

ANNEX C – MEM MESSAGING

1 Introduction

In a community of MIP-enabled C2 systems nations, command levels and organisations can share:

- Situational awareness (including, inter-alia, capabilities and status of friendly and enemy forces).
- Plans and Orders.
- NBC alerts and critical messages.

The DEM primarily handles situation awareness functionality of MIP. The MEM uses Message Text Formats (MTF) messages and file attachments to exchange plans, orders, NBC alerts and critical messages.

This annex addresses:

- A set of ADatP-3 MTFs to support the exchange of NBC alerts and Nuclear Strike warnings.
- How the MEM supports the exchange of Plans and Orders.
- How the MIP System Management MTF supports coordination and management of the MCI.
- [General instructions on how to fill out MIP unique MTF messages in accordance with ADatP-3 format rules.](#)

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2 Message Exchange Mechanism (MEM) Formatted MIME SMTP Message

2.1 File Attachment Naming Convention

The MIP MTF or File attachment name will be in the format of SSSSSSSS.EXT, where:

- SSSSSSSS is defined as an unique nationally assigned identifier which can be any combination of uppercase alpha or numeric characters.
- The file name can be any length with a minimum of 8 characters up to a maximum of 99 characters excluding the file extension.
- The file name must be unique within an MCI session, this implies that once a session is completed the files must be taken outside of the international domain to prevent file collision during later MCI session.
- It is a national concern to apply a proper filename uniqueness strategy.

It is recommended that the name should be prefixed with a national identifier to ensure the names do not conflict with an other nation name (examples: FR, CA, US, GE, NL ...), the name of the MIP or ADatP-3 MTF, and that the message serial number be included.

EXAMPLE: US_STRIKWARN_0123.AD3.

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- Supplementary information to the MEM MIME email message, e.g. a compressed picture, may be sent as a second attachment to the MEM MIME email message, if the size of the attachment is appropriate for the respective communication link.

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EXAMPLE: US_STRIKWARN_00023 With Attachment

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The following are the mandatory files types to be supported:

- Operational text message: .AD3
- Audio (voice): .MP3
- Text: .RTF, .TXT
- Spread sheets: .CSV
- Graphics: .JPEG, .JPG, .TIF, .TIFF
- Video: .AVI, .MPEG

The exchange of MS Office file types is optional.

2.2 MEM Implementation Example

The implementation of MEM Mailer and Mail Client is a national concern. The MEM Mail Client opens the appropriate SMTP address (e.g., a staff section officer: S3) mail box to send or receive MEM formatted MIME SMTP messages. The MEM Mail Client allows the sender to set the message Precedence, Classification, and SIC code. The following is an example scenario for exchanging MTF messages using the MEM formatted MIME SMTP message.

1. The sending MEM Mail Client is opened to generate the MEM formatted MIME SMTP message.
2. The MIP or ADatP-3 MTF file is created or provided to the mail sender.
3. The MIP or ADatP-3 MTF file is attached to the MEM formatted MIME SMTP message, using the file name convention provided in paragraph 2.1. The MTF must be the first file attachment to the SMTP message as described in the MTIDP.
4. The MEM formatted MIME SMTP message Precedence, Classification, and SIC code is set by the sender using the MEM Mail Client.

The following Precedences are supported:

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- FLASH
- IMMEDIATE
- PRIORITY
- ROUTINE

The following Classifications are supported:

- UNCLASSIFIED
- NATO UNCLASSIFIED
- RESTRICTED
- NATO RESTRICTED
- CONFIDENTIAL
- NATO CONFIDENTIAL
- SECRET
- NATO SECRET

5. Additional File attachments may be added to the message. The File attachment is named in the same way as the MTF is named. See paragraph 2.1. Additional files are added as attachments 2, 3 ... to the SMTP message.

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It is recommended to state within the MIP or ADatP-3 MTF that an attachment is present, in order to alert the recipient to take further action. This can be accomplished by using one of the optional text sets, NARR or RMKS.

