bracket), Center Justify text in a text block (Ctrl- ' apostrophe), Full Justify text in a text block (Ctrl- ; semicolon), Forced Full Justify text in a text block (Ctrl-Shift- ; semicolon), Bold (Ctrl-Shift- B), Italic (Ctrl-Shift- I), Underline (Ctrl-Shift- U), Increase Point Size by one (Ctrl-Shift- . period), Decrease Point Size by one (Ctrl-Shift- , comma), Page Number Text Insert (Ctrl-Shift- P), Sharp sign Text Insert (Ctrl-Shift- S), Flat sign Text Insert (Ctrl-Shift- F), Natural sign Text Insert (Ctrl-Shift- N), Display Character Settings dialog box (Ctrl-T Display), Line Spacing dialog box (Ctrl-Shift-L), Align Text block to the Left (Ctrl-Shift- [left square bracket), Center Text block Horizontally (Ctrl-Shift- ' apostrophe), Align Text block to the Right (Ctrl-Shift-] right square bracket), Align Text block to the Top Ctrl- - minus), Center Text block Vertically (Ctrl-Shift- = equals), Align Text block to the Bottom (Ctrl-Shift - minus), Display the Standard Frame dialog box (Ctrl- M), Display the Custom Frame dialog box (Ctrl-Shift- M), Display the Frame Attributes dialog box (Ctrl-Shift- T or shift-double-click a

text block handle, or right-click the handle and select Edit Frame Attributes from the contextual menu.), Display the Text Menu (Click the Text Tool), Display handles on text blocks (/Click the Text Tool), Select a text block or text blocks (Click a text block handle or drag-enclose text block handles, shiftclick a text block handle), Create an unbounded frame that expands as you enter text (Double-click in the score),Create a bounded, fixed-size frame for text (Double-click and drag in the score), Edit the text block (Double-click a text block handle, or right-click the handle and select Edit Text from the contextual menu.), Delete the selected text blocks (Press delete for one or more selected text blocks, or right-click the handle and select Delete from the contextual menu.),Adjust the text block's position in the score (Drag a selected text block handle);

- Tuplet Tool:Display positioning handles (Click the first note of a tuplet), Position tuplet (Drag a positioning handle),Position tuplet without dynamic drawing (Ctrl-drag a positioning handle), Delete tuplet (Press delete for selected tuplet, or right-click the handle and select Delete from the contextual menu.), Display the Tuplet Definition dialog box (Double-click a positioning handle or the first note in a group that you want to define as tuplets, or right-click the handle and select Edit Tuplet Definition from the contextual menu.), Display the Default Tuplet Visual Definition dialog box(Ctrl-click the Tuplet Tool, or right-click the Tuplet Tool and select Edit Default Tuplet Visual Definition from the drop-down list);

-Zoom Tool:Zoom in - enlarge 2x, if tool is selected(Click the score), Zoom out -reduce by 1/2, if tool is selected (Ctrl-click the score), Temporary switch to Zoom Tool: enlarge (Shift-click the right-button), Temporary switch to Zoom Tool: reduce (Ctrl-Shift-click the right-button), Fill the screen with the selected area (Drag-enclose an area);

- Playback:Begin/Pause playing -Playback Controls open(Alt-D-P or Alt-D-O), Begin playing from the measure clicked (Spacebar–click in staff), Begin playing from the clicked measure in the clicked staff only (Shift-spacebar–click in staff), Begin playing from the clicked measure in all staves (Spacebar–click in between staves), Begin playing from measure one in all staves (Spacebar–click to the left of a staff system), Begin playing from measure 1 for the clicked staff (Spacebar-shift-click to the left of staff), "Scrub" onscreen music - all staves (Ctrl-spacebar -and drag across music), "Scrub" onscreen music - clicked staff only (Ctrl-Shift-spacebar -and drag across music).

Functiile programului
SIBELIUS
Versiunea 2
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- **File:** ***New*** **(Type of manuscript paper, Instruments, Play using the device),** ***Open*** **[All Music Files (sib, mid, opt, mus, etf, tmp, pag, pge, s7), Sibelius (sib), MIDI (mid), Photo Score (opt), Finale/Allegro/PrintMusic (mus), Finale ENIGMA (etf), SCORE File (tmp)/Page (mus, pag, pge), Sibelius 6/7 (s7)],** ***Append Score*** **(sib),** ***Close*****,** ***Close All*****,** ***Save*****,** ***Save As*** **[Sibelius (sib), Scorch Web Page (htm), MIDI (mid)],** ***Save As Graphics*** **(EPS, BMP, EMF),** ***Save As Manuscript Paper*****,** ***Save All*** **[Sibelius (sib), Scorch Web Page (htm), MIDI (mid)],** ***Print*****,** ***Extract Parts*****,** ***Publish on SibeliusMusic.com*****,** ***Score Info*****,** ***Plug-ins*** **[*Batch Processing* (Apply House Style to Folder of Files, Convert: Folder of Acorn Sibelius Files/Folder of Files to Graphics/Folder of Finale Files/Folder of MIDI Files; Print Folder of Scores),** ***Composing Tools*** **(Double Notes Values, Finf Motif, Find Range, Halve Notes Values, Invert, Pitch Mapping, Retrograde),** ***Notation*** **(Add: Brass Fingering/Cautionary Accidrentals,/Chord Symbols/Ficta Above Note/Note Names/String Fingering/Tonic Sol-Fa; Make Layout Uniform/Pitches Constant, Number Beats, Remove Dangling Ties/Rests, Respell Flats as Sharps/Sharps as Flats, Split Dotted Quarter Rests),** ***Playback*** **(Copy Dinamics, Cresc./Dim. Playback, Quarter-tone Playback),** ***Proof-reading*** **(Check: Clefs/for Parallel 5ths-8ves/Harp Pedaling/Pizzicatos/Repeat Barlines; Proof-read),** ***Edit Plug-ins*****,** ***Show Plug-in Trace Window*****],** ***Preferences*** **(General, Keyboard Shorcuts, Word Menus),** ***Register/Transfer*** **(Register Sibelius, Transfer SavingOut/In),** ***Exit*****.**

- **Edit: *Undo*, *Redo*, *Undo/Redo History*, *Cut*, *Copy*, *Paste*, *Repeat*, *Delete*, *Flip*, *Voice* (1-4; All; Swap 1-2/1-3/1-4/2-3/2-4/3-4), *Hide or Show* (Hide, Show, Show in Score/in Parts), *Select* (All/More/System Passage/None), *Filter* [Advanced Filter, Chord Symbols, Dynamics, Expression Tool, Guitar Frames, Hairpins, Lyrics, Notes and Chords, Slurs, Tuplets, Voice 1-4, Voice 1-4 Only, Top/2nd/3rd/Bottom Note, Top Note/2-nd Note/3rd Note/bottom Note or Single Notes, Player 1-2 (for Delation)], *Find*, *Find Next*, *Go to Bar/Page*;**

- **View: *Attachment*, *Breacks and Locks*, *Hidden Objects*, *Highlights*, *Note Colors* (Note out of Range, Pitch Spectrum, Voice Colors, None), *Page Margins*, *Textures*, *Selection/Object/Staff Rulers*, *Full Screen*, *Scroll Bars*, *Toolbar*, *Zoom* (Zoom, Zoom In/Out);**

- **Create: *Bar*, *Barline*, *Clef*, *Graphic*, *Guitar Frame*, *Highlight*, *Instruments*, *Key Signature*, *Line*, *Rehearsal Mark*, *Symbol*, *Text* [Expression, Technique, Lyrics, Lyrics verse 3-5, Chord symbol, Other Staff Text (Plain text, Lyrics verse 3-5, Figured bass, Fingering, Boxer text, Small text, Lyrics above staff, Nashville chord numbers, Footnote, Technique 2, Note flags 2, Small Text 2), Title, Subtitle, Composer, Lyricist, Dedication, Tempo, Metronome mark, Other System Text (Copyright, Header, Header – after first page, Footer – outside edge/inside edge, Rit./accel., Title 2, Header 2, Footer 3, Footer, Footer 2), Special Text (Bar numbers, Guitar frame fret, Instrument name at top left, Instrument names, Multirests, Page numbers, Rehearsal marks, Time signatures-huge/large, Tablature letters/numbers, Tuplets)], *Bar Numbers Change*, *Bracket or Brace* (Bracket, Sub-bracket, Brace), *Extra Slur Arc*, *Extra Staff* (Above, Below, Ossia Above/Below), *Staff Type Change* [Pitched (1-5 lines, No lines, etc.), *Tab* (Standard guitar, Bass guitar, etc.), Percussion (1-5 lines)], *Transposition Change*;**

- **Play*: Play or Pause*, *Stop*, *All Notes Off*, *Mixer*, *Performance*, *Dictiuonary*, *Devices*, *Substitute Devices*, *Playback Options*;**

- **Notes: *Flexi time*, *Flexi-time Options*, *Arrange*, *Edit Arrange Styles*, *Transpose*, *Transposing Score*, *Add Interval* (2-9 Above/Below, Unison), *Add Interval* (A-B-C-D-E-F-G + Shift), *Cross-Staff Notes* (Move Up/Down a Staff), *Respell Accidental*, *Reset Beam Groups/Stems and Beam Angles;***

- **Layout: *Document Setup*, *Break* (System/Page Break, Split System/Multirest), *Format* (Make Into System/Page, Lock/Unlock Format), *Align: in a Row/in a Column/Staves; Hide/Show Empty Staves; Reset: Portion/Design/Note Spacing/Space Above Staff/Space Below Staff;***

- **House Style: *Engraving Rules*, *Note Spacing Rule*, *System Object Positions*, *Default Positions*, *Timecode*, *Edit: Lines/Noteheads/Staff Types/Symbols/Text Styles; Use: Multirests/"Show in Part"; Import/Export House Style;***

- **Window: *New Window*, *Title Horizontaly/Verticaly*, *Cascade*, *Mixer*, *Navigator*, *Properties*, *Keypade (separate);***

- **Help: *Sibelius Help*, *Tip of the Day*, *Help Center*, *Sibelius.com*, *Sibelius.com Education Area*, *SibeliusMusic.com Internet Publishing*, *Sibelius Magazine*, *PhotoScore Professional*, *Sibelius Teaching Tools*, *About Sibelius*.**

- **Comenzile operative (ce apar suprapuse partiturii in lucru): *General*, *Text*, *Lines*, *Bars*, *Staves*, *Notes*, *Keypad*;**

- **Comenzi rapide uzuale: A/B/C/D/E/F/G (LA/SI/DO/RE/MI/FA/SOL), 1-6 pe keypad (TREZECIDOIME-NOTA INTREAGA), 7-9 pe keypad (BECAR,DIEZ,BEMOL), Ctrl + 3 (TRIOLET), Ctrl + 2-9 (ALTE DIVIZIUNI EXCEPTIONALE), P (PLAY), Esc (STOP), Ctrl + F/M/P (f/m/p – ca expresie), Ctrl + Shift + C/D (CRESC./DIM.).**

Functiile programului
NoteWorthy Composer v. 1.75
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- **File: New, Open (NWC Files, MIDI Files, Song Files) Save, Save As (Standard NWC File, Type 1 Midi File, Type 0 Midi Files, Uncompressed NWC File), Revert, Close, Info [Title, Author, Copyright Notice 2 (All Rights Reserved), Comments], Page Setup, Printer Setup, Print Preview, Print, History, Exit;**
- **Edit: Undo Page Setup, Redo, Cut, Copy, Copy Special, Paste, Clear, Select All, Remove Chord Note, Beam, Triplet, Find, Find Next, Go to, Lyrics, Properties;**
- **View: Zoom In/Out, Zoom, Refresh Score, Status Bar, Toolbars;**
- **Staff: New Staff, Import Recording, Delete Staff, Move Staff, Move Staff Up/Down, Mute Staff, Staff Properties;**
- **Insert: Note, Rest, Chord Member, Bar Line, Bar Line (Decorated), Clef, Dynamic, Dynamic Variance, Flow Direction, Key Signature, Performance Style, Special Ending, Sustain Pedal, Tempo, Tempo Variance, Text, Time Signature, Instrument Patch, Multi-point Controller;**
- **Notes: Whole, Half, Quarter, Eight, Sixteenth, Thirty-second, Sixty-fourth; Natural, Flat, Sharp, Double Sharp, Double Flat; Accent, Dotted, Double-Dotted, Grace, Slur, Staccato, Tenuto, Tied, Stem Up/Down;**
- **Tools: Record, Staff Play, Play, Stop; Score Review, Mute List, MIDI Input Active, Persistent Note Tools; Automatic Beam, Transpose Staff, Force Accidentals; Audit Bar Lines/Accidents/Enharmonic Spelling/Note Stems; Options;**
- **Window: Cascade, Title, Arrange Icons, Close All;**
- **Help: Contents, Search for Help on, Did you know, Getting Started, Command Reference, Keyboard Reference, Benefits of Registering, How to Order, Support, Go to NoteWorthy Software.com, Check for Web Updates, About.**

Functiile programului
LIME 8.00
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www.cerlsoundgroup.org
lime, 1906 Augusta, Champaign, IL-61821, USA

- **File: New, Open, Import NIFF, Import MIDI, Close, Save, Save As (Lime Fle – lim), Export NIFF, Export MIDI, Revert, Layout, Print Setup, Print, Print Multiple, About Lime, Exit;**
- **Edit: Undo, Redo, Cut, Copy, Copy Music, Paste, Clear (Note, Text, Annotation, At Each System, On Each Page, In Every Context, Staff/Chord/Accident Drag, Invisible Notes), Copy Measures, Align Annotations, Duplicate, Extend Line to Here, Allow Any Alt-click, Enable Duration Edits, Shortcut Keys, Options:**
- **Context: Previous Notation Context, Next Notation Context, Part Extraction, Score;**
- **Page: Previous/Next Page, Go to Page/Bar, Split Page/System, Add to Next Page/System, Systems, Insert/Delete Measures, Correct Measure;**
- **Voice: Previous/Next Part or Voice, Record, Note Entry, Parts and Voices, Voice to Staff Above/Bellow, Staff Drag, Hightlight Voice, Voice on Channel;**
- **Note: Previous/Next Note, Show Accidental, Default/Special Accidentals, Transpose, Notehead Color, Tablature String/Thumb, Hide Tuplet/Rest, Don' t Combine Rest, Chord Drag, Internal Fields;**
- **Stem: Stem Up/Down, No Stem, Slashed Stem, Stem Between Staves, Continue/End Beam, Continue/End Subbeam, Default Beaming, Beaming Rule, Tremolo Beam, Swing Eight Beam, Modify Slur/Tie;**
- **Hear: Hear, Tuning, Dynamic Levels, Default Playback, Modify Playback (Softer, Louder, Level, Lower, Higher, Pitch, Shorter, Longer, Earlier, Later), Recompute Playback, Play**

Octave Higher/Lower, Keyboard Shift (3-1 Octaves Up, Normal, 1-3 Octaves Down), MIDI Input/Output;

- **Symbol: Clef, Key/Time Signature, Bar Line, Align Bars, System Bracket, Parameters, Hidden Test;**
- **Annotation: Preview/Next Annotation, Text Category, Font, Size, Style, Text Assistant, Line, Curve, Line and Curve Style, Horizontal/Vertical Lock, All Notation Context, Only In Score, Not In Score, This Notation Context Only;**
- **Window: Previous/Next Window, Arrange Icons, Close All.**

Functiile programului
ENCORE - The Musician's Choice for Composing & Publishing
Version 4.5.5

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- **File: New (Page Layout: Staves per system, Systems per page, Measures per system, Staff Format), Open [Scores (enc, mus, mto, rhp), MIDI (mid, miff), MT Pro (mts)], Close, Save, Save As [Encore Files (enc), MIDI Files (mid), MT Pro Files (mts)], Revert to Saved, Extract Part, Score Settings/Page Setup (Score Window Title; Enlarge or Reduce Score; Margin Setting), Print, Export to ESP, Exit;**
- **Edit: Undo Guess Durations, Cut, Copy, Paste, Clear, Select All, Nudge Left/Right/Up/Down;**
- **Notes: Attributes (Notes, Beams, Rests), Voice (Set to Voice 1-8), Accidents to (Enharmonics, Sharps, Flats), Stems (Up, Down, Normalize), Marks (Add, Remove), Tie Notes, Slur Notes, Beam Notes (Beam Group, Beam on Beat, Sub Group, Flatten Beams), Change – Pitch, Duration, Velocity; Make-Chord, Tab, Grace/Cue; Revert to Raw, Guess Durations;**
- **Measures: Add/Delete Measure, Tempo, Time/Key Signature, Barline Types, Endings, Coda Phrases, Measure Numbers, Compressed Rests, Align/Swing Playback, Align Spacing;**
- **Score: Text Elements, Add/Delete Page, Add/Delete Staff, Split this Staff, Tablature Staff, Percussion Staff, Conect/Center Staves, Center Systems, Measure per System, Systems per Page;**
- **View: Show/Hide Score Colors, Guitar Frets, Show/Hide Staves, Refresh Score, Linear View, Hide Floating Windows;**
- **Windows: Palette (Notes, Clefs, Graphics, Tools, Dynamics, Marks 1, Marls 2, Symbols, Guitar, Expressions, Color), Keyboard, Tempo, Toolbar, Staff Sheet, Tile, Cascade, Arrange Icons, Close All;**
- **Setup: MIDI Setup, Record Setup, Transcription Setup, Spacing Defaults, Click Setup, Toolbar Setup, Click On, Follow Playback, Auto Guess/Beam, Auto Space, Save Preferences;**
- **Help: Topics, Current Topic, Help on Help, Link to Web Site, About Encore.**

Prezentarea generala a programului
SCORE
Computer Music Typography System
Written by Leland SMITH
Programers: Leland SMITH, Perry DEVINE

www.scoremus.com
http://ace.acadiau.ca/score
lcs@ccrma.stanford.edu

- Complex de programe [SCORE Version 4.01, Midiscor (SCORE to MIDI), MIDISCORWRITE (MIDI to SCORE), FINALSCORE (Finale to SCORE)] realizate la Center for Computer Research in Music and Acoustics (CCRMA) - Department of Music, Stanford University (USA) de Prof. Leland SMITH – toate operand pe MS-DOS (drive: floppy - cf.*"Appendix 1"*) si avand urmatoarele coordonate: 1100 items, 11000 parameters, 29000 graphic vectors.

- b.) PROGRAME WAV DE EDITARE MUZICALA

Functiile programului
SOUND FORGE 4.5
http://www.sonicfoundry.com

GENERALE
- ***File*: New, Open (All Types), Work space (open), Exit;**
- ***Edit*: Paste to New;**
- ***View*: Full Screen, Toolbars, Clipboard (Contents, Play), Region List, Playlist/Cutlist, Keyboard, Mixer, Time Display, Video Preview, Play Meters, Undo/Redo History;**
- **Special: Record;**
- ***Tools*: Batch Convertor, Preset Manager;**
- ***Options*: MIDI Input Sync/Trigger, MIDI Output Sync, MIDI Triggers, Preferences;**
- **Window: New Window;**
- ***Help*: Contents, Search for Help, Keyboard Shortcuts, Troubleshooting, Tip of Day, Sonic Foundry on Web (Product News, Frequently Asked Questions, Online Support, Sound Forge Home Page, Send Feedback, Sonic Foundry Home Page), About Sound Forge.**

SPECIALE
- ***File*: New, Open (All Tzpes), Close, Workspace, Save, Save As (asf, smp, svx, iff, v8, voc, vox, pat, ivc, aif, snd, sds, au, snd, rm, ra, smp, sfr, dig, sd, snd, avi, wav, wma), Save All, Properties, Send, Exit;**
- ***Edit*: Can`t Undo, Can`t Redo, Can`t Reper, Cut, Copy, Copy Object Link, Paste, Paste Special (Crossfade, Mix, Overwrite, Replicate, Paste to New), Trim/Crop, Delete (Clear), Select All, Preview Cut/Cursor, Pre-roll Cursor, Tool (Edit, Magnify, Pencil), Go To, Selection (Snap to Time, Snap Edge to Time, Snap to Yero, Snap Edge to Yero, Set), Undo All, Disable Undo/Redo;**
- ***View*: Maximize Width, Full Screen, Clipboard (Contents, Play), Zoom Level (Out Full, Window, Selection), Zoom Time (In Full, Normal, Out Full, Selection), Focus to Data Window, Region List, Playlist/Cutlist, Keyboard, Mixer, Time Display, Video Preview, Play Meters, Undo/Redo History, Loop Tuner;**
- ***Special*: Transport (Record, Play All, Play, Pause, Stop, Go to Start, Rewind, Forward, Go to End, Play Normal Mode, Play Looped Mode, Play as Sample/Cutlist Mode), Region list (Add, Delete, Edit, Replicate, Split, Update, Clear, Markers to Regions, Open, Save As, Copy onto Clipboard), Playlist/Cutlist (Add, Delete, Edit, Replicate, Clear, Stop Point, Pre-roll Playback, Open, Save As, Copy onto Clipboard, Convert to New, Treat as Cutlist, Delete Cut Regions), ASF Markers/Commands (Save As, Import, Add Command), ACID Looping Tools (Halve Selection, Double Selection, Shift Selection Left, Shift Selection Right, Rotate Audio), Edit ACID Properties, Edit Sample, Edit Frame Rate, Edit Tempo, Center Cursor, Drop Marker, Create Region, Create Sample Loop, Mark In, Mark Out, Toggle Selection, Undo/Redo History (Clear, Clear All), Rebuild Peak Data;**
- ***Process*: Audio Trim/Crop, Channel Concertor, Convert to 8-Bit, DC Offset, EQ (Graphic, Paragraphic, Parametric), Fade (Graphic, In, Out), Insert Silence, Invert/Flip, Mute, Normalize, Pan/Expand, Resample, Reverse, Smooth/Enhance, Time Compress/Expand, Volume;**
- ***Effects*: Amplitude Modulation, Chorus, Delay/Echo (Multi-Tap, Simple), Distorsion, Dynamics (Graphic, Multi-Band), Envelope, Flage/Wah-Wah, Gapper/Snipper, Noise Gate, Pitch (Bend, Shift), Reverb, Vibrato;**

- ***Tools*: Auto Region, Batch Converter, Crossfade Loop, Extract Regions, Find, Preset Manager, Run Batch Script, Sampler, Spectrum Analysis, Statistics, Synthesis (DTMF/MF Tones, FM, Simple);**
- ***DirectX* : Audio Plug-In Chainer, CW, SF, etc.;**
- ***Options*: Status Format (Samples, Time, Seconds, Time& Frames, Absolute Frames, Measures & Beats, SMPTE - Non-Drop, Drop, EBU, Film Sync), Annotations (Marker - Names, Lines; Region - Names, Lines; Loop – Region, Lines), Play Meters (Reset Clip, etc.), Time Display (Position, Sync/Trigger Status, Playlist Position, Passive Update), Video (Passive Update, etc.), Scroll Playback, Scroll Smoothy, Drag and Drop Snapping, Lock Loop/Region Length, Past Events, Selection Grid Lines, Auto Snap - to Time, to Yero, MIDI – Input Sync/Trigger, Output Sync, Pre-Queue for SMPTE/MTE, MIDI Triggers, Preferences;**
- ***Window*: New Window, Cascade, Title – Horizontally, Vertically, Arrange Icons, Minimize All, Restore All, Close All:**
- ***Help*: Contents, Search for Help, Keyboard Shortcuts, Troubleshooting, Tip of Day, Sonic Foundry on Web (Product News, Frequently Asked Questions, Online Support, Sound Forge Home Page, Send Feedback, Sonic Foundry Home Page), About Sound Forge.**

Functiile programului
Audacity 1.2.0-pre2
http://audacity.sourceforge.net

- *File* : *New* , *Open* (Audacity Projects-aup, WAV-wav, AIFF-aif, AU-au, MP -mp3, OggVorbis-ogg, List of Files-lof), *Close, Save Project* (aup), *Save Project As* (aup) *Export As WAV, Export Selection As WAV, Export As MP3, Export Selection As MP3* (NB-functia mp3 este viabila doar prin adaugarea « lame_enc.dll », ce poate fi obtinut la mitiok.free.fr **sau la** www.jthz.com/~lame/ **), *Export As OggVorbis, Export Selection As OggVorbis, Export Labels, Preferences, Exit ;***
- *Edit* : *Undo, Redo, Cut, Copy, Paste, Trim, Delete, Silence, Split, Duplicate, Select* (All, Start, to Cursor, Cursor to End) , *Find O Crossing, Selection Save, Move Cursor* (to Track Start, to Track End, to Selection Start, to Selection End), *Snap-To* (On, Off) ;
- *View* : *Zoom In, Zoom Normal, Zoom Out, Fit in Window, Fit Vertically, Zoom to Selection, Set Selection Format* (min :sec, sec, ho :min :sec, film , PAL, NTSC, cdda, samples, etc.), *History, Plot Spectrum, Float Control Toolbar, Float Edit Toolbar, Float Mixer Toolbar ;*
- *Project* : *Import Audio, Import Labels, Import MIDI* (NB-doar vizualizat), *Import Raw Data, Edit ID3 Tags, Quick Mix, New Audio Track, New Stereo Track, New Label Track, New Time Track, Remove Tracks, Align Tracks* (with Zero, with Cursor, with Selection, Together), *Align and move cursor* (with Zero, with Cursor, with Selection), *Add Label Art Selection ;*
- *Generate* : *Silence, Tone, White Noise ;*
- *Effect* : *Amplify, BassBoost, Change Pitch, Change Speed, Change Tempo, Compress, Echo, Equalization, Fade In, Fade Out, FFT Filter, Invert, Noise Removal, Normalize, Nyquest Prompt, Phaser, Repeat, Reverse, Wahwah ;*
- *Analyse* ;
- *Help* : *About Audacity, Online Help.*

NB – Acest performant program este utilizat si in experimentele efectuate la CCRMA – Stanford University.

Functiile programului
PRO TOOLS Free
version 5.0.1.471
© 1991-2000 digidesign – A divios of Avid
http://www.digidesign.com

- **File: New Session, Open Session, Close Session, Save Session, Save Session As, Save Session Copy In, Revert to Saved, Bounce to Disk, New Track, Rename Selected Tracks,**

Group Selected Tracks, Delete Selected Tracks, Import Audio/Track, Import MIDI/Track, Import MIDI, Get Info, Exit;

- **Edit: Can´t Undo, Cut, Copy, Paste, Merge Paste, Clear, Duplicate, Repeat, Shift, Select All, Trim, Capture Region, Separate Region, Heal Separation, Quantize Regions, Mute/Unmute Region, Lock/Unlock Region, Consolidate Selection, Identify Sync Point, Identify Beat, Identify Silence, Strip Silence, Insert Silence, Fades (Create/Delete Fades, Fade To Start/End), Thin Automation;**
- **AudioSuite: DeEsser, Compressor, Limiter, Expander-Gate, Gate, 1-Band EQ II, 4-Band EQ II, Invert, Duplicate, short delay, slap delay, medium delay, long delay, Normalize, Gain, Reverse, DC Offset Removal, Time Compression Expansion, Pitch Shift;**
- **MIDI: Change Tempo, Change Meter, Quantize, Change Velocity, Change Duration, Transpose, Select Notes, Split Notes, Input Quantize, Click, Click Options, MIDI Beat Clock, Input Filter, MIDI Thru, All Notes Off;**
- **Operations: Destructive Record, Loop Record, QuickPunch, Auto Input Monitor, Input Only Monitor, Online, Pre/Post-Roll Playback, Loop Playback, Scroll Options,(No Auto-Scrolling, Scroll After Playback, Page Scroll During Playback), Link Edit and Timeline Selection, Play Edit Selection, Active In Background, Pre-Fader Metering;**
- **Display: Show Edit Window, Narrow Mix Window, Mix Window Shows (Comment View, 1/0 View, Insert View, Sends View, All, None), Edit Window Shows (Comment View, 1/0 View, Insert View, Sends View, All, None), Transport Window Shows (Counters, MIDI Controls, Expanded), Sends View Shows (Bars:Beats, Minutes:Seconds, Samples, Markers, Tempo, Meter, All, None), DSP Usage Window Shows, Disk Space Window Shows, Display Time In Regions (None, Current Time, Original Time Stamp, User Time Stamp), Display Name In Regions, Display Auto-Created Regions, Bars:Beats, Minutes:Seconds, Samples;**
- **Windows: Show/Hide Mix; Show Edit, MIDI Operations, Tempo/Meter; 1-9 on numeric keypad only – show: Transport, Session Setup, Big Counter, Automation Enable, Memory Locations, Disk Space;**
- **Help: Pro Tools Reference Guide, DigiRack Plug-Ins Guide, MIDI Controllers Guide, Keyboard Shortcuts, About Pro Tools.**

- c.) CONVERTERE

- WAV-MP3-WMA -

Functiile programului
MusicMatch Jukebox 6.00
http://www.musicmatch.com

- ***File* : *Open* [All Song Files (cda, epcx, mp2, mp3, saf, wav, wma)], *Convert* [din wav in wma (5, 6, 8, 10, 12, 16, 20, 22, 32, 36, 40, 44, 48, 64, 80, 96, 128, 160 kbps), sau in mp3CBR (8, 16, 18, 20, 24, 32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 kbps), sau in mp3VBR (1-100%) ; din mp3 in wav, sau in wma (5-160 kbps), sau in mp3CBR (8-320 kbps), sau in mp3VBR (1-100%) ; din wma doar in wma (5-160 kbps)], *Add New Track(s) to Music Library, Open Music Library, Print, Export Play List Tracks, Create CD from Playlist, Exit ;***
- ***Edit* : *Playlist Track Tag(s), Select All in Playlist, Clear Playlist, Copy Art to Clipboard, Paste/Tag Art from Clipboard ;***
- ***View* : *Small Player View, Full Player View, My Library, MusicMatch Radio, Music Guide, NowPlaying, Recorder, Media Window, Buy CD Site, Visualizations* (Select, Start, Configure), *Sound Enhancement* (Select, Enable, Show UI), *Auto Arrange Components, Always on Top ;***
- ***Options* : *Player* [Play Control (Previous, Record, Play, Pause, Stop, Next, Seek backward/forward, Skip back songs/forward songs, Increase Volum, Decrease Volum, Mute), Play Cycle (Once, Repeat), Play Reording (Reorder by Album/Track, Shuffle), Equalizer, Settings], *Playlist* [Open Music, Auto DJ, Save Playlist, Clear Playlist], *Music Library* [New/Open/Save/Clear/Export/Import/Add New Track(s) to Music Library, Delete/Edit/Find Track(s), Search and Add Track(s) from All Drives, Music Library Settings], *Recorder* [Control (Start, Stop, Cancel, CDDB Refresh, Select All/None), Source**

(E:/CD, Line In, Mic In, System Mixer), Quality (MP3-160, 128, 96, 64 kbps ; WMA-128, 96, 64 kbps ; WAV ; Custom VBR-6% ; Custom CBR-48 kbps ; Custom WMA-5 kbps), Send Album Info to CDDB, Settings – NB-pentru auto-configurare : Settings/Recorder/Advanced/Autoconfig/medium], ***Add New Features, Get Miusic Recommendations, Update Software, Change Skin, Download Skins, Change Text Size, Settings ;***

- ***Help* : *MusicMatch Jukebox Help, Getting Started, Tip of Day, Additional Help Online, Purchase UpdateRegistration, Request Technical Support, Online Satisfaction Survey, About MusicMatcj Jukebox.***

Functiile programului
Shuffler Music Converter 4 r2
http://www.ilustrate.org

- ***Convert (From):*** **Mp3 File(s), Wave File(s), WMA File (s);**
- ***Next – Convert to Audio Format:*** **Wave (Quality 44.100 Hy, 16 Bit, Stereo), MP3 (Quality 56, 64, 96, 128, 160, 192, 256, 320 Kbps, Stereo/Mono), WMA (Quality 32.000 Khz – 36, 48, 64, Kbps Stereo; 44.100 Khz – 48, 64, 96, 128, 160 Kbps Stereo);** ***Save Converted File(s):*** **Same Folder as Original/This Folder-Browse;**
- ***Back/Convert;***
- ***Exit;***
- ***Help;***
- ***About.***

- WAV in MIDI -

Functiile programului
AmazingMIDI v1.70
Copyright © 1998-2003 arakisoftware
http://www.pluto.dti.ne.jp/~araki/amazingmidi/

- ***File* : Specify Tone File (piano0, piano1, pulse, sample, sine), Specify Input File (wav), Specify Output File (mid), Exit ;**
- ***Play* : Play Tone File, Play Input File, Play Output File ;**
- ***Transcribe* : Transcribe ;**
- ***View* : Zoom In Horizontally, Zoom Out Horizontally, Zoom In Vertically, Zoom Out Vertically ;**
- ***Help*: Contents, About AmazingMIDI.**
-

- **MIDI in WAV (sau MP3) –**

-

ACID Pro 4.0
http://sonicfoundry.com/acid

– Prin activarea functiilor *File/Open/MIDI Files* si apoi *File/ Render As/Save as type WAV (sau MP3)* [*NB* - toate functiile acestui complex program de editare sunt prezentate mai jos].

-IMAGINEA PARTITURII IN SUNET -

Functiile programului
SharpEye Music Reader
version 1.15 (Mar 18 2000)
© 1999-2000 Graham Jones
www.visiv.co.uk

- **Image:** **Display Image, Open (TIFF, BMP), Zoom (25%, 50%, 100%), Edit (Rotate Left/Right/By 180, Invert), Delete Zone, Read, Batch process, Exit ;**
- **Music:** **Save, Save As, Open ;**
- **MIDI:** **Save, Save As ;**
- **NIFF:** **Save, Save As ;**
- **Options:** **MIDI Options, Save window positions ;**
- **Help:** **Content, About SharpEye.**

NB – Acest interesant program transforma imaginile partiturilor editate (dar nu si manuscrisele) - scanate in prealabil (in formatele BMP si TIFF) - in fisiere audio (MIDI si NIFF/Notation Interchange File Format).

- TEXT SCRIS, IN SUNET (VOCE) -

Functiile programului
River Past Talkative
Version 1.5.1.31216
© 2003 River Past Corporation
www.riverpast.com

- **File:** **New, Open [Text File (txt), Rich Text Format (rtf)], Save As [Text File (txt), Rich Text Format (rtf)], Open Settings [River Past Talkative Settings 8sts)], Save Settings [River Past Talkative Settings 8sts)], Exit;**
- **Edit:** **Undo, Redo, Cut, Copy, Paste, Clear, Select All;**
- **Speech: Start, Pause, Stop, Record (WAV, PM3, WMA, AVI; Stereo/Mono; Resolution 8/16 bits, Sample Rates 8-48 khy, Bitrqte 352, 8 kb/sec.);**
- **Download:** **Latest DirectX, Windows Media Format runtime, Text-to-Speech Engine (SAPI 5.1);**
- **Try:** **Audio: Capture/CD Ripper/Converter; Screen Recorder, Video Cleqner, Video Perspective, Web Slides;**
- **Help:** **Contents, Buy Now, Register, Go to River Post Website, About River Past Talkative.**

NB – Acest converter necesita si instalarea unor programe complementare (DirectX, SAPI 5.1 Text-to-Speech Engine, etc.), ce sunt descarcate automat de pe Internet prin activarea functiei "Download".

