

X16 Edit user manual

January 10, 2021

1 Introduction

X16 Edit is a simple text editor written in 65C02 assembly especially for the Commander X16 retro computer.

The look and feel of the program is inspired by GNU Nano, but there are, naturally, many differences.

One primary design goal is to support editing of large text files. A lot of care has been put into the design of the internal memory model to make this possible.

The Commander X16 was devised by David Murray a.k.a. the 8-Bit Guy. For more information on the platform, go to www.commanderx16.com.

2 Getting help

X16 Edit is controlled by keyboard shortcuts. The most frequently used shortcuts are always displayed at the bottom of the screen.

There is also a built-in help screen, which is displayed when you press Ctrl+G. The help screen lists all keyboard shortcuts with a short description of what they do.

All keyboard shortcuts are also listed in section 3.3 of this manual.

3 Basic usage

3.1 Entering text

X16 Edit is a modeless editor. As soon as it is started, everything you type on the keyboard is inserted into the text buffer.

By default, line breaks are not made automatically. There is no limit to the length of a line, other than the available memory. If the current line does not fit on the screen, it is scrolled horizontally.

There is, however, an optional automatic word wrap mode. Read more about that in section 4.3.

3.2 Moving the cursor

The cursor is primarily moved by the standard arrow keys.

You may move to start of line with the Home key, and to end of line with Shift+Home.

The computer does not recognize the standard page up and down keys. Those operations are, however, supported by pressing Ctrl+Y (page up) or Ctrl+V (page down).

Finally, it is also possible to move the cursor to a specified line number with the go to line feature (Ctrl+L).

3.3 Commands

Commands are selected with keyboard shortcuts. They may be entered in the following three ways:

- Press and hold down the Ctrl key at the same time as you press a command key. This is the preferred way of selecting commands.
- Alternatively you may press and release the Esc key. The program is now ready to receive a command key, and a message stating this is displayed in the status bar. Press a command key, without holding down Ctrl, or Esc to abort. This option is mostly made as a backup, in case the Ctrl+key sequence does not work.
- Finally, some commands are available via an optional function key.

Table 1: List of keyboard shortcuts

Ctrl or Esc	F-key	Description
G	F1	Display built-in help screen
X	F2	Exit from the program
O	F3	Write text buffer to file
R	F5	Open and read a file into the buffer
N	—	Create new text buffer
Y	F7	Page up
V	F8	Page down
K	—	Cut current line and save it to clipboard
P	—	Copy current line to clipboard
U	—	Paste (uncut) all content from clipboard
C	—	Display current cursor position (line and column)
W	F6	Search and find string in buffer (case sensitive)
S	—	Replace one or all occurrences of a string in buffer (case sensitive)
L	—	Goto line number
A	—	Toggle auto indent on/off
Z	—	Toggle word wrap on/off

E	—	Change charset, cycles through the three supported charsets
D	—	Set file storage device number, default is 8
T	—	Cycle through text colors
B	—	Cycle through background colors
M	—	Show memory usage (1 block=251 bytes)
space	—	Insert non-breaking space

The tab stop width is set by first pressing and releasing Esc and then one of the digits 1–9.

3.4 User interface

The user interface is inspired by GNU Nano, and should be mostly self-explanatory. It consists of the following main parts:

- The title bar
- The status bar
- The shortcut list
- The editor area

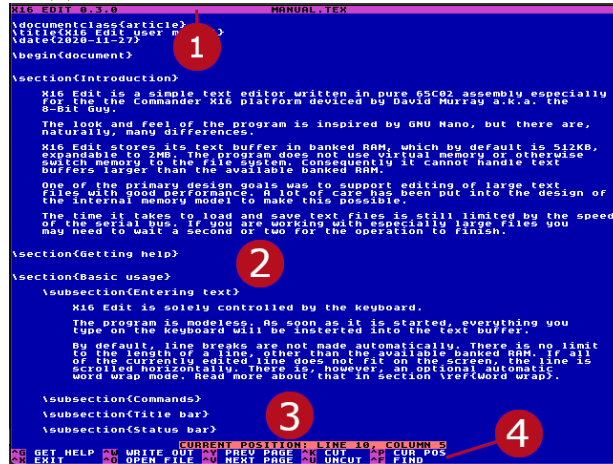
The *title bar* is displayed on the first row of the screen. You find the program name and version to the left. The current file name is shown at the center. If the text buffer has never been saved to file, the string "NEW BUFFER" is shown instead of a file name. At the right edge, the letters "MOD" are shown if the text buffer has been modified since last saved to file.

