

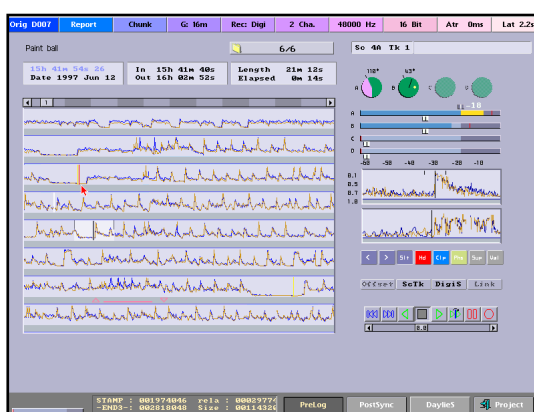
InDaw-5 by Aaton

*DigiRight: tape to disk recorder. PreLog: Sc&Tk slate auto-locator.
PostSync: Audio/Video multi-slate synchroniser and offline inserter.
DailieSync: on-the-fly synced dailies projection.*

v3.062 User Manual, June 22 1999

InDaw-5 new features.

- 1- PostSync 'TapeView' shows all slate-synced clips for fast rehearsal. (62 page 8)
- 2- DailieSync reads AatonCode on workprints in a screening room projector or on a KEM. This is the only system which makes it possible to get auto-synced film dailies. (page 10)



maths no more:

- whatever the film camera fps: 23.976, 24.002, 25, 29.97, 30,
- whatever the Smpte frequency: 24, 25, 29.97df, 30,
- whatever the sampling rate: 32, 44.1, 47.7, 48, 48.048 kHz,
- whatever the telecine sync speed, 23.98 (w. 3:2 pulldown), 24 (w. 24+1 pulldown), 24@25 or 29.97, **InDaw** always delivers a video synced 48 000 samples/s to PAL and 47 999.952 samples/s to NTSC Digi-VTRs.

DigiRight: a peace of mind recorder

InDaw is a frame rate & sample rate independent tape to disk recorder, it makes Nagra/DAT Smpte LTC and sampling rate matching a non-issue: **DigiRight** automatically handles all analog and digital audio mismatches post-production engineers encounter, and compensates the drifts between DAT samplers and external timecode generators. Furthermore, thanks to its chained disks system, unattended, InDaw can transfer audio tapes that span several CD Rom sized files.

PreLog: the most accurate slate auto-locator

While the sound operator monitors sound transfer, he on-the-fly keys-in Sc&Tk announces to let **Prelog** auto-locate the clapsticks with better than human precision, and to store them for ulterior automatic syncing.

Designed by Aaton, the inventor of the first in-camera time recording system, the InDaw station deals with all film-video syncing methods: **clapsticks, digislates and Aaton/Arri codes**. It is the fastest sync station around: in less than one frame it post-syncs video tapes, insures synced film dailies projections, and allows for audio preroll-free syncing during one-light telecine transfers.

The InDaw DigiRight recorder is **frame-rate/sample-rate independent**, it eliminates the Smpte fps vs camera speed inadequacies, and the sampling rate mismatches which plague digital audio recording in a film environment.

InDaw directly records jitter, pop and drift-free digital audio into PAL and NTSC digi-VTRs **at all telecine sync speeds** (including 24@25 transfers).

PostSync: the fastest seek&sync process

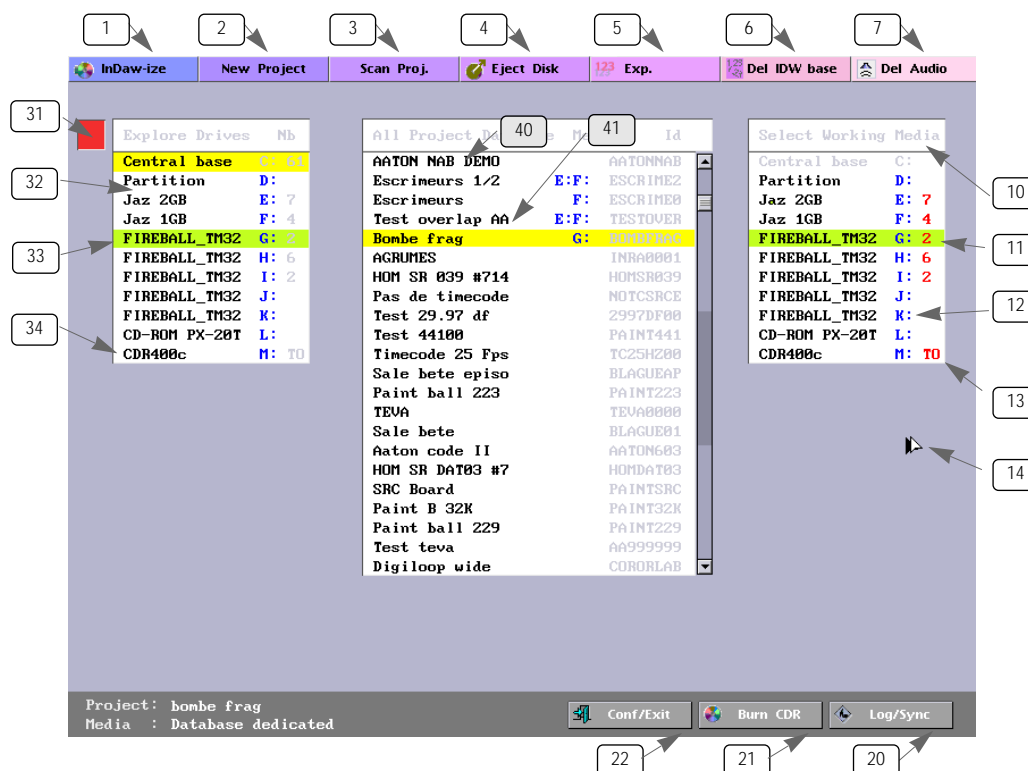
Be it slates on video tape with Std-Vitc or 3line-Vitc, be it AatonCoded positive dailies on a projector, the **PostSync** engine syncs images & sounds in less than one frame (as opposed to seconds). PostSync insures glitch-free transfers to digi-VTRs with nothing left of the AES inter-clock jitter nor analog firewall induced distortions: it can even deliver a four channel digital sound shot in a PAL environment, into an NTSC digital video recorder.

InDaw's sub-frame syncing system is also at work on the telecine Keylink-InstaSync which generates an accurate database from the very first flashed image of each take.

The 'projects' screen monitors title creation, audio database management, Scsi disk scanning, linkage of CD-R sized partitions and burning of CD-Roms.

InDaw-5 allows for unattended recording of very long audio tapes that span several CD-Rom sized chained disks partitions (see [41]).

Technical considerations: Before switching-on the PC, make sure all Scsi devices (CD-Rom burner, ext. hard drives, etc.) are already 'on' and their 'activity light' is no longer blinking.



[1] 'InDaw-ize' allows for non InDaw recorded .bwf disks (such as Deva disks) to be played-back on PostSync and Keylink Instasync. A 10 sec operation for a 1Gb Jaz disk.

[2] 'New project' opens a menu to enter a new title and ID. The new title goes to the top of the date-sorted list of projects. For alpha sorting, key [A]. if you want to create chained disk partitions 41 you must first create a project in the central base then select the partition(s) you want to devote to that project .

[4] 'Eject' is to be used for CD-R and cartridges after highlighting the drive 33.

[5] since some PreLog and all PostSync operations can't be stored on an already burned CD-Rom, the Idw metadata must be copied on a separate floppy attached to the project.

[6] 'Delete idw' eliminates from the central base the idw metadata of the 33 selected disk.

[7] To erase audio files and Idw stored on selected disk 33, be it a hard drive partition or a removable cartridge. To delete some files only, see 55 in the PreLog chapter.

[10] The 'working media' window shows the disks able to perform audio-recording, PreLog, PostSync, dubbing and CD-Rom burning.

[11] Partitions D:, E:, etc., cartridges and external hard disks are available for Recording, PostSync and DailySync operations. InDaw is delivered with 680 Mb CD-Rom sized hard disk partitions. For seamless recording of long takes over several CD-R sized partitions, see 41 below.

[12] Removable hard-drive (the Rorke system is the Aaton choice) can be partitioned in 2Gb partitions or CD-R sized blocks (follow the DOS F-disk formatting instructions).