- IMAGINEA FOTOGRAFICA, IN SUNET -
(pixels in MIDI)
Functiile programului
MIDImage – The Loxound Musical Pixelator
Version 2.4.4.1
(conceput cu "Borland Delphi v.5")
© 2003 Brute Force Programming,
© by Daniel J. Wojcik, Landstuhlerstr.2,Ramstein-Miesenbacg 66877 Germany
lmp@genjerdan.com
www.genjerdan.com

- **File:** **New Project [Project Files (Iprj), MIDI Files (mid), Configuration Files (Impc), WAVE Files (wav)], Open Project [Project Files (Iprj), Images (bmp, jpg, gif), MIDI Files (mid), Configuration Files (Impc), Patches (bank)], Save Project, Add Image to Project (jpg, jpeg, bmp, gif), Create Web Page, Save Settings As (mid, Iprj, Impc, wav), Load MIDI, Print Composition Settings, Exit;**
- **Configure:** **Pathes & Note Ranges, Select MIDI Device, Configure Scales, Bank Settings, Load Additional Patches (Banks);**
- **Options:** **Track 10 is Percussion, Boost Dynamics, Show Flyover Hints, Overwrite Image on Save, Strict Bank Control;**
- **Tools:** **Create Bank Patch List, Autoload SoundFonts, Go to Position, Track Editor;**
- **Help:** **Help, Program Info, Registration, Credits, MIDImage Homepage.**

- d.) PROGRAME (WAV, MP3, MIDI) DE EDITARE MULTI-TRACKS

Functiile programului
ACID Pro 4.0
http://sonicfoundry.com/acid

- ***File**: New, Open* **[All Project and Media Files – incl. ACID Project Files (acd, acd-bak), MIDI Files (mid, smf, rmi), CD Audio, MP3 Audio (cda), Audio Interchange File Format (aif), OggVorbis (ogg), Quick Time (mov, qt, dv, gif), Sonic Foundry Audio (sfa), Sonic Foundry Perfect Clarity Audio (pca), Sonic Foundry Wave64 (w64), Wave Microsoft (wav), Windows Media Audio V8 (wma), Windows Media Video V8 (wmv)],** ***Save, Save As*** **[ACID Project File (acd), ACID Project File With Embedded Media (acd-zip],** ***Export Loops*** **[AIFF (aif), MP3 Audio (mp3), OggVorbis (ogg), Sonic Foundry Perfect Clarity Audio (pca), Wave Microsoft (wav)],** ***Render As*** **[AIFF (aif) Main Concept MPEG1 (mpg), Main Concept MPEG2 (mpg), MP3 Audio (mp3), OggVorbis (ogg), Quick Time (mov), Real Media (rm), Sonic Foundry Perfect Clarity Audio (pca), Sonic Foundry Wave64 (w64), Video for Windows (avi), Wave Microsoft (wav), Windows Media Audio V8 (wma), Windows Media Video V8 (wmv)],** ***Extract Audio from CD, Get Media from Web, Publish Setup, Publish, Properties*** **(Summary (Title, Artist, Engineer, Copyright, Comments), Audio (Master bus mode Stereo/5.a Round, Number of additional stereo busses, Sample rate-Hz., Bit depth-8/16/24)], Exit;**
- ***Edit*****: *Undo Draw Event, Redo, Cut, Copy, Paste, Delete, Select All, Paste Repeat, Paste Insert, Trim, Split, Join, Fit to Time, Editing Tool (Draw, Selection, Paint, Erase, Envelope, Time Selection, Next Tool, Previous Tool), Undo All, Clear Undo History;***
- ***View*****: *Toolbar, Status Bar, Focus to Track View, Explorer, Chooper*** **(vizualizeaza in detaliu fisierul deschis),** ***Mixer, Video, Audio Plug-In*** **(introduce EQ),** ***Track Properties*** **(descrie fisierul deschis),** ***Surround Panner, Soft Synth Properties, Show Video Track, Show Bus Track, Zoom*** **(Normal, Edit, Overview),** ***Time Rules*** **[Show Time Ruler, Samples, Seconds, Time & Frames, Absolute Frames, Feet and Frames 16 mm (40 fpf) si 35 mm (16 fpf), SMPTE Film Sync (24 fps), SMPTE EBU (25 fps, Video), SMPTE Non-Drop (29.97 fps, Video), SMPTE Drop (29.97 fps, Video), SMPTE 30 (30 fps, Audio), Set Time at Cursor],** ***Show Envelopes*** **(Volume, Pan),** ***Minimize All Tracks*****;**
- ***Insert*****: *Marker, Region, Time Marker, Tempo/Key/Time Signature Cnage, Command MIDI Track, Assignable FX, Bus, Soft Synth*** **(DLS Soft Synth, Sonic Foundry Inc.),** ***Time, Envelopes*** **(Volume, Pan);**
- ***Tools*****: *Render to New Track, Burn Track-at-Once Audio CD, Start AC-3DVD Burner, Reset All MIDI Ports, Edit in Sound Forge;***
- ***Options*****: *Snapping*** **(Enable, Grid Only),** ***Grid Spacing*** **(Ruler Marks, Measures, Half Notes, Quarter Notes, Quarter Notes Triplets, 8th Notes, 8th Notes Triplets, 16th Notes, 16th Notes Triplets, , 32th Notes, 32th Notes Triplets, 64th Notes, 64th Notes Triplets), Ripple Edits, Lock Envelopes to Events, Loop Playback, Enables Real-Time MIDI, Timecode (Generate MIDI Timecode, Generate MIDI Clock, Trigger from MIDI Timecode),** ***Customize Toolbar, Preferences;***
- ***Help*****: *Contents and Index, What`s This ?, Keyboard Shorcuts, ACIDplanet.com, Sonic Foundry on the Web, About ACID Pro.***

Comenzi Mouse-dreapta**: *Select in Chopper, Select All on Track, Select Events to End, Cut, Copy, Paste, Delete, Split at Cursor, Join, Pitch Shift*** **(Up Semitone, Down Semitone, Reset),** ***Insert/Remove Envelope*** **(Volum, Pan, Bus A,B,C, FX Automation),** ***FX Automation Envelopes*** **(FX Automation),** ***Quick Fade Edges, Properties, Zoom to Loop Region;***
Add Point: Cut, Copy, Paste, Delete, Linear Fade, Fast Fade, Slow Fade, Smooth Fade, Sharp Fade, Hold, Select All, Reset All;

***Comenzi incluse in Track (de la stanga la dreapta)*: Minimize/Restore, Nume Track, Microsoft Sound Mapper, Track FX, Mute, Solo.**

OPERATII CURENTE CU „SAMPLES“ SI „LOOPS“

Acest program bazat pe tehnica buclelor sonore („loops based music creation“) implica combinarea mai multor scurte fragmente muzicale pre-inregistrate („samples“), ce sunt ordonate intr-un folder special, reprezentand o banca de esantioane sonore (de obicei in formatele wav, mp3 sau midi). Prin comanda „File/Open“ acestea pot fi inserate in track-uri (linii temporale), prin trasarea lor cu „creionul“ digital activat prin comanda „Draw Tool button“. Esantioanele mai lungi de 30“ se pot sincroniza prin „Beatmapper Wizard“, ce determina precizarea unui tempo comun tuturor track-urilor (in BPM = bits per minute, primul timp din prima masura fiind considerat „Downbeat“). Tempourile si inaltimile acestor esantioane sonore („samples“) pot fi ulterior reformulate la diferite scari („rates“) de durate si frecvente, prin operatia „resample“. De asemenea, in cadrul track-urilor se pot efectua operatiile curente, (cut, copy, paste, delete, split, etc.), precum si cele referitoare la configurarea dinamicii si a micro- structurii sonore („envelope“). Compozitia rezultata prin suprapunerea mai multor track-uri poate fi salvata (“Save“, „Save As“) in formatele specifice programului (acd, acd-zip), precum si in celelalte formate uzuale – ca bucla sonora („File/Export loops“ – aif, mp3, ogg, pca, wav) sau ca lucrare definitivata („File/Render As“ – aif, mp3, ogg, mov, rm, pca, wwav, wma, etc.). Acest program bazat pe bucle sonore („loops“) reprezinta o cale foarte eficienta de sinteza a structurilor muzicale de factura repetitiva.

- e.) PROGRAME COMPLEMENTARE

Functiile programului
KB PIANO Version 1.1
© 2003 Gabriel Fernandez
http://www.qfsoftwqre.com

- ***File: New, Open* (KBPiano Files – kbp), *Save, Save As* (kbp), *Export to MIDI File* (mid), *Properties* (Title, Author, Comment), *Exit*;**
- ***Channel*: *Delete Events, Remove Vol Messages, Remove Pan Messages, Clear channel;***
- ***Options*: *Tuning, Show notes, Mem used, Midi devices, Restart Device;***
- ***Metronome*: *Set up* (Milliseconds, Sound number, Volume), *Enabled;***
- ***Help: Contents, KB Shortcuts, Quick Help, Support the author, About;***
- ***Alte comenzi*: *Patch, QChord, Play, Rec* (Rec Over, Solo), *Stop, Undo, Pan, Octave* (1-6), *Channel* [1-12, + (13-15), Name], *Channel Volume, Master Volume.***

- ***NB – Prin comanda “Rec”, programul transforma tastatura (keyboard-ul) computerului intr-o claviatura muzicala: prima linie de taste alfabetice in sistemul anglo-american (QWERTYUIOP[]) devine o claviatura cu un ambitus diatonic de o duodecima (C2-G3), cromatizabil prin adaugarea accidentilor (linia de taste numerice “2356790=” de deasupra) si extensibil la 6 octave (C2-G8), prin comanda “Octave 1-6” (sau F1 – F6); de asemenea, prin activarea liniei IV de taste alfabetice (ZXCVBNM) se pot obtine trisonuri diatonice pe ambitusul C2-G3, extensibil la 6 octave prin tastele F7 – F12 (configuratia acordurilor putand fi setata prin comanda QChord). Liniile de taste alfabetice monodice (tastele diatonice “QWERTYUIOP[]” – la care se adauga tastele cromatice “2356790=”) si acordice (ZXCVBNM) se pot utiliza simultan; astfel, programul permite inregistrarea unor linii monodice (“Rec/Solo”), cat si omofonice, polifonice sau eterofonice (prin suprapuneri consecutive - “Rec/Rec Over”) pe toate cele 15 canale disponibile – canalul 9 fiind rezervat percutiei. Compozitia rezultata poate fi salvata (prin “Save” sau “Save As”) in formatul specific “KBPiano File” (kbp – ce nu este insa recunoscut de alte programe) sau in formatul MIDI (prin “Export to MIDI File”) – format universal ce poate fi ulterior convertit intr-o partitura muzicala (de pilda, prin programul “MOZART 6” - comanda “File/Import MIDI”), sau integrat ca mostra (“sample”) sau bucla (“loop”) in programul “ACID Pro 4.0”.***

Functiile programului
PRAAT doing phonetics by computer
Version 4.1.12

- 1.) PRAAT objects

- ***Control*: *Statistics, New Praat script, Open Praat script, Goodies*** **(Calculator, Stop playing sound, Report floating point properties),** ***Preferences*** **(Buttons, Sound input prefs, Sound output prefs), Quit;**
- ***New*: *Record mono sound, Record stereo sound, Sound*** **(Create sound, Create sound from: tone complex, gamma tone, Shepard tone),** ***Matrix*** **(Create Matrix, Create simple Matrix),** ***Tables*** **[Create Table, Create TableOfReal, Create formant table (Pools & Van Nierop 1973), Create formant table (Peterson & Barney, 1952), Create TableOfReal (Pols 1973)],** ***Tiers*** **(Create: empty PointProcess, Poisson process, PitchTier, FormantTier, IntensityTier, DurationTier,AmplitudeTier),** ***Create TextGrid, Create Strings as file list, Optimaly Theory*** **(OT learning tutorial, Create: NoCoda grammar, place assimilation grammar, place assimilation distribution, tongue-root grammar, metrics grammar),** ***Articulatory synthesis*** **(AS tutorial, Create: Articulation, Speaker, Artword, Vocal Track from phone),** ***Polynomial*** **(Create: Polynomial, LegendreSeries, ChebyshevSeries, MSpline, Ispline),** ***Multidimensional scaling*** **(MDS tutorial, Create: letter R example, INDSCAL Carrol Wish example, Configuration; Draw splines and MDS class relations),** ***Neural nets*** **(FFNet tutorial, Create: Freedforward Net, Pattern with zeroes, empty Categories, iris example);**
- ***Read*: *Read from file, Open long sound file, Read two Sounds from stereo file, Read from special sound file*** **(raw Alaw file, 16-bit Little Endian file, 16-bit Big Endian file),** ***Read Mattrix from raw text file, Read Strings from raw text file, Read TableOfReal from headerless spreadsheet file, Read Table from table file, Read from special tier file*** **(Text Tier from Xwaves, Interval Tier from Xwaves);**
- ***Write*;**
- ***Help*: *Object window, Intro, FAQ, What's new, Types of objects, Editors, Acknowledgments, Formulas tutorial, Scripting tutorial, Programming, Go to manual page, Search Praat manual, About Praat.***

- 2.) PRAAT picture

- ***File*: *Read from praat picture file, Write to praat picture file, Write to Windows metafile, Copy to clipboard, PostScript setting, Write to EPS file, Write to fontless EPS file, Print;***
- ***Edit*: *Undo, Erase all;***
- ***Margins*: *Draw inner box; Text-left, right, top, bottom; Marks-left every, right every, bottom every, top every; One mark-left, right, bottom, top; Marks*** **(left, right, bottom, top);** ***Logarithmic marks*** **(left, right, bottom, top),** ***One logarithmic mark*** **(left, right, bottom, top);** ***Axes;***
- ***World*: *Text; Text special; Draw-line, arrow, two-way arrow; Draw/Paint rectangle; Draw:Paint sounded rectangle; Draw arc; Draw/Paint ellipse; Draw/Paint circle; Draw/Paint circle*** **(mm);** ***Axes; Measure*** **[Horizontal-mm to wc, wc to mm; Vertical-mm to wc, wc to mm; Text width (wc, mm), PostScript text width (wc, mm)];**
- ***Select*: *Plain/Dotted/Dashed line; Line width, Black/White/Red/Green/Blue/Yellow/Cyan/Magenta/Maroon/Lime/Navy/Teal/Purple/Olive/Silver/Grey;***
- ***Font*: *10/12/14/18/24; Font size; Times/Helvetica/New Century Schoolbook/Palatino/Courier;***
- ***Help*: *Picture window help, About special symbols, About text styles, Phonetic symbol chart, Search manual.***

NB – Acest foarte specializat program este dedicat analizei, sintezei si prelucrarii sunetelor (cuvintelor), precum si generarii unor imagini grafice complexe ale fenomenului sonor. Programul PRAAT este utilizat si in experimentele efectuate la CCRMA – Stanford University.

Principalele functii ale programului
Fractal Tune Smithy v.2.21

www.tunesmithy.co.uk
support@tunesmithy.co.uk

- **NB – Programul genereaza melodii fractale in baza unor moduri prefigurate, dar sintetizeaza si noi moduri, precum si noi configuratii ale desenelor melodice fractale imaginate de utilizator. Structurile melodice rezultate pot fi salvate in mai multe formate audio - inclusiv in formatul MIDI, ce poate fi convertit ulterior in partituri, inclusiv prin programele de redactat mentionate mai sus: "Mozart" (functia "Import MIDI"), "Finale", "Sibelius", "NoteWorthy Composer", "Lime", "Encore",etc.**

- **Functiile de baza : *Chose a View* (la lansarea programului – cu optiunile: Tune Smithying, Play Fractal Tunes, Scales Work, etc.), *File* (New, Open, Save, Save As, etc.), *Out* (Midi default, Play Control, etc.), *In* (Options, etc.), *Voices* (configurarea timbrelor MIDI), *Parts*, *Pitch*, *Bs.* (Play, Stop, Pause/Continue, Record, Arpeggio & Scale Playback, etc.), *View* (Tune Smithying, Play Fractal Tunes, Scales Work, etc.), *Help* (Help, About, etc.).**
- **Cele mai importante arhetipuri modale incluse in program:**

1 n(1/7) ! 7 tone modes:1 1 2 1 2 Thai mode 1;+1 2 1 2 1 Thai mode 2;2 1 1 2 1 Thai mode 6.

Modes_for_default_scales.lmd Alternate notes: 1 122 cents 271 cents 571 cents 677 cents 785 cents 947 cents ! Typical 7 note Pelog scale;[2] 1 1 2 3 Slendro Alit;+[1] 1 2 2 2 Jegog;1 3 1 1 1 Dangsoe;1 1 1 3 1 Manyura;1 1 2 1 2 Patet Lima, Patet Nem, Jawar, Selisir;[1] 1 2 1 1 2 Patet Barang;1 2 1 1 2 Patet Lima, Nem with Pelog;[1] 1 1 2 1 2 Patet Barang with Pelog, Manangis, Slendro Gede, Pergenter 2;[2] 1 1 2 1 2 Liwung, Pergenter 1, Pengenter Alit;[3] 1 1 2 1 2 Tembung;[4] 1 1 2 1 2 Nyorog, Sunaren;[5] 1 1 2 1 2 Nyorog handap, Baro;2 1 1 2 1 Pelog;1 2 1 2 1 Bem, Pengenter;2 1 2 1 1 Miring, Slendro 2;[4] 2 1 2 1 1 Slendro 1;[1] 2 1 2 1 1 Slendro 3;[3] 2 1 2 1 1 Slendro 4;1 1 1 1 1 1 1 Lebeng.

Modes_for_default_scales.lmd Alternate notes:1 n(1/12) ! 12 tone modes;10 2 Warao ditonic: South America;+5 7 Honchoshi: Japan;7 5 Niagari: Japan;6 1 5 Raga Ongkari;3 7 2 Ute tritonic;5 2 5 Raga Sarvasri, Warao tritonic: South America;5 5 2 Sansagari: Japan;3 4 5 Peruvian tritonic 2;4 3 5 Raga Malasri, Peruvian tritonic 1;1 5 1 5 Messiaen truncated mode 5;5 1 5 1 Messiaen truncated mode 5 inverse;2 1 7 2 Warao tetratonic: South America;2 4 5 1 Raga Sumukam;1 4 3 4 Raga Lavangi;2 2 3 5 Eskimo tetratonic (Alaska: Bethel);2 3 2 5 Genus primum;5 2 3 2 Genus primum inverse;2 4 2 4 Messiaen truncated mode 6;4 2 4 2 Messiaen truncated mode 6 inverse;2 3 4 3 Raga Bhavani;4 3 3 2 Raga Mahathi;3 4 3 2 Bi Yu: China;1 6 1 3 1 Raga Deshgaur;1 3 1 6 1 Raga Megharanji;1 1 4 1 5 Raga Nabhomani;1 5 1 1 4 Raga Saugandhini, Yashranjani;5 2 1 3 1 Raga Devaranjani (Devaranji);2 1 4 1 4 Hira-joshi, Kata-kumoi: Japan:=1 4 2 1 4 Hon-kumoi-joshi, Sakura, Akebono II: Japan, Olympos Enharmonic, Raga Salanganata, Saveri, Gunakri (Gunakali), Latantapriya;1 4 1 4 2 Iwato: Japan:4 2 1 4 1 Raga Amritavarshini, Malashri, Shilangi;4 1 4 2 1 Raga Bhinna Shadja, Kaushikdhvani, Hindolita;1 2 4 1 4 Balinese Pelog, Raga Bhupalam, Bhupala Todi, Bibhas;4 1 2 4 1 Raga Gambhiranata, Ryukyu: Japan;1 4 2 4 1 Raga Gauri;4 1 4 1 2 Raga Khamaji Durga;2 4 1 4 1 Raga Vaijayanti, Hamsanada;4 1 2 1 4 Raga Zilaf;4 1 3 3 1 Bacovia: Romania, Raga Girija;1 4 3 3 1 Raga Kshanika;1 3 1 3 4 Raga Megharanjani, Syrian pentatonic;3 3 1 4 1 Raga Multani;1 3 3 1 4 Raga Reva, Revagupti, Ramkali, Vibhas (bhairava);2 2 2 5 1 Raga Kumurdaki (Kumudki);5 2 2 1 2 Raga Kuntvarali;2 5 2 1 2 Raga Matha Kokila (Matkokil);2 2 5 2 1 Raga Neroshta;2 1 2 2 5 Raga Purnalalita, Chad Gadyo: Jewish, Ghana Pentatonic 1;5 2 2 2 1 Raga Puruhutika, Purvaholika;2 3 2 1 4 Han-kumoi: Japan, Raga Shobhavari;1 4 2 3 2 Kokin-joshi, Miyakobushi, Han-Iwato: Japan, Raga Vibhavari (Revati), Bairagi, Lasaki

1 4 2 2 3 Altered Pentatonic, Raga Manaranjani II: 2 1 2 4 3 Raga Abhogi;2 1 2 3 4 Raga Audav Tukhari;2 2 3 1 4 Raga Bhupeshwari, Janasammodini;3 2 4 2 1 Raga Chandrakauns (modern), Marga Hindola, Rajeshwari;3 2 4 1 2 Raga Chandrakauns (kafi), Surya, Varamu;1 2 3 2 4 Raga Chhaya Todi;2 3 2 4 1 Raga Desh;4 2 1 2 3 Raga Dhavalashri;2 2 3 4 1 Raga Hamsadhvani (Hansadhvani);3 2 1 4 2 Raga Jayakauns;3 2 2 1 4 Raga Kokil Pancham;4 3 2 2 1 Raga Mamata;4 1 2 2 3 Raga Nagasvaravali, Raga Mand;3 2 2 4 1 Raga Nata, Udayaravicandrika, Madhuranjani;4 2 3 2 1 Raga Hindol (Sunada Vinodini), Sanjh ka Hindol;2 3 4 2 1 Raga Rasranjani;2 1 4 2 3 Raga Sivaranjini (Shivranjani), Akebono I: Japan, Dorian Pentatonic;3 4 1 2 2 Raga Shailaja;2 4 1 2 3 Raga Shri Kalyan;4 3 2 1 2 Raga Valaji;4 1 2 3 2 Mixolydian Pentatonic, Raga Savethri;3 2 3 3 1 Raga Chandrakauns (kiravani);1 3 3 3 2 Raga Manaranjani I;3 1 3 2 3 Raga Mohanangi;2 3 3 3 1 Raga Priyadharshini;1 3 3 2 3 Raga Rasika Ranjani, Vibhas (marva), Scriabin;3 3 1 3 2 Raga Samudhra Priya, Madhukauns (pentatonic);2 3 2 2 3 Ritusen, Ritsu (Gagaku): Japan, Zhi, Zheng: China, Raga Devakriya, Durga, Suddha Saveri, Arabhi, Scottish Pentatonic, Ujo: Korea, Major complement;2 2 3 2 3 Major Pentatonic, Ryosen: Japan, Man Jue, Gong: China, Raga Bhopali (Bhup), Mohanam, Deskar, Bilahari, Kokila, Jait Kalyan, Peruvian Pentatonic 1, Ghana pent.2;2 3 2 3 2 Yo: Japan, Suspended Pentatonic, Raga Madhyamavati, Madhmat Sarang;gyptian;Rui Bin, Jin Yu, Qing Yu: China;2 3 3 2 2 Chaio: China;2 2 2 3 3 Kung: China;3 2 2 3 2 Minor Pentatonic, Raga Dhani (Suddha Dhanyasi), Abheri, Udhayaravi Chandrika, Qing Shang, Gu Xian, Jia Zhong, Yu: China, P'yongjo-kyemyonjo: Korea, Minyo: Japan, Peruvian Pentatonic 2, Blues Pentatonic;3 3 2 2 2 Raga Harikauns, Chin: China;3 2 3 2 2 Raga Malkauns (Malakosh), Raga Hindola, Man Gong, Quan Ming, Yi Ze, Jiao: China;2 2 3 3 2 Dominant Pentatonic, Shang: China;3 2 2 2 3 Minor added sixth Pentatonic, Kyemyonjo: Korea;1 1 4 1 4 1 Raga Vijayasri;1 1 4 1 1 4 Messiaen mode 5;4 1 1 4 1 1 Messiaen mode 5 inverse;2 2 1 1 1 5 Raga Dipak;2 1 3 1 4 1 Raga Amarasenapriya;1 1 4 1 2 3 Raga Chandrajyoti;1 3 2 1 1 4 Raga Dhavalangam;1 3 1 2 4 1 Raga Gaula;1 4 2 1 1 3 Raga Kalakanthi;2 4 1 3 1 1 Raga Malarani (Hamsanada);1 3 2 1 4 1 Raga Mandari, Gamakakriya, Hamsanarayani;1 4 2 1 3 1 Raga Padi;4 1 2

1 3 1 Raga Paraju, Ramamanohari, Simhavahini, Sindhu Ramakriya, Kamalamanohari;1 3 1 2 1 4 Raga Purna Pancama, Malahari, Geyahejjajji, Kannadabangala;3 1 2 1 4 1 Raga Rasamanjari;1 3 1 4 1 2 Raga Rudra Pancama;4 1 2 1 1 3 Raga Saravati (Sharavati);2 1 3 1 1 4 Raga Syamalam;4 1 2 3 1 1 Raga Tilang, Savitri, Brindabani Tilang;1 3 1 4 2 1 Raga Vasanta, Chayavati;4 2 1 3 1 1 Raga Vijayavasanta;1 3 3 1 3 1 Raga Bauli;3 3 1 3 1 1 Raga Jivantini, Gaurikriya;1 3 3 1 1 3 Raga Kalagada;1 3 1 3 3 1 Raga Lalita, Sohini, Hamsanandi, Lalit Bhairav;1 1 3 3 1 3 Raga Suddha Mukhari;1 3 1 3 1 3 Messiaen truncated mode 3, Prometheus (Liszt);3 1 3 1 3 1 Messiaen truncated mode 3 inverse, Major Augmented, Genus tertium.

2 1 4 2 2 1 Hawaiian:2 1 2 4 1 2 Raga Bagesri, Sriranjani, Kapijingla;2 2 2 1 4 1 Raga Caturangini;2 2 1 4 2 1 Raga Hamsa Vinodini;4 1 2 2 2 1 Raga Hari Nata, Genus secundum;2 4 1 1 2 2 Raga Jaganmohanam;1 4 2 2 2 1 Raga Jivantika;4 2 1 1 2 2 Raga Jyoti;4 1 2 1 2 2 Raga Kamalamanohari;4 1 2 2 1 2 Raga Khamas, Baduhari;2 1 4 2 1 2 Raga Manavi;2 2 1 2 4 1 Raga Nalinakanti, Kedaram;1 4 2 1 2 2 Raga Phenadyuti, Insen, Honchoshi, Niagari: Japan;1 2 2 1 4 2 Honchoshi plagal form: Japan;2 2 1 4 1 2 Raga Rageshri (Rageshwari), Nattaikurinji;1 4 2 2 1 2 Raga Rasavali;1 2 4 2 1 2 Raga Salagavarali;2 4 1 2 1 2 Raga Sarasvati;2 1 2 2 4 1 Raga Sindhura Kafi;1 2 2 2 1 4 Raga Suddha Simantini;2 1 4 1 2 2 Raga Trimurti;4 2 1 2 1 2 Raga Vutari;1 3 2 3 1 2 Prometheus Neapolitan;3 2 1 1 3 2 Blues scale I;2 1 2 1 3 3 Pyramid Hexatonic;1 2 2 1 3 3 Double-Phrygian Hexatonic;3 1 1 2 3 2 Raga Bhanumanjari, Jog;2 3 2 1 3 1 Raga Bhinna Pancama;2 1 2 3 3 1 Raga Ghantana, Kaushiranjani (Kaishikiranjani).

1 2 3 2 3 1 Raga Gurjari Todi:1 3 2 3 2 1 Raga Hamsanandi, Marva, Pancama, Puriya;1 3 2 2 1 3 Raga Hejjajji;1 3 1 2 2 3 Raga Kalavati, Ragamalini;2 2 3 1 3 1 Raga Latika;3 3 1 2 1 2 Raga Madhukauns (hexatonic);1 3 3 2 1 2 Raga Malayamarutam;2 1 3 3 2 1 Raga Ranjani, Rangini;2 3 2 3 1 1 Raga Brindabani Sarang, Megh (Megh Malhar);2 2 1 3 3 1 Raga Sarasanana;2 1 3 1 3 2 Raga Simharava (Sinharavam);3 2 2 1 3 1 Raga Takka;1 3 1 3 2 2 Raga Vasantabhairavi;2 1 3 1 2 3 Raga Vijayanagari;1 2 2 3 3 1 Raga Viyogavarali;1 2 3 1 2 3 Messiaen truncated mode 2;1 3 2 1 3 2 Messiaen truncated mode 2;2 3 2 2 1 2 P'yongjo: Korea, Yosen: Japan, Raga Darbar, Narayani, Suposhini, Andolika, Gorakh Kalyan, Mixolydian Hexatonic;2 2 2 3 1 2 Prometheus, Raga Barbara;1 2 2 3 2 2 Ritsu: Japan, Raga Suddha Todi;2 2 1 2 2 3 Arezzo Major Diatonic Hexachord, Raga Kambhoji, Devarangini, Scottish Hexatonic;2 1 2 2 3 2 Minor Hexatonic, Raga Palasi, Manirangu, Nayaki, Yo: Japan, Eskimo Hexatonic 1 (Alaska: King Island);2 2 2 2 3 1 Eskimo Hexatonic 2 (Alaska: Point Hope);1 2 3 2 2 2 Raga Bhavani;1 2 2 2 3 2 Raga Gandharavam;3 2 2 1 2 2 Raga Gopikavasantam, Desya Todi, Phrygian Hexatonic;2 2 3 2 2 1 Raga Kumud, Sankara (Shankara), Lydian Hexatonic;3 2 2 2 1 2 Raga Manohari;2 2 2 3 2 1 Raga Mruganandana;2 3 2 2 2 1 Raga Nagagandhari;2 3 2 1 2 2 Raga Navamanohari;2 2 1 2 3 2 Raga Siva Kambhoji, Vivardhini;2 1 2 2 2 3 Raga Suddha Bangala, Gauri Velavali;2 2 2 1 2 3 Raga Yamuna Kalyani, Kalyani Keseri, Ancient Chinese;2 2 2 2 2 2 Whole-tone, Messiaen mode 1, Raga Gopriya, Anhemitonic Hexatonic.

1 1 4 1 1 1 3 Mela Salaga:1 1 4 1 1 3 1 Mela Jhalavarali, Raga Varali, Jinavali;1 1 4 1 3 1 1 Mela Raghupriya, Raga Ravikriya, Ghandarva;1 1 4 1 1 2 2 Mela Jalarnava;1 1 4 1 2 1 2 Mela Navanitam, Raga Nabhomani;1 1 4 1 2 2 1 Mela Pavani, Raga Kumbhini;2 2 1 4 1 1 1 Raga Ragesri;4 1 2 2 1 1 1 Raga Madhuri;1 1 3 1 1 3 2 Chromatic Mixolydian;1 3 1 1 3 2 1 Chromatic Lydian, Raga Lalit, Bhankar;3 1 1 3 2 1 1 Chromatic Phrygian;1 1 3 2 1 1 3 Chromatic Dorian, Mela Kanakangi, Raga Kanakambari;1 3 2 1 1 3 1 Chromatic Hypolydian, Purvi That, Mela Kamavardhani, Raga Shri, Pantuvarali, Basant, Kasiramakriya, Suddharamakriya, Puriya Dhanashri, Dhipaka;3 2 1 1 3 1 1 Chromatic Hypophrygian, Blues scale III;2 1 1 3 1 1 3 Chromatic Hypodorian, Raga Dvigandharabushini;2 3 1 1 3 1 1 Chromatic Mixolydian inverse;1 1 2 3 1 1 3 Chromatic Phrygian inverse;1 1 3 1 1 2 3 Chromatic Hypophrygian inverse;3 1 1 3 1 1 2 Chromatic Hypodorian inverse;1 1 3 2 1 3 1 Mela Ganamurti, Raga Ganasamavarali;1 1 3 2 3 1 1 Mela Tanarupi, Raga Tanukirti;1 3 1 1 2 3 1 Raga Lalita, Chromatic Hypolydian inverse, Raga Suddha Pancama;1 3 1 2 1 1 3 Mela Gayakapriya, Raga Kalakanti, Gipsy Hexatonic;1 3 1 2 1 3 1 Major Gipsy, Persian, Double Harmonic Major, Bhairav That, Mela Mayamalavagaula, Raga Paraj, Kalingada, Second Byzantine mode, Hitzaskiar: Greece, Maqam Zengule, Hijaz Kar, Suzidil;1 3 1 2 3 1 1 Mela Hatakambari, Raga Jeyasuddhamalavi;3 1 1 2 1 1 3 Mela Yagapriya, Raga Kalahamsa;3 1 1 2 1 3 1 Mela Gangeyabhusani, Raga Gangatarangini, Sengah: Greece;3 1 1 2 3 1 1 Mela Calanata, Raga None, Chromatic Dorian inverse;1 2 3 1 1 1 3 Mela Gavambodhi, Raga Girvani;1 2 3 1 1 3 1 Todi That, Mela Shubhapantuvarali, Raga Multani, Gamakasamantam, Chromatic Lydian inverse.

1 2 3 1 3 1 1 Mela Divyamani:1 3 2 1 1 1 3 Mela Dhavalambari, Foulds' Mantra of Will scale;1 3 2 1 3 1 1 Mela Visvambhari, Raga Vamsavathi;1 3 1 3 2 1 1 Verdi's Enigmatic descending;2 1 3 1 1 1 3 Mela Syamalangi, Raga Shyamalam;2 1 3 1 1 3 1 Minor Gipsy, Mela ;imhendramadhyama, Raga Madhava Manohari, Maqam Nawa Athar, Hisar, Double Harmonic Minor, Hungarian Minor, Niavent: Greece;2 1 3 1 3 1 1 Mela Nitimati, Raga Nisada, Kaikavasi;3 1 2 1 1 1 3 Mela Sucaritra, Raga Santanamanjari;3 1 2 1 1 3 1 Mela Dhatuvardhani, Raga Dhauta Pancama, Devarashtra;3 1 2 1 3 1 1 Mela Rasikapriya, Raga Rasamanjari, Hamsagiri;1 3 1 1 3 1 2 Oriental, Raga Ahira-Lalita, Minor Gipsy inverse;2 1 2 2 1 3 1 Harmonic Minor, Spanish gipsy, Mischung 4, Pilu That, Mela Kiravani, Raga Kiranavali, Kirvani, Kalyana Vasantha, Deshi(3), Maqam Bayat-e-Esfahan, Zhalibny Minor;1 3 1 2 2 1 2 Harmonic Minor inverse, Mela Cakravaka, Raga Ahir Bhairav, Bindumalini, Vegavahini, Makam Hicaz, Zanjaran;2 2 1 2 1 3 1 Harmonic Major, Mela Sarasangi, Raga Haripriya, Mischung 2, Ethiopian;1 2 1 3 1 2 2 Makam Huzzam, Phrygian flat 4;2 2 1 3 1 2 1 Ionian sharp 5;1 2 2 1 3 1 2 Locrian natural 6, Maqam Tarznauyn;2 1 2 1 2 3 1 Locrian no.2;1 2 1 2 2 1 3 Ultra Locrian, Mixolydian sharp 1;1 2 2 1 2 1 3 Locrian double-flat 7;2 3 1 2 1 2 1 Nohkan Flute scale: Japan;2 1 1 3 1 2 2 Sambah (Sabach): Greece;2 1 2 1 3 1 2 Makam Karcigar, Dorian flat 5, Kiourdi ascending: Greece;2 1 2 1 3 2 1 Jeths' mode;1 1 3 2 1 2 2 Mela Ratnangi, Raga Phenadyuti;1 1 3 2 2 1 2 Mela Vanaspati, Raga Bhanumati;1 1 3 2 2 2 1 Mela Manavati, Raga Manoranjani;1 2 2 2 1 1 3 Mela Senavati, Raga Senagrani, Malini;1 2 2 2 1 3 1 Neapolitan Minor, Mela Dhenuka, Raga Dhunibinnashadjam, Maqam Shahnaz Kurdi.

1 2 2 2 3 1 1 Mela Rupavati:1 3 1 2 1 2 2 Mela Vakulabharanam, Alhijaz: Arabic, Raga Jogiya, Vativasantabhairavi, Ahava Rabba: Jewish, Maqam Humayun, Hitzaz: Greece, Dorico Flamenco: Spain, Harmonic Major inverse, Phrygian Dominant;1 3 1 2 2 2 1 Mela Suryakanta, Bhairubahar That, Raga Supradhipam, Sowrashtram.

2 1 2 1 1 3 2 Modified Blues:2 1 2 2 1 1 3 Mela Jhankaradhvani, Raga Jhankara Bhramavi;2 1 2 2 3 1 1 Mela Varunapriya, Viravasantham;2 2 1 2 1 1 3 Mela Mararanjani, Raga Keseri;2 2 1 2 3 1 1 Mela Naganandini, Raga Nagabharanam, Samanta;3 1 1 2 1 2 2 Mela Ragavardhani, Raga Cudamani;3 1 1 2 2 1 2 Mela Vagadhisvari, Raga Bhogachayanata, Nandkauns, Ganavaridhi, Bluesy R&R;3 1 1 2 2 2 1 Mela Sulini, Raga Sailadesakshi, Raga Trishuli, Houzam: Greece;1 2 3 1 1 2 2 Mela Bhavapriya, Raga Bhavani, Kalamurti;1 2 3 1 2 1 2 Mela Sadvidhamargini, Raga Sthavarajam, Tivravahini;1 2 3 1 2 2 1 Mela Suvarnangi, Raga Sauviram;1 3 2 1 1 2 2 Mela

Namanarayani, Raga Narmada, Pratapa;1 3 2 1 2 1 2 Mela Ramapriya, Raga Ramamanohari, Romanian Major, Petrushka chord;1 3 2 1 2 2 1 Marva That, Mela Gamanasrama, Raga Partiravam, Puriya, Puriya Kalyan, Sohani, Peiraiotikos: Greece.

1 3 2 2 2 1 1 Verdi's Enigmatic ascending:;2 1 3 1 1 2 2 Mela Sanmukhapriya, Raga Camara, Chinthamani;2 1 3 1 2 1 2 Mela Hemavati, Raga Desisimharavam, Maqam Nakriz, Tunisian, Hedjaz, Misheberekh: Jewish, Souzinak (Peiraiotiko Minore): Greece, Dorian sharp 4, Kaffa;2 1 3 1 2 2 1 Lydian Diminished, Mela Dharmavati, Raga Arunajualita, Dumyaraga, Madhuvanti, Ambika.

