VAISALA

USER'S GUIDE

Creating Defense Messages with DigiCORA® Sounding System MW41

M211594EN-A

PUBLISHED BY

Vaisala Oyj
P.O. Box 26
FI-00421 Helsinki
Finland

Phone (int.): +358 9 8949 1
Fax: +358 9 8949 2227

Visit our Internet pages at www.vaisala.com.

Table of Contents

List of Figures

List of Tables

This page intentionally left blank.

CHAPTER 1

GENERAL INFORMATION

This chapter provides general information on the manual and on the product.

About This Manual

This manual provides information for creating and editing defense messages using DigiCORA MW41 sounding software.

NOTE	Defense Messages is an optional feature in MW41 and it is only available for licensed users.

Contents of This Manual

This manual consists of the following chapters:

- Chapter 1, General Information, provides general information on the manual and on the product.
- Chapter 2, Defense Messages, introduces standard meteorological messages as determined by NATO Standardization Agreement (STANAG), available as an option in DigiCORA Sounding System MW41.
- Chapter 3, Configuring Defense Messages , describes how to configure defense meteorological messages with MW41 sounding software.
- Chapter 4, Creating and Editing Defense Messages, explains how to create or edit defense messages with MW41 sounding software.
- Chapter 5, Message Formats and Examples, presents the formats and examples of STANAG (NATO Standardization Agreement) and METEO 11 (Eastern Block Ballistic Meteorological Message) messages available in MW41.
- Chapter 6, Technical Support, provides contact information for technical support.

Version Information

Table 1 Manual Revisions

Manual Code	Description
M211594EN-A	June 2013. First version.

Related Manuals

Table 2 Related Manuals

Manual Code	Manual Name
M211415EN	Vaisala DigiCORA Sounding System MW41 Technical Reference
M211429EN	Vaisala DigiCORA Sounding System MW41 Getting Started Guide

Documentation Conventions

Throughout the manual, important safety considerations are highlighted as follows:

WARNING Warning alerts you to a serious hazard. If you do not read and follow instructions very carefully at this point, there is a risk of injury or even death.

CAUTION Caution warns you of a potential hazard. If you do not read and follow instructions carefully at this point, the product could be damaged or important data could be lost.

NOTE Note highlights important information on using the product.

Recycling

Recycle all applicable material.

Dispose of batteries and the unit according to statutory regulations. Do not dispose of with regular household refuse.

Trademarks

DigiCORA® is a registered trademark of Vaisala Oyj.

Windows® is a registered trademark of Microsoft Corporation in the United States and/or other countries.

License Agreement

This product contains software developed by Vaisala. Use of the software is governed by license terms and conditions included in the applicable supply contract or, in the absence of separate license terms and conditions, by the General License Conditions of Vaisala Group.

This product may contain open source software (OSS) components. In the event this product contains OSS components, then such OSS is governed by the terms and conditions of the applicable OSS licenses, and you are bound by the terms and conditions of such licenses in connection with your use and distribution of the OSS in this product. Applicable OSS licenses are included in the product itself or provided to you on any other applicable media, depending on each individual product and the product items delivered to you.

This page intentionally left blank.

CHAPTER 2

INTRODUCTION TO DEFENSE MESSAGES

This chapter introduces standard meteorological messages as determined by NATO Standardization Agreement (STANAG), available as an option in DigiCORA Sounding System MW41.

Defense Messages

The optional Defense Messages feature extends the use of MW41 sounding software to customers with defense weather observation needs. The feature consists of NATO Standardization Agreement (STANAG) messages and METEO 11 (Eastern Block Ballistic Meteorological Message). The following messages are available:

Table 3 Defense Messages

Message	Description
METB2/METB3	Standard Ballistic Meteorological Message (STANAG 4061)
METCM	Standard Artillery Computer Meteorological Message (STANAG 4082)
METFM	Standard Fallout Meteorological Message (STANAG 2103)
METGM	Standard Gridded Data Meteorological Message (STANAG 6022)
METSR	Sound Ranging Meteorological Message
METSRX	Sound Ranging Meteorological Message
METTA	Standard Target Acquisition Meteorological Message (STANAG 4140)
METEO 11	Eastern block Ballistic Meteorological Message

This page intentionally left blank.

CHAPTER 3

CONFIGURING DEFENSE MESSAGES

This chapter describes how to configure defense meteorological messages with MW41 sounding software.

Configuring Defense Message Settings

To create defense messages in MW41, you must first configure the general settings for the messages in **Administration – Sounding – Messages**.

Adding Message Destinations

To add a new destination to send your message to (for example, a computer), click **Administration - Sounding - Messages - Message destinations** and select the option you want by clicking the list. The options available are:

- Email
- FTP
- File
- Printer
- Serial port

Fill in the information needed for the option you selected and click **Add**.

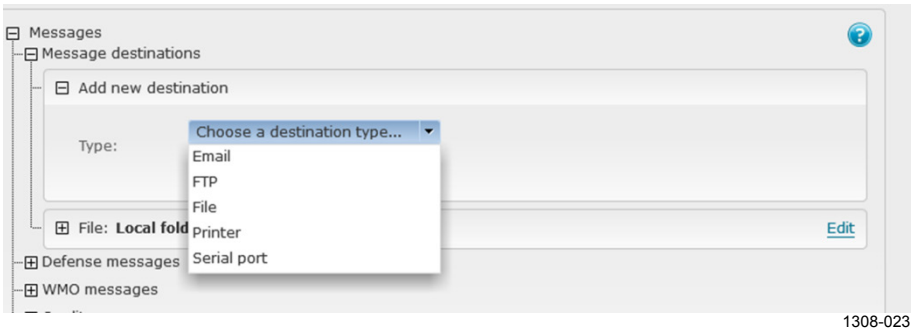


Figure 1 Adding Message Destination

The new destination appears under the Message destinations text box.

Local Folder

The Local folder window displays the default message destination on the local folder, on either C: or D: drive.

If you wish to add the message to an existing file, click **Append to existing file** and give a name for the file.

Configuring STANAG Message Settings

In MW41 sounding software, STANAG messages have both common and message-specific settings.

Enabling Coded Location for STANAG Messages

To enable coded location for STANAG messages, go to **Administration - Sounding - Messages - Defense Messages – STANAG – STANAG Common** and select **Coded location: Enabled**.

Figure 2 Enabling Coded Location for STANAG Messages

When you enable coded location, the information you enter in surface observations is shown in STANAG messages instead of the default station latitude and longitude values entered in the Station configuration window. The information given is Time of validity, METTA cloud code, and Coded location.

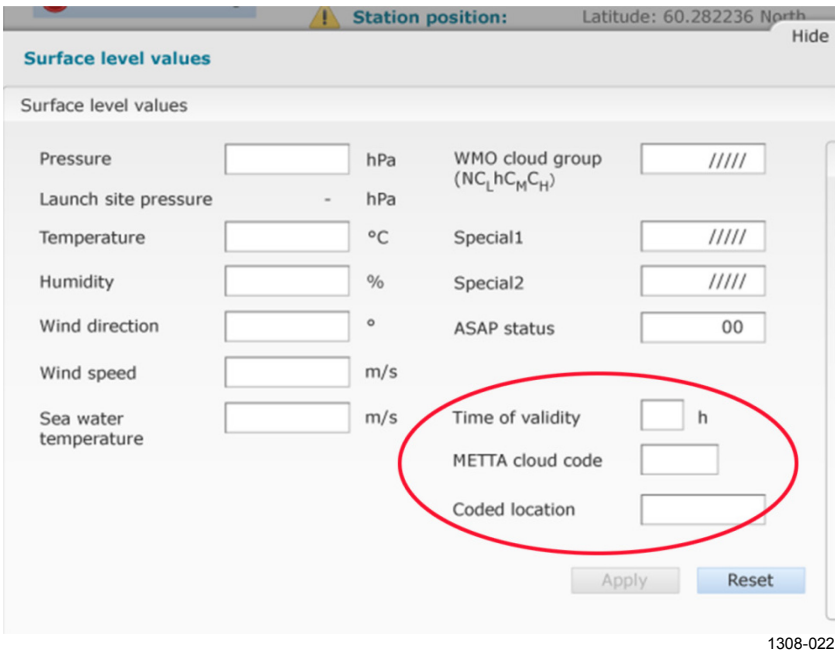


Figure 3 Surface Observation Values for STANAG Messages

WACP is the Weather Analysis Centre and national P code, consisting of a maximum of 4 letters of free text.

