

KJ6VU Macro Serial Control Program (macro.exe)

Introduction

macro.exe allows the user to send serial control commands to radios and other station accessories in multiple data formats, baud rates, destination addresses and com ports. Commands are triggered by invoking the program and sending a set of parameters on the command line. A command can be simple individual command like set my radio to CW mode or it can trigger a sequence of commands called macros.

Installation

The program is installed by simply copying it into a directory. No additional installation is required. It is recommended to use short path names with alpha numeric characters like c:\sc\bin\macro\macro.exe

Software and Hardware Flow

When the mac program is invoked, the parameters on the command line are parsed and executed.

Command line options include

- t Define data format type
- p Com port number
- b Baud rate
- d Device address
- m Macro name
- c Command string to be sent
- w Wait for x seconds

In most cases, not all parameters are used. Some parameters have default values if they are left off and default values are loaded from the macro.env configuration file.

Command line option details

- t Type

Defines the format of the data to be sent to the serial port.

Format: \sc\bin\macro\macro.exe -tHEX Selects the HEX format

- b Baud Rate

Must be one of the following

48 4800 baud

96	9600 baud
19	19200 baud
11	115200 baud

Available formats

ASCII String "STR"

String of printable ASCII characters.

Syntax: `\sc\bin\macro\macro.exe -tSTR -p1 -b96 -cHELLO`

Sends HELLO to com port 1 at 9600 baud

Hexidecimal string "HEX"

String of hexadecimal values expressed as two digit values captured in the -c command field.

Syntax: `\sc\bin\macro\macro.exe -tHEX -p1 -b96 -cFEFE012AFD`

Sends FE FE 01 2A FD (without spaces) to com port 1 at 9600 baud

Decimal string "DEC"

String of decimal values expressed as three digit values captured in the -c command field with leading zeros.

Syntax: `\sc\bin\macro\macro.exe -tDEC -p1 -b96 -c065074091`

Sends 065 074 091 (without spaces) to com port 1 at 9600 baud

KJ6VU Device Control Network "DCN"

Send the DCN command payload in the -c command field.

Syntax: `\sc\bin\macro\macro.exe -tDCN -p1 -b96 -d02 -cRY1,1`

Sends the command "RY1,1" (turns on relay 1) to port 1 at 9600 baud with device address "02"

The resulting command string to be sent would be /0002:RY1,1:XX

Icom Radio "ICM"

Send one of the defined radio commands defined in the -c field to an Icom radio

Syntax: `\sc\bin\macro\macro.exe -tICM -p1 -b96 -dA4 -cCW`

Sends the Icom CI-V command to for setting the radio to CW to radio address A4 on com port 1 at 9600 baud

Supported Icom commands

CW, USB, LSB, FM, NFM, RTTY, AM

Setting frequency

Syntax: `\sc\bin\macro\macro.exe -tICM -p1 -b96 -dA4 -cFR7.040` (Requires "FR" to identify this as a frequency set command)

Sets the Icom radio with address A4 on com port 1 to 7.040 MHz

Yaesu Radios

"YA1" Supports older radio models: FT-817, FT-857, FT-897, etc.

"YA2" Supports newer radio models: FT-991A, etc.

Send one of the defined radio commands defined in the -c field to a Yaesu radio

Syntax: `\sc\bin\macro\macro.exe -tYA1 -p1 -b96 -cCW`

Sends the Yaesu command to for setting the radio to CW on com port 1 at 9600 baud

Supported Yaesu commands

CW, USB, LSB, FM, NFM, RTTY, AM

Setting frequency

Syntax: `\sc\bin\macro\macro.exe -tYA1 -p1 -b96 -cFR7.040` (Requires "FR" to identify this as a frequency set command)

Sets the Yaesu radio on com port 1 to 7.040 MHz

Macro Programming

You can create sequences of commands to be executed with one command. The macros are stored in a file called macro.txt.