2 2 2 1 1 1 3 Mela Kantamani, Raga Kuntala, Srutiranjani:2 2 2 1 1 3 1 Mela Latangi, Raga Gitapriya, Hamsalata;2 2 2 1 3 1 1 Mela Citrambari, Raga Chaturangini;2 3 2 2 1 1 1 Raga Sorati, Sur Malhar;3 1 2 1 1 2 2 Mela Jyotisvarupini, Raga Jotismatti;3 1 2 1 2 1 2 Hungarian Major, Mela Nasikabhusani, Raga Nasamani;3 1 2 1 2 2 1 Mela Kosalam, Raga Kusumakaram, Lydian sharp 2;;3 1 2 2 1 2 1 Aeolian flat 1;1 2 2 1 2 2 2 Gr.Mixolydian, Gr.Hyperdorian, Med.Hypophrygian, Med.Locrian, Pien chih: China, Makam Lami, Yishtabach: Jewish;2 2 1 2 2 2 1 Gr.Lydian, Med.Ionian, Med.Hypolydian, Major, Bilaval That, Mela Shankarabharanam, Ghana Heptatonic, Peruvian major, 4th plagal Byzantine, Ararai: Ethiopian, Makam Cargah, Ajam Ashiran, Dastgah Mahur, Dastgah Rast Panjgah;2 1 2 2 2 1 2 Gr.Phrygian, Med.Dorian, Med.Hypomixolydian, Kafi That, Mela; araharapriya, Raga Bageshri, Sriraga, Bhimpalasi, Mischung 5, Gregorian nr.8, Eskimo Heptatonic, Yu: China, Hyojo, Oshikicho, Banshikicho: Japan;1 2 2 2 1 2 2 Gr.Dorian, Med.Phrygian, Gr.Med.Hypoaeolian, Bhairavi That, Mela Hanumatodi, Raga Asavari (Asaveri), Raga Bilashkhani Todi, In: Japan, Makam Kurd, Gregorian nr.3, Ousak: Greece, Major inverse;2 2 2 1 2 2 1 Gr.Hypolydian, Med.Lydian, Kalyan That (Yaman), Mela Mecakalyani, Raga Shuddh Kalyan, Ping, Kung: China;2 2 1 2 2 1 2 Gr.Hypophrygian, Gr.Ionian (Iastian), Med.Mixolydian, Gr.Med.Hypoionian, Khamaj That, Mela Harikambhoji, Raga Harini, Janjhuti, Surati, Mischung 3, Ching, Shang: China, Gregorian nr.7;2 1 2 2 1 2 2 Gr.Med.Hypodorian, Gr.Med.Aeolian, Gr.Hyperphrygian, Natural Minor, Asavari That, Mela Natabhairavi, Raga Jaunpuri, Raga Adana, Se, Chiao: China, Gregorian nr.2, Makam Buselik, Nahawand, Peruvian minor, Geez, Ezel: Ethiopian, Kiourdi descending: Greece;2 1 2 2 2 2 1 Melodic Minor ascending, Jazz Minor, Minor-Major, Mela Gaurimanohari, Raga Patdip, Velavali, Deshi(2), Mischung 1, Hawaiian.

2 2 2 2 1 2 1 Lydian Augmented, Lydian sharp 5:2 2 1 1 2 2 2 Major Locrian;2 1 2 1 2 2 2 Minor Locrian, Half Diminished, Locrian sharp 2, Minor flat 5;1 2 1 2 2 2 2 Super Locrian, Altered, Diminished Whole-tone, Locrian flat 4, Pomeroy, Ravel;1 2 2 2 2 2 1 Neapolitan Major, Phrygian Major, Mela Kokilapriya, Raga Kokilaravam;1 2 2 2 2 1 2 Mela Natakapriya, Jazz Minor inverse, Phrygian-Mixolydian, Raga Natabharanam, Ahiri Todi;2 2 1 2 1 2 2 Mischung 6, Mixolydian flat 6, Major-Minor, Mela Carukesi, Raga Charukeshi, Tarangini

2 2 2 1 1 2 2 Lydian Minor, Mela Risabhapriya, Raga Ratipriya;2 2 2 1 2 1 2 Lydian Dominant, Mela Vacaspati, Raga Bhusavati, Overtone, Lydian-Mixolydian, Bartok;2 2 2 2 2 1 1 Leading Whole-tone;1 3 1 1 1 1 3 1 Raga Ramkali (Ramakri)

1 1 1 3 1 1 1 3 Messiaen mode 4:3 1 1 1 3 1 1 1 Messiaen mode 4 inverse;1 3 1 1 1 2 2 1 Raga Bhatiyar;2 1 3 1 1 1 1 2 Raga Cintamani;1 3 1 2 1 1 2 1 Raga Saurashtra;1 2 2 1 1 1 3 1 Half-diminished Bebop;1 3 1 1 2 2 1 1 Verdi's Scala enigmatica;1 1 1 2 2 1 3 1 Harmonic and Neapolitan Minor mixed;1 3 1 2 1 2 1 1 Maqam Hijaz;1 2 1 1 1 3 1 2 Maqam Shadd'araban;2 1 2 2 2 1 1 1 Raga Mian Ki Malhar, Bahar, Sindhura;2 1 2 2 1 1 1 2 Raga Mukhari, Anandabhairavi, Deshi, Gregorian nr.1, Dorian/Aeolian mixed;2 1 1 1 2 2 1 2 Minor Bebop, Raga Zilla, Mixolydian/Dorian mixed;2 2 1 2 2 1 1 1 Genus diatonicum, Dominant Bebop, Raga Khamaj, Desh Malhar, Alhaiya Bilaval, Maqam Shawq Awir, Gregorian nr.6, Major/Mixolydian mixed, Chinese Eight-Tone, Rast: Greece

2 2 1 2 1 1 2 1 Major Bebop, Altered Mixolydian:2 1 2 1 1 2 1 2 Blues scale II;1 2 1 1 2 1 2 2 Spanish Phrygian;1 2 1 1 1 2 2 2 Espla's scale, Eight-tone Spanish;2 1 2 1 2 1 2 1 Diminished, Modus conjunctus, Messiaen mode 2 inverse, Whole-Half step scale;2 2 1 1 1 2 2 1 Ishikotsucho: Japan, Raga Yaman Kalyan, Chayanat, Bihag, Hamir Kalyani, Kedar, Gaud Sarang, Genus diatonicum veterum correctum, Gregorian nr.5, Kubilai's Mongol scale, Major/Lydian mixed;2 1 2 2 1 1 2 1 Zirafkend: Arabic;1 1 1 2 2 2 1 2 Adonai Malakh: Jewish;1 2 1 2 2 1 2 1 Magen Abot: Jewish;2 1 2 2 1 2 1 1 Maqam Nahawand, Raga Suha (Suha Kanada), Gregorian nr.4, Utility Minor;1 2 1 2 1 2 1 2 Octatonic, Messiaen mode 2, Dominant Diminished, Diminished Blues, Half-Whole step scale

1 1 2 2 1 1 2 2 Messiaen mode 6:2 2 1 1 2 2 1 1 Messiaen mode 6 inverse;1 2 2 1 1 2 2 1 Van der Horst Octatonic;1 1 2 1 1 2 1 1 2 Messiaen mode 3, Tsjerepnin;2 1 1 2 1 1 2 1 1 Messiaen mode 3 inverse;2 1 2 2 1 1 1 1 1 Raga Pilu, Full Minor;2 1 1 1 2 2 1 1 1 Raga Malgunji, Ramdasi Malhar;2 2 1 2 1 1 1 1 1 Raga Pahadi;2 1 1 1 1 1 2 1 2 Blues Enneatonic;;2 1 2 1 1 1 1 1 2 Kiourdi: Greece;2 2 1 1 1 2 1 1 1 Taishikicho: Japan, Ryo: Japan, Raga Chayanat;1 2 1 1 2 1 1 2 1 Genus chromaticum;1 2 1 1 2 1 2 1 1 Moorish Phrygian;1 1 2 1 1 1 2 1 2 Youlan scale: China;1 1 1 2 2 1 1 1 2 Chromatic and Diatonic Dorian mixed;1 1 2 1 2 1 1 2 1 Chromatic and Permuted Diatonic Dorian mixed;2 1 1 1 2 1 1 1 2 Modes of Major Pentatonic mixed;1 1 1 1 2 1 1 1 1 2 Messiaen mode 7;2 1 1 1 1 2 1 1 1 1 Messiaen mode 7 inverse;2 1 1 1 2 1 1 1 1 1 Major/Minor mixed;2 1 1 1 1 1 2 1 1 1 Minor Pentatonic with leading tones;1 1 1 1 1 2 1 2 1 1 Raga Sindhi-Bhairavi;1 1 2 1 1 1 1 2 1 1 Symmetrical Decatonic;1 1 1 1 1 1 1 1 1 1 1 1 Twelve-tone Chromatic

Modes_for_default_scales.lmd Alternate notes-1 3^(1/13) ! Bohlen-Pierce scale:+3 1 2 1 3 2 1 Prooijen Major;2 1 3 1 2 3 1 Prooijen Minor;2 1 2 1 1 2 1 2 1 Delta, Moll I;1 2 1 2 1 1 2 1 2 Dur I, Delta inverse;1 2 1 2 1 1 2 2 1 Gamma;1 2 2 1 1 2 1 2 1 Gamma inverse;2 1 1 2 1 2 1 1 2 Dur II;2 1 1 2 1 2 1 2 1 Lambda;=1 2 1 2 1 2 1 1 2 Harmonic, Lambda inverse;1 2 1 2 1 2 1 2 1 Pierce, Moll II;1 1 2 1 2 1 2 1 2 Walker A;1 2 1 1 2 1 2 1 2 Walker B;2 1 2 1 2 1 2 1 1 Walker I;2 1 2 1 2 1 1 2 1 Walker II.

1 n(1/15) ! 15 tone equal modes:4 1 4 1 4 1 Blackwood Hexatonic;+3 1 2 3 1 4 1 Fifteen-tone Harmonic Minorl3 2 1 3 1 4 1 Fifteen-tone Harmonic Majorl3 2 1 3 2 3 1 Fifteen-tone "Major"l3 1 2 3 1 3 2 Fifteen-tone "Minor", Natural Minorl3 1 2 3 2 3 1 Fifteen-tone Melodic Minorl2 2 2 3 2 2 2 Fifteen-tone Miller's Porcupine-7l2 3 2 2 2 2 2 Fifteen-tone Miller's Porcupine-7 Majorl=3 1 1 1 3 1 1 2 1 1 Fifteen-tone Major/Minor mixedl1 2 1 2 1 2 1 2 1 2 Blackwood Decatonicl1 2 1 1 1 2 1 1 1 1 2 1 Twelve-tone ChromaticlModes_for_default_scales.lmd Alternate notesl.

1 n(1/17) ! 17 tone equal modes:3 3 4 3 4 Seventeen-tone Major Pentatonic;+4 3 3 4 3 Seventeen-tone Minor Pentatonic;;=3 4 3 4 3 Seventeen-tone Suspended Pentatonic;3 1 3 3 1 5 1 Seventeen-tone Harmonic Minor;3 3 1 3 1 5 1 Seventeen-tone Harmonic Major;3 3 1 3 3 3 1 Seventeen-tone Major;3 1 3 3 1 3 3 Seventeen-tone Natural Minor;3 1 3 3 3 3 1 Seventeen-tone Melodic Minor;2 1 1 2 1 2 1 2 1 1 2 1 Twelve-tone Chromatic (2/11-comma positive).

Modes_for_default_scales.lmd Alternate notes-Arabic 17-tone pythagorean ! Arabic 17-tone Pythagorean (Arp.):3 3 1 3 3 1 3 Safi al-Din's maqam 'Ussaq;+3 1 3 3 1 3 3 Safi al-Din's maqam Nawa;1 3 3 1 3 3 3 Safi al-Din's maqam Abu Salik;3 2 2 3 2 2 3 Safi al-Din's maqam Rast;3 2 2 2 3 2 3 Safi al-Din's maqam Zangulah;2 3 2 2 2 3 3 Safi al-Din's

maqam Rahawi;2 2 3 2 2 3 3 Safi al-Din's maqam Husaini;2 2 3 2 3 2 3 Safi al-Din's maqam Higazi;2 3 2 2 3 2 2 1 Safi al-Din's maqam 'Iraq;3 2 2 3 2 2 2 1 Safi al-Din's maqam Isfahan;2 2 3 2 2 1 3 2 Safi al-Din's maqam Zirafkand;2 3 2 2 1 3 2 2 Safi al-Din's maqam Buzurk;1 2 1 2 1 1 2 1 2 1 3 Ishaq al-Mausili's mode;1 2 1 1 1 1 1 2 1 1 1 1 1 2 al-Kindi's mode.

Modes_for_default_scales.lmd Alternate notes-1 n(1/19) ! 19 tone modes:5 4 5 5 Four out of 19;+3 3 5 3 5 Nineteen-tone Major Pentatonicl5 3 3 5 3 Nineteen-tone Minor Pentatonic;3 5 3 5 3 Nineteen-tone Suspended Pentatonic;4 4 4 4 3 Five out of 19;4 4 3 4 4 Quasi-equal Pentatonic;3 3 3 3 3 4 Yasser's Hexad;5 1 5 1 1 5 1 Oljare Augmented;=4 1 4 1 4 1 4 Oljare Diminished;1 2 5 1 2 5 3 Ratio 1:2 Chromatic Mixolydian;2 5 1 2 5 3 1 Ratio 1:2 Chromatic Lydian;5 1 2 5 3 1 2 Ratio 1:2 Chromatic Phrygian;1 2 5 3 1 2 5 Ratio 1:2 Chromatic Dorian;2 5 3 1 2 5 1 Ratio 1:2 Chromatic Hypolydian;5 3 1 2 5 1 2 Ratio 1:2 Chromatic Hypophrygian;3 1 2 5 1 2 5 Ratio 1:2 Chromatic Hypodorian;3 2 3 3 2 4 2 Nineteen-tone Harmonic Minor;3 3 2 3 2 4 2 Nineteen-tone Harmonic Major;3 3 2 3 3 3 2 Nineteen-tone Major;3 2 3 3 2 3 3 Nineteen-tone Natural Minor;3 2 3 3 3 3 2 Nineteen-tone Melodic Minor;2 2 3 2 2 3 2 3 Oljare Octatonic;1 3 1 3 3 1 3 1 3 Oljare Pentaenharmonic;2 2 2 2 2 2 2 2 1 Negri's Ten Plus Nine;3 1 1 3 1 3 1 1 3 1 1 Keenan eleven out of 19;3 1 1 3 1 1 1 1 3 1 3 McLaren eleven out of 19;2 2 2 2 1 2 1 2 2 1 2 1 2 1 2 Meantone Chromatic (1/3-comma);2 1 2 1 2 1 2 2 1 2 1 2 Genus diatonico-chromaticum;2 1 2 1 2 2 1 2 1 2 1 2 Yasser's Supradiatonic.

Modes_for_default_scales.lmd Alternate notes-1 n(1/22) ! 22 tone equal modes (Paul Erlich):

+5 ; 4 5 4 Septimal Minor Pentatonic;6 3 1 3 6 3 Blues;4 3 3 4 4 4 Harmonic Whole-Tone;4 3 4 4 3 4 "9-limit" Consonant Whole-Tone;4 4 1 4 4 4 1 Twenty-two tone Major;4 1 4 4 1 4 4 Twenty-two tone Minor;4 2 3 4 2 5 2 Twenty-two tone Harmonic Minor;4 3 2 4 2 5 2 Twenty-two tone Harmonic Major;4 3 2 4 3 4 2 Twenty-two tone "Just" Major;4 2 3 4 2 4 3 Twenty-two tone Natural Minor;4 2 3 4 3 4 2 Twenty-two tone Melodic Minor;4 3 3 3 3 3 3 Major quasi-equal Heptatonic;3 3 3 4 3 3 3 Minor quasi-equal Heptatonic;2 3 2 3 2 3 2 3 2 Rezsutek's Percussion scale;2 2 3 2 2 2 3 2 2 2 Standard Pentachordal Major;2 2 3 2 2 2 2 3 2 2 Static Symmetrical Major;2 3 2 2 2 2 2 3 2 2 Alternate Pentachordal Major;2 3 2 2 2 2 3 2 2 2 Dynamic Symmetrical Major;2 2 2 3 2 2 2 2 2 3 Standard Pentachordal Minor;2 2 2 3 2 2 2 2 3 2 Static Symmetrical Minor;2 2 2 2 3 2 2 2 3 2 Alternate Pentachordal Minor;2 2 2 2 3 2 2 2 2 3 Dynamic Symmetrical Minor;3 1 1 3 1 3 1 3 1 1 3 1 Twelve-tone Chromatic (1/3-comma positive).

1/1 256/243 16/15 10/9 9/8 32/27 6/5 5/4 81/64 4/3 27/20 45/32 729/512 3/2 128/81 8/5 5/3 27/16 16/9 9/5 15/8 243/128 2 ! Indian shruti 22 tone scale:

2 7 4 1 8 Raga Saveri;+1 6 6 3 6 Raga Vibhas (marva);4 3 6 7 2 Raga Hamsadhvani;3 4 6 3 6 Raga Deskar;6 3 6 3 4 Raga Malkauns;3 6 4 3 6 Raga Suddha Malhar;4 3 6 4 5 Raga Bhupali;4 5 4 4 5 Raga Durga;1 4 6 3 7 1 Raga Gurjari Todi;7 2 4 5 2 2 Raga Tilang;2 5 6 2 5 2 Raga Bauli;6 3 4 2 5 2 Raga Takka;4 3 2 4 3 6 Raga Kambhoji;1 4 7 1 1 7 1 Todi That;1 6 2 4 1 7 1 Bhairav That;2 4 6 1 1 7 1 Raga Multani;1 4 7 1 1 6 2 Raga Varali;1 4 4 4 1 7 1 Raga Rampurmat Pilu;1 6 2 2 3 7 1 Raga Lalita;1 4 4 4 1 5 3 Raga Asavari;1 4 4 4 1 4 4 Raga Bilashkhani Todi;4 1 4 4 1 4 4 Raga Jaunpuri;4 4 4 1 4 4 1 Raga Yaman;2 5 5 1 2 5 2 Purvi That, Raga Shri;2 5 5 1 3 4 2 Raga Puriya Kalyan;4 3 2 4 4 1 4 Khamaj That;2 5 4 2 4 3 2 Raga Marva;4 3 2 4 4 3 2 Shadja Grama, Murchhana Uttaramandra, Shuddha Swara Saptaka;[20] 2 4 3 2 4 4 3 Murchhana Rajani;[17] 3 2 4 3 2 4 4 Murchhana Uttarayata;4 3 2 4 3 2 4 Murchhana Suddhasadja, Raga Harikambhoji, Palaiyazh;4 4 3 2 4 3 2 Murchhana Asvakranta;3 2 4 4 3 2 4 Murchhana Abhirudgata, Kafi That, Raga Bageshri;4 3 2 4 3 4 2 Madhyama Grama, Bilaval That, Murchhana Suddhamadhya;[20] 2 4 3 2 4 3 4 Murchhana Margavi;3 4 2 4 3 2 4 Murchhana Hrishyaka;4 3 4 2 4 3 2 Murchhana Sauviri, Kalyan That;2 4 3 4 2 4 3 Murchhana Harinasva, Bhairavi That;[4] 3 2 4 3 4 2 4 Murchhana Kalopanata;3 2 4 3 2 4 4 Gandhaara Grama (Sarngadeva der. ma-grama);4 2 4 3 2 4 3 Gandhaara Grama (Narada der. ma-grama), Murchhana Pauravi;4 2 3 4 2 4 3 Gandhaara Grama (Damodara), Raga Darbari, Darbari Kanada;2 4 4 3 2 4 3 Gandhaara Grama (Popley), Murchhana Matsarikrita;4 2 3 4 2 3 4 Asavari That;3 4 2 4 3 4 2 Raga Jogiya;2 3 4 4 2 3 4 Raga Kanakangi;4 2 3 4 4 2 3 Raga Kharaharapriya, Bhimpalasi;3 2 4 3 3 3 4 Gandhaara Grama (Sarngadeva der. sa-grama);4 2 4 3 3 3 3 Gandhaara Grama (Narada der. sa-grama);2 4 3 3 3 4 3 Gandhaara Grama (Somanatha);1 6 2 1 3 1 6 2 Raga Ramkali;1 6 2 4 1 2 4 2 Raga Saurashtra;4 3 2 3 1 3 5 1 Raga Yaman Kalyan;4 3 2 3 1 4 4 1 Raga Bihag;2 5 2 3 1 3 4 2 Raga Bhatiyar;4 2 3 4 4 2 2 1 Raga Mian Ki Malhar;3 2 4 4 2 1 2 4 Raga Mukhari;4 3 2 3 1 4 3 2 Raga Gaud Sarang;4 3 2 4 3 2 3 1 Raga Khamaj;4 2 3 4 2 2 2 3 Raga Anandabhairavi;4 3 2 2 2 3 4 2 Raga Suddha Kalyan;4 2 2 1 4 4 2 2 1 Raga Ramdasi Malhar;4 3 2 3 1 3 2 3 1 Raga Chayanat;3 2 1 1 2 3 1 3 2 1 1 2 Old Indian gamut;2 2 2 1 2 2 2 2 2 2 1 2 Modern Indian gamut.

Modes_for_default_scales.lmd Alternate notes - 1 n(1/27) ! 27 tone equal modes:

+1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 15-Tone MOS;1 n(1/31) ! 31 tone equal modes:10 10 10 1 Genus quartum;+5 8 5 13 Genus primum;13 6 6 6 Genus decimum;6 6 7 6 6 Quasi-equal Pentatonic;5 7 6 7 5 1 Genus quintum;6 6 6 1 6 6 Genus octavum;8 2 8 3 7 3 Genus tertium;4 6 9 6 4 2 Genus nonum;10 3 5 5 5 3 Genus secundum;4 6 5 6 4 6 Genus septimum;1 2 10 1 2 10 5 Enharmonic Mixolydian;2 10 1 2 10 5 1 Enharmonic Lydian;10 1 2 10 5 1 2 Enharmonic Phrygian;1 2 10 5 1 2 10 Enharmonic Dorian;2 10 5 1 2 10 1 Enharmonic Hypolydian;10 5 1 2 10 1 2 Enharmonic Hypophrygian;5 1 2 10 1 2 10 Enharmonic Hypodorian;5 2 2 9 2 2 2 Hemiolic Chromatic Hypodorian;2 2 9 2 2 9 5 Hemiolic Chromatic Mixolydian;2 9 2 2 9 5 2 Hemiolic Chromatic Lydian;9 2 2 9 5 2 2 Hemiolic Chromatic Phrygian;2 2 9 5 2 2 9 Hemiolic Chromatic Dorian;2 9 5 2 2 9 2 Hemiolic Chromatic Hypolydian;9 5 2 2 9 2 2 Hemiolic Chromatic Hypophrygian;2 3 8 2 3 8 5 Ratio 2:3 Chromatic Mixolydian;3 8 2 3 8 5 2 Ratio 2:3 Chromatic Lydian;8 2 3 8 5 2 3 Ratio 2:3 Chromatic Phrygian;2 3 8 5 2 3 8 Ratio 2:3 Chromatic Dorian;3 8 5 2 3 8 2 Ratio 2:3 Chromatic Hypolydian;8 5 2 3 8 2 3 Ratio 2:3 Chromatic Hypophrygian;5 2 3 8 2 3 8 Ratio 2:3 Chromatic Hypodorian;2 5 6 2 5 6 5 Soft Diatonic Mixolydian;5 6 2 5 6 5 2 Soft Diatonic Lydian;6 2 5 6 5 2 5 Soft Diatonic Phrygian;2 5 6 5 2 5 6 Soft Diatonic Dorian;5 6 5 2 5 6 2 Soft Diatonic Hypolydian;6 5 2 5 6 2 5 Soft Diatonic Hypophrygian;5 2 5 6 2 5 6 Soft Diatonic Hypodorian;5 3 5 5 3 7 3 Thirty-one tone Harmonic Minor;5 5 3 5 3 7 3 Thirty-one tone Harmonic Major;5 5 3 5 5 5 3 Thirty-one tone Major, Intense Diatonic Lydian, M.Ionian;5 3 5 5 3 5 5 Thirty-one tone Natural Minor, Intense Diatonic Hypodorian, Aeolian;5 3 5 5 5 5 3 Thirty-one tone Melodic Minor;5 5 3 5 3 5 5 Thirty-one tone Major-Minor;3 5 5 3 5 5 5 Intense Diatonic Mixolydian, M.Locrian;5 3 5 5 5 3 5 Intense Diatonic Phrygian, M.Dorian;3 5 5 5 3 5 5 Intense Diatonic Dorian, M.Phrygian;5 5 5 3 5 5 3 Intense Diatonic Hypolydian, M.Lydian;5 5 3 5 5 3 5 Intense Diatonic Hypophrygian, M.Mixolydian;4 4 5 4 4 5 5 Neutral Diatonic Mixolydian;4 5 4 4 5 5 4 Neutral Diatonic Lydian;5 4 4 5 5 4 4 Neutral Diatonic Phrygian;4 4 5 5 4 4 5 Neutral Diatonic Dorian;4 5 5 4 4 5 4 Neutral Diatonic Hypolydian;5 5 4 4 5 4 4 Neutral Diatonic ;Hypophrygian;5 4 4 5 4 4 5 Neutral Diatonic Hypodorian;4 5 4 4 5 4 5 Neutral Mixolydian;5 4 4 5 4 5 4 Neutral Lydian;4 4 5 4 5 4 5

Neutral Phrygian;4 5 4 5 4 5 4 Neutral Dorian;5 4 5 4 5 4 4 Neutral Hypolydian;4 5 4 5 4 4 5 Neutral Hypophrygian;5 4 5 4 4 5 4 Neutral Hypodorian;4 6 2 6 4 3 3 3 Genus sextum;5 5 3 5 5 3 2 3 Genus diatonicum;5 3 5 3 5 2 5 3 Modus conjunctus;3 5 2 5 3 5 3 5 Octatonic;5 2 6 5 2 5 6 " Natural Minor;3 5 2 3 5 3 2 5 3 Genus chromaticum;5 3 3 3 3 5 3 3 3 Rothenberg Generalized Diatonic;3 3 4 3 5 3 4 3 3 Hahn symmetric pentachordal;3 4 3 3 5 3 4 3 3 Hahn pentachordal;4 3 4 3 4 3 4 3 3 Thirty-one tone Orwell;4 1 4 4 4 1 4 4 1 4 Breed 10-tone;4 2 4 2 4 2 4 3 3 3 Lumma Decatonic;5 1 5 1 5 1 5 1 5 1 1 de Vries 11-tone;5 2 1 2 5 3 2 1 4 1 2 3 Genus bichromaticum;3 4 3 3 2 1 4 1 4 1 2 3 Genus enharmonicum vocale;2 2 4 2 2 3 3 3 1 3 3 3 Genus enharmonicum instrumentale;2 3 3 2 3 2 3 2 3 3 2 3 Meantone Chromatic (53/220-comma);3 2 3 2 3 2 3 3 2 3 2 3 Genus diatonico-chromaticum;3 2 2 3 3 2 3 3 2 2 3 3 Fokker 12-tone.

Modes_for_default_scales.lmd Alternate notes-1 100 cents !Equal Temperament (M)-12 Default 12 tone list...:

+10 2 Warao ditonic: South America;5 7 Honchoshi: Japan;7 5 Niagari: Japan;6 1 5 Raga Ongkari;3 7 2 Ute tritonic;5 2 5 Raga Sarvasri, Warao tritonic: South America;5 5 2 Sansagari: Japan;3 4 5 Peruvian tritonic 2;4 3 5 Raga Malasri, Peruvian tritonic 1;1 5 1 5 Messiaen truncated mode 5;5 1 5 1 Messiaen truncated mode 5 inverse;2 1 7 2 Warao tetratonic: South America;2 4 5 1 Raga Sumukam;1 4 3 4 Raga Lavangi;2 2 3 5 Eskimo tetratonic (Alaska: Bethel);2 3 2 5 Genus primum;5 2 3 2 Genus primum inverse;2 4 2 4 Messiaen truncated mode 6;4 2 4 2 Messiaen truncated mode 6 inverse;2 3 4 3 Raga Bhavani;4 3 3 2 Raga Mahathi;3 4 3 2 Bi Yu: China;1 6 1 3 1 Raga Deshgaur;1 3 1 6 1 Raga Megharanji;1 1 4 1 5 Raga Nabhomani;1 5 1 1 4 Raga Saugandhini, Yashranjani;5 2 1 3 1 Raga Devaranjani (Devaranji);2 1 4 1 4 Hira-joshi, Kata-kumoi: Japan=1 4 2 1 4 Hon-kumoi-joshi, Sakura, Akebono II: Japan, Olympos Enharmonic, Raga Salanganata, Saveri, Gunakri (Gunakali), Latantapriya.

1 4 1 4 2 Iwato: Japan:4 2 1 4 1 Raga Amritavarshini, Malashri, Shilangi;4 1 4 2 1 Raga Bhinna Shadja, Kaushikdhvani, Hindolita;1 2 4 1 4 Balinese Pelog, Raga Bhupalam, Bhupala Todi, Bibhas;4 1 2 4 1 Raga Gambhiranata, Ryukyu: Japan;1 4 2 4 1 Raga Gauri;4 1 4 1 2 Raga Khamaji Durga;2 4 1 4 1 Raga Vaijayanti, Hamsanada;4 1 2 1 4 Raga Zilaf;4 1 3 3 1 Bacovia: Romania, Raga Girija;1 4 3 3 1 Raga Kshanika;1 3 1 3 4 Raga Megharanjani, Syrian pentatonic;3 3 1 4 1 Raga Multani;1 3 3 1 4 Raga Reva, Revagupti, Ramkali, Vibhas (bhairava);2 2 2 5 1 Raga Kumurdaki (Kumudki);5 2 2 1 2 Raga Kuntvarali;2 5 2 1 2 Raga Matha Kokila (Matkokil);2 2 5 2 1 Raga Neroshta;2 1 2 2 5 Raga Purnalalita, Chad Gadyo: Jewish, Ghana Pentatonic 1;5 2 2 2 1 Raga Puruhutika, Purvaholika;2 3 2 1 4 Han-kumoi: Japan, Raga Shobhavari;1 4 2 3 2 Kokin-joshi, Miyakobushi, Han-Iwato: Japan, Raga Vibhavari (Revati), Bairagi, Lasaki.

- Capitolul C -
MUZICA DE CAMERA ASISTATA DE CALCULATOR

1.) Aspecte intonationale

- **Acordajul, precum si intonatia – individuala si de ansamblu -, pot fi verificate si corectate prin programul « In-Tune Multi-Instrument Tuner ».**

Functiile programului
In-Tune Multi-Instrument Tuner v. 1.8
© 2001-2002 Joseph Heimiller by Aspire Software
www.MusicMasterWorks.com

- **Options : Auto-String Select, Tuning Options ;**
- **Source : Default Windows Input, Wave Out Mix, Yamaha Audio Microphone/CD Audio/Line in ;**
- **Help ; Unlock ;**
- **Configurari : Instrument Type, View (Graph ; Gauge), Pitch Range, Strings, Pitch Indicator, Pitch Graph, Frequency, Average Frequency, Target Frequency, View Microphone Input (Yellow=too low, Green=good, Red=too high) .**

2.) Interpretarea comparata

- Se utilizeaza programul Acid Pro 4 , inserandu-se pe track-uri separate versiunile interpretative analizate, prin comenzile: File-Open-anularea functiei sincronizatoare Beatmapper Wizart (cu „No" si „Finish")-trasarea desenului sonor (Mouse-Stanga tinut apasat). Programul vizualizeaza toate configuratiile spatio-temporale specifice, iar versiunile inserate pot fi audiate separat prin comanda Solo (X). Prin aceasta metoda pot fi analizati toti parametrii sonori, iar imaginea grafica a operatiei (ce este edificatoare – inclusiv in realizarea unor studii

teoretice) poate fi conservata prin comenzile: Save As-ACID Project File (acd)/sau ACID Project File With Embedded Media (acd-zip).

3.) Politempia structurala

- **Elaborata de dirijorul, compozitorul si matematicianul roman Mihai BREDICEANU, teoria timpului polimodular (apud Mihai BREDICEANU, *Timpul polimodular si artele vizuale*, Bucuresti, Ed.Stiintifica si Enciclopedica, 1982, si *Music and Polymodular Time/Structural Polytempi Music. Lecture given at New York University, January 5, 1985* – curs universitar) analizeaza fenomenul politempiei (reliefat de pilda in lucrarile lui Mahler si Ives) si descrie evolutia unui numar finit de evenimente sonore desfasurate simultan in "ceasuri" (masuri de timp) diferite – sau, cu alte cuvinte, proiectarea simultana a mai multor SISTEME DE PULSATII REALE (SPR) reductibile fenomenologic la un SISTEM REFERENTIAL DE TIMP (SRT). Fiecare SPR are proprii MODULI TEMPORALI (M) ce se reflecta la nivelul SPR in tempouri specifice, induse interpretilor sau grupurilor de interpreti prin semnale vizuale sau sonore ("beeps") – ultimele fiind receptionate prin casti. In acest sens, autorul a inventat un aparat special denumit "Polytimer" si brevetat inca din 1970 in Romania, USA si Franta.**
- **Computerul permite amplificarea acestor interesante experimente sonore, ce au reprezentat in primul rand o aplicare a teoriei einsteiniene a relativitatii (miscarea relativa a obiectelor si observatorului), dar si o confirmare a teoriei bergsoniene referitoare la perceptia subiectiva a timpului (in functie de varsta si stare emotionala) - asa cum remarca si eminentul muzicolog roman Prof.univ.Dr.Victor GIULEANU (*Tratat de Teoria Muzicii*, Bucuresti, Editura Muzicala, 1986, pag.745-752).**
- **Astfel modulii temporali pot fi realizati si multiplicati cu programul "MOZART" – ulterior ei fiind difuzati prin "computere paralele" corespunzatoare "muzicilor paralele" ce se suprapun. In prealabil se analizeaza evolutia temporala a fiecarei muzici si se elaboreaza cate o partitura a "beeps"-urilor (cu variatiile de tempouri specifice fiecarei muzici). Aceste partituri de "beeps"-uri (configurate exclusiv pe timbre percutante – de pilda 2 Wood-Block-uri: cel grav pentru timpii principali iar cel acut pentru timpii secundari) sunt difuzate prin casti interpretilor, ce isi adapteaza executia tempourilor respective. "Computerele paralele" sunt eventual subordonate unui server avand functia de a controla (la nivelul "hiperpulsatiei"- ca factor comun al politempiei) evolutia intregului proces, ce poate fi amplificat si prin utilizarea Internetului - de pilda in sensul experimentelor efectuate prin proiectul "SoundWIRE" mentionat mai sus.**

4.) Efectul de intarziere in practica ansamblurilor – cu aplicatie la proiectul "Sound WIRE"

O analiza pertinenta a acestui aspect a fost realizata in studiul-pilot "*The Effects of Latency on Ensemble Performance*" elaborat in Mai 2002 de Nathan SCHIETT, sub coordonarea lui Chris CHAFE, directorul CCRMA din cadrul Universitatii Stanford (USA). Aceasta ampla cercetare sponsorizata de prestigioasa *National Science Foundation* a implicat efectuarea unor experimente bazate pe scenarii muzicale inedite desfasurate in real-time, ca de pilda cantatul in ansamblu prin transmisii pe Internet la distante continentale. Sub aspect teoretic, s-au luat in considerare urmatoarele elemente: intarzierea de < 7 msec nu este perceptibila; intarzierile tolerabile in convorbirile telefonice sunt de 100-300 msec; intarzierile tolerabile in concerte publice sunt de cca 40 msec pentru ansamblurile simfonice (situate pe scene ce depasesc 40 ft – distanta parcursa in aer de unda sonora in 40 msec) si de cca 5 msec pentru formatiile camerale (motiv pentru care distanta maxima intre muzicieni este de 2 m ! – cf. http://ww2.mcgill.ca/icc/canarie/learnWare/milestone1/App1.htm **)**
Prin masurarea diferitelor nivele ale coordonatei EPT (Ensemble Performance Thereshold) s-au stabilit limitele (in msec) ale LDS (Latency Design Spec), sintetizandu-se totodata o serie de concluzii referitoare la: (1) relatia dintre intarziere (*delay, latency*) si tempo (daca intarzierea este mai mare de 30 msec, tempoul are tendinta sa scada; EPT-ul muzicii ritmice este de cca 20-

30 msec); (2) aplicarea strategiei de tip "leader-subordonat" pentru mentinerea unui tempo uniform chiar si in conditiile unei intarzieri mari (de 50-70 msec) a determinat aparitia unor severe desincronizari; EPT-ul variaza in functie de specificul muzicii (viteza, stil, timpul de atact al instrumentelor, etc.); (3) nivelul optim al intarzierii este de 10-20 msec (si nu de 0 msec); (6) EPT-ul determinat prin intarziere electronica este cu mult mai scazut decat in cazul EPT-ului determinat in mediul acustic natural, ce include fenomene complementare de reverberatie si variatie de amplitudine.

