Image BBS 3.0 Sysop Manual

pinacolada64.github.io/ImageBBS3-docs.github.io/Image-BBS-3.html

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Image BBS's familiar lightbar has been expanded, as compared to previous versions, in both scope and utility. The first two pages remain virtually unchanged from Image 1.2, but the addition of six new lightbar pages adds the ability to monitor and change new features which have been added to this new version.

Lightbar Defaults

During boot-up, lightbar check mark defaults are read. This allows you to configure your BBS more easily than in previous versions of Image BBS. Maybe you want to disable the *More* prompt, or debug some code with the on-screen trace function, at startup. You can do that within `IM`, option `H`: *Lightbar/Alarms*.

Lightbar Function Keys

The function keys f1-f8 are used to switch pages, move the "lit" portion of the lightbar, and enable/disable individual lightbar positions, shown in the table below:

Key	Purpose
f1	toggle between full and split screen mode
f2	toggle between 1 and 2 mHz (`FAST` in BASIC 7.0) mode when using a Commodore 128 in C64 mode
f3	move highlighted position left
f4	page backward through lightbar pages
f5	move highlighted position right
f6	page forward through lightbar pages
f7	enable (check) the selected lightbar position

Key	Purpose
f8	disable (uncheck) the selected lightbar position

Table 5. Lightbar Function Keys

f1: Split screen mode is useful when you want to access the lightbar and view BBS status/caller information. Full screen mode allows you to read more text on the screen (it doesn't show the information displayed while in split screen mode).

You must be in full screen mode to enable or disable lightbar positions via the function keys.

f2: Toggles between FAST and SLOW modes on a Commodore 128 in 64 mode. When you are in FAST mode, the screen is disabled since the VIC chip cannot run at 2 mHz.

Lightbar Functions

> The decimal/hexadecimal values of each lightbar position (used for Lightbar Interface: &,52) are included in the accompanying *Image BBS 3.0 Programmer's Reference Guide*.

Sys	Acs	Loc	Tsr	Cht	New	Prt	U/D

Table 6. Lightbar, page 1

Sys Left: *Sysop Available to Chat*

Enabled: The sysop is available to chat. If the user types C at any major prompt, a few checks are made:

1. The number of unanswered chat requests during the call is kept track of. If there are multiple unanswered chat requests pending, a counter increments.

2. If there are none pending, the user is prompted for the reason for requesting chat. If a reason is given (not just hitting `Return`):
    - the first 16 characters of the chat reason are shown in the programmable window
    - the window fades between shades of gray and white
    - chat alert dings will sound
    - the reason for chat is logged to `e.log weekday`.
3. A file (`s.chat x`) is shown for that attempt number.

If there is no file for that attempt number, the *Excessive Chat Attempt* lightbar flag is checked.

- If that is set, the user's time remaining is set to zero, and they are logged off at the earliest available opportunity.
- Otherwise, the user is told `Paging Now!` , then returned to the prompt where they initiated the chat request.

Disabled: When a user types `C`, they are told the sysop is unavailable for chat.

Related Checkmarks:

`Sys` Right: *Background Page Enable*

`Chk` Right: *Excessive Chat Logoff*

`Cht` Left: *Enter/Exit Chat Mode*

`Sys` Right: *Background Page Enable*

When the sysop is available for chat and the user has entered a reason for chat, the chat page sound will continue playing in the background until the sysop enters chat mode or the user logs off.

Related Checkmarks:

`Sys` Left: *Sysop Available to Chat*

`Chk` Right: *Excessive Chat Logoff*

`Cht` Left: *Enter/Exit Chat Mode*

`Acs` left: *Edit User's Access*

Change the access group of the user who is online. This changes a portion of the bottom screen mask, `A=x` (*x* being the user's access group).

`f1`	sets access group to `A=0`
`f2`	sets access group to `A=9`
`f3` / `f4`	raises access one group (wraps around from `A=0` - `A=9`)
`f5` / `f6`	lowers access one group (wraps around `A=9` - `A=0`)
`f7`	gives the user the selected access level, exiting this function

If the access group was changed, the new access group flags are loaded from `e.access` at the earliest available opportunity.

`Acs` right: *Block 300 Baud Callers*

Prevent 300 baud users from logging in. When one tries, they are told:

```
SORRY, NO CALLS LESS THAN 1200 BPS ARE CURRENTLY BEING ACCEPTED.
```

`Loc` left: *Local Mode (No Modem I/O)*

Log in to the BBS from the C64. This is a true local login, with Sysop access enabled— as compared to a "pseudo-local" login, or `ZZ` mode being enabled at a prompt, where the caller is given local mode access to perform maintenance tasks.

TODO: See *Logging On From the Console* for more information.

Related Checkmark:

`Loc` right: *ZZ (Pseudo-Local) Mode*

`Loc` right: *ZZ (Pseudo-Local) Mode*

Once a user is online, you can grant them pseudo-local mode access in order to perform maintenance tasks if they don't have the **Local Maint** access flag set.

Related Checkmark:

`Loc` left: *Local Mode (No Modem I/O)*

`Tsr` left: *Edit User's Time Left*

Adjust time remaining for the user online. The time remaining is shown in the bottom right hand corner of the screen, and is always visible.

f1	zeroes time (log off at earliest opportunity)
f2	gives unlimited time (`--:00` displays)
f3	+1 minute
f4	+10 minutes
f5	-1 minute
f6	-10 minutes
f7	gives the user the selected time limit, exiting this function

`Tsr` right: *Prime Time Enabled*

Toggle Prime Time (limiting all callers to a certain time limit during peak usage hours) for every user.

- If it's currently Prime Time, ignore it at logon
- If not, enable Prime Time

If no Prime Time is designated for your BBS, this has no effect.

`Cht` left: *Enter/Exit Chat Mode*

Enters chat mode when a user is online. It first displays the customizable "entering chat" message. By default it is:

```
 * Entering Chat Mode *
```

then allows the sysop and user to type anything they wish back and forth to each other for the duration of the chat.

Pressing `f7` again ends chat mode, displaying the customizable “exiting chat” message. By default it is:

```
* Exiting Chat Mode *
```

Then the user is returned to the area and prompt they were at before entering chat mode. If the user was in the BBS text editor, the BBS displays

```
* Returning to Editor *
```

`Cht` right: *Disable Modem Input*

`New` left: *Disallow New Users*

Makes the BBS private, and will not allow new users to sign up. They are told that the BBS is not accepting new users at this time.

`New` right: *Enable Screen Blanking*

At the BBS console’s idle screen, if no keys are hit or no incoming calls are detected, after a certain time period the screen will go blank to prevent screen burn-in. The screen remains off until a key is hit or an incoming call is detected.

`Prt` left: *Print Spooling*

Sends all text output to the printer and the screen.

`Prt` right: *Print Log Entries*

Prints all log entries to the printer as well as the disk log.

`U/D` left: *Disable U/D Section*

Users cannot access the UD/UX area. They are told the area is closed temporarily.

`U/D` right: *300 Baud U/D Lockout*

300 baud users cannot access the UD/UX area. They are told that they do not have access to that area at this time.

`Asc`	`Ans`	`Exp`	`Unv`	`Trc`	`Bel`	`Net`	`Mac`

Table 7. Lightbar, page 2

`Asc` left: *ASCII Translation*

Enables ASCII translation for the user. Character layout differs between Commodore and ASCII standards, most notably by reversing the position of upper- and lowercase letters.

`Asc` right: *Line Feed After Return*

Enables linefeeds for the user. In ASCII mode, terminals need a carriage return to move the cursor to the beginning of the current line. However, they may also need a linefeed character to move the cursor to the next line. (Without one, the user will probably complain that “everything displays on one line.”)

> Once online, a user can select `EP`, Edit `P`arams, option `5` to resolve this problem.

TODO Add `Toggle Linefeeds` option to `i/lo.login`

`Ans` left: *ANSI Color Enable*

Enables ANSI escape sequences to output color instead of Commodore color characters.

`Ans` right: *ANSI Graphics Enable*

Enables ANSI graphics characters, many of which have similarities with the Commodore character set, and other special symbols for the user.

These are a standardized way to set character colors, plus “screen management” things like scrolling, windowing, clearing to end-of-line, and more (which really aren’t utilized on this Commodore 64 BBS).

The cursor controls can be used with the new *Graphic Menu* system, if it’s enabled.

