Hint for the text-format-version: to read this version as PDF please load https://www.dk1ri.de/myc/Definitions.pdf

MYC Definitions, Abbreviations and Formats

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This paper is published in https://github.com/dk1ri as well

Introduction

This paper describes the definitions and abbreviations and formats used in the MYC documentation.
For more details of the MYC system please check the reference.

Definitions, abbreviations and formats

FU	func, function, normal device or controlled program, device-type m
SK	skin, human Interface or controlling program, device-type
SS	simple skin as switches, send r / s commands only, device-type s, o / a commands are used during configuration; not for new designs
CR	command-router, device-type c
LD	logic-device, device-type l
RU	rules device, device-type r
<dt>	devicetype: m, h, c, l, r; s not for new designs
<dg>	device-group; devices with identical hardware and firmware
<c>	unique (per device) command token; one number (unsigned n bytes). 0 (one byte always) is reserved for the basic announcement. 0xxxf0 - 0xxxff are also reserved
<ct>	command-type
<p>	property (parameter) of the type <n> or <s> in command, answer and info
<pa>	property of the type <n>, <ty>, <sm> or <OPTION> in an announcement
<OPTION>	optional property
<DEFAULT>	mandatory default value
<des>	a string <sm> used in announcements for identification or description of commands and properties.

<des> are optional sometimes. They can be used better human reading and for informative display of the SK.
They are also used for the translation to real values or restriction of values.

<n> numeric value, binary in commands and properties; decimal readable in announcements, 0xxx, 0bxx notation allowed in announcements, but not supported now. This notation is not allowed in “I” lines.
Numbers are transmitted “big endian”: MSB first.
<n> has different environments:
- <n> is used as a positional parameter as unsigned numbers for switches, range control and position of memory cells. The transmitted values have a range from 0 to x, as defined by the announcement.
For the selection of these numbers it is important, how many different values are needed. So a (real) range of -3 to +200 has 204 values and a byte with the range of 0 to 203 is used for transmission.
A range from 1,0 to 2.0 needs 11 values from 0 to 10 – a byte is also sufficient.
The SK knows the real values by the readable and real values of <des> of the announcement and will translate and display the real values.
To minimize transmission time, numeric values for properties are transmitted
as 1 byte, if equal or less than 255 (0 to 0xff) different values are needed
as 2 bytes, if equal or less than 65535 (0 - 0xffff) different values are needed
as 3 bytes,... …
All transmitted numbers are “0” based.
In on / an, of / af and ob and ab command a “0” of number of elements mean no element.
- For command-token the same rule apply; but the 16 token for reserved commands must be taken into account. For the full list of the CR there are additional 16 token for communication with SK reserved.
– The length of the transmitted number of numeric memory-contents is defined by <ty>

<s> string, all characters. The string is preceded by the length as unsigned number. The length is of type <n> and can 1, 2, 3..byte; depend on maximum length of the string given in the announcement. This type exists in commands, answers and infos.
When using strings the application shoould be observed. The SK may display some odd symbols, if binary data are sent. The HI can allow inputs as &Hxx, &Bxxxx as binary input.

<sm> string (all characters except , ;{}\) Used in announcements; forbidden characters must be escaped (preceded) by \

<l> maximum length of a string <s> in announcements

<ty> type of memory cells in announcements,
type t is replaced by the use of CODING
0 byte: z: no data transfer / use for internal data;
1 byte: a: bit 0|1; b: byte, 0to255 (one byte string); n: unsigned short 0to255; c: signed short, -128to127

	2 bytes: w: unsigned word, 0to65535; i: signed integer,-32768to327687; 3 bytes: k: unsigned. 0to16777215; l: signed: -8388608 to 8388607 4 bytes: L: unsigned long, 0to4294967295; e: signed long, -2147483648to2147483647; s: single; 8 bytes: t: unsigned, u: signed; d: double, Until 202304 "t" was used for UNIX-time only. This is handled now by CODING. <l>: maximum length of a string. A bit is transferred as a byte with the value of 0x00 or 0x01. The 0 byte type z is used when internal data are used. *Coding for signed numbers and single and double is not standard!!!!* Coding of signed numbers: 0x00 is transferred for the most negative (2exp(n-1)) number; 0xff the most positive (2exp(n-1) – 1). *Coding of single:* 1st byte: MSB: 0: + 1: -; and 7bit bit: signed exponent of 10 (-68 to 60); others are 3 byte mantissa (1 to 16777215 Range: 1*10e-68 to 16777215 * 10e60 (1.6777215 * 10e67 transferred are: 0x400x000x000x02 means 2 * 10exp0 = 2 *Coding of double:* 1st and 2nd byte: MSB: 0: + 1: -; and 15 bit: signed exponent of 10 (-3274 to 32759); others are 7 byte mantissa (1 to 72057594037927935 for more details see [4]
<default>	a default value in an announcement (not mandatory)
<fixed>	a fixed informative value in an announcement
<announce>	complete announcement or announcement line, a string <sm>; as answer it is transmitted in <s> format
<data>	<s> or <n> in commands answers or info
separators	For the announcement parser (CR, SK or LD eg): , ; (comma, semicolon) ; is the separator between <c>, <ct> and <pa> , is the separator inside pa (pa and des and within des) There are no separators in commands, answers and infos
0xxxff	means highest number in 1, 2, 3, 4 Byte number (hex format) (not used in announcements)
[ ]	optional properties

All numbers in announcements are numeric; hex format 0xnn is allowed but not yet supported by the CR.

Non valid data

There is no character reserved for non valid data.
Any device must answer with valid data. In some cases a device is polled for data, but data may be not valid at that time. The default polling wait time for the caller is 100ms. If a device do not have valid data, it will send a not valid command-token.

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Reference

[1] https://dk1ri.de/myc/MYC.pdf (german)
[2] https://dk1ri.de/myc/MYC.en.pdf
[3] https://dk1ri.de/myc/Description.txt or https://dk1ri.de/myc/Description.pdf
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