[13] CD-Rom burners can be used as players; but they are too slow for postsyncing 4-channel / 24 bit files. When a blank CD stays in the drive, its non-answer makes InDaw abandon further time consuming auto-scans: TO = time out appears until a 31 manual scan is launched.

[14] Help pointer. Drag it over menus and windows, [IShift right] to activate (red to green when passing over a documented item: click the mouse to open the help text).

[20] Access to Recording / PreLog / PostSync / DailySync screens.

[21] To burn a CDR, first select the working media 12 to be copied then click on 21 to open the CD-R burning sub-menu 35.

[31] For a removable disk to appear in the 'explore drive' menu, insert the cartridge and wait for the drive loading-light to stop blinking and for the auto-scan to find it (5sec). For a new CD-Rom to be auto scanned after

insertion, the former one should have been ejected by button 4, if that is not the case, click 31 to manually scan the disks.

[32] Clicking 'Central base' makes all stored projects show in window 40. Devoted to Idw databases storage only, the C: drive is not available for audio recording.

[33] The 'explore drives' window shows active drives at InDaw power-on. Clicking a drive makes the project(s) it carries show in window 40. Note that it is possible to store the audio files of several projects – as well as their associated databases – on a given drive.

[34] To get access to a CD-R database, the disk must be inserted and 'scan projects' 31 triggered if auto-scan failed.

[35] If there is a problem 'seeing' the CD-R burner, verify that a SCSI termination is connected at the end of the SCSI chain.

[36] While burning a CD-R, avoid vibrations around the burner and never alt the ongoing process... unless you want to trash the CD!

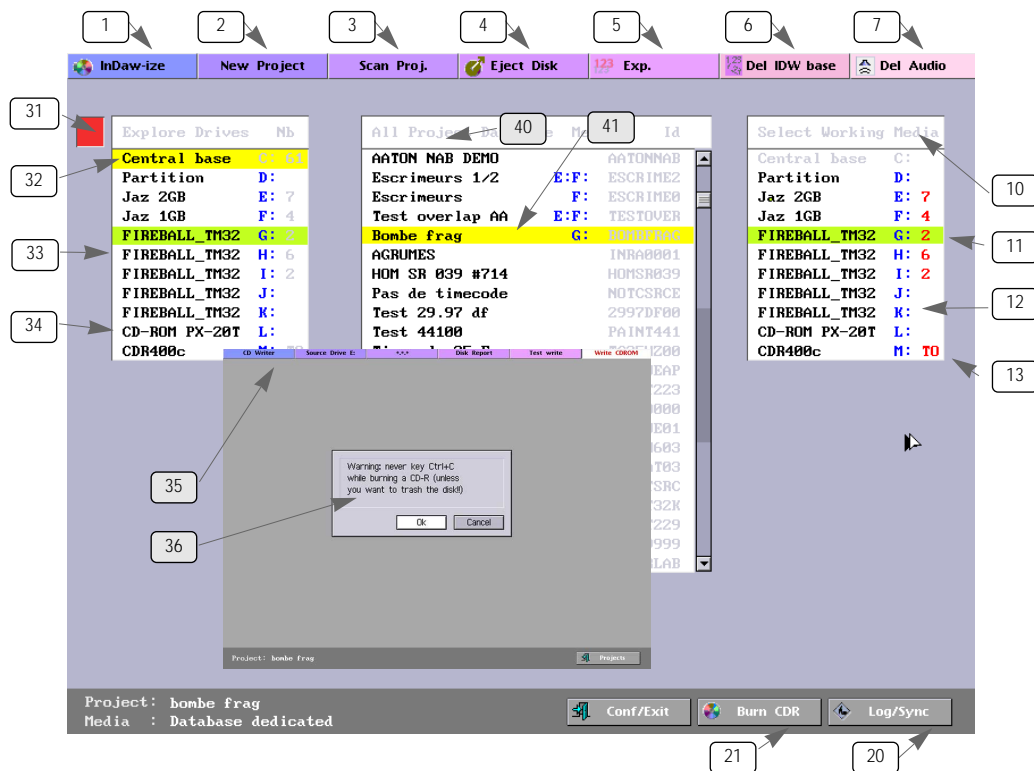
[40] The central window shows the projects permanently stored in the

central base and the project(s) stored in each media.

[41] A central base project line 41 must be selected before choosing the the working medias 10 on which to record or PreLog / PostSync / and DailySync.

Chaining instructions

For unattended recording of long audio tapes, first chain several disk partitions: select a project title in 'central base' 40, select the partition you want to be chained within this project, enter 'LogSync' and immediatly exit, then answer 'yes' to the "create?" question; and so on... through all the required partitions.



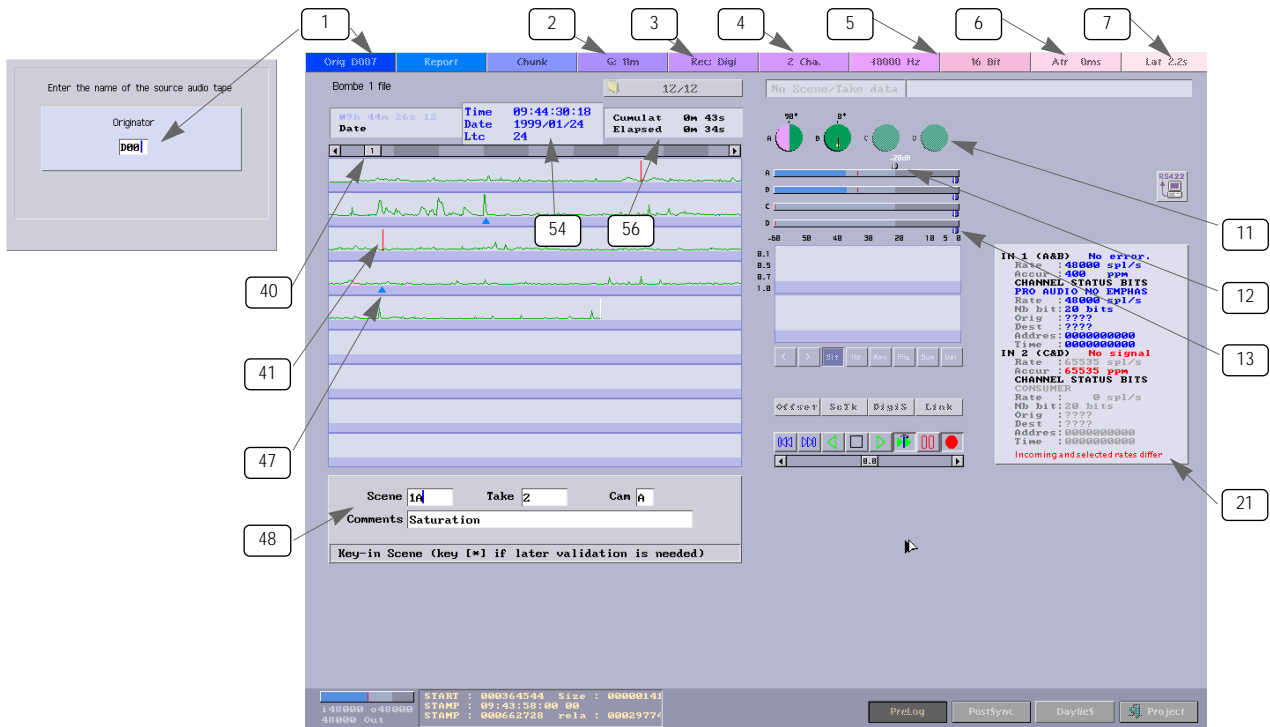
While recording live sounds or DAT and Nagra tapes onto disks, InDaw never requires the play-back machine to stop, nor does it lose the slightest audio sample on Smpte timecode breaks induced by the tape recorder stops and starts. During recording of tapes that span several CD-Rom sized (680Mb) partitions, InDaw seamlessly jumps to the next allocated partition when the current one fills up.

The on-the-fly Sc&Tk and comment prelocator considerably speeds-up slate auto-laydown.

Technical considerations

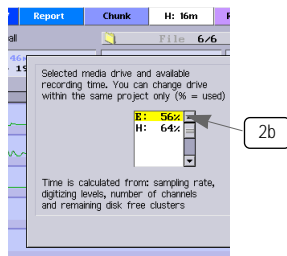
Analog tapes: To carry analog signals into the digital domain, Indaw reframe the external AtoD sampling rate to the LTC track ref. No more digital loop nor drift.

