Revision history of the Delta System

Release 29, 20 October 2016

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The previous release was on 20 December 2000.

See Programs available in the DELTA System for a complete list of the current programs.

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Summary

20 October 2016. The default versions of Confor, Key, and Dist are now 32-bit programs, which will work in 32-bit and 64-bit Windows. The 16-bit versions are still included.

All batch programs (*.bat) now have a 'help' option ('/?'). Several batch programs have been converted to run in 64-bit Windows. New batch programs are: findprog.bat, jrepl.bat, listpath.bat, sample.bat, to.bat, tsv2del.bat, uz.bat, uzip.bat, zipdir.bat. Batch programs have replaced to.com and sample.exe. See Batch programs for details.

The sample data have been modified to use a new structure in which Intkey, when using data from the Web, accesses introductory material from the Web as required, instead of downloading it with the data files. (Most of the datasets at delta-intkey.com now use this structure.) The default action sets in the DELTA Editor have been made consistent with these revisions.

General

20 October 2016. In this 'Revision history', changes from the previous release are now summarized under the heading 'Summary'. More detailed information is still available under the other headings.

April 2003. The DELTA home page is now at delta-intkey.com.

20 December 2000. The installation procedure now allows a non-English version of Intkey to be set as the default - that is, the one associated with the .ink file type.

26 June 1999. Final release of Windows 3.1 versions.

8 January 1998. The DELTA Home Page is now at biodiversity.uno.edu/delta/. Windows-based installation procedures are provided. There are separate distribution files for INTKEY and the full DELTA System (including INTKEY), and for Windows 3.1 and Windows 95/NT. The DOS-based installation files, and distribution on disks, have been withdrawn. You can place the distribution files on floppy disks yourself by using WinZip, or the batch file FLOPPY.BAT, which uses PKZIP.

Sample data

20 September 2000. The sample data have been modified to use a new structure in which Intkey, when using data from the Web, accesses introductory material from the Web as required, instead of downloading it with the data files. (Most of the datasets at delta-intkey.com now use this structure.) The default action sets in the DELTA Editor have been made consistent with these revisions.

4 September 2000. Various files were updated to illustrate new program features. A character for abbreviated taxon names was added. An additional markup number was added to the files MARKRTF and MARKHTM (see CONFOR changes), and MARKRTFS (which is now redundant) was deleted.

11 November 1999. Various files were updated to illustrate new program features. The new file TONATSR illustrates the production of separate files in RTF format, to be used with the Intkey INFORMATION command.

2 June 1999. Various minor changes.

30 April 1999. The sample data and directives files are now in a subdirectory SAMPLE of the DELTA directory. The data were converted from the IBM PC Extended Character Set (ECS) to the Windows ANSI character set. Formatting marks were changed from TYPSET to Rich Text Format (RTF). Many directives files were modified, and some were added, to illustrate new program features. Sample files relating to TYPSET output were removed. A file SAMPLE.DLT in the binary format used by the new DELTA editor was added. Files WWWGEN.BAT, WRDGEN.BAT, INTGEN.BAT, and DSAMPLE.INK were added to illustrate the processes of distributing descriptions and Intkey packages on the WWW.

23 December 1997. Examples of new INTKEY features were added to TOOLBAR.INP. A file MY.INI illustrates the use of a personal INTKEY initialization file. The TYPSET mark [\] was removed from CHARS and CNOTES.

21 March 1997. TOOLBAR.INP was updated to illustrate the new switches for the RESTART and DIFFERENCES commands. There are new versions of MARKRTF and TYPSET.DOT.

17 October 1996. TYPSET.DOT was updated to handle the new TYPSET italics and bold commands.

20 September 1996. The toolbar and associated icon files were improved. Typesetting marks for italics in the ITEMS file were converted from the form [Itext] to [I]text['I]; the new form is more easily converted to RTF and HTML.

20 December 1995. Files MARKRTF, TONATR, and TYPSET.DOT, for generation of Rich Text Format, were added (authors: C. M. Weiller and G. F. Weiller, Australian National University). Definitions of toolbar buttons were added to INTKEY.INI.

4 May 1995. The sample data were modified to illustrate new program features.

19 April 1993. The sample data were replaced by a new set, generated from the current version of Watson's Grass Genera of the World.

Documentation

20 October 2016. Documentation files are no longer distributed with the programs. They are available via DELTA documentation in HTML and PDF formats. They are updated as necessary, and the version is indicated by the revision date instead of by a version number.

20 December 2000. The DELTA User's Guide was updated to Edition 4.12. The INTKEY User's Guide was updated to Edition 1.09.

4 September 2000. The DELTA User's Guide was updated to Edition 4.11. The INTKEY User's Guide was updated to Edition 1.08. The User's Guide to the DELTA Editor was updated to Edition 1.03.

11 November 1999. The DELTA User's Guide was updated to Edition 4.10. The INTKEY User's Guide was updated to Edition 1.07. The User's Guide to the DELTA Editor was updated.

25 June 1999. The User's Guide to the DELTA Editor was updated.

5 May 1999. All TYPSET documentation files were converted to MS-Word 97. The DELTA User's Guide was updated to Edition 4.09, and the INTIMATE User's Guide (previously INTIMATE.WRI) was incorporated as a new chapter. The DELTA Primer was updated to Edition 3.01. The INTKEY User's Guide was updated to Edition 1.06. A User's Guide to the new DELTA Editor is available in DELTA.DOC. DELTA.1ST was renamed INSTALL.TXT. DELTA.BAT was renamed OPTIONS.BAT. DOCPRINT.BAT and DOCLIST.BAT were withdrawn. 'Options' now includes the list of documentation files, and can be accessed directly from Windows.

24 December 1997. The DELTA User's Guide was updated to Edition 4.08. The INTKEY User's Guide was updated to Edition 1.05. INTIMATE.WRI was updated to Edition 1.06. Files *.DOC, CHANGES.1ST, DELTA.REG, and DELTA.USE were renamed *.TXT, CHANGES.TXT, DELTAREG.TXT, and DELTAUSE.TXT, respectively. DELTA.1ST was modified to reflect the new installation procedures. The Conditions of Use have been changed slightly - all students (including Ph.D. students) are now exempt from fees, but the teaching organization must pay for registration for at least one user. The registration and order form no longer has provision for ordering disks.

3 April 1997. The DELTA User's Guide was updated to Edition 4.07. The INTKEY User's Guide was updated to Edition 1.04. The draft of the TED User's Guide was finalized as Edition 2. INTIMATE.WRI was updated to Edition 1.05.

11 November 1996. The DELTA User's Guide was updated to Edition 4.06. The INTKEY User's Guide was updated to Edition 1.03. INTIMATE.WRI was updated to Edition 1.04.

8 September 1996. The DELTA User's Guide was updated to Edition 4.05. The INTKEY User's Guide was updated to Edition 1.02. INTIMATE.WRI was updated to Edition 1.03.

5 January 1996. The DELTA User's Guide was updated to Edition 4.04. The INTKEY User's Guide was updated to Edition 1.01.

7 July 1995. The User's Guide was updated to Edition 4.03. INTIMATE.WRI was updated.

4 May 1995. The User's Guide was updated to Edition 4.02. A User's Guide to INTKEY (MS-DOS and MS-Windows versions) is now available through DOCPRINT.

14 June 1994. The file DOC.1ST has been replaced by a command DOCLIST (which displays an index to the documentation), and a 'help' option in DOCPRINT. CLASS.1ST has been renamed CLASS.DOC. The draft TYPSET manual is now available through DOCPRINT, but only for PostScript printers.

9 May 1994. The following documents are now available through DOCPRINT: TED User's Guide (draft of Edition 2); DELTA Standard (information for programmers); Introduction to Computer Images; References.

18 November 1993. The User's Guide was updated to Edition 4.01.

28 September 1993. Final versions of Edition 4 of the User's Guide and Edition 3 of the Primer are included with the distribution.

10 May 1993. See DOC.1ST for procedures for typesetting and printing documentation. (Note: later superseded by DOCLIST.) Drafts of Edition 4 of the User's Guide and Edition 3 of the Primer are included with the distribution.

New programs

20 October 2016. findprog.bat (find location a program on the path). jrepl.bat (regular expression search and replace). listpath.bat (lists contents of the 'path' or other environment variable). sample.bat (copies files from the DELTA sample data to the current folder; replaces sample.exe). to.bat (changes the default folder and drive; replaces to.com). tsv2del.bat (converts a file of tab-separated values (usually produced from Excel) to a DELTA items file). unzip.exe, uz.bat, and uzip.bat (unpack a zipfile). zip.exe (create a zipfile). zipdir.bat (zip files from the current folder).