- **Acest important studiu poate fi obtinut pe site-ul www-ccrma.stanford.edu , sau la adresa** cc@ccrma.stanford.edu

5.) Configurarea Toposului Acustic (de la spatiul arhitectonic la spatiul virtual)

Precizare terminologica **: notiunea de « TOPOS » (>gr. *τοπος* = loc) desemneaza in domeniul acusticii muzicale spatiul fizic in care evolueaza sursa sonora (sala de concert). Toposul Acustic impreuna cu Inaltime(Frecventa), Volumul(Amplitudinea) si Timbrul(Structura Spectrala) reprezinta parametrii Spatiului Sonor – proiectiile acestuia in Timp definind Sunetul [ce se clasifica in Sunet muzical (cu Frecventa regulata) si Zgomot (cu Frecventa neregulata)]. Asadar,**

Sunetul = Spatiu Sonor x Timp

in care :

***Spatiul Sonor = Frecventa x Amplitudine x Structura Spectrala x Topos Acustic*.**

Edificatoare in aceast sens sunt cercetarile complexe efectuate la celebrul EXPERIMENTAL MUSIC STUDIOS al Universitatii din Illinois-U.S.A. (http://ems.music.uiuc.edu/ems/index.html **) de catre Scott WYATT - in domeniul difuzarii/proiectiei sonore (« *Investigative Studies on Sound Diffusion/Projection at the University of Illinois : a report on an explorative collaboration* ») -, precum si cele initiate de Sever TIPEI (compozitor american de origine romana), impreuna cu matematicianul Hans G. KAPER - in directia proiectarii, intr-un mediu imersiv al realitatii virtuale, a compozitiilor multiple, a vizualizarii muzicii si a sonificarii stiintifice (« *Manifold Compositions, Music Visualization, and Scientific Sonification in an Immersive Virtual-Reality Environment* »). Astfel, in introducerea pertinentului sau studiu compozitorul Scott WYATT afirma ca primele investigatii in planul spatializarii sonore s-au concretizat, intre altele, prin muzica concreta elaborata de Pierre SCHAEFFER, prin creatiile lui Edgard VARESE (*"Poème Electronique"*), John CAGE (ciclul *"Imaginary Landscape"*), Earle BROWN (*"Octet"*), Joji YUASA (*"Icon"*), Morton SUBOTNICK (*"Touch"*), John CHOWNING (*"Turenas"*), Salvatore MARTIRANO (*"Sal-Mar Construction"*), Ben JOHNSTON si Herbert BRUN (ultimii trei creatori activand in cadrul *"University of Illinois Experimental Music Studios*"), precum si prin experimentele facute la G.M.E.B. (Bourges) cu *"Gmebaphone"*-ul si cu *"Acousmonium"*-ul utilizat de François BAYLE. In prezent, echipa de acusticieni a IRCAM-Paris (**www.ircam.fr **) coordonata de Olivier WARUSFEL are ca domeniu de cercetare controlul propagarii sunetului in spatiu – considerat in dimensiunea sa arhitectonica, sau mediatizat prin mijloace electro-acustice. Aceste investigatii – ce au ca finalitate sintetizarea unor modele de integrare a spatializarii sonore ca parametru constitutiv al unor noi creatii componistice – sunt ordonate (in dimensiunile fundamentale, de natura obiectiva si perceptiva) prin urmatoarele proiecte: caracterizarea obiectiva a fenomenelor acustice ; modelarea fizica *(« physivcal modeling »)* si perceptiva a acestora ; simularea lor pe computer prin crearea unor interfete de comanda a aplicatiilor acustice virtuale cu ajutorul *Spatializatorului* digital, ce opereaza - in sistem « MacIntosh » - cu un ansamble de algoritmi bazati pe modele geometrice, oferind diferite ipoteze de propagare si reflexie sonora: difractia, absorbtia in incidenta razanta, reflexia speculara sau ideal difuza. Aceste experimente au dus si la elaborarea unei noi metode de determinare exacta a dimensiunii reverberatiei in salile de concert. Spatializatorul este compus din module logice de *prelucrare a semnalului* si de *comanda in timp real* – generand sinteza locatiei surselor si cea a efectului de sala (*reverberatia artificiala*). Modulul de prelucrare poate fi configurat pentru sisteme individuale de reproducere tridimensionala (la casca sau prin doi transductori), precum si pentru sisteme «multi-tracks » (cu reproduceri « stereo » si « stereo-3/2 »). In coordonata « scenei sonore virtuale », modulul de comanda permite controlul prelucrarii audio-numerice a semnalelor intr-o maniera accesibila, adaptata – prin functii « simbolice » - procesului de elaborare muzicala. In paralel, prin proiectul « Design Sonore », s-a experimentat si fenomenul legat de perceptia si controlul iradiatiei surselor sonore instrumentale**

– in scopul realizarii unor surse sonore artificiale capabile sa reproduca caracteristicile celor naturale si totodata sa induca directivitatea sunetului, printr-un sistem de transductori (difuzoare) ce compun « imaginea de directivitate » a semnalelor prelucrate « prin sinteza aditiva » (in modul si in faza-filtrat), urmarindu-se efectele fizice si psiho-fizice ale fenomenului. S-au sintetizat astfel, cu putine surse sonore, « imagini de directivitate » fascinante prin noutatea si complexitatea lor. Asa cum subliniaza si cercetatorii de la IRCAM, aplicatiile studiului sunt numeroase : « *dincolo de simularea caracteristicilor spatiale ale instrumentelor pentru sunete pre-inregistrate sau pentru sunetelor de sinteza, acest procedeu de reproducere permite optimizarea directivitatii ansamblurilor de difuzoare, corectia ecoului in sistemele de teleconferinta, controlul in timp real a orientarii directiei in fluxurile sonore, precum si multe alte efecte* ». Un alt program deosebit de important in domeniul interactiunii timp-real/spatializare este *« Max/MSP* - version 4.3.1» (aplicabil atat pe « Mac » cat si pe « Windows XP » si disponibil la adresa http://www.cycling74.com/products/download.html **), utilizat de asemena la IRCAM in combinatie cu programele « *AudioSculpt* », « *Modalys* » si *« Diphone* », ce sunt axate pe analiza/sinteza sonora.**

6.) Configurarea Acusticii Instrumentale

Tot la IRCAM-Paris (www.ircam.fr **– proiect coordonat de Rene CAUSSE) – dar si la alte importante centre de cercetare acustica din U.S.A. , precum Bregman Electronic Music Studio/Dartmouth College (**http://eamusic.darmouth.edu **– proiect coordonat de Charlie SULLIVAN) - s-au efectuat si o serie de experimente dedicate studierii functionalitatii instrumentelor traditionale (in scopul perfectionarii lor prin « grefe acustice »), precum si realizarii unor noi instrumente reale sau virtuale. Caracterul eterogen al domeniului organologic a impus initierea unor cercetari fundamentale multidisciplinare (acustica, botanica, mecanica vibratiilor, mecanica fluidelor), in colaborare cu institutii de specialitate. Un proiect important se refera la modelare fizica (« *physical modeling* ») a instrumentelor si a vocii – in aceasta directie continuandu-se experimentele ce au condus, inca de acum doua decenii, la stabilirea « *algoritmului Karplus-Strong* » (K.KARPLUS and A.STRONG - Digital Synthesis of Plucked-String and Drum Timbres,** *Computer Music Journal*, 7(2), 1983. [bibtex-entry] http://www.cmi.univ-mrs.fr/HASSIP/hassipbib/Author/KARPLUS-K.html **)**
pentru unele instrumente cu corzi ciupite (chitara, banjo, koto) si de percutie, prin analizarea elementelor constitutive (sunet, vibratie, aer, coarda, etc.) si prin reconstituirea timbrelor originale cu ajutorul unor sisteme speciale (« building blocks »), bazate pe « delays », filtre, « feedbacks loops » si mai ales pe « buffers » (unitati de memorie cu acces aleatoriu – tip RAM, ce acumuleaza si totodata elibereaza permanent informatii, intr-un proces repetitiv generand – prin periodicitate - frecvente sonore). S-au elaborat astfel, prin multiple analize si simulari, si alte esantioane (« semnaturi acustice ») caracteristice instrumentelor cu ancie simpla (clarinet, saxofon), cu ancie dubla (oboi, fagot), cu jet de aer (Blockflöte, flaut transversal, tub de orga) si cu ancii libere (acordeon – in acest caz evidentiindu-se faptul ca o miscare sinusoidala a anciei poate genera un timbru foarte bogat, compus din peste 30 de armonice) ; in prezent la IRCAM sunt analizate sunetele pianului (studiindu-se diferentele observate in dubla-diminuare, intre diferitele partiale), precum si cele ale instrumentelor de coarde (in special in zona zgomotelor complementare produse prin contactul arcusului cu coarda). Rezultatele acestor atat de pertinente cercetari sunt ulterior implementate in programele originale (ruland pe sistemul de operare « MacIntosh ») « Resonans » si « Modalys-ER » (ex « Mosaïc ») – ultimul oferind o descriere uniforma a modelelor. Aplicatiile sunt multiple : de la cele mai traditionale (ca de pilda notarea calitatii trompetelor), pana la determinari ale raportului psiho-fizic in utilizarea unor instrumente traditionale modificate partial sau total, ca de pilda flautul cu sfert de ton si sisteme micro-intervalice, arcusul de vioara construit din materiale sintetice, Mundstück-ul cu volum variabil pentru clarinet (permitand schimbarea frecventei in timp real), noul dispozitiv electronic de acordaj al timpanului sau surdina wawa pentru corn. In acest context trebuie subliniata si contributia esentiala adusa de compozitorul american Rodney OAKES (profesor emerit la Los Angeles Harbor College si fondator al « *Journal SEAMUS* ») in impunerea midi-trombonului ca instrument de importanta majora pentru creatia muzicala live-electronica.
In paralel, la Institutul International de Muzica Electroacustica de la Bourges – IMEB (www.imeb.asso.fr **) coordonat de Françoise BARRIERE si de Christian CLOZIER se utilizeaza in mod curent doua instrumente digitale originale (atat in coordonata « hard », cat si in cea « soft »), deosebit de utile in plan pedagogic (« Cybersongosse 7 ») si interpretativ**

(« Cybernéphone 7 »). Referitor la sinteza vocala, mentionam cercetarile efectuate la Princeton University din U.S.A. de Perry R. COOK, ce s-au finalizat si prin programul de modelare fizica « SPASM singing voice software » (http://www.cs.princeton.edu/~prc/NewWork.html) , precum si inovatiile in domeniul emisiei vocale prelucrate audio-numeric reliefate in creatiile realizate la prestigiosul « *Brooklyn College Center for Computer Music* » de compozitorul Robert VOISEY, director al societatii « *Vox Novus* » din New York

7.) Alte domenii abordate la IRCAM
(apud www.ircam.fr **)**

- **Cercetarea psihoacustica (Asociatia PECA, Coordonator Stephen McADAMS) – proiectele „Perceptia si memorizarea timbrului muzical“ (analiza parametrilor acustico-auditivi; perceptia proprietatilor fizice ale obiectelor sonore; caracterizarea verbala a timbrului muzical si a relatiilor dintre timbre); „Procesul organizarii auditive“ (organizarea simultana si cea secventiala); „Perceptia structurilor muzicale contemporane“ (perceptia inarmonicitatii in agregatele de inaltimi si a progresiei in secvente de agregate – cu Tristan MURAIL; evolutia atentiei in structuri cu straturi multiple - cu Antoine BONNET; relatia perceptiva intre micro- si macro-structuri in sunetele si secventele sintetizate – cu Marco STROPPA); programe originale: „PsiExp“ si „FTS“;**
- **Compozitia asistata de ordinator – CAO (Echipa „Representations Musicales“, Coordonator Gerard ASSAYAG) – activitate curenta: aplicatii ale programelor originale “PatchWork”, “Sympatos” si “OpenMusic” in cadrul „Forumului utilizatorilor“, implicand colaborari sistematice cu compozitori si muzicologi interesati in elaborarea unor proiecte avansate de informatica muzicala;**
- **Analiza/sinteza sonora (Echipa coordonata de Xavier RODET) – proiecte: „Sinteza aditiva“ (aplicarea algoritmului de sinteza „FFT-1“ in studiul anvelopei spectrale); „Sinteza sursa-filtru“ (producerea unor variate sunete instrumentale si detectarea inaltimii si analizei zgomotului complementar); „Sinteza SINOLA“ (bazata pe suprapuberea si juxtapunerea formelor elementare de unda, determinand modificarea inaltimii si a duratei sunetelor emise vocal – vorbit sau cantat); „Sinteza modelelor fizice“ (analizarea in timp real a modelelor matematice si informatice ale instrumentelor acustice din clasele clarinet, trompeta si voce; studiul oscilatiilor periodice si haotice); „Caracterizarea semnalelor sonore - diferite de cuvinte“ (extragerea parametrilor constitutivi, separarea de surse, segmentare, identificare si recunoastere, reprezentarile unor scene reale si ale sintezei intr-un limbaj hieratic legat in continut, prelucrari si transformari ale obiectelor sonore, codificarea selectiva a continutului); „Farinelli“ (fuziunea timbrelor – cu aplicatie la reconstituirea vocii celebrului cantaret castrat, pentru filmul realizat de Gerard CORBIAU); programe originale: „Super VP“, „AudioSculpt“, „Diphone Studio“, „Chant“ (sinteza granulara), „Xspect“.**

8.) Procedee de sinteza si transformare digitala a sunetului utilizate si in aplicatii camerale live-electronice

NB – Se disting 2 categorii de muzici live-electronice : cea pentru interpreti in timp real si banda electronica preinregistrata – numita si «*tape and instruments music*», precum si cea in care banda este inlocuita cu sunete electronice produse ad-hoc sau cu sunetele interpretilor prelucrate chiar in momentul producerii lor (asadar in timp real) - aceasta a doua categorie formand genul « *electronics and instruments music* ». In muzica electro-acustica analoga se utilizau sisteme complexe de prelucrare (incluzand mai multe magnetofoane, mixere, filtre, ring-modulatoare, amplificatoare, difuzoare – procedeele fiind exemplar analizate de Allen STRANGE in tratatul *Electronic Music. Systems, Techniques, and Controls.* WM.C.Brown Company Publishers , 1972, ISBN 0-697-03612-X, p.126-137). Tehnica digitala a inlocuit insa – cu rezultate acustice net superioare - aceste sisteme analoge prin programe si module specializate in sinteza si prelucrarea numerica a sunetului . *Dat fiind faptul ca noile aplicatii sunt in plina evolutie, prezentarea de mai jos nu este (si nici nu ar putea fi !) exhaustiva, ea limitandu-se doar la unele dintre cele mai importante aspecte relevate pana la data elaborarii acestei lucrari – ce sunt expuse concentrat, dar cu trmiteri directe la principalele surse de informatie ce pot oferi celor interesati detalii suplimentare.*

- a.) « *Phase Shifting* » - procesul sonor de tip « phasor » este dedus din « Teorema lui Fourier » (toate functiile periodice pot fi exprimate prin suma – pana la Infinit – a sinusoidelor componente) si se bazeaza pe baleierea (« sweep ») uniforma si continua (intr-un « perpetuum mobile » ascendent-descendent) a partialelor (armonicelor) unui sunet, implicand trecerea semnalului initial printr-o serie de filtre speciale (generand un « phase-lag » asemanator unui « time delay ») si suprapunerea semnalului astfel prelucrat cu semnalul originar ; vor rezulta o serie de intersectii (« notches ») in spectrul tonal, determinate de filtrarile combinate (« comb filter response »). Functiile principale de control in modulul « *MXR Phase 100* » sunt : (1) Speed (referitoare la viteza ratei « sweep » intre limitele 0.1 – 10 Hz) si (2) Intensity (actionand - in patru pozitii caracteristice - asupra celor doua coordonate fundamentale ale procesului « phase shifting » - amplitudinea dimensiunii « sweep » si profunzimea dimensiunii « notch »).

- b.) *"The Phase Vocoder"* – prin analizarea/resintetizarea sunetelui [conform "reprezentarilor Fourier" - DFT ("Discrete Fourier Transform"), FFT ("Fast Fourier Transform" – reprezentarea cea mai frecvent utilizata) si IFFT ("Inverse Fast Fourier Transform")] se poate schimba atat inaltimea unui sunet fara a-i modifica lungimea ("pitch shifting"), cat si lungimea unui sunet fara a-i altera inaltimea ("time stretching"). Ambele tipuri de transformari pot fi operate cu ajutorul programului "Audacity 1.2.0-pre2": "pitch shifting" prin comenzile "Edit-Select-All" + „Effect-Change Pitch without Changing Tempo", iar „time stretching" prin comenzile "Edit-Select-All" + „Effect-Change Tempo without Changing Pitch".

- c.) „*Convolution*" – convolutia reprezinta un caz particular de utilizare a „phase vocoder" prin realizarea unei „sinteze incrucisate" („cross-synthesis") implicand impunerea unei coordonate a unui sunet (numit „impulse response") altui sunet. Reverberatia digitala ofera un exemplu concludent de convolutie: rezonanta caracteristica a unei sali este inregistrata (formand un „impulse response") si impusa unui alt sunet. Programul „Sound Forge" ofera posibilitatea unui astfel de proces prin comanda „Effects-Reverb" – specificandu-se tipul de „impulse record" prin „Reverberation mode": Rich hall, Wide open hall, Concert hall, Deep hall, Long hall, Warm ambience, Metal tank, etc. Prin convolutie pot fi insa generate si noi sunete, ca de pilda sinteza dintre zgomot si respiratie – realizata cu programul „*Soundhack*" creat de Tom ERBE (*apud* BURK, Phil. POLANSKY, Larry. REPETTO, Douglas. ROBERTS, Mary. ROCKMORE, Dan. *Music and Computers – an interactive web-text.* (http://eamusic.dartmouth.edu/~book/MATCpages/tableofcontents.html). Aceeasi autori semnaleaza un aspect deosebit de interesant: reverberatia simpla poate fi simulata si prin convolutia "zgomotului alb" ("whitenoise") cu orice alt sunet.

- d.) „*Sampling*" – acest foarte popular procedeu (in special in genurile„rap", „dance" si „beat") consta in selectarea unor mici esantioane sonore din muzici pre-existente, sau in crearea unor esantioane originale si in recontextualizarea lor prin mijloace digitale – cu eventuale modificari ale frecventelor si ale duratelor initiale. In acest sens au fost realizate - ca „hardware" - instrumente digitale specifice („Samplers" si „Drum Machines") , iar in domeniul „software" au aparut, in principalele sisteme de operare (Windows, Mac si Linux) noi programe de tip „Digital Audio Workstations" -DAW (incluzand functiile: analog/digital-input/output, sound recording/editing/playback/multi-track mixer/amplifier, etc.) - ca de pilda „*Pro Tools*", „*Acid*", „*Cakewalk*", „*The Matk of the Unicorn-MOTU*" (cu „*FireWire interface*"), etc.

- e.) „*Localizare/Spatializare*" – Localizarea sursei sonore prin auzul „*cyclaural*" este determinata de mai multi factori: intensitatea sunetului (ce este mai puternica la urechea mai apropiata de sursa), diferentele de perceptie („*Interaural Time Delay*"-ITD – aspect determinat de distantele inegale dintre sursa si fiecare dintre urechi, marcate printr-o mica intarziere a perceptiei la urechea mai indepartata) si cele de frecventa (asa-numitele „Head Realated Transfer Functions"-HRTF - generate de obstacolele fonice plasate pe traseul sonor, ce produc un efect de „low-pass filter" specific fiecarei urechi). In consecinta, spatializarea sonora poate fi simulata - in doua dimensiuni - prin diferentierile de intensitate, ecou si filtraj dintre cele doua canale audio (de pilda, localizarea sursei in partea stanga impune cresterea intensitatii pe canalul „Left" si totodata adaugarea unui mic ecou si filtrarea frecventelor inalte pe canalul „Right"). In acest sens s-au efectuat experimente relevante cu „*Binaural Dummy Head Recording*" – o instalatie de inregistrare ce reconstituie cutia craniana, avand amplasate microfoanele in

orificiiile auditive. Solutiile descrise mai sus se pot aplica si intr-o proiectie audio „3-D“ (ce ia in considerare si coordonata verticala a perceptiei auditive). Multe dintre procedeele aplicate au fost utilizate si in „epoca analoga“, fiind pertinent descrise de Allan STRANGE in tratatul *Electronic Music. Systems, Techniques, and Controls.* WM.C.Brown Company Publishers , 1972, ISBN 0-697-03612-X, Cap. 9 “Location Modulation”, p.75-85).

- f.) „*Prelucrari grafice*“ – operatii ce determina convertirea imaginilor vizuale in imagini sonore, cu ajutorul unor instrumente si, respectiv, programe speciale: de la aparatul „Spectrogram“ (creat de High LeCaine in 1950) si de la „UPIC“ (sistem inventat de Iannis XENAKIS si utilizat la CEMAMu-Paris), pana la aplicatiile software „MetaSynth“ , „Hyperupic“, „SoundHack/QT-coder“, „AudioSculpt“ , „Squiggy“ (in „Mac“) si „MIDImage“ (in „Windows“). Dintre toate acestea, „Squiggy“ (creat Douglas REPETTO la renumitul „Darmouth College“ din S.U.A.) este cel mai performant program „graphics-to-sound“ avand ca finalitate interpretarile live-electronice.

- g.) „*Sinteza aditiva*“ - conform „*Teoremei lui Fourier*“ (“toate functiile periodice pot fi exprimate prin suma – pana la Infinit – a sinusoidelor componente”), un sunet complex poate fi creat prin insumarea unor sunete simple – ca de pilda prin *aditia de armonice*, prin *reconstruirea anvelopei ADSR (Attack-Decay-Sustain-Release)*, prin asa-numitul “*Shepard Tone Effect*” (bazat pe perceptia “chroma” referitoare la circularitatea frecventelor distantate la o octava – adica inmultite cu 2), sau prin *sinteza formantilor* (adica a acelor frecvente fixe, ireversibile ce definesc un anumit timbru vocal sau instrumental).

- h.) „*Filtrari*“ - tratarea sunetelor cu filtre fixe (formand „*filter bank*“) si variabile – aceasta ultima categorie incluzand filtrele: „*High-pass*“ (ce elimina frecventele joase), „*Low-pass*“ (ce elimina frecventele inalte), „*Band-pass*“ [ce selecteaza doar o anumita banda de frecvente, definita prin „*bandwidth*“ – adica prin diferenta dintre „*cutoff frequencies*“ (cea mai inalta si cea mai joasa frecventa la amplitudine maxima) – si prin „*center frequency*“ (frecventa medie)] si „*Band-reject*“ (ce elimina o anumita banda de frecvente). Prin „*EQ.Graphic Equalizers*“ (variind de obicei intre – 10 si + 12 dB) se pot realiza amplificari si/sau atenuari ale mai multor benzi de frecventa. De asemenea, anumite situatii sonore impun utilizarea filtrelor „*Finite Impulse Response*“-FIR (incluzand „*delays*“ ale unor fragmente sonore anterioare) si „*Infinite Impulse Response*“ –IIR (incluzand efectul „*feedback*“).

- j.) “*Waveshaping*” - operatie constand in transformarea sunetelor simple in sunete complexe printr-o “functie de transfer” [y = f(x)] – ca de pilda in cazul transformarii formei sinusoidale a unui sunet intr-una triunghiulara. Functia de transfer poate avea si configuratia unui “Polynomial Chebyshev” – asa cum demonstreaza si autorii admirabilului tratat “*Music and Computers – an interactive web-text*” (http://eamusic.dartmouth.edu/~book/MATCpages/tableofcontents.html).

- j.) “*Modulatia de Amplitudine*” – “*Amplitude Modulation*” (AM) este un proces de prelucrare timbrala (analog unui efect de *tremolo*, implicand varieri periodice ale volumului sonor), ce consta in modificarea amplitudinii semnalului sonor initial (numit “*carrier signal*”) printr-un semnal de modulatie (numit “*modulating signal*”) inducand - prin coordonatele sale de amplitudine, frecventa si forma (“waveshape”) – nivelul, viteza si, respectiv, configuratia (“pattern”) modulatiei de amplitudine; amplitudinea sunetului initial va deveni amplitudinea medie a sunetului modulat. De pilda, dintr-un sunet initial (“*carrier signal*” – pe care il numim “x”) de 700 Hz sinus modulat in amplitudine cu un sunet (“*modulating signal*” – pe care il numim “y”) de 5 Hz sinus va rezulta un sunet sinus cu amplitudinea medie de 700 Hz si cu variatii de amplitudine intre 705 Hz (x + y) si 695 Hz (x – y), la o viteza de 5 cicluri/secunda. Daca sunetul de modulatie este de peste 20 Hz, viteza schimarilor va fi imperceptibila in planul amplitudinii (volumului) – in aceasta situatie ea percepandu-se ca doua noi frecvente (numite “*sidebands*”) reprezentand suma (x + y) si diferenta (x – y) dintre sunetul original si cel de modulatie, ce se suprapun peste sunetul original.
Astfel, daca x = 700 Hz sinus si y = 20 Hz sinus, vor rezulta 3 sunete cu frecventele de 700 Hy sinus (x), 720 Hz sinus (x + y) si 680 Hz sinus (x – y). In programul “*Sound Forge*” AM se realizeaza prin functia “*Effects-Amplitude Modulation*”. [*apud* SCHRADER, Barry. *Introduction To Electro-Acoustic Music.* Published by Pretince-Hall, Inc., Englewood Cliffs, N.J. – p. 88-90;

STRANGE, Allen. ***Electronic Music. Systems, Techniques, and Controls.*** **WM.C.Brown Company Publishers , 1972, ISBN 0-697-03612-X, p.9-11].**

- k.) "*Modulatia de Frecventa*" - "*Frequncy Modulation*" (FM) este de asemenea un proces de prelucrare timbrala (dar analog unui efect de *vibrato*, implicand varieri periodice ale inaltimii sonore), ce consta in modificarea frecventei semnalului sonor initial (numit "*carrier signal*") printr-un semnal de modulatie (numit "*modulating signal*") inducand - prin coordonatele sale de amplitudine, frecventa si forma ("waveshape") – nivelul, viteza si, respectiv, configuratia ("pattern") modulatiei de frecventa; frecventa sunetului initial va deveni frecventa medie a sunetului modulat. Procesul FM este asemanator cu procesul AM – primul actionand insa in planul frecventei sonore (adica al inaltimii), iar cel de al doilea in planul amplitudinii sonore (adica al volumului). Ca si in AM, o modulatie de frecventa cu un sunet de modulatie de peste 20 Hz va produce doua noi frecvente ("*sidebands*") reprezentand suma (x + y) si diferenta (x – y) dintre sunetul original si cel de modulatie, ce se suprapun peste sunetul original. In plus, in FM, "*peak frequncy deviation*" ilustreaza o functie a amplitudinii semnalului modulat in frecventa si indica diferenta dintre maxima/minima sunetului modulat si sunetul initial (de pilda, avand un "*carrier signal*" de 700 Hz, ce este modulat in sus la 900 Hz si in jos la 500 Hz, valoarea "peak frequncy deviation" va fi de 200 Hz). In programul "*Sound Forge*" FM se realizeaza prin functia "*Tools-Synthesis-FM*". Tot in acest domeniu, se remarca si faptul ca frecventele emise sub pragul auditiv uman inferior (de 20 Hz) sunt percepute ca durate – acest fenomen deschizand perspectivele unor interesante transformari ale coordonatelor "spatiu sonor" si "timp muzical", cu aplicatii directe in practica componistica - asa cum am demonstrat in studiul meu "*Mistica lui Debussy si revelatia universului supratonal*" [Revista "Muzica" Nr.3/1999, Bucuresti (pag.61-72)]. In sfarsit, "*Ring Modulation*" reprezinta un caz particular de FM si consta in realizarea sumei si a diferentei dintre doua frecvente cu ajutorul unui aparat (initial analog) numit "Ring Modulator"; acest efect a fost insa transpus si in mediul digital (de pilda in programul "*Csound*" dezvoltat de Barry VERCOE la MIT). [*apud* SCHRADER, Barry. *Introduction To Electro-Acoustic Music.* Published by Pretince-Hall, Inc., Englewood Cliffs, N.J. – p.50-51 si 90-92; CHOWNING, John M. *The Synthesis of the Complex Audio Spectra by Means of Frequency Modulation.* in *Journal of the Audio Engineering Society*, vol.21,no.7 (1973); STRANGE, Allen. *Electronic Music. Systems, Techniques, and Controls.* WM.C.Brown Company Publishers , 1972, ISBN 0-697-03612-X, p.12-20; BURK, Phil. POLANSKY, Larry. REPETTO, Douglas. ROBERTS, Mary. ROCKMORE, Dan. *Music and Computers – an interactive web-text.* (http://eamusic.dartmouth.edu/~book/MATCpages/tableofcontents.html)].

- l.) "*Morphing*" – preluat din artele vizuale (domeniu in care "anamorfoza" reprezinta o tehnica descoperita inca din antichitate), acest procedeu de transformare a unei imagini in alta - aparent total diferita de prima - a fost aplicat pentru prima data in arta sunetelor in 1976, in Cvartetul meu de Coarde "*Anamorphose*" [© 1977 by Edition Modern München – Germany], ce a fost distins cu Premiul I la Concursul International de Compozitie "GAUDEAMUS" din Olanda (1977). Ulterior, in studiul "*Anamorfoza Sonora*" (publicat in revista "*Muzica*"-Bucuresti, Nr.6/Iunie 1985, p.18-21) - pe care l-am prezentat de asemenea in conferintele sustinute la "Cursurile Internationale de Muzica Noua" de la Darmstadt-Germania (1980), precum si la Michigan University-USA (1982) – am aratat ca "*doua (sau mai multe) structuri muzicale aparent disjuncte pot coexista functional, fara a constitui un colaj, daca raspund conditiei de a avea cel putin un element constitutiv comun. Astfel, intre multimile sonore A, A' si B, avand proprietatile: A intersectat cu B = 0, si A intersectat cu A' = diferit de 0, se poate exprima relatia de colaj prin A><A' si cea de anamorfoza prinA<>B.*" Ulterior, in studiul "*Anamorfozele Timpului Muzical*" (publicat in revista "*Muzica*"-Bucuresti, Nr.3/1991, p.100-107), precum si in tratatul "*MUSICA CAELESTIS – Anamorfozele Sacrului in Arta Sunetelor*"(Editura UNMB,2000, ISBN 973-0-02102-3), am dezvoltat cercetarea muzicologica in acest domeniu aplicat, de altfel, in majoritatea creatiilor mele componistice (de pilda, in opera "*Domnisoara Christina*" (1981), conceputa dupa un libret de Mircea ELIADE, in care am extins utilizarea tehnicii anamorfotice din domeniul sonor in cel multi-media. In prezent, posibilitatile practic nelimitate ale sistemelor digitale au determinat aparitia unor programe specializate in *anamorfoza muzicala /"music morphing"*, precum "*Diphone*" (promovat la IRCAM-Paris, www.ircam.fr), "*Cendroid*" (creat, in baza programului "*SoundHack*", de compozitorii Douglas I. REPETTO si Larry POLANSKY de la Dartmouth College - Bregman Electronic Music Studio http://music.dartmouth.edu/~douglas/cendroid.sit.hqx) si de "*PROSONIQ morph VST PC – Realtime*

***Audio Morphing Plugin*" (**http://products.soniq.com **), "*Voicechanger Software*" (**www.voicechanger.biz **) si deja mentionatul "*crusherX*" (**www.crusher-x.de **– ce poate fi descarcat la adresa :** www.stelkens.de/bs/download **). Practic, exista doua modalitati de realizare a efectului "*morphing*" in arta sunetelor: prin substitutie (sau "*replacement morph*", adica prin inlocuirea treptata a fiecarui sunet din prima imagine cu un sunet din imaginea a doua) si prin interpolare (sau "*interpolation morph*", adica prin compararea/definirea valorilor specifice celor doua imagini si prin intercalarea unei imagini intermediare, ce este bazata pe elementele comune ale imaginilor principale). Toate aceste aspecte expuse in Capitolul 5_6 "Morphing" din recentul tratat *Music and Computers – an interactive web-text* (2003 –** http://eamusic.darmouth.edu/~book/ **) reprezinta de fapt o confirmare – formulata in baza cercetarilor efectuate cu mijloace tehnice de ultima ora - a teoriei anamorfozei sonore, definite si aplicate intuitiv de mine incepand din anul 1976.**

- m.) "*Sinteza granulara*" – "Granular Synthesis" se refera la procedee specifice de generare a "*norilor de sunete*" ("*sound clouds*"), ca elemente de natura stochastica introduse in limbajul muzical contemporan inca din 1971 de catre marele compozitor grec Iannis XENAKIS (nascut in Romania si stabilit in Franta). Aceste complexe imagini sonore globale sunt alcatuite din multimi – sau "regiuni schimbatoare de energie sonora" ("shifting regions of sound energy") - cuprinzand mii de sunete (de obicei sinusoidale, ce pot fi insa si "sampled sounds") extrem de scurte (cu durate mai mici de 100 de milisecunde), ce isi metamorfozeaza permanent configuratiile de frecventa si amplitudine – comportandu-se (conform principiilor probabilistice) ca niste picaturi de ploaie, transformabile (in anumite conditii meteorologice) in fulgi de zapada… La randul lor, "norii de sunete" (proveniti, de pilda, atat de la un ansamblu cameral, cat si de la un computer) se pot intersecta, generand noi fenomene sonore absolut inedite! Cercetarile lui Iannis XENAKIS au fost dezvoltate si de compozitorul canadian Barry TRUAX, ce a elaborat, in 1986, un sistem in real-time (PODX, realizat la Simon Fraser University). Actualmente sunt aplicate o serie de programe speciale, precum "*Chant*" (utilizat, in sistem "Mac", la IRCAM-Paris, www.ircam.fr **), "*KTGranulator*" (**www.smartelectronix.com/~koen **) si "*crusherX*" (**www.crusher-x.de **) – ultimul avand, pe langa functia de "*vapor synthesis*", si pe aceea de "*morphing system*".**

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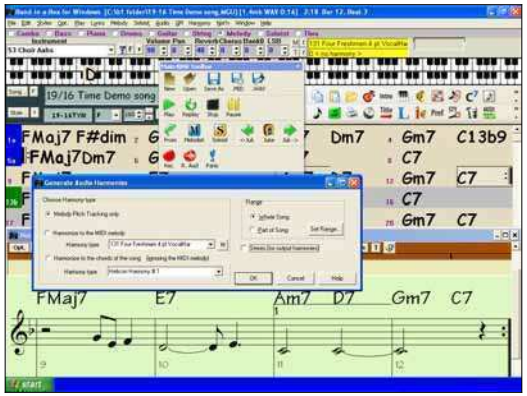
APPENDIX

BAND-IN-A-BOX®

Version 2004 for Windows®

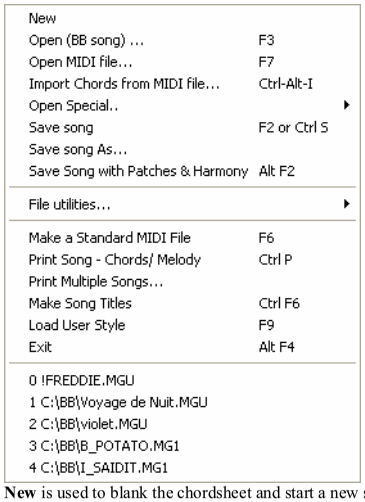


Chapter 14: Reference

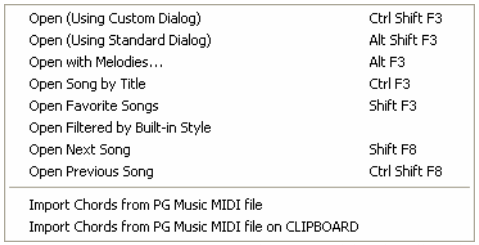
Band-in-a-Box Menu Descriptions

This chapter gives line-by-line descriptions for all Band-in-a-Box menus.

File Menu



New is used to blank the chordsheet and start a new song.
Open (BB song) is used to open an existing Band-in-a-Box song.
Open MIDI file loads a MIDI file into Band-in-a-Box and the MIDI file will play with the chords intelligently interpreted on-screen.
Import Chords from MIDI File uses the MIDI File Chord Wizard to interpret chords from any midi file, and also read tracks to the melody and soloist tracks.
Open Special
Opens a sub-menu with more options for opening songs.