`Exp` left: *Expert Mode Enable*

Enables Expert Mode, which skips many entry screens seen when entering subsystems or changing areas within that subsystem.

`Exp` right: *Disallow Double Calls*

Disables users from calling twice in a row. If a user tries, they are told:

```
Sorry, no back-to-back calls allowed. Try Again Later!
```

`Unv` left: *No Immediate U/D Credits*

Enabled: User receives credit when an upload is validated.

Disabled: Credit is received after the completion of the upload.

`Unv` right: *Allow Auto-Logoff*

Enables asking the user whether they wish to log off after a file transfer is complete.

`Trc` left: *On-Screen Trace Enable*

Enables a tracing feature that will show, at the bottom of the screen, `L=` and the BASIC line number currently executing. Execution can be slowed down with the Shift or Shift-Lock keys to read line numbers more easily. This is only meant as a debugging tool, and is normally left disabled.

`Trc` right: *Undefined*

`Bel` left: *Local Bells Enable*

Enables the bell sound, so you hear bells the console plays.

`Bel` right: *Local Beeps Disable*

Disables the beep sound, so you don't hear the console beeps.

`Net` left: *NetMail Enable*

`Net` right: *NetMail Trigger*

`Mac` left: *Macros On/Off*

Users can see "macros"--a short saying presented before the main prompt. (Users can toggle them on/off with the MA command, or add their own with the ME command.)

`Mac` right: *MCI Disable in Editor*

Disables the use of the Message Command Interpreter in the BBS text editor.

`Chk`	`Mor`	`Frd`	`Sub`	`Res`	`Mnt`	`Mnu`	`Xpr`

Table 8. Lightbar, page 3

`Chk` left: *Enable MailCheck at Logon*

Enables a logon option (M) for the user to check whether they have any mail waiting. They can then choose whether to continue logging on or not.

`Chk` right: *Excessive Chat Logoff*

If the user requests more unanswered chat pages than there are `s.chat` *x* screens, the user is logged off as soon as possible.

Related Checkmark:

`Cht` left: *Enter/Exit Chat Mode*

`Mor` left: *More Prompt On*

Enables the BBS to pause text after the user’s specified screen height fills up with text. The `...More? (Y/n)` prompt is output.

- If Yes (or any other key than Y, uppercase indicates it’s the default) is hit, text will continue to output.
- If another key is hit, the BBS attempts to abort text output. (This might not always work, there may not be code present to handle aborting output.)

`Mor` right: *More Prompt Not Available*

Enables the BBS to continually output text, and rely on the user to hit Home or Ctrl+S to pause text. Most keys (Home or Ctrl+Q being fairly standard) resume output.

While text output is paused, `P` displays in the bottom status line, between the current time and time remaining.

`Frd` left: *Full-Color Read Disable*

> This lightbar position is a homage to Fred Dart, Image BBS support guru and programmer.

`Frd` right: *Undefined*

`Sub` left: *Message Bases Closed (SB)*

When enabled, users cannot access the sub-boards.

`Sub` right: *Files Section Closed (GF)*

When enabled, users cannot access the General Files section.

`Res` left: *System Reserved (Default PW)*

If enabled, the BBS is considered "reserved" and a password must be entered to access it. At the idle screen, hit `7` to set or clear a reservation. You can set the reservation for `N`one (which clears the reservation), `O`ne call, or `A`ll calls.

`Res` right: *Network Reserve*

This is usually set during the Network Maintenance period. If a call connects during this time, they are told to call back when network transfers are done.

`Mnt` left: *Zero* `tr%` *at* `Hit Backspace`

If `Mnt` right (*Modem Answer Disabled*) is active and a call comes in, incoming bytes from the connect process are held in the RS232 receive buffer. When `Mnt` right is disabled, that buffered data causes the BBS to connect and go to the `Hit Backspace` prompt. Since there is nobody online, the BBS waits for 6 minutes until `tr%` counts down to 0, then resets back to the idle screen.

Or, sometimes a real caller (or a bot) connects to the BBS and does nothing at the `Hit Backspace` prompt. If the sysop is around and sees it happen, they can zero `tr%` to reset the time remaining to `0`, shortcutting the reset back to the idle screen.

`Mnt` right: *Modem Answer Disabled*

When enabled, the BBS will not answer an incoming call.

`Mnu` left: *Is User in Menu Mode?*

The Graphic Menu system uses this flag to check whether the user is currently in Graphic Menu mode.

`Mnu` right: *Are Menus Available on BBS?*

If enabled, Graphic Menus are available to users.

`Xpr` left: *Enable Express Logon*

If enabled, when the user first connects to the BBS, they have the option X*press Login* available so they can skip login modules and get to the main prompt quickly.

`Xpr` right: *Use* `s.detect` *Files*

If enabled, the user will see a file called `s.detect` at login instead of a specific message about their graphics mode.

Em3	Sc2	Scp	Alt	Trb	DCD	DSR	$3e

Table 9. Lightbar, page 4

`Em3` left: *Emulate Image 1.x mode*

When enabled, you can run Image 1.*x* `+` files, using a *redirection layer* to point that version's `im` calls to Image 3.0's `im` calls.

> The main prompt Run command checks this lightbar flag and prompts for the appropriate module type. For more information, see Image 1.x Emulation Mode.

`Em3` right: *Undefined*

`Sc2` left: *Disable 2nd Security Check*

If enabled, the user is only prompted for their account password, not their first and last names or their email address.

`Sc2` right: *Undefined*

`Scp` left: *SuperCPU Present*

If enabled, the CMD SuperCPU is connected to the system.

`Scp` right: *Turbo Mode On*

If enabled, the CMD SuperCPU is operating in 20 mHz mode.

`Alt` left: *Alt last 10 callers display*

If enabled, this displays the idle screen last ten callers list in different colors.

`Alt` right: *Undefined*

`Trb` left: *Disable Troubleshooting Mode*

If enabled, the programmable window will not display variable values for debugging purposes.

`Trb` right: *Undefined*

`DCD` left: *Invert DCD Signal*

Enabled: The modem hangs up when an inverted (asserted when high) Data Carrier Detect signal is received from the modem.

Disabled: The modem hangs up when a normal (asserted when low) Data Carrier Detect signal is received from the modem.

`DCD` right: *Carrier Present*

When enabled, there is either a DCD or DSR carrier signal present. This can be checked for in BASIC using `&,52,$3c,3:if a% then ...`.

`DSR` left: *DCD/DSR select*

You can choose whether loss of Data Carrier Detect or Data Set Ready signals indicates there is no user connected, therefore the BBS should hang up.

Enabled: If there is no Data Set Ready signal present, then hang up.

Disabled: If there is no Data Carrier Detect signal, then hang up.

`DSR` right: *Show Rx/Tx Windows*

If enabled, show data being received/transmitted in receive/transmit windows.

> At higher bits per second rates, the data is not shown to achieve maximum throughput.

`$3e` left: *Undefined*

`$3e` right: *Undefined*

$40	$42	$44	$46	$48	$4a	$4c	$4e

Table 10. Lightbar, page 5

$50	$52	$54	$56	$58	$5a	$5c	$5e

Table 11. Lightbar, page 6

$60	$62	$64	$66	$68	$6a	$6c	$6e

Table 12. Lightbar, page 7

Pages 5-7 are undefined and are available for your own use.

At1	At2	At3	At4	At5	At6	At7	At8

Table 13. Lightbar, page 8

`At1` left: *Default Alarm 1 Enable*

`At1` right: *Default Alarm 1 Trigger*

`At2` left: *Default Alarm 2 Enable*

`At2` right: *Default Alarm 2 Trigger*

`At3` left: *Default Alarm 3 Enable*

`At3` right: *Default Alarm 3 Trigger*

`At4` left: *Default Alarm 4 Enable*

`At4` right: *Default Alarm 4 Trigger*

`At5` left: *Default Alarm 5 Enable*

`At5` right: *Default Alarm 5 Trigger*

`At6` left: *Default Alarm 6 Enable*

`At6` right: *Default Alarm 6 Trigger*

`At7` left: *Default Alarm 7 Enable*

`At7` right: *Default Alarm 7 Trigger*

`At8` left: *Default Alarm 8 Enable*

`At8` right: *Default Alarm 8 Trigger*

Alarm Triggers

TODO

NetMail Triggers

TODO

Lightbar Interface: `&,52`

`&,52,`*`position,mode`*

`position` ranges from 0-127 decimal (`$00` - `$7f` hexadecimal— for example, `&,52,$30,0` is allowed).