4 June 1999. An INTKEY launcher was added, to allow easier starting of Intkey4/5 on CD-ROM's. The program is INTKEY.EXE in the 'misc' subdirectory. It permits identical starting of Intkey in Windows 3.1 and later versions, and removes the clutter of subsidiary files (help files, default toolbar, and button

bitmaps) from the directory seen by the user when starting Intkey via Windows Explorer or File Manager.

23 April 1999. A program TPS2RTF, for converting ECS/TYPSET to ANSI/RTF, was added. A new program, DELTA, for creating and editing the main DELTA data files, was added.

January 1998. Versions of INTKEY and INTIMATE for Windows 95/NT are now provided. A batch file, NEX2DEL.BAT, and an associated box program NEX2DEL.BOX, convert a Nexus data matrix to DELTA format.

23 December 1997. The MS-Word macro TYPS2WRD.DOT, for converting TYPSET to Word, was added (Author: B. Richardson, Western Australian Herbarium).

5 September 1996. UNIVBE is no longer included in the distribution (it is available from other sources on the Internet). A batch file, REORDITM.BAT, and associated box program REORDITM.BOX, allow reordering of the ITEMS file (see comments in REORDITM.BOX).

3 January 1996. QuickWin versions of CONFOR, DELFOR, KEY, and DIST are now provided. These run under MS-Windows, and are the same as the MS-DOS versions, except that much more memory is available, and the full path name of the directives file must be specified.

10 October 1994. UNIVESA has been replaced by its successor, UNIVBE. This video driver can be used for image display in the MS-DOS version of INTKEY if your video card does not support the VESA Bios Extensions. See UNIVBE.1ST for installation instructions.

5 May 1995. A Windows version of INTKEY, version 4.00, is now included in the distribution. A Windows program, INTIMATE, for annotating images for this version of INTKEY is also included.

18 November 1993. The following phenetic analysis programs are now included in the distribution, in the file DELTAC@.EXE. They work on distance matrices produced by the program DIST. They are undocumented, except for brief notes in the file CLASS.DOC.

PCLASS Agglomerative clustering by combinatorial sorting strategies. NSIM Lists nearest neighbours of taxa. TXPLOT Converts PCLASS output to a plot file. PLT2PS Converts TXPLOT output to PostScript.

Translations

27 September 1999. The suffixes of the names of the Confor vocabulary files now conform to ISO-639, e.g. VOCABES for Spanish.

7 June 1999. The names of the translated ‘help’ files are now ‘INTKxx.HIN’, where ‘xx’ is ISO-639 language code. An Indonesian translation of INTKEY4/5 was provided by A.W. Munandar, I. Nuryanto and Y. Laumonier (EU - Forest Inventory and Monitoring Project, PO Box 7612, JKP 10076, Jakarta Indonesia, phone/Fax +62 21 572 0211, email ylfimp@cbn.net.id). email ylfimp@cbn.net.id).

23 December 1997. A Spanish translation of INTKEY4/5 was provided by J. A. Silva Guzman (Deptamento de Madera, Celulosa y Papel, Universidad de Guadalajara, Apartado postal 52-93, C.P. 45020, Zapopan, Jalisco, Mexico; email: jsilva@amatl.dmcyp.udg.mx). Note that the German, Italian, and Spanish translations have not yet been updated to include some recent changes to Intkey.

24 March 1997. A French version of the INTKEY4 toolbar for the sample data was provided by Pierre-Andre’ Loizeau.

9 September 1996. French (INTK4F.HLP), German (INTK4DD.HLP and INTK4DE.HLP), and Italian (INTK4I.HLP) versions of INTKEY4 are now available. The French and German translations are by the same authors as the corresponding INTKEY3 versions (see above), and the Italian translation is by Guido Sabatinelli, Istituto Superiore di Sanit…, Laboratory of Parasitology, Viale Regina Elena 299, 00161 Rome, Italy, email sabatine@pop3.iss.it. The method of invoking these versions is explained in the online help under General Help / Installation.

5 May 1995. A Malay version of INTKEY (INTKEYM, MS-DOS version) is now available. The translation was done by K. Mat-Salleh, Universiti Kebangsaan Malaysia, Kampus Bangi, Malaysia, email pakdin01@vm1.cc.ukm.my. Two Spanish versions of INTKEY (INTKEYS1, INTKEYS2, MS-

DOS version) are now available. The first translation was done by Elisa Bello, Museo Nacional de Ciencias Naturales, Jose’ Gutierrez Abascal, 2, 28006-Madrid, Espan~a, phone +34 91 411 13 28, fax +34 91 564 50 78, email mcneb18@cc.csic.es. The second translation was done by H. G. Richter, Institut fu"r Holzbiologie und Holzschutz, Leuschnerstrasse 91, 2050 Hamburg 80, Germany, phone +49 40 739 62 0, fax +49 40 739 62 480, email hrichter@aixh0401.holz.uni-hamburg.de; and J. A. Silva Guzman and F. J. Fuentes Talavera, Inst. de Madera, Celulosa y Papel, Universidad de Guadalajara, Apartado postal 4-120, Guadalajara, Jalisco, 44400 Mexico, fax +52 36 13 7661, email jsilva@udgserv.cencar.udg.mx ffuentes@udgserv.cencar.udg.mx.

16 May 1994. Portuguese versions of the CONFOR vocabulary (VOCABP) and INTKEY (INKEYP) are now available. The translations were done by Mauro J. Cavalcanti, Departamento de Biologia Geral, Universidade Santa Ursula, Rua Fernando Ferrari, 75, Botafogo, 22231-040, Rio de Janeiro, RJ, Brasil, phone +55 21 551 5542 Ext. 151, email maurobio@ax.apc.org. German versions of INTKEY (INTKEYD and INTKEYDD) are now available. In INTKEYDD, the commands and options have been translated; therefore, input files such as INTKEY.INI must be translated before use with this version. The translation was done by H. G. Richter, Institut fu"r Holzbiologie und Holzschutz, Leuschnerstrasse 91, 2050 Hamburg 80, Germany, phone +49 40 739 62 0, fax +49 40 739 62 480. email hrichter@aixh0401.holz.uni-hamburg.de.

17 November 1993. An Indonesian vocabulary file for CONFOR (VOCABI), was supplied by J. Jarvie, Herbarium Bogoriense, Jalan Juanda 22, Bogor 16122, Indonesia, phone +62 251 33 6538, fax +62 251 32 5854, email 0006486174@mcimail.com.

23 July 1993. A version of ENTITEM with German ‘help’ is now available, invoked by ENTITEMD. The translation was done by H. G. Richter (address below).

19 April 1993. A French version of INTKEY is now available, invoked by INTKEYF. The INTKEY commands themselves have not been translated, so that command-input files, particularly INTKEY.INI files, can usually be run without translation. The commands could be translated if required. The translation was done by Pierre-Andre’ Loizeau, Conservatoire et Jardin botaniques de la Ville de Gene`ve C.P. 60, CH-1292 Chambe’sy/Gene`ve, Suisse, phone +41 22 732 6969, fax +41 22 738 4597, email loizeau@cjb.unige.ch.

Batch programs

New

20 October 2016. findprog.bat (find location a program on the path). jrepl.bat (regular expression search and replace). listpath.bat (lists contents of the ‘path’ or other environment variable). sample.bat (copies files from the DELTA sample data to the current folder; replaces sample.exe). to.bat (changes the default folder and drive; replaces to.com). tsv2del.bat (converts a file of tab-separated values (which may be produced from Excel) to a DELTA items file). uz.bat and uzip.bat (unpack a zipfile). zipdir.bat (zip files from the current folder).

Modified

20 October 2016. All batch programs now have a ‘help’ option (‘/?’). omitimplicit.bat, sortnames.bat, and zipdir.bat have been converted to run in 64-bit Windows.

Confor

Version 2.24e (32-bit), 9 March 2016. Ported from the 16-bit version.

Version 2.24e (16-bit), 1 July 2001. Various bugs were fixed. Maintenance of the 16-bit version has ceased.

Version 2.25, 20 December 2000. Various bugs were fixed.

Version 2.24, 16 August 2000. A new directive, NONAUTOMATIC CONTROLLING CHARACTERS, specifies controlling characters that must be explicitly used before their dependent characters in Intkey. A new directive, SUBJECT FOR OUTPUT FILES, automatically generates links to taxon descriptions

for use in Intkey. An additional markup number was added to the TYPESETTING MARKS directive, to allow different markup before the first and subsequent taxon names in a file. Various bugs were fixed.

Version 2.23, 10 November 1999. A new directive, TAXON LINKS, specifies links between taxa and files for the new INFORMATION option of Intkey. Information from the directives ITEM SUBHEADINGS, OMIT PERIOD FOR CHARACTERS, and NEW PARAGRAPHS AT CHARACTERS is now used by TRANSLATE INTO INTKEY FORMAT.