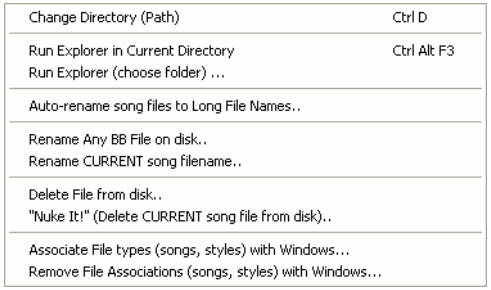
Open (Using Custom Dialog) uses the custom dialog that allows long-file-names, font selection, and even remembers its settings (unlike the standard windows 95/98 dialogs).

Open Using Standard Dialog uses the standard windows 95/98 dialog.
Open with Melodies shows list of only song files that have melodies (*.mg?).
Open Song by Title allows selection of songs by displaying the full title of the song (not 8 character file name). A search function allows you to search the title list for a word or phrase to quickly find a title. For example, type in "Oldfolks" and the search will find the song title "Old Folks at Home," as well as any other songs with "Oldfolks" in the title.
Open Favorite Songs opens the dialog that shows the last 150 songs played.
Open Filtered by Style loads only song in current style.
Open Next Song and **Open Previous Song** will open the next/previous song in alphabetical order. If the song loaded has a file name of "Paul," choosing load-next-file will find the next file in alphabetical order after Paul, maybe it would be "Peter." **Shift+F8** and **Ctrl+Shift+F8** are the hot keys for this.
Import Chords from PG Music MIDI file will read in the chord symbols from PG Music MIDI files made by programs like Band-in-a-Box or PowerTracks Pro Audio. Note that it won't read in the chords from a MIDI file that doesn't have special chord symbols typed in to it, i.e., it doesn't interpret chords.
If you want to interpret chords from any midi file, use the *File-Import Chords From MIDI File* option instead.

> **Tip:** If you're working with a lot of Band-in-a-Box songs doing editing etc., remember the "Open Next Song" commands – they will save you a lot of time!

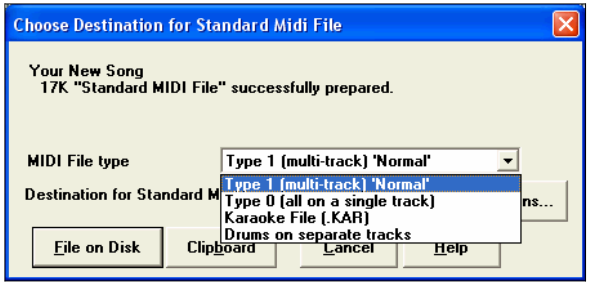
Save song saves current song under original title.
Save song As... is to save songs (*.?G?).
Save Song with Patches & Harmony. If you would like to save certain patches with a song, then type in the number of the patch (instrument) that you would like. Leave the other instruments at zero (0) for No Patch change. Remember that - as with all other Band-in-a-Box functions - you use the General MIDI number for the instrument, regardless of the synth you are using.

File utilities… opens a sub-directory of file utilities.



Change Directory (Path) opens the Browse Folder window where a new directory can be selected.
Run Explorer in Current Directory launches Explorer. Pressing **Ctrl+Shift+F3** is the usual way to get to this item, and will quickly open Explorer. Once Explorer is open, you could double click on a song or style to load it in. (Assuming that there is a file association for Band-in-a-Box songs and styles made in Explorer.)
Auto-rename song files to Long File Names will rename all song files in the current directory to long file names, using the song title as the name.
Rename Any File on disk… or **Rename CURRENT song filename** allows you to rename files.
Delete File from disk deletes a song file without exiting the program
"Nuke It!" (Delete CURRENT song file from list).. deletes the current song.
Associate File types (songs, styles) with Windows… / Remove File Associations (songs, styles) with Windows… will associate (or remove associations for) the file types for Band-in-a-Box songs and styles in Explorer. Once set, this means that you can double click on a song or style in Explorer and Band-in-a-Box will open up with that song or style.
Make Standard MIDI File makes a standard midi file. You can save in Type 1 (multi-tracks) or Type 0 (single track) files. Karaoke MIDI files are also supported.

To save a MIDI file as a Type 0, 1, or Karaoke file, press the MIDI file button, and choose the desired MIDI file type.



This button saves a MIDI File to Disk. You can then load the MIDI File into your sequencer for further editing.

This button copies the MIDI File to the Windows Clipboard. Then you can clipboard-paste Band-in-a-Box MIDI data to PowerTracks Pro Audio, Cakewalk, etc.

Go to *Opt.* | *Preferences* and press the [MIDI File] button to open the **MIDI file options** dialog box to control how the Melody, Solo, and Harmony are written to a MIDI file.

Print Song - Chords/Melody opens the Print Options dialog.

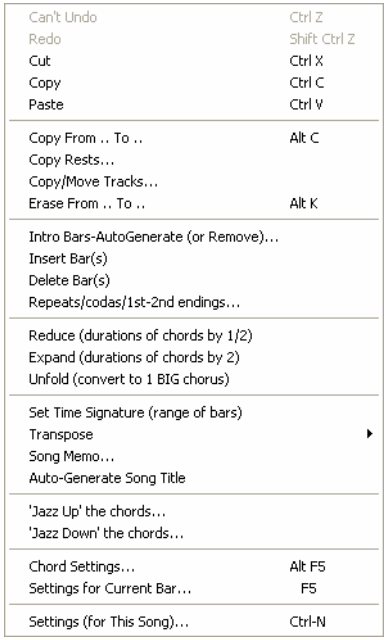
Print Multiple Songs… prints all songs, or just selected songs, in a song directory.

Make Song Titles allows you to assign long, full titles to song filenames.

Load User Style allows you to choose a user style. (See Selecting Styles.)

Exit to exit completely from the Band-in-a-Box program.

Edit Menu



Edit | **Undo** and **Edit** | **Redo** allow you to undo or redo most operations.

Edit | **Cut** functions like a delete command to remove bars from a song.

Edit | **Copy** and **Edit** | **Paste** are to copy chords. Copying a section of chords can be done in the same manner as copying text in a Windows word processor.

Copying Chords to the Windows Clipboard

- Select the region to copy.
- Place the mouse cursor at the bar to begin the selection. Then, holding down the left mouse button, drag the mouse over the region. As you do this you will see that the region will be inverted (i.e. looks dark).
- When you have selected the desired region of chords to copy, release the mouse button.
- Copy the selected region to the clipboard with the on-screen copy button, the keystrokes **Ctrl+C**, or select the *Edit* |*Copy* menu item.

Pasting Chords from the Windows Clipboard

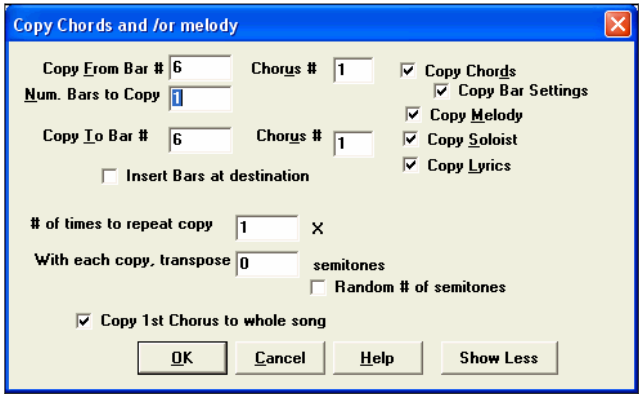
- Assuming you have already copied some chords to the clipboard, you are then ready to paste the copied chords into another part of your chordsheet.
- Move the highlight cell to the bar to begin the paste of chords.

- Copy the chords at the highlighted bar with the on-screen paste, the keystrokes **Ctrl+V**, or choose the *Edit* | *Paste* menu item.

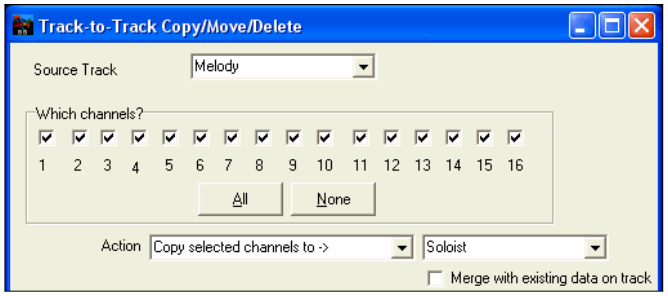
Tip: The copied section remains in the clipboard and can be used repeatedly. If your song is in the form verse-verse-bridge-verse, you can simply copy the first verse to the clipboard, and then paste in the other verses. The clipboard contents remain even if you load in a new song, so you can copy and paste between songs.

Copy From…To… / Copy Rests / Erase From… To…

One of the best ways to copy chords is the *Copy From… To…* command, or pressing **Alt+C**, which will launch the **Copy Chords and/or melody** dialog. The *Copy Rest* command will similarly bring up the **Copy Rests** dialog to allow copying of rests. The *Erase From… To…* command launches the **Erase Chords and/or melody** dialog. These dialogs allow you to specify the number of bars to copy or erase, the location to copy to, and the option to copy or erase the Chords, Melody, Soloist, and/or Lyrics.



Copy/Move Tracks opens the **Track-to-Track Copy/Move/Delete** dialog, which allows copying from one track to another.



Source track can be any of the Band-in-a-Box tracks – Bass, Drums, Piano, Guitar, Strings, Melody, or Soloist.

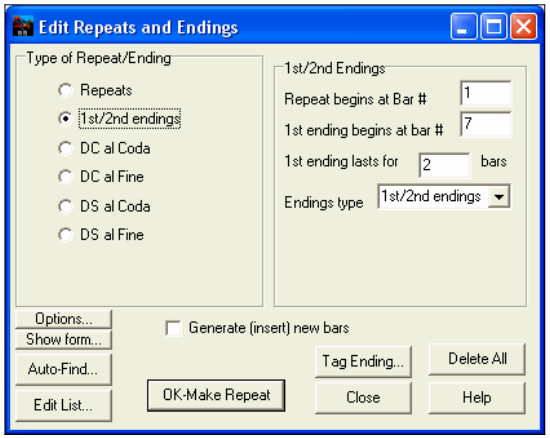
The track to "Copy/Move selected channels to ->" can be Melody or Soloist (since these are the only tracks that are editable in Band-in-a-Box).

Intro Bars - Auto Generate (or Remove)
This command will launch the *Generate Intro* dialog where you can specify the characteristics of the intro you wish to generate. For more information on this feature please refer to the Automatic Intro section.

Insert Bar(s) inserts a certain # of bars into the chordsheet.

Delete Bar(s) removes a certain # of bars from the chordsheet.

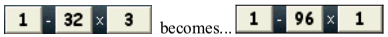
Repeats/codas/1st-2nd endings
You can add repeats and endings so that the Lead Sheet window will display and print using 1st /2nd endings. You can add your own repeats and endings by choosing this menu command to open the **Edit Repeats and Endings** dialog.



Reduce (durations of chords by 1/2) cuts chord durations by 50% (e.g., 4beats>>2beats; 2beats>>1beat).

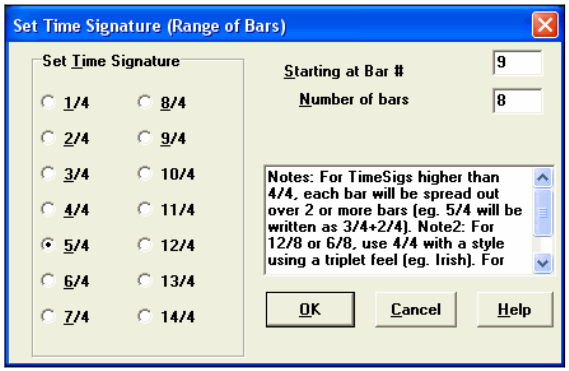
Expand (durations of chords by 2) doubles the durations of chords (e.g., 1beat>>2beats; 2beats>>4beats).

Unfold (convert to 1 BIG chorus)
Choose this command to unfold a multi-chorus song into one BIG chorus. When selected, Band-in-a-Box will display all choruses and verses of a song without loops or repeats. It is useful, for instance, when you have a song with 3 choruses and want to convert it to a single large chorus, or to customize a song with the "Edit Settings for Current Bar" feature to change meter, tempo, patches, styles and/or harmonies and generate a MIDI file for export.

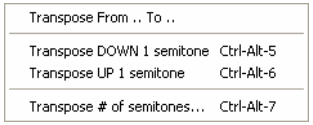


Set Time Signature (range of bars)

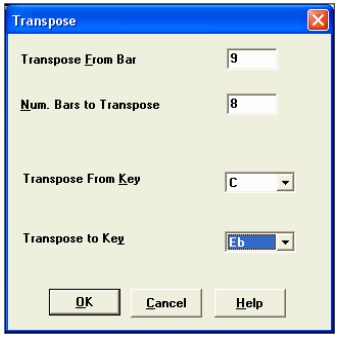
You can assign a specific time signature at any bar and apply it to a range of bars, as often as you want. For example, to have one 5/4 bar, bar 13, select this menu item, and toggle the 5/4 button. Then, type in the bar beginning (13) and number of bars (1) in the space provided.



Transpose



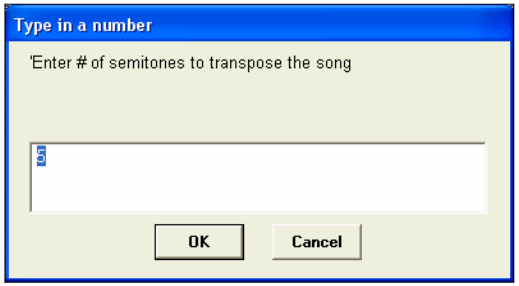
This menu command opens a submenu with both manual and automated options for transposing the complete song or selected parts of the song.



Transpose From .. To .. launches the **Transpose** dialog for transposing a particular section of the song. The bar values can be typed in manually, or you can transpose a portion of a song by highlighting the region you wish to have transposed, selecting this menu item and typing in the new key you wish to transpose to.

Transpose DOWN or *UP 1 semitone* transposes the entire song. This can be done while the song is playing. Band-in-a-Box will pause briefly, then resume playing in the new key at the same place in the song.

Transpose # of semitones opens a dialog where you can type in the number of semitones to transpose the song.



Song Memo...

A song memo of up to 2000 characters may be added. When a song has a memo associated with it the word Memo highlights in pink.
Clicking on the [Memo] button launches the **Song Memo** dialog, where you can type or edit a memo about the song and select an "Auto-open" option that will show the memo each time the song is loaded.

Auto-Generate Song Title allows you to generate a title for a song. There is also a button on the main screen for this.

'Jazz Up' The chords
This will "Jazz Up" the chords by changing chords like C and Cmaj to 7th and 6th chords. Song embellishment will be turned on for the song. Select the type of 7ths from the list box, and then click on the [OK – Jazz UP] button.

'Jazz Down' The chords
This will "Jazz Down" the chords by changing chords with 7ths (e.g. C7) to triads (e.g. C) and 9ths and 13ths to 7th chords. Song embellishment is turned off. Press [OK – Jazz Down] to proceed.

Chord Settings...
This launches the **Chord Options** dialog box, where you can put in rests and pushes. You can launch the Preview, Chord Builder, or Chord-Substitution Functions from this window.

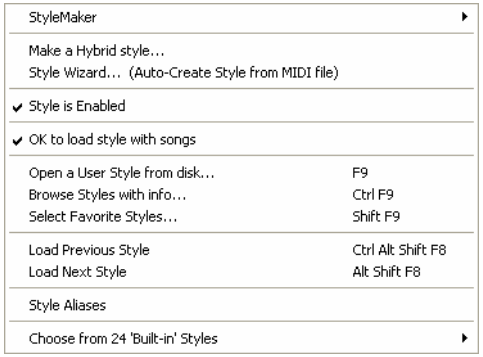
The **Chord Options** dialog box can also be opened with the chord options button, with the keystrokes **Alt+F5** or with a right mouse button click on the chordsheet.

Settings for Current Bar...
This command opens the **Edit Settings for Current Bar** dialog where you can change meter, tempo, patches, styles, and/or harmonies at the current bar. This dialog is covered in detail elsewhere in this manual and in the online Help.

Settings (for This Song)...

The **Song Settings** dialog can also be accessed by pressing the [S] settings button on the main screen under the song title. These settings are fully explained in the **PowerGuide** chapter.

Styles Menu

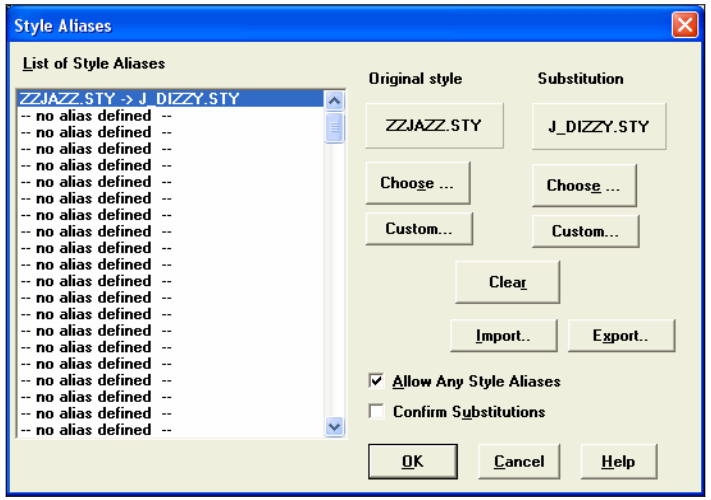


StyleMaker

This opens a submenu with three StyleMaker options.

New - Make A New Style
This function allows you to begin to create a new style, using the StyleMaker feature. See online Tutorial #6: StyleMaker - Making a New Style.
Edit a Style
This allows you to edit an existing style (*.STY) from disk. The resulting style can then be saved with the same name or a different name. This function uses the StyleMaker. See online Tutorial #5: StyleMaker – Editing Styles.
Edit Current Style
This allows you to quickly get into the StyleMaker to edit the current style. The current style is the style that is displayed in the Style Box on the main screen.
Usually you would use **Ctrl+F9** to do this quickly. See online Tutorial #5: StyleMaker – Editing Styles.
Make a Hybrid Style
The "Hybrid Styles" feature allows you to play and create a style that has instruments from up to five different styles! You can, for example, play a song with a Reggae bass, Rock drums, Salsa piano, or any combination of up to five styles that you want.
Style Wizard (Auto-Create Style from MIDI file)
Launches the **Style Creation Wizard**, which automatically converts a MIDI file (.MID) to a Band-in-a-Box Style (.STY). Simply open a MIDI file, select your options, and press "Save-As Style."
Style is Enabled
This item will Enable or Disable the style. When disabled, the name of the style will have an X at the beginning, which indicates a disabled style. The disabled style won't sound or write any data to the MIDI file. The most common use for disabling a style is when a MIDI file is loaded to the Melody track. Then the style won't sound and conflict with the full arrangement on the Melody track.
OK to load style with songs
Normally this is checked so that songs load with the associated style. But let's say we've discovered a new style, and want to try it out on many different songs. In that case we would ensure that this item is NOT checked. Then when a song is loaded it will play in the new style we are trying out.
Open a User Style from disk…
Styles can be selected and loaded with Long File Name dialogs.

Browse Styles with info…
Opens the **StylePicker** window with complete style information.
Select Favorite Styles…
Opens the **Favorite Styles** dialog, which contains a list of the most recent 150 styles used. Since these are ordered based upon how often they are used, we call this the "favorite styles" list. Since you can also store user-definable favorite lists, we also refer to them as Set Lists.
Load Previous Style, Load Next Style.
This function, like the Load Next Song function, loads in the previous (or next) style in alphabetical order of the file name. These functions are in the *Styles* menu, and accessible with the hot keys **Ctrl+Alt+Shift+F8** (or **Alt+Shift+F8**).
Style Aliases
You can create an alias so that when Band-in-a-Box looks for a style, it will load its alias instead, so when you have found a new favorite style just change the alias and you don't have to change all of your songs.



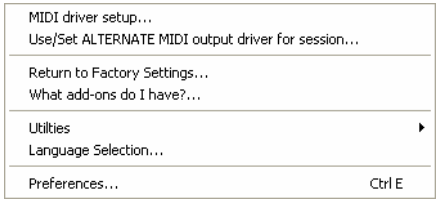
- To create a new alias, click on an empty spot in the Alias list, or click on the alias you wish to edit if you wish to change an existing alias.
- Press the [Choose] button below the Original Style box and select the style you wish to be replaced.
- Press the [Choose] button below the Substitution box and select the replacement style (alias).
- If you want to type in a style name use the [Custom] button.

When you have successfully made an alias, you will notice that there will be a small arrow in the Styles box on the main screen indicating that you have an alias loaded.

Tip: You can temporarily totally disable the Alias feature by disabling the *Allow Any Style Aliases* checkbox found in the dialog. You can also have confirmation of alias substitutions by enabling the *Confirm Substitution* checkbox.

Choose from 24 "Built-in" Styles
Use this list as a convenient way to make a quick pick from the list of 24 original Band-in-a-Box styles. Once you load a style, the song will be played back using your chosen style, and you can change the style any time.

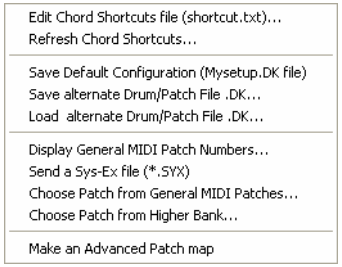
Opt. Menu



MIDI Driver setup…
Select MIDI Input and MIDI Output drivers and choose a Synthesizer / Sound Card patch map. Select the [Run Driver Wizard] button for help with your selection. This topic is discussed in detail in the setup instructions.
Use/Set ALTERNATE MIDI output driver for session
Use/Set Alternate MIDI Driver for session, allows you to set a temporary MIDI Driver for a session, useful when your main MIDI Driver is "in-use" by another application.
Return to Factory Settings
Choosing this command will reset all settings to the default at the time of shipping.

What add-ons do I have?…
An intelligent dialog, also accessible from the Help menu that will search your directory to tell you which add-ons you have and which you don't.

Utilities



Edit Chord Shortcuts file (shortcut.txt)… / Refresh Chord Shortcuts…

If you have found a chord that Band-in-a-Box doesn't recognize, you can add your own shortcuts in a text file that you make yourself called c:\bb\shortcut.txt and Band-in-a-Box will allow you to type in that chord in the future. Click on this menu command to open or create your own chord shortcuts file. Make sure to save the file after editing. Changes won't take effect until you choose *Edit | Refresh Chord Shortcuts…*

The text file \bb\shortcut.txt allows you to add new chord shortcuts. If you find a chord that Band-in-a-Box won't accept, like Csus2 when it expects C2 instead, you can enter this on a single line (without the quotes) "Csus2@C2." Then Band-in-a-Box will enter the chord C2 whenever you type in Csus 2. You can also use it for shortcuts. For example, if you entered j@maj7 Band-in-a-Box would let you type Cj for CMaj7. See the file c:\bb\pgshortc.txt for examples of shortcuts.

> **Note:** The shortcut.txt file doesn't ship with Band-in-a-Box or it would overwrite your file! The file c:\bb\pgshortc.txt should be used only by PG Music Inc. for shortcuts supplied with Band-in-a-Box.

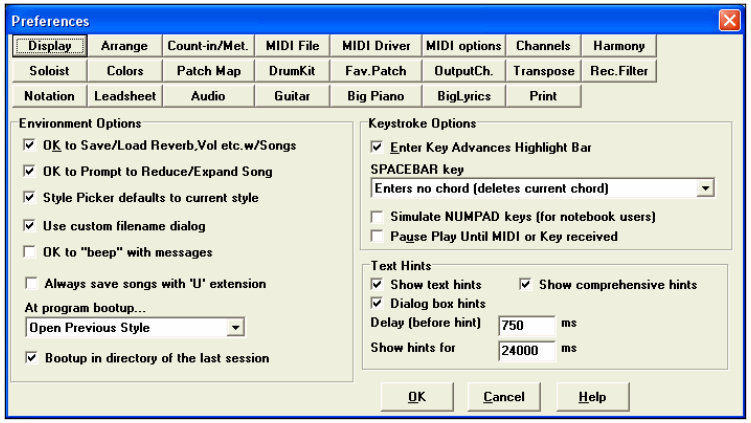
Save Default Configuration (Mysetup.DK file)
This will rewrite the Band-in-a-Box configuration file mysetup.dk with your current settings. This file contains:
- MIDI Channels/Patches/Volumes/Reverb/Chorus/Bank

- Patch Map
- Favorite Patches, Favorite Combos settings
- Drum Kit

Save / Load alternate Drum/Patch File .DK
Allows you to save different custom drum kits or load preset or custom kits.

Display General MIDI Patch Numbers
This opens the General MIDI Patch List for reference.
Send a SysEx file (*.SYX) is a command that sends SysEx information to your MIDI device.
Choose Patch from General MIDI Patches... allows you to select a patch for the currently selected instrument from an organized list of GM patches.
Choose Patch from Higher Bank... allows you to select a patch using the advanced search and higher bank/patch support capabilities.
Make an Advanced Patch map
Patch maps contain information for mapping the patches and drum notes to your synthesizer as well as Velocity offset, Octave offset, bank Controller 0 setting, bank Controller 32 setting, etc. There are also advanced options like sending a SysEx file by loading the .DK file.
These options are useful either if you have a newer synthesizer that supports bank changes and has nice patches in higher banks or if you have an older synth that requires custom mapping of sounds. To access these features tick the Enable Advanced Settings checkbox. Then, type in the values you would like to change. Say, for example, you have some great string sounds on your synth on Bank 4, Controller 32. With this feature you can save them as part of your Band-in-a-Box setup by clicking the [Save] button. This will append your MYSETUP.DK file to include all of the patches you like to use, regardless of where they are on your synth.
Language Selection
This allows you to change language from English to another language for display. If there are other languages supported by your version of Band-in-a-Box, then they will be displayed in this dialog box. International language support files are available for download from www.pgmusic.com.

Preferences…



This dialog box allows you to set various settings that are saved in the Band-in-a-Box for Windows configuration file called INTRFACE.BBW.

Environment Options

OK to Save/Load Reverb, Vol etc. w/Songs

Select this checkbox if you wish to embed Reverb, Volume, Pan, Chorus, and Bank information with songs for later recall, or if you wish to enable any such embedded information with songs that are loaded. The last settings that are in effect on the main screen instrument panel when you save the song will be recorded. Individual settings can be enabled/disabled in the *File | Save Song w/Patches and Harmony* menu item.

OK to Prompt to Reduce/Expand Song

If a style is changed with a different feel (16th notes instead of 8th notes), Band-in-a-Box will automatically offer to expand or reduce the duration of the chords, and change the tempo to accommodate the new style.

StylePicker defaults to current style

Since the StylePicker can now default to the current style, this option is available. If you want the StylePicker to stay at the style that you left it, de-select this item

Use custom filename dialog

When selected, the [Open] button, or the menu command *File | Open*, or the **F3** key will launch the custom **Open File** dialog. The custom **Open File** dialog has several advantages over the traditional Windows dialogs:

- The window is much bigger than the traditional one, allowing more room.
- There is a selectable font size and typeface.
- You can adjust the widths of the various columns.
- The Window remembers your settings.
- There are tabs at the top that allow sorting by name, date etc.

OK to "beep" with messages

Now that people have their sound cards hooked up to big speaker systems, a simple "beep" issued by Windows when an incorrect key is pressed can seem loud enough to "wake your neighbors." Setting the "silent beep" option allows Band-in-a-Box to visually flash the window title bar to get your attention, instead of generating an audible "beep."

Always save songs with "U" extension

At program bootup…

On session start, you can elect to have the last song or style that was used loaded in automatically. Or not.

Bootup in directory of the last session

On program boot up, the current directory will get set to the last directory used in the previous session.

Keystroke Options

Enter Key Advances Highlight Bar

The **Enter** key advances the highlight bar on the chord sheet. This speeds up the entry of songs for people who prefer to use the **Enter** key. When you enter a chord on the chord worksheet, press the **Enter** key to place your chord in the highlighted cell. The highlighted region will then move automatically to the next cell. The right arrow key can also be used to move the highlight cell.

SPACEBAR Key

There are three options for spacebar operation.

- Enters no chord (deletes current chord)
- Plays from current position (Ctrl – Space from start)
- Plays from start (Ctrl – Space from current pos.)

Simulate NUMPAD keys (for notebook users)

Notebook users often don't have a number pad so they can't use the Band-in-a-Box looping features (Ctrl+NUMPAD 1-6 keys). With this option the regular numbers can be used to trigger the looping feature. For example, pressing **Ctrl+2** will start playback of looped choruses.

Pause Play until MIDI or Key received

This allows playback to be started by a MIDI note received at the MIDI In port, or by pressing a key on the computer keyboard. Band-in-a-Box generates its arrangement, and then "stands by" for your start command.

Text Hints

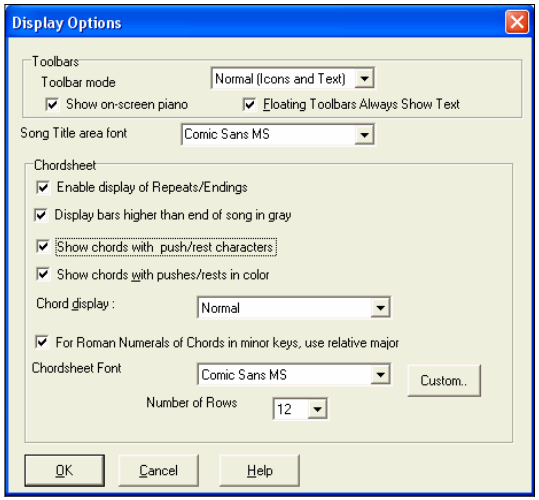
Choose to enable or disable the fly-by text hints, the comprehensive program hints, and/or the dialog box hints. Set the time delay in ms before the hint pops up, and the length of time it will display.

Preferences Buttons

Most program settings and options can be accessed from the rows of buttons at the top of the Preferences dialog.

Display Options

The [Display] button opens the **Display Options** dialog.



Toolbars

Toolbar mode settings are for the main toolbar. The Normal mode shows toolbar icons with text labels. Options are Text only, Icons only, or No toolbar.

Show on-screen piano shows or hides the on-screen piano.

Floating Toolbars Always Show Text toggles floating toolbar text off or on.

Song Title area font allows the selection of any installed font the song title.

Chordsheet

Enable display of Repeats/Endings allows repeats signs and 1st/2nd ending markers to be shown on the chordsheet.

Display bars higher than end of song in gray will "gray out" the bars on the chordsheet after the end of the song.

Show chords with push/rest characters

The push character is the caret symbol (^). So a C chord with a push is displayed as ^C. The rest character is a period (.) so a C chord with a rest is displayed as C. (C period). If you prefer to not see these characters displayed, then set this to false. These characters won't show up on the printout regardless of this setting.

Show chords with pushes/rests in color

If set to YES, pushes are displayed in GREEN and rests are displayed in RED. This only applies to the Chordsheet, not the notation.

Chord display

Use this setting to change the chord display from normal to Roman Numeral, Nashville, or Solfeggio.

For Roman Numerals of Chords in minor keys, use relative major

For minor keys, base roman numerals on the relative major. For example in key of Am, Am is either the Im chord or the VIm chord.

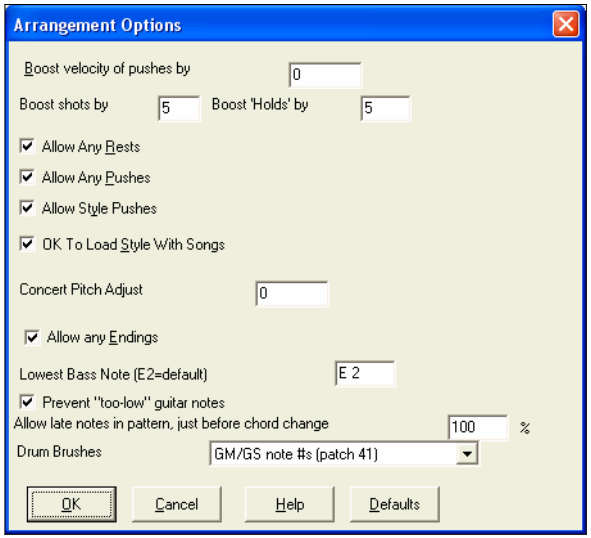
Chordsheet Font/Number of rows

You can choose the Font to use, and the # of rows per screen. If you choose a Custom font, you can choose the size as well. If you choose one of the preset fonts, the size is set automatically to fit into the height of the chordsheet row.

If you want to revert to the classic style that used a small System font and lots of rows, you can choose that as the type of font "Small font (system)."

Arrangement Options

Arrange The [Arrange] button opens the Arrangement Options dialog.



Boost Velocity of pushes by
The pushes in Band-in-a-Box are the chords that get played before the beat. Typically pushes are played a little louder than other patterns. You can leave this setting at 0, or set it to between 0 and 10.

Boost shots by
Shots can be accented with this setting.

Boost 'Holds' by
Use this setting to boost the velocity of held chords.

Allow Any Rests
You can disable the rests feature. You might want to do this if you've got a song with a lot of rests in it, and are then having difficulty recording a melody because you don't hear the drums providing the beat (due to the drums resting). If so, you can temporarily disable the rests so that you can record and listen to the drums.

Allow Any Pushes
If for some reason you don't want a style or a song to have pushes, you can set this to no.

Allow Style Pushes
If for some reason you don't want a style to have pushes, you can set this to no.

OK To Load Style With Songs
This loads the style that is saved with the Band-in-a-Box song. Set it to NO if you don't want the saved styles to load, perhaps to audition a new style with several different songs.

Concert Pitch Adjust
This is useful for non-concert instruments such as Saxophone or Trumpet. The output is transposed so that you see the music in one key, and it plays in another.

Trumpet players and other Bb instruments should set Concert Pitch Adjust to –2.

Alto Sax and other Eb instruments should set Concert Pitch adjust to +3.

Note: This concert pitch adjust setting is an old one. It is preferable that you use the Notation-Transpose Option instead.

Allow Any Endings
You can disable the endings from all the songs by using this setting.

Lowest Bass Note
Styles will normally play bass notes (down to the low E) if the pattern won't go below a low E note. This happens with all styles automatically, but there is also an option to set the lowest note that the bass can go real low (so you can get a low C if you want to!).

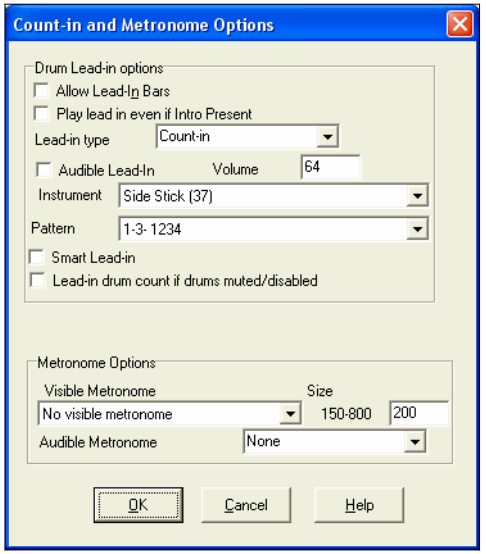
Prevent "too low" guitar notes

Allow late notes in pattern, just before chord change
Styles will normally play notes near the end of a pattern, before a chord change. Sometimes this makes the style sound "too busy." If you set this to, say 70%, then 30% of the time, the note at the end of the pattern will play quieter, typically at half the volume.

Drum Brushes
Most GM modules have brushes available on patch 41 on the drums. On some Sound Blasters you need to load a GS sound font for this to occur, and you need to use the Sound Blaster software to do this (AWE Control Panel). On the Yamaha XG, you likely need to send a "GS mode on" message from the GM menu in Band-in-a-Box. But if your module just doesn't have brushes available, then you can set this option, and the style will remap the notes to different drum instruments that don't have brushes.

Count-in and Metronome Options

Count-in/Met. This opens the Count-in and Metronome Options dialog.



Drum Lead-in options

Allow Lead-In Bars
People who use Band-in-a-Box for soloing practice will likely turn the lead-in off to allow endless looping uninterrupted by the lead-in count. To eliminate the lead-in count, select Allow Lead-In Bars to = NO, this will start the song from bar 1 with no lead in.

Play Lead-In Even If Intro Present
If a song has an intro, it's usually not necessary to play the 2 bar lead-in count. There's a new option to always OMIT the lead-in if an intro is present.

Lead-in type
This can be drum patterns instead of "1-2-1234." You can specify to play two bars of drum patterns instead of the count-in. You may prefer hearing the drum beat to a simple count-in, since it provides more information about the upcoming groove. If you're playing with Band-in-a-Box live on a "dance floor," this setting will avoid "dead air" between songs, and keep the drumbeat going. Includes options to have "a" or "b" drum fills or patterns play for the two bars.

