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DNID Delivery Options for the Xantic Inmarsat-C Data Reporting service

This edition of this User Manual has been updated with information available at the date of issue. This edition supersedes all earlier versions of this manual.

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Contents

1	Introduction	3
2	Scope	3
3	Abbreviations	3
4	Delivery format options for DNID files.	3
4.1	Data Report Decoding	3
4.1.1	Decode Type	3
4.1.2	Drop Not Decodable	4
4.1.3	Follow-on Disabled	4
4.2	Message Headers	4
5	Possible combinations and results	7
6	Examples Data Report Retrieval	11
6.1	Example 1. DNID Data Report Retrieval - API Header = Yes	11
6.2	Example 2. DNID Retrieval decode type = T&T Default Header	12
6.3	Example 3. DNID Retrieval Decode Type – Textual Conversion	13
6.4	Example 4. DNID Message Retrieval – Text Header	13

1 Introduction

This document describes the delivery options and results for the Xantic Inmarsat-C Data Reporting service. As the document does not yet describe all the options, (in version 0.1 only the options relating to content conversion and header information is described) the current status of this document is draft.

2 Scope

Until the status of this document becomes final and ready for release, this document is intended for internal use with Xantic.

3 Abbreviations

API	Application Program Interface
DNID	Data Network Identifier
LES	Land Earth Station

4 Delivery format options for DNID files.

In the DNID file, a number of options can be selected for the delivery of the Data Reports (and messages sent to the DNID). Two of the options have an effect on the delivery format. These options are roughly divided into two groups:

- Data Report Decoding; and
- Message Headers.

4.1 Data Report Decoding

The Data Report Decoding options specify what the LES should do with the actual contents of the Data Report. The features and possible selections are:

Decode Type	No conversion Textual conversion T&T default header
Drop Not Decodable	yes/no
Follow-on Disabled	yes/no

4.1.1 Decode Type

Data Reports are small amounts of (mostly encoded) information. Because of its compressed format and possible encoding, the Data Report is handled as 8-bit information. The raw Data Reports cannot be read in a normal text editor or –processor. Many of the bytes cannot be displayed or represent a control function for a given program. Although the Data Reporting service is specified as a communication protocol that can be used by the user to convey their own specific information and format, one possible utilization has been specified as a ‘standard’.

This is the Inmarsat **Positioning service**.

In this specification is laid down what a Position Report should look like and what information (if present) should be put where in the Data Report.

Distinction is made between Maritime Position Reports and Land Mobile Position Reports, i.e. the encoding of the information in the Data Report is different for these two variants.

The *Decode Type* feature specifies if the actual content should be forwarded as it was received (No Conversion), whether it should be translated -if possible- into clear text (Textual Conversion), or if a default form of additional information should be inserted before the original Data Report (T&T Default Header).

The Textual Conversion option only applies to the Position Reporting Service.

All other possible encoding of Data Reports cannot be recognised by the LES.

Hence this option is only applicable if the customer is using only Position Reporting on a particular DNID/Ocean Region and wants to have the information in clear text.

No Conversion means that the LES will make no changes to the content or appearance of the information.

The T&T Default Header puts the following information in front of the actual information and forwards it as an 8-bit message to its terrestrial destination:

<DNID number><CR><LF>

<member number><CR><LF>

<length of Data Report in bytes><CR><LF>

The T&T default header option does not include any decoding.

4.1.2 Drop Not Decodable

The feature specifies what the LES should do if Textual Conversion was selected in Decode Type and a particular data report could not be decoded. The value yes would result in the LES 'dropping' the Data Report, i.e. disregard it.

The value no would result in a message with the normal format of a decoded Position Report but without the relevant information. Instead, a line is added saying that nothing could be decoded.

4.1.3 Follow-on Disabled

This feature specifies whether the LES can forward more than one Data Report (if present in the DNID file) using the same connection.

The value no would result in the LES forwarding all available Data Reports using one connection set-up, before clearing down the connection.