Version 2.22, 25 June 1999. Optional-hyphen, non-breaking-space, and Unicode characters are now supported. The contents of a PRINT COMMENT directive are no longer translated when HTML output is specified (i.e. any typesetting marks in the comment should be in HTML, not RTF). A new directive INSERT UNCODED ATTRIBUTES causes all missing attributes and values (implicit, inapplicable, unknown, and variant) to be explicitly inserted in the output produced by TRANSLATE INTO DELTA FORMAT. Minor bugs were corrected.

Version 2.21, 20 April 1999. The program now requires data files to use ANSI/RTF codes rather than ECS/TYPSET codes. Data files that contain either accented characters (e.g. e-acute) or TYPSET marks (e.g. italics: [I]...[‘I]) must be converted by means of the program TPS2RTF (e.g. ‘TPS2RTF ITEMS’) before use with this version of CONFOR.

The following directives have been added.

CHARACTER FOR OUTPUT FILES - specifies a character containing the names of output files for natural-language descriptions. CHARACTER FOR TAXON IMAGES - specifies a dummy character into which image links are placed in HTML descriptions. IMAGE DIRECTORY - specifies a directory name which is placed before image file names in HTML descriptions. INDEX HEADINGS - specifies headings to be used in the HTML index file. INDEX OUTPUT FILE - specifies the name of an HTML index file, into which links to the HTML descriptions are placed. INDEX TEXT - specifies text to be placed in the HTML index file. INSERT IMAGE FILE NAME - causes the image file name to be included in the output generated by CHARACTER FOR TAXON IMAGES. ITEM HEADINGS - specifies headings to be used in description files. ITEM OUTPUT FILES - specifies the names of files to be used for output of natural-language descriptions. OUTPUT DIRECTORY - specifies a default directory for output files. OUTPUT FORMAT HTML - causes RTF control words to be converted into equivalent HTML tags. OVERLAY FONTS - specifies fonts for Intkey overlays. TRANSLATE IMPLICIT VALUES - causes output of a natural-language description containing the attributes specified in the IMPLICIT VALUES directive. USE CONTROLLING CHARACTER FIRST - specifies dependent characters whose controlling characters must be explicitly used before the dependent character in Intkey.

The OMIT OR FOR CHARACTERS directive now applies to the descriptions displayed by Intkey. The information passed to Intkey about inapplicable characters was improved, enabling correct counting of inapplicable vs. unrecorded in the Intkey SUMMARY command. In Nexus-format output, ‘inapplicable’ is now represented by ‘-’. Various bugs were fixed.

Version 2.20, 18 December 1997. The new directive CHARACTER FOR TAXON NAMES allows the user to specify an alternative taxon name with some translation options; this allows the use of abbreviated names for programs that have restrictions on name length. Corrections relating to inapplicable characters were made to the SUMMARY output. Several other bugs were fixed.

Version 2.19, 25 March 1997. The VOCABULARY directive now passes the word for ‘or’ to the INTKEY data files. TYPESETTING MARKS are now output without insertion of blanks when PRINT WIDTH is 0. The ‘progress report’ during program execution now does not require ANSI.SYS.

Version 2.18, 21 November 1996. New directives CHARACTERS FOR SYNONYMY (used by FIND TAXA in INTKEY4) and OUTPUT FORMAT HTML were added. Various bugs were fixed and error messages improved.

Version 2.17, 24 September 1996. Various bugs were fixed and error messages improved. New directives STARTUP IMAGES, CHARACTER KEYWORD IMAGES, and TAXON KEYWORD IMAGES were added. Checking of character dependencies was improved. The OMIT INNER COMMENTS directive is now applied also to text attributes and the character list when translating into

INTKEY FORMAT, and to output of PRINT CHARACTERS. Changes were made to natural language output required to avoid outputting unnecessary punctuation and paragraph breaks when state text is empty. Directives for INTKEY dataset registration were added (REGISTRATION HEADING, REGISTRATION SUBHEADING, and REGISTRATION VALIDATION). A bug which prevented CONFORQW running under Windows 95 was fixed. In natural-language output, a new paragraph mark is now not placed at the start of the description (character 1) unless explicitly specified. Handling of dates of 2000 and above (Y2K compliance) was fixed in CONFOR and all other programs.

Version 2.16, 20 December 1995. Several bugs were fixed. Some error messages were improved. Blank comments are now omitted from natural-language output (instead of a space being inserted). Some unwanted blanks were omitted from Chinese-format output.

Version 2.15, 25 July 1995. Several bugs were fixed. A directive OMIT SPACE BEFORE UNITS was implemented.

Version 2.14, 27 April 1995. Several minor bugs were fixed. A bug occasionally causing wrong values of integer characters to be placed in INTKEY files was fixed. A bug in omitting the feature description in natural-language output of linked characters was fixed. A warning message is now output if the number of characters is greater than 20 and no dependent characters have been specified. The TAXON IMAGES directive was added (as an alternative to CHARACTER FOR TAXON IMAGES). The directives ADD CHARACTERS and EMPHASIZE CHARACTERS now accept either taxon names or taxon numbers in their input. Repeated use of these directives is cumulative. The directive DISABLE DELTA OUTPUT was added; it prevents the use of OUTPUT DESCRIBE and OUTPUT SUMMARY in INTKEY. The listing of the contents of CHARACTER IMAGES and CHARACTER NOTES is now controlled by the LIST CHARACTERS directive. The listing of the content of TAXON IMAGES is now controlled by the LIST ITEMS directive. OMIT INNER COMMENTS now removes nested comments from text characters and comments associated with a character number. File names generated by the NEW FILES AT ITEM directive now incorporate 3 digits (previously 2) to distinguish output file names. The following contexts were added to the TYPESETTING MARKS directive: before a non-comment section in an item name; after a non-comment section in an item name; after each item (natural language); at the start of each file (natural language); at the end of each file (natural language). Word wrapping is now carried out on strings from the TYPSETTING MARKS if they start with blank.

Version 2.13, 14 June 1994. The program now places the information about character images in the ICHARS file. (This change was accidentally included in the previous release, with the result that INTKEY could not access the character images in newly created files.) A bug sometimes causing incorrect translation of attributes of 1-state characters was fixed.

Version 2.12, 16 May 1994. Error messages relating to file-open failures were improved. The error message when type-1 directives are not read was improved. A bug associated output of real numeric and text characters in INTKEY format was fixed (it could occur when the MAXIMUM NUMBER OF ITEMS was greater than 1024). The OMIT LOWER FOR CHARACTERS directive now works as documented, that is, it does not add the word ‘to’ before the upper values (if required, this word must be in the character list).

Version 2.11, 15 December 1993. Bugs in the operation of the PAGE LENGTH directive were fixed.

Version 2.10, 24 September 1993. The methods of translating ordered multistate and numeric characters into DIST, PAUP, HENNIG and NEXUS formats were changed (see User’s Guide). The main change is that means are calculated after the application of KEY STATES, rather than before (so that KEY STATES can be used more effectively to remove skewness of distributions). A new directive, USE MEAN VALUES, can be used to modify the calculations for PAUP, HENNIG, and NEXUS formats. A bug which caused STOP AFTER ITEM to produce an empty output file with TRANSLATE INTO HENNIG FORMAT was fixed.

Version 2.09, 26 July 1993. Syntax checking of extreme values (in numeric attributes) was improved. An input tab character is now converted to a single blank. Bugs were fixed in OMIT COMMENTS and PRINT CHARACTERS (for translation into KEY format). An out-of-order directive now causes immediate termination.

Version 2.08, 28 May 1993. A bug in the handling of key states for unordered multistate characters was fixed. Error messages for the KEY STATES directive were improved.

Version 2.07, 21 April 1993. Character ranges were implemented in the CHARACTER NOTES and CHARACTER IMAGES directives. The effect of the REPLACE SEMICOLON BY COMMA directive was modified to omit the comma before ‘or’. The FORMATTING MARKS directive was extended to allow different formatting of character notes in three contexts, and the default formatting of character notes was changed. An option for NEXUS FORMAT was added to the TRANSLATE INTO directive. A directive NUMBER STATES FROM ZERO was added. Several error messages were improved. Various bugs were fixed.

Version 2.06, 16 December 1992. The KEY STATES directive was implemented for TRANSLATE INTO DIST FORMAT. TRANSLATE INTO HENNIG FORMAT was modified to remove non-alphanumeric characters from item names. CHINESE FORMAT was modified to ensure that punctuation marks are not placed at the beginnings of lines.

Version 2.05, 12 October 1992. Directives CHINESE FORMAT, ALTERNATE COMMA, and OMIT FINAL COMMA were added. Punctuation marks were added to the VOCABULARY directive. The syntax of the ADD/EMPHASIZE CHARACTERS directives was changed to require a full stop after the taxon number. The directive REPLACE POINT BY COMMA was removed (decimal point is now definable in the VOCABULARY directive). A spurious error message in processing of KEY STATES was fixed. A mechanism to prevent capitalization of initial letters was added (precede letter by vertical bar ‘|’). Checks for control characters in input files were removed. A mechanism to allow unlimited line length in print files was added (PRINT WIDTH 0). Variables #TIME and #DATE were implemented in the HEADING directive to control the insertion of the time and date.