`mode` is 0-4 as used by BASIC. Mode 5 reads checkmarks in ML routines, and is discussed in the accompanying *Image BBS 3.0 Programmer's Reference Guide*.

`0`	clear checkmark at *position*
`1`	set checkmark at *position*
`2`	toggle checkmark at *position*
`3`	read checkmark at *position*, return status in `a%` : 0=off, 1=on
`4`	move “lit” portion of lightbar to position 0-55 FIXME: or 1-56?]

RELedit, if you're not familiar, is FIXME. For more information, see the chapter on RELedit.

1. Type `N` to go to the `Base Editors`.
2. Cursor to or type `G` for `Editor Utils`.
3. Type `A` to `Run RELedit`. Here you can define your Subs, U/Ds, U/Xs and SIGs the same way it is done in Image 1.2a. You *must* define at least one SIG and add your SB, UD and UX assignments.

When finished with RELedit, exit using the `Return` key until you end up back at the `Base Editor` menu.

The remaining items in the `Base Editor` menu are sysop utilities for maintaining the BBS.

TODO: Refer to the IM Configuration Editor chapter for further information.

1. Select `K` to return to the Configuration Editor.
2. Select `Q` to exit the menu back to the Main Prompt.
3. Refer to Final Notes for further instructions.

Conclusion

From here, explore and become familiar with the new features.

Much has changed since Image 1.2 and 2.0. The best way to learn is to experiment.

You'll probably be confused and make mistakes along the way, but the learning experience is necessary for any new system.

FIXME: that's not helpful wording. We don't want documentation to be user-hostile. -rs

More information is provided in the TODO Sysop Guide section, but one of the main objectives of Image 3.0 is to make it as sysop- and user-friendly as possible.

As in previous versions of Image BBS software, menus are displayed with `?` and a Local Command menu is displayed to level 9 users with pseudo-Local mode access by typing `??`.

Configuration

Duplicate section. Old formatting.

1. At the System Idle screen, hit the number 1 key to set the time. Image will perform auto maintenance and return to the Idle screen.
2. Press the f1 key to go to full screen mode then press the f7 key to log on. Press the “I” key for Instant Login.
3. If asked, type your password. The BBS will greet you with a welcome message and then prompt you to select your time zone.
4. Select your time zone (7=EST, 6=CST, 5=MST, 4=PST)
5. Enter the number of lines per screen (suggest 23)
6. At the Main Prompt, type `EP` to Edit your Parameters.
    a. Select `P`arameters.
    b. Set your Computer Type and any other Terminal Parameters you want.
    c. (*Optional*) Set Cursor Menu Mode On.
    d. Hit `Return` to exit.
    e. At the Main Prompt, type `EP` to Edit your Parameters.
    f. Select `I`nfo.
    g. Change your phone number to your email address.
    h. Type `Return` to exit.
7. At this point, it is suggested you log off using the `O` command and answer `Update User File?` with `Y`es. This saves the new parameters to your account. You can then log back on in any mode you choose.

Always log off with the `O`, `O!` or `O%!` command. Logging off with the `f7` key bypasses the module which updates the last 10 callers and cause errors in the time used.

8. Log back on to the BBS. At the Main Prompt, type `IM`.

You are taken to the Image BBS Configuration Editor.

9. You can use cursor controls or just type `E` for `Access Groups`. All group names and flags should be the same as your 1.2 system was. Edit any access group Name and Flags per your preference.

Type Return to exit, saving changes. You are returned to the Configuration Editor.

10. Enter I for `Misc. Features`.
    a. At minimum, you should set G, the `Time Zone` and J, the `System ID`.
    b. If you are running on a Lt. Kernal, set A, `Lt. Kernal Device` number.
    c. *Optional:* Type M to configure your `Entering Chat` and `Exiting Chat` messages.
    d. Edit any other parameters you wish to set.
    e. When finished, type N to `Quit` back to the Configuration Editor.
11. Type J for `Modem Config`.
    a. Enter B for `Setup/Import Modem Config`.
    b. Enter 1 to `Setup New Modem Config`. Answer Yes to the next two questions.

The following will guide you through how to set up a GGLabs GLink232 (or SwiftLink) modem interfaced to BBS Server.

1. Type `IM` at the Main Prompt.

> If the BBS is configured for a Lt. Kernal, entering the modem configuration will allow you to configure not only the port your host adapter is set for but any other ports which might be multiplexed.

```
Enter Modem Brand/Name: GLINK232
Enter Author (Return=New Image): GGLABS
Enter Custom Init String:
```

(Just hit Return here. No custom Hayes initialization string is necessary.)

Answer the following setup questions with the answers provided:

1. What is the Max. Connection Rate For This Modem? 6
2. Select Hang-Up Method For This Modem: D
3. Auto-Answer (ATS0=1): A
4. Use an ATH After ESCape Codes?: H
5. When In Local Mode, Should Phone Be: H
6. Does This Modem Need a 0 After ATH?: 0
7. Should ATH be in the Modem Reset/Init String?: H
8. Select Value For ATX Setting: 1
9. Is DTR on This Modem Normal or Reverse?: N
10. Select CCITT or Bell Labs Standard: 0
11. Select RS232 Interface Type: 1
12. Is Caller ID Available (Both Modem AND Phone Line): 0

The BBS will create a file on the Etcetera Disk, then display a `Setup Completed` message. (Ignore the statement about doing customized result codes, we skipped that earlier.)

Then hit any key to return to the `Modem Config` page.

Review your settings. If any changes need to be made, type the corresponding number (such as if you want to change DTR Hang-Up to ESCape Code Hang-Up, type 2 and select E).

> If using ESCape codes, you will need to modify `sub.modem` as stated in item 6 under Configure a New BBS.

When finished configuring your modem, type X to `Exit Modem Config`. Answer `Update Modem Flags?` with Yes.

TODO: More details will be available in the relevant `IM` documentation.

1. Type D to enter the `Logon Editor` sub-menu.
2. Type A for `Logon Mods`.
   a. Type Help for instructions on how to configure your logon modules.
   b. Configure them for your preference.

> Since this is a conversion from 1.2 to 3.0, it's highly recommended you include `i/lo-email` as a forced module in your login mods. This asks any user whose account is still configured with a phone number to change it to an email address.

14. Type B for `Maint Mods` to configure your nightly AutoMaintenance modules.
15. Configure any other items you need to get started.
16. When back at the Configuration Editor, type N for `Base Editors`.

17. Type `G` for `Editor Utils`.

18. Type `A` to `Run RELedit`. Here you should find your Subs, U/Ds, U/Xs and SIGs the same way it was configured in Image 1.2a.

Verify everything is correct or make changes as needed. If your 1.2 system was networked, go into each netsub you have defined. No changes need to be made from within the netsub but when you exit each netsub, they are updated to a new Image 3.0 file format called a "structure file."

When finished with RELedit, exit with `Return`. The BBS performs a series of operations to convert all your 1.2 SIGs to 3.0 format. When finished, you go back to the `Base Editor` Menu.

If you are using a CMD RTC to set the BBS clock at boot-up, this would be a good opportunity to `H` `Set Time Dv#` (set time device number) and `I` `Set CMD Clock` of your CMD device.

1. Type `K` to quit back to the Configuration Editor.

2. Type `Q` to quit back to the Main Prompt.

3. If you had macros defined in your 1.2 system and don't want to keep them, delete the `e.macros` file.

If you would like to convert the file, follow these steps:

FIXME more exact steps.

a. Type `RD` at the Main Prompt, and read the SEQuential file `e.i.macros`. This contains the number of macros you have.

b. Type `RF` at the Main Prompt. This is a RELative File editor.

c. Select `e.macros` as the filename to read.

d. `V`iew record 1.

> You might want to move this record to the end of the file, since the first record is going to be replaced by the macro count.

e. Edit record 1, replacing the data in it with a number equal to 1 less than the number of macros in `e.i.macros`.

f. You can then use `DC` to scratch `e.i.macros`, since it is not needed anymore.

22. Read the Final Notes on the last page of these instructions.

From here, explore and become familiar with the new features. Much has changed since Image 1.2 and 2.0. The best way to learn is to experiment. You'll probably be confused and make mistakes along the way but the learning experience is necessary for any new system. More information is provided in the TODO Sysop Guide section but one of the main objectives of Image 3.0 is to make it as user-friendly as possible.