Configuring STANAG Messages

To configure individual STANAG message settings, open the message you wish to edit.

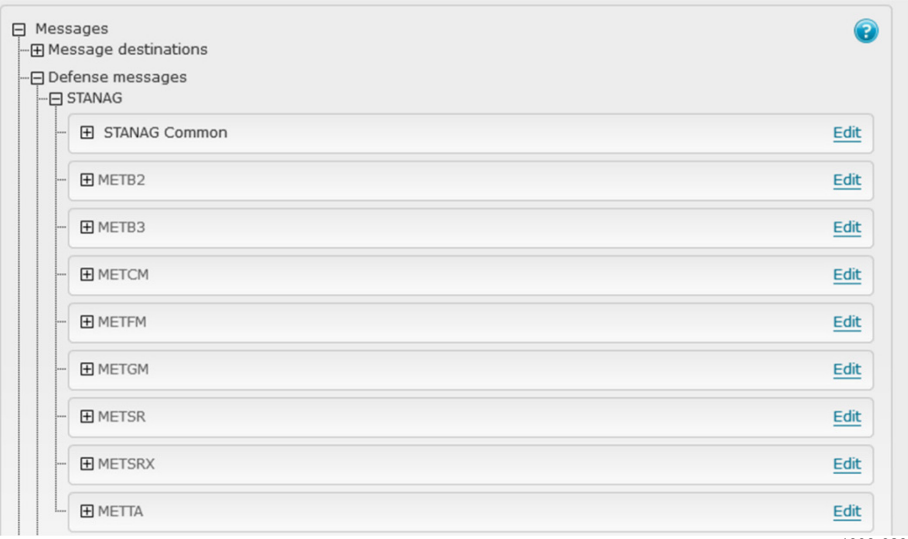


Figure 4 STANAG Messages

The following settings are available for METB2/METB3, METCM, METFM, and METTA:

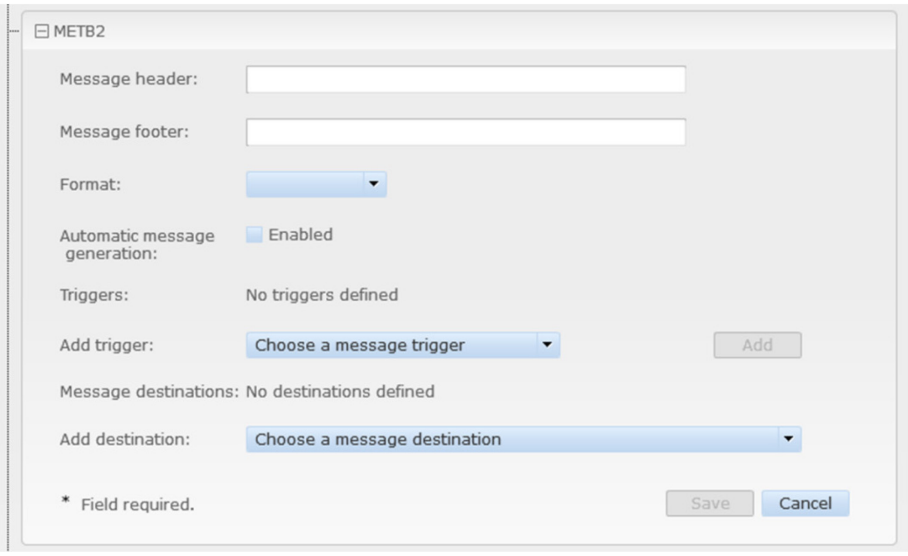
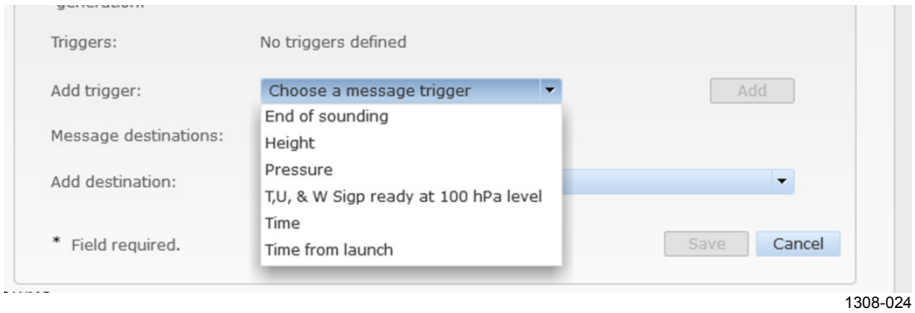


Figure 5 METB2 Message Settings

- Message header
- Message footer
- Format: Format 1 or Format 2

- Automatic message generation, enabled or disabled
- Triggers: Make your selection by clicking the options in the drop-down list.



1308-024

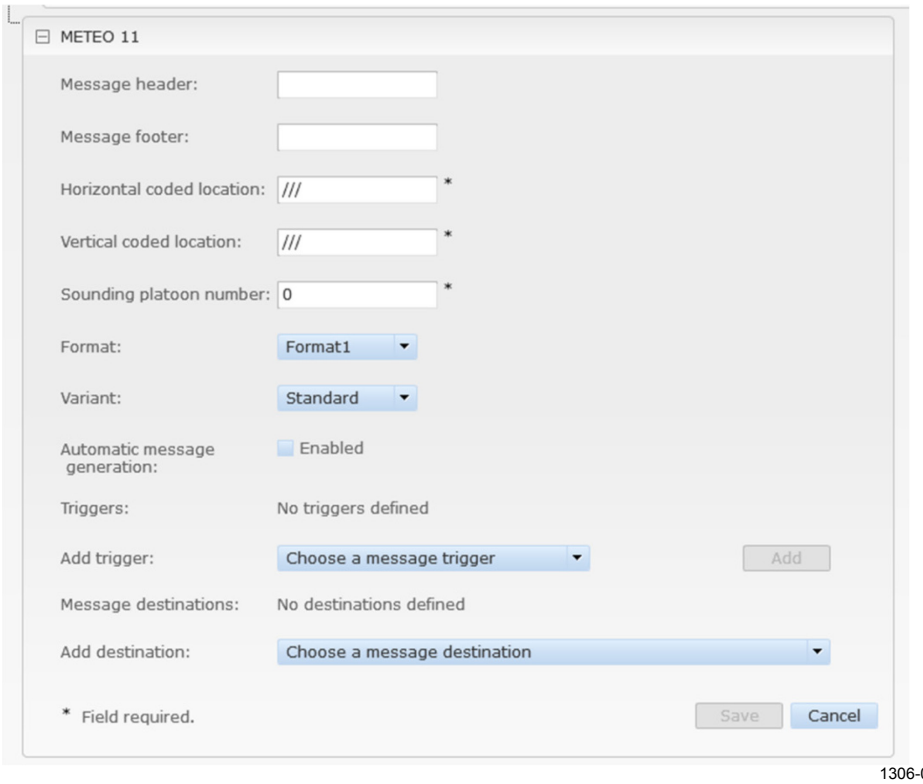
Figure 6 Adding Message Trigger

- Message destinations

For METGM, METSR or METSRX it is not possible to define the message format.

Configuring METEO 11 Message Settings

To configure METEO 11 message settings in MW41, select **Administration – Sounding – Messages – Defense messages – METEO 11**.



