

Introduction to JYACC FORMAKER

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1 About This Manual

Congratulations on your purchase of JYACC FORMAKER. Your documentation includes the following chapters:

The Introduction to JYACC FORMAKER (this chapter) describes the rest of the documentation, and tells how to get started with JYACC FORMAKER.

The JYACC FORMAKER Author's Guide describes in detail how to create screens.

The JYACC FORMAKER Programmer's Guide explains some of JYACC FORMAKER's internal operation, shows how to code application routines, and describes in detail the support functions supplied with JYACC FORMAKER.

The JYACC FORMAKER JPL Programmer's Guide describes the JYACC Procedural Language, a specialized interpreted programming language.

The JYACC FORMAKER Configuration Guide explains how to create and alter configuration files for terminals and displays, and run various utility programs.

2 JYACC FORMAKER Tools

This section summarizes the authoring and programming tools supplied with JYACC FORMAKER.

The authoring utility, `xform`, is a screen editor which you use to create display data, fields and their edits. It is documented in the JYACC FORMAKER Author's Guide.

The JYACC FORMAKER library is an extensive collection of functions for reading and writing data contained in screens. There are functions for displaying screens, getting keyboard input, moving data to and from the screen, etc. Much more information, and a description of each entry point, are available in the Programmer's Guide.

The following utility programs are described in the Configuration Guide.

All configuration files come in an ASCII format, which you can modify with a text editor, and a binary format, which JYACC FORMAKER uses at runtime. `msg2bin`, `key2bin`, `var2bin`, and `vid2bin` convert ASCII message, key, setup, and video files to binary. `Modkey` is a specialized editor for keyboard configuration files. There is a utility named `f2r4` to convert Release 3 screens to Release 4 format. There are also utilities for managing the configuration of JYACC FORMAKER applications: `bin2c` provides for the creation of memory-resident screens and configuration files, while `f2struct` creates programming language data structures from screens. You can get listings of your screens with `lstform`, and create libraries of screens with `formlib`.

3 Getting Started with JYACC FORMAKER

If JYACC FORMAKER has not yet been installed on your computer, please refer to the Installation Notes for guidance, and return to this section when you are ready to try out the newly installed software.

Sit down at your computer or terminal and invoke the JYACC FORMAKER authoring utility by typing

```
xform
```

at the system prompt. If all is well, the screen will clear, you will be prompted for the name of a screen to edit, and you are ready to go. If, on the other hand, the computer prints only a single error message, there are some things to set up in your environment.

3.1 Setting Up Your Environment

Execution Path

If the message you see resembles one of the following:

```
Bad command or filename      (MS-DOS)
jxform not found             (UNIX/XENIX)
Not found. XFORM (std$cp)    (PRIMOS)
```

then the directory where JYACC FORMAKER resides is not in your execution path, and you must add it. Here are some examples of how to do this:

```
PATH=$PATH:/usr/sm/util; export PATH      (UNIX, Shell)
set path=( $path /usr/sm/util)           (UNIX, C shell)
PATH c:\bin;c:\usr\bin;c:\usr\sm\util    (MSDOS)
```

MS-DOS note: you must type in the old value of the path by hand; it can be obtained by typing 'path' with no argument.

PRIMOS note: there is no environment; you must either install xform in CMDNCO, or define an abbreviation to run it from the installation directory.

JYACC FORMAKER Configuration Variables

If the message you see is

```
SMMSGs not found
```

then you need to define JYACC FORMAKER configuration variables. (If it is SMVIDEO not found or SMKEY not found, you probably just need to set SMTERM; but bear with us for a moment.) Here are the variables and their meanings:

```
SMMSGs      pathname of a file containing error message text SMKEY
             pathname of a keyboard configuration file SMVIDEO
             pathname of a display configuration file SMVARS
             pathname of an abbreviation file containing all three
             SMTERM
             abbreviates your terminal's make and model
```

The first three are the ones you really need. They tell JYACC FORMAKER where to find its configuration files: one with error message text, another that maps your terminal's keys to JYACC FORMAKER's logical keys, and a third that tells JYACC FORMAKER how to control your terminal's display. These files are normally installed in a subdirectory named config of the directory where JYACC FORMAKER was installed. The default message file is called "msgfile.bin". The video and keyboard files come in pairs; their names consist of a prefix corresponding to the terminal type followed by "vid.bin" and "keys.bin" respectively, as in

```
vt100keys.bin    vt100vid.bin
```

for the DEC VT-100. The "config" subdirectory contains files named smvars and smvars.bin, with pathnames of all the configuration files qualified by the terminals to which they belong.

