

Settings

MATLAB HEC-RAS Interface Documentation, IMTLD

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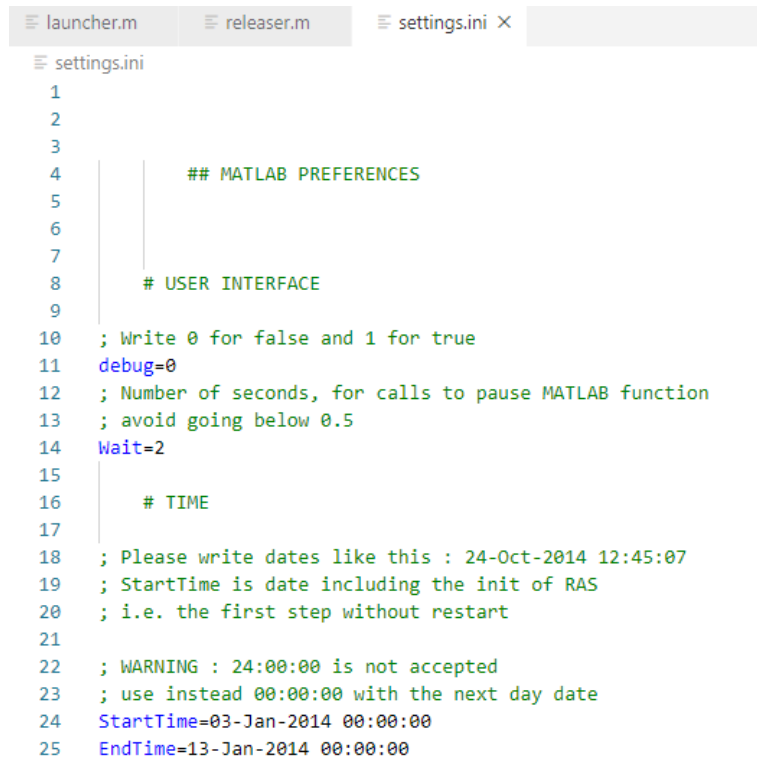
This paper contains information about the settings.ini file. Note that the settings.ini file contains a comment system, so that you will not have to read this paper each time you set up a new Ras project.

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How to edit the settings.ini file

You can open this file with any text editor, a code editor is recommended, to see what is recognized as variable in a different color. Like in the screenshot of VS Code below.



```
1
2
3
4     ## MATLAB PREFERENCES
5
6
7
8     # USER INTERFACE
9
10    ; Write 0 for false and 1 for true
11    debug=0
12    ; Number of seconds, for calls to pause MATLAB function
13    ; avoid going below 0.5
14    Wait=2
15
16    # TIME
17
18    ; Please write dates like this : 24-Oct-2014 12:45:07
19    ; StartTime is date including the init of RAS
20    ; i.e. the first step without restart
21
22    ; WARNING : 24:00:00 is not accepted
23    ; use instead 00:00:00 with the next day date
24    StartTime=03-Jan-2014 00:00:00
25    EndTime=13-Jan-2014 00:00:00
```

Figure 1- Screenshot of settings.ini in VS Code

Non-ASCII characters are forbidden, and it is recommended to avoid accents, because Ras is an American software and is not supposed to support accents.

During the edit of settings.ini, be careful to do not let space around the '=' character:

OK	Variable=3
NOK	Variable= 3
NOK	Variable =3
NOK	Variable = 3

Some parameters require a specific data format, in this case, a comment written just above the variable in the settings.ini file explains which formats are allowed. Cf. Parameters list.

How settings.ini file is understood by the MATLAB script?

Every line which contains a '=' character is recognized as a parameter. The MATLAB HEC-RAS interface will save it in a cell array, like in the example below.

Every '=' character must have something written on its left and on its right.

If you write empty on the right of a parameter, it will be ignored during script execution. But be careful, it can cause an error.

Every line which does not contain a '=' character will be ignored and is considered as a comment line.

Example: how settings.ini lines are interpreted by the script

Settings.ini file

```
10 ; Write 0 for false and 1 for true
11 debug=0
```

MATLAB cell array

```
{'debug'} {'0'}
```

Note that 0 is not recognized as a number, but as a string.

Parameters list

<XX> is a 2 digits number between 1 and 99 (the script can perhaps work with values higher than 99, but it was not tested).