The *status bar* is the line third from the bottom of the screen. All messages from the program are displayed in the status bar. Press Esc to hide a message. If the program needs to prompt you for input, the prompt is also shown in the status bar. Press Enter to confirm input or Esc to abort the operation.

The last two lines at the bottom of the screen contain the *shortcut list*. The most frequently used commands are shown here.

The *editor area* covers all lines between the title bar and the status bar.

Figure 1: Main elements of the user interface, (1) title bar, (2) editor area, (3) status bar, and (4) shortcut list.



3.5 Non-breaking space

By default, the Commander X16 interprets Shift+space as a non-breaking space.

To prevent typing errors, the editor will, however, insert a normal space character even if the Shift key is held down. Non-breaking spaces are rarely used when you edit raw text files. And it is quite easy to type them by mistake, especially if the character immediately before or after the space requires the Shift key.

If you actually want to insert a non-breaking space you may type Ctrl+space.

3.6 Text buffer size

X16 Edit stores its text buffer in banked RAM, which by default is 512 kB, expandable to 2 MB.

The program does not use virtual memory or otherwise switch memory to the file system. Consequently, it cannot handle text buffers larger than the available banked RAM.

You may get the available free memory by pressing Ctrl+M. The available memory is reported as number of blocks free. One block may hold at most 251 characters.

If you have used all available memory, the editor will display a memory full message in the status bar. Further insertion of characters is ignored.

4 Features

4.1 Tab stops

The default tab stop width is four spaces. You may change the width by pressing and releasing the Esc key followed by one of the digits 1–9. The selected digit indicates the tab stop width.

The tab key works by inserting blank spaces until reaching the next tab stop.

4.2 Auto indent

Use the auto indent feature to keep the level of indentation when line breaks are inserted manually or automatically by the word wrap feature.

Auto indent is turned off when the editor starts. To toggle the feature on or off, press Ctrl+A.

4.3 Automatic word wrap

By default, automatic word wrap is turned off. If you type a line longer than the width of the screen, the line is scrolled horizontally.

Automatic word wrap is toggled on or off with Ctrl+Z. When turned on, you are prompted for the column where to wrap.

The feature works in a simplified way. When you reach the right margin, the editor breaks the line after the previous blank space. If there is no blank space on the line, the line break is inserted at the right margin. If you delete characters from a line or if you insert characters at the beginning of a line, the line breaks are not recalculated. The feature works well as you type in text, but if you go back and edit that text you may have to redo line breaks manually.

4.4 Cut, copy and paste

X16 Edit supports the traditional cut, copy, and paste features.

The copy (Ctrl+P) and cut (Ctrl+K) commands copy all of the current line to the clipboard. It is not possible to select a part of a line. The lines you copy or cut are placed in the clipboard in the order they were copied or cut.

The clipboard may hold a maximum of 3 kB of data. If you reach that limit, the program will inform you.

Pasting or uncutting (Ctrl+U) will insert all content in the clipboard at the position of the cursor. The clipboard is cleared after this.

4.5 Search and replace

X16 Edit also supports search (Ctrl+W) and replace (Ctrl+S).

Both search and replace are case sensitive. Search starts from the cursor position and is only forward looking.

When searching for a string, the editor moves the cursor to the start of the next occurrence. If the string is not found a message is displayed in the status bar.