The value yes would result in separate connections for each individual Data Report.

4.2 Message Headers

This option specifies what header information should be added to the Data Report when it is forwarded to its terrestrial destination.

The features and possibilities for this option are:

Use API Headers	yes/no
Text	<header specification>
Data	<header specification>

The Text and Data header features here refer to the presentation of the message used on the satellite channel: a message coming in using 5-bit or 7-bit presentation is regarded 'Text', a message that is received using 8-bit presentation is regarded as 'Data'.

A Data Report is always considered an 8-bit message. There is however the possibility to send messages from a mobile terminal using the DNID as the specified address. In such cases the presentation can be other than 8-bit.

The Text header, if specified, is used only for messages that came in using the 5-bit or 7-bit presentation. The Data header, if specified, is only used for messages that came in using the 8-bit presentation.

The values for these two features depend on the LES (and customer). A default header text is available, but it is possible to specify a specific header text.

The API Header feature specifies whether the forwarded Data Reports or messages should have a fixed header added.

The API Header (Application Program Interface) is a header that has a fixed format for specific message types regardless of the presentation type.

There are five API Headers defined, used for to-terrestrial delivery:

- (i) API header attached to data reports forwarded from a DNID file.
- (ii) API header attached to messages forwarded from a DNID file
- (iii) API header attached to messages, both when forward normally or from mailboxes
- (iv) API header attached to Positive Delivery Notifications (PDN), both when forward normally or from mailboxes
- (v) API header attached to Negative Delivery Notifications (NDN, both when forward normally or from mailboxes

The advantage of the API header is that it contains additional information related to the message.

API headers cannot be used together with the Text- and Data headers.

For this document only the format of the API headers for DNID file contents is listed.

API Header layout:

01	1 byte : Indication of header start (EOH)
'T&T'	3 bytes: ASCII values for string "T&T" i.e. byte values 54H,26H,54H
01	1 byte : Type of API header (01 for DNID header)
22	1 byte : The length of this header in bytes
Mess. Ref. No.	4 bytes: Message reference number, LSB first.
Presentation	1 byte : Receive alphabet from satellite side message reception, see note 1
LES ID	1 byte : LES ID, can be used for identification of ocean region for multi ocean LES's
Data Length	2 bytes: Number of data bytes following the header LSB first.
Stored time	4 bytes: Giving the time of message store. The bytes given will be the number of seconds since January 1 1970 0:0:0, LSB first
DNID	2 bytes: DNID file. LSB first
Member number	1 byte : Member number sent by the MES when storing the data report
02	1 byte : Indication of header end (STX)

LEGEND: LSB Least significant byte

Fig. 1 API header, DNID file data report retrieval

01	1 byte : Indication of header start (EOH)
'T&T'	3 bytes: ASCII values for string "T&T" i.e. byte values 54H,26H,54H
02	1 byte : Type of API header (02 for DNID MSG. header)
25	1 byte : The length of this header in bytes
Mess. Ref. No.	4 bytes: Message reference number, LSB first.
Presentation	1 byte : Receive alphabet from satellite side message reception, see note 1)
LES ID	1 byte : LES ID, can be used for identification of ocean region for multi ocean LES's
Data Length	2 bytes: Number of data bytes following the header LSB first.
Stored time	4 bytes: Giving the time of message store. The bytes given will be the number of seconds since January 1. 1970 0:0:0, LSB first
DNID	2 bytes: DNID file. LSB first
MES Mobile number	4 bytes: Originating Inmarsat Mobile number LSB first.
02	1 byte : Indication of header end (STX)

LEGEND: LSB Least significant byte

Fig. 2 API header, DNID file message retrieval

5 Possible combinations and results

With the delivery options as specified above, different combinations can be made. For the rest of this document, the features Drop Not Decodable and Follow-on Disabled are not taken into consideration.

In general these combinations will have the same effect for all terrestrial networks, The exception here is e-mail.