It is also recommended to include in the Subject of the MEM SMTP message the text "With Attachment" to indicate that an attachment is following.

6. The MEM SMTP message is addressed to the receiving nation's appropriate SMTP mailbox address.
7. The sending MEM Mail Client sends the MEM formatted MIME STMP message to the receiving nation.

8. The sending MEM Mail Client will receive a DSN when the MEM message is delivered to the receiving mailbox. A success DSN means that the email has been placed into the receiver's mailbox.
9. The receiving MEM Mail Client opens the received MEM formatted MIME SMTP message.
10. The receiving MEM Mail Client then follows national procedures to open the MIP or ADatP-3 MTF attachment to be read.

3 ADatP-3 HUMAN Readable Messages

3.1 Alerts Messages

Table 3.1 lists a set of human alerts messages from the ADatP-3 messages structures that shall be supported by MIP nations to supports an NBC operational scenario. This does not preclude the exchange of any other ADatP-3 MTF messages. NBC messages are generated using the guidance in ATP-45(B) Reporting Nuclear Detonations, Biological And Chemical Attacks, And Predicting And Warning Of Associated Hazards And Hazard Areas (Operators Manual).

J062 STRIKWARN	NUCLEAR STRIKE WARNING MESSAGE	THE STRIKWARN IS USED TO PROVIDE FRIENDLY FORCES WITH THE NECESSARY INFORMATION NEEDED TO TAKE SAFETY PRECAUTIONS AGAINST A FRIENDLY NUCLEAR BURST.
J121 NUC1	NBC1 NUC REPORT	THE NUC1 IS USED TO PROVIDE THE OBSERVER'S INITIAL REPORT GIVING BASIC DATA ON A SINGLE NUCLEAR ATTACK.
J122 NUC2	NBC2 NUC REPORT	THE NUC2 IS USED TO DISSEMINATE EVALUATED DATA OF A SINGLE NUCLEAR ATTACK.
J123 NUC3	NBC3 NUC REPORT	THE NUC3 IS USED TO PASS IMMEDIATE WARNING OF PREDICTED CONTAMINATION AND HAZARD AREAS FOLLOWING A NUCLEAR ATTACK.
J127 BIOCHEM1	NBC1 BIO/CHEM REPORT	THE BIOCHEM1 IS USED TO PROVIDE THE OBSERVER'S INITIAL REPORT GIVING BASIC DATA ON A SINGLE BIOLOGICAL OR CHEMICAL ATTACK.
J128	NBC2	THE BIOCHEM2 IS USED TO DISSEMINATE EVALUATED DATA,

BIOCHEM2	BIO/CHEM REPORT	COLLECTED FROM BIOCHEM1 REPORTS, OF A SINGLE BIOLOGICAL OR CHEMICAL ATTACK.
J129 BIOCHEM3	NBC3 BIO/CHEM REPORT	THE BIOCHEM3 IS USED TO PASS IMMEDIATE WARNING OF PREDICTED CONTAMINATION AND HAZARD AREAS FOLLOWING A BIOLOGICAL OR CHEMICAL ATTACK.
J133 ROTA1	NBC1 ROTA REPORT	THE ROTA1 IS USED TO PROVIDE THE OBSERVER'S INITIAL REPORT GIVING BASIC DATA ON A SINGLE RELEASE OTHER THAN ATTACK EVENT.
J134 ROTA2	NBC2 ROTA REPORT	THE ROTA2 IS USED TO DISSEMINATE EVALUATED DATA OF A SINGLE RELEASE OTHER THAN ATTACK EVENT.
J135 ROTA3	NBC3 ROTA REPORT	THE ROTA3 IS USED TO PASS IMMEDIATE WARNING OF PREDICTED CONTAMINATION AND HAZARD AREA FOLLOWING ONE RELEASE OTHER THAN ATTACK EVENT.

Table 3.1 Minimum Set of ADatP-3 MTF Messages Supported By MIP

The NBC messages are defined in the ADatP-3 Message Definitions file of Annex C - MEM Messaging Definitions - to the MIR.