When replacing a string, you are given the option to only replace the next occurrence or all subsequent occurrences.

4.6 Supported character sets

X16 Edit supports the three character sets of the Commander X16:

- PETSCII upper case/graphics. This is the default mode of both the Commander X16 and the C64.
- PETSCII upper/lower case. This is the same mode as is available on the C64.
- ISO character set. This mode is new, and there is no corresponding mode supported by Commodore 8 bit computers. Text is encoded according to ISO-8859-15, making it easier to transfer files to and from modern computers.

On startup, X16 Edit detects the current character set. If the detection is successful, it continues using that character set.

If the current character set for some reason cannot be detected, the program defaults to ISO mode.

During the operation of the program, it is possible to change the character set. Press Ctrl+E to cycle through the options.

4.7 Line break encoding

The selected character set mode determines how the editor encodes line breaks when writing the text buffer to file.

In both PETSCII modes, it uses a single CR to indicate line breaks. This is the closest you get to a standard for Commodore 8 bit computers. This is also the setup most likely to work with applications written for Commodore computers.

In ISO mode it uses a single LF to mark line breaks. This is the standard used today by Linux and MacOS. Following this standard makes it easier to transfer text files to or from modern computers.

Internally the editor uses a single LF as line break marker. On reading a file it converts all occurrences of CR to LF. When writing the text buffer back to file, the line breaks are converted to CR if in PETSCII mode.

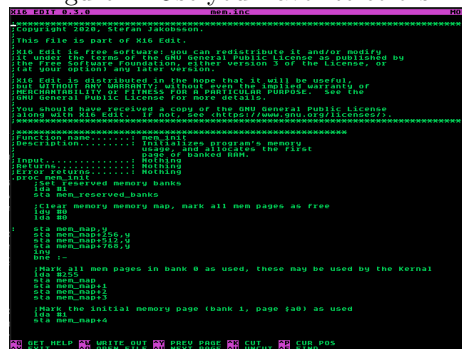
In the event you want to save a PETSCII file with LF line breaks or an ISO file with CR line breaks, all is not lost. Use the preferred character set mode while editing the file. Before saving, switch to ISO mode for LF line breaks or PETSCII mode for CR line breaks.

4.8 Background and text color

Both the background and the text color may be changed while using the editor.

Press Ctrl+T to cycle through background color options. Press Ctrl+B to cycle through text color options.

Figure 2: Use your favorite colors!



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X16 Edit 0.3.0 MEM.DOC
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Function name: mem_init
Description: This function initializes the first
            page of banked RAM.
Input: Nothing
Errors: Nothing
Code:
    [Set reserved memory banks]
    int mem_reserved_banks;

    [Clear memory map, mark all mem pages as free]
    int mem_map;

    [Mark all mem pages in bank 0 as used, these may be used by the kernel]
    int mem_map;
    int mem_map;
    int mem_map;
    int mem_map;
    int mem_map;

    [Mark the initial memory page (bank 1, page 100) as used]
    int mem_map;

[Ctrl+H] [Ctrl+T] [Ctrl+B] [Ctrl+O] [Ctrl+R] [Ctrl+V] [Ctrl+Y] [Ctrl+D]
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5 File handling

X16 Edit supports file handling functions for reading (Ctrl+R) and writing files (Ctrl+O).

After selecting Ctrl+R (open/read) or Ctrl+O (write out/save) you may type a file name at the prompt. Alternatively you may press Ctrl+T to show the current directory listing. Use arrow up and down to highlight a file or folder, and press enter to select the highlighted item. If the selected item is a folder, the program will change the current directory, and show its content. If all items fit on the screen, the listing is ended with "— END —". If there are more files in the directory, the programs prints "— MORE —" instead. In case the directory items are spread over several pages, you may go to next page with Ctrl+V and back to a previous page with Ctrl+Y.

The program does not support other file handling functions, such as deleting or renaming files or folders.

By default the program uses device #8. The device number may be changed by pressing Ctrl+D.

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