Anyway, once you've found the files you need, the easiest thing to do is to assign their full pathnames to the SMMSGs, SMKEY, and SMVIDEO variables. (An alternative is to set the SMVARS variable to the pathname of the smvars.bin file in the JYACC FORMAKER config directory, and your SMTERM to your terminal

abbreviation. Then, JYACC FORMAKER will find the files flagged with your terminal type in the SMVARS file.)

PRIMOS note: the configuration files are in a top-level directory named FORMAKER*, and there is no environment; JYACC FORMAKER will prompt for your terminal type.

MSDOS/XENIX note: for consoles, the key file is "IBMkeys.bin"; the video file is "bwvid.bin" for monochrome monitors, and "colvid.bin" for color monitors.

If Your Terminal Isn't Configured

There is a list of terminals for which JYACC distributes configuration files in an Appendix to this chapter. If you cannot find distributed configuration files for your specific model, check for emulations. Many popular terminals, for instance, emulate the DEC VT-100; others may support the ANSI standard escape sequences. If that doesn't work, you will need to create your own; the JYACC FORMAKER Configuration Guide will help you through that process.

3.2 JYACC FORMAKER Function Keys

JYACC FORMAKER interprets a number of keys specially. Here is a list of their names and functions. To find out how these logical functions are assigned to your terminal's keys, examine the key translation file, or run the modkey utility on it. That utility, described in the Configuration Guide, contains a key translation test screen that you can use to check your key mappings. To find the key files, see the previous section; listings for the IBM PC and WYSE-85 are appended to this chapter as examples. There is a detailed summary of special keys in the Author's Guide, in the section on data entry.

JYACC FORMAKER Functions

Transmit	Menu selection or end of data entry	Exit
	Abort data entry, return to previous screen	

Cursor Motion

Up Arrow	Cursor up one line or field	Down Arrow
	Cursor down one line or field	Left Arrow
	Cursor left one column or field	Right Arrow
	Cursor right one column or field	Tab
	Next field	Backtab
	Previous field	Return
	Next field on following line	Page Up
	Scroll data up in scrolling field	Page Down
	Scroll data down in scrolling field	

Data Editing

Insert	Toggles insert/overwrite mode	Delete
	Deletes character under cursor	Backspace
	Deletes character to left of cursor	Field Erase
	Erase from cursor to end of field	Clear Screen
	Erase all unprotected fields	

Application Functions

PF1-PF24	These are commonly assigned to the otherwise APP1-APP24 unnamed function keys on a terminal. SPF1-SPF24
----------	---

4 A JYACC FORMAKER Glossary

array	Several fields grouped together in one place, that can be treated as a unit. The elements of an array share all characteristics, such as scrolling, and can be referred to as occurrences of the first field in the array.
attached function	An application routine associated with a field that is called with certain parameters whenever the cursor enters or exits the field. Also, an application routine associated with a screen and called upon screen entry or exit.
border	Text or highlighting used to mark the outline of a screen.
character edits	A field's character edit defines what type of character may be entered in a field, such as digits, letters, or a yes-or-no answer.
display	A physical screen, such as a terminal on a multi-user computer or the monitor on a personal computer.
display attribute	Visible characteristics of data on the screen, such as color, highlighting, underlining, or blinking.
display data	The fixed part of a screen: text, borders, and graphics that do not change. Distinct from fields, which may be altered by the program or by data entry.
element	A field that is part of an array. An array element may be referred to either by its own field number, or by the name of the array plus its element number. A non-array field is considered to have a single element.
element number	A field's element number is its position within the array it belongs to. The element number of a simple field is 1.
field	A variable area of a screen, used for the exchange of data between an application and its user. A single field occupies part or all of one line. It may be extended horizontally through shifting, and vertically through scrolling. Fields may have many characteristics and actions associated with them, known variously as edits, attachments, and validations.
field attachment	An item associated with but distinct from a field. Examples include a help screen, a prompt, an attached function, a calculation, or a menu of possible items for data entry.
field edits	Field edits either restrict the data that can be entered into a field, or alter its appearance. Examples include a range of permissible values, right justification, conversion to upper case, and dollar amount format.
field number	JYACC FORMAKER numbers fields according to their positions within a screen, from left to right then top to bottom, beginning at 1. When a field is spoken of as "next" or "following" another field, this is the ordering that applies.
field validation	An action associated with a field that checks data entered there for correctness.