As in previous versions of Image BBS software, menus are displayed with `?`, and a Local Command menu is displayed to level 9 users with pseudo-Local mode access by entering `??`.

Setting up your BBS should be very simple, as long as you follow the instructions. We suggest you read this chapter carefully and then set up your system step by step, keeping the manual handy for reference.

Supported Hardware

Image BBS v3.0 was tested on the following hardware:

- WinVice using both 1581 and FD-4000 disk drives, normal User Port communications with both `tcpser` and BBS Server/VSPE configurations.

- Lt. Kernal (or Rear Admiral) hard drive with SwiftLink or normal User Port configurations using BBS Server as the "modem".

- Creative Micro Designs' (or ThunderDrive) Hard Drive with SwiftLink, and normal User Port configurations using BBS Server as the "modem".

- µIEC/SD by Jim Brain as a mass storage device.

Although we have not tested this software on a great deal of other hardware, it should run with no issues on just about any hardware.

Get Started

Now that you are ready to set up your IMAGE BBS, we recommend that the first thing you do is back up the file(s) you received the BBS software in, then keep them in a safe place. Copying the files out of the original disk images we recommend you use `fcopy+` for all the PRG and SEQ files, and `copy-all.64l` written by Jim Butterfield for the REL files.

Designate Drives

The Commodore 64 is designed to use up to eight devices on the serial bus. However, we recommend not using more than six due to current limitations of the serial port driver.

Image BBS supports:

- single or dual drives
- logical units (LUs) 0 through 9 on a Lt. Kernal hard drive (IMAGE will not access LU 10, the DOS LU)
- partitions 0-254 on a Creative Micro Designs hard drive

Plan your setup on what storage space you have available. Read the following information carefully to help you in this regard.

It is possible to run Image BBS v3.0 using only two 1581 disk drives. We highly recommend you use higher capacity drives, since you will find that disk space and directory space gets used quickly.

Some Commodore Storage Terminology

Device refers to either the physical unit, or the device number(s) assigned to the particular device (*i.e.* one device online is usually set to 8, two devices to 8 and 9, etc.).

FIXME - is this a decent description?

Drive refers to the number of available separate storage spaces available on a device. (These are like *volumes* on Windows or Linux operating systems.)

- 0 on a single drive (such as a 1541 or 1571— the count begins at zero)
- 0 or 1 on a dual drive (such as a 2031)
- *Logical Units:* 0 through 9 on a Lt. Kernal (or Rear Admiral) hard drive
- *Partitions:* 1 through 254 on a Creative Micro Designs (or ThunderDrive) hard drive. Partition 0 means “current partition.”

If you have multiple devices connected, there may either be a switch somewhere on the device to change the device number, or— in the case of CMD and Rear Admiral drives— a “Swap” button to change the device number in software.

Directory space refers to the number of directory entries possible on the drive. The limit depends on the type of disk drive. A 1581 drive allows 296 directory entries, while an SFD 1001 allows 224, etc. Check your drive manual to see what the limitation is.

TODO 1541 limit? LtK limit? Other limits?

Drive space refers to blocks used, while *blocks free* refers to blocks unused on the drive.

Image Drive Numbers

The terms *Image drive* or *system disk* refer to six categories of files used by Image BBS for system functions. They are referred to by the numbers 1-6, since standard Commodore device numbers less than 8 are not typically used.

> *Technically,* device 0 is the keyboard, 1 is the Datasette, 2 is user port RS232, 3 is the screen, 4-5 are printers, and 6 is a plotter.

Each Image drive may be assigned to separate disks, LUs or partitions. As an alternative, several Image drives can be combined onto a single disk, LU or partition. Your drive layout will depend on the type and capacity of your storage device(s).

The six Image drives are described as follows:

1. The "System Disk"

System files are mostly SEQuential (text) files that do *not* change often. Menu files, board entry files, and board data files are all included on this disk. Will not use too much directory or drive space.

System files have a prefix of `s.` .

Also, system news files are located here. News files have a prefix of `n.` .

2. The "E-Mail Disk"

E-Mail files contain all user e-mail messages. *Forced mail*, e-mail messages that are not optional to view (and can contain various user account manipulation directives), are also stored here. These use much more directory space than disk space.

E-mail files have a prefix of `m.` .

Forced mail files have a prefix of `f.` .

If the BBS is networked, network mail and network configuration files have a prefix of `nm.` .

3. The "Etcetera Disk"

Etcetera files are miscellaneous files used to supply the system with information. Many online games and functions use one or more Etcetera files to store data. Some of these files are RELative files, and most of them change frequently. Storage space depends on the number and type of online games or programs you are using. If no online programs use the Etcetera disk, it will not use too much disk or directory space.

Etcetera files have a prefix of `e.`.

4. The “Directory Disk”

Directory files group related information into a single file, like a disk directory does. Whether the information is the posts and responses for a particular sub-board, file information in a U/D or U/X library, or modules in a General File library, a directory file helps the BBS index information. These files change often, and this disk will use a fair amount of directory space, but not too much disk space.

Directory files have a prefix of `d.`.

5. The “Program Disk”

The Program Disk contains module files— BASIC or ML programs— that load in when needed to execute functions. They are the main “operating system” of the BBS.

These files have several prefixes (`i`, `sub.` and `++`), explained in more detail in the Module Types section of this manual.

They do not change, unless modified offline.

These are all the files found on the `IMAGE 3.0 D1` disk.

6. The “User Disk”

User files contain data about the people on your BBS. As new users sign up, the user file is expanded.

There is one REL file (`u.config`) and two PRG files (`u.index` and `u.weedinfo`) that keep all user information available to the system. There are three directory entries, a little over one block per user total.

> Device and drive numbers other than the six Image drives can be assigned to individual sub-boards in the `SB` section, U/D or U/X libraries in the `UD` or `UX` sections, and items in the `GF` section (games, text files, movie files, etc.). As an example, you can assign a movie file entry in the `GF` section to device 11, drive 6 instead of Image drive 1 (the `s.` disk) if you had more storage space available there, or wanted to put your movie files on a separate partition.

Configuration Options

Image 3.0 has three methods of installation:

1 Configure a New BBS

2 Convert from 1.2

3 Convert from 2.0

4 Abort

Option 4 is there in case you change your mind— it does a C64 cold start.

Each method is explained separately. Please refer to the installation instructions for the method you intend to use.

> There are Shared Image BBS 3.0 Setup steps to take no matter if you are upgrading from a previous version or a new install.

Configure a New BBS

1. Configure your hard drive and/or other system hardware for your Image drive assignments.

If you don't have a lot of storage space available, it's recommended to:

- Use separate partitions or drives for Image drives 1 (System), 2 (Mail), and 5 (Program)
- Combine drives 3 (Etcetera), 4 (Directory) and 6 (User) in a different drive or partition

You'll probably want two additional drives or partitions for message boards and Upload/Download sections.

2. Convert the three .d81 and two .d64 files to floppy disk or use some other method of getting the files onto your Image drives.

Copy Files

Use `fcopy+`, included on the 3.0 UTILS disk, for copying the following files:

1. All the boot and other module files from Disk 1 to your Program Disk:

Filename	Purpose
`boot`	autoboot program
`image 3.0`	title screen

Filename	Purpose
im	core routines
i*	BBS modules
ml*	assembly language
sub.*	BBS modules
++*	protocols

Table 1. Boot and Module Files

2. Copy all the s.* files (SEQ) from Disk 2 to your System Disk.
3. Copy nm.times (PRG) from Disk 2 to your Mail Disk.
4. It's recommended to use copy-all.64l , also included on the 3.0 UTILS disk, for copying all the e.* files (PRG, SEQ, REL) from Disk 2 to your Etcetera Disk.

If you wish to run the "Today in History" logon module, copy all the today.* files to your Etcetera Disk.

1. The file sub.modem is customized for use with BBS Server using DTR as carrier detect. Line 60080 contains print#131,chr$(27) . This is the Hayes AT escape character (set to Escape to avoid BBS Server hanging up when it saw +).

If you're using a virtual modem such as tcpser and need to use the Hayes escape sequence instead of DTR hangup, you may need to change the 27 (Escape) to 43 (+) and add ats2=43 (setting the Hayes escape character to +) to your modem init string.