Version 2.04, 16 April 1992. Directives ABSOLUTE ERROR, OMIT COMMENTS, OMIT INNER COMMENTS, OMIT LOWER FOR CHARACTERS, and PERCENTAGE ERROR were added. An error in translating into INTKEY format when there are no text characters was fixed. The numbering of states for HENNIG86 format was corrected. The method by which LINK CHARACTERS omits words from descriptions was changed. Error messages were improved. Formatting of character notes was improved. Nested attribute comments were implemented. A display of the progress during a run was added. The efficiency of checking character dependencies was improved.

Version 2.03, 25 August 1991. An option for translating into HENNIG86 format was added. Directives CHARACTER IMAGES and CHARACTER FOR TAXON IMAGES were added.

Version 2.02, 1 August 1991. An error in translating attributes of the form c,-<comment> into natural language was fixed.

Version 2.01, July 1991. Storage efficiency for CHARACTER NOTES was improved. Bugs in the handling of negative values in extreme ranges were fixed.

Version 2.00, June 1991. The following directives were removed: INSERT TYPESETTING MARKS, TYPESETTING MARKS FOR CHARACTERS, TYPESETTING MARKS FOR NOTES, TYPESETTING TABS FOR CHARACTERS (these functions are now carried out by the TYPESETTING MARKS directive); NEW CHARACTER ORDER, NEW STATE ORDER (these functions were transferred to the new program DELFOR). The following directives were added: FORMATTING MARKS, INPUT DELTA FILE, OMIT PERIOD FOR CHARACTERS, PAGE LENGTH, REPLACE POINT BY COMMA, TYPESETTING MARKS. The ITALICIZE CHARACTERS and ITALICIZE FEATURES directives were changed to EMPHASIZE CHARACTERS and EMPHASIZE FEATURES, but are otherwise unchanged. The syntax of the VOCABULARY directive was changed to allow a delimiter symbol to be specified. The INTKEY data format was changed to Version 5 (see below).

Delfor

Version 2.15, 3 August 2000. An error message was improved.

Version 2.14, 12 April 1999. The reformatted output file is written to the same directory as the input file.

Version 2.13, 29 July 97. ‘<‘ and ‘>‘ are not treated as comment delimiters if preceded by ‘|’. A warning is given when processing a CHARACTER IMAGES directive containing characters whose states have been reordered (DELFOR does not reorder these states).

Version 2.12, 25 March 1997. A bug associated with very long file names was fixed.

Version 2.11, 5 September 1996. Various bugs were fixed and error detection improved. The maximum number of files that can be reformatted in one run was increased. A bug which prevented DELFORQW running under Windows 95 was fixed.

Version 2.10, 13 March 1995. The handling of the ADD CHARACTERS and EMPHASIZE CHARACTERS directives was changed to conform to the CONFOR changes.

Version 2.09, 25 March 1994. A bug associated with recognizing directives starting with the same words was fixed.

Version 2.08, 9 September 1993. An input tab character is now converted to a single blank. Error messages for the character list were improved.

Version 2.07, 15 July 1993. A check was added to ensure that files processed by REFORMAT start with a star.

Version 2.06, 21 April 1993. The handling of CHARACTER NOTES/IMAGES was changed to conform to the CONFOR changes. The directive NEW LINE FOR ATTRIBUTES was added, to output each attribute of an item on a new line (to facilitate file comparisons). ERRORLEVEL is now set on abnormal termination. The maximum number of files which can be reformatted was increased to 100.

Version 2.05, 4 February 1993. The directive CHINESE FORMAT was added. Checks for control characters in input files were removed. The program now processes the different forms of the INTKEY SET commands without warning messages. A bug causing failure to handle nested comments at the start of a line was fixed.

Version 2.04, 12 October 1992. The program now handles the new format of ADD/EMPHASIZE CHARACTERS. An error in processing INTKEY DEFINE directive was fixed.

Version 2.03, 18 March 1992. Nested attribute comments were implemented. Errors in processing KEY STATES and SORT STATES were fixed.

Version 2.02, 2 August 1991. A error in opening scratch files was fixed.

Version 2.01, July 1991. Storage efficiency for CHARACTER NOTES was improved. Bugs in the handling of negative values in extreme ranges were fixed.

Version 2.00, June 1991. The program name was changed from NEWORDER to DELFOR. Reordering of characters was added (these functions were formerly carried out by CONFOR).

DELTA Editor

Version 1.04, 20 December 2000. Various bugs were fixed.

Version 1.03, 1 September 2000. Editing of character and taxon image overlays (previously handled by Intimate) was added. Enhancements include improved handling of stacking order of overlays, support for multiple simultaneous views of an image during editing, and support for RTF (however, the latter is not yet implemented in Intkey). Templates for the most commonly used ‘action sets’ are now included when a new data set is started.

Version 1.02, 27 October 1999. "Complex" attributes are shown with a grey background in the grid view. The variant-item flag (‘+’) is preserved on import and export. Rich edit controls are used for image overlays. Sounds associated with images can be played. There were general improvements in the handling of images. Various bugs were fixed.

Version 1.01, 21 June 1999. Shortcut keys are now available for entering special symbols and international characters. Greek characters, en dash, and em dash are now saved correctly. A filter mechanism removes specified files from the list of potentially importable files (removed files default to

.bak;.box;tidy*.;reorder*). Items can be copied (or moved) by dragging with the right mouse button. Problems with rich edit controls were corrected (formatting was sometimes not ‘closed’ properly, and spurious \fs20{} instructions were sometimes inserted). A bug in the exporting of the SET IMAGEPATH directive was corrected. The behaviour of the ‘Enter’ key in the state-description editor was made more consistent with other controls. A problem with ‘hidden’ file name extensions was fixed. Various other bugs were fixed.

Version 1.00, 5 May 1999. First release.

Dist

Version 2.05 (32-bit), 25 April 2014. Ported from the 16-bit version. Maintenance of the 16-bit version has ceased.

Version 2.05, 9 September 1996. A bug which prevented DISTQW running under Windows 95 was fixed.

Version 2.04, 8 March 1994. The error message on failure to open a scratch file was improved.

Version 2.03, 13 December 1993. A bug which sometimes caused the program to try to read past the end of the directives file was fixed.

Version 2.02, 17 November 1993. A directive PHYLIP FORMAT was added.

Version 2.01, 19 June 1992. A bug affecting the listing output was fixed.

Version 2.00, 11 June 1991.

Intimate

Version 1.10t. 30 July 2001. Various bugs were fixed.

Version 1.10, 10 August 2000. Handling of angle brackets was made more consistent with Intkey. Various bugs were fixed.

Version 1.09, 2 November 1999. An Intkey initialization file can now be specified as a command line parameter. Various bugs were fixed.

Version 1.08, 8 April 1999. The data coding was changed from ECS/TYPSET to ANSI/RTF. Fonts for display of overlays can be selected. ‘Pop-up’ hotspots and oval hotspots were implemented.

Version 1.06, 23 December 1997. Overlays for ‘Feature + All states’ can be added for numeric characters; this adds an ‘enter’ box, and units where applicable. Image notes can be added to taxon images. File names and comments are no longer included in the window title bar. Windows are centred on the screen when first created. Text in state boxes is ‘greyed’ for states lacking hotspots. Arbitrary screen dimensions can be emulated. Several bugs were fixed.

Version 1.05, 27 March 1997. Support for MIDI sound playback was added. Taxon names starting with ‘*’ are now output without a leading space, to prevent them being treated as directives. The configuration is now saved in the registry rather than the .INI file if running Windows NT. The handling of full-screen mode was modified to allow for possible presence of a Windows 95 taskbar. A command-line option -g=filename was added, for specification of the index file.

Version 1.04, 20 November 1996. Support for AVI video was added. Entry into full-screen mode from a maximized window is now possible. The program now allows for the possible presence of a Windows 95 taskbar when sizing windows. A preview box is now provided within the overlay-modification dialog box. Multiple spaces in text overlays are now collapsed to a single space in all circumstances. Various bugs were fixed.

Version 1.03, 25 September 1996. Various bugs were fixed and error messages improved. Support was added for STARTUP IMAGES, CHARACTER KEYWORD IMAGES, and TAXON KEYWORD IMAGES directives. Additional text is now allowed with item-name overlays. Adding of ‘Feature and All States’ is now allowed whenever any component is missing, rather than only when all are missing. Extended ASCII is now allowed in ‘Subject’ entries. Some TYPSET instructions (p,n,X) are now

implemented in text boxes, and the others are ignored. Supression of ‘description text’ in ITEM boxes is now possible. Characters which were excluded when TOINT was run are now handled correctly. Notes and character states are now displayed in a proper window instead of a message box. A background colour of black is now used in full screen mode. Fetching of images specified as URL’s was implemented via Netscape V2 or later.