1306-027

Figure 7 Configuring METEO 11 in MW41

Give the following information:

- Message header
- Message footer
- Horizontal coded location: Position of sounding station according to coded map 1:100 000 horizontally.
- Vertical coded location: Position of sounding station according to coded map 1:100 000 vertically.
- Sounding platoon number
- Format: Format 1 or Format 2
- Variant: Standard or Egyptian
- Automatic message generation, enabled or disabled
- Triggers: Make your selection by clicking the drop-down list and fill in the information required, if necessary. Click **Add** to add a new trigger.

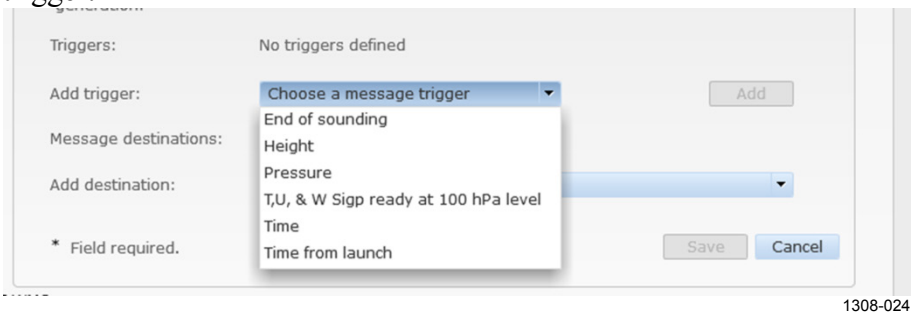


Figure 8 Adding Message Trigger

- Message destinations

CHAPTER 4

CREATING AND EDITING DEFENSE MESSAGES

This chapter explains how to create or edit defense messages with MW41 sounding software.

Creating Defense Messages

The following steps guide you through the process of creating defense messages with MW41 sounding software.

Messages can be triggered automatically, or they can be created manually at any time during or after the sounding. However, note that if the sounding has only just started, there might not be enough data available to create a message.

To create a message:

1. Go to **Sounding – Messages**.
2. Select the message type by clicking the options in the drop-down list that appears by clicking the arrow and click **Create**.

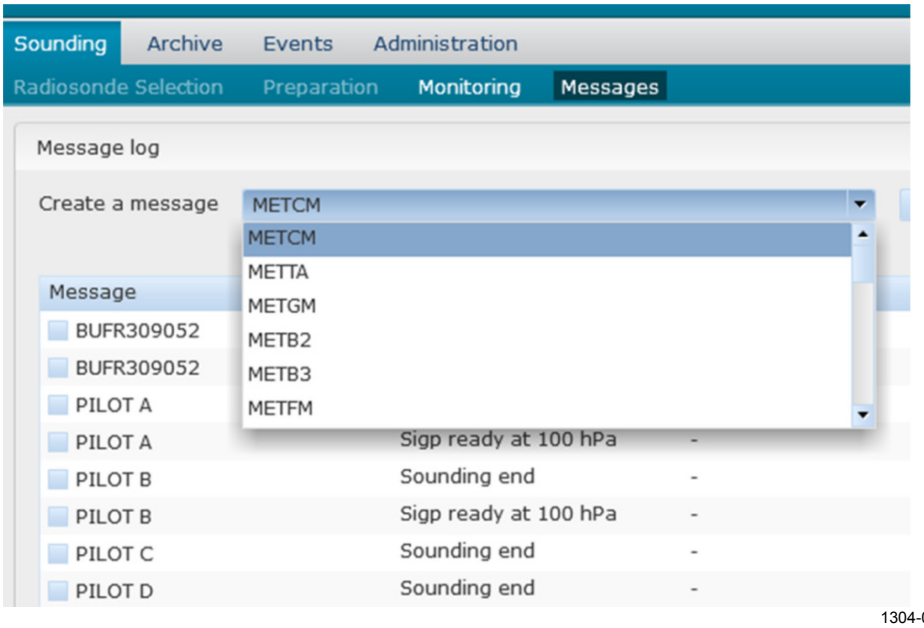
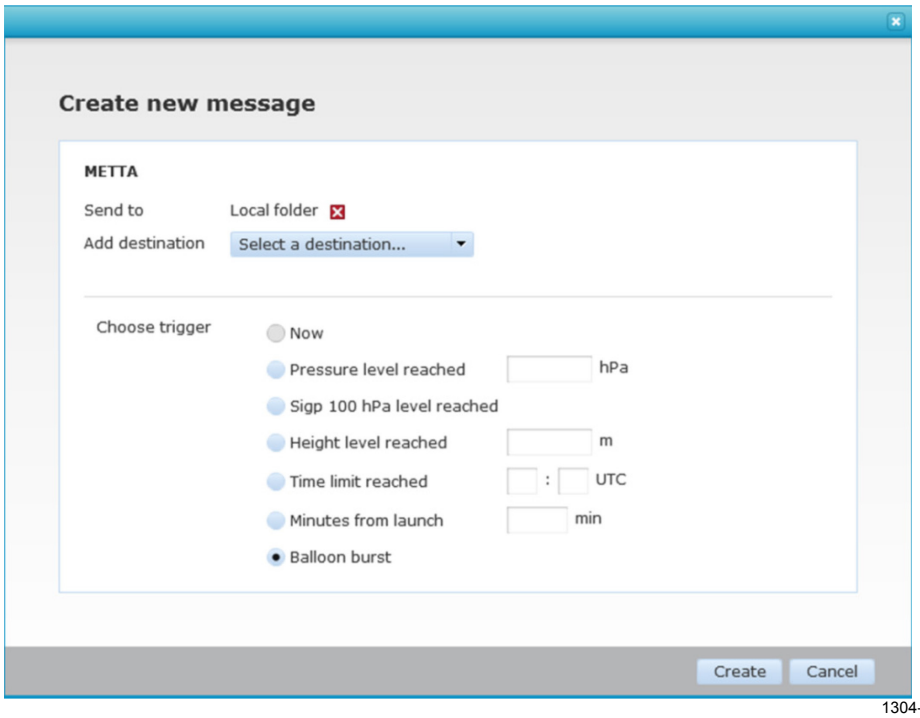


Figure 9 Selecting Message Type

3. The following window appears. Add a destination from the drop-down list. Destination is the place you want to send the message to, for example, a printer or a USB flash drive. By default, the messages are stored in a local folder, on C: or D: drive.

   You can add several destinations by clicking the options in the list. The destination appears in the Send to field. To delete a target, click the red cross next to the target name.



1304-008

Figure 10 Adding Destination and Choosing Trigger

4. To choose a trigger for the message, select one of the options available and give the information required, if necessary.

Character Encoding

When adding a message destination, the options available for character encoding are:

- iso-8859-1 (default value)
- us-ascii
- utf-8

Select the option you want by clicking the drop-down list.

FTP File Name Prefix

If you give a file name prefix for a file you are transferring with FTP, the prefix is visible until the file has been completely transferred. When the file has been completely transferred, the prefix will disappear from the file name. This will help you find the files that are currently being transferred, and those which have already been transferred.