The e-mail gateway also distinguishes between 8-bit messages and 5- or 7-bit messages. 5-bit and 7-bit messages will be forwarded as readable text in an e-mail message to the destination specified in the DNID-file; 8-bit messages will be forwarded as an attachment to an e-mail message, even though the message body will not contain any other information.

Data reports, forwarded via e-mail, will have the DNID member number as part of the originator e-mail address. If for example a Data Report was sent by a DNIDN member 7 on one of the Xantic LES ID 12 ocean regions, and forwarded by the e-mail gateway, the originator address in the e-mail received by the addressee will be **7@c.xantic.net**

For e-mail, the possible combination of forwarding DNID file contents will have the following results:

A.

Data Report Decoding

Decode Type:	no conversion
--------------	---------------

Message Headers

Use API Headers:	no
Text:	no header
Data:	no header

will result in an e-mail message without any text, containing one attachment which holds the original 8-bit data report.

B.

Data Report Decoding

Decode Type:	textual conversion
--------------	--------------------

Message Headers

Use API Headers:	no
Text:	no header
Data:	no header

will result in an e-mail message without an attachment, but with a clear text Position Report.

C.

Data Report Decoding

Decode Type: T&T Default Header

Message Headers

Use API Headers: no
Text: no header
Data: no header

will result in an e-mail message without any text, containing one attachment which holds the T&T default header information followed by the original 8-bit data report.

D.

Data Report Decoding

Decode Type: no conversion

Message Headers

Use API Headers: yes
Text: no header
Data: no header

will result in an e-mail message without any text, containing one attachment which holds the API header information followed by the original 8-bit data report.

E.

Data Report Decoding

Decode Type: textual conversion

Message Headers

Use API Headers: yes
Text: no header
Data: no header

will result in an e-mail message without any text, containing one attachment which holds the API header, followed by a clear text Position Report.

F.

Data Report Decoding

Decode Type: T&T default header

Message Headers

Use API Headers: yes
Text: no header
Data: no header

will result in an e-mail message without any text, containing one attachment which holds the API header, followed by the original 8-bit Data Report.

G.

Data Report Decoding

Decode Type: no conversion

Message Headers

Use API Headers: no

Text: <header specification>

Data: no header

Will result in an e-mail message without any text, containing one attachment that holds the original 8-bit Data Report.

Since the incoming message was using 8-bit presentation, the specified text header does not apply.

H.

Data Report Decoding

Decode Type: textual conversion

Message Headers

Use API Headers: no

Text: <header specification>

Data: no header

will result in an e-mail message without an attachment, but with a clear text Position Report.

Since the incoming message was using 8-bit presentation, the specified text header does not apply.

I.

Data Report Decoding

Decode Type: T&T default header

Message Headers

Use API Headers: no

Text: <header specification>

Data: no header

will result in an e-mail message without any text, containing one attachment which holds the T&T default header followed by the original 8-bit Data Report.

Since the incoming message was using 8-bit presentation, the specified text header does not apply.

J.

Data Report Decoding

Decode Type: no conversion

Message Headers

Use API Headers: no

Text: no header

Data: <header specification>

will result in an e-mail message without any text, containing one attachment which holds the data header information, followed by the original 8-bit Data Report.

K.

Data Report Decoding

Decode Type: textual conversion

Message Headers

Use API Headers: no

Text: no header

Data: <header specification>

will result in an e-mail message without an attachment, but with the data header information followed by a clear text Position Report.

L.

Data Report Decoding

Decode Type: T&T default header

Message Headers

Use API Headers: no

Text: no header

Data: <header specification>

will result in an e-mail message without any text, containing one attachment which holds the data header information, followed by the T&T default header information and the original 8-bit Data Report.

6 Examples Data Report Retrieval

6.1 Example 1. DNID Data Report Retrieval - API Header = Yes

The API header adds information such as message reference, presentation, length of data, stored time (in seconds since 1970), DNID, Member number.

Position Report in binary format.