Version 1.02, 3 January 1996. Various minor bugs were fixed. Messages and menus were improved. The method of scaling overlay boxes during editing was changed. The positioning of overlay boxes in a scaled image was improved. Editing is now disabled if there are errors reading the TAXON/CHARACTER IMAGES directives. The effects of the order of overlays were made consistent.

Version 1.01, 25 July 1995. Various minor bugs were fixed. Comments (in addition to those specifying overlays) can be read and saved. Buttons can be aligned and moved as a block. There is provision for editing the index file INTKEY.IND (this facility will also be added to INTKEY4 in a future release).

Version 1.00, 5 May 1995. INTIMATE (INTkey IMage AnnoTation Editor) is a MS-Windows program for preparing text overlays for character and taxon images to be used by INTKEY4. It edits files containing the CONFOR directives CHARACTER IMAGES and TAXON IMAGES. It is described in the Windows Write file INTIMATE.WRI.

Intkey5

Version 5.12t. 25 February 2002. Various bug fixes and minor enhancements.

Version 5.11, 21 December 2000. A ‘Multiple Images’ button was added to the ‘Information’ dialog, giving access to facilities previously only available from the ‘Control’ menu of image windows. A ‘Web Search’ button was added to the ‘Information’ dialog. This can be used to search for the selected taxon using a nominated general-purpose search engine (e.g. Google) or taxonomic database (e.g. ITIS). The default for scaling of taxon images can now be set from the initialization file. The default does not apply to character images, which are always scaled when first displayed. State overlays in character images are no longer greyed if they do not have associated hotspots. Log files are saved in RTF format if the specified file type is .rtf, and otherwise as plain text. A file specified in a FILE OUTPUT command contains only output generated by OUTPUT commands. The commands OUTPUT ON|OFF and DISPLAY OUTPUT ON|OFF have been removed. Various bugs were fixed.

Version 5.10, 5 September 2000. There is a new user interface, in which the main window is divided into 4 panes: ‘Best Characters’, ‘Used Characters’, ‘Remaining Taxa’, and ‘Eliminated Taxa’. These panes contain built-in toolbars, which carry out most of the operations previously done via the main (user-defined) toolbar. Character selection for use in identification is done by clicking on the character in the ‘Best Characters’ pane (for the initial use) or in the ‘Used Characters’ pane (for changing values or deleting the character). In either case, a window for selecting state values or entering numeric values is displayed; images are displayed automatically if available. A taxon or a set of taxa can be selected in the ‘Remaining Taxa’ and ‘Eliminated Taxa’ windows, and these taxa can be used for subsequent operations. In particular, the ‘Information’ and ‘Differences’ buttons, in the built-in toolbar, operate on the selected taxa. There is a corresponding taxon keyword, ‘selected’, for use in Advanced mode. The new version is compatible with old Intkey data files - they do not have to be regenerated from the DELTA files. However, most of the main- toolbar buttons in old data sets will be redundant, and can be deleted from the ‘toolbar.inp’ file. In the sample data, only the ‘Introduction’ button is still used. The ‘Identification’ menu was removed - the functions of its commands are now in the built-in toolbars. However, the BEST, USE, DELETE, and CHANGE commands are still available from the command line. A new command DISPLAY CHARACTERORDER allows setting the order of the characters in the main ‘characters’ pane. Redundant keywords were removed from all keyword-selection dialogs (e.g. ‘used’ when no characters have been used). The keywords ‘remaining’, ‘eliminated’, ‘available’, ‘used’, and ‘selected’ are displayed only in Advanced mode. By default, if automatic use of a controlling character would result in more than one state being set, the user is prompted to specify the states of the controlling character. However, if NONAUTOMATIC CONTROLLING CHARACTERS or USE CONTROLLING CHARACTER FIRST was specified when the Intkey data files were created, the default behaviour is completely overridden by the behaviour specified in those directives. Various bugs were fixed.

Version 5.09, 4 November 1999. Most output (e.g. from ‘describe’, ‘differences’) can now be put in separate windows, and RTF marks such as ‘italics’ and ‘indentation’ are interpreted. This is under the control of the command DISPLAY WINDOWING ON/OFF: ‘ON’ produces output in separate windows, and is the default; ‘OFF’ produces output in the main window (as before). The contents of these windows may be displayed, printed, or copied to the clipboard by the standard Windows mechanisms. A log of input and output is kept. It does not include output which is diplayed in separate windows. It may be viewed or hidden by means of the command DISPLAY LOG ON/OFF, and its contents may be saved, printed, or copied at any time. (The old mechanism, FILE LOG, is still available, but will be removed eventually.) An INFORMATION command has been implemented. This allows display of the following information associated with individual taxa: (1) output of other commands such as DESCRIBE, DIAGNOSE; (2) images; (3) RTF files; (4) Intkey startup/initialization files (.ink); (5) any other external files with a registered type (i.e. for which a viewer is known to Windows, e.g. HTML files, Word documents, Windows help files). Case 1 is specified by a new Intkey option: DEFINE INFORMATION. Case 2 is specified by the existing CONFOR directive TAXON IMAGES. Cases 3-5 are specified by the new CONFOR directive TAXON LINKS. Command-line switches (for use in button definitions) allow selection of information by subject, and automatic closing of the information dialog. A SET INFOPATH command allows specification of the path to be searched for ‘information’ files. The Intkey initialization file (currently intkey.ini), may now have the extensions .ink or .intkey (the same as the Internet startup file). This allows allows linking to these files in the INFORMATION command (i.e. linking taxa to subkeys), and also allows Intkey to be started by double-clicking on an initialization file in Windows Explorer. The CONFOR directives ITEMS SUBHEADINGS, NEW PARAGRAPHS AT CHARACTERS, OMIT PERIOD FOR CHARACTERS are now used by TRANSLATE INTO INTKEY FORMAT, and the information contained in them is used by Intkey to format descriptions; if NEW PARAGRAPHS AT CHARACTERS is used, there must be an item subheading for character 1, to establish the paragraph formatting attributes. When DISPLAY NUMBERING is ON, descriptions are displayed with features and states on the same line (as for DISPLAY NUMBERING OFF). A new switch, /t=n, for DEFINE ENDIDENTIFY, allows tiling of the windows generated by the command. (However, it is usually preferable to use the new INFORMATION command with ENDIDENTIFY; tiling is then automatic.) A new option DISPLAY ENDIDENTIFY ON|OFF determines whether the ENDIDENTIFY commands are executed. The default is ON in Normal mode, and OFF in Advanced mode. Taxon images are no longer automatically displayed at the end of an identification. The speed of the ‘best’ calculation has been improved. An empty SHOW command in a button command string now generates a blank line. The main window is cleared at NEWDATASET and RESTART. When USEing a text character, a single blank now matches any recorded values (this can be used to find which taxa are recorded for the character). The command line parameter ?L1 can be used to indicate that a selection dialog should not be displayed if there is only one entry for selection. The FILE DISPLAY command will search the system path if the requested file is not found in the data directory. Various bugs were fixed.

Version 5.08, 24 June 1999. The positioning of the character-notes window and of the image window relative to the character-notes window were improved. Left and right quotes are now replaced by ordinary quotes, and em and en dashes by hyphens. (The proper characters are not available in some fonts. A better solution will be provided later.) The ‘Also setting -’ message for controlling characters was removed. The name of the default ‘help’ file is now INTKEN.HIN (all files INTK*.HLP are obsolete, and can be deleted). Optional-hyphen and Unicode characters are now supported. The positioning of the character-notes window was improved. A bug which caused numeric characters to be omitted from OUTPUT SUMMARY was fixed.