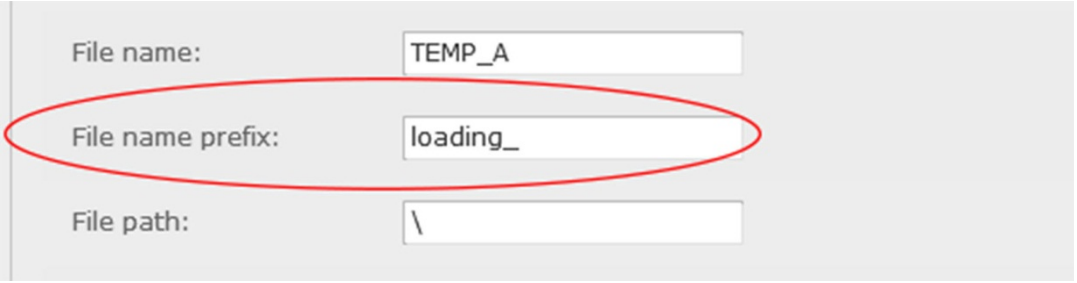
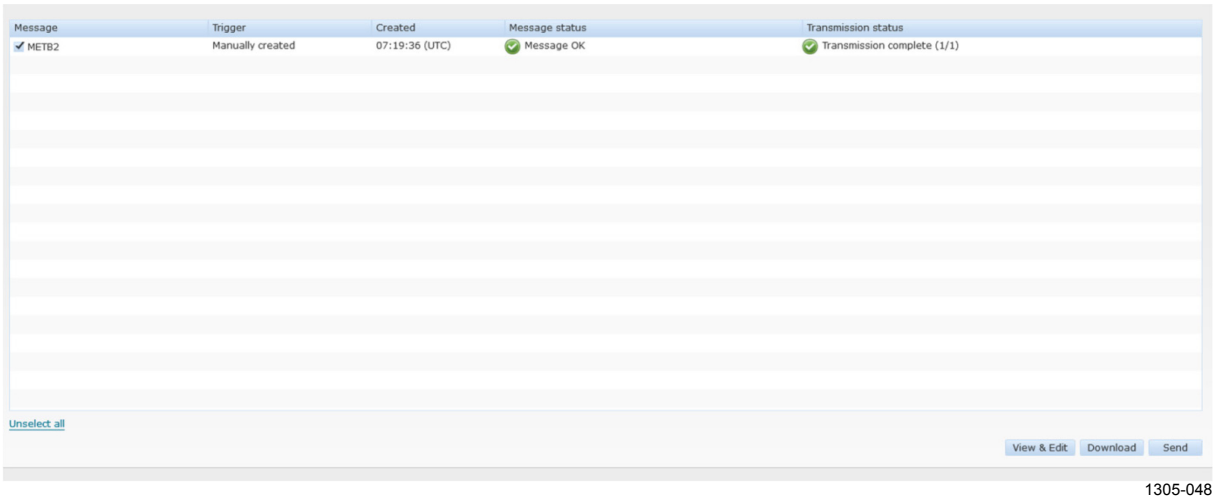


Figure 11 FTP File Name Prefix

5. To finalize message creation, click the **Create** button.
   The message will appear in the list of messages once it has been created. The table columns display the following information:
   - Message
   - Trigger
   - Created
   - Message status
   - Transmission status



1305-048

Figure 12 Message Has Been Created

The symbols indicate the following:

Table 4 Symbol Explanations

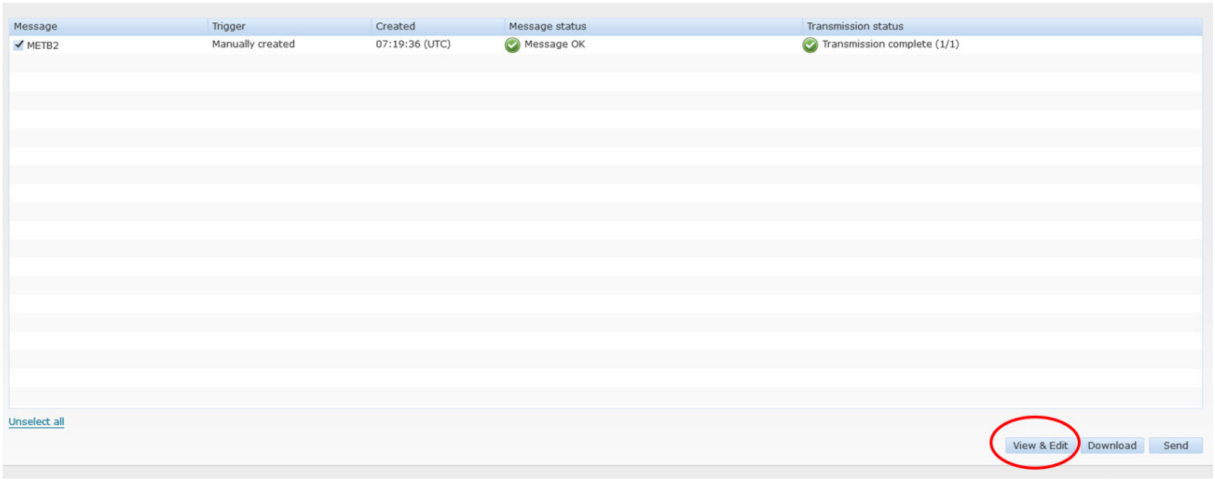
Symbol	Explanation
	Information
	Error
	OK
	Warning

Editing Messages

When a message is being edited, the user name of the user who is currently logged in and editing the message is displayed, preceded by the message "Manually edited by".

If you want to view and edit a message, do the following:

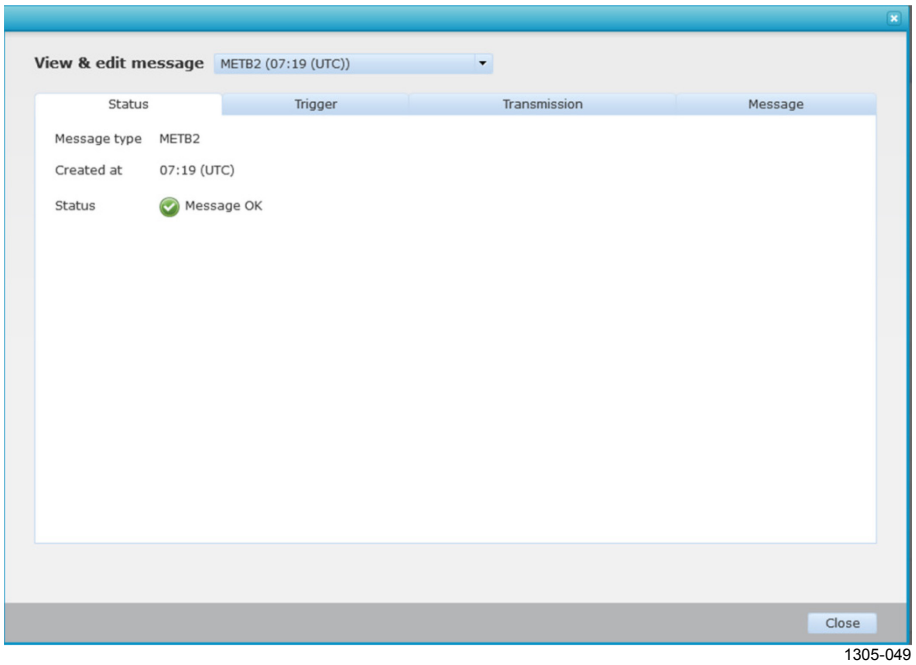
1. Click **Messages** on the application toolbar.
2. To select the message you want to view or edit, select the check box preceding the message to activate the correct row.
3. To begin viewing or editing the messages, click the **View & edit** button. Or double-click the line with the message you want to edit.



1305-051

Figure 13 Clicking View and Edit

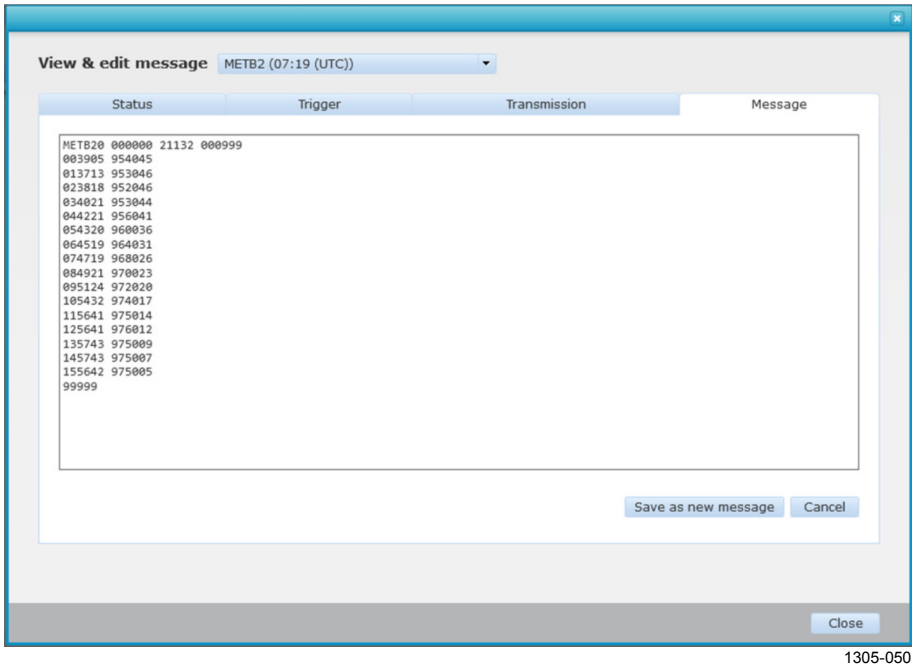
4. The editing view opens. The **Status** tab is selected. The message name, creation time and status are displayed. If you have selected several messages, the message you selected first is displayed on the Status tab and the rest of the messages are added in a drop-down list. See Figure 14 on page 22.