Audible Lead-In/Volume
Enables audible count-in. If you would like the lead-in bars to be played, but just want the drum lead-in quieter (or silent) set the Drum Volume to = 0 (for silent).

Instrument/ Pattern
You can select any drum instrument for the count in. You can choose different count-in rhythms, e.g., tap on 2 and 4 instead of 1-2-3-4. There's a new "smart lead-in" option to silence the drum count-in if a melody lead-in has begun.

Smart Lead-in
A smart lead-in avoids playing the count-in drum sound during a Melody pickup.

Lead-in drum count if drums muted/disabled
Previously, when the drum track was muted (or disabled in a song), the count-in drum click wouldn't play. This option can play the drum count-in in all circumstances. Drummers who play along with BB by muting the drum track should find this feature useful. To set this option, choose *Opt.* | *Preferences* and set "Lead-in drum count if drums muted or disabled" to true (default is true).

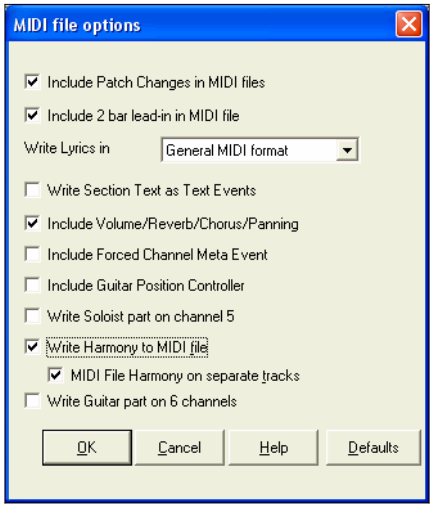
Metronome Options

Visible Metronome
You can display a visible metronome on-screen during the entire song (or just the lead-in). Choose the screen position (top-right or center), and the size (up to near full screen size). Also choose the visual metronome pattern (1234, 1-3, 1---, or –2-4). Seeing a metronome on-screen is a great way for a student to learn to keep on the beat, and with a settable size, students can view this from across the room.

Audible Metronome
The three settings for the audible metronome are None, During Record, or During Record and Play.

MIDI File Options

MIDI File The [MIDI File] button opens the MIDI file options dialog.



Include Patch Changes in MIDI files will include the patch (instrument) changes.

Include 2 bar lead-in in MIDI file
If you don't want to create a MIDI file containing the first 2 bars of the 1—2—1-2-3-4 count-in you can select this option. If there is a Melody pickup, then the 2 bar lead-in will remain in the file.

Write Lyrics in General MIDI or PG Music format
The GM specification has agreed upon specific requirements for writing lyrics in MIDI files, which are now supported, so that lyrics that you save in Band-in-a-Box should show up identically in other MIDI programs. To set this option, choose either General MIDI format or PG Music format. We recommend the GM format.

Write Section Text as Text Events
Your section text can be included in the MIDI file as text events.

Include Volume/Reverb/Chorus/Panning
This will include the volume, reverb, chorus, and panning settings that you have made in the Band-in-a-Box synth window in your MIDI file.

Include Forced Channel Meta Event
This will include the forced channel META event. It is recognized by PowerTracks Pro Audio and other PG Music Inc. programs only.

Include Guitar Position Controller
This will insert a controller 84 which PG Music uses to indicate the fret position. Since some synths also use this for Portamento Control, you should use this setting with caution.

Write Soloist Part On Channel 5
Normally the program writes the Soloist part on channel 8. Since that could also mean the left hand of a piano track using the convention of channel 8/9 for piano, this option allows you to write it on channel 5 instead.

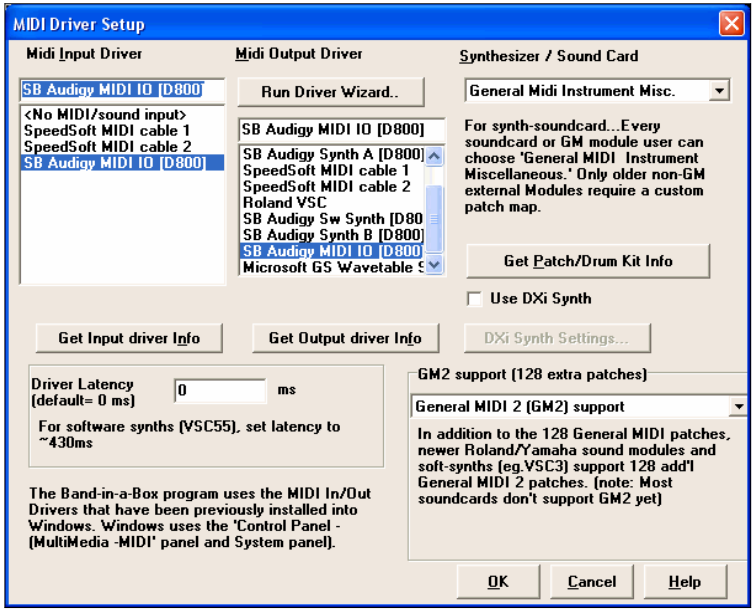
Write Harmony To MIDI File
If set to YES, the harmony will be written to the MIDI file. If not, just the melody will be written to the MIDI file.

MIDI File Harmony on separate tracks
If set to YES, the harmony will be written to the MIDI file on separate tracks for each voice. You could use this to print out individual parts to your printer for example.

Write Guitar part on 6 channels
If set to YES, the styles that are Intelligent Guitar Styles will result in a MIDI file that has the Guitar part written on 6 channels (11-16). Then, when you read it in PowerTracks, or another sequencer that uses the convention of 11-16 for guitar strings, the guitar part will display correctly.

MIDI Driver Setup

The [MIDI Driver] button launches the MIDI Driver Setup.



MIDI Input Driver
Select the Driver that you would like to use for input from a MIDI keyboard. If you don't have a MIDI keyboard, you can select <No MIDI/Sound Input>.

MIDI Output Driver
Select a Driver For MIDI Output. This also includes Sound Card output (like Sound Blaster).

Perhaps the easiest way to configure Band-in-a-Box is to press the [Run Driver Wizard..] button. The **MIDI Output Driver Wizard** dialog will take you step-by-step through the process of auditioning and selecting an appropriate driver. This assumes that the appropriate Windows sound drivers are installed and correctly configured.

Synthesizer / Sound Card
Selecting the type of synth allows Band-in-a-Box to automatically load in the appropriate Drum/Patch kit file (*.DK). It is not essential to set this - if you don't then leave it as <synth card not listed >.

Driver Latency
Software synths (like the Roland VSC) have a specific timing issue associated with them; "latency." This means that it takes about 430ms from the time Band-in-a-Box sends the MIDI information to the Virtual Synthesizer to generate and hear the sound. To keep everything (i.e. the notation display, etc.) "in sync," you should set this latency option. In most cases, Band-in-a-Box will prompt you to do this. If you are using a regular sound card or MIDI module you should not encounter any latency, so you should set the latency option to zero (0) if it's not already set this way.

Use DXi Synth
Check the Use DXi Synth checkbox to enable DXi playback.

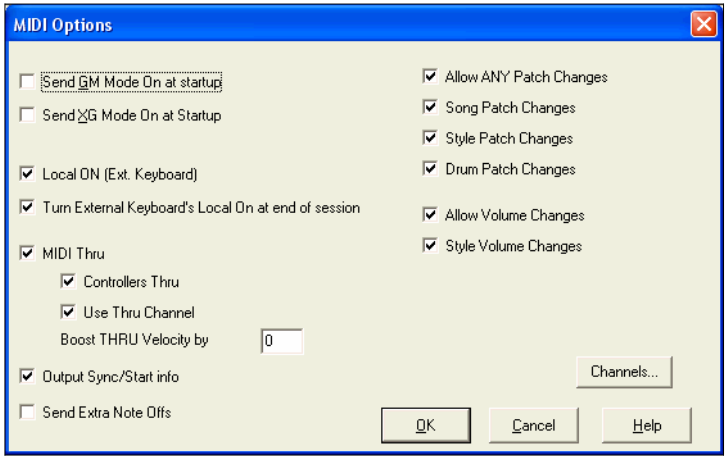
To use this option, you must have a polyphonic DXi synthesizer installed on your computer, such as the Roland/Edirol VSC DXi. It will also be most convenient if your DXi synthesizer can use General MIDI or GM2 patches.

DXi Synth Settings
To select the DXi synthesizer, click the [DXi Synth Settings] button, which will open the **DirectX Plugins** window. Select your DXi synth and apply real time DirectX effects. See the tutorial in **Chapter 3: Band-in-a-Box 2004**.

GM2 support
The type of GM2 support is set here. The choices are:
- General MIDI 2 support: If you're using the Roland VSC3, or a newer Sound Canvas (i.e. newer than 1999, or newer than the Roland SC88), then choose this GM2 support.
- Roland GS (older Modules): "Older" Sound Canvases (SC55/SC88) support GS, but not GM2. The good news is that they have the same patches available, just at different locations. So if you choose this option, Band-in-a-Box will find the patches at the "GS" locations instead of the "GM2" locations. If you have a newer GS module like the SC8820, it supports both GM2 and GS - you should likely choose GM2.
- No GM2 support: Most sound cards (Sound Blasters etc.) don't have GM2 support yet, so just support the 128 sounds. Band-in-a-Box will use the closest instrument in these cases.

MIDI Options

This button opens the MIDI Options dialog.



Send GM Mode On at startup / Send XG Mode On at startup
You can elect to have Band-in-a-Box automatically send a GM or XG Mode On command every time the program is started. Toggle this option ON if you have a GM or XG unit to ensure that it is always set to the appropriate mode.

Local ON (Ext. Keyboard): If you are hearing the information played on your keyboard played twice (an echo effect) then set Local ON to "No." If you can't hear what you are playing at all, set Local ON to "Yes."

Turn External Keyboard's Local On at end of session
If you have set the Keyboard Local to Off (usually to eliminate MIDI echo) this setting turns it back on at the end of your Band-in-a-Box session.

MIDI Thru: Set to "No" if you don't want the information played on your MIDI keyboard to be sent *through* Band-in-a-Box to the output driver.

Controllers Thru: Guitar synthesizers and wind controllers contain large amounts of additional MIDI data which may not be required for Band-in-a-Box and may only serve to hinder the system performance of your computer. To prevent this information from being sent Thru, set this option to "No."

Use Thru Channel: Band-in-a-Box uses the Thru channel as a part, just like the Bass/Drums/Piano, etc. The Thru Channel is re-channeled to the Thru channel as assigned in the MIDI settings dialog. If you would prefer to set the Thru channel yourself from your MIDI controller, set this to "No."

Boost THRU Velocity by
When playing along on a keyboard to the Band-in-a-Box "band," if the sound of your keyboard is too quiet and increasing the THRU Volume doesn't help enough, use this option to boost the THRU velocity and make your THRU playing louder.

Output Sync/Start info: Syncs Band-in-a-Box with an external sequencer.

Send Extra Note Offs: Leave this option set to "No" unless you are having trouble with "Stuck Notes" when you press [Stop]. If you set this option to "Yes" the program will send a "global sweep" of all notes off in *addition* to the selected notes off that are playing when you press the [Stop] button.

Allow Any Patch Changes: Set to "No" to disable All Patch changes.

Song Patch Changes: Songs can be saved with patch changes. If you want to prevent specific instruments loading for a given song, set this option to "No."

Style Patch Changes: Styles contain patch change information for the instruments that were used when the Style was created. To use your own instrument selection, not the original instruments, change this setting to "No."

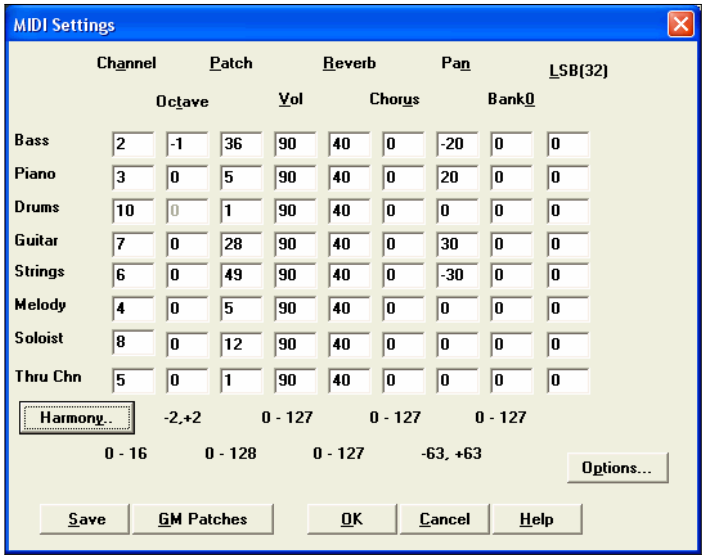
Drum Patch Changes: To disable patch changes in Drums, set to NO.

Allow Volume Changes: To prevent any volume changes set to "No."

Style Volume Changes: To stop embedded style volume changes set to "No."

MIDI Settings

The [Channels] button opens the MIDI Settings dialog.



MIDI Channels: Range 0 to 16. If set to 0 the part will be Off/Disabled, which is not the same as muted.
Octave: Adjusts the octave of the part. Range (-2 to +2). Usually set to 0. (Bass is usually set to -1 for most General MIDI (GM) instruments.)

Patch: Range 0 to 128. These are General MIDI patch numbers.

Volume: Range 0 to 127. Average volume setting is = 90. This can also be set from the main screen.

Panning: Panning refers to the stereo placement (i.e. Left to Right) of a given part's sound. The range of this parameter is -63 to +63. A setting of 0 is centered in the middle of the stereo field.

Note: Only General MIDI, XG, and GS instruments respond to Reverb, Chorus, and Bank changes.

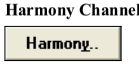
Reverb: Range 0 to 127. Default setting = 40.

Chorus: Range of 0 to 127. Default setting = 0.

Bank0 and LSB(32): Many General MIDI instruments have extra instruments available on higher banks. Usually set to 0. Other settings are multiples of 8 (0,8,16 etc.).

These can use either Controller 0 (Bank 0), which is also know as MSB for Most Significant Byte, or Controller 32, also called LSB for Least Significant Byte, or combinations of the two controllers.

Harmony Channels and Settings



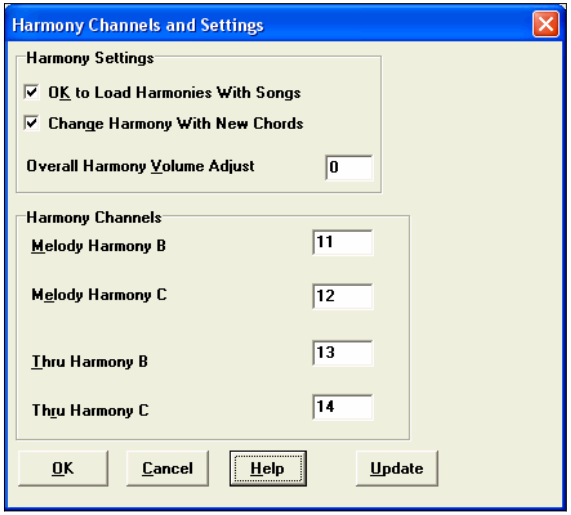
The [Harmony] button opens the **Harmony Channels and Settings** dialog where settings for the harmonies are made.

Harmony Settings

OK to Load Harmonies With Songs
If set to YES, the harmony settings for each song will be loaded and saved with each song. If set to NO, the harmony setting won't be saved or leaded with the songs. If you are using a certain harmony, you should set this setting to NO, otherwise you'll have to keep re-selecting the harmony when you load in new songs.

Change Harmony With New Chords
Example: If a harmony is played on bar 1 on a C chord, and then the note is held as the chord changes to a Fm7 chord, (if this setting is set to YES) the harmony notes will change so that they will be still be playing chord tones. If they don't the harmony sounds dissonant. Leave this setting to YES, unless you have a specific reason to disable it. The harmony is changed by moving the voices to the nearest chord tone.

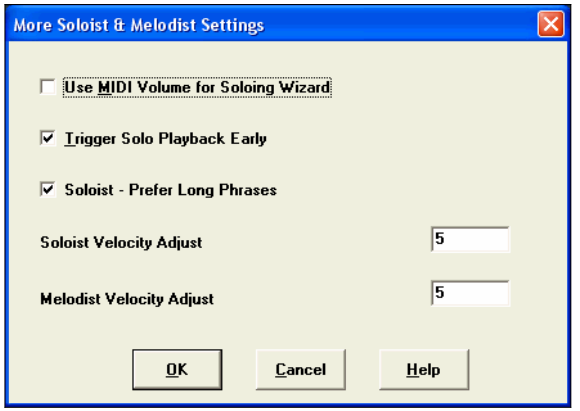
Overall Harmony Volume Adjust
Sets a level for the overall harmony in a range of -128 to 128, with 0 leaving the settings as programmed in the Harmony file.



Harmony Channels
Band-in-a-Box already uses 7 channels (Bass, Drums, Piano, Guitar, Strings, Melody and Thru channels). Adding these 4 harmony channels produces potentially 11 channels of information.

More Soloist & More Melodist Settings

The [Soloist] button launches the **More Soloist & Melodist Settings** dialog.



Set **"Use MIDI Volume for Soloing Wizard"** to true if you want MIDI velocity information sent to the Soloing Wizard. If you have a velocity sensitive MIDI device attached to your computer and you want to control the dynamics of the Soloist, you should enable this feature.

Set the **"Trigger Playback Early"** to true to enable song playback to start before the Soloist has actually completed composing a solo. Otherwise, Band-in-a-Box will completely compose a solo before song playback begins.

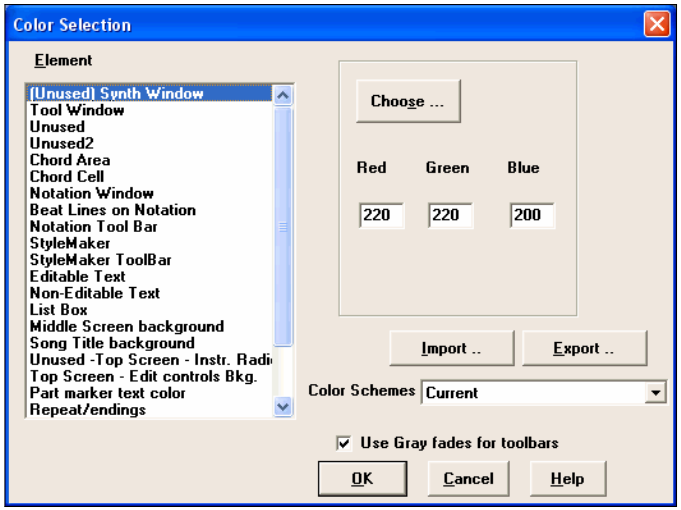
Soloist – Prefer Long Phrases
Set this checkbox to "True" (enabled) if you would like the Soloist to use the longest musical phrases it "knows." This setting is normally used in conjunction with the Use Large Soloist files setting.

> **Note:** This option may also increase Soloist creation times. Disable this feature if you are using a slower or low-memory equipped computer.

Soloist/Melody Velocity Adjust
This box allows you to quickly boost or reduce the volume of the Soloist part relative to the other instrument parts. For a realistic mix the soloist instrument is set slightly louder than the other instruments/parts in a song. The default is 5.

Color Selection

The [Colors] button opens the Color Selection dialog.



You can choose from several color sets using the 256-color palette in Windows. Choose from pre-made color schemes or make your own. This is like changing the Windows color scheme in the control panel.

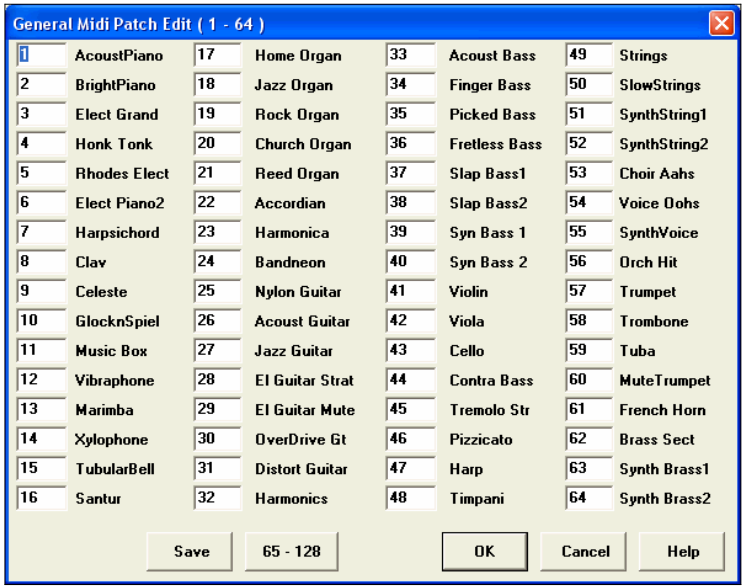
To select a pre-made color scheme, press the [Import..] button and choose from the list of schemes. Select [OK] to make the changes permanent. Use the [Export..] button to save and share your customized color schemes.

To make your own color scheme, click on the name of the element you wish to change (Chord Area, List Box, etc.), then click on the [Choose…] button to bring up the Windows **Color** palette and click on the color you desire. Or you can enter the appropriate Red, Green, and Blue values in the boxes provided.

General MIDI Patch Edit

Patch Map

This opens the **General MIDI Patch Edit** dialog, where you can make a customized General MIDI patch map.



Type in the patch number that your synth uses for each instrument listed. For example, if your sound source has its Acoustic Piano at patch location 41select the box to the left of Acoustic Piano and type 41. Do the same for all of the instruments in the General MIDI patch list. If your synth doesn't have an exact match, use a close sounding patch that it does have. Once you have made a patch map in this way, whenever Band-in-a-Box encounters Acoustic Piano (which is General MIDI instrument #1), it will look up this Patch Map Location and then send out Patch 41 to your synth/sound module.

Drum Kit

DrumKit

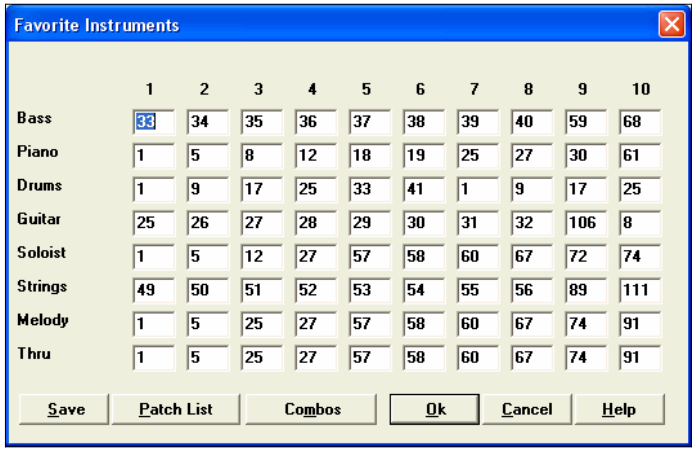
If you have been unable to find a preset drum map that matches your synth's drum notes, then you may need to type in the drum notes that your sound source uses. To do this, you need to hook your MIDI controller up to play the Drum sounds from the keyboard. Play up and down the keyboard to hear all the drum sounds. Locate note 36 as a starting point; on the Band-in-a-Box onscreen piano it is the C directly above the [Play] button.

Type the MIDI note numbers for the various instruments as you find them on your drum machine or keyboard. Press the [Save] button to save the kit as MYSETUP.DK. If you are making a kit to save under a different name then save the kit under *Opt.* | *Utilities* | *Save Alternate Patch/Drum Kit.*

Favorite Instruments

Fav.Patch

The [Fav.Patch] button opens the **Favorite Instruments** dialog.

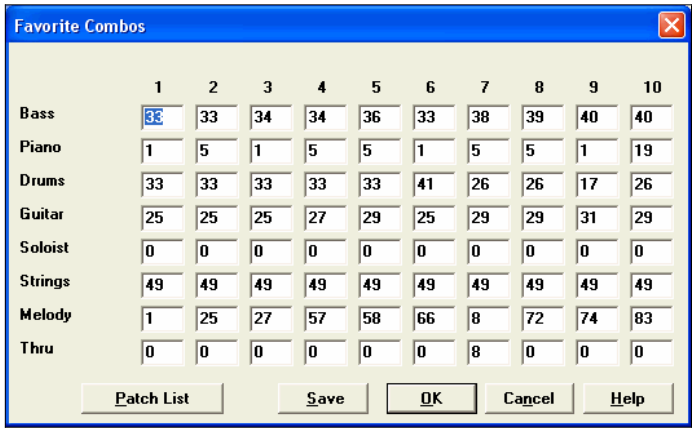


For each of the 8 parts (Bass/Piano/Drums/Guitar/Strings/Melody/Soloist/Thru) you can assign up to 10 "favorite" instruments using General MIDI instrument numbers.

Note: If you use a custom patch map it will convert your synth's non-GM patch numbers, always enter GM patch numbers for the favorite instruments.

Patch List — The [Patch List] button displays the **General MIDI Patch List** of instrument names and patch numbers.

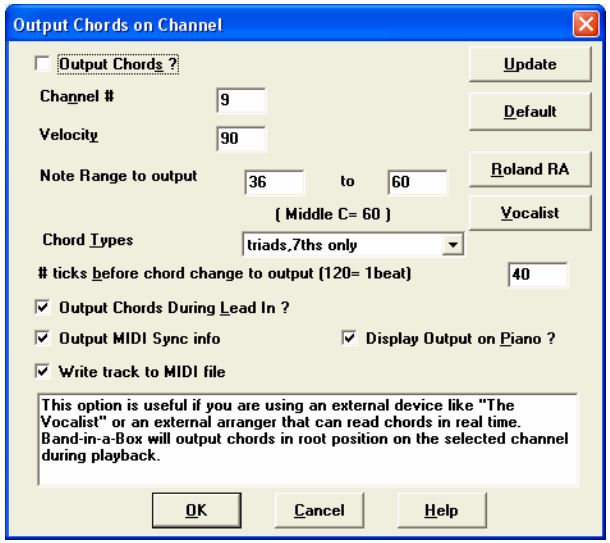
Combos — The [Combos] button opens the **Favorite Combos** dialog.



The **Favorite Combos** dialog box allows you to save up to 10 of your favorite instrument combos. For example, you could setup Combo #1 to be an Acoustic Jazz combo which would send out patches like Acoustic Bass, Acoustic Piano, Acoustic Guitar, Flute, etc. After you have finished typing in the instrument patch numbers select the [Save] button.

Output Chords on Channel

OutputCh. — The [OutputCh.] button opens the **Output Chords on Channel** dialog.

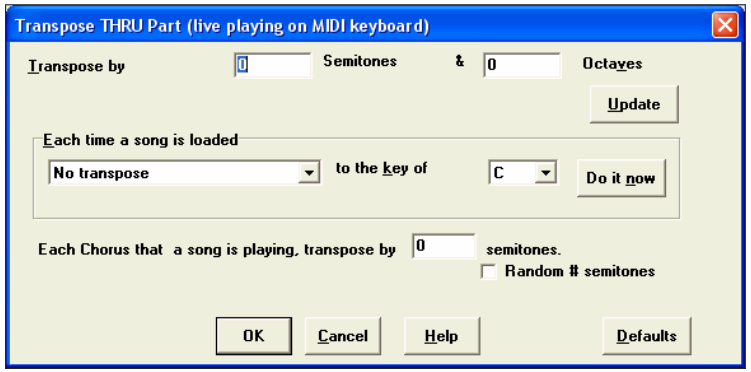


Some external music hardware devices require chords played in root position to drive them in real time. An example of this is the TC-Helicon Quintet, which lets you sing into a microphone and harmonize your voice according to the chords that are input to the device.

Band-in-a-Box has the capability of outputting a separate channel with the chords in root position to support such external devices automatically.

Transpose THRU Part

Transpose The [Transpose] button opens the Transpose THRU Part (live playing on MIDI keyboard) dialog.



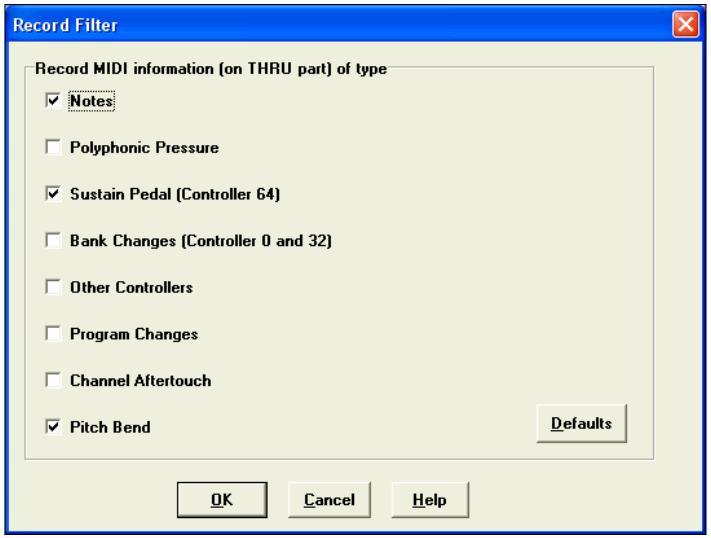
When playing along on your MIDI keyboard, you can set the Thru transpose to transpose semitones or octaves. You can define a "favorite key" and Band-in-a-Box will optionally transpose any and all loaded songs to that key. This is a great feature for practicing in a certain key.

You can also set the THRU transpose to the favorite key to transpose the THRU part so that you can always play along in your favorite key (regardless of the actual key of the song). To Activate, press **Ctrl+Shift+K** or select the menu item *Options | Thru transpose settings*.

This is useful for people who prefer to play in only one key, or for those who are practicing specific keys.

Record Filter

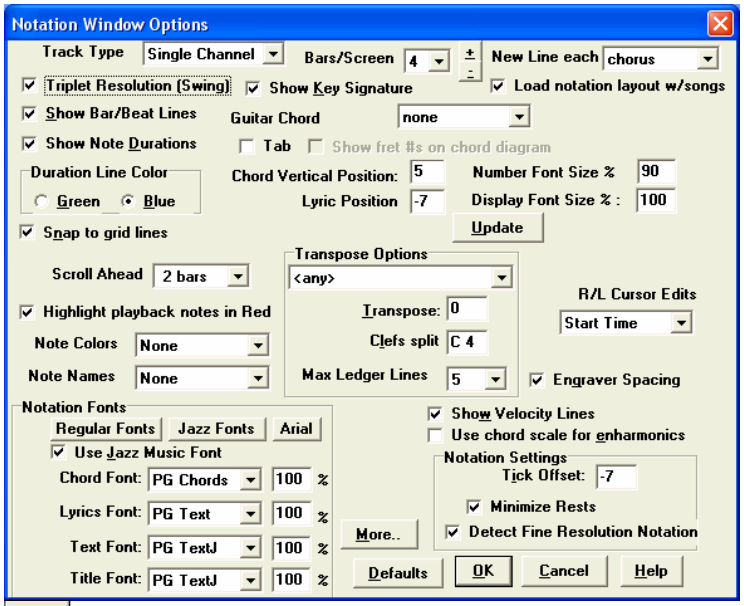
Rec.Filter The [Rec. Filter] button opens the Record Filter dialog.



Record Filter supports all MIDI controllers and sustain pedal. You can record any type of MIDI information to the melody or soloist tracks by using the Record Filter feature to select which types to include. With this window you can choose what types of MIDI information Band-in-a-Box will record.

Notation Window Options

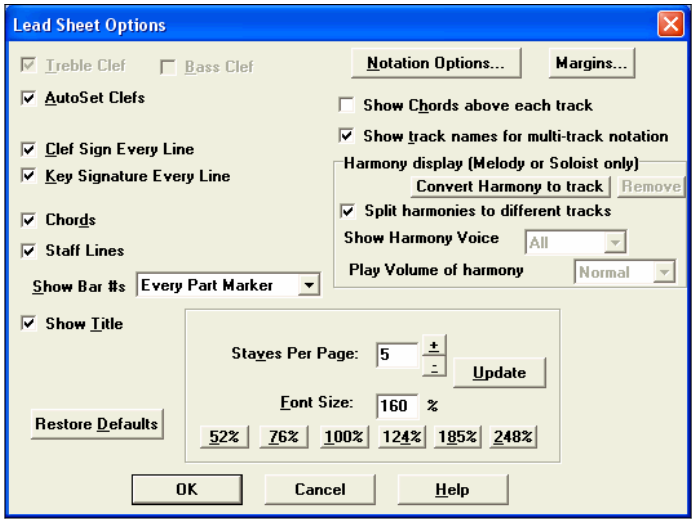
Notation The [Notation] button opens the **Notation Window Options**. If the Notation window is not open the program will launch it.



These settings are described in the **Notation** chapter and in the online Help.

Lead Sheet Options

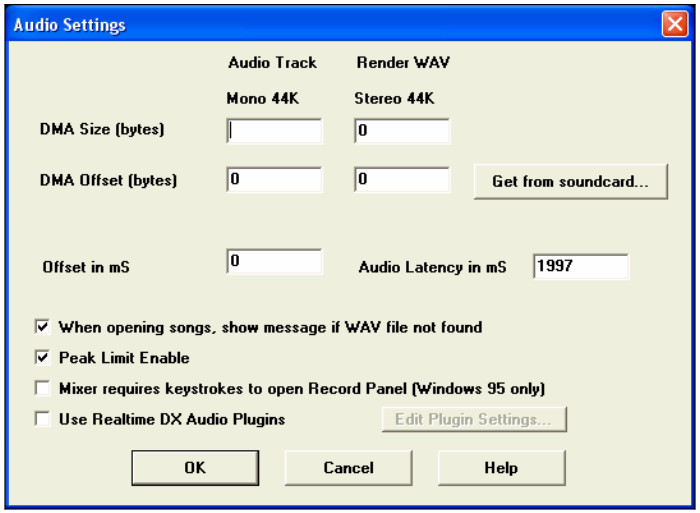
Leadsheet The [Lead sheet] button opens the **Lead Sheet Options** dialog. If the Lead Sheet window is not open the program will open it.



These settings are described in the **Notation** chapter and in the online Help.

Audio Settings

Audio The [Audio] button opens the Audio Settings dialog.



The DMA and Offset settings are set automatically by the auto-testing of the sound card. This test can be repeated by pressing the [Get from sound card…] button. The default value for all of these settings is 0 (zero). You can override these settings if required, but it is usually not necessary.

The **Offset in mS** is not a setting that gets set automatically. It defaults to zero. This allows you to adjust the timing that the sound card plays audio in relation to MIDI. Normally you'd leave this at zero, but if you need to fine tune the synchronization of audio to MIDI you could try changing this setting.

Audio Latency in mS
DirectX audio plug-ins and DXi synthesizer plug-ins can have playback latency (the delay between when a note is played, and when it is heard). Adjust "Audio Latency in mS" to fine-tune for your computer. If you have a fast computer and excellent sound card, the audio latency can be adjusted rather low. However, if you hear audio dropouts, you can set the latency as high as 2000 milliseconds.

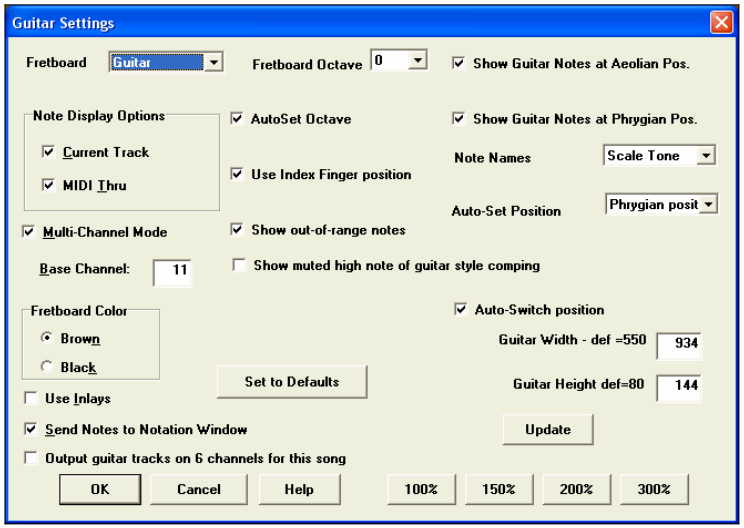
When opening songs, show message if WAV file not found
A Band-in-a-Box song called "My Song.MGU" will have the associated wave file called "My Song.wav". If Band-in-a-Box loads this song file and it can't find its associated file, it will put up a message to that effect. If the warning message is distracting, and for some reason you don't have the wave files that were recorded with the songs then you can disable that message with this option box (disable).

Use Realtime DX Audio Plugins

The advantage of real time processing is that you can set effects today, and if you decide you don't like the effects tomorrow, the settings can be easily changed, since the real time effects did not permanently affect your audio track on the hard disk. Check this to enable real time DirectX audio plug-ins.