3.2 ACKNOWLEDGEMENT

The MIP ACK MTF message allows the receiver of a message to send an acknowledgement to the sender of the message that the message was received and understood, or that the order or message was received and not understood. This message is sent when the sender requests and acknowledgement to the sent message. The ACK message is defined in the MIP Message Definitions file of Annex C - MEM Messaging Definitions - to the MIR.

4 MEM USED TO EXCHANGE ORDERS AND PLANS

The MEM formatted MIME SMTP message is used to support the exchange of Order and Plan Documents. The Order or Plan is generated into a file type supported by MIP and placed into the first attachment of the message. Additional supporting file attachments may be added as attachments 2, 3, etc.

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4.1 STANAG 2014 Five Paragraph Operations Order

MIP nations may exchange the STANAG 2014 Five Paragraph Operations Order using any file format supported in paragraph 2.2. The file containing the Operation Order will be placed in the first attachment position.

The MIP MEM MOPORDER MTF is a text version of the STANAG 2014 Operation Order. It may also be used to exchange the Operation Order. The MTF file will be the first file attachment. Additional files supporting the order may be added to attachment positions 2, 3, etc. The MOPORDER MTF is defined in [the MIP Message Definitions file of Annex C - MEM Messaging Definitions](#) - to the [MIR](#).

5 MEM Gateway Management Message MIPSYSMAN

The MIP System Management (MIPSYSMAN) message definition is found in [the MIP Message Definitions file of Annex C - MEM Messaging Definitions - to the MIR](#).

Table 5-1 [outlines](#) the different sets of the MIPSYSMAN MTF that may be created. The [procedure for using the MIPSYSMAN MTF to facilitate management of the MEM Gateways](#) is found in MOP-Annex B-MEM Operational Setup and Managment-2.0.

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Set VERCONF	Verify Configuration	The MIPSYSMAN "Verify Configuration" MTF message is used to test the configuration of SMTP mailbox addresses.
Set DISCONN	Disconnect	The MIPSYSMAN "Disconnect" MTF message is used to alert all appropriate MEM Gateways when a MEM Gateway must leave the MIP LAN for a temporary amount of time.
Set RECONN	Reconnect	The MIPSYSMAN "Reconnect" MTF message is used to alert all appropriate MEM Gateways when a disconnected MEM Gateway has reconnected to the MIP LAN.
Set DETACH	Detach	The MIPSYSMAN "Detach" MTF message is used to alert all appropriate MEM Gateways when a MEM Gateway is leaving the MIP LAN permanently.
Set CHGADDR	Change Address	The MIPSYSMAN "Change Address" MTF message is used to alert all appropriate MEM Gateways when an existing email profile is changed with a possible new hostname, IP address, or SMTP mailbox address.
Set ADDADDR	Add Address	The MIPSYSMAN "Add Address" MTF message is used to alert all

		appropriate MEM Gateways that a new email profile with new hostname, IP address, or SMTP mailbox address is added.
Set DELADDR	Delete Address	The MIPSYSMAN "Delete Address" MTF message is used to alert all appropriate MEM Gateways that an existing email profile is deleted.

Table 5-1

The MIPSYSMAN MTF is defined in the MIP Message Definitions file of Annex C - MEM Messaging Definitions to the MIR.

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6 ADatP-3 Format Rules

Standardisation of MESSAGES used for information exchange will improve interoperability between different national and NATO authorities and systems. To that end, the NATO Message Text Formatting System (FORMETS) provides the rules, constructions and vocabulary for standardised CHARACTER-oriented MESSAGE TEXT FORMATS (MTF) that can be used in both manual and computer assisted operational environments. FORMETS is specified in Allied Data Publication Number 3 (ADatP-3) Part 1 NATO Message Text Formatting System (FORMETS) System Concept and Description.

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6.1 MTF Overview

A MTF message is composed of individual Sets of information gathered together in one message which defines the information to be exchanged by that message. Each Set Name is unique. Each Set contains fields of information which provide the data that the Set is designed to convey.