This type of parameter must be filled in a growing logical suite, which begins with 1. For instance, in the case of XS:

OK	XS1=River,Reach,Station XS2=River,Reach,Station
NOK	XS1=River,Reach,Station XS3=River,Reach,Station
NOK	XS2=River,Reach,Station XS3=River,Reach,Station
NOK	XS2=River,Reach,Station XS1=River,Reach,Station

Table 1 : parameters types

Type de paramètre	Exemple	Format
Date	StartTime=24-Oct-2014 12:45:07	jj-mmm-aaaa HH:MM:SS with mmm first three letters of the month name in English 24 :00 :00 not supported
Duration	TimeStep=01:00:00:00	JJ:HH:MM:SS with JJ a number of days between 00 and 99 ¹
Boolean	debug=0	0 = false ; 1 = true
Number	Wait=0.5	143456.368 ; no comma ! US convention
String	ProjectPath=F:\Bridge Hydraulics Edited 2\	Quotation marks will be added by MATLAB

Table 2 : possible parameters sort by type

type of parameter	Name of parameter
date	StartTime
date	EndTime
duration	TimeStep
boolean	debug
boolean	RAShide
number	Wait
number	RASversion
number	Variable<XX>
string	River
string	Reach
string	XS<XX>
string	ProjectPath
string	ProjectName
string	SourcePath

¹ Month and Year management is assumed by MATLAB functions

List of possible values for parameters of VariableXX type

To obtain an up to date list of these variables, you can use the code below (here with HEC-RAS 5.0.7 and MATLAB 2020) :

```
rp=actxserver('RAS507.HECRASCONTROLLER')  
rp.Project_Open("F:\Bridge Hydraulics Edited\beaver.prj")  
[a,b]=rp.Output_Variables(0,0,0)
```

Else, this list is available in the Excel spreadsheet [List of RAS Output Variables](#)

Copy pasted here :

Profile	1
W.S. Elev	2
E.G. Elev	3
Max Chl Dpth	4
Min Ch El	5
Q Left	6
Q Channel	7
Q Right	8
Q Total	9
Flow Area	10
Flow Area L	11
Flow Area Ch	12
Flow Area R	13
W.P. Total	14
W.P. Left	15
W.P. Channel	16
W.P. Right	17
Conv. Total	18
Conv. Left	19
Conv. Chnl	20
Conv. Right	21
Vel Head	22
Vel Total	23
Vel Left	24
Vel Chnl	25
Vel Right	26
Alpha	27
Beta	28
Top Wdth Act	29
E.G. Slope	30
Volume	31
Area	32
Area Left	33
Area Channel	34

Area Right	35
Sta W.S. Lft	36
Sta W.S. Rgt	37
Left Sta Eff	38
Rght Sta Eff	39
Length Wtd.	40
Length Left	41
Length Chnl	42
Length Right	43
Mann Wtd Left	44
Mann Wtd Chnl	45
Mann Wtd Rght	46
Mann Comp	47
Froude # Chl	48
Froude # XS	49
Trvl Tme Avg	50
Trvl Tme Chl	51
Conv. Ratio	52
Specif Force	53
Spc Force PR	54
W.S. Prime	55
Crit W.S.	56
Crit E.G.	57
Crit Depth	58
Frctn Loss	59
C & E Loss	60
Headloss	61
Top Width	62
Top W Left	63
Top W Chnl	64
Top W Right	65
Num Trials	66
Std Stp Case	67
Frctn Slope	68
Frctn Slp Md	69
Min Error	70
Delta WS	71
Delta EG	72
Q Culv Group	73
Q Barrel	74
W.S. US.	75
Clv EG No Wr	76
E.G. US.	77
E.G. IC	78
E.G. OC	79
Culv Nml Depth	80