1305-049

Figure 14 Viewing and Editing a Message

5. To edit the message triggers, select the **Trigger** tab.
6. To edit the message transmission settings, select the **Transmission** tab. When the message is ready, a note appears in the Transmission log text box.
7. To edit the contents of the message, select the **Message** tab and click **Edit** to start editing the message. After you have edited the message, click **Save as new message** to save the message, or **Cancel** to cancel the changes you made.



1305-050

Figure 15 Editing the Contents of the Message

8. To exit the message editing view, select another tab, or click the **Close** button. The Close button is inactive until you select either Save as new message or Cancel.

Error Situation

In case of failure, detailed information of the problem is given in the View & edit display. For example, if a transmission error takes place, the window is opened with the Status tab selected. A red error mark is shown in the Transmission tab, indicating the transmission error.

Select the Transmission tab to view detailed information on the error.

Sending Messages

To send a message to, for example, a printer, click the **Send** button and add a destination from the **Add destination** list. Local folder is the default location. You can add several targets. If you wish to delete a target, click the red cross next to it.

Click **Send**.

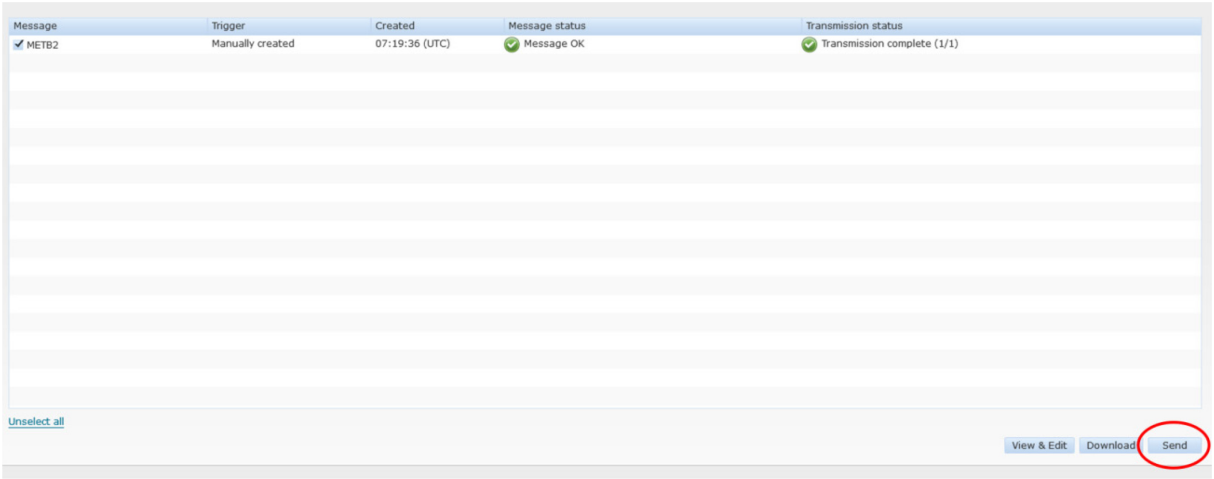


Figure 16 Sending Message

Downloading Messages

To download a message on your computer, click the **Download** button. The message is opened or saved to the browser's default location for downloaded files.

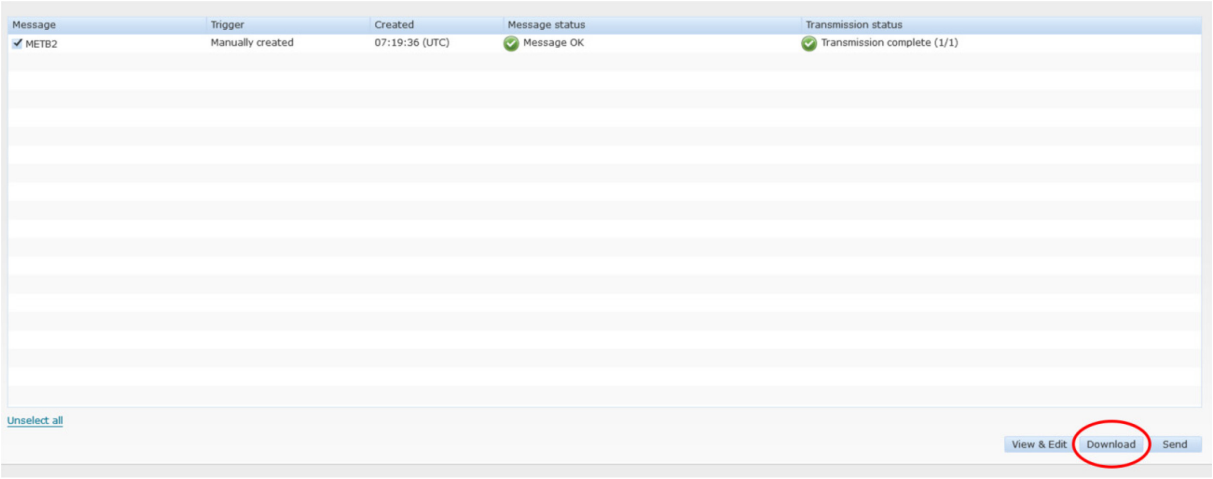


Figure 17 Downloading Message

Organizing Message Table

Sorting Messages

You can sort the messages in an ascending or a descending order by clicking the arrows in the column headings. If the arrow is not visible, click the column heading. Clicking the arrow again returns the values to their original order.

Resizing Table Columns

To make the table columns wider or narrower, point to the border of the column you wish to resize. Wait until a two-headed arrow appears.

Press the mouse button down and drag and drop the column border to the new position.

Reorganizing Table Columns

To place a table column in a new position, point to the title of the column you wish to move and press the mouse button down.

Keep the mouse button pressed down and drag and drop the column to a new location.

This page intentionally left blank.

CHAPTER 5

MESSAGE FORMATS AND EXAMPLES

This chapter presents the formats and examples of STANAG (NATO Standardization Agreement) and METEO 11 (Eastern Block Ballistic Meteorological Message) messages available in MW41.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message. Typically, this happens when the sounding height is lower than the maximum height of the message type, or when the sounding is in progress.

METB2/METB3 - Standard Ballistic Meteorological Message (STANAG 4061)

Message Format

The number of information digits (or letters) is as follows:

- Group 1: METBKQ
- Group 2: LaLaLaLoLoLo or XXXXXX
- Group 3: YYGoGoGoG
- Group 4: hhhPPP
- Group 5: ZZddFF
- Group 6: TTTΔΔΔ

Groups 5 and 6 are required for each line of the message. Only those lines of the message which are required by the recipients need to be included.