Guitar Settings

Guitar The [Guitar] button opens the Guitar Settings dialog.

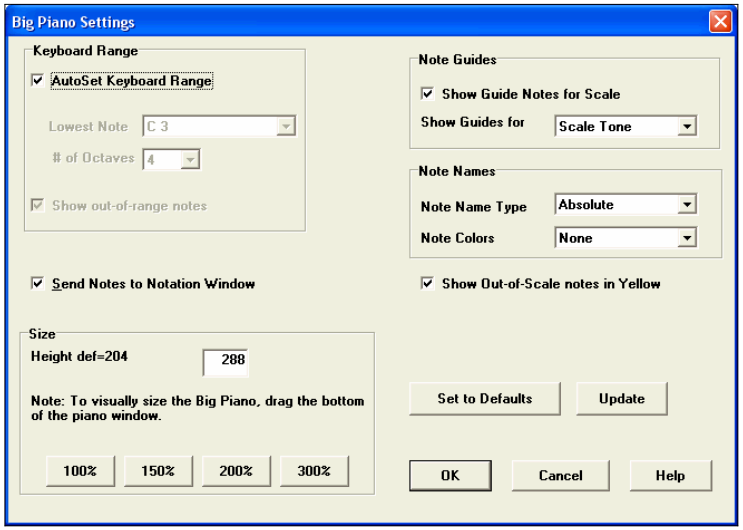


The **Guitar Settings** dialog allows you the ability to adjust various parameters on the virtual guitar fretboard so that music can be displayed effectively (and easily) on this window, regardless of the original instrument intended for the track data. It also offers the ability to enter notation using the virtual guitar and play back track data in specific fretboard positions for educational and sight-reading purposes.

Help Click on the [Help] button for detailed online descriptions.

Big Piano Settings

Big Piano This button opens the Big Piano Settings dialog.

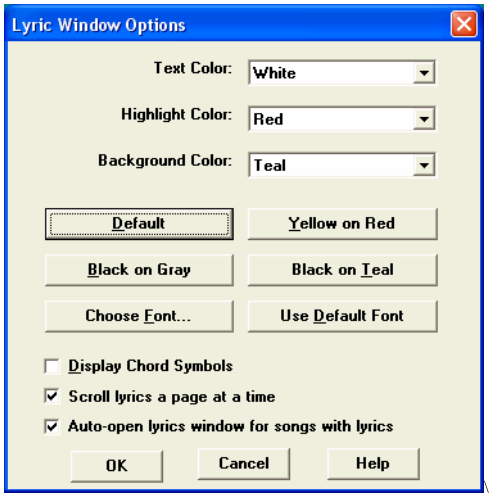


This dialog allows you to set various options on the Big Piano.

- You can set a specific range for the Big Piano, a starting note and a number of octaves, by over-riding the "auto" settings.
- "Show out-of-range notes" ensures that all notes will be displayed.
- If the "Send Notes to Notation Window" checkbox is enabled, clicking a virtual key on the big piano will insert a note to the notation track. (Note: the notation window must be opened and set to editable notation mode.)
- If "Note Guides" is selected guide notes will be shown on the keyboard. The guide notes can be scale tones, chord tones, or roots only.
- Note Names and Note Colors can be used as in the Notation settings.
- There is an option to Show Out-of-Scale notes in Yellow.
- The size of the piano keyboard can be entered in pixels, or set with the preset buttons, or set by dragging the bottom border of the window.

Lyric Window Options

BigLyrics The [BigLyrics] button opens the Lyric Window Options.



Individual color elements can be picked, or choose one of the presets.

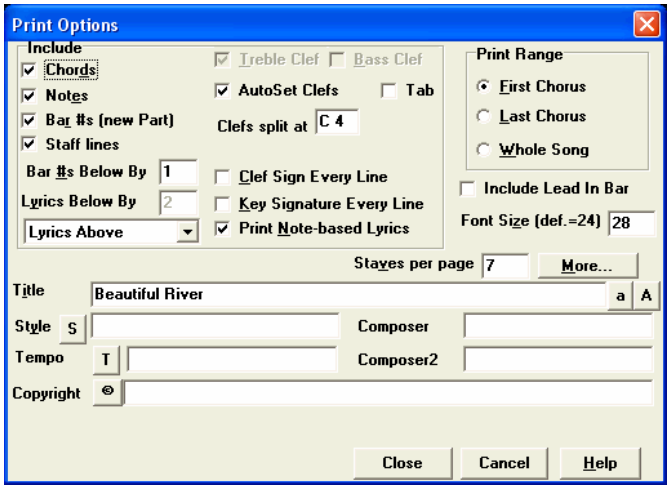
Display Chord Symbols will interleave the chord symbols with the lyrics.

With the **Scroll lyrics a page at a time** option selected the Big Lyrics scroll a page at a time. When the lyric cursor reaches the next-to-last line of the lyrics it will scroll to the top of the page, allowing uninterrupted reading of lyrics.

Auto-open lyrics window for songs with lyrics automatically opens the Big Lyrics window when a song with lyrics is opened in Band-in-a-Box.

Print Options

Print The [Print] button opens the Print Options dialog.



Help These options are described in the **Notation** chapter and in the online Help.

Play Menu

Note: Most commands in the Play menu are performed by onscreen buttons, or by the keystrokes listed to the right of the menu command.

Play - Generates a new arrangement and plays the song.

Stop Playback - Stops playback. To resume either use the *Play From Current Position* command or the [From] button the play from the start of the current bar, or use the [Play] or Replay [+] buttons to play from the start of the song.

Hold (pause) - Pauses the song. Repeating this command resumes play from the exact location where the song was paused.

Replay - Plays the current arrangement from the start without regenerating the parts. Edits to accompaniment parts are kept.

Play From Bar... - Choose a chorus and bar to play from in the current arrangement. Parts are not regenerated. Use this command during playback to jump to any bar in the song.

Play From Current Position - When the song is stopped this command starts playback again at the bar with the highlight cell.

Go (Open and Play) - Launches an **Open File** dialog for selection of any song in any directory. The selected song loads and plays automatically in Band-in-a-Box.

Step Advance submenu - When a song is paused these commands can be used to navigate step-by-step through the currently selected track. For example, if the current track is set to the Melody track using the row of buttons on the Notation Window, Lead Sheet Window, or Guitar Window; pressing the advance buttons will display the next note or chord of the melody on the piano display, guitar display, lead sheet and notation window. This is a great way to study the notes being played, and to navigate around the track.

Step Advance One Chord	NUMPAD DEL
Step Back One Chord	NUMPAD INS
Step Advance One Note	Shift <RIGHT>
Step Back One Note	Shift <LEFT>

Slide Tracks - This allows you to move any of the Bass, Drums, Piano, Guitar, Strings or Melody track ahead or behind by a certain amount. You could, for example, slide the Bass track so it plays a little ahead of the rest of the band. This has the effect of making the bass player "drive the band," and is useful in Jazz styles to make the music sound more exciting.

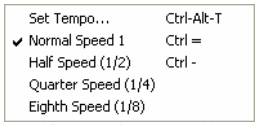
Looping

Loop Section Enabled	NUMPAD 1
Loop Section Settings...	NUMPAD 2
Play- w/Last Chorus looped	Ctrl-NUMPAD 1
Play- w/Middle Choruses looped	Ctrl-NUMPAD 2
Play- w/Middle+Last Choruses looped	Ctrl-NUMPAD 3
Jump to Last Chorus (no loop)	Ctrl-NUMPAD 4
Jump to Ending (no loop)	Ctrl-NUMPAD 5
Loop Notation Screen	Ctrl-NUMPAD 7
Force loaded songs to # choruses...	

- You can loop any section of the song. The program will then start playback at the first loop point and play the looped section until stop is pressed or looping is turned off.
- Looping of a section of the song is enabled by the "LoopSec" checkbox, with the *Loop section Enabled* command, or with the keystroke NUMPAD 1.
- Open up the **Loop Section Settings** dialog with the menu command, by clicking the Loop button in the toolbar, or pressing NUMPAD 2. The Loop settings dialog will then display; see its online Help for detailed instructions.

The remaining commands in this submenu are also found in the **Loop Section Settings** dialog.

Tempo



- You can quickly enter a specific tempo for a song with the *Set Tempo…* command (hot key is **Ctrl+Alt+T**), or by clicking on the tempo. A dialog opens up where you can type in a tempo.
- You can quickly change to different speeds with the menu commands or hot keys. For example, choosing *Half Speed* (or the hot keys **Ctrl -**) will change the playback speed to half, and *Normal Speed* (**Ctrl =**) will revert to normal speed.

Juke Box Play - Opens the **Options for Juke Box** dialog to select and play a jukebox list.

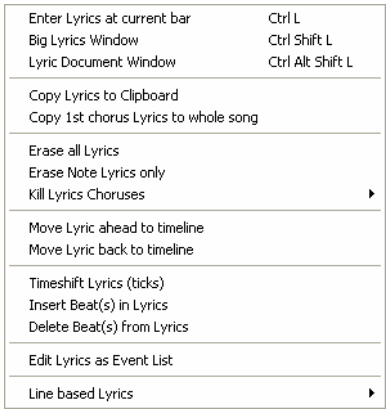
Previous Juke Box Song / Next JukeBox song - Navigate back and forth in a juke box set list.

Wizard Playalong feature - The Wizard is a play along feature that allows you to use the QWERTY Keyboard to play along with Band-in-a-Box. The Wizard is only active during playback.

Wizard uses "Smart" notes - Toggle this on so the Wizard will only play notes based on the chord/key of the song. Toggle "Smart" notes OFF (unchecked) to have the Wizard provide you access to the chromatic scale.

Panic! - Select this if your MIDI notes are stuck ON and it's driving you crazy!

Lyrics Menu



Enter Lyrics at current bar - Opens the Lyric entry box at the current location of the timeline or highlight cell.

Big Lyrics Window - Opens the Big Lyrics window for viewing lyrics and, optionally, chord symbols.

Lyric Document Window - displays a full screen of formatted lyrics. Easily copy and paste lyrics to and from your favorite word processor.

Copy Lyrics to Clipboard - This function allows you to copy a song's lyrics (and/or the chords) to the Standard Windows Clipboard. By pasting this data into a word processor,

you can print out the lyrics in the font of your choice. The dialog has options to allow copying of note-based and/or line-based lyrics. With either option you can choose to include the chord symbols, have double or single line spacing, and make margin settings.

Copy 1st chorus Lyrics to whole song - Copies the note-based lyrics for the first chorus to the rest of the song.

Erase all Lyrics - Erases note-based and line-based Lyrics.

Erase Note Lyrics only - Erases only the note-based lyrics.

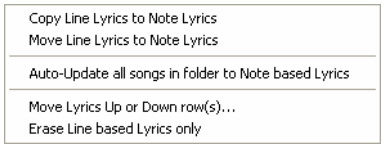
Kill Lyrics Choruses - Select to kill lyrics in the First Chorus, Middle Choruses, or Last Chorus from a list box.

Move Lyric ahead to time line
Move Lyric back to time line - If you have a note-based lyric that you want to time shift ahead or back, you can click on the time line at the destination that you want, and then choose this item. You can also shift lyric times using the Lyric Event list.

Timeshift Lyrics (ticks)
Insert Beat(s) in Lyrics
Delete Beat(s) from Lyrics - These are functions that apply to the entire lyric track. They are useful when you're inserting bars or beats into the song and need to move the lyrics around to keep them in sync.

Edit Lyrics as Event List - Opens the **Edit Lyrics** dialog with Edit, Insert, Append, and Delete functions.

Line-based Lyrics opens a sub-menu with additional features.



Copy Line Lyrics to Note Lyrics converts line-based lyrics to note based lyrics. It is imprecise, because the line-based lyrics don't correspond to individual notes. But you can edit the positions of the note-based lyrics using the event list or the Move Lyric back/ahead to time line functions discussed above.

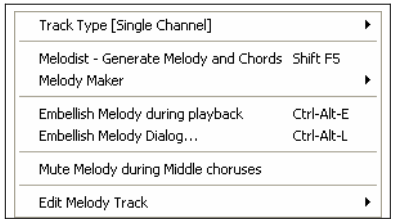
Move Line lyrics to Note Lyrics works like the Copy Line lyrics to Note Lyrics function, except it erases the Line-based lyrics.

Auto-Update all songs in folder to Note-based Lyrics will update an entire folder worth of songs, copying the Line Lyrics to Note Lyrics. Only Note-based Lyrics get displayed in the Big Lyrics Dialog, so this feature will allow you to see these lyrics in the Big Lyrics Window.

Move Lyrics Up or down row(s)… moves a line of line-based lyrics up/down a number of rows.

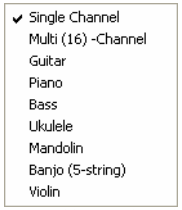
Erase Line-based Lyrics only erases only the line-based lyrics, preserving the note-based lyrics.

Melody Menu



Track Type

Normally you'd leave the track type set to Single. But you can set it to:



- Multi (16) -Channel – All channels get preserved, and outputted on the channels, this would be useful for importing an entire MIDI file, and playing it from the Melody channel (using a silent style).
- Guitar – Channels 11 to 16 will display on the guitar as strings 11 to 16, TAB will show, the notation will be up an octave, and the MIDI file will contain the channels preserved.
- Piano – In this mode, channels 8 and 9 are treated as the left and right hand of a piano part.
- Selecting any one of Bass, Ukulele, Mandolin, Banjo, or Violin will display the correct tablature in the Notation window and the correct fretboard in the Guitar window.

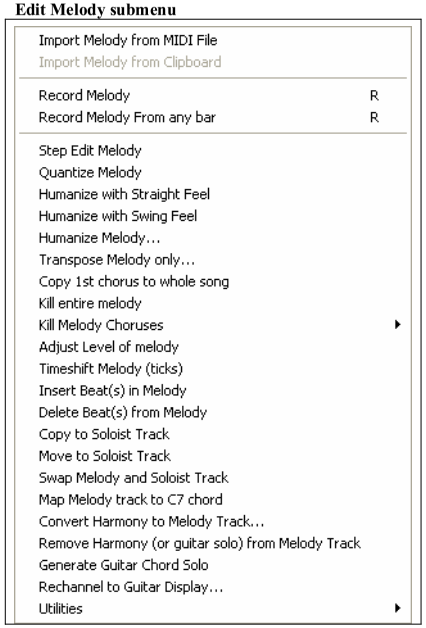
Melodist – Generate Melody and Chords launches the Melodist.

Melody Maker menu items allow you to edit Melodist files using the Melody Maker.

Embellish Melody during playback launches the Embellisher dialog. This optionally embellishes the Melody during playback.

Embellish Melody Dialog allows you to customize the settings of the Embellisher, choose an embellisher type from presets, and make a particular Embellishment permanent.

Edit Melody submenu



Import Melody from MIDI File allows you to import MIDI data from a file (*.MID) into the Melody track.

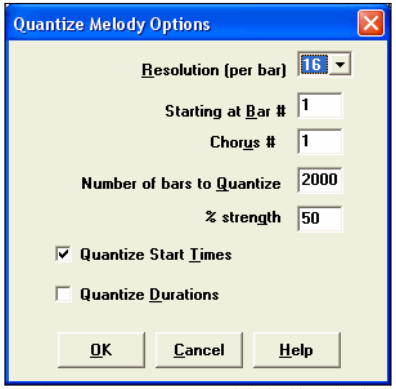
Import Melody from Clipboard allows you to import MIDI data that has been pasted into the clipboard (e.g., from a sequencer such as PowerTracks).

Record Melody launches the Record Melody dialog to record a MIDI melody.

Record melody From any bar starts recording at the current location of the highlight cell after playing a two bar lead-in.

Step Edit Melody allows you to enter/edit a melody in step time from the Notation window. This uses an event list.

Quantize Melody opens the **Quantize Melody Options** dialog. The *Humanize Melody...* feature is an advanced version of this function.



- **Resolution**. Choose the division you would like the track quantized to. Choosing 16 will Quantize to 16th notes.
- **Starting at Bar# and Chorus #**. Quantization will begin at the place you select and applied for the **number of bars**.
- **% strength**. Choose 100% if you want the notes quantized exactly to the division. Otherwise, the notes will be moved the % toward the target quantization.
- **Quantize Start Times**. By default, this option is set to "Yes." If you don't want the beginnings of the notes quantized, set it to "No."
- **Quantize Durations.** This quantizes the END of the notes. By default, this is set to "Off."

Humanize with Straight Feel / Humanize with Swing Feel
Band-in-a-Box uses intelligent humanization routines, which can humanize a melody from one feel to another, from one tempo to another, and vary the amount of swing in 8th notes (but not randomly). The results are very musical with natural sounding MIDI melodies.

Humanize Melody
Opens the **Melody: Quantize to New Tempo or Feel** dialog. The humanize effect is broken down into 5 main categories: Tempo, Lateness, 8th Note Spacing, Legato, and Feel.

Transpose Melody only… allows you to transpose the melody track without affecting the other tracks in the song.

Copy 1st chorus to whole song stretches the melody track out over the entire song (i.e. first, last, and middle choruses).

Kill entire melody erases the melody track and any data that was contained therein.

Kill Melody Choruses eliminates the Melody from the First Chorus, Middle Choruses, or Last Chorus as selected from a list box.

Adjust Level of melody allows you to increase or decrease the volume (velocity) of the Melody track without affecting the other tracks.

Timeshift Melody (ticks) allows you to move the Melody forwards or backwards in small increments relative to the rest of the song tracks. (Measured in ticks or parts per quarter, PPQ).

Insert Beat(s) in Melody allows you to insert a blank beat or beats into the song relative to the current time signature.

Delete Beat(s) from Melody allows you to delete a beat or beats from the song relative to the current time signature.

Copy to Soloist Track copies the entire contents of the Melody track to the Soloist Track. Useful for a temporary holding area for your Melody or bouncing tracks.

Move to Soloist Track copies the entire contents of the Melody track and erases the original data from the Melody track, preparing it for a new track or data.

Swap Melody and Soloist Track performs a "double copy/move" so that the data that was in the Melody track gets transferred to the Soloist track and visa versa. This is also known as track bouncing.

Map Melody track to C7 chord is a useful tool when making styles.

Convert Harmony to Melody Track… converts a single line Melody track to include the current harmony selection.

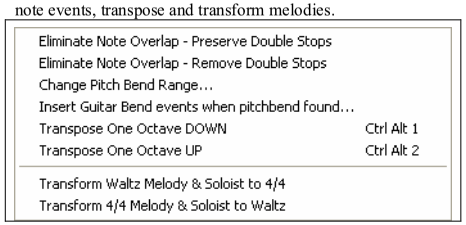
Remove Harmony (or guitar solo) from Melody Track removes a harmony from a track, providing that the harmony was put there by Band-in-a-Box in the first place using the *Convert Harmony to Melody Track* command.

Generate Guitar Chord Solo opens the Guitar feature dialog for generating a guitar chord solo.

Rechannel to Guitar Display converts channels on a track to channels 11 to 16. Channels 11 to 16 are used by Band-in-a-Box to indicate strings 1 to 6 of a guitar. It uses the current position marker on the guitar for this command.

Utilities

There is a Utilities sub-menu that has utility functions to convert the pitch bend range of a track, insert pitch bend note events, transpose and transform melodies.



Eliminate Note Overlap – Preserve Double Stops / Eliminate Note Overlap – Remove Double Stops opens a **Choose Range** dialog to select the range of bars where note overlap will be eliminated while double stops are either preserved or eliminated.

Change Pitch Bend Range… lets you set the range in semitones.

Insert Guitar Bend events when pitch bend found… will insert controllers so the guitar will display bends.

Transpose One Octave DOWN / Transpose One Octave UP transposes the Melody part one octave in either direction. This is often useful if the Melody instrument has been changed. Transposing can be done while the song plays.

Transform Waltz Melody & Soloist to 4/4
If you have a song with a 3/4 time signature, you can instantly hear it as a 4/4 feel. Simply load the Waltz song and then change the style to a 4/4 style. Band-in-a-Box uses intelligent algorithms to transform the melody to the new time signature.

Transform 4/4 Melody & Soloist to Waltz
You can automatically transform any 4/4 song/melody to a Waltz 3/4 feel. Simply load in any 4/4 song and change the style to a Waltz style. The program will offer to transform the melody so that it works as a Waltz. It's fun and educational to hear and play familiar songs in a Waltz feel.

Soloist Menu

Track Type

Normally you'd leave the track type set to Single. But you can set it to:
- Multi (16) -Channel – All channels get preserved, and outputted on the channels, this would be useful for importing an entire MIDI file, and playing it from the Melody channel (using a silent style).
- Guitar – Channels 11 to 16 will display on the guitar as strings 11 to 16, TAB will show, the notation will be up an octave, and the MIDI file will contain the channels preserved.

- Piano – In this mode, channels 8 and 9 are treated as the left and right hand of a piano part.
- Selecting any one of Bass, Ukulele, Mandolin, Banjo, or Violin will display the correct tablature in the Notation window and the correct fretboard in the Guitar window.

Generate and play a Solo...

Opens the **Select Soloist** dialog where a preset Soloist style can be selected or your own Soloist can be defined.

Soloist Maker submenu

Start a Soloists File allows you to make and edit Soloist styles saved under the filename of your choice. See Soloist Edit dialog for additional details on importing/exporting/saving Soloists.

Edit a Soloists file opens an **Open File** dialog where you can select any Soloist file (*.SOL) to edit. If you have not created any of your own Soloist files or if you want to edit the one you are using, use the Edit Current Soloist File command.

If you want to make your own soloists or modify an existing Soloist, use the Soloist Maker (edit) module. The Soloist Maker allows you to define the parameters essential to a soloist's playing, such as instrument range (i.e. tenor saxophone), extra legato playing, playing more on top of the beat, playing straighter 8th notes than usual swing 8th notes. In addition, you can set phrasing options, such as how long the phrase should be, and how much "space" to leave between phrases. You can also set how "outside" the playing should be.

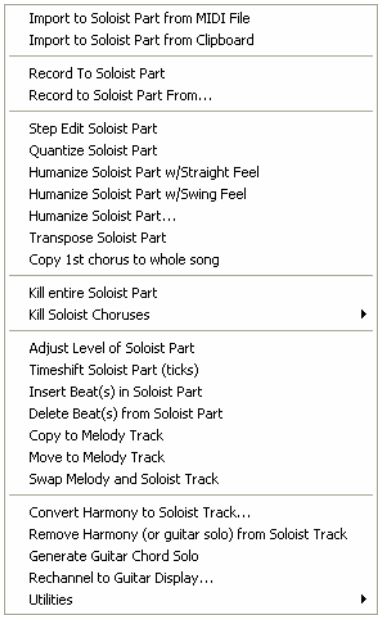
Edit Current Soloists File opens the **Select Soloist** dialog with the currently installed Soloists file.

Refresh Soloist allows the Soloist full access to all solo ideas contained in its database. Use to refresh after several Soloists have been made.

OK to Load Soloists w/Songs Enable this option if you want Soloists to be automatically loaded with a song that was saved with Soloist information.

Allow Soloist Harmony (on THRU Harmony) Enable this option to permit the Soloist to utilize the Harmony features. This will allow the Soloist to make a harmonized solo with the harmony of your choice. See the Select Soloist dialog for additional details.

Edit Soloist Track is a sub-menu of editing options.



Import to Soloist Part from MIDI File allows you to import MIDI data from a file (*.MID) into the Soloist track.

Import to Soloist Part from Clipboard allows you to import MIDI data that has been pasted into the clipboard (e.g., from a sequencer such as PowerTracks).

Record To Soloist Part records a MIDI part to the Soloist track instead of recording to the Melody track.

Record to Soloist Part From… starts recording at the current location of the highlight cell after playing a two bar lead-in.

Step Edit Soloist allows you to enter/edit a soloist in step time from the Notation window. This uses an event list.

Quantize Soloist opens the **Quantize Soloist Options** dialog. The *Humanize Soloist Part...* feature is an advanced version of this function.

Humanize Soloist Part w/Straight Feel / …/Swing Feel. Band-in-a-Box uses intelligent humanization routines, which can humanize a Soloist from one feel to another, from one tempo to another, and vary the amount of swing in 8th notes (but not randomly). The results are very musical, with natural sounding MIDI solos.

Humanize Soloist Part… opens the **Soloist: Quantize to New Tempo or Feel** dialog. The humanize effect is broken down into 5 main categories: Tempo, Lateness, 8th Note Spacing, Legato, and Feel.

Transpose Soloist Part allows you to transpose the Soloist track without affecting the other tracks in the song.

Copy 1st chorus to whole song stretches the Soloist track out over the entire song (i.e. first, last, and middle choruses).

Kill entire Soloist Part erases the Soloist track and any data that was contained therein.

Kill Soloist Choruses eliminates the Soloist from the First Chorus, Middle Choruses, or Last Chorus as selected from a list box.

Adjust Level of Soloist Part allows you to increase or decrease the volume (velocity) of the Soloist track without affecting the other tracks.

Timeshift Soloist Part (ticks) allows you to move the Soloist forward or backwards in small increments relative to the rest of the song tracks. (Measured in ticks or parts per quarter, PPQ.)

Insert Beat(s) in Soloist Part allows you to insert a blank beat or beats into the song relative to the current time signature.

Delete Beat(s) from Soloist Part allows you to delete a beat or beats from the song relative to the current time signature.

Copy to Melody Track copies the entire contents of the Soloist track to the Melody Track. Useful for a temporary holding area for your soloist or for bouncing tracks.

Move to Melody Track copies the entire contents of the Soloist track and erases the original data from the Soloist track, preparing it for a new track or data.

Swap Melody and Soloist Track performs a "double copy/move" so that the data that was in the Soloist track gets transferred to the Melody track and vice versa. This is also known as track bouncing.

Convert Harmony to Soloist Track… converts a single line Soloist track to include the current harmony selection.

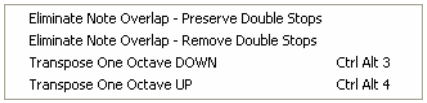
Remove Harmony (or guitar solo) from Soloist Track removes a harmony from a track, providing that the harmony was put there by Band-in-a-Box in the first place using the *Convert Harmony to Soloist Track* command.

Generate Guitar Chord Solo opens the Guitar feature dialog for generating a guitar chord solo.

Rechannel to Guitar Display converts channels on a track to channels 11 to 16. Channels 11 to 16 are used by Band-in-a-Box to indicate strings 1 to 6 of a guitar. It uses the current position marker on the guitar for this command.

Utilities

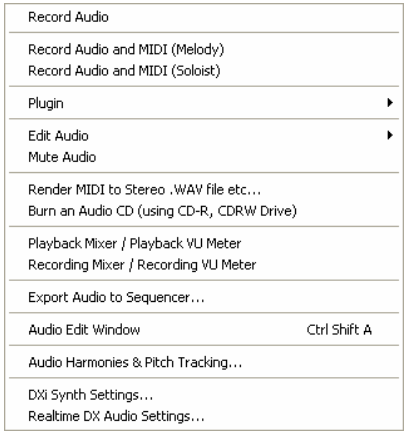
There is a Utilities sub-menu that has utility functions to convert the pitch bend range of a track, or to insert pitch bend note events.



Eliminate Note Overlap – Preserve Double Stops / Eliminate Note Overlap – Remove Double Stops opens a **Choose Range** dialog to select the range of bars where note overlap will be eliminated while double stops are either preserved or eliminated.

Transpose One Octave DOWN / Transpose One Octave UP transposes the Soloist part one octave in either direction. This is often useful if the Soloist instrument has been changed. Transposing can be done while the song plays.

Audio Menu

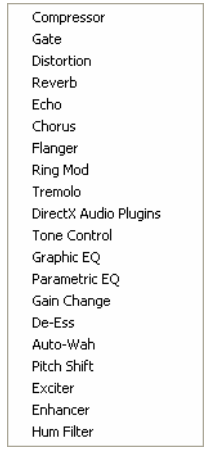


The **Record Audio** function is used to Record Audio using a microphone plugged into your sound card or a guitar (or mixer) plugged into the line-in on your sound card. This launches the **Record Audio** Dialog and the **Record Audio – Keep Take** dialog.

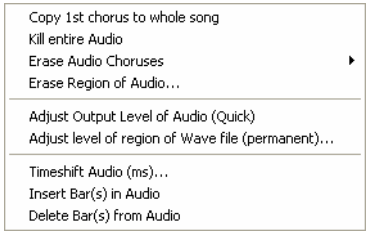
The next two items, **Record Audio and MIDI (Melody)** and **Record Audio and MIDI (Soloist)** refer to the situation where you want to simultaneously record an audio track (vocals etc.) as well as a MIDI piano part. You can record the MIDI to the Melody or Soloist track.

The **Plugin** menu command refers to running a plug-in audio effect. This applies an audio effect such as Reverb or Chorus to the already recorded audio part. Band-in-a-Box comes with a large selection of high quality audio effects built-in.

The plug-ins are fully documented in the online Help.



Edit Audio submenu



Copy 1st chorus to whole song copies the first chorus of audio to the rest of the song.

The **Kill entire Audio** menu item is used to erase the Audio Track.

Erase Audio Choruses will erase the First Chorus, Middle Choruses, or the Last Chorus as chosen from a list box.

Erase Region of Audio will erase a specified region of bars/beats of audio.

Adjust Output Level of Audio (Quick) uses the Windows mixer to adjust the output level of the audio track. You can also use the Windows mixer directly by pressing the yellow speaker icon.

Adjust level of region of .WAV file (permanent)… changes the volume of the audio track itself. It uses a sophisticated peak-limiting algorithm to ensure that increases in the volume do not result in clipping of the sound, which would be heard as a loud distortion. It accepts units of decibels (dB). Zero means no change in the level, whereas +6 would be a doubling of the sound, and –6 halves the sound level.

Timeshift Audio (ms)… is used to time shift the whole audio track a certain number of milliseconds. Normally you wouldn't have to time shift a track at all. There are settings in the Audio-Options Dialog (see below) that can adjust for synchronization differences between your sound card and MIDI devices (for example, the VSC-88 has a 430ms latency). But the time shift audio command can be useful in special cases.

Tip: 1000ms = 1 second. Positive values move the audio track ahead, negative values move it back.

Insert Beat(s) in Audio and **Delete Beat(s) from Audio** are used to insert, silence, or remove parts of the audio track. You can specify the region to use. For example, if you decide to add an extra 2 bars to the intro in Band-in-a-Box, and you've already recorded an audio track, you should insert 2 bars (8 beats in a 4/4 time signature) into the audio track as well.

Mute Audio is a toggle switch to mute and unmute the audio track.

Render MIDI to Stereo .WAV file etc… This command launches the dialog that allows you to Render (convert) the Band-in-a-Box song (with or without an audio track) to a stereo .WAV file.

Burn an Audio CD (using CD-R, CDRW Drive) takes you to the **Render to Audio File** dialog where you can launch the built-in MiniBurn program with the ['Burn' to Audio CD] button.

Playback Mixer / Playback VU Meter takes you directly to the Windows **Playback** control to adjust volumes on your sound card. Note that not all sound devices have VU meters.

Recording Mixer / Recording VU Meter takes you directly to the Windows **Recording** control to adjust volumes on your sound card. Note that not all sound devices have VU meters.

Export Audio to Sequencer… gives instructions on how easy it is to use your Band-in-a-Box wave file in any audio sequencer, including PowerTracks Pro Audio.

Audio Window launches the audio edit window where the wave file can be viewed and edited.

Audio Harmonies & Pitch Tracking opens the **Generate Audio Harmonies** dialog. There are three uses of the Audio Harmonies in Band-in-a-Box, namely:

- Pitch tracking (fixing) of the melody.
- Harmonizing your voice using Band-in-a-Box harmonies (when a MIDI melody is present)
- Harmonizing your voice to the chords of the song (when no MIDI melody is present)

See the tutorial in **Chapter 3: Band-in-a-Box 2004**.

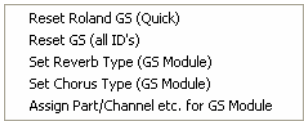
DXi Synth Settings opens the **DirectX Plugins** dialog to the **Synth Track** where you can select a DXi synth and apply real time effects to its audio output.

Realtime DX Audio Settings opens the **DirectX Plugins** dialog to the **Audio Track** where you can apply real time effects to the Band-in-a-Box audio track.

GM Menu

- The GM functions work on MIDI sound devices that support the GM (General MIDI) standard, which includes most newer MIDI Keyboards and sound cards.
- The GS functions work on instruments that support the Roland GS specification. This includes the Roland Sound Canvas, SCC1, and JV-30.
- The XG functions work on instruments that support the Yamaha XG specification, for example, the Yamaha Waveforce DB50XG.

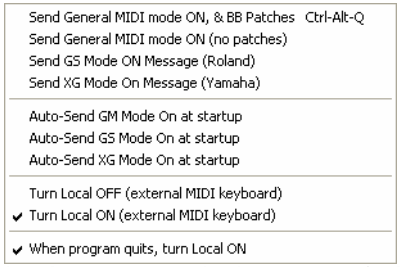
Roland GS submenu



Reset Roland GS (Quick) and **Reset GS (all ID's)** reset the module to factory settings.
Set Reverb Type or **Set Chorus Type (GS Module):** Roland GS instruments allow different type of reverb and chorus settings. These settings boxes allow you to select them.

Assign Part/Channel etc. for GS Module The GS Part settings are for GS compatible synthesizers only. These synthesizers have 16 parts. The default is for part 1 to be channel 1, part 2 channel 2 etc., but you can change a part to another channel. This allows you to use the same channel for 2 parts, so that you hear a layer of 2 instruments playing the same part.

Send MIDI Message submenu



Send General MIDI mode ON, & BB Patches sends a General MIDI mode ON message to the external MIDI device and the sends the startup Band-in-a-Box patch changes.

Send General MIDI mode ON (no patches) sets the external module to General MIDI mode. This command will ensure that the module is ready to accept GM-specific MIDI data such as Bank, Controller, and Patch information.

Send GS Mode On Message (Roland) / Send XG Mode On Message (Yamaha): Since the inception of the GM (General MIDI) standard, there have been two major subsets/extensions of this standard; GS (Roland) and XG (Yamaha). Therefore, in addition to the GM Mode-on menu item feature there are additional commands to send a GS mode ON or a XG mode ON message at any time by accessing the GM menu.

Auto-Send GM Mode On at startup sends a "General MIDI mode on" message when the program boots up.

Auto-Send GS Mode On at startup sends a Roland GS system on message when the Band-in-a-Box program boots up.

Auto-Send XG Mode On at startup sends a Yamaha XG system on message when the Band-in-a-Box program boots up.

Turn Local OFF / ON (external MIDI keyboard)

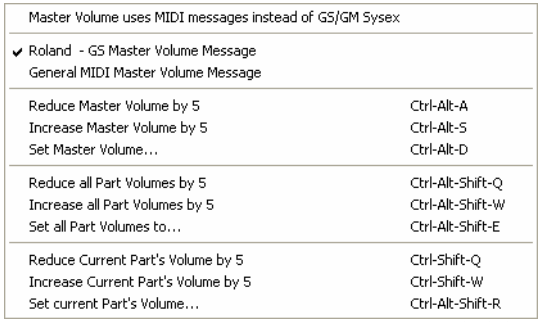
"Local" refers to music playing on an external MIDI keyboard. If set to "Off," Band-in-a-Box will play the keyboard via the THRU part. If set to "On," both Band-in-a-Box and the keyboard might be playing the same Thru part.

When program quits, turn Local ON automatically turns the external MIDI keyboard back on at the end of the Band-in-a-Box session.

Master Tuning... allows you to master tune your sound card or sound module. This is useful if you're playing along with an instrument or recording that can't easily be re-tuned like an acoustic piano. A setting of 0 is the default A = 440.

> **Note:** Not all sound cards/ modules support Master Tuning. To see if your sound card supports Master Tuning, press the [Test..] button.

Master (Combo) Volume Adjust submenu



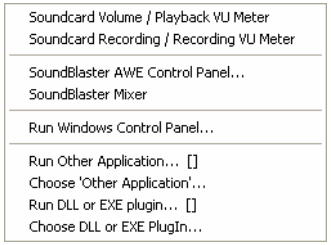
Master Volume uses MIDI messages instead of GS/GM Sysex should be set by all users except if you have a Roland GS synth, Roland Sound Canvas, or Roland VSC. If set, the Combo settings will allow Master Volume and other MIDI settings to work. This submenu allows you to set whether to use **Roland - GS** or **General MIDI** for Master Volume messages. Unless you have a Roland you should select General MIDI.

If you want to "turn it all up or down," this can be done quickly with menu commands or hot keys to set the Master Volume. There are also hot keys that control the overall volume by reducing (or increasing) volumes on all parts by 5 to simulate a Master Volume effect (especially useful for sound cards that don't support Master Volume changes). These items also have hot keys as listed on the menu (**Ctrl+Alt+Shift Q, W,** and **E**). Commands and hot keys are also provided to change the volume of the current part only.