Digital tapes: audio samples must be slaved to LTC; InDaw converts the sample rate – be it 32, 44.1 or 48.048 K, be it shifting or not –, to an exact 48 K/LTC sec.



[1] The PreLog screen gives access to disk recording with TC break detection. The sound originator ID, such as a DAT tape #, must be first keyed to enable recording.

[2] Available recording time on the selected disk partition, calculated from sampling rate, digitization levels, channel number and free clusters. Clicking this button shows the available linked partitions within the project with their occupation percentage 2b. Linked partitions insure seamless jumps during continuous recording of very long DAT tapes. To create links between partitions, see "Project" screen 41.



[3] Audio input selection: 'Analog' for factory tests only, and 'Digital' for direct AES input. A 'Digital Loop' position (Narrow +/-0.2%, Wide +/-1%), used for sample rate tracking of external A to D converters, is available for non-SRC equipped InDaws running ver. 2.4x. See paragraph 4, page 13.

[4] A, B, C, D channel allocation for inputs 1 to 4

[5] 32, 44.1, 48Ksample/s and 16/24 bit selection. Operator selected

values, –free in analog-test mode–, should preferably be identical to the incoming values (mismatches show on line 21). With an SRC audio board, incoming and selected rates can differ.

[6] Audio/Smpte delay of the record/playback chain; should be zero on correctly aligned ATRs.

[7] The playback ATR drop-out compensation makes timecode breaks appear with a delay. To find the right 'Latency' compensating value, select the delay which positions the head marker 41 on the splice between two takes – one silent, one 1kHz–. Each playback machine should carry a sticker showing its latency value, eg Sony 7040 in narrow mode: 500ms, in wide mode 1500ms.

[11] Interchannel phase-meter; click on the channel clock you want as the reference, it becomes half pink half green. To adjust the err-phase angle, click on the channel reference meter and drag clockwise or acw the external tab to the desired err-phase warning value. The black needle of the other clocks monitors instantaneous phase, the yellow dot shows the integrated value.

[12] The modulation reference cursor can be used as a precision dB meter by sliding it along the monitoring bargraph.

[13] Analog test level adjust. No action on digital outputs.

[21] Digital signals monitoring (blank for analog inputs); bottom line monitors inadequacies between incoming signals and operator selection. With the SRC audio board, incoming and selected rates can differ, line 21 is a simple reminder.

[30a] Recording [Ctrl + right arrow] [30b] pause/test [up arrow] [30c] Stop [down arrow].

[35] Messages to be noted and e-mailed (as well as the 36 & 37 figures), to <support@aaton.com> before calling Aaton hot-line engineers.

[36] CPU activity level: low in mono 16bit, high in four channel 24bit recording. Make a note of these figures before calling the hot-line. In general high levels of CPU activity denote the use of a JAZ drive in which the read-after-write function has not be deactivated – see ‘installation’ last page of this manual.

[37] i= 48000, o= 48025 shows the actual input sample rate and the servo loop output; if the output hits the limits of the capture range, the line becomes red showing something is wrong with the resolver.

[40] The Audio-Page displays four track sound wave envelopes during recording and playback: one minute per page. The top cursor shows the number of pages and the position of the page in the audio file. Dragging the cursor makes the playback white stick scroll the page.

[41] Head of take red marker shows the latest auto-detected TC break.

[47] Slate prelocator laid by on-the-fly [F5] strokes, see 48.

[48] [F5] on-the-fly lays down provisional slate prelocators 47 (blue triangles), to be replaced later by very precise auto-detected slate marks; Sc&Tk announces are simultaneously keyed as well as the sound engineer comments.

[F5] may also be used to separate and identify takes and wild sounds when a ‘record-run’ recorded DAT shows no TC breaks.

[54] Time and date of the last TC break and incoming Smpte LTC fps. These figure are red while waiting for the Smpte signal, blue thereafter.

Recording instructions

Enter the tape ID, select audio mode, channel number, sampling and digitizing parameters (3 to 5). The available recording time shows in 2. The ATR record/playback offset 6 should be 00ms; enter the latency 7 of the playback machine. These parameters will be recalled for the project next session. Click preview 30b or up arrow, play the tape, and position the reference level, e.g. - 18dB 12. Verify on 54 that LTC is correctly read. Rewind, hit record 30a or [ctrl + right arrow] and play the tape: red marker 41 shows the start of takes on TC breaks.

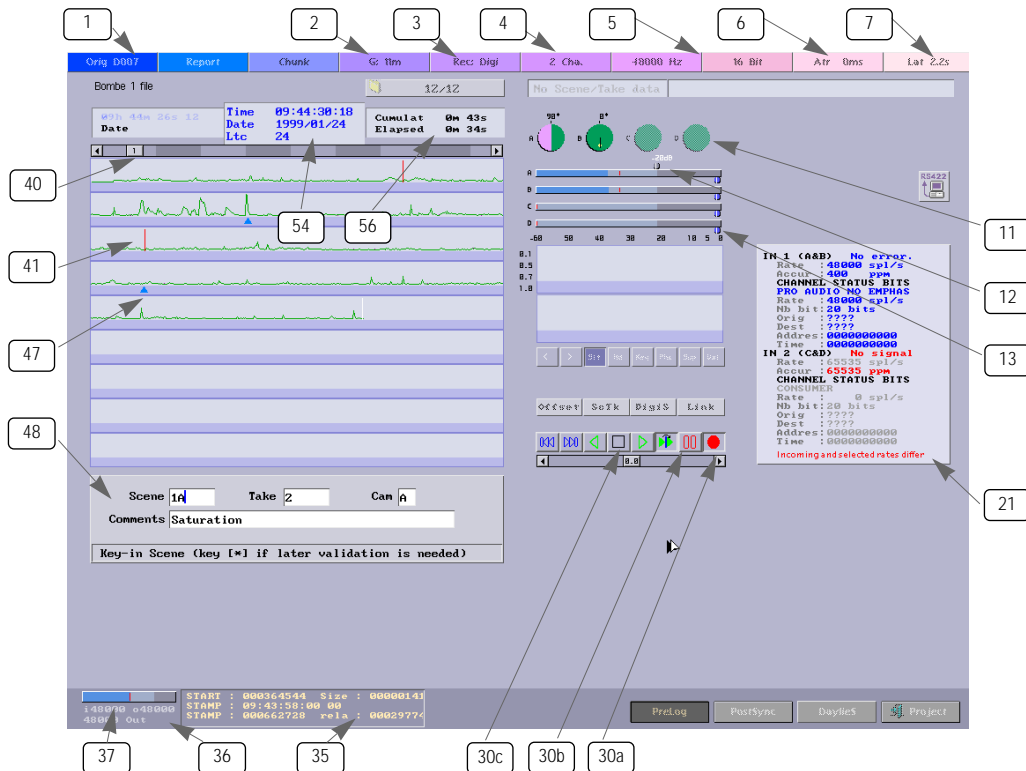
As soon as a slate announce is heard, hit [F5] to enter the prelocator mark, then the Sc&Tk #; this will considerably speed-up the following PreLog process.

Note1: lack of LTC from the audio tape makes InDaw provide its internal TC but it can no longer chain partitions for seamless jumps between continuous audio files; an external house code should be feed to simulate the missing LTC.

Note2: To automatically separate audio takes, ask sound engineers to run their recorder in ‘free run’ mode or better, jam-synced to an external TCXO controlled real time generator (such as an Aaton GMT).

Note3: ‘numeration’ and ‘LTC status’ should be set at an identical rate on the Nagra-D; lack of identity makes InDaw unable to detect TC breaks.