Message Standards

Group 1

- MET
  Meteorological Message
- B
  Ballistic

- K
  Type of Message:
  - K = 2 for air-to-surface fire
  - K = 3 for surface-to-surface fire
- Q
  Octant of the globe

Table 5 Octant of the Globe

Code Figure	Greenwich Longitude	Hemisphere
0	0° - 90° W	Northern
1	90° - 180° W	Northern
2	180° - 90° E	Northern
3	90° - 0° E	Northern
4	Not used	
5	0° - 90° W	Southern
6	90° - 180° W	Southern
7	180° - 90° E	Southern
8	90° - 0° E	Southern
9	Used when the area of applicability is not indicated by latitude and longitude.	

Group 2

If Q = 0 to 3 or Q = 5 to 8, then

- LaLaLa
  Latitude of the center of area of applicability in tens, units and tenths of degrees. Tenths can be obtained by dividing the number of minutes by 6, disregarding the remainder.
- LoLoLo
  Longitude of the center of area of applicability in tens, units and tenths of degrees. For longitudes of 100 degrees or greater the hundreds digit is omitted. User should add it according to the octant of the globe.

If Q = 9, then

- XXXXXX
  Location of the center of the area of applicability, in clear or in code (alphanumeric), using NATO Grid Reference Systems (as defined in STANAG 2211), for example, a 6-figure grid reference. This enables the location to be specified to a higher precision than possible using geographical coordinates (latitude and longitude). Alternatively, the user can manually input location data in clear text or in code.

Group 3

- YY
  Day of the month on which the period of validity of the message commences (GMT).
- GoGoGo
  Time of commencement of the period of validity in whole hours and tenths (GMT; 000 to 239).
- G
  Duration of validity period in hours, from 1 to 8; G = 9 designates 12 hours.

Group 4

- HHH
  Altitude of the Meteorological Datum Plane (MDP) above mean sea level (MSL) in tens of metres. MDP is the horizontal surface to which heights of the zones and meteorological elements are referred. On land MDP is normally at the height of the meteorological station above Mean Sea Level; at sea MDP is normally at Mean Sea Level.
- PPP
  Pressure at the MDP expressed as a percentage, to the nearest 0.1 per cent, of the standard pressure (1013.25 hPa); the initial digit is omitted when the pressure is standard or above.

Group 5

- ZZ
  Line number identifying a Line (two consecutive groups) in the message. Line numbers are from 00 to 15 where 00 is the line of surface observations.
- DD
  Direction from which the ballistic wind is blowing; measured clockwise from true north and expressed in hundreds of mils (6400 mils = 360 degrees). Encode from 01 to 64; encode as 000 when the wind speed is zero.
- FF
  Speed of ballistic wind in tens and units of knots.

Group 6

- TTT
  Ballistic temperature: expressed as a percentage of standard; to the nearest 0.1 per cent. The initial digit is omitted when the ballistic temperature is standard or above.

- ΔΔΔ
  Ballistic air density in percent to the nearest 0.1%. The initial figure is omitted when the ballistic air density is standard or above.
- 99999
  Message terminator. Only in Format 2.

Line Number - Standard Height of Target Or Vertex Above MDP

Table 6 Line Number – Standard Height of Target or Vertex Height Above Meteorological Datum Plane

ZZ	Meters
00	0
01	200
02	500
03	1000
04	1500
05	2000
06	3000
07	4000
08	5000
09	6000
10	8000
11	10000
12	12000
13	14000
14	16000
15	18000
16	20000
17	22000
18	24000

Message Examples

The default format in MW41is Format 1.

The default value for the message header or footer in MW41 is Null.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message.

METB2 Format 1

```
METB23603249
180712000996
005102009986
015209007988
025311007989
035211007989
045210006990
055110006990
065009006990
074908007990
084808008990
094607009989
103607010989
112913011989
122915012990
132818011990
142819011991
152918011991
```

METB2 Format 2

```
METB23 603249 180712 000996
005102 009986
015209 007988
025311 007989
035211 007989
045210 006990
055110 006990
065009 006990
074908 007990
084808 008990
094607 009989
103607 010989
112913 011989
122915 012990
132818 011990
142819 011991
152918 011991
99999
```

METB3 Format 1

```
METB33603249
180712000996
005102009986
015209007988
025412007989
035211007989
045110005990
054908005991
064807006991
074808010989
084408011989
093808014989
102725014989
112635014991
122733014992
132827014992
142824014993
152823014994
```

METB3 Format 2

```
METB33 603249 180712 000996
005102 009986
015209 007988
025412 007989
035211 007989
045110 005990
054908 005991
064807 006991
074808 010989
084408 011989
093808 014989
102725 014989
112635 014991
122733 014992
132827 014992
142824 014993
152823 014994
99999
```

METCM – Standard Artillery Computer Meteorological Message (STANAG 4082)

Format 1

METCMQLaLaLaLoLoLo<CR>[1]<LF>[2]

YYGoGoGoGHHHPPP<space><space><CR><LF>

00DDDFFFTTTTRRRR<CR><LF>

00DDDFFFTTTTRRRR<CR><LF>

01DDDFFFTTTTRRRR<CR><LF>

02DDDFFFTTTTRRRR<CR><LF>

:

:

:

ZZDDDFFTTTTRRRR<CR><LF>

:

:

:

30DDDFFFTTTTRRRR<CR><LF>

31DDDFFFTTTTRRRR<CR><LF>

99999<CR><LF>

[1] <CR> = Carriage Return
[2] <LF> = Line Feed

Format 2

METCMQ<space>LaLaLaLoLoLo<space>YYGoGoGoG<space>

HHHPPP<space><space><space><space><CR>[3]<LF>[4]

00DDDFFF<space>TTTTRRRR<space><CR><LF>

00DDDFFF<space>TTTTRRRR<space><CR><LF>

01DDDFFF<space>TTTTRRRR<space><CR><LF>

02DDDFFF<space>TTTTRRRR<space><CR><LF>

:

:

:

ZZDDDFF<space>TTTTRRRR<space><CR><LF>

:

:

:

30DDDFFF<space>TTTTRRRR<space><CR><LF>

31DDDFFF<space>TTTTRRRR<space><CR><LF>

99999<CR><LF>

[3] <CR> = Carriage Return
[4] <L> = Line Feed

- Q Octant of the globe

Code Figure Q	Greenwich Longitude	Hemisphere
0	0° - 90° W	Northern
1	90° - 180° W	Northern
2	180° - 90° E	Northern
3	90° - 0° E	Northern
4	Not used	
5	0° - 90° W	Southern
6	90° - 180° W	Southern
7	180° - 90° E	Southern
8	90° - 0° E	Southern
9	Used when the area of applicability is not indicated by latitude and longitude.	

- LaLaLa
  Latitude in tens, units, and tenths of degrees.
- LoLoLo
  Longitude of the center of area of applicability in tens, units and tenths of degrees. Hundreds digit is added by user according to the octant.
- YY
  Day of the month (01 to 31)
- GoGoGo
  Time of commencement of the period of validity in whole hours and tenths (GMT in whole hours and tenths, 000 to 239).
- G
  Duration of validity period in hours, from 1 to 8; 9 designates 12 hours.
- HHH
  Altitude of the Meteorological Datum Plane (MDP) above mean sea level (MSL) in tens of metres. MDP is the horizontal surface to which heights of the zones and meteorological elements are referred. On land MDP is normally at the height of the meteorological station above Mean Sea Level; at sea MDP is normally at Mean Sea Level.
- PPP
  Pressure at the MDP expressed to the nearest hectopascal (hPa)
- ZZ
  Line number corresponding to a Zone number from 00 to 31. Zone number 00 indicates zero height at MDP, and Zone number 31 refers to a zone extending from 28 000 to 30 000 meters.