Version 5.07, 5 May 1999. Data and help files must now use ANSI/RTF (rather than ECS/Typset). ‘Pop-up’ hotspots and elliptical hotspots were implemented. When using a character for identification, a state must be selected; if not, ‘OK’ has the same effect as ‘Cancel’. In the CHANGE command, if no state is selected the character is DELETEd. Characters with reliability 0 are no longer used for BEST, SEPARATE, and DIAGNOSE. A specific keyword image may now be requested by a toolbar button (rather than the first). INCLUDE/EXCLUDE taxa no longer forces a RESTART (the USEd characters are re-applied to the new set of taxa). The switch /I in FIND TAXA causes the found taxa to be INCLUDEd. The author may force controlling characters to be used before dependent characters (see USE CONTROLLING CHARACTER FIRST in CONFOR). Fonts may now be specified (in Intimate)

for image overlays. Options were added to DISPLAY IMAGES to output lists of missing images, character images, and taxon images. Excluded controlling characters may now be used if required. In Normal mode, the hints for the toolbar buttons are automatically displayed at the start of each new data set. In Demonstration mode, they are displayed when the program is inactive, as indicated by the screen-saver timeout. DISPLAY INAPPLICABLES ON/OFF now also controls the display of "(when applicable)" in the output of DESCRIBE. The OMIT OR FOR CHARACTERS settings are passed from CONFOR and used in the output of DESCRIBE. NEWDATASET no longer cancels DISPLAY NUMBERING ON. The default location of the DELTA Registration File and the Intkey Index File is now the application's directory. The image-window menus were simplified. When using the ILLUSTRATE command, characters/taxa for which there are no images are greyed. Information can be copied from various windows to the clipboard. A switch /t was added to RESTART to set tolerance to 0. If there is a file intkey_.ind in the application directory, the program immediately opens the dataset specified by a filename contained in that file. A 'Search" button was added to the state-selection dialog. Text characters may now be preset in DIAGNOSE (thus forcing their display). The image-window Subject menus may now be of unlimited length. The 'feature' description is now included in SUMMARY output. The 'About' dialog now has links to the DELTA email address and Web page. The Subject and Control menus are omitted from image windows when not required for navigation. Character notes are no longer output by the CHARACTERS command. Taxon-image sounds are played automatically only once during a given identification. The 'Scaled' menu item was added to images windows in Normal mode. Various bugs were fixed. File associations are now used by the FILE DISPLAY commands to view any file for which there is an associated viewer.

(Version numbers 5.01–5.06 omitted, to coordinate version numbers with Intkey4.)

Version 5.00, 8 January 1998. For Windows 95/NT and later. Based on INTKEY4 Version 4.06, plus the following. Data and images can be accessed over the Internet. The startup file for Internet access has the type (extension) .ink or .intkey. It specifies the names of various files and directories (see DELTA User's Guide for details). The URL of the startup file can be specified in Intkey's data-sets index, or as a link in a WWW page. In the latter case, Intkey starts automatically as a helper application in Netscape Navigator or Internet Explorer. Data files accessed over the Internet can optionally be saved on the local computer. The data-sets index file can be edited (Edit Index in the File menu).

Key

Version 2.12 (32-bit), 26 April 2014. Ported from the 16-bit version. Maintenance of the 16-bit version has ceased.

Version 2.12, 21 April 1999. Keys can now be output in RTF and HTML formats. The following directives were added: INPUT FILE; OUTPUT DIRECTORY; OUTPUT FORMAT HTML; PRINT COMMENT; TYPESETTING MARKS. The following directives were removed: OMIT TYPESETTING MARKS; INSERT TYPESETTING MARKS.

Version 2.11, 18 December 1997. A limit of 256 characters on taxon names is enforced.

Version 2.10, 2 April 1997. A bug causing DUMP output to be directed to the screen instead of to the listing file was fixed. A bug allowing characters with more than 20 states to be included was fixed.

Version 2.09, 5 September 1996. A bug which caused PRESET CHARACTERS to fail was fixed. A bug which prevented KEYQW running under Windows 95 was fixed.

Version 2.08, 11 April 1995. The directive TREAT CHARACTERS AS VARIABLE was added. Its effect is to change the values of specified attributes to 'variable'. A new sample directives file, KEY6, illustrates its use.

Version 2.07, 24 January 1994. Spurious warning messages associated with the ITEM ABUNDANCES directive were fixed.

Version 2.06, 17 December 1993. A warning is now given if characters are repeated in a CHARACTER RELIABILITIES directive.

Version 2.05, 3 November 1993. Now works correctly when KEY.EXE is on a Novell network drive.

Version 2.04, 21 April 1993. An ADD CHARACTER NUMBERS directive was implemented, to insert character numbers in bracketted keys.

Version 2.03, 1 October 1992. The PRINT WIDTH directive was modified to allow a maximum print width of 200, and to have no effect on TYPSET output. A progress report was added. Minor bugs were fixed.

Version 2.02, 18 March 1992. A bug causing blank lines to contain the NUL symbol was fixed.

Version 2.01, 19 September 1991. The following bugs were fixed. Memory allocation error causing failure to reload COMMAND.COM on exit. Error in handling of character-reliability value 0.

Version 2.00, 12 June 1991. The PAGE LENGTH directive was added. The ERROR FILE directive was removed; information previously placed in this file is now placed in the listing file.

Movenew

Version 2.00, 19 June 1991.

Nsim

Version 2.03, 4 September 1997. A bug triggered by large data sets was fixed.

Version 2.02, 8 May 1996. The date formatting was corrected to work after 1999.

Version 2.01, 23 August 1995. A bug resulting in occasional incorrect reading of taxon names was fixed.

Version 2.00, 22 January 1991.

Pclass

Version 2.01, 8 February 1994. Checking for incorrect specification of the number of OTU's was improved. Options for output of tree descriptions in Phylip, Nexus, or Hennig86 formats were added, and the default extension of the tree-description files was changed from .PCL to .TRE.

Version 2.00, 2 June 1992.

Ted

Version 2.11, 8 April 1999. A bug preventing multiple instances running in the same directory in Windows 95 was fixed.

Version 2.10, 6 November 1996. The apostrophe (') modifier was implemented for the 'equals' (=) command; it suppresses skipping if input is being read from a file specified by a 'K' command, and end-of-file has not been read. Reading from a file specified by a 'K' command can now be terminated by 'K;;', i.e. the '^' modifier is no longer required.

Version 2.09, 8 May 1996. Handling of dates for the 21st century was fixed.

Version 2.08, 3 January 1996. In the MS-DOS version, character input in full-screen mode was changed to use a DOS interrupt rather than a BIOS interrupt, for better operation under Windows.

Version 2.07, 19 July 1994. A bug where clearing boxes caused the full-screen display to be corrupted was fixed.

Version 2.06, 8 March 1994. A misleading error message given on attempting to make a file with an empty name was fixed. Box-arithmetic errors were made soft failures. Memory management was modified in the OS/2 version to allow editing of files up to about 5MB.

Version 2.05, 21 October 1993. Safety checks are now disabled during execution of commands given on the command line (fixing a problem with ENTITEM).

Version 2.04, 30 September 1993. A directory for temporary storage is now selected as the first writeable directory of the following: current directory at program start; environment variable TMP; enviroment variable TEMP; default directory of drive C: at program start. This directory holds temporary files for the

journal file, cut/paste buffer, box saves during copy, and virtual memory swap file. The name of the temporary-storage directory is available via the TDIR status word. The box-save during copy is skipped if no temporary storage is available. The C command emulates the DOS CD command if its argument ends with ':' or '\'. The complete path name of the file being edited is now stored (this ensures that m;*; always writes the correct file after a directory change); the path is available via the SPEC status word. The prompt was modified for spawned DOS sessions. A status word FREE was added to get the amount of free space on the current drive. A bug which caused the directory-make command to save the directory name as the current file name was fixed.

Version 2.03, 5 July 1993. The command-line /EX switch is now executed before the command-line /BOX switch (allowing the passing of parameters to the box program). Case conversion was implemented for the extended character set. The following bugs were fixed: creation of .BAK files for directories; incorrect entries in the journal file when using arrow keys.

Version 2.02, 23 April 1993. Status words SVER (operating-system version) and PVER (the version of TED) were added. 'R now gives a soft failure when issued at the end of a line. An apostrophe modifier for the C command was implemented to check for the existence of a file without copying it to the workspace. 'C and M were modified to work with directory names, indicated by a final \ (e.g. 'C;DOC\; M;\DELTA\TEST\;). Swapping out of conventional memory when shelling to DOS now uses the SPAWNO library, written by Ralf Brown. Handling of Ctrl/Break and DOS 'critical' errors was improved.

Version 2.01, 5 February 1993. File names are now reported in error messages. The maximum length of edited lines was increased to 256. The program is now swapped out of conventional memory when shelling to DOS (the '*' command). Failure to find a box file specified on the command line now causes exit with error status 255. Ctrl/C and Ctrl/Break now cause exit from loops. Running on a read-only disk is now possible. Various bugs were fixed.

Version 2.00, 15 October 1992. Text editor. Not yet properly documented, but see \DELTA\DOC\DELTADOC.1ST. Enhancements include: command-line arguments on program invocation (/LINE to start in line mode, /EX=command-string to execute a command strint, /BOX=filename to execute a box program); searching of path for box programs; setting error level on exit (n'Q); use of XMS if available; support for control and 8-bit ASCII characters; horizontal scrolling in full-screen mode; command-line editing and recall; environment variables accessible via status words; status words SYST (the operating system), CDIR (the default directory), BDIR (the directory from which a box program was last loaded), and DLIM (the operating system's path-name delimiter) added.

Discontinued

20 October 2016. Enquire (get user input in a batch file). Intkey launcher (for use on CDs). Intkey4 (for Windows 3.1). Plt2ps and Pltprint (convert .plt file to Postscript). To.com (replaced by to.bat). Touch (set the modification time of a file); Tps2rtf (convert from Typset format to RTF); Txplot (plot tree from Pclass output – see DELTA classification programs for an alternative).