Installation

TODO : Intro here

Boot Image 3.0

1. Turn on your computer.

2. Change device numbers to your Program Disk.

3. From there, type:

    - `load"boot",x,1` (standard Commodore DOS, where *x* is your boot device number)
    - `boot` (Lt. Kernal DOS)
    - `%boot` (JiffyDOS)

4. When you are prompted

```
Insert All System Disks In Correct
    Drives, And Press RETURN
```

type 1 to `Configure a New BBS`.

Image BBS begins collecting information needed to configure itself.

1. Part I: Sysop Information

Enter the information asked for.

5. Part II: Set Clock

You are asked to select a method of setting the system clock automatically during boot up.

1 Manually

You need to set the date and time after every reboot.

2 CMD Device w/RTC Option

The RTC (real-time clock) in various Creative Micro Designs devices (CMD FD 2000/CMD FD 4000 floppy drives, or the CMD hard drive) can be polled to get the current date and time.

You are asked which device has the RTC option. Enter the device number of your CMD device.

3 Lt. Kernal Port 1

4 Lt. Kernal Port 2

These are for use with Lloyd Sponenburgh's Real-Time Clock module attached to the Lt. Kernal hard drive.

6. Part III: Device/Drive Settings

Configure your Image drive assignments.

7. Part IV: BBS Information

You can customize information asked for pertaining to your BBS.

TODO : Seems like this part could be folded into Shared Image BBS 3.0 Setup. I'm not sure if the conversion process follows these steps exactly.

At this point, Image creates several files needed for its own operation. When finished, Image displays a message for you to read and asks you to `Hit any key` .

You are then prompted for the RS232 interface type you have connected to the C64:

- Enter `0` if you have an OmniTronix or similar user port interface
- Enter `1` if you have a SwiftLink, Turbo232, or a clone of these on the cartridge port.

Hit a key, and you are taken to the System Idle screen.

Set the Clock

If the time has been set using a real-time clock, Image performs AutoMaintenance.

Manual Set

If not already set by a real-time clock, the status line on the bottom row of the screen continues to flash until the time is set. Hit `1` to set the time.

First, the current date and time are displayed.

Example

```
    Current date/time is
  Sat Nov 14, 2020  3:19 PM
```

You are taken through several prompts to set the time and date:

1. Day

Number	Day
`1`	Sunday

Number	Day
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

Table 2. Weekday Numbers

2. Month
3. Date
4. Year

   Enter only the last two digits of the year here.

5. Hour

   The clock set routine only accepts 12-hour time. 24-hour time is not accepted as valid input.

6. Minute
7. AM/PM

The current date, time and time zone are displayed for confirmation.

Example

```
    Setting date/time to
 Sat Nov 14, 2020  3:19 PM PST
```

and you are prompted:

```
Select Yes to set clock, or
select No to change: [Yes]
```

`Y`es logs the time and date to `e.data` and sets the system clock.

`N`o restarts the clock setting questions.

Image may (if the date entered was different than the old date) or may not perform AutoMaintenance again and return to the System Idle screen.

Console Login

A *console login* is when you're sitting in front of the C64. Here's how to do that.

Optional: If the lightbar highlight is already positioned on `Loc`, you can press `f1` to go to full screen mode.

The screen mask disappears, and only the bottom status line is visible. The time and date, status line indicators, and time remaining (which is shown as `--:--` for now since no one is connected yet) are always visible (unless `New` right, *Enable Screen Blanking*, has been selected).

You can always press `f1` to toggle between these full and split-screen modes.

If you have the split screen mode enabled, use `f3` (move highlight left) and `f5` (move highlight right) to move the lightbar highlight to `Loc`, if necessary.

In either case:

> Press `f7` to put a check mark on the left of `Loc`.

This starts a console login.

Instant Login

Instant Login is used to bypass many of the activities and questions asked as a user logs on to the BBS. It's useful if a sysop wants to quickly log in, do some maintenance, then log off.

The BBS copyright message is displayed, and you are prompted:

```
   IMAGE BBS 64 V3.0 (C) 2020


Press RETURN For Normal Login or
Press "I" For Instant Login:
```

1. Press `I` for `Instant` Login.

QuickList

You can define sysops (yourself included) as being able to perform Instant Logins— even remotely— in a list called the *QuickList*.

There aren't any users defined in QuickList when a new BBS is set up, but you can go into `IM` later and set yourself, or other users as you acquire them, to do this.

Once you have done that, users are listed here in the QuickList option. They just type the number of the account to log on, type their password, and they can do an Instant Login.

The command path is `IM`, `D` `Logon Editor` , `D` `Quicklist` .

For more information, see the relevant `IM` documentation.

1. When prompted, type your sysop password.

Online Configuration

The BBS greets you with a welcome message and prompts you to select your time zone.

1. Select your time zone (7=EST, 6=CST, 5=MST, 4=PST)

2. The BBS will display the current time and `Stack Free: 239` .

> Initially, the time may be off by a few hours. This is because the system's time zone has not been set for the BBS clock. You can fix this later, during further BBS configuration.

> Any `Stack Free` number less than 239 at the Main Prompt means there is garbage (`GOSUB` without `RETURN` , or `FOR` without `NEXT` statements) on the stack.

3. At the Main Prompt, type `EP` to `Edit your Parameters` . Select `P`arameters.

4. Set your Computer Type and any other Terminal Parameters you want.

`More? Prompt` Off and `Cursor Menu Mode` On are recommended.

Hit `Return` to exit.

5. At this point, it is suggested you log off using the `O` command and answer `Update User File?` with `Y`es. This saves your new parameters to your user file. You can then log back on in any mode you choose.

Always log off with the `O`, `O!` or `O%!` commands. Logging off by hitting `f7` (unchecking left `Loc`) bypasses the module which updates the last 10 callers and cause errors in the time used during the call.

Shared Image BBS 3.0 Setup

These steps are followed if you're upgrading from a previous version or setting up a new Image BBS. They help set up features specific to Image 3.0.

1. Log back on to the BBS.
2. At the Main Prompt, type `IM`. You are taken to the Image BBS Configuration Editor.

Access Groups

You can use the cursor keys to move the highlight, or type `E` for `Access Groups` . The BBS loads the access group information.

TODO: Why not change `i/su.config` to do this:

The Group 9 flags should already be set for full sysop access. Type `9` and change the group name to `Sysop` .

Edit any access group Name and Flags per your preference. `Return` exits, saving changes. You are returned to the Configuration Editor.

1. Type `I` for `Misc. Features` .
   a. At minimum, you need to set the `Time Zone` and the `System ID` .
   b. If you are running on a Lt. Kernal, type `A` to set your Lt. Kernal device number.
   c. Type `M` to configure your Chat messages for entering and leaving chat.
   d. Edit any other parameter you wish to set.
   e. When finished, type `N` to `Quit` back to the Configuration Editor.

Modem Configuration

1. Type `J` for `Modem Config` .

Lt. Kernal Ports

If a Lt. Kernal hard drive is configured, you are asked:

```
Edit Modem Config for Which Port? (RETURN = 0):
```

Select Port 0 if you don't have a multiplexed Lt. Kernal system. Otherwise, select the port number of the Commodore 64 you are configuring.

a. Type `B` for `Setup/Import Modem Config`.

b. Type `1` for `Setup New Modem Config`.

c. Answer `Continue?:` `Y`es

d. Answer `Are You Sure?:` `Y`es

GGlabs GLink232-LT

The following will guide you through how to set up a GGLabs GLink232 (or SwiftLink) modem interfaced to BBS Server.

1. Type `IM` at the Main Prompt.

> If the BBS is configured for a Lt. Kernal, entering the modem configuration will allow you to configure not only the port your host adapter is set for but any other ports which might be multiplexed.

```
Enter Modem Brand/Name: GLINK232
Enter Author (Return=New Image): GGLABS
Enter Custom Init String:
```

(Just hit `Return` here. No custom Hayes initialization string is necessary.)