Table 7 METCM Zone Number Codes

ZZ	Height Above MDP of Mid-Point of Zone	Height Above MDP from Base to Top of Zone (Meters)
00	0	0
01	100	0 to 200
02	350	200 to 500
03	750	500 to 1000
04	1250	1000 to 1500
05	1750	1500 to 2000
06	2250	2000 to 5000
07	2750	2500 to 3000
08	3250	3000 to 3500
09	3750	3500 to 4000
10	4250	4000 to 4500
11	4750	4500 to 5000
12	5500	5000 to 6000
13	6500	6000 to 7000
14	7500	7000 to 8000
15	8500	8000 to 9000
16	9500	9000 to 10000
17	10500	10000 to 11000
18	11500	11000 to 12000
19	12500	12000 to 13000
20	13500	13000 to 14000
21	14500	14000 to 15000
22	15500	15000 to 16000
23	16500	16000 to 17000
24	17500	17000 to 18000
25	18500	18000 to 19000
26	19500	19000 to 20000
27	21000	20000 to 22000
28	23000	22000 to 24000
29	25000	24000 to 26000
30	27000	26000 to 28000
31	29000	28000 to 30000

- DDD
  Direction from which the mean vector wind for the zone is blowing, measured clockwise from geographic North and expressed in thousands, hundreds and tens of mils. Encode from 001 to 640, as 000 when the wind speed is zero. For Zone Number 00, the value will be the wind direction measured at the MDP.
- FFF
  Mean wind speed of the zone in knots.
- TTTT
  Mean virtual temperature of the zone to the nearest 0.1 K.
- RRRR
  Zone midpoint pressure in hectopascals (hPa).
- 99999
  Message terminator. Only in Format 2.

In case of sudden missing information, linear interpolation according to natural logarithm of pressure is used. The maximum interpolation intervals are:

- Pressure: 12 minutes
- Temperature: 8 minutes
- Humidity: 6 minutes
- Wind: 4 minutes

If humidity is missing, temperature is used as virtual temperature.

Message Examples

The default format is Format 1.

The default value for the message header or footer is Null.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message.

Format 1

```
METCM3603249
180712000009
0051300229091009
0151500928960997
0254401228780968
0350801128510923
0449301028110869
0547400727800817
0643900527510768
0748500727270722
0848500927110678
0944300926810636
1041300926430597
1136200926120559
1231301425660506
1326703525050442
1424805624430385
1523706223630334
1625707522790289
1726906222110248
1829003322430213
1930702322570183
2032501722570157
2134201222500135
2231200922360116
2332101222370099
2434500522300085
2529800422240073
2638800422220063
2712600722150050
2819700522150037
2912801022320027
3011201322600020
3117501423030015
```

Format 2

```
METCM3 603249 180712 000009
00513002 29091009
01515009 28960997
02544012 28780968
03508011 28510923
04493010 28110869
05474007 27800817
06439005 27510768
07485007 27270722
08485009 27110678
09443009 26810636
10413009 26430597
11362009 26120559
12313014 25660506
13267035 25050442
14248056 24430385
15237062 23630334
16257075 22790289
17269062 22110248
18290033 22430213
19307023 22570183
20325017 22570157
21342012 22500135
22312009 22360116
23321012 22370099
24345005 22300085
25298004 22240073
26388004 22220063
27126007 22150050
28197005 22150037
29128010 22320027
30112013 22600020
31175014 23030015
99999
```

METFM - Standard Fallout Meteorological Message (STANAG 2103)

Format 1

METFMQ<space><CR>[5]<LF>[6]

LaLaLaLoLoLo<space><CR><LF>

YYGoGoGoG<space><CR><LF>

HHH<space><CR><LF>

01DDDFFF<space><CR><LF>

02DDDFFF<space><CR><LF>

:

:

:

ZZDDDFFF<space><CR><LF>

:

:

:

14DDDFFF<space><CR><LF>

15DDDFFF<space><CR><LF>

[5] <CR> = Carriage Return
[6] <LF> = Line Feed

Format 2

METFMQ<space>LaLaLaLoLoLo<space>YYGoGoGoG<space>

HHH<space><CR><LF>

00DDDFFF<space><CR><LF>

01DDDFFF<space><CR><LF>

02DDDFFF<space><CR><LF>

:

:

:

ZZDDDFFF<space><CR><LF>

:

:

:

14DDDFFF<space><CR><LF>

15DDDFFF<space><CR><LF>

99999<CR><LF>

- Q Octant of the globe

Code Figure Q	Greenwich Longitude	Hemisphere
0	0° - 90° W	Northern
1	90° - 180° W	Northern
2	180° - 90° E	Northern
3	90° - 0° E	Northern
4	Not used	
5	0° - 90° W	Southern
6	90° - 180° W	Southern
7	180° - 90° E	Southern
8	90° - 0° E	Southern
9	Used when the area of applicability is not indicated by latitude and longitude.	

- LaLaLa
  Latitude in tens, units, and tenths of degrees.
- LoLoLo
  Longitude of the center of area of applicability in tens, units and tenths of degrees. Hundreds digit is added by user according to the octant.
- YY
  Day of the month (01 to 31)
- GoGoGo
  Time of commencement of the period of validity in whole hours and tenths (GMT in whole hours and tenths, 000 to 239).
- G
  Duration of validity period in hours, from 1 to 8; 9 designates 12 hours.
- HHH
  Altitude of the Meteorological Datum Plane (MDP) above mean sea level (MSL) in tens of metres. MDP is the horizontal surface to which heights of the zones and meteorological elements are referred. On land MDP is normally at the height of the meteorological station above Mean Sea Level; at sea MDP is normally at Mean Sea Level.
- ZZ
  Zone number code as specified in the zone code table (00 to 15).
- DDD
  Direction from which the mean vector wind for the zone is blowing, measured clockwise from geographic North and expressed in thousands, hundreds and tens of mils. Encode from 001 to 640, as 000 when the wind speed is zero. For Zone Number 00, the value will be the wind direction measured at the MDP.
- FFF
  Mean wind speed of the zone in knots.
- 99999
  Message terminator. Only in Format 2.

Message Examples

The default format is Format 1.

The default value for the message header or footer is Null.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message.

Format 1

```
METFM3
603249
180712
000
00513002
01506009
02466007
03343011
04255045
05248068
06276047
07315020
08329011
09329008
10344004
11126007
12197005
13128010
14112013
15175014
```

Format 2

```
METFM3 603249 180712 000
00513002
01506009
02466007
03343011
04255045
05248068
06276047
07315020
08329011
09329008
10344004
11126007
12197005
13128010
14112013
15175014
99999
```

METSR/METSRX – Sound Ranging Meteorological Message

METSR Message Format

METSRQ<space>LaLaLaLoLoLo<space>YYGoGoGoG<space>

DDD<space>FFF<space>TTT<space><CR>[7]<LF>[8]

99999<CR><LF>

Where:

- Q Octant of the globe

Code Figure Q	Greenwich Longitude	Hemisphere
0	0° - 90° W	Northern
1	90° - 180° W	Northern
2	180° - 90° E	Northern
3	90° - 0° E	Northern
4	Not used	
5	0° - 90° W	Southern
6	90° - 180° W	Southern
7	180° - 90° E	Southern
8	90° - 0° E	Southern
9	Used when the area of applicability is not indicated by latitude and longitude.	

- LaLaLa
  Latitude in tens, units, and tenths of degrees.
- LoLoLo
  Longitude of the center of area of applicability in tens, units and tenths of degrees. Hundreds digit is added by user according to the octant.
- YY
  Day of the month (01 to 31)
- GoGoGo
  Time of commencement of the period of validity in whole hours and tenths (GMT in whole hours and tenths, 000 to 239).
- G
  Duration of validity period in hours, from 1 to 8; 9 designates 12 hours.
- DDD
  Mean wind direction from the surface to 2800 ft (in degrees).

[7] <CR> = Carriage Return
[8] <LF> = Line Feed

- FFF
  Weighted wind speed from surface to 2800 ft (in ft/s).
- TTT
  Virtual temperature at 500 ft (in °F).

METSRX Message Format

METSRQ<space>LaLaLaLoLoLo<space>YYGoGoGoG<space>

<+/->TsTsTs<space>DeDeDe<space>FeFe<space><CR>[9]<LF>[10]

99999<CR><LF>

Where:

- DeDeDe:
  Effective wind direction in tens of mils.
- FeFe:
  Effective wind speed in knots.
- TsTsTs:
  Effective temperature in degrees °C and in tenths (-49.9 to +49.9).