Sets are Mandatory (M), Conditional (C) or Operationally Determined (O). Some Sets may be repeated (R). Some messages have a group of Sets, called a Segment, which contains two or more Sets of data that may be repeated.

Fields within Sets are Mandatory (M), Conditional (C) or Operationally Determined (O). Some Fields may be repeated (R), starting with the field that is repeatable and all other Fields to the end of the set. Some Fields may have more than one value, A, B...

The entries in the Fields of the Sets of the message are always entered as CAPITAL letters. The Characters allowed are:

A = Alphabetical A, B, ... Z

B = Blank space

N = Number 1, 2 ...

S = Eight (8) Special Characters [. , - () ?]

Code List = a collection of entries that the Field is restricted to use.

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6.1.1 A MTF Message viewed as an Hierarchical Database

A MTF message may be viewed as an Hierarchical Database. The Message is a Database of information that users want to send to each other (i.e., NBC data). The Message sends the data elements (which are Fields) in the logical Record (which are the Sets) that should contain them. The “rules of the Database” are then the message definition and its Conditions. Because the MTFs always have the data elements (Fields) in the data collection (Sets), computer or scripting programs may be used to create these messages from a data source, and then to extract the data from the message to put into a data store.

The MTF message consists of a Header and a Message Body. The Header of the message usually consists of one of the two header sets, EXER (Exercise) or OPER(Operator). The Message Body of the Message starts with the MSGID (Message Identifier) set, and then has the unique sets applicable to the message identified in the MSGID.

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6.2 MTF Structure

The MTF Message is divided into two parts: A Message Header and a Message Body.

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6.2.1 MTF Message Header

The Message Header is common to all MTF Messages. It consists of a SET identifying the Exercise (EXER) or Operation (OPER) that the MTF Message is associated with. The Message Header then has a set, MSGID, which identifies the Message type, the originator, the serial number of the message, and the month it was sent in. Using the above information, the message has its own unique identifier, so that it can be referred to, or the message may be found using the header information.

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6.2.2 MTF Message Body

It is beyond the scope of these Operational Procedures to provide guidance on how to fill out specific ADatP-3 Message Bodies. If the nations have an automated Message Preparation System (i.e., IRIS/MFS, US Common Message Processor) the user will be given the help as found in the appropriate ADatP-3 version. If you do not have an automated system which gives the message creator help with the message definition, it will be very difficult to generate the messages. The definitions of all messages are defined in the ADatP-3 BASELINE CD that is distributed from NATO. Unfortunately, the definitions are in database formats which are generated to assisted automated systems. These automated systems generate the help required to assist the user who is populating the message.

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6.2.3 An Example of a MTF Message with Message ID EXMS

Message Header: EXER\EXAMPLE EXERCISE\DRILL\

-or-

OPER\EXAMPLE OPERATION4ID S3\EXE\

MSGID\EXMS\4ID S3\001\APR\ \AMP\001\

Message Body: EXMSSET1\Field1\Field2 ... \

EXMSSET2\Field1\Field2 ... \

... end set.

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7 MIP Unique MTF Messages

The MIR Annex C MIP Message Definitions file contains the three MIP Unique Message Definitions. These messages are defined separately, because these three messages are not defined in the ADaP-3 Message Versions. These messages consist of a Message Header and Body just like the ADaP-3 messages, and follow all the rules of ADaP-3 messages. (See paragraph 6).

The MIP unique messages are the:

- MIP OPERATIONS ORDER (MOPORDER): Purpose: to provide the Operational Order in accordance with STANAG 2014 EDITION 8.
- MIP SYSTEM MANAGEMENT (MIPSYSMAN) Message: Purpose: to provide inter-system commands / notifications for the management of gateways connected to the same MIP LAN. The MIPSYSMAN Message is used as defined in Table 5-1.
- ACKNOWLEDGEMENT (ACK) Message: Purpose: to provide an acknowledgement from the receiver of a human readable message such as the MOPORDER and STRIKWARN.

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