Answer the following setup questions with the answers provided:

```
 1. What is the Max. Connection Rate For This Modem? 6
 2. Select Hang-Up Method For This Modem: D
 3. Auto-Answer (ATS0=1): A
 4. Use an ATH After ESCape Codes?: H
 5. When In Local Mode, Should Phone Be: H
 6. Does This Modem Need a 0 After ATH?: 0
 7. Should ATH be in the Modem Reset/Init String?: H
 8. Select Value For ATX Setting: 1
 9. Is DTR on This Modem Normal or Reverse?: N
10. Select CCITT or Bell Labs Standard: 0
11. Select RS232 Interface Type: 1
12. Is Caller ID Available (Both Modem AND Phone Line): 0
```

The BBS will create a file on the Etcetera Disk, then display a `Setup Completed` message. (Ignore the statement about doing customized result codes, we skipped that earlier.)

Then hit any key to return to the `Modem Config` page.

Review your settings. If any changes need to be made, type the corresponding number (such as if you want to change DTR Hang-Up to ESCape Code Hang-Up, type 2 and select E).

> If using ESCape codes, you will need to modify `sub.modem` as stated in item 6 under Configure a New BBS.

When finished configuring your modem, type X to `Exit Modem Config`. Answer `Update Modem Flags?` with Yes.

TODO : More details will be available in the relevant `IM` documentation.

When finished configuring your modem, type X to `Exit Modem Config` and answer `Update Modem Flags?` Yes.

The remaining configuration options are custom settings for your BBS, not discussed as part of the installation process.

Included in the Image 3.0 package is a games disk containing several ready-to-install games converted to Image 3.0 format. Load and run the `run me` file (Image SEQ Reader) which allows you to read the installation instructions for all the games included on the disk.

Also included in the Image 3.0 package is a weed mod disk. Load and run the `run me` file (Image SEQ Reader) which allows you to read the installation instructions for all the files included on the disk.

TODO: Explain what this is.

In Image 3.0, the `GF` section replaces the Image 1.2 `PF`, `TF`, `NF` and `RF` sections. To go there, enter GF at the Main Prompt. If you're in Maintenance Mode with Graphic Menus on, you will see a list of sysop options for editing the menus. It was designed to be sysop-friendly, and anyone with a little Image 1.2 knowledge should be able to navigate through the functions to get items added to the `GF` section.

These instructions were written for real hardware, but Image 3.0 runs well in WinVice. In fact, much of the development and testing of this software was done in VICE.

Enjoy the files. Many thousand man-hours have gone into their creation and what they are today.

I will answer questions and provide tech support for this software as needed. Contact X-TEC at node 1 of the NISSA Network.

Larry Hedman

Al DeRosa

Convert a 1.2 System

> This is the recommended way of converting 1.2 to 3.0. Other ways may work but have not been tested.

1. Make a complete backup of all your Image 1.2 drives.
2. You will need two new Image drives (partitions) or use two locations not already assigned as Image 1.2 drives. They are used for your Image 3.0 "Program Disk" (drive 5) and your 3.0 "System Disk" (drive 1).

> *Do not* delete any of your Image 1.2 files unless otherwise told to do so.

Alternately, if you have enough hard drive space, such as on a CMD hard drive, you could make new partitions for all your Image drives and copy everything except the 1.2 boot and program drives to the new partitions. This method would allow you to revert back to 1.2 at any time in the condition it was last in.

3. Either convert the two .d81 files to floppy disk or use some other method of getting the files onto your Image drives.

Either use `fcopy+` (included on the 3.0 UTILITIES disk) or log onto your 1.2 system in local mode and use `CP` for the following steps:

4. Copy all the files from disk 1 to your new 3.0 "Program Disk".
5. Copy all `e.` files *except* for the REL files from IMAGE 3.0 D2 to your "Etcetera Disk".
6. Copy all the `s.*` files to your NEW 3.0 "SYSTEM Disk" and the `nm.times` file to your EXISTING 1.2 mail drive.

If you want to keep your existing news files and canned message files, copy the `n.*` and `s.can*` files from your 1.2 system drive to your 3.0 "System Disk".

Edit Your `bd.data` File

1. Log on to your 1.2 system.

2. Enter the 1.2 `WF` editor.
3. `.G`et the file `bd.data` from your 1.2 boot drive.

Lines 1 through 12 identify your Image drive assignments.

4. `.E`dit lines 1 and 2 for your new 3.0 System Disk device and drive numbers.
5. `.E`dit lines 9 and 10 for your new 3.0 Program Disk device and drive numbers.
6. `.E`dit any other device/drive assignments that may have changed.
7. `.L`ist the file and make sure everything is correct.
8. `.P`ut the file as `d.data` (*not* `bd.data`) to your new 3.0 Program Disk.

   Use `DC` to scratch the file `e.last` from your 1.2 system. (3.0's `e.last` file is in a different format.)

9. Shut down your computer and reboot the BBS.

Installation

1. The file `sub.modem` is customized for use with BBS Server using DTR as carrier detect. Line 60080 contains `print#131,chr$(27)`. This is the Hayes AT escape character (set to Escape to avoid BBS Server hanging up when it saw `+`).

   If you're using a virtual modem such as `tcpser` and need to use the Hayes escape sequence instead of DTR hangup, you may need to change the 27 (`Escape`) to 43 (`+`) and add `ats2=43` (setting the Hayes escape character to `+`) to your modem init string.

Boot Image 3.0

1. Turn on your computer.
2. Change device numbers to your Program Disk.
3. From there, type:
   - `load"boot",x,1` (standard Commodore DOS, where *x* is your boot device number)
   - `boot` (Lt. Kernal DOS)
   - `%boot` (JiffyDOS)

4. When prompted, type 2 to `Convert from Image 1.2`.

5. Clock setting

You are asked to select a method of setting the system clock automatically during boot up. For this installation method, select 1 Manually. You can change that later during further configuration.

6. At this point, Image will create several files needed for its own operation.

It reads the Image drive assignments and access group information from `d.data`, and uses that information to create a new `bd.data` file on its own Program Disk, modify the existing `e.data` file with expanded 3.0 information, and create a new file called `e.access`.

When finished, Image will reboot to the System Idle screen.

Like Image 1.*x* (1.*x* stands for 1.0— 1.3) BBS before it, Image 3.0 can run modules from the main prompt by typing R. However, there are more types of modules available in this version of Image.

Image 1.*x* Emulation Mode

When R is typed from the main prompt, Image checks to see whether you are in Image 1.*x* emulation mode (when the left side of `Em3` on the lightbar is checked). If this is enabled, an "emulation layer" loads, which uses Image 1.*x*'s `im` line numbers. You can then run plus files for those older versions instead.

If Image 1.*x* emulation mode is disabled, you can load Image 3.0 `i` modules. There are several types of these, with differing filename prefixes and starting line numbers. The following section discusses the additional prompts specifying options for which module type to run.

Command Classes

First, you are prompted for the *command class*. A number, 3-5, is required here. The command class specifies which module type will be loaded, and which line number it starts executing at.

Class	Prefix	Starting line
3	`i.`	`3000`
4	`i/`	`4000`

Class	Prefix	Starting line
5	`sub.`	`60000`

Table 14. Module Command Classes

Device,Drive Prompt

Next, you are prompted for the device and drive to run the module from.

- Typing a single number from 1-6 specifies one of the six Image system disks. Depending on the Image 1.*x* emulation status, system disk 5 is either your `i` module (Image 3.0) or `+` file (using Image 1.*x* emulation) disk.
- You can also type the device number, a comma, and the drive number to run a module from a specific device and drive. Devices 8-29 and drives 0-254 [TODO : check this] are supported.

> In Xetec's Lt.Kernal hard drive DOS terminology, the drive number refers to the *Logical Unit* or LU; in Creative Micro Designs' (CMD's) DOS, it is the*partition*).

Value of Variable

Each type of module uses a different variable within the BASIC code to control which subroutine in the module executes. You are prompted for the value of the variable here.

Class	Variable
3	`mm`
4	`lm`
5	`im`

Table 15. Module Variables

TODO : There is a module jump table in the *Image 3.0 Programmer's Reference Guide*.

If there is no DOS error, the module should execute.

A `file not found` DOS error is written to the system error log (`e.errlog`, viewable with `VF`) as a `load error`.

Module Types

Prefix	Starting line	Purpose
`+.`	1	Image 1.*x* plus file
`++`	*n/a*	Image 3.0 ML module
`i.`	3000	Image 3.0 module (usually protocols)
`i/`	4000	Image 3.0 sub-module
`i.XX/YY`	3000	Image 3.0 sub-module YY of XX
`i/lo.`	3000	Idle screen command
`i/lo/`	4000	Nightly AutoMaint module
`i/lo-`	4500	Login module
`i/XX.YY`	4000	Sub-module YY of XX
`sub.*`	60000	Common BBS code called by various files

Table 16. Module Types

TODO: Go into more detail?