A typical macro file looks like this...

```
-----[ Icom IC-705 on 20M SSB -----
20ssb,-tICM -p17 -dA4 -cFR14.313
20ssb,-tICM -p17 -dA4 -cUSB
20ssb,-tDCN -p6 -d02 -cRY1,1
20ssb,end
-----[ FT-857D 40M CW -----
85740cw,-tDCN -p6 -d02 -cRY1,1
85740cw,-tYA1 -p40 -cCW
85740cw,-tYA1 -p40 -cFR7.035
85740cw,end
-----[ FT-857D 20M SSB -----
85720SSB,-tYA1 -p40 -cFR14.204
```

```

85720SSB,-tDCN -p6 -d02 -cRY1,0
85720SSB,-tYA1 -p40 -cUSB
85720SSB,end
-----[ FT-857D 2M 146.520 FM -----
8572MFM,-tYA1 -p40 -cFR144.200
8572MFM,-tYA1 -p40 -cFM
8572MFM,end

```

A macro consists of one or more commands with the format of

```
<macro_name> , <command>
```

The macro is invoked with a command like this: `\sc\bin\macro\macro.exe -m85740cw`

The only command line argument needed is the macro name. In this case "85740cw"

The macro program will scan the macros.txt files for all text lines that start with "85740cw" and then take the rest of the command line after the first comma and drop that into the command processor.

In this case the macro details are...

```

--- Macro: 85740cw FT-857D 40M CW ---      Comment line ignored (optional)
85740cw,-tDCN -p6 -d02 -cRY1,1           Relay 1 on command to device 02 on the DCN
85740cw,-tYA1 -p40 -cCW                   Set the radio mode to CW
85740cw,-tYA1 -p40 -cFR7.035             Set the radio frequency to 7.035
85740cw,end                               Stop scanning the macros.txt (optional)

```

The commands will be executed in the order they appear in the macros.txt file.

The commands do not have to be next to each other.

Any line where the macro name field (the text before the first comma) does not match the command that called the macro will be ignored. In other words, you can put any junk in the file you want but it will take time to evaluate it every time you invoke the program so keep it to a minimum.

Wait Command

-wXX Will delay execution of the macro by n seconds. Where XX is a number between 0 and a lot.

Example: `85740cw,-w5` Will delay execution by 5 seconds

Using the Elgato Stream Deck to Control Devices



The Elgato Stream Deck can control many popular software programs and it would be a great way to trigger commands to be sent to radios and station accessories. The Stream Deck button can be programmed to send a specific command to the macro.exe program which, in turn, sends a command out a serial port to the target device. A more flexible approach would be to send a macro name to the macro.exe program which, in turn, sends one or more commands to one or more serial ports.

Simple Hard Coded Command Example: Put the Icom radio on frequency 146.52

Program the Stream Deck button to execute a system:open command with a command like this...

```
\sc\bin\macro\macro.exe -tICM -p10 -b11 -dA2 -cFR146.52
```

\sc\bin\macro\macro.exe is the path to the macro.exe program

This command sets and Icom IC-705 radio to 145.520 MHz

The commands in this example consists of these options:

- tICM Send the command in Icom CI-V format
- p10 Send the command to COM port 10
- b11 Set baud rate to be 115200
- dA2 Send the CI-V command to Icom radio with address A2 hex
- cFR146.52 Set frequency to 146.52

Macro Example to set the Icom radio frequency to 146.52 and the mode to FM

Program the Stream Deck button to execute a system:open command with a command like this...

```
\sc\bin\macro\macro.exe -m2MFM
```

\sc\bin\macro\macro.exe is the path to the macro.exe program

The macro program opens the file macro.txt and searches for each line in the file that starts with "2MFM". When the line in the macro file starts with "2MFM", the string after the comma will be dropped into the command processor and executed.

For example the macro file would have the following command lines...

```
-----[ IC-705 2m FM on 146.520 ]-----  
2MFM,-tICM -p10 -b11 -dA2 -cFR146.52  
2MFM,-tICM -p10 -b11 -dA2 -cFM  
2MFM,end
```

Any line that does not match the requested macro name at the beginning of the command line, that line in the macro.txt file will just be ignored. This is a convenient way to document each section with arbitrary text. For example the line -----[IC-705 2m FM on 146.520]----- is completely ignored and there is nothing special about the format.

The command "end" is optional and terminates the scan of the macro.txt file. This is a good practice if you have large macro files and want to speed up execution so the program does not have to scan the rest of the file.