Decode type = no conversion

API header = YES

Settings per DNID:

Datareport Decoding:

Decode Type: **no conversion**

Drop Not Decodable: no

Follow-on Disabled: no

Message Headers:

Use API Headers: **yes**

Text: No

Data: No

>DNID 6363 2

Retrieving DNID data...

gö9İS<Ë- %Ni=Ü

Shown in HEX/ASCII as follows:

<RECV> 2002-12-03 14:05:09 (27 bytes)

0D 0A 52 65 74 72 69 65 76 69 6E 67 20 44 4E 49
44 20 64 61 74 61 2E 2E 2E 0D 0A

..Retrieving.DNI
D.data.....

<RECV> 2002-12-03 14:05:09 (42 bytes)

01 54 26 54 01 16 38 A9 09 00 02 96 14 00 67 42
EC 3D DB 18 0D 02 67 F0 39 CF 53 8B 0C B0 00 00
00 00 00 00 00 00 00 00 00 00

.T&T..8.....gB
.=....g.9.S.....
.....

6.2 Example 2. DNID Retrieval decode type = T&T Default Header

If customers are using an application that can decode the raw data, they may not want the reports to be converted automatically to text. They may only require the TT default header. See example below for when you have T&T **default header** set. The italic comments have been added as a comment.

Format T&T default header =

- DNID.
- Member.
- Length in bytes (8 bytes = 1 packet, 20 bytes = 2 packets 32 bytes = 3 packets).
- Followed by contents of data report.

From byte 6 to byte 13 of the Satellite Packet for First Packet of data report

From byte 2 to 13 of the Satellite Packet for the first and second continuation packet's.

Settings per DNID:

Datareport Decoding:

Decode Type: **TT default header**

Drop Not Decodable: no

Follow-on Disabled: no

Message Headers:

Use API Headers: No

Text: No

Data: No

>DNID 6363 2

Retrieving DNID data...

```
6363      =dnid
13        =member
20        =length in bytes
gö9İS<Ä  =binary data
```

Shown in HEX/ASCII as follows:

```
<RECV> 2002-12-03 14:15:58 (27 bytes)
0D 0A 52 65 74 72 69 65 76 69 6E 67 20 44 4E 49      ..Retrieving.DNI
44 20 64 61 74 61 2E 2E 2E 0D 0A                    D.data.....

<RECV> 2002-12-03 14:15:58 (34 bytes)
36 33 36 33 0D 0A 31 33 0D 0A 32 30 0D 0A 67 F0      6363..13..20..g.
39 CF 53 8B 0C C4 00 00 00 00 00 00 00 00 00      9.S.....
00 00                                                ..
```

6.3 Example 3. DNID Retrieval Decode Type – Textual Conversion

The data report received in binary format will be converted to ASCII text.

Settings DNID:

Datareport Decoding:

Decode Type: **Textual conversion**

Drop Not Decodable: No

Follow-on Disabled: No

Message Headers:

Use API Headers: No

Text: No

Data: No

>DNID 6363 2

Retrieving DNID data...

Maritime Mobile Position Report

Pacific Ocean Region, DNID : 6363, Member Number : 13

Position : 31 48.28' S, 115 53.28' E

Speed : 0.0 knots, Course : 0 degree

Time of position : 03-DEC-02 06:28

6.4 Example 4. DNID Message Retrieval – Text Header

Message Text addressed to DNID mailbox.

Settings DNID:

Datareport Decoding:

Decode Type: **TT default header**

Drop Not Decodable: No

Follow-on Disabled: No

Message Headers:

Use API Headers: No

Text: YES

Data: No

This is for messages that are addressed from a mobile to a particular DNID mailbox.

The Text header is shown in bold.

If you have Text Header = No, then the information (text message) is all you would receive.

>

Retrieving DNID data...

NL BURUM LES 400022210=OTSP X 5-AUG-2002 07:32:11 058527

6868

400022210

25

test via PSDN SAC Burum

>