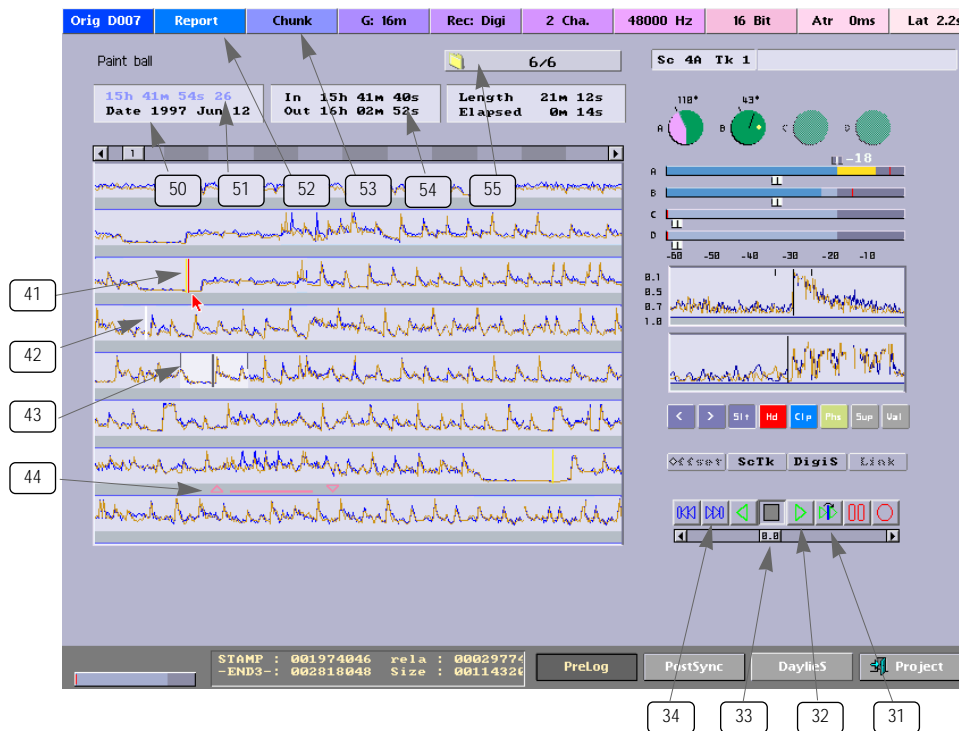
Note3: To copy old Nagra neo-pilot tapes with no drift at all, auto-resolve the pilot signal to an Smpte reference signal redirected to InDaw also.



Provided prelocators were on-the-fly keyed during recording, PreLog instantly goes to clapsticks, detects their exact position and confirms their Sc&Tk ID for later use on Keylink InstaSync and InDaw PostSync.

Technical considerations

PreLog operations are stored in the .BWF file chunks ; these files are exploited by Keylink InstaSync, or converted into OMF for direct import into Avid and Protools MacOS machines with the AatonXfer plug-in (free from <support@aaton.com>)



[09] Display of the Sc&Tk numbers attached to a slate; if not keyed, a default ID is forced (e.g. AA nn) to give Keylink InstaSync means to seek the slated audio mark anyway. Can be edited.

[11] Interchannel phase-meters (see DigiRight 11 and PreLog 44).

[14] Blow-up of slate-frame 43; a left mouse click in this window plays the sound; higher the click, slower the speed (1.0, 0.7, 0.5 to 0.1 sync speed); a right click opens a narrower slate frame 15 which zooms into window 16, and activates the 'ok' button 18 for sc&tk confirmation and/or entry.

[17] Dragging this marker in the window trims the position of the auto detected slate. It is validated by the 'ok' button 18 or [enter], then sc&tk described.

[18] 'Val' button or [enter] validates the automatic or manual slate-mark and opens the sc&tk panel; 'Sup' erases the slate mark selected under the slate-frame area 43.

[19] Event selection buttons: grey 'slate', red 'head' [alt], pink 'er-phase' [ctrl], and blue 'key'. 'key' is the default mode.

[20] Seeking arrows [Tab/Shift Tab], colored by one of the four event selection buttons 19, make the play stick jump from slate to slate, er-phase to er-phase, key mark to the next one. [PgUp/Down] browse from a file to the next. [Tab/Shift Tab] & [PgUp/Down] should be used to go from a slate prelocator to the next one.

[31] Forces continuous playback of contiguous files and seamlessly plays the chained ones. The default mode is 'on'.

[32] Green-arrows or [<-->] play forward & backward at 1/1 speed. Central square [down arrow] stops playback.

[33] Cursor plays sounds from zero to ± 2.0 x sync speed (analog monitoring output only).

[34] [PgUp/PgDwn] or arrows send the play-stick to the next/previous file.

[41] Yellow/Red head-mark created by a slate entry. A continuous sound can be divided into sections by the 43 slate laydown process; each section receives a Sc&Tk ID and – two sec. ahead of the slate a red mark which can be shifted by [ctrl] [mouse click].

[42] The white play-stick can be dragged over the audio-page by a left mouse pressure, mouse release plays the sound, a second click stops.

[43] Right mouse click opens a slate-frame to be dragged over the slate sound wave, the click-release triggers the automatic clapstick detector in the 14&16 slate blow-ups. Remains for the operator to validate the Sc&tk entries or to edit them

[44] Underscore bar shows 'er-phase' sections. [alt + left click] allows the operator to mark the er-phase section beginning, and [alt + right click] the end. In between the two marks, the phase of the playback signal is

inverted, this method may be used to reduce hose-effect. To delete an 'error-phase' section, activate the 'Ph' button 19, bring the slate-frame area 43 over the mark and click 'sup' 18.

[50] Date is *mandatory* to sort-out sounds carrying the same TC on successive days. Since most recorders write yy/mm/dd (military time) in the wrong order, or no date at all..., verify the audio tape box date or the raw user bits in the 'film-chunk' (see 56a). Click on 'date' and enter the correct day. The new date is applied either to the 'current file' or to 'all files'.

[51] TC of the audio sample under the 42 white play-stick.

[52] The PreLog report is sorted by date & time and shows the Sc&Tk IDs of the slates (see PostSync 52a).

[53] Data chunks are recorded on the audio media alongwith the audio files, they give access to the sound metadata. 'Stamp-user' 53a stores the raw user bits recorded on the DAT; these user bits are converted into a 'stamp date' 53b through the yy mm dd rule. If the raw user bits are recorded in a wrong order (1206-9701H), InDaw can't interpret them; only a human being can guess the most probable date (1997 Dec 06) and correct either the 'current file' or 'all files' of the project.

[55] Current file ID; a click opens the folder. [pgup/dn] & [ctrl+pgup/dn] scrolls the files. [del] erases a file. If there is a file which is not totally contained in the disk partition, ie has a leading or a trailing part in another partition, the folder title respectively shows a <- or -> arrow.

PreLog instructions

Open folder 55 and select a file. Drag the white play-stick 42 ahead of a

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0m 45s
MainChunkID : RIFF
FileSize - 8 : 17509798
WaveID : WAVE

FormatChunkID : fct
ChunkSize - 8 : 16
FormatTag : 1 (PCM format)
NbChannels : 4 (unknown value)
NbSamplesPerSec : 48000
NbOrigBytesPerSec : 384000
NbBlockAlign : 8
NbBitsPerSample : 16

BroadcastChunkID : bext
ChunkSize - 8 : 602
Originator : INDAW
OriginatorRef : AATON
OriginatorDate : 1997/06/12
OriginatorTime : 15:38:54
TimeReferenceLow : 2703984000
TimeReferenceHig : 0

53a ChunkID : film
      ChunkSize - 8 : 1572
      MajorVersion : 0
      StampTime : 15:38:54:00:00
      StampUser : 1206-9701H
      StampDate : 1997/06/12
      StampSample : 48000
      SyncUnits : 00
      DestTag :
      FieldMedia : Paint ball
      PostMedia : TEST185H9723D.IDW
      PostRecMode : 1 (AES/EBU)
      NbChannels : 4 (unknown value)
      PostSampleSec : 48004
      FrameRate : 30
      BitsPerSample : 16
      Emphasis : 1 (none)

53b
    
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Date interpretation using CHUNK user bits