Complete Module Type Listing

Here is a list of all the BBS module types.

FIXME: ensure this is correct

FIXME: I forgot why this needs to be duplicated…

Module prefix	Purpose	Starting line
`++`	ML module	*n/a* (loads at `$c000`)
`i.`	System command	3000
`i.XX.YY`	Sub-module YY of command XX	4000
`i.XX/YY`	Sub-module YY of command XX	3000
`i/lo.`	Idle command	4000
`i/lo-`	Login module	4500
`i/lo/`	Automaint module	4000
`i/XX.YY`	Sub-module YY of command XX	4000
`sub.`	`im` sub-module	60000

This is the recommended way of converting 2.0 to 3.0. Other ways may work but have not been tested. Since you are already running Image 2.0, keep the same Image drive assignments for the 3.0 upgrade.

1. The file `im` line 3074 is preconfigured to run from drive 0. This is the default partition on most drives but if running on a Lt. Kernal and your boot LU is not LU0, change the `0` in line 3074 to the number of your boot LU.
2. Make a complete backup of all your Image 2.0 drives.
3. Copy `bd.data` from your programs drive to your “Etcetera Disk”.
4. Remove all your 2.0 boot and program files from your “Program Disk”.
5. Copy all the files from IMAGE 3.0 D1 to your “Program Disk”.

6. Copy `bd.data` from the “Etcetera Disk” to the “Program Disk” and rename it to “d.data”.

7. Copy `e.lightdefs` , `e.lightbar` and `e.ecs.main` from IMAGE 3.0 D2 to your “Etcetera Disk” replacing the existing files of the same name.

8. Remove all the Image 2.0 `s.*` files from your “System Disk”.

What if you’ve written custom board entry files or login screens?

8. Copy all the `s.*` files from IMAGE 3.0 D2 to your System Disk.

9. If you want to run the “Today in History” login module in 3.0, copy all the `today.*` files from IMAGE 3.0 D2 to your Etcetera Disk.

Boot Image 3.0

1. Turn on your computer.

2. Change device numbers to your Program Disk.

3. From there, type:

   - `load"boot",x,1` (standard Commodore DOS, where *x* is your boot device number)

   - `boot` (Lt. Kernal DOS)

   - `%boot` (JiffyDOS)

4. When prompted, type 3 to `Convert a 2.0 system` .

5. Image 3.0 will perform all the necessary tasks of converting your 2.0 to 3.0 and will end up at the idle screen. Since the 3.0 modem configuration is different from 2.0, Image will not be communicating with your virtual modem.

6. Log on to your BBS from the console and enter IM to go to the Configuration Editor.

7. Configure your modem.

1. The file `sub.modem` is customized for use with BBS Server using DTR as carrier detect. Line 60080 contains `print#131,chr$(27)` . This is the Hayes AT escape character (set to Escape to avoid BBS Server hanging up when it saw `+`).

> If you're using a virtual modem such as `tcpser` and need to use the Hayes escape sequence instead of DTR hangup, you may need to change the 27 (`Escape`) to 43 (`+`) and add `ats2=43` (setting the Hayes escape character to `+`) to your modem init string.

1. Configure any items not already configured in `Misc. Features` .
2. Go into the `Logon Editor` and configure your `Login Mods` (login modules). There is a Help function which will explain how to do it.
3. Configure your new `Maint Mods` (Nightly AutoMaintenance modules).
4. Configure your `Lightbar Defs` (lightbar defaults).
5. When back at the IM Configuration Editor, select the option for `Base Editors` .

> This takes you to the menu page that used to be called by the SM command in 2.0. You shouldn't have to do anything here, but you can look around if you want to.

When done, use the `Quit` option to go back to the Configuration Editor. Then `Quit` from there back to the Main Prompt.

1. Enter NF to go to the News files and configure any news files needing to be edited, added or configured. (`n.$Welcome!` , perhaps?) Quit back to the Main Prompt when done.
2. Type GF to go to the General Files section. Notice that nothing is configured. You will need to reconfigure your GF section due to the incompatibility between 3.0 and 2.0 program files.

TODO: Converter should be possible...

Many new features have been added and improvements have been made in existing features for Image BBS 3.0.

Sysop Features

1. First time setup is built in, no separate `config` program needed
2. Convert from previous 1.2, 1.3, and 2.0 BBS configurations

3. Online IM BBS configuration
    a. Access group data changes no longer require a reboot
    b. Programmable function keys: Ctrl+f1 - Ctrl+f8 will output their definitions, both in the BBS and the waiting for call Image Terminal
4. Configurable time zones for both the BBS and the caller show the caller's local time if the BBS is in a different time zone
5. "Graphic" menus with hotkey item selection
6. "General Files" (`GF`) section replaces Image 1.2's separate `MF` , `PF` , `RF` and `TF` subsystems
    a. A single directory can include multiple file types or sub-boards
    b. Subdirectory level is now remembered and returned to after executing a module
7. More file transfer protocols TODO: Ymodem? list them

Lightbar

1. Expanded to 8 pages
2. f2 puts a Commodore 128 running in 64 mode into 2 mHz mode
3. Configurable text and boot-up defaults
4. NetMail can be triggered at specific times
5. Alarms can set, clear, or toggle checkmarks at specified times
6. Many new functions added

User Features

1. Text word-wraps to 40 columns for C64 console and caller's terminal line length
2. Optional "More" prompt can automatically pause text output
3. Terminal bell sent when nearing idle time limit

Text Editor

1. New text editor dot commands:
    1. `.B`anner text: Create large text for fun or emphasis in messages
    2. `.T`ext Transfer mode: Disables echoing of text while pasting text in from a terminal buffer
    3. `.U`se Signature (`PS` edits them): Add "taglines" to your posts
2. `/` is an alias for `.` for those used to that command character from other BBS programs
3. New MCI commands:
    1. left/right margin set (`£<` *nn* and `£>` *nn*)
    2. floating point variable display (`£!` *n*)

Programming Features

1. `im` line numbering restructured
2. More module types
3. New `&` functions
    1. Structures (`&,60` and `&,68` : RAM block manipulation, load, save, search, store/retrieve bytes and strings, and more) can replace using BASIC arrays
    2. Sounds
        1. New "gong" sound (`&,25,3`)
        2. *repeat* parameter: 1-254=repeat count, 255=infinite repeat
4. Image 1.*x* emulation layer so their `+.` files can be run
5. BASIC keyword extensions
    1. Hexadecimal values can be used in `POKE` , `PEEK` , `SYS` and `&` commands. `POKE $D004,$0c` is the equivalent of `POKE 53252,12`
    2. `LOAD"filename",device,relocate_flag` : *relocate_flag* has an additional purpose — specifying the segment of memory to load a particular file to
    3. `NEW line_number-` erases that portion of the BASIC program to prepare for `LOAD` ing a new module

New commands are discussed in detail in the *Image BBS 3.0 Programmer's Reference Guide.*

To understand the history of Image BBS v3.0 you have to go back to 1991. Ray Kelm and John Moore started work on Image v2.0 and the C128 version. After a couple of years, John passed away and Ray lost interest in the C64 version of the software. Fred Dart who was supplying technical phone support got Ray to send him what he had up to that point. Fred recruited myself, Jack Followay, and Larry Gartin to help at least get the software to the marketplace. We hit the ground running and before long I had the EM section done, VF section done, and NF section done. Jack Followay was working on the im and other items. Larry Gartin was beta testing what we had going on. Fred was testing and fixing what he thought needed to be fixed. In the spring of 1996, I experienced a hard drive failure and left the programming team. At that point Fred Dart brought on Bob Sisco and Bob, Fred, Jack and Larry continued work. At some point over the next few years 2.0 was worked on but never released. When Fred passed away all work pretty much ceased.

In 2015 I was moving to a new home and didn't want to bring my old Commodore stuff with me so I sent Larry Hedman my backup disks of my BBS' 2.0 was one of them. He took those files and over the next 3 years cultivated them into a working system. The final release of 2.0 was in December 2018. Days after the release of 2.0 and my BBS on a stick, Larry and I discussed the source code disks we got from Jack Followay. There was a BBS program on there which wasn't like the 2.0 we worked on. This was a completely renumbered version of 2.0. It was about 50% complete. Most of the subsystems did not work or where not fully written yet. We decided then we would take what was there and complete it and release it as 3.0 since it was a completely new basic portion. We also were able to get some of the ML changed and working. That project was started in December of 2018 and Larry took the helm and he pretty much wrote everything. So that brings us to today.