23 April 1999. Entitem.bat (entering DELTA items). Typset (typesetting). Typset.dot and Typs2wrd.dot (Word macro programs for processing Typset files).

Entitem

Discontinued 23 April 1999.

3 November 1993. A description of some basic TED commands was added to the 'help'.

23 July 1993. A 'tidy' option was added (to check and reformat the item). The 'help' was improved.

Intkey launcher

Discontinued 20 October 2016.

Version 1.01, 9 September 1999. Allows starting Intkey with a choice of language, data set, etc. See misc\intkey.txt for details.

Version 1.00, 4 June 1999. The program INTKEY.EXE in the ‘misc’ subdirectory of the DELTA directory is intended for simpler launching of Intkey4/5 on CD-ROM’s. It permits identical starting of Intkey in Windows 3.1 and later versions, and removes the clutter of subsidiary files (help files, default toolbar, and button bitmaps) from the directory seen by the user when starting Intkey via Windows Explorer or File Manager. On the CD-ROM, INTKEY4.EXE and/or INTKEY5.EXE must be in a subdirectory ‘programs’ of the directory containing INTKEY.EXE (normally the root directory).

Intkey4 (Windows 3.1)

Discontinued 20 October 2016.

Version 4.08, 24 June 1999. Final release of Version 4. The positioning of the character-notes window and of the image window relative to the character-notes window were improved. Left and right quotes are now replaced by ordinary quotes, and em and en dashes by hyphens. (The proper characters are not available in some fonts. A better solution will be provided later.) The ‘Also setting -’ message for controlling characters was removed. The name of the default ‘help’ file is now INTKEN.HIN (all files INTK*.HLP are obsolete, and can be deleted). Optional-hyphen and Unicode characters are now supported. The positioning of the character-notes window was improved. A bug which caused numeric characters to be omitted from OUTPUT SUMMARY was fixed.

Version 4.07, 5 May 1999. Data and help files must now use ANSI/RTF (rather than ECS/Typset). ‘Pop-up’ hotspots and elliptical hotspots were implemented. When using a character for identification, a state must be selected; if not, ‘OK’ has the same effect as ‘Cancel’. In the CHANGE command, if no state is selected the character is DELETEd. Characters with reliability 0 are no longer used for BEST, SEPARATE, and DIAGNOSE. A specific keyword image may now be requested by a toolbar button (rather than the first). INCLUDE/EXCLUDE taxa no longer forces a RESTART (the USEd characters are re-applied to the new set of taxa). The switch /I in FIND TAXA causes the found taxa to be INCLUDEd. The author may force controlling characters to be used before dependent characters (see USE CONTROLLING CHARACTER FIRST in CONFOR). Fonts may now be specified (in Intimate) for image overlays. Options were added to DISPLAY IMAGES to output lists of missing images, character images, and taxon images. Excluded controlling characters may now be used if required. In Normal mode, the hints for the toolbar buttons are automatically displayed at the start of each new data set. In Demonstration mode, they are displayed when the program is inactive, as indicated by the screen-saver timeout. DISPLAY INAPPLICABLES ON/OFF now also controls the display of "(when applicable)" in the output of DESCRIBE. The OMIT OR FOR CHARACTERS settings are passed from CONFOR and used in the output of DESCRIBE. NEWDATASET no longer cancels DISPLAY NUMBERING ON. The default location of the DELTA Registration File and the Intkey Index File is now the application’s directory. The image-window menus were simplified. When using the ILLUSTRATE command, characters/taxa for which there are no images are greyed. Information can be copied from various windows to the clipboard. A switch /t was added to RESTART to set tolerance to 0. If there is a file intkey_.ind in the application directory, the program immediately opens the dataset specified by a filename contained in that file. A ‘Search" button was added to the state-selection dialog. Text characters may now be preset in DIAGNOSE (thus forcing their display). The image-window Subject menus may now be of unlimited length. The ‘feature’ description is now included in SUMMARY output. The ‘About’ dialog now has links to the DELTA email address and Web page. The Subject and Control menus are omitted from image windows when not required for navigation. Character notes are no longer output by the CHARACTERS command. Taxon-image sounds are played automatically only once during a given identification. The ‘Scaled’ menu item was added to images windows in Normal mode. Various bugs were fixed.

Version 4.06, 8 January 1998. Simplified, Automatic, and Manual operating modes have been replaced by Normal and Advanced modes. It is possible to switch between these modes without restarting the program (see File menu). The mode-selection box at program startup has been removed - the program starts in Normal mode. As Normal mode relies on the presence of a toolbar, the toolbar supplied with the program is used if no other toolbar has been defined. The Duplicate Image option in image windows has been replaced by a Multiple Images option in the Control menu of taxon image windows. This opens a dialog box with options for displaying: all images of the current taxon; the first images of the selected taxa; all images of the selected taxa; the current image and the next image of the current taxon; or the

current image and the first image of the next taxon. In addition, the images may be selected by subject. Image windows are centred on the screen when first created, and file names and comments are no longer included in the title bar. The subject-selection list box is defined by a DEFINE SUBJECTS command. The following menu items have been added to the Window menu in image windows: Cascade, Tile, Close All, About Image. Default parameter values are reset, and the toolbar cleared, when a new data set is invoked. The switch '/X' for the DIFFERENCES/SIMILARITIES commands excludes text characters from the comparison. A new 'Taxa Remaining' window retains the size and position of the previous window. Selection of multiple lines in list boxes by dragging has been improved. The name of the registration file can be specified on the command line using the switch '/r' (in case the user does not have write permission for the Windows directory). OUTPUT DIAGNOSE no longer outputs the names of unseparated taxa to the output file. Angle brackets are replaced by parentheses in most displays. The imagepath is used when searching for sound files. Paused output is terminated by the use of the menus or toolbar. Data sets are added to the index when they are closed, rather than when they are opened; the index entry defaults to the heading of the data set. New entries to the index are place in alphabetical order. Entries can be deleted from the index by using the Delete key in the 'Select Data Set' dialog box. Some messages were improved. Several bugs were fixed.

Version 4.05, 3 April 1997. The commands BEST, SEPARATE, and USE (if more than one character is used) now cause the names of the remaining taxa to be displayed continuously in a separate window when AUTOTAXA is 0 (the new default). When a single taxon remains, its name is highlighted. When more than one character is selected in the initial dialog box of the USE, CHANGE, and DELETE commands, the characters can now be selected one by one from a second dialog box. Switches /I and /Q were implemented for the RESTART command; they set program parameters for identification and queries, respectively. Switches /O, /S, /E, /U, and /I were implemented for the DIFFERENCES and SIMILARITIES commands; they override the MATCH settings, for the current command. The 'SEARCH' button in dialog boxes was modified to make multiple searches more convenient. Angle brackets are now removed from taxon names in the output of the DESCRIBE and DIAGNOSE commands. When numbering is turned off, the first letter of each attribute is now capitalized, and the word 'or' is inserted between alternative character states. Simplified mode now normally uses the minimal menu system formerly invoked by the command-line parameter /M. The restricted menu system formerly used in simplified mode is now used only if there is no toolbar, or if the Tutorial option has been selected. If the Tutorial option has been selected, the 'help' window is brought to the top when the user is prompted after a period of inactivity. A new command, DISPLAY COMMANDS ON/OFF can be used to enable or disable display of commands in the main output window; the default is OFF for simplified mode, and ON for the other modes. Invalid keywords associated with keyword images are now diagnosed, and selections cannot be made from the image. An error in SUMMARY was fixed: 'sometimes inapplicable' was being counted as both 'inapplicable' and 'recorded'. Various other bugs were fixed, and various messages were improved.

Version 4.04, 21 November 1996. The FIND TAXA command now searches, in addition to the taxon names, text attributes which have been designated by the author of the data as containing synonymy. Wrapping of the toolbar was implemented. A new option, DISPLAY NUMBERING ON/OFF, can suppress numbering in the main window; the default is OFF. The DELETE command now defaults to the last character used. Multiple startup images are now handled. Support for AVI video was added. Entry into full-screen mode from a maximized window is now possible. The program now allows for the possible presence of a Windows 95 taskbar when sizing windows. Multiple spaces in text overlays are now collapsed to a single space in all circumstances. Various bugs were fixed.