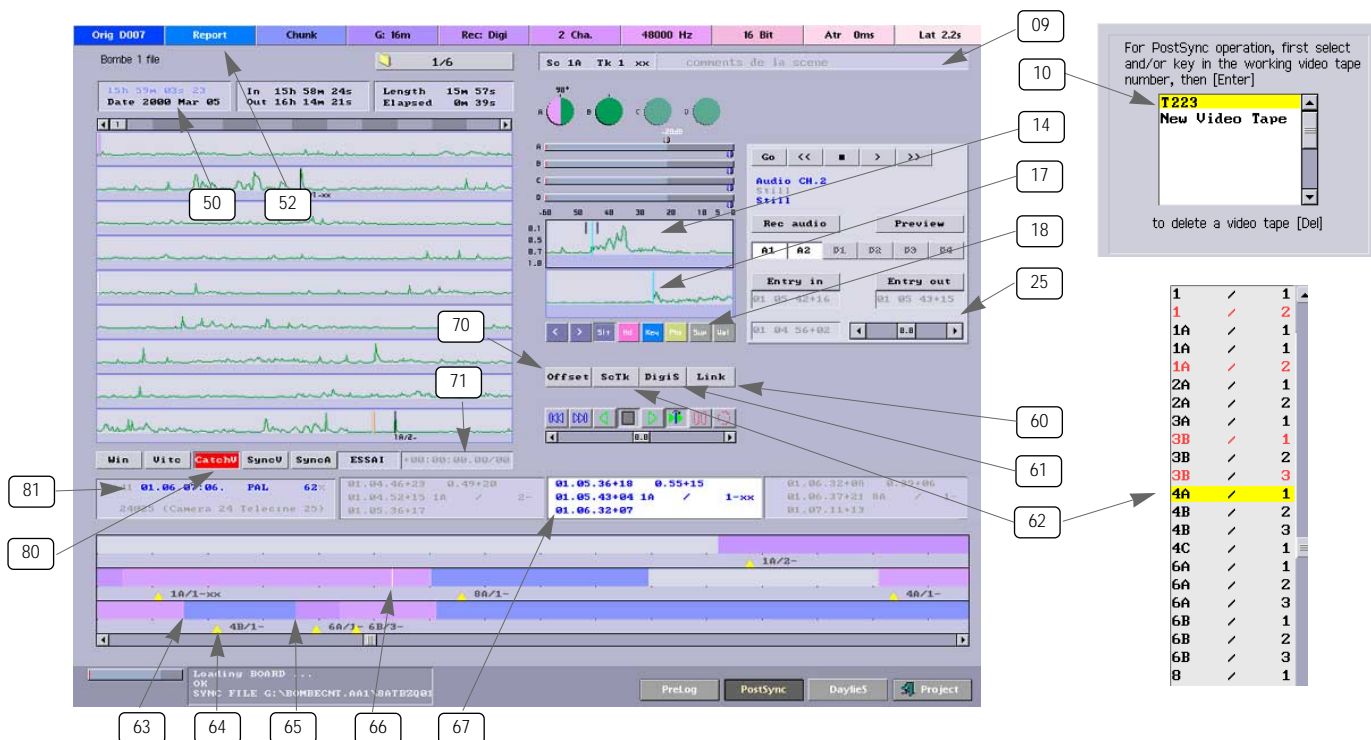
clapstick wave —most of the time very visible on the first audio page. To lay a slate mark, open the slate-frame 43 with a right mouse click, then drag it over the clapstick wave. The 14&16 windows are activated, the slate marker 17 goes to the slate leading edge, [enter] or click the OK button 18, key the Sc&Tk ID; you can later correct this ID by clicking the 09 window. The audio in-point red marker 41 (arbitrarily laid

two second before the slate) can be drag-trimmed by [ctrl]+click but this is not necessary, neither for slate post-sync nor for Aatoncode syncing. Thanks to the prelocators of the DigiRight session, the above operations can be automated: key [Tab] at the head of the first audio file: the slate detector opens itself around the first prelocator (you can drag it to hear and confirm the slate announce), key [enter] three times... done! Then [Tab] again – and/or [Pgdown] – till you reach the end of the folder.

For those facilities who don't want to handle audio sync on the telecine, PostSync instantly links the Std-2LineVITC of a video image tape to the PreLog keyed Sc&Tks. Through remote control, PostSync browses all synced slates for ultra-fast rehearsal before the final recording, it insures non-stop audio dub of video tapes and mirror DAT recording. Postsync instantly locks up the sound to the 3rd

audio line (be it aatoncode or digi-slate generated) of the 3LineVitec recorded by Keylink on the telecine. A video-inserter option burns windows and 3line VITC, using the videoTC, Keycode and AudioTC found on the 'on-line' tape.

Technical considerations: A 3Line Vitec reader board must be installed to handle PostSync operations.



[09] Displays the Prelog entered Sc&Tk ID of the audio play stick. This line can be edited if not yet 'linked' to a video image TC.

[10] PostSync requests a video tape ID (shown in 86) to be entered to store PostSync data. Modifications to former pre-sync/post-sync entries are stored in a database, not in the media chunks; that is why a project database should not be erased before total completion of the project.

[14] Blow-up of the slate-frame 43 (see PreLog): a left mouse click in this window plays the sound; a right click selects a narrower frame in the super zoom window, and activates the 'val' button 18; [enter] opens the sc&tk editing menu.

[17] Provided it is not yet linked, the slate stick can be moved: use the mouse right click to reposition the cyan stick, then [enter].

[18] The 'sup' button 18 deletes the slate entry selected by the slate frame 43 (mouse right click) to allow slate repositioning.

[25] VTR remote control (see REMOTE & SHORTCUTS)

[50] Date is **mandatory**, (see PreLog 50). Correction can be applied to the 'current file' or 'all files'.

[52] PreLog report sorted by date & time showing slates, video TC links and comments. 52a to print.

[60] Click the Link button or key [F12] to link the slate mark 43 to the Vitec of the tape slated image. [F11] to delink. While a 'link' is done, an arbitrary take in-point is two second ahead created. Shuttle to the start of the video take and hit [F9] to precisely set the in-point, then go the end of take and hit [F10] to set the out-point.

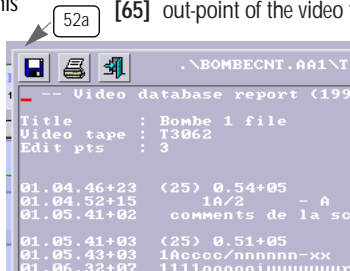
[61] DigiS [F6] opens a window for the operator to key the digislate time & day; the playstick locates itself on the corresponding audio sample.

[62] The S&Tk button [F5] opens the list of slates stored in the PreLogged files. Click on a line: the correlated audio page opens and the audio playstick locates itself on the slate audio wave.

[63] in-point of the video take created by [Ctrl F9] on the first image, or moved to that image by [F9]. "Catch-V" 80 must be activated.

[64] Slate mark entered by [F12] on the slate video image.

[65] out-point of the video take entered by [F10] onto the take last image.



[66] TapeView: – a mouse left click near the in/out points parks the VTR on the take start/tail; – a mouse left click near the slate-mark activates the VTR GOTO for the operator to see the slate image; – a mouse right click anywhere between the in- and out points plays the sound from one sec. ahead to one sec. after the slate. To fine tune the sync by quarters of a frame, use the [<] [>] keys.

[67] Shows the in- and out-point TC, the slate TC, the duration of the take and Sc, Tk and camera IDs of the current take.

[70] ' Offset' opens a window to enter hour, min, sec, fr, & 1/4 fr audio offsets: 'local' applies to the current file and 'global' to the whole folder. Since this offset applies itself to the audio samples only, it is available in 'Sync-V' and 'Sync-A' 84 autosync modes only.

[71] Moves the audio TC by a quarter of a frame (0.25) by [Alt +] or [Alt -]. Appears in red as soon as an offset is entered. Available for 'Sync-V' and 'Sync-A' 84 in autosync mode only.

[80] Catch-V makes the audio media chase the video TC recorded on standard 2lineVitic line-1 while using the video/audio links previously laid down by the 60 link process. To be used for on-the-fly sync of clapticks and digislates. [Space bar] de-re-activates Catch-V to allow the operator to go back and forth between TapeView and AudioPage to modify a slate position or ID.

[81] Shows video TC, keycode, and audioTC extracted from the 3LineVitic. It also shows the video-TC read from the 2LineVitic used to sync sounds at either 1 to 1 speed (fr.-for-fr.) or 4% accelerated (24@25). Reading rate should be between 80 and 100%; figures should be blue. A click on the date figures makes the day unused for audio sync; as a reminder the date field becomes red.

[82] opens the keyer inserter menu; click on the window descriptors and toggle their values; click outside the menu to close (a VTG board must be installed).

[83] opens the Vitic-reader menu. **[83a]** If regular 2lineVitic only is recorded on the video tape, select (fr. for fr.) or 4% acceleration (24@25); Select 'Tri' (3Line Vitic) to automatically sync the sound from the video TC line-3, the camera fps is found in Keycode line-2, and the audio TC in line 3. The default line selection is automatic [A] but can also be manual [vertical arrows].

[83b] 'frame delay' is a useful feature: if a 16/9 to 4/3 converter – which doesn't carry the 3LineVitic – is inserted in the chain ahead of the Vitic reader/inserter, InDaw regenerates the 3LineVitic while compensating for the converter delay (a VTG board must be installed).

