CDTV Application Guidelines

A CDTV application is not simply an Amiga application running in a different box. The CDTV player imposes certain restrictions on an application--no menus and large icons, for example, and provides certain benefits--large storage capacity and digital audio. The wise CDTV developer respects the former and takes advantage of the latter.

The list below gives you, the developer, a quick reference to the do's and don'ts of CDTV applications. It contains rules and common sense advice. They are broken into two groups, minimum requirements and quality standards.

Minimum Requirements - The minimum necessary to be an acceptable CDTV application.

Quality Standards - To get into people's homes, you need to do more than the minimum. These will help you make the trip.

Level 1 Minimum Requirements

1. No program crashes. The application should not crash, guru or otherwise cease to be functional. Test, retest and test again till you are sure your application is robust.

2. No logic or flow errors. The application cannot take a path other than the one requested or expected by the user. For example, if the user asks for a map, but instead gets a picture of a tree, a logic or flow error has occurred.

3. All images presented should be free of error and look clean. For example, a title should not have a garbled picture or a video sequence that exhibits solarization, i.e., a color picture that looks like a negative.

4. No low quality images. All still images should be high quality, preferably digitized interlaced HAM images. Drawings or animations should be detailed and free of major color banding. All still images should be overscanned unless a conscious effort is made to provide a colored border.

5. User interface. The program should follow generally accepted CDTV interface rules including:

> A button for action, B button for backup, arrow keys move in direction of arrow.
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> Single click to select an object.
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> Use highlighted hitboxes rather than a pointer where possible.
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> Highlighted hitboxes should be accessible by cursor keys in any direction.
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> If a pointer is used for products with invisible hot boxes or for special purposes such as coloring, the pointer should change when it is over an invisible hot box and be in a form relevant to the application (paint brush, wand, etc.).
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> Numbered items should allow use of the numeric keypad on the controller.

Selectable items should stand out (e.g., 3D buttons) from non-selectable items, and they should give audio/visual feedback when selected.

Selectable items should give appropriate, consistent, and predictable results.

There should be no references to a computer keyboard (e.g., F1 key).

6. The application should look good on any television. This means you should buy a cheap television for testing.

7. There should be no signs of AmigaDOS. Examples include the AmigaDOS cursor, Workbench screen, system requesters, sleep icon, pull down menus, flashing title bar, front/back gadgets, or jargon (x memory free, loading next module, etc.).

8. Efforts must be made to reduce perceived boot-up time. The titlescreen should appear within five seconds of the appearance of the CDTV Interactive Multimedia logo. (See Discis' products) The program should show a title screen before doing anything else. It should not show CLI, Workbench, or any pointer.

9. It must have a screen blanker tied to preferences. We recommend the screen blanker supplied as part of the OS.

10. Applications must work under AmigaDOS 1.3 and 2.0 in both NTSC and PAL. Programs should be able to successfully pass *enforcer* and *mungwall* testing.

11. The program must be designed for use on a PAL or NTSC TV, which means care must be taken in regard to all graphic elements (fonts, symbols, pictures, animations, video) with respect to size, style, color combinations, and contrast. Test your applications on those two environments, not just with a monitor and one of the two standards. Specific suggestions include:

Fonts should be simple with no thin lines, anti-aliased, easy to read on a television and at least 20 point size.

Text should generally be highly contrasted to its background.

Text should have borders or drop shadows to make it more readable.

Don’t use pure colors (R, G, B values should be less than or equal to 13 out of a range of 0--15) because they bleed on television sets.

Be careful of the colors used as some colors show up very differently on NTSC versus PAL. For example, deep red in NTSC comes out pale pink in PAL. *The only way to find this out is to test on both systems.*

Avoid stark contrasts when using thin horizontal lines since this will not look good in an interlaced medium (TV), and avoid single pixel horizontal lines entirely.

Do not base instructions solely on color, i.e., don’t state ‘‘Pick the orange button’’ since TV sets will be adjusted differently. This could also be a problem for colorblind users.

There should be no more than nine selectable (by cursor or by pointer) items on a screen unless the individual items are recognizable because they are part of a set (i.e., alphabet, numbers, states). Nine items fit well with the font size required for television.

12. Products must not substitute repetitiveness for depth by reusing the same elements in different places. If a product is perceptually redundant, it is boring. For example, using a passage from Beethoven’s Piano Concerto No. 5 as an example of his music, and as an example of how a piano sounds, and as an example of a piano concerto is a lack of depth.

13. Eliminate all spelling and grammatical errors; people will not want to use a product, especially an education product, if they cannot trust something elementary like its spelling. Run your text through a spell checker and a grammar checker. Some of these titles are available in UK English or American English only, and these are acceptable, at least for the initial shipment.

14. Programs should reboot when the disc is removed unless the program disc needs to be removed for the product to be usable (*CD-Remix*). The program should reboot when the eject button is pushed, and the reboot should occur even if the disk is being accessed or Amiga audio is playing.

15. Sound quality should match the application requirement. Use Amiga sounds for audio feedback; CD-DA for game background, dramatic intro music and other sections designed to evoke an emotional response. All sounds should be clear and free from hiss or other extraneous problems. Speech must be ungarbled and unclipped and digitized at a reasonable level or be CD-DA.