Message Examples

The default value for the message header or footer is Null.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message.

METSR

```
METSR3 603249 180712 293 015 060
99999
```

METSRX

```
METSR3 603249 180712 +157 521 09
99999
```

[9] <CR> = Carriage Return
[10] <LF> = Line Feed

METTA - Standard Target Acquisition Meteorological Message (STANAG 4140)

Message Format

Group 1 METTAQ

Group 2 LaLaLaLoLoLo or XXXXXX

Group 3 YoYoGoGoGoG

Group 4 hhhPdPdPd

Group 5 CCCNNN

Group 6 ZtZtdddFFF

Group 7 ttttUU

Note that Groups 6 and 7 are repeated for each zone number of the message. Only those zones of the message that are required by the recipient must be included.

Message standards for Group 1:

- MET
  Meteorological message
- TA
  Target acquisition message
- Q
  Octant of the globe:

Code Figure Q	Greenwich Longitude	Hemisphere
0	0° - 90° W	Northern
1	90° - 180° W	Northern
2	180° - 90° E	Northern
3	90° - 0° E	Northern
4	Not used	
5	0° - 90° W	Southern
6	90° - 180° W	Southern
7	180° - 90° E	Southern
8	90° - 0° E	Southern
9	Used when the area of applicability is not indicated by latitude and longitude.	

Message standards for Group 2:

- LaLaLa
  Latitude of the center of the area in tens, units, and tenths of degrees.
- LoLoLo
  Longitude of the area of applicability in tens, units and tenths of degrees. Hundreds digit is omitted for longitudes 100° or greater.

  Or
- XXXXXX
  Location of the center of the area of applicability, in clear or in code (alphanumeric), using NATO Grid Reference Systems (as defined in STANAG 2211), for example, a 6-figure grid reference. This enables the location to be specified to a higher precision than possible using geographical coordinates (latitude and longitude). Alternatively, user can manually input location data in clear text or in code.

Message standards for Group 3:

- YY
  Day of the month (GMT) of the commencement of the period of the validity of the message.
- GoGoGo
  Time of commencement of the period of validity in tens, units and tenths of an hour (GMT) using the 24-hour clock from 000 to 239.
- G
  The duration of validity period in hours, from 1 to 8; 9 designates 12 hours.

Message standards for Group 4:

- hhh
  Altitude of the Meteorological Datum Plane (MDP) above mean sea level, in decameters. MDP is the horizontal surface to which heights of the zones and meteorological elements are referred. On land MDP is usually the height of the meteorological station above Mean Sea Level; at sea the MDP is usually at Mean Sea Level.
- PdPdPd
  Pressure at the MDP in hundreds, tens and units of hectoPascals. When the value of air pressure is 1000 hPa or more, the thousand digit is omitted.

Message standards for Group 5:

- CCC
  Height above the MDP of the base of the lowest cloud of the observation point in tens of metres in accordance with the Cloud Code Table.

Table 8 Cloud Code Table

Code	Description
00	Sky obscured by fog.
110 - 160	Visual estimate of the base of the lowest cloud in tens of meters, if below 1,600 meters.
166	Visual estimate is that the base of the lowest cloud is above 1,600 meters.
199	Clear sky.
301 - 460	Subtract 300 to obtain base of the lowest cloud observed by searchlight or laser in tens of meters if below 1,600 meters.
466	Base of the lowest cloud observed by searchlight or laser is above 1,600 meters.
501 - 660	Subtract 500 to obtain the height at which a balloon begins to disappear in cloud in tens of meters if below 1,600 meters.
666	Balloon lost above 1,600 meters.

- NNN
  (Optional) The mean refractive index at the surface in N units. If NNN is not to be included in the message, the missing data is indicated by three slashes (///).

Message standards for Group 6:

- ZtZt
  Zone number code

Table 33 Zone Number Code

ZtZt	Height of Mid-Point of Zone Above MDP (Meters)	Height above MDP of Zone (Meters)	
		Base	Top
00	0	0	0
01	25	0	50
02	75	50	100
03	150	100	200
04	250	200	300
05	350	300	400
06	450	400	500
07	550	500	600
08	650	600	700
09	750	700	800
10	850	800	900
11	950	900	1000
12	1050	1000	1100
13	1150	1100	1200
14	1250	1200	1300
15	1350	1300	1400
16	1450	1400	1500
17	1550	1500	1600
18	1650	1600	1700
19	1750	1700	1800
20	1850	1800	1900
21	1950	1900	2000
22	2050	2000	2100
23	2150	2100	2200
24	2250	2200	2300
25	2350	2300	2400
26	2450	2400	2500
27	2550	2500	2600

- ddd
  Mean wind direction for the zone given in thousands, hundreds and tens of mills (true). For zone number 00 the value is the wind direction at the MDP.
- FFF
  Mean wind speed of the zone in hundreds, tens and units of knots. For zone number 00 the value is the wind speed at the MDP.

Message standards for Group 7:

- ttt
  Mean air temperature of the zone in hundreds, tens, units and tenths Kelvin. For zone number 100 the value is the air temperature at the MDP.
- UU
  Mean relative humidity of the zone expressed as percentage (%) in tens and units. 100% is denoted by 00. For zone 00 the value is to be the relative humidity at the MDP.

Message Examples

The default format is Format 1.

The default value for the message header or footer is Null.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message.

Format 1

```
METTA3 603249
180712 000009
///325
00513002 289566
01502004 289168
02508009 288670
03520012 287772
04542013 287070
05552012 286771
06538013 286074
07532013 285374
08525012 284577
09511010 283973
10487010 283472
11476011 282775
12486012 281875
13489011 280977
14494009 280178
15505008 279479
16497008 278774
17482008 278170
18471008 277868
19472008 277566
20477006 276877
21461005 276278
22454004 275580
23435005 274983
24434007 274479
25435006 273877
26446004 273279
27485004 272479
```

Format 2

```
METTA3 603249 180712 00000
///325
00513002 289566
01502004 289168
02508009 288670
03520012 287772
04542013 287070
05552012 286771
06538013 286074
07532013 285374
08525012 284577
09511010 283973
10487010 283472
11476011 282775
12486012 281875
13489011 280977
14494009 280178
15505008 279479
16497008 278774
17482008 278170
18471008 277868
19472008 277566
20477006 276877
21461005 276278
22454004 275580
23435005 274983
24434007 274479
25435006 273877
26446004 273279
27485004 272479
99999
```

METEO 11 Message Examples

The default format is Format 1.

The default value for the message header or footer is Null.

In the messages, missing data is indicated with a slash sign (/) for each missing digit. In case data is missing for full zones at the end of the message, the zones are not included in the message.

Format 1

```
METEO 1100 18084 0000 00701
0200 014905
0400 015006
0801 015006
1201 004806
1601 004805
2001 004705
2401 004704
3001 004704
4000 014604
5000 014404
6000 014104
8051 022806
1000 012511
12 012514
14 012613
18 022611
22 012609
26 012508
30 022407
3232 //////
```

Format 2

```
11001 80840 00000 70102 00014 90504 00015 00608 01015 00612
01004 80616 01004 80520 01004 70524 01004 70430 01004 70440
00014 60450 00014 40460 00014 10480 51022 80610 00012 51112
01251 41401 26131 80226 11220 12609 26012 50830 02240 73232
///// /0000
```

CHAPTER 6

TECHNICAL SUPPORT

This chapter provides contact information for technical support.

Technical Support

For technical questions, contact the Vaisala technical support by e-mail at helpdesk@vaisala.com. Provide at least the following supporting information:

- Name and model of the product in question
- Serial number of the product
- Name and location of the installation site
- Name and contact information of a technically competent person who can provide further information on the problem.

Product Returns

If the product must be returned for service, see www.vaisala.com/returns.

For contact information of Vaisala Service Centers, see www.vaisala.com/services/servicecenters.

www.vaisala.com

M211594EN