form	A screen that occupies the entire display and does not overlay another screen, as opposed to a window. Often used loosely as synonymous with screen.
function key	A key that has some special function other than data entry, for instance cursor motion. JYACC FORMAKER treats such keys as logical keys, referring to what they do rather than to their labels on the keyboard, since the labels are different for the many keyboards it supports.
function list	A list of pairs of function names and addresses, compiled into JYACC FORMAKER applications to provide necessary linkage.
help screen	A screen containing any information helpful to the user of a JYACC FORMAKER application. Help screens may be attached to JYACC FORMAKER screens and fields; they appear when the HELP or FORMHELP function keys are struck.
item	Data entered into a scrolling field, or into one field of a scrolling array.
item number	The position of an item within its scroll list. The item number does not depend on the item's position on the screen.
justification	Data in JYACC FORMAKER fields may be either right- or left-justified, that is, pushed all the way to the right- or left-hand end of the field.
library	The JYACC FORMAKER function library, which contains routines application programmers can use to access data in screens and the local data block.
logical key	JYACC FORMAKER's interpretation of a function key, as opposed to the physical key on a terminal. Physical keys are mapped to logical keys by a configuration file.
menu	A screen containing a list of choices, from which the user may select one.
occurrence	A general term covering simple fields, array elements, and items of scroll lists. In a scrolling field or array, occurrence is equivalent to item; in a non-scrolling array, it is equivalent to element.
occurrence number	A data item's element number or item number, whichever applies. If the field is neither scrolling nor part of an array, the occurrence number is 1.
parallel array	Scrolling arrays placed next to one another will scroll in parallel, i.e. whenever one array is scrolled with the cursor or page keys the associated arrays scroll simultaneously.
prompt	Text associated with a field that appears on the terminal's status line whenever the cursor enters the field. Also called status text.
protected field	A field into which no data may be entered from the keyboard.
screen	Data to be displayed on a computer's terminal or display, such as menus and data entry forms. When the hardware

display itself is meant, the terms physical screen or display are used.

screen editor	A JYACC FORMAKER tool used to create and alter screens.
scrolling	JYACC FORMAKER screens may contain data lists that are too long to fit in available space; such lists may be scrolled, either in a single field or in an array of fields. The cursor motion keys cause different parts of the list to appear on the screen.
scroll list	A data list displayed through a scrolling field or array.
shifting	A data item too wide to fit in a field may be shifted horizontally; the cursor motion keys will cause different parts of the item to appear in the field.
status line	JYACC FORMAKER sets aside one line of the physical screen, usually the bottom one, for error and status messages; it is called the status line.
status text	See prompt.
system date	The current date, as stored in the computer. JYACC FORMAKER date fields can be automatically initialized to the system date.
system time	The current time, as stored in the computer. JYACC FORMAKER time fields can be automatically initialized to the system time.
user date	A date entered into a JYACC FORMAKER date field by the user of an application.
user time	A time entered into a JYACC FORMAKER time field by the user of an application.
window	A screen that normally does not cover the whole physical screen, and overlays some other screen or screens.
word wrap	Fields and scrolling arrays may have a word wrap edit, which will cause whole words to be kept together on the same line of text. (JYACC FORMAKER's default is to fill the field with characters, without regard to word spacing.)
zoom	Shifting and scrolling fields may be viewed and edited as a whole, in a pop-up window, using a special zoom key.

Appendix A Sample Key Assignments

You will find explanations of the key names used here in the section of the Author's Guide entitled Data Entry.