16. Volume levels of speech, music, and sound effects should be uniform throughout the product. All audio must come through both channels unless there is a compelling reason to do otherwise. Note that compelling *does not* mean being unwilling to take the time to code so that the sound comes through both channels nor does it mean that your authoring system only works with one channel. Compelling *does* mean trying to add depth to the sound by having one person come through the right channel and another through the left channel.

17. Interruptability. All titles need to be interruptable at any time, including title and credit screens, introduction, during accesses, or animations.

18. Products must use preferences for language selections. Unless the language chosen in preferences is unavailable, the user should not normally see language selection screens.

19. All programs that can save to a floppy must be able to format a disk.

20. All programs should test for joystick/mouse mode. If the controller is not in the proper mode, it should ask the user to change modes.

21. Programs should disable keys that are not functional in the product. Typically this means disabling the audio keys for CD control.

22. Controller responsiveness. The product should not queue up button presses, it should react and give feedback immediately, and any cursor or highlight should move quickly enough for that specific application. In many cases, if a pointer is used it should include an accelerator feature. If a user feels compelled to repeat an operation because there is no response, the application is at fault.

23. The products should not have *any* dead time, i.e., time when nothing is occurring. Accesses should first give audio and visual feedback that a selection has been made, then have a transition of some sort, then begin the load during the transition. The transition interlude can consist of music, color cycling, a voice over, a fade to a colored screen, or in some way distract the user. A sleep or load symbol is generally insufficient to improve the perception.

24. Test that your product works properly with a trackball and a mouse.

25. They should also not be adversely affected by the presence of video peripherals such as genlocks.

Reference Titles

The reason someone purchases or uses a reference title is for the information contained within. A reference application should not have any of the following:

26. Inaccurate reference data. Imagine you're a student doing a homework assignment, using the CDTV title as a reference work. Your teacher gives you an ‘‘F’’ because your facts are wrong.

27. Missing information. If a menu, icon or other reference indicates that information relating to the subject matter is available, the information should be accessible from that point. In other words, if something is selectable, it must present the data associated with it.

28. An inability to accept keyboard input, print, or save to disk even though most people will not be able to take advantage of these features at the moment.

Recreation Titles

29. A title must be playable to completion. No user or program error should prohibit the game from continuing. If you make a stupid move and get eaten by a dragon and the game ends, you have played to completion. If you make an incorrect move and the game freezes up or prohibits the continuation of play, it is a not move that shouldn't have been made, it is a bug.

30. A multiple player option should be in every recreational product. Where it makes sense (certain sports and arcade games), two-player simultaneous play is a requirement (e.g., hockey and football).

31. Simulations must attempt to match the real world in as much detail as possible, including the standard rules of play in sports games.

Level 2 Quality: The Next Standard

In addition to the requirements of the Level One, products need to be compelling enough to compete successfully in the marketplace.

32. All titles must have an important and distinguishing value over doing the product on magnetic media, or by book, or by cassette. Products should have greater detail, more choices, more ‘‘sizzle’’, be easier to use, or be faster to perform a function. Ports from another platform--including the Amiga--must be enhanced (music, speech, additional video, more choices, etc.). An example of an excellent port is *SimCity* which added digital audio and rewrote the user interface to take advantage of the numeric keypad on the IR controller.

33. Timely response is important.

> On a multitasking operating system, the time that elapses from when a selection is made till the activity begins should be no more than three seconds. This is part perception (i.e., start showing a graphic change while still loading), part disk organization (to speed access times), and part programming (sometimes things can be cached or optimized). (*Asterix* appears to have achieved this goal, so it is therefore possible.) To reiterate, first audio/visual feedback, then some type of transition interlude which lasts no longer than three seconds, then the desired result.
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> For very long searches that cannot be done in a short period of time, inform the user of the progress of the search. Options include putting up a screen and start listing ‘‘hits’’ or showing a ‘‘gas gauge depicting the progress of a search.

34. Multimedia elements should be comparable to video or cartoons viewed on TV. These elements (animations, speech, music, sounds, video) should be streamed from disk so that they can be more in-depth and longer in duration. The animations should normally be 3 dimensional and change focus (i.e., background, perspective), not limited to a static background screen.

35. Educational titles and adventure type recreational products need to have a depth of interactivity options. For instance, if a character is walking down a street, the user should be able to go down alleyways, into buildings, etc. Each screen or in each section should have

more than one (and more than two!) things that can be done. These options should include non-linear choices, i.e., being able to jump around. Linear choices are really no choices at all because you must follow a prescribed path.

36. Educational titles should have some type of testing function to allow you to examine your progress in a section. The Bookmark feature should be used if appropriate (e.g., game scores, place in a book, tests, etc.).

37. Reference titles should allow numbers and spaces to be input for searches. All reference titles should support searches on keywords in body or title, and not be just an alphabetized index of options (similar to the index of a book). They should also have the Bookmark feature using Non-Volatile RAM (NVR) to save search criteria and possibly the resultant elements.

38. Recreational titles should use continuous streamed animations and CD audio for background. They should be able to save game states and high scores using NVR.

39. Possible suggestions:

Online help

Templates to fit on top of the IR controller to simplify the buttons for complex products (i.e., flight simulator).

Optionally viewable demo commercials of other products.

Hardware add-ons (a la Nintendo).

Supply a formatted disk (or at least a disk label) if the product can use a floppy.