Thank you for downloading Image BBS v3.0 © NISSA BBS Software.

--Al DeRosa

Special Thanks

Special thanks go out to:

Larry Hedman
For which none of this would be possible today. For his programming skills and his teaching himself a fully new system to which we now have 3.0.

Ryan Sherwood
For his ML programming and knowledge of the ML used by Image BBS.

Jack Followay
For doing the major rewrite of the first set of 3.0 files known then as 2.0.

Bob Sisco
For taking the helm and working with Jack in the late 90's trying to get 2.0 out the door.

The next few guys I am going to mention are what have made Image BBS what it was and what it is today.

Ray Kelm
For coming out of retirement to fix the issues with the ML and creating a full source code to be able to be mod and rebuild anytime anyone wants. Ray has been amazing me with his programming skills for 30 years and he never ceases to amaze me. Thank You Ray!!

In Memoriam

Last but not least the men who we have lost over the years for without whom Image BBS would never be where it is today!

John Moore
For the original 2.0 Sub-boards and network files.

Don Gladden
Nothing would be possible here without the original 1.0 Image BBS.

Fred Dart
My friend, my business partner, my confidante. The man who made me a better programmer when I was programming non-stop in the 80's and 90's

These three guys made Image what is was then and what it is today!

While Image BBS 2.0 was a big step forward in overhauling the Image BBS infrastructure, the biggest shortcoming was its lack of free memory. This put a hard limit of 30 messages in a sub-board, 30 files in the upload/download areas, or 30 directory entries in other subsystems. The developers felt they had done almost all they wanted to do with that version, and turned their attention to the newer 3.0 infrastructure.

With a different philosophy behind the core `im` file, several improvements became obvious:

1. line numbering was flipped from 1.2/1.3's 1000- to 3.0's shorter 1-999 scheme
2. grouping related subroutines together was improved

3. more external `im.` modules were written to reduce including the same code in multiple files whenever possible

4. a module “call stack” was implemented, so loading a second (or third, or fourth…) `im.` module from the first would reload and return to the previous `im.` module

While 3.0’s modules now start with an `i` prefix instead of 1.*x*’s `+` prefix, you can still run modules meant for those older versions of the BBS through an included emulation (or to be more precise, a *redirection*) layer.

TODO : I forgot what I was going to put here.

TODO : Quick summaries of lightbar flags in 3-column tables. Find out how to balance `Left` and `Right` column widths.

`Sys` `Acs` `Loc` `Tsr` `Cht` `New` `Prt` `U/D`

Table 17. Lightbar, page 1

Option	Left	Right
`Sys`	Enable sysop chat availability. If `C` typed at any major prompt, alerts will sound. Chat reason logged to `e.log *weekday*`.	Background page enable. Chat page plays continually until chat page answered or user logs off
`Acs`	Change user access level. `f3` increases level, wraps from 9 to 0. `f5` decreases level, wraps from 0 to 9. `f7` exits.	Disable 300 baud users from logging in.
`Loc`	Local mode login. Log in to the BBS from the C64.	Pseudo-local mode. Enables maintenance commands.

Option	Left	Right
Tsr	Change time remaining. f1 zeroes time f2 unlimited time (--:00 displays) f3 +1 minute f4 +10 minutes f5 -1 minute f6 -10 minutes f7 sets selected time limit	Toggle Prime Time
Cht	x	x
New	x	x
Prt	x	x
U/D	x	x

```
Sysop Available to Chat    0 Sys 1    Background Page Enable
Edit User's Access         2 Acs 3    Block 300 Baud Callers
Local Mode (No Modem I/O)  4 Loc 5    ZZ (Pseudo-Local) Mode
Edit User's Time Left      6 Tsr 7    Prime Time Enabled
Enter/Exit Chat Mode       8 Cht 9    Disable Modem Input
Disallow New Users        10 New 11   Enable Screen Blanking
Print Spooling            12 Prt 13   Print Log Entries
Disable U/D Section       14 U/D 15   300 Baud U/D Lockout
```

Asc Ans Exp Unv Trc Bel Net Mac

Table 18. Lightbar, page 2

Option	Left	Right
Asc	x	x
Ans	x	x
Exp	x	x
Unv	x	x
Trc	Enable BASIC line execution trace. Slow down with Shift or Shift-Lock. Normally only used for debugging.	*Undefined*
Bel	x	x
Net	x	x
Mac	x	x

```
ASCII Translation        16 Asc 17   Line Feed After Return
ANSI Color Enable         18 Ans 19   ANSI Graphics Enable
Expert Mode Enable         20 Exp 21   Disallow Double Calls
No Immediate U/D Credits  22 Unv 23   Allow Auto-Logoff
On-Screen Trace Enable    24 Trc 25   Undefined
Local Bells Enable        26 Bel 27   Local Beeps Disable
NetMail Enable            28 Net 29   NetMail Trigger
Macros On/Off             30 Mac 31   MCI Disable in Editor
```

Chk Mor Frd Sub Res Mnt Mnu Xpr

Table 19. Lightbar, page 3

Option	Left	Right
Chk	x	Excessive chat logoff. If user requests more unanswered chat pages than `s.chat` *x* screens, user is logged off as soon as possible.
Mor	x	x
Frd	x	x
Sub	x	x
Res	x	x
Mnt	x	x
Mnu	x	x
Xpr	x	x

```
Enable MailCheck at Logon     32 Chk 33   Excessive Chat Logoff
More Prompt On              34 Mor 35   More Prompt Not Available
Full-Color Read Disable       36 Frd 37   Undefined
Message Bases Closed (SB)     38 Sub 39   Files Section Closed (GF)
System Reserved (Default PW)  40 Res 41   Network Reserve
Undefined                   42 Mnt 43   Modem Answer Disabled
Is User in Menu Mode?         44 Mnu 45   Are Menus Available on BBS?
Enable Express Logon          46 Xpr 47   Use s.detect Files
```

`Em3` `Sc2` `Scp` `Alt` `Trb` `DCD` `DSR` `$3e`

Table 20. Lightbar, page 4

Option	Left	Right
Em3	Run Image 1.*x* `+` files	*Undefined*
Sc2	Second login security question asked	*Undefined*

Option	Left	Right
Scp	CMD SuperCPU connected to system	CMD SuperCPU operating in 20 mHz mode
Alt	Display idle screen last ten callers in different colors	*Undefined*
Trb	Don’t display values of variables in programmable window for troubleshooting purposes	*Undefined*
DCD	**Enabled:** Hang up when inverted (asserted when high) DCD signal received **Disabled:** Hang up when normal (asserted when low) DCD signal received	Carrier Present Check in BASIC using `&,52,$3c,3:if a% then ...`
DSR	**Enabled**: Hang up on no DSR signal **Disabled**: Hang up on no DCD signal	**Enabled**: Show data being received/transmitted in receive/transmit windows
$3e	*Undefined*	*Undefined*

Emulate Image 1.x mode 48 Em3 49 Undefined
Disable 2nd Security Check 50 Sc2 51 Undefined
SuperCPU Present 52 Scp 53 Turbo Mode On
Alt last 10 callers display 54 Alt 55 Undefined
Disable Troubleshooting Mode 56 Trb 57 Undefined
Invert DCD 58 DCD 59 Carrier Present
DCD or DSR Hangup 60 DSR 61 Enable Rx/Tx Windows

`$40`	`$42`	`$44`	`$46`	`$48`	`$4a`	`$4c`	`$4e`

Table 21. Lightbar, page 5

`$50`	`$52`	`$54`	`$56`	`$58`	`$5a`	`$5c`	`$5e`

Table 22. Lightbar, page 6

$60	$62	$64	$66	$68	$6a	$6c	$6e

Table 23. Lightbar, page 7

Pages 5-7 are undefined and are available for your own use.

At1	At2	At3	At4	At5	At6	At7	At8

Table 24. Lightbar, page 8

Option	Left	Right
At1	x	x
At2	x	x
At3	x	x
At4	x	x
At5	x	x
At6	x	x
At7	x	x
At8	x	x