

# DIVER MON

## Overview

Imports time series data from Diver loggers. The files have a sort of Windows ini file format with file extension (\*.mon). The format of the MON ini files is not well defined. Many programs interpret the structure differently and have various names for the ini file sections and parameters.

- Sections: Section declarations start with '[' and end with ']'; i.e. '[Logger settings]' or '[Instrument info]'.
- Parameters or item: this is the content of a section with an '=' sign between the key and the value; i.e. "location = abc"

The Date format used is: "yyyy/MM/dd HH:mm:ss"

The files can contain a flexible number of channels, where a channel will contain information on one parameter. Example files with 2 and 3 channels will be shown, when multiple channels/parameters need to be imported a <timeSeriesSet> needs to be configured for each channel/parameter. To illustrate this an example config for an import with 3 channels is given.

## Configuration (Example)

A complete import module configuration consists of an ID Mapping file and a Import Module Instance file.

## ModuleConfigFiles

The following example of an Import Module Instance will import the time series as equidistant series for timezone GMT+1 with a time step of 1 hour. Many times the MON files do not save the data at rounded hourly times, therefore a tolerance has been added to map the imported data to correct hourly interval time series.

### ImportMON.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<timeSeriesImportRun .....
```

Here is an example config file for an import file with three channels:

## ImportMON\_3channels.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<timeSeriesImportRun .....
```

## IdMapFiles

ID mapping defines mappings between Diver MON and FEWS parameters and locations. Remember that ID mapping is case sensitive.

### sample of IdImportMON.xml

```
<idMap version="1.1" .....
```

## Example file

There is a wide range of MON file types, here are examples of files with 2 and 3 channels respectively.

sample of 13PB175646\_03\_16\_0708\_23\_07.mon with 2 channels

Data file for DataLogger.

```
=====
COMPANY      : Your Company Name
LICENSE      :
DATE         : 08/24/07
TIME         : 11:20:44
FILENAME     : H:\Grondwater\DLG-Mariapeel NIEUW\24-8-2007\13PB175646_03_16_0708_23_07.mon
CREATED BY  : EnviroMon version 1.9
=====
```

BEGINNING OF DATA

[Instrument info]

```
Instrument type      =Diver =3
Instrument state     =Stopped =2
Serial number       =.N00-75646 210.
Instrument number    =13PB1
                   =0.000000000000000E-0000
Location            =13PB1
Sample Rate         =00 01:00:00 0
Sample Mode         =T
Channel             =2
```

[Channel 1]

```
Identification      =LEVEL
Reference            =0.0      cm
Range                =500.0    cm
Master Level        =0.0      cm
Altitude             =0        m
```

[Channel 2]

```
Identification      =TEMPERATURE
Reference            =-20.00   deg C
Range                =100.00   deg C
Master Level        =100.00   deg C
Altitude             =-20.00   deg C
```

[Instrument info from data header]

```
Serial number       =.N00-75646 210.
Instrument number    =13PB1
Location            =13PB1
Sample Rate         =00 01:00:00 0
Sample Mode         =T
Tb                  =22:47:10 16/03/07
Te                  =22:47:10 23/08/07
```

[Channel 1 from data header]

```
Identification      =LEVEL
Reference            =0.0      cm
Range                =500.0    cm
Master Level        =0.0      cm
Altitude             =0        m
```

[Channel 2 from data header]

```
Identification      =TEMPERATURE
Reference            =-20.00   deg C
Range                =100.00   deg C
Master Level        =100.00   deg C
Altitude             =-20.00   deg C
```

[Data]

```
3841
2007/03/16 10:47:22.0      93.2      11.61
2007/03/16 11:47:22.0     209.7      8.96
2007/03/16 12:47:22.0     209.4      8.93
2007/03/16 13:47:22.0     208.9      8.94
2007/03/16 14:47:22.0     208.5      8.95
2007/03/16 15:47:22.0     207.9      8.95
2007/03/16 16:47:22.0     207.7      8.96
```

sample of ro954\_131022072229\_M0026.MON with 3 channels

Data file for DataLogger.

```
=====
COMPANY      : <Company name>
COMP.STATUS: Do
DATE         : 22/10/2013
TIME         : 07:22:29
FILENAME      : D:\diver offive\vistrap\MON\ro954_131022072229_M0026.MON
CREATED BY   : SWS Diver-Office 5.0.25.0
===== BEGINNING OF DATA =====

[Logger settings]
Instrument type      =CTD-Diver=17
Status              =Started =0
Serial number       =.N10-M0026 317.
Instrument number    =
                    =0
Location            =ro954
Sample period        =M10
Sample method        =T
Number of channels   =3

[Channel 1]
Identification       =PRESSURE
Reference level       =400          cm
Range                 =5750          cm
Master level          =5750          CMH2O
Altitude              =0            m

[Channel 2]
Identification       =TEMPERATURE
Reference level        =-20.00       °C
Range                 =100.00       °C

[Channel 3]
Identification        =2: SPEC.COND.
Reference level        =0.000        mS/cm
Range                 =120.000       mS/cm

[Series settings]
Serial number         =.N10-M0026 317.
Instrument number      =
Location              =ro954
Sample period          =00 00:10:00 0
Sample method          =T
Start date / time      =00:00:08 12/09/13
End date / time        =00:20:06 22/10/13

[Channel 1 from data header]
Identification         =PRESSURE
Reference level         =400          cm
Range                   =5750          cm
Master level            =5750          CMH2O
Altitude                =0            m

[Channel 2 from data header]
Identification          =TEMPERATURE
Reference level          =-20.00       °C
Range                   =100.00       °C

[Channel 3 from data header]
Identification          =2: SPEC.COND.
Reference level          =0.000        mS/cm
Range                   =120.000       mS/cm

[Data]
5751
2013/09/12 08:00:00.0    1332        18.18        0.824
2013/09/12 08:10:00.0    1326        18.18        0.828
2013/09/12 08:20:00.0    1328        18.17        0.824
2013/09/12 08:30:00.0    1329        18.16        0.828
2013/09/12 08:40:00.0    1329        18.17        0.824
```

2013/09/12 08:50:00.0	1328	18.21	0.824
2013/09/12 09:00:00.0	1329	18.23	0.820

## Accepted Mon file Sections and Parameters

The Mon Import module in Delft-FEWS does not parse all data in the MON file. The important sections and parameters are the following:

- [Logger settings] or [Instrument info]; Read location Id from this section
  - Location or Locatie ; location Id
- [Channel X] or [Kanaal X] ; Not used
- [Series settings] or [Instrument info from data header] ; Not used
- [Channel X from data header] or [Kanaal X from data header]; Read Parameter Id
  - Identification or Identificatie = Parameter Id
- [Data]; Data values with the different channels in columns. The data values may have a "." or a "," as decimal separator, both options are accepted by the import function.

When the MON file is not in the correct format a warning message is returned. Known problems are missing location ID's or parameter ID's in the MON files.

## Java source code

[DiverMonTimeSeriesParser.java](#)