Set Panning to MONO sets the panning of your Band-in-a-Box parts (Bass, Drums, Piano, etc.) to mono.

Set Panning Mode to Stereo sets the panning of your Band-in-a-Box parts (Bass, Drums, Piano, etc.) to a typical stereo setup, which is saved with the preferences.

Run Other Program submenu



Sound card Volume / Playback VU Meter launches the Windows mixer to adjust volumes on your sound card with the Playback panel.

Sound card Recording / Recording VU Meter launches the Windows Mixer to adjust volumes on your sound card with the Recording panel.

> **Note:** This uses the c:\windows\sndvol32.exe Mixer program. You may need to have the Windows 98 version of this program for the Recording Panel to open properly. If you don't, you'd see the "Volume Control" panel and will have to manually set it to the Recording Panel (by choosing Options | Properties | Recording).

SoundBlaster AWE Control Panel applies only to users with a SoundBlaster. This function launches the "AWE Control" application.

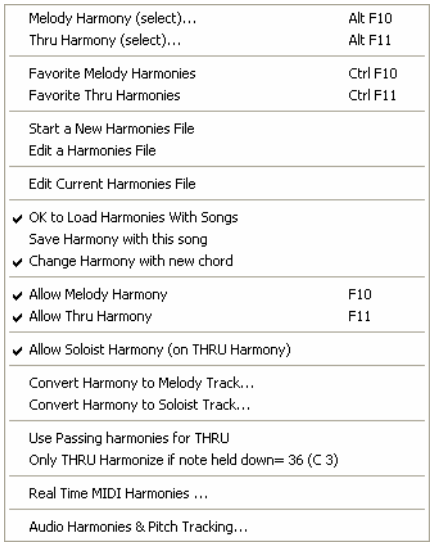
SoundBlaster Mixer is also for Sound Blaster users only, and launches the mixer for volumes.

Run Windows Control Panel... runs the Windows Control Panel, which lets you examine MIDI and Audio settings in the Multimedia, Add New Hardware, and System panels.

Run Other Application… and **Choose [Other Application…]** allows you to specify and run any other application (mixer application, PowerTracks etc.).

Run DLL or &EXE plugin… and **Choose DLL or EXE PlugIn…** allows you to run a plug-in that has been made specifically for a PG Music product.

Harmony Menu

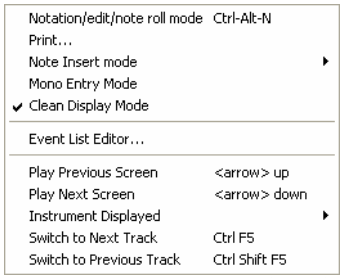


Melody Harmony (select)…
This option brings up the complete Harmony styles list, and allows you to choose one for the current Melody track.
Thru Harmony (select)…
This option brings up the complete Harmony styles list, and allows you to choose one for the current Thru track.
Favorite Melody Harmonies
This option brings up your favorite 50 Harmony styles (based on recent usage) and allows you to choose one to use on the Melody track.
Favorite Thru Harmonies
This option brings up your favorite 50 Harmony styles (based on recent usage) and allows you to choose one to use on the Thru track.
Start a New Harmonies File
Allows you to make and edit Harmony styles saved under the filename of your choice.
Edit a Harmonies File
Allows you to edit a Harmony file that is in your \bb directory.
Edit Current Harmonies File
Allows you to edit the Harmony file that is currently loaded on your system.
OK to Load Harmonies With Songs
Toggle this option "On" if you want to load any harmony settings that were saved/embedded in a given song.
Save Harmony with this song
Toggle this option "On" to allow Band-in-a-Box to embed the harmony settings for the currently open song so that they may be recalled automatically at a later time.

Change Harmony with new chord
Toggle this option "On" to allow the program to vary the harmony characteristics (i.e. inversions) each time a new chord is encountered in the song.
Allow Melody Harmony
Toggle this option "On" to allow the Melody MIDI channels to utilize the harmony features.
Allow Thru Harmony
Toggle this option "On" to allow the Thru MIDI channels to utilize the harmony features.
Allow Soloist Harmony (on THRU Harmony)
Toggle this option "On" to allow the Thru MIDI channels to utilize the harmony features for the Soloist track.
Convert Harmony to Melody Track…
This converts a single line Melody track to include the current harmony selection.
Convert Harmony to Soloist Track…
This converts a single line Soloist track to include the current harmony selection (On the Thru harmony).
Use Passing Harmonies for THRU
When you play along on a MIDI keyboard (or the wizard), and use a Thru harmony, you can use passing harmonies. For example, on a C7 chord, with an Ab note, the harmony might be a B diminished chord, which is a passing harmony.
Only THRU Harmonize if note held down = 36 (C3)
In previous versions, every note that you played on the Thru harmony would get harmonized. By setting this new option you can specify to only harmonize the note if a certain note is held down. (The default note is a C two octaves below middle C.)
Real Time Harmonies
This feature allows you to play harmonies in real-time. Use this with your MIDI keyboard (while Band-in-a-Box is stopped). Hold a chord down with the left hand and play notes with the right hand. The notes will be harmonized according to the chord that you're playing in the left hand.
Audio Harmonies & Pitch Tracking
You can apply a harmony to the audio part – allowing you to automatically create up to 4 part vocal harmonies from your singing. Band-in-a-Box generates the harmonies using the world-leading TC-Helicon Vocal Technologies engine. Once you have recorded a vocal part into Band-in-a-Box, you can use this feature in many ways, including:
- Pitch tracking (fixing) of the melody.
- Harmonizing your voice using Band-in-a-Box harmonies (when a MIDI melody is present)
- Harmonizing your voice to the chords of the song (when no MIDI melody is present)

See the tutorial in **Chapter 3: Band-in-a-Box 2004**.

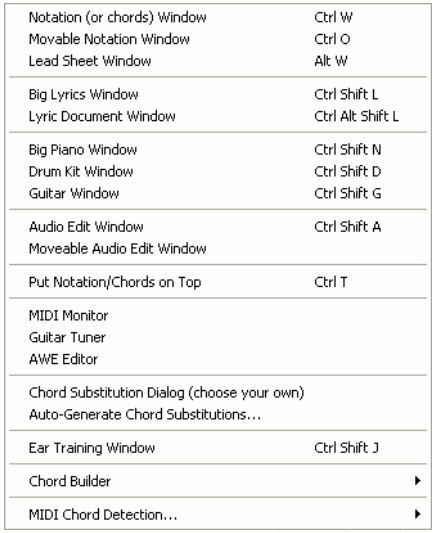
Not'n Menu



Notation/edit/note roll mode moves the notation window through its various entry modes.
Print... brings up the print dialog box.
Note Insert mode
Toggling this to "On" allows you to insert notes graphically with your mouse or keyboard on the notation window.
Mono Entry Mode
Toggle this "On" if you are inserting single notes (not chords) on the notation window.

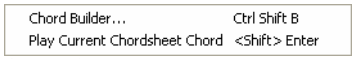
Clean Display Mode
Toggle this "On" if you want notes displayed on your notation window in a quantized view (does not affect song playback).
Event List Editor
This opens the Event List window. You can edit events including all MIDI events and lyric events using the Event List Editor. You can edit the Melody, Soloist, Lyrics, or StyleMaker patterns using this event list.
The event list can also be launched from the Notation window by pressing the event list button (#).
Play Previous Screen
Backs the song up four bars.
Play Next Screen
Moves the song to the next four bars.
Instrument Displayed
Since there is not enough room on the screen to display the notation for all instruments, only one is displayed at a time. You can choose which one you want to display from this menu option or the instrument buttons on the notation window.
Switch to Next Track / Switch to Previous Track
Select parts from left to right in the Instrument row buttons.

Window Menu

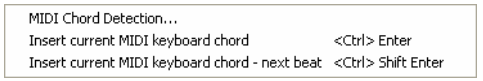


Notation (or chords) Window toggles between the notation and the chordsheet views.
Movable Notation Window opens a movable and resizable notation window.
Lead Sheet Window launches the lead sheet notation.
Big Lyrics Window launches a window that displays lyrics in a Karaoke format.
Lyric Document Window displays a full screen of formatted lyrics. Easily copy and paste lyrics to and from your favorite word processor.
Big Piano Window launches a window that displays a Big Piano.
Drum Kit Window launches the animated Drum Kit. Once launched, press [Help] to get more information about the Drum Kit.
Guitar Window launches an on-screen Guitar.

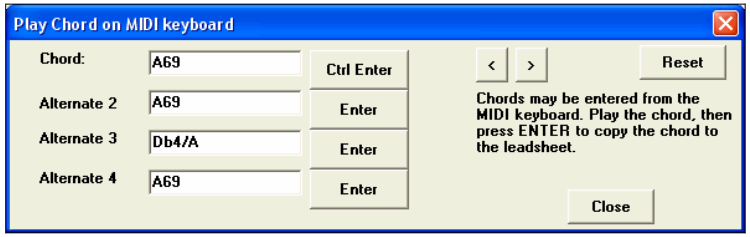
The **Audio Edit Window** allows you to edit audio data, using copy, cut and paste. You can zoom the audio in to the sample level so that you can see the actual sine waves present.
Moveable Audio Edit Window opens the regular Audio Edit Window but lets you reposition it on the screen.
Put Notation/Chords on Top moves the notation window to the top of the main screen and moves the piano roll at the bottom of the main screen.
The **MIDI Monitor, Guitar Tuner,** and **AWE Editor** items launch the selected module. Each one has extensive help available inside the module. There are also buttons available for these items.
Chord Substitution Dialog (choose your own)
This allows you to see a list of possible chord substitutions for the current chord progression. You can also access it from a right mouse click on the chordsheet, and by pressing the Chord Substitution button.
Auto-Generate Chord Substitutions…
This will automatically pick chord substitutions for all or part of the song.
Ear Training Window
You can practice your ear training with help from Band-in-a-Box. In addition to the common interval exercises (perfect 4th, minor 2nd, etc.), learning to play-by-ear for jazz and pop music is further enhanced by ear training exercises to recognize common chord types (e.g., Major, Minor, Dominant, etc.).
Chord Builder submenu



Chord Builder…
Allows you to build up chords using mouse clicks.
Play Current Chordsheet Chord
This function plays the current chord on the chordsheet. It is most commonly accessed by pressing **Shift+Enter** on the chordsheet.
MIDI Chord Detection
You can enter chords using the MIDI keyboard. Choosing this command will bring up the following submenu.



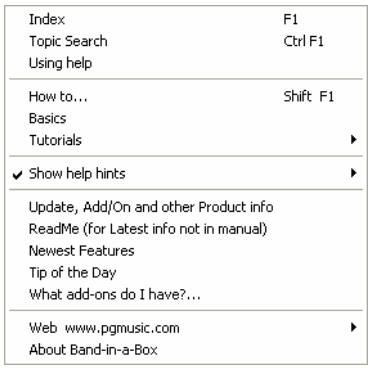
Select *MIDI Chord Detection...* and play any chord on your MIDI keyboard. Band-in-a-Box will then provide you with up to 4 interpretations of the chord you played, with its best suggestion at the top and alternates below.



Choose the chord you want to have pasted into your song by clicking the appropriate [Enter] button beside the chord name. You can insert up to two chords per bar in this fashion, and move backwards and forwards in a song with the [<] [>] buttons in the top right section of the dialog.

Tip: You can also insert chords this way without opening up this dialog. Just press **Ctrl+Enter** keys at any time to insert the last chord that you've played on your MIDI keyboard onto the worksheet.

Help Menu



Index Lists all of the Help topics. Type in a keyword under the "Index" tab to go to the topic you want.

Topic Search Opens the Help file where you can search the Table of Contents or the Index, or use the Search feature to find your topic.

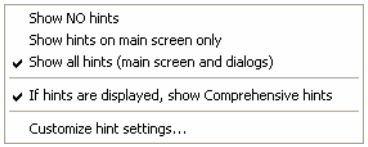
Using help Has Windows tips for using Help files.

How to… Opens a categorized list of topics. It's a fast way to find out about a particular feature or operation.

Basics Goes directly to the "Basics" introduction to Band-in-a-Box.

Tutorials Provide detailed, step-by-step instructions for Band-in-a-Box.

Show help hints



Band-in-a-Box has comprehensive fly-by hints that appear when you move over an item. These include hints for the dialog boxes and various windows. You can set the hints to display none, basic, or detailed information. Customize the hint settings in the **Prefs2** dialog.

Update, Add/On and other Product info
Other Band-in-a-Box add-ons, PG Music Inc. products, and contact information.

ReadMe (for Latest info not in manual) documents the latest features, plus an archive of earlier updates.

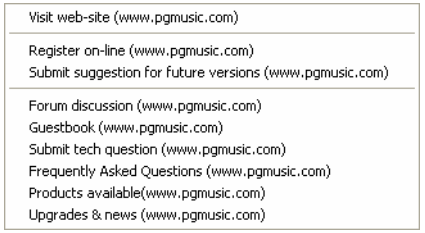
Newest Features describes the new features in the current version.

Tip of the Day
Power user tips, this feature can be set to run automatically when Band-in-a-Box opens. If you want to add your own tips, you can edit the BBW.TIP file. Just put a tip on a single line (no carriage return till the end of the tip). Tips are limited to 255 characters per tip. Band-in-a-Box automatically compiles the BBW.TIP file at startup of the program to a binary file called BBW.TPB.

What add-ons do I have?…
One of the greatest strengths of Band-in-a-Box is the ability to add-on and enhance the program through add-on Styles, Soloist, and Melodist disks. The "What Add-ons" feature scans your computer's Band-in-a-Box directory

and displays what add-ons are and aren't found. To see the latest add-ons click on the [www.pgmusic.com/addons.htm] button to go directly to the add-ons page on the PG Music Inc. web site.

Web www.pgmusic.com
Links to some important pages on the PG Music Inc. web site. Selecting one of these topics will automatically launch your Web Browser, and direct you to the PG Music web site.



About Band-in-a-Box launches a dialog with key information such as the version number you are running and computer system information.

Keystroke Commands - Hot Keys

It's often faster to use keystrokes instead of using the mouse. For example, there are keystroke "hot keys" to mute instruments or to adjust volume, panning, reverb, chorus, or bank of instruments.

Muting Parts

Alt+3 Mutes the Bass
Alt+4 Mutes the Piano
Alt+5 Mutes the Drums
Alt+6 Mutes the Guitar
Alt+7 Mutes the Soloist
Alt+8 Mutes the Strings
Alt+9 Mutes the Melody

Selecting Parts

Ctrl+3 Selects the Bass
Ctrl+4 Selects the Piano
Ctrl+5 Selects the Drums
Ctrl+6 Selects the Guitar
Ctrl+7 Selects the Soloist
Ctrl+8 Selects the Strings
Ctrl+9 Selects the Melody

Instrument Part Settings

Hold down **Ctrl+Shift** and the letter to change these instrument settings.

Q,W Decrease/Increase Volume
E,R Decrease/Increase Panning
T,Y Decrease/Increase Reverb
U,I Decrease/Increase Chorus
O,P Decrease/Increase Bank

Use **Ctrl+Shift** together with the **1-9** and **0** keys on the keyboard to select Favorite Instruments. For example, let's change the Piano part to Rhodes Piano.

1. Press **Ctrl+4** to select the Piano part.
2. Press **Ctrl+Shift+2** to select the Favorite #2. That is Rhodes Piano.

Use **Ctrl+Shift** and the [-] and [=] keys to decrease/increase the patch by 1.

Volume Settings

Ctrl+Alt+Shift+R	Set current part's volume.
Ctrl+Alt+A	Decrease master volume by 5.
Ctrl+Alt+S	Increase master volume by 5.
Ctrl+Alt+D	Set master volume.
Ctrl+Alt+Shift Q	Reduce all part volumes by 5.
Ctrl+Alt+Shift W	Increase all part volumes by 5.
Ctrl+Alt+Shift E	Set all part volumes.

Looping / Song Navigation Keystrokes

NUMPAD 1	Toggle looping on/off.
NUMPAD 2	Open Loop Section Settings dialog.
Ctrl+NUMPAD 1	Play with last chorus looped.
Ctrl+NUMPAD 2	Play with middle choruses looped.
Ctrl+NUMPAD 3	Play with middle and last choruses looped.
Ctrl+NUMPAD 4	Jump to last chorus.
Ctrl+NUMPAD 5	Jump to ending.
Ctrl+NUMPAD 7	Loop Notation screen.
NUMPAD [DEL]	Advances the notation, lead sheet, and guitar window by one chord (group of notes).
NUMPAD [INS]	Backs up the notation, lead sheet, and guitar window by one chord.

Transpose Settings

Ctrl+Alt+1	Transpose Melody down one octave
Ctrl+Alt+2	Transpose Melody up one octave
Ctrl+Alt+3	Transpose Soloist down one octave
Ctrl+Alt+4	Transpose Soloist up one octave
Ctrl+Alt+5	Transpose down 1 semitone.
Ctrl+Alt+6	Transpose up 1 semitone.
Ctrl+Alt+7	Transpose setting dialog.

Custom File Open Dialog

Ctrl+Shift+F3	Load song with custom file dialog.
Alt+F	In custom file dialog - Favorite Folders.
Alt+N	In custom file dialog - Font selection.
Alt+S	In custom file dialog - Search dialog.

Windows

Ctrl+W	Toggle Notation and Chordsheet windows.
Ctrl+O	Movable Notation window.
Alt+W	Lead Sheet window.

Ctrl+T	Put Notation/Chords at top of screen.
Ctrl+Shift+A	Audio Edit window.
Ctrl+Shift+D	Drum Kit window.
Ctrl+Shift+G	Guitar window.
Ctrl+Shift+J	Ear training window.
Ctrl+Shift+L	Big Lyrics window.
Ctrl+Shift+N	Big Piano window.

StyleMaker Hot Keys

F1, Shift+F1, Ctrl+F1	Help
F2	Save style
Alt+F2	Save style as ...
R or **F3**	Record pattern
<Spacebar> or **F4**	Play pattern
F8	Play pattern on chord
F10	Edit pattern options
F6 or **Shift+F6**	Change instrument
Cursor Keys	Move around screen
Alt+F4	Quit the StyleMaker

StyleMaker Drum Screen Hot Keys

F5	Drum alternate notes
Bottom row (ZXCVBNM,. /)	Drum note entry
F6	Time base
F10 or **Alt+F4**	Exit

Additional Keystrokes

There are additional keystrokes available, listed on the pull down menus beside the function. Hot keys may access any function on the pull-down menu by pressing the **Alt** key and the first letter of the Menu followed by the underlined letter of the command. For example, **Alt+F+O** would access *File* | *Open*.

> **Note**: It is necessary to tap the spacebar twice on the main screen to start playback because entering chords can include a single spacebar. In the StyleMaker, you start songs by hitting the spacebar once. In the *Opt.* | *Preferences* menus, there are other ways that the SPACEBAR can be set to work.

Playing songs.	**Spacebar** twice or **F4**
Stopping songs.	**Spacebar** or **Esc**
Help.	**F1, Shift+F1, Ctrl+F1**
Record (melody or pattern).	**R**
Record from any bar.	**R**
Jukebox start/stop.	**F8**
Save song.	**F2**
Save song with patches.	**Alt+F2**
Load song.	**F3**
Load song using favorite song list.	**Shift+F3**
Load song using titles window.	**Ctrl+F3**
Load songs with melodies.	**Alt+F3**

Load song with standard long file dialog.	**Alt+Shift+F3**
Load next file (alphabetical by file name).	**Shift+F8**
Load previous (alphabetical by file name).	**Ctrl+Shift+F8**
Load next style. (in alphabetical order).	**Alt+Shift+F8**
Load previous style. (in alphabetical order).	**Ctrl+Alt+Shift+F8**
Enable/disable style.	**Alt+S** then **E**
Launch MIDI File to Style Wizard.	**Alt+S** then **W**
Load songs in current style.	**F7**
Choose a user style.	**F9**
Open StylePicker.	**Ctrl+F9**
Select favorite styles.	**Shift+F9**
Edit user style.	**Alt+F9**
Edit current style.	**Ctrl+Shift+F9**
Turn song Embellisher on/off.	**Ctrl+Alt+E**
Import chords from MIDI file.	**Ctrl+Alt+I**
Send GM mode on message.	**Ctrl+Alt+Q**
Set tempo.	**Ctrl+Alt+T**
Open the Preferences dialog.	**Ctrl+E**
Open the Song Settings dialog.	**Ctrl+N**
Launch Chord Builder.	**Ctrl+Shift+B**
Edit current bar options.	**F5**
Save MIDI file.	**F6**
Quit the program.	**Alt+F4**

Chord List

Commonly used chords are displayed here in bold type.
These chords are displayed in a list in the Chord Builder Dialog, accessible from the User Menu or by right clicking on the chordsheet.

Major Chords

C, Cmaj, C6, **Cmaj7**, **Cmaj9**, Cmaj13, **C69**, Cmaj7#5, C5b, Caug, C+, Cmaj9#11, Cmaj13#11

Minor Chords

Cm, Cm6, **Cm7**, Cm9, Cm11, Cm13, Cmaug, Cm#5, CmMaj7

(half diminished)

Cm7b5,

Diminished

Cdim

Dominant 7th Chords

C7, 7+, C9+, C13+, **C13**, C7b13, C7#11, C13#11, C7#11b13, **C9**,

C9b13, C9#11, C13#11, C9#11b13, C7b9, C13b9, C7b9b13, C7b9#11,

C13b9#11, C7b9#11b13, C7#9, C13#9, C7#9b13, C9#11, C13#9#11, C7#9#11b13

C7b5, C13b5, C7b5b13, C9b5, C9b5b13, C7b5b9, C13b5b9, C7b5b9b13,

C7b5#9, C13b5#9, C7b5#9b13, C7#5, C13#5, C7#5#11, C13#5#11, C9#5,

C9#5#11, C7#5b9, C13#5b9, C7#5b9#11, C13#5b9#11, C7#5#9, C13#5#9#11,

C7#5#9#11, C13#5#9#11

Sustained 4 Chords

Csus, **C7sus**, C9sus,

C13sus, C7susb13, C7sus#11, C13sus#11, C7sus#11b13, C9susb13, C9sus#11, C13sus#11, C9sus#11b13, C7susb9, C13susb9, C7susb9b13, C7susb9#11,

C13susb9#11, C7susb9#11b13, C7sus#9, C13sus#9, C7sus#9b13, C9sus#11, C13sus#9#11, C7sus#9#11b13,

C7susb5, C13susb5, C7susb5b13, C9susb5, C9susb5b13, C7susb5b9,

C13susb5b9, C7susb5b9b13, C7susb5#9, C13susb5#9, C7susb5#9b13,

C7sus#5, C13sus#5, C7sus#5#11, C13sus#5#11, C9sus#5, C9sus#5#11, C7sus#5b9, C13sus#5b9, C7sus#5b9#11, C13sus#5b9#11, C7sus#5#9, C13sus#5#9#11, C7sus#5#9#11, C13sus#5#9#11,

Notes:

- It is not necessary to type upper or lower case. The program will sort this out for you.
- Any chord may be entered with an alternate root ("Slash Chord") e.g.: C7/E = C7 with E bass.
- Separate chords with commas to enter 2 chords in a 2 beat cell, e.g., Dm,G7

Tricky Chords:

C5b This is "C flat 5." It is spelled this way to avoid confusion.

C2, C5, C4, C69, C7alt, Cm7#5

You can type C-7 for Cm7 (i.e. use the minus sign) or C7-9 for C7b9.

Shortcut Chords:

If you enter a lot of songs, you'll appreciate these shortcut keys.

J = Maj7

H = m7b5 (H stands for Half diminished)

D = dim

S = Sus

Example: To type CMaj7 , just type CJ (it will be entered as CMaj7)

Add your own chord shortcuts.

Have you found a chord that Band-in-a-Box doesn't recognize? If so, add it to your chord shortcuts file, and Band-in-a-Box will allow you to type in that chord in the future. This also lets you define chord "shortcuts," one-letter abbreviations for longer chord names ("J" for "Maj7" etc.). If you find a chord that Band-in-a-Box won't accept like Csus2, when it expects C2 instead you can enter this on a single line (without the quotes) "Csus2@C2." Then Band-in-a-Box will enter the chord C2 if you type in Csus 2.

The text file c:\bb\Shortcut.txt allows *you* to add new chord shortcuts. Note that this file doesn't ship with Band-in-a-Box (or it would overwrite your file!). The file \bb\pgshortc.txt for shortcuts supplied by PG Music. You can add your own shortcuts in a text file you make yourself and name \bb\shortcut.txt.

Band-in-a-Box files

Essential Program Files

Band-in-a-Box for Windows requires the following files to operate.

BBW.EXE Executable file.

BBWDLL4.DLL	DLL handling playback.
CPALETTE.DLL	Required DLL.
ZZ*.STY	Band-in-a-Box needs Style Files for the built-in Styles.
ZZDEFAULT.HAR	These are the default harmonies.
BBW.LST	This is the text file for the Style List Information.
CTL3DV2.DLL	This is the required DLL for 3D dialogs and controls.
PGMUS.TTF	PG Music notation font.
PGTEXT.TTF	PG Music text font.

Transferring Files Among Computer Platforms (IBM to Mac)

Many of the Band-in-a-Box song/style and patch map files are directly compatible. Any Macintosh file automatically gets a 128-byte header added on to it by the Macintosh system.

If transferring the files by modem, make sure the Macintosh modem software strips off the header off the files. Other than that, the files are identical.

Note: Atari files are the same format as IBM files; no conversion is needed.

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Band-in-a-Box®

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Or 1-250-475-2874
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Outside of the United States and Canada (where available).
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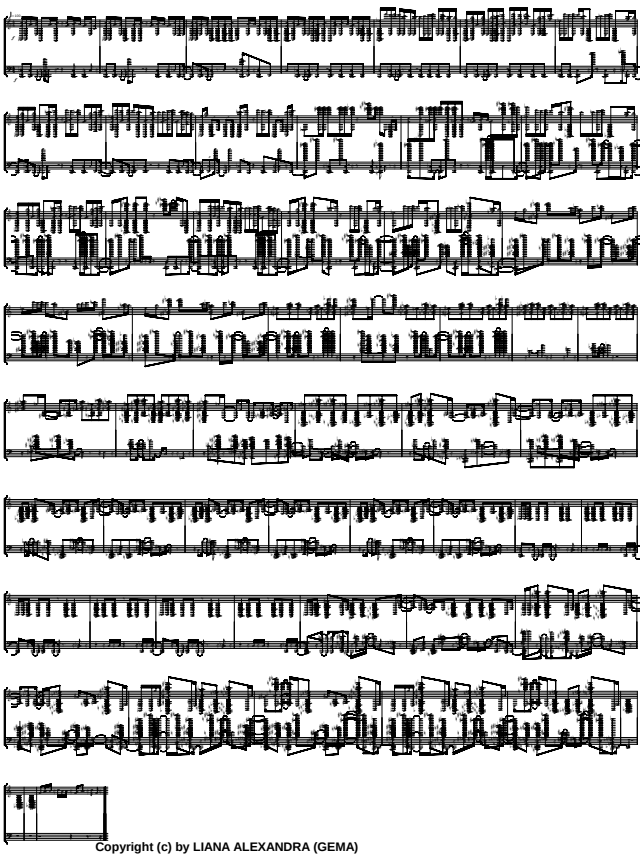
Or 1-250-475-2708
E-mail: support@pgmusic.com
Live Internet Chat: www.pgmusic.com

Be sure to visit the FAQ pages at www.pgmusic.com for information about known troubleshooting issues as well as the latest technical support bulletins.

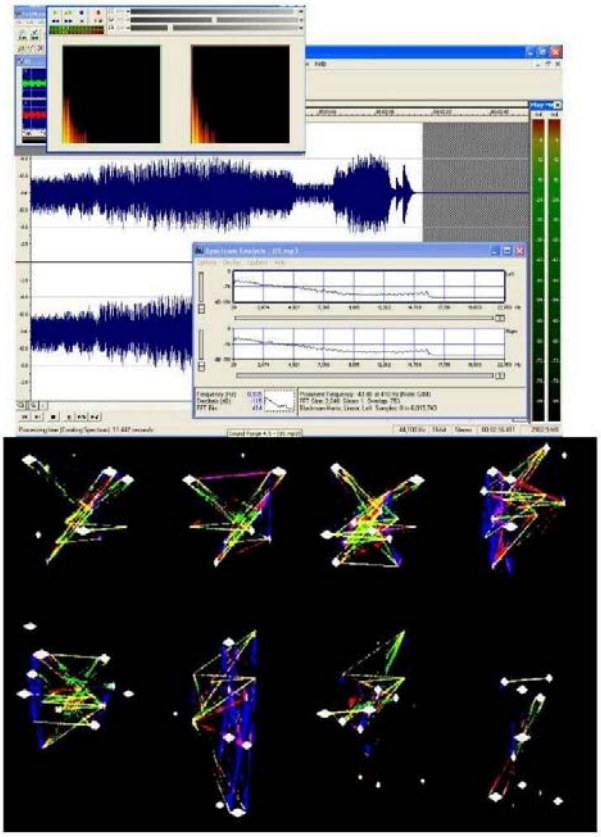
ALLEGRO

VARIATION 5
(Computer Music)

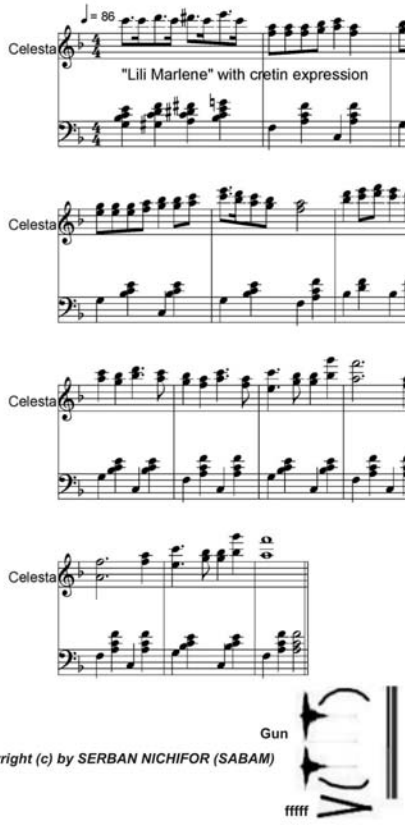
LIANA ALEXANDRA

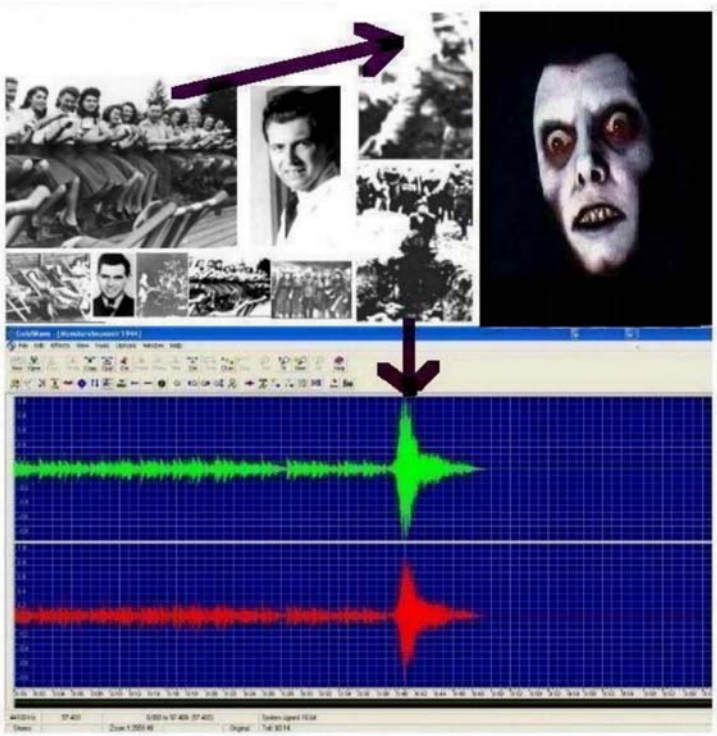


LIANA ALEXANDRA: Variation 5

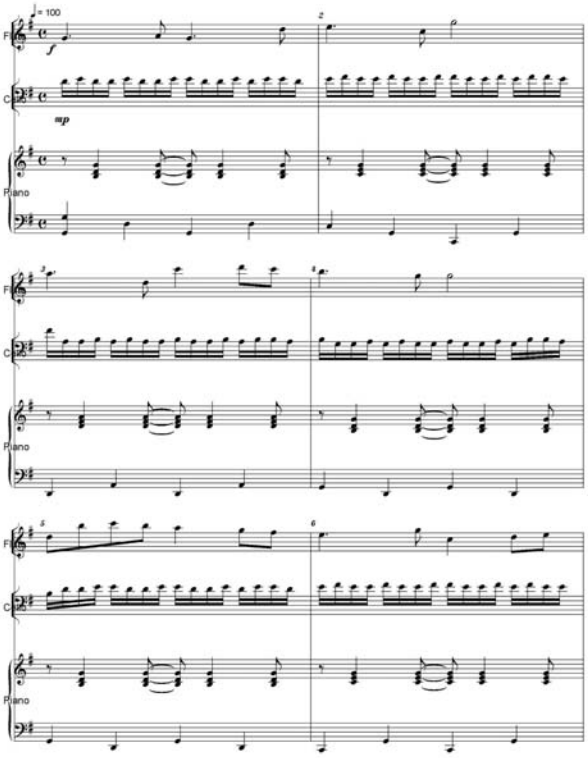


SERBAN NICHIFOR: Monsters' Souvenir



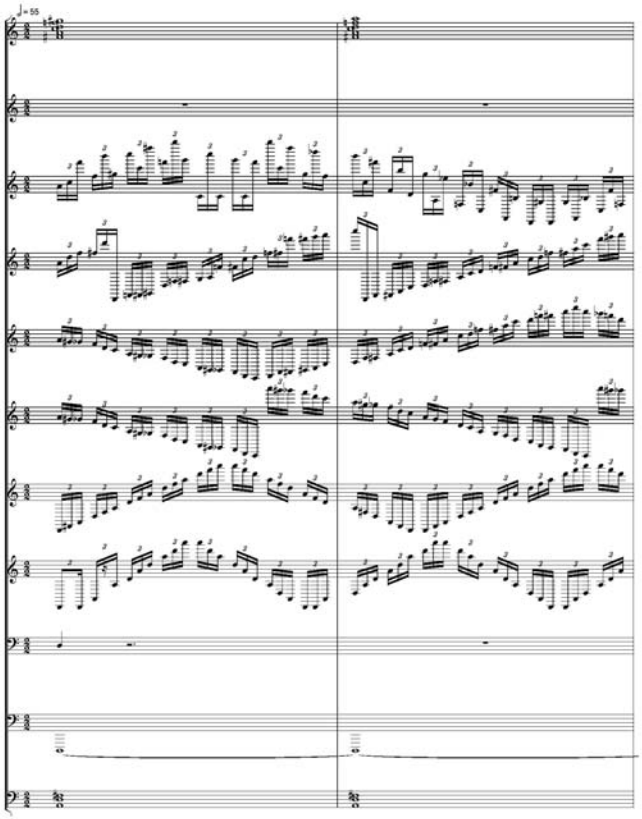


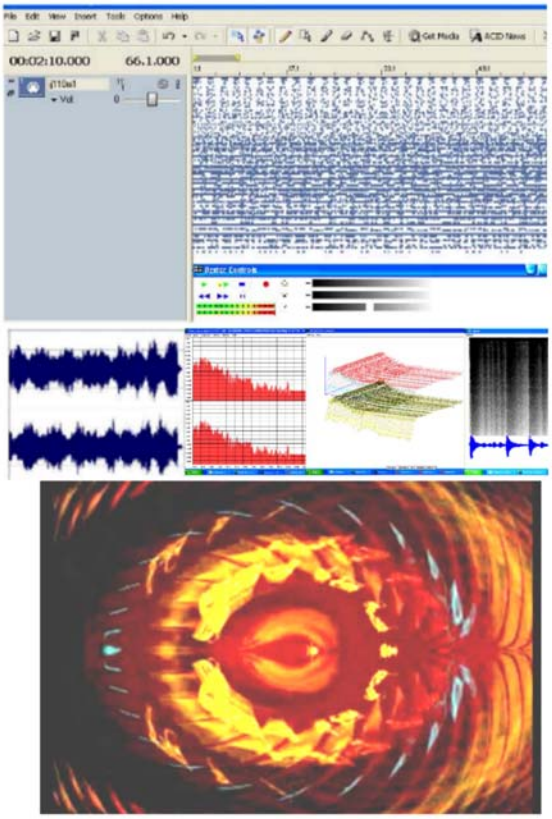
LIANA ALEXANDRA: Melody for Orange Fiddle



Video Chamber Music

SERBAN NICHIFOR: Infinite Song





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