Culv Vel DS	81
Culv Vel US	82
Culv Frctn Ls	83
Culv Entr Loss	84
Culv Exit Loss	85
Culv Full Len	86
Culv Crt Depth	87
Culv Inv El Up	88
Culv Inv El Dn	89
Culv EG Inlet	90
Culv EG Outlet	91
Culv WS Inlet	92
Culv WS Outlet	93
Q Weir	94
Weir Flow Area	95
Weir Sta Lft	96
Weir Sta Rgt	97
Weir Max Depth	98
Weir Avg Depth	99
Weir Submerg	100
Min El Weir Flow	101
Wr Top Wdth	102
Energy/Wr WS	103
Yarnell WS	104
WSPRO WS	105
Prs/Wr WS	106
Energy WS	107
Momen. WS	108
Prs O WS	109
Energy/Wr EG	110
Yarnell EG	111
WSPRO EG	112
Prs/Wr EG	113
Energy EG	114
Momen. EG	115
Prs O EG	116
BR Sel Method	117
Min El Prs	118
Crit Num	119
Crit W.S. 1	120
Crit W.S. 2	121
Crit W.S. 3	122
Crit Enrgy 1	123
Crit Enrgy 2	124
Crit Enrgy 3	125
Hydr Depth	126

Hydr Depth L	127
Hydr Depth C	128
Hydr Depth R	129
Deck Width	130
# Barrels	131
Q Bridge	132
Vol Left	133
Vol Chan	134
Vol Right	135
Min El	136
Enc Val 1	137
Enc Val 2	138
Enc Sta L	139
Enc Sta R	140
Dist Center L	141
Dist Center R	142
K Perc L	143
K Perc R	144
Q Perc L	145
Q Perc Chan	146
Q Perc R	147
Prof Delta WS	148
Prof Delta EG	149
Shear Total	150
Shear LOB	151
Shear Chan	152
Shear ROB	153
Power Total	154
Power LOB	155
Power Chan	156
Power ROB	157
Ch Sta L	158
Ch Sta R	159
Base WS	160
Center Station	161
XS Delta WS	162
XS Delta EG	163
SA Total	164
SA Left	165
SA Chan	166
SA Right	167
Enc Method	168
Q Gate Group	169
Gate Open Ht	170
Gate #Open	171
Gate Area	172

Gate Submerg	173
Gate Invert	174
Q Gates	175
BR Open Area	176
Coef of Q	177
Cum Ch Len	178
Enc WD	179
Obs WS	180
WS Air Entr.	181
BR Open Vel	182
Ice Thick LOB	183
Ice Thick Chan	184
Ice Thick ROB	185
Ice Vol Total	186
Ice Vol. LOB	187
Ice Vol. Chan	188
Ice Vol. ROB	189
Ice Top LOB	190
Ice Top Chan	191
Ice Top ROB	192
Ice Btm LOB	193
Ice Btm Chan	194
Ice Btm ROB	195
Invert Slope	196
LOB Elev	197
ROB Elev	198
L. Freeboard	199
R. Freeboard	200
Levee El Left	201
Levee El Right	202
Ineff El Left	203
Ineff El Right	204
L. Levee Frbrd	205
R. Levee Frbrd	206
Mann Wtd Total	207
Hydr Radius	208
Hydr Radius L	209
Hydr Radius C	210
Hydr Radius R	211
Hydr Rad 2/3	212
W.S. DS	213
E.G. DS	214
Min Weir El	215
Perc Q Leaving	216
Q US	217
Q DS	218

Weir Sta US	219
Weir Sta DS	220
Q Leaving Total	221
SA Min El	222
SA Area	223
SA Volume	224
Top W Act Left	225
Top W Act Chan	226
Top W Act Right	227
Culv Depth Blocked	228
Culv Inlet Mann n	229
Culv Outlet Mann n	230
Ice WS Err	231
Ice Err	232
Piping Flow	233
Breach CL	234
Breach WD	235
Breach Bottom El	236
Breach Top El	237
Breach SSL	238
Breach SSR	239
Q Pump Group	240
Q Lat RC	241
Q Culv	242
Culv Length	243
Q Pump Station	244
WS Inlet	245
WS Outlet	246
Pumping Head	247
Inflow	248
Outflow	249
Net Flux	250
Enc Offset L	251
Enc Offset R	252
Min Ch Pilot	253
Diff	254
Min Ch El Sta	255
Culv Area DS	256
Culv Area US	257
Gate Weir Coef	258
Weir Coef	259
Q Breach	260
Breach Avg Velocity	261
Breach Flow Area	262
Left Station	263
Right Station	264

Levee Sta Left	265
Levee Sta Right	266
Q Inline RC	267
Q Outlet TS	268
BR Sluice Coef	269