NOTE: when reading BetaSP tapes, avoid the interframe gray bar which destroys the still frame VITC lines. Use [Ctrl +] or [Ctrl -] to park the VTR out of the drum head commuting, or activate the dynamic tracking (if available...).

[84] – **Sync-A** makes the audio media chase the audio-TC of the 3LineVitic line-3; auto-reading is the default mode in Sync-A. This mode is to be used for on-the-fly post-sync of AatonCoded or digi-slated Keylink transferred tapes. Space Bar [Sp] activates and desactivates the button. – **Sync-V** makes the audio media chase the video-TC recorded on the standard

2lineVitic line-1. To be used for on-the-fly syncing of sounds recorded in a video environment only.

[86] Video tape ID. All PostSync operations are stored under this tape ID reference in the project database.

Postsync Instructions

When transferring a non realtime recorded tape which doesn't carry audio breaks (such as the ones the free-run mode produces) there is no take separators; the Prelog slate laydown creates arbitrary audio-take in-points which are used to define the field of the sc&tk entries only. The VTR remote control 25 must be on, and "Catch-V" 80 be activated. The video-TC line 81 must show blue figures.

Shuttle the video tape to the slate, hit [F5] to open the PreLog list 62, select the line 62a which carries the same descriptor, and link the audio slate to the video-TC by [F12].

A two second ahead in-point is automatically entered, [F9] fine tunes it on the VTR parked start of take. [F10] sets the out-point at the take tail. You could also first enter the video in-point by [Ctrl F9] and then go to the slate and key [F12]. To move a start of take into the preceding one, hit [F10] then [F9]; to move the take tail into the next take, hit [F9] then [F10].

Macros

[F5]= Sc&Tk search [F6]= digislate search
[F12]= tape-TC/audio-TC link [F11]= delete link.

For higher precision, the VTR slate-TC is read from the VITC, not from the RS 422 counter. When reading BetaSP tapes, activate the dynamic tracking to avoid the interframe bar which destroys VITC lines.

[F9] or [Ctrl F9]= start of video take [F10]= end of video take.

[Ctrl i] [Ctrl o] zoom in and out the TapeView.

[Sp] (de-)activates Sync-A, Sync-V, and Catch-V.

Remote control

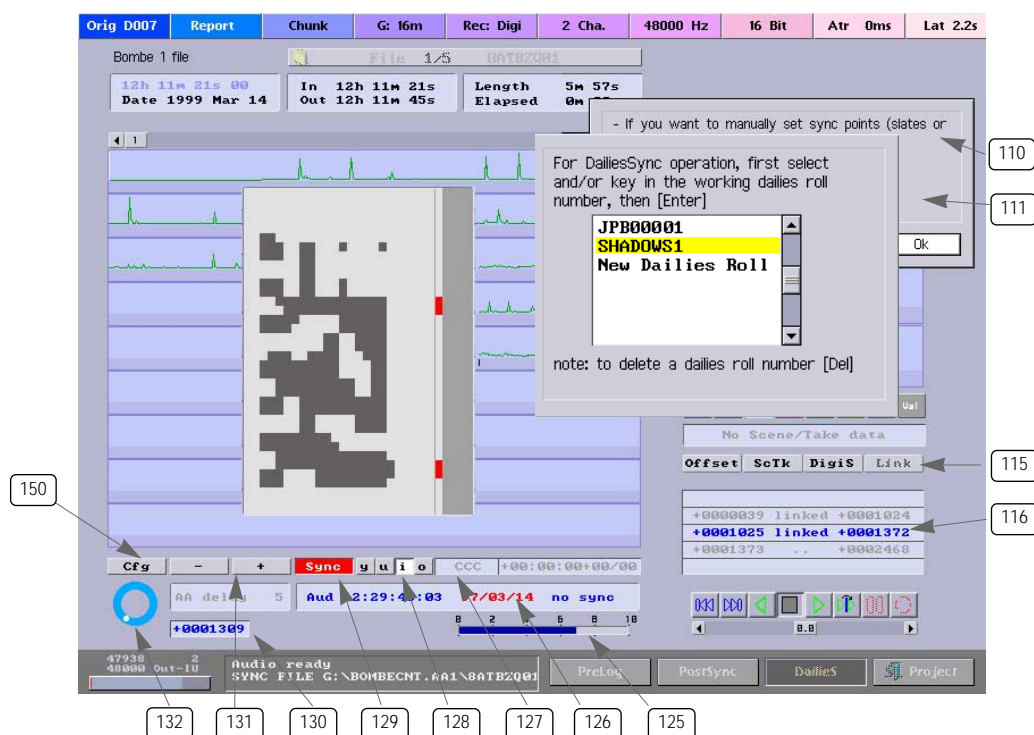
[F3]= go to [F7]= recording insertion in-point [F8]= recording insertion out-point.

The screenshot shows the InDaw software interface. On the left, a 'Vitic setup' menu is open, with callouts 83a and 83b pointing to its sub-menu and 'Frame delay' field respectively. The main interface displays multiple tracks: video tracks (lines 1-3) and audio tracks. Callouts 80-85 point to specific elements: 80 (Catch-V button), 81 (video TC line), 82 (Sync-A/V buttons), 83 (Vitic setup menu), 83a (Vitic setup sub-menu), 83b (Frame delay field), 84 (audio tracks), and 85 (video tracks). A 'Vitic reader' window is also visible, showing 'Date 2000 Mar 05' and 'Length 15m 57s'.

DailieSync reads AatonCode matrixes on work prints run on a screening-room projector or a Kem and seeks and syncs the corresponding sounds previously recorded by InDaw. This process saves considerable audio syncing prep time: sound dailies can be viewed as soon as the workprint exits the processing machine.

Alternatively, if the film has been previously 'linked' to its sounds on a Kem table, it's possible to project it in-sync over non AatonCoded takes.

Technical considerations: An MTC board should be present in InDaw, and an AatonCode reader (with its biphas generator) be installed in between the feed reel and the projection gate.



[110] A Dailies Roll number must be entered for the 'Linked' database (if any) be properly timed during projection. Park the film on the start mark and [enter]. The frame count showing in 130 starts from there, at 0000000. To erase a database, highlight the concerned Dailies Roll and key [Del].

[111] If the audio sync is made out of pure AatonCode, there is no need for database preparation, the start mark being irrelevant, you can [enter] anywhere in the roll, any time.

[115] Button and [F12] link F9 created takes to the slate audio sample selected in the audio pages. [F11] delinks the current take, ie the take which appears in blue in the central line of the 116 display.

[116] Displays the in- and out-points of the takes as entered by [F9] and their linkage status. [Del] destroys the created takes .

[125] Provided Aatoncode matrixes are generously and evenly exposed, AatonCode reading rate on workprints should be between 90 and 100%.

[126] A mouse click on the date make it red, showing it is no longer active for syncing. To be used with care on a week shoot in which the audio files carry several days the same time. Better to correct the audio file dates! --see PreLog 50.

[127] Dailies Roll number of the database entered at 110 level.

[128] The [o] [i] [u] [y] buttons select preset illumination for overexposed, ideal, underexposed and very underexposed matrixes.

[129] "Sync" is to be activated [SP], for projection and linkage testing; it

should be deactivated, [SP] again, during all other operations, eg in-points keying, Sc&Tk searching, slate insertion and linkage.

[130] Current frame number from the reference mark [0000000].

[131] The + / - buttons and keyboard keys allow the projectionist to on-the-fly fine tune the sound/image sync.

[132] Monitoring of the Biphas signal. Proper connection makes the white dot rotate clock-wise in forward run.

[150] Opens the 151Configuration menu .

[152] Configuration lines showing the film parameters to be set prior projection and KEM linkage: 35mm or 16mm; camera sync speed 23.98, 24, 25, 29.97, or 30fps; positive or negative stock.

[153] Configuration line showing the matrix-image 155 and the up/down adjustment buttons 154.

[155] Matrix image generated by the CCD reader head. It is used to position the AatonCode matrix: left/right by knob rotation adjustment of the head holder post; up/down by the +/- (154) buttons.

[156] This evenly spaced seven dot column generates the matrix decyphering clock, it must be near the left side of the window to eliminate the perforations (large black dots) which on prints may become very visible, making the reading quite poor.

[158] Configuration line opening access to the AatonCode delay which compensates for the distance between the reader head and the projection

gate (see 131 also).