JYACC FORMAKER key assignments for the IBM PC family:

```
EXIT          = Esc TRANSMIT
              = End HELP
              = control-F1 FORM HELP
              = alt-F1 LOCAL PRINT
              = control-P RETURN
              = Enter TAB
              = Tab BACKTAB
              = shift-Tab BACKSPACE
              = control-H HOME
              = Home PAGE UP
              = Pg Up PAGE DOWN
              = Pg Dn INSERT MODE
              = Ins INSERT LINE
              = control-K DELETE CHAR
              = Del ERASE
              = control-Pg Up CLEAR ALL
              = control-Pg Dn ZOOM
              = control-Z PF1
              = F1 ... PF10
              = F10 SPF1
              = shift-F1 ... SPF10
              = shift-F10
```

JYACC FORMAKER key assignments for the Wyse 85:

```
EXIT          = F11 TRANSMIT
              = Do HELP
              = Help TAB
              = Tab or control-I
              BACKTAB
              = F12 HOME
              = F14 BACKSPACE
              = control-H DELETE CHAR
              = Remove INSERT MODE
              = Insert Here ERASE
              = Select CLEAR ALL
              = control-Z PAGE DOWN
              = Next Scrn PAGE UP
              = Prev Scrn RESCREEN
              = Find ZOOM
              = control-E PF2
              = F6 ... PF6
              = F10 PF7
              = F17 ... PF10
              = F20 SPF1
              = PF4 1 ... SPF9
              = PF4 9
```

Appendix B List of Supported Terminals and Emulators

The following list is subject to constant revision, usually by having more things added to it. The mnemonics listed can be found as prefixes to key and video files in the config subdirectory of your JYACC FORMAKER distribution. As distributed by JYACC, names of video files end in vid and names of key files end in keys. You may find that you need to shorten or otherwise alter some of the names, to suit your operating system or your own naming conventions.

Terminal mnemonic	Description
5425t	AT&T 4425 terminal.
7900	NCR 7900 M1+ terminal.
FT	Fortune Systems terminal.
TV9220	TeleVideo 9220 terminal. Also found as NTV9220, WTV9220 for 80- and 132-column modes respectively.
TVO	TeleVideo 955 terminal with onscreen attributes.
W85	Wyse 85 terminal. Also found as NW85, WW85 for 80- and 132-column modes respectively.
a219	Ampex 219 terminal (in native mode).
ansi	Color PC console for SCO XENIX.
avt	HDS AVT terminal.
bw	Monochrome monitor on MS-DOS system.
c108	Concept 108 terminal.
col	Color monitor on MS-DOS system.
cpt200	Color PC with PCLINK emulating a PRIME PT200 terminal.
d214	Data General Dasher 214 terminal (in DG mode).
f100	Freedom 100 terminal.
h0	Honeywell VIP 7300 terminal.
hds	HDS model 200 terminal.
host	Basic ANSI terminal or emulator, with color.
hostpc	Stratus PCTERM emulator, monochrome or color.
hp	Hewlett-Packard 2392a terminal.
iii	TeleVideo 955 terminal, with onscreen attributes and color.
j8, j8c	Monochrome and color PC, respectively, with JYACC jterm emulator and 8-bit control sequences.
jterm, jtermc	Monochrome and color PC, respectively, with JYACC jterm emulator.

opus220	Opus 220 terminal.
pc	Either monochrome or color PC with generic VT-100 emulator.
pt200, pt132	PRIME pt200 terminal, in 80- or 132-column mode; also monochrome PC with PCLINK emulator.
pt200w	PRIME pt200 in 48-line mode.
svt200	Sperry SVT1220 terminal.
ti931	Texas Instruments 931 terminal.
tvi921	TeleVideo 921 terminal with onscreen attributes.
tvi950	TeleVideo 950 terminal with area attributes.
tvi955	TeleVideo 955 terminal with area attributes.
v101	Stratus V101 terminal.
v102	Stratus V102 terminal.
vt100	DEC VT-100 terminal or emulator.
vt200	DEC VT-200 terminal or emulator.
vt220	DEC vt220 terminal or emulator.
wy30	Wyse 30 terminal, or HP 700/41 emulating the same.
wy50	Wyse 50 terminal.
wy75	Wyse 75 terminal.
x100, x100c	Monochrome or color PC with Crosstalk emulating a VT-100.

skipsomething

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In this Index, library functions are displayed in boldface, without the prefixes specific to the language interface. Video and setup file entries appear in ELITE CAPS, while utility programs and JPL commands are in elite lower-case. Function key names are in ROMAN CAPS.

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