Version 4.03, 25 September 1996. Echoing of the SHOW command was supressed when issued from a button. Radio buttons 'select from all/included' were added to the character keyword dialog box. The program now searches for button bitmaps in program directory if not found in current directory. TYPSET marks may now be included in the 'translated by' text in the 'About Intkey' dialog. Text windows for help, notes, etc are now resized to fit displayed text. New switches were added to the DEFINE BUTTON command to specify in which modes the button is to de displayed ('-s' to display in simplified mode only, and '--s' to display in the non-simplified modes). The default is for the button to be displayed in all modes. In 'demonstration mode', the RESTART command now causes all windows to be closed. The DEFINE ENDIDENT option was added, to specify commands to be executed at the end

of an identification. If the non-comment text of a state is empty, comments are now output if present. A warning is now issued if a character to be used may be inapplicable because of the coding of the controlling character. Error messages for invalid command options were improved. STARTUP IMAGES, CHARACTER KEYWORD IMAGES and TAXON KEYWORD IMAGES were implemented. The dialog box which is displayed when all taxa are eliminated was simplified, and the full informative message made available via a 'help' button. New strategy for processing the image path was implemented, to allow early display of a startup image. (At program startup, and when NEWDATASET is invoked, the image path is set to '.'. When both ichars and iitems have been read, the '.' in the image path is replaced by the current working directory (i.e. the path of ichars/iitems, whichever was read last) and an attempt is made to display the startup image. If this fails, another attempt is made at the end of the .INI file.) Dialog boxes and buttons were modified to accommodate longer text strings which may occur in foreign language translations. The size of the main window (if it is not maximized and no other windows are open) can now be set via the 'Window/Tile' option. When a NEWDATASET command is issued, the toolbar and ENDIDENT commands are now cleared. A message is now issued if USEd characters are retained when the included characters are changed. In the CHANGE dialog box, the focus now defaults to the last character used. When the non-comment parts of taxon names are identical, the full name (i.e. with comments) is now stored and displayed in listboxes. When the USE command is executed from an input file, output is now suppressed. Upper-case ASCII characters are now ignored in both both character and taxon keywords (workaround for bug in b-tree software). Since it possible to USE characters outside the currently included set, USEd characters are now added to the 'included' set. Validation of registered data sets was implemented. There is no longer a default contents file: if the name of the contents file is not specified with the CONTENTS command or in the program command line, the user is prompted for the file name. The format of the contents file has been extended to allow an INTKEY command (preceded by *) to replace the path component of the record. Thus, a record in the contents file may consist of a description followed by a path, or a description followed by an INTKEY command. The command must be preceded by a '*'. The FILE DISPLAY command was implemented (it displays a TYPSET-format file in a separate window). The help window now has a maximize button. A 'Print' facility was added to FILE DISPLAY and 'help' windows. A list box capable of displaying a large number of items was implemented (the standard Windows listbox is limited to about 6000 items). SET AUTOBEST n was replaced by SET AUTOBEST ON|OFF. A 'no menu' version of simplified mode was implemented (specified by '-m' on Windows command line). An option '-i' was added to the Windows command line to suppress startup images. A background colour of black is now used in full screen mode. Fetching of images specified as URL's was implemented via Netscape V2 or later (usually specified by using a URL in the IMAGEPATH, e.g. SET IMAGEPATH http://www.keil.ukans.edu/delta/arcticg/images). Information about Windows command-line options are now available in the online general help under 'Installation', instead of in the DELTA User's Guide. Various bugs were fixed.

Version 4.02, 5 January 1996. Several bugs were fixed. Unwanted TYPSET marks are now removed in all contexts. INTKEY3 commands in input files are now ignored (instead of being diagnosed as unrecognized). When text characters are USEd, the settings of MATCH UNKNOWN and MATCH INAPPLICABLE are ignored, and substrings separated by '/' can be used (see online help for details). A new SET parameter, DIAGLEVEL, replaces TOLERANCE+1 for use with the DIAGNOSE command, and the name of the SET parameter DIAGNOSE has been changed to DIAGTYPE. A preferences file, and non-default names for other files, can now be specified when the program is installed (see Section 7.2 of DELTA User's Guide). Output files are now formatted to a width of 80 characters (regardless of the width of the window when they were created). A means for the user to exit from an input file has been provided. The operation mode initially selected by the user (simplified, automatic, manual) is now reset at the start of each new data set; the order of setting parameters is: initialization file, operation mode, preferences file. In the calculating of the separating power in the BEST command, attributes which are sometimes (but not always) inapplicable are now treated as though they were always applicable; that is, '/-' in an attribute is ignored, whether it is coded explicitly or is implicit because of a character dependency. Controlling characters with a separating power of 0 are now not displayed in the BEST dialog box. Demonstration mode (SET DEMONSTRATION ON) was implemented. When setting parameter values, the current value is now displayed as the default in the edit box. 'Focus boxes' were added at the left of some listboxes to make it easier to move the focus via the mouse. A toolbar with

user-defined buttons (DEFINE BUTTON) was implemented. In commands requiring a set of taxa and/or characters as a parameter (e.g. DESCRIBE), a special parameter '?' was implemented for use in input files and button definitions. This parameter causes an appropriate dialog box to be displayed, so that the user can make a selection; see online help for DEFINE command for details. The switch '/U' in the DEFINE BUTTON command disables the button if there are no USED characters. The switch '/C', and a corresponding check box in character-keyword selection dialog boxes, causes characters to be selected from all the characters, rather than from the currently INCLUDEd characters.

Version 4.01, 7 July 1995. Various minor bugs were fixed. A 'ReExecute' menu was added to allow editing and re-execution of previous commands. In OUTPUT DESCRIBE, output of the word 'Specimen' is suppressed if the preceding command is OUTPUT COMMENT. The way USE and BEST commands are represented in the log was improved. The number of taxa included, and an indication whether taxa have been excluded, were added to the message produced by RESTART. When DISPLAY IMAGES AUTO is ON, a taxon image is not displayed until all specified characters have been USEd. USE now works with text characters. Bugs in OUTPUT DESCRIBE were fixed. The titles of dialog boxes associated with USE-type commands were improved. Various error/information messages were added or improved.

Version 4.00, 5 May 1995. This is a version of INTKEY for MS-Windows. It uses the same data files as INTKEY3, and the command languages are compatible. New features include: a completely new user interface; 'simplified', 'automatic', and 'manual' modes of operation; provision for overlaying text on images; selection of character states from images screens; access to character notes from image screens; the ability to view images of any size and number of colours on any display; scaling and scrolling of images; the ability to have several images on screen at the same time; handling of JPEG (as well as GIF) images; the ability to load new data sets without terminating the program; selection of input files from subject-oriented lists (rather than only by file name).

Plt2ps

Discontinued 20 October 2016.

Version 2.01, 4 January 1996. Minor improvements.

Version 2.00, 2 July 1993.

Sample.exe

Discontinued 20 October 2016. Replaced by sample.bat.

Version 2.03, 9 July 1996. Add error checking to detect cases such as disk full.

Version 2.02, 21 September 1993. Now works correctly when DELTA files are on a Novell network drive.

Version 2.01, 9 October 1991. Documentation files are now named .DOC.

Version 2.00, 19 June 1991. Self-contained program (not using .BAT file).

Txplot

Discontinued 20 October 2016.

Version 2.01, 17 December 1993. Internal changes for SunOS compatibility.

Version 2.00, 5 July 1993.

To.com

Discontinued 20 October 2016. Replaced by to.bat.

21 December 1992. TO.COM, which replaces TO.BAT, is an enhancement of the MS-DOS CD command. The line SET CDPATH=.;..;\ should be added to AUTOEXEC.BAT (see TO.DOC for more

information). TO is a renamed version of MYCD, by J. Martin Borden (att!granjon!marty or marty%garage.att.com).

Typset

Discontinued 23 April 1999.

Version 2.06, 9 September 1996. Now uses coprocessor if present. [I] and [B] commands can now be cancelled by ['I] and ['B], respectively.

Version 2.05, 7 December 1995. A bug in the HP Laserjet driver, involving incorrect positioning of text on pages without page numbers, was fixed.

Version 2.04, 14 December 1993. Postscript output lines are now broken only between words (avoiding a problem in transferring files between MS-DOS and Unix). A bug affecting the position of columns on rotated pages was fixed.

Version 2.03, 21 July 1993. The maximum length of input lines was increased to 256 characters. ‘Allowed values’ are no longer applied when tabs are set (this avoids double rounding). The positioning of Roman page numbers was corrected. Automatic paper-tray selection and /A3, /MANUAL, and /TRAY options were added for Postscript printers. (If the automatic tray selection is wrong, the /TRAY option can be used to override it.)

Version 2.02, 14 April 1993. The default values in some of the font files were changed. A program TPAGE is now available to set up the font files for Letter paper. Bugs in the /FROM and /TO options were corrected.

Version 2.01, 5 February 1993. A driver was added for the HP Deskjet 500. Use of 8-bit ASCII characters was implemented. The following command-line options were added: /PRINT to send output directly to the printer; /FROM and /TO to restrict printing to a range of pages; /? to display the list of options.

Version 2.00, 15 October 1992. Typesetting program. Not yet properly documented, but see \DELTA\DOC\DELTADOC.1ST.