Screening room AatonCode projection

Select a film title and its audio disk in the 'Project' screen, click on DailieSync 121. If it is not yet stored in the project, create a 152 film-parameter configuration. Run the projector. If AatonCode is not 80% read or if audio sync is not immediatly reached, go to 153 and verify that the matrix-image 155 is crisp, contrasty, left/right (156) and up/down (154) correctly positioned.

Slate linking preparation

Put the film on a Kem/Steenbeck, then proceed like for an AatonCode projection.

To create a LINKED take, shuttle to the start of take, hit [F9], go to the slated image, key [F5] to open the list of the prelogged slates (see PostSync 62), select the corresponding one to send the play stick on the audio slate-, link by [F12], go to the end of take, hit [F9] and so on.

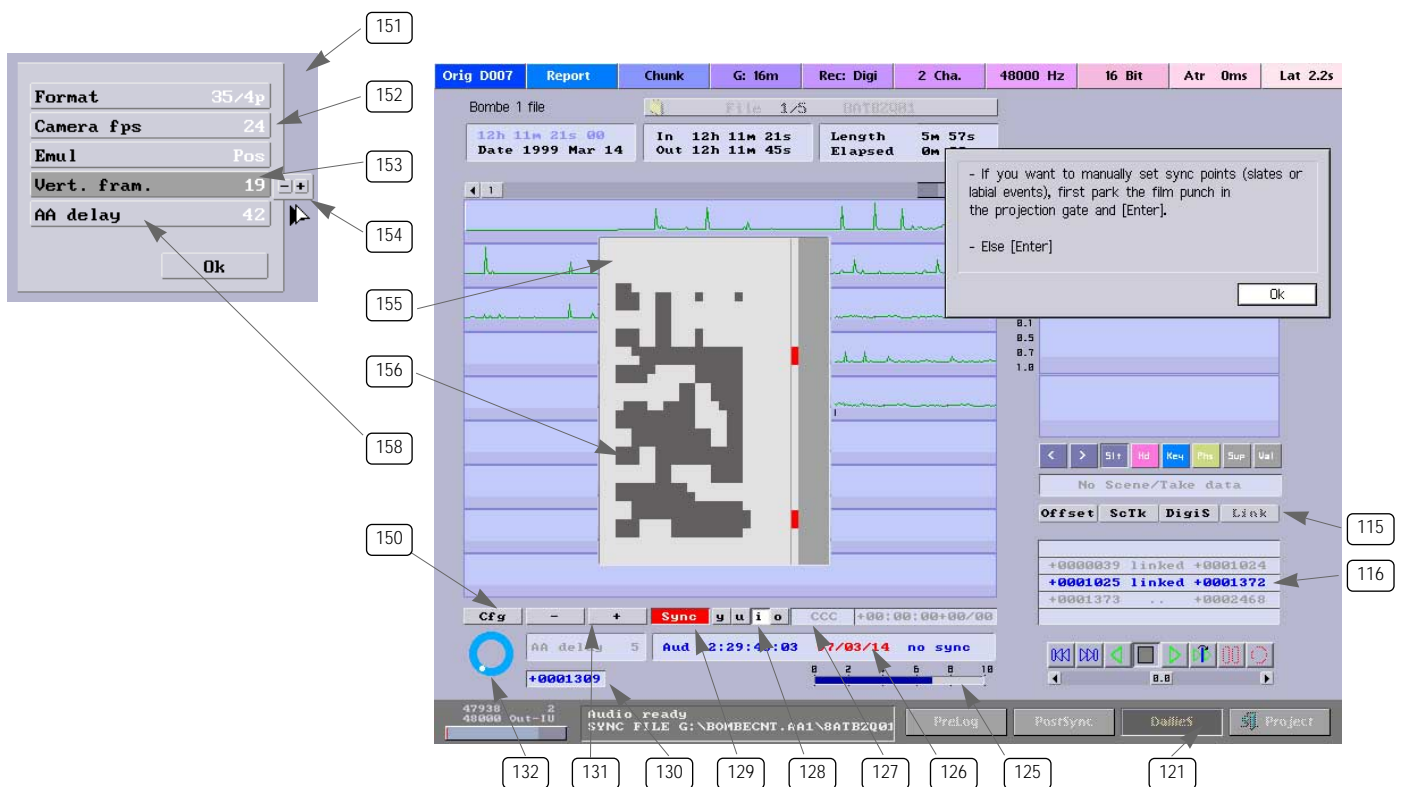
To test the sync quality, shuttle backward, hit [Sp] to activate the red 'Sync' button and run forward; don't forget to un-sync [SP] again, after the test. If the following takes are AatonCode correct, shuttle the KEM through them without keying [F9] until you hit a non-AatonCoded one; shuttle backward to the start of take, key [F9], go to the slate, [F5], [F12]... etc.

If the non-AatonCoded take is *slateless also*, the process is the same but you must create your own 'plosive' slate: park the KEM on an obvious plosive image, play the sound, laydown an audio slate (See PreLog paragraph 43) on the audio event, give it an arbitrary name eg "plos/1" and link it by

[F12]. *Note:* all frames which are not within a 'LINKED' take are sync played by AatonCode only... or they are silent!

AatonCode projection with linked slates

Same as AatonCode projection, park the film start mark in the projection gate; select the right Dailies Roll ID to get access to the Kem/Steenbeck made 'syncing by the slates' database and [enter] [enter]. During a two projector show, switch the 'blue box' cable redirection accessory from one projector to the other, click DailieSync 121, select the next Dailies Roll, [enter] [enter].





REMOTE CONTROL

Sony 422 protocol. Dedicated to audio insertion only, there is no risk of video image overwrite. An RS232/RS422 converter cable should be connected on the COM2 SubD-9 or the COM1/V24 SubD-25 PC connectors.

- [25] 'Go to' button [F3] parks the VTR on the operator keyed TC.
- [26] In and Out edit points stored in the editor. InDaw permanently scans the 422 connections, if there is none errcmd#0 shows in red.
- [27] Selection of two Analog, four Digital track recording. *Note:* since InDaw features a video-synced 20 bit internal SRC, direct digital recording can be done with no external accessories in 24@25 mode also.

SHORTCUTS

Recording

[arrow up] = pause [Ctrl right] + [arrow right] = record
 [arrow down] = stop [F5] = on the fly sc&tk entry

PreLog

[Tab] = go to next slate [Page down] = go to next page
 [F5] = open Sc&Tk list
 [F9] = start of audio take (red) [F10] = end of audio take (yellow mark).

Postsync

[F3] = go to [F5] = Sc&Tk search [F6] = digislate search
 [F12] = tape-video-TC/slate-audio-TC linkage [F11] = delete linkage.
 [F9] = start of audio take (red) [F10] = end of audio take (yellow mark).
 (for F9 & F10 to be entered, Vtc readings must be blue in the 76 PostSync window).

DailieSync

[F5] = Sc&Tk search [F6] = digislate search
 [F12] = film image /slate-audio-TC linkage [F11] = delete linkage.
 [F9] = start of take [F10] = end of take

Remote

[25] [F3] = go to, parks the VTR on the video TC keyed in the menu bottom field.
 [26] [F7] & [F8] = In & Out audio insertion points on the video tape.
 [27] [0] = pause [.] = play forward [-] = one shot forward or continuous jog while pressed [+] = shuttle at 4.5x, and at 9.3x after two sec. [*] = one shot backward or cont. jog while pressed [/] = reverse shuttle at 4.5x, and at 9.3x after two sec.

FAQ:

The InDaw sync station is said to accelerate AatonCode films telecine transfer, but what happens if I work with a non-TC camera?

InDaw handles this situation in three steps:

- *DigitRight Recording:* InDaw non-stop digitizes DAT or Nagra tapes using the recorder start/stop TC breaks to split them into files recorded under the .BWF format (AES/EBU broadcast wave). During the tape-to-disk copy, the operator on-the-fly keys prelocators and keyboard enter the announced Sc&Tk IDs.
- *PreLog:* After the recording session the operator scrolls the files, listens to the Scene & Take announce ahead of slates (slates are automatically detected by the InDaw waveform analyser), and keys-in the Scene & Take IDs; these IDs are auto-correlated to the audio tape TC and stored. Alternatively –if prelocators have been entered during recording– the operator has nothing to do but check the Sc&Tk descriptors
- *PostSync:* Later, using the InDaw 'PostSync' mode, and shuttling through the transferred video tapes, the operator keys-in the Scene & Take IDs written on each slate. InDaw recalls the sound precedently attached to this slate, syncs it for verification and for ever attaches the video tape TC to the audio tape timecode. InDaw's seek-time is so short that when shuttling through the video tape, the CD-R disk plays the sound on the very first image of each take. It's time now to non-stop dub an audio track onto the videotape, and/or to send the CD-R to the Avid station where auto-sync can take place.

What happens to wild sounds

Playing an InDaw recorded CD-R the editor has access to ALL the on-location sounds. Provided the recordist wrote approximate times (to the minute) on his reports, the editor can instantly find the time-indexed wild sounds.

Note: Protocols and Avid Media Composers request that InDaw-recorded .BWF files be converted into .OMF files. Ask Aaton to email you a plug-in called AtonXfer.

Could you explain how the CD-Rom (or JAZ) is handled in the Telecine room?

If you are transferring films on an Aaton Keylink telecine code reader with InstaSync option, as soon as the colorist keys the Scene & Take IDs seen on the slate image, the sound is instantly found on the InDaw recorded disk and instantly played in sync.

Same thing for the digislates but the Scene & Take IDs PreLog operation can be omitted: the colorist only has to key the time read on the DigiSlate. All of the above, is further simplified with Aatoncoded films since the colorist no longer has to key anything.

Is it true that location sound recordist's no longer have to start the DAT seven seconds before the camera?

Thanks to the under one-frame seek time of the Keylink InstaSync, there is no need for audio pre-roll anymore: sound recordists can start their tape recorder at the very same second the camera starts rolling.

If I am recording with a DAT in which the sampling frequency is not synced to the Smpte timecode, is the drift between the two a problem?

Since all DAT recorders suffer from that drift when an external Real-Time clock imposes its law, InDaw corrects the sample rate of the tape copy to be an exact 48K samplesper SMPTE second, drift is eliminated.

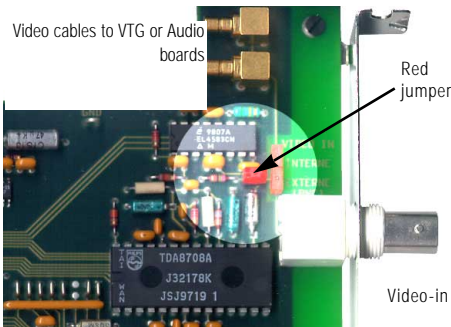


Fig 1 VITC reader connections

If at start-up the VGA screen looks scrambled, key F2 while rebooting the computer then select 600x800 56Hz fps in the PC screen settings.

1- The Post-Sync

option requires the VTR to be connected to the VITC reader board and to the SRC-1 audio board internal video input. In this case the red jumper (fig 1) must be plugged to get the right 75 Ohm load.

2- If a VTG inserter board is present, the VITC reader red jumper must be removed and a cable be internally connected to the VTG board J3 socket (bottom of the board, shield plate momentarily removed) which insures the 75 Ohm load.

3- For test purposes only, InDaw offers 4 analog-outputs. It is possible to internally shuffle the cables to get two analog-in and two analog-out. Wired to Cinch sockets at -10dB and not S/N specified, these analog in/outs are NOT to be used for commercial work.

4- Analog audio: external A-to-D converters must be slaved to the LTC track Smpte frequency. On Indaw-4 w. SND-4 board, connect one of the AES-out

to the converter sync-clock input (figure 2). 'Digital Loop' should be selected in the PreLog screen. On InDaw-5 w. SRC-1 board, there is no need for a digital loop.

5- Digital audio: to avoid TC drift, an exact number of samples must be recorded by LTC second. With Indaw-4 an external sample rate converter, slaved

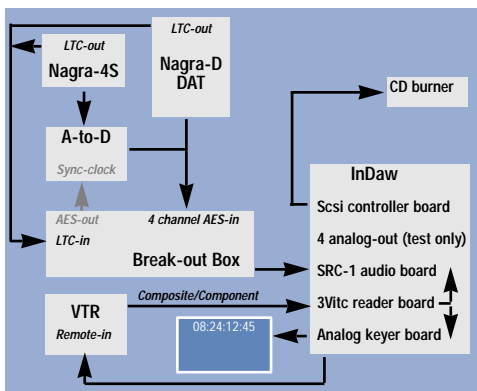


Figure 2

to the Smpte LTC of the DAT, should be inserted between the DAT and InDaw. With InDaw-5 the SRC board automatically brings the sample rate to an exact 48Ksamples per LTC second.

6- Most CD-Rom burners do not come with a switchable SCSI termination, don't forget to plug one at the end of the SCSI chain. Eliminate vibrations around a working burner.

7- If for some reason the program refuses to run, go to the Config screen and verify that all boards are correctly plugged: a 'Yes' should appear opposite each installed board.

8- To use non-Aaton delivered JAZ drives, the 'read-after-write' setting must be inhibited:-

- exit to DOS and insert the Aaton JAZBOOT diskette
- reboot the computer from the diskette [ctrl + alt + del] while the JAZ drive is connected and powered.
- at DOS prompt type: A:\>setup X [enter], where X is the letter which shows in the line "Supporting... X".

9- To reformat JAZ cartridges (Omega tools, non-DOS or proprietary formats), reboot the PC from the JAZBOOT floppy, introduce a JAZ

cartridge and type A:\>fmtjaz X [enter].

10- When switching-on InDaw, make sure all SCSI drives (CD-R burner, JAZ with cartridge-in, etc.) are already 'ON' and their 'activity light' is no longer blinking.

11- For a removable media to show in the 'explore drive' menu (33) of the

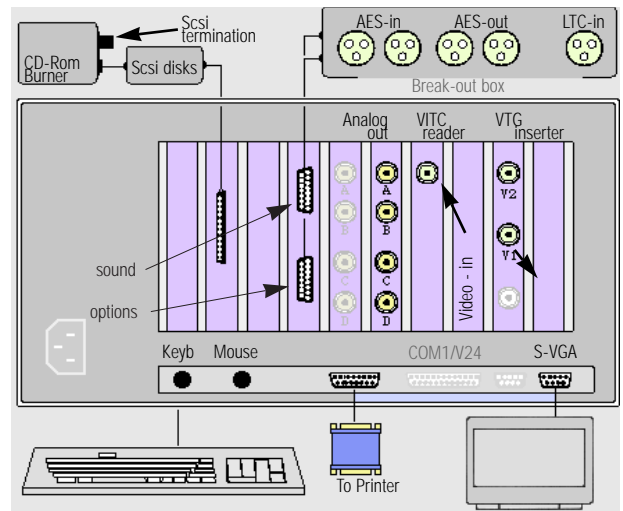


Figure 3

Project screen, insert a cartridge and wait for the drive loading light to stop blinking and for the InDaw auto-scan (31) to find it. For the next CD-Rom to be auto-scanned, use the Indaw eject button, not the drive eject switch.

12- Whenever there is an operational problem during 'record', look at the (36) CPU activity bargraph, note the sampling figures i00000 & o00000 (37) and the warning messages (35); email them to support@aaton.com. If you are subscribing to the hotline program, call +33 4 7642 9550.

13- To copy tapes from Nagra Ds, verify their LTC numeration setting is identical to their LTC out; timecode breaks would not be detected otherwise.

14- Nagra-T-audio should be set in Roller Update 'ON' to avoid wild chasing on large TC holes between take breaks.

15- Up to 9Gb SCSI-3 removable hard disks can be installed, partitions must be <2Gb to respect DOS addressing limitations. Partitions used to buffer CD-ROMs should be 680Mb sized..

16- To use the VTR / DAT remote control An RS232/RS422 converter cable should be connected on the COM2 SubD-9 or the COM1/V24 SubD-25 PC connectors (Pin 2 = Tx, Pin 3 = Rx, Pin 7 = gnd).

17- To directly transfer AES audio to digiVTRs, rate must be 1920 samples/frame => 48000 s/sec in PAL@25fps, and 1601.6 samples/frame (i.e. 8008 samples every 5 fr.) => 47999.952 s/sec in NTSC@29.97fps.

18- To get the InDaw screen after PC reboot, at DOS prompt type C:\>edit autoexec.bat, then add an 'indaw' line at the list bottom.

19- To get all disk partition ID letters: at DOS prompt type C:\>edit config.sys ; go to 'last drive' and replace the current letter by Z.

20- To permanently activate the numeric pad, key [F2] during start-up, go down to the 'num lock' line and select [on] by [+].

21- To reinstall the SCSI drivers, download <scsi.exe>; type: C:\>a:scsi -o then C:\>\scsilsetboot, and reboot.