MasterScope MISSION CRITICAL OPERATIONS Ver4.3
Release Memo
- CDO Message API Edition -

Thank you for purchasing our product. Taking this opportunity, we would like to provide a supplementary explanation of the "MasterScope MISSION CRITICAL OPERATIONS" CDO message API so that you may make the best use of the product.

Revision History

Revision No.	Chapter/Section	Description
Version 1	-	-

Table of Contents

1. Function description

1.1. <u>Function overview</u>

The CDO message API uses API from user applications to issue arbitrary messages to AG or MG of MasterScope MISSION CRITICAL OPERATIONS Ver3.4 or later.

The CDO message API concept is shown below.
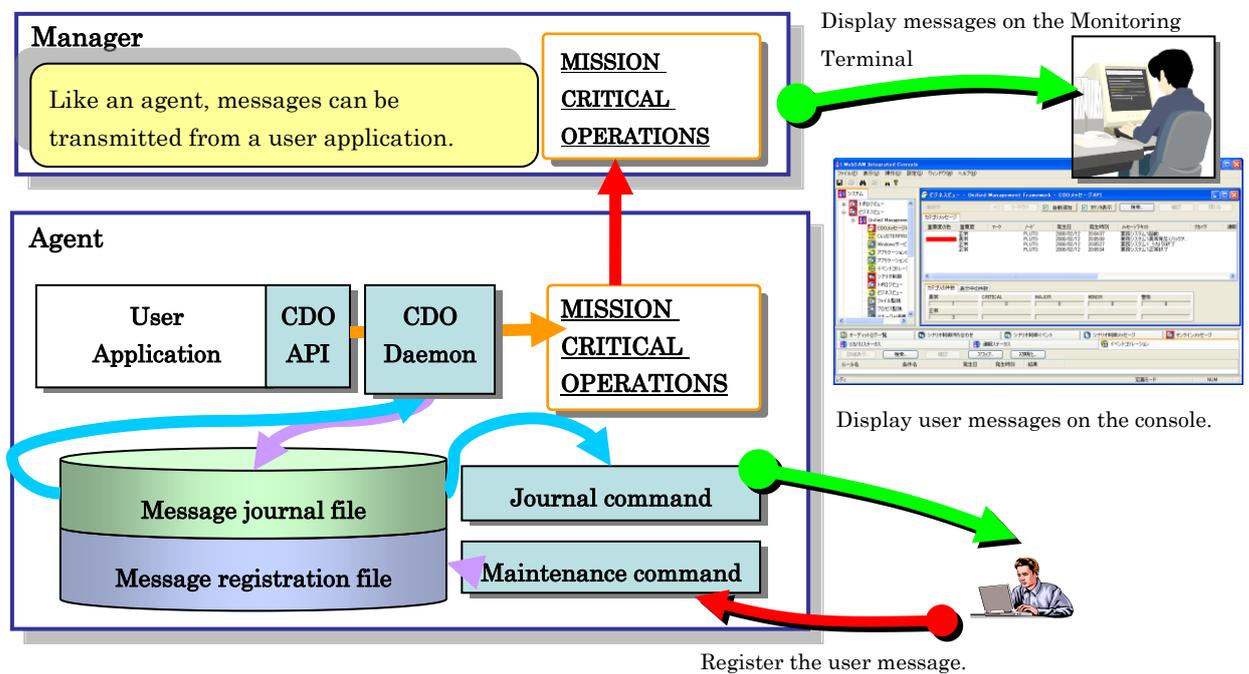
A user message registered by a message maintenance command is transmitted from the user application by specifying its message ID. In this case, specifying variable parts of the message text enables creating a message according to a variety of situations.

An issued message is output to a message journal file. This output is conducted independent of the notification to MISSION CRITICAL OPERATIONS.
A journal command is used to display a message journal file.

<u>Notes</u>
Message notification requires a file (message registration file), in which the message has to be registered. Please create a message registration file before issuing a message by using CDO message API.

2. System Environment

This package runs in an environment that supports MasterScope MISSION CRITICAL OPERATIONS Agent or Manager.
However, it is not possible to runs in the following environments.

- SUSE Linux Enterprise Server 10 (x86)
- SUSE Linux Enterprise Server 10 (EM64T)
- SUSE Linux Enterprise Server 11 (x86)
- SUSE Linux Enterprise Server 11 (EM64T)
- AIX 5.3
- AIX 6.1

Notes

Only HP-UX, Linux and AIX can run the API provided in this package in the 64-bit mode. With other 64-bit OS used, the system runs in the 32-bit compatible mode.

3. How to Install or Uninstall the Product

This chapter describes how to install and uninstall this package.

3.1. Preparation for the installation

Before installing the package, install MasterScope MISSION CRITICAL OPERATIONS Ver3.4 or later in the installation destination. If it has already been installed, continue the operation as it is.

3.2. Installation

This section describes the procedure for installing a new CDO message API.

3.2.1. Windows version

The procedure for installing the Windows version of the CDO message API is described below.

1) Log on to Windows by using an account having administrator rights.

2) Insert the MasterScope Media into a DVD-ROM device.

3) Double-click "setup.exe" in the following path to start the installer.
   D:\tools\MCO\CDOI\Windows\setup.exe

   * In this description, the DVD-ROM device used is shown as D: drive. The device should be changed appropriately according to your environment.

4) Install CDO. Select your language environment. (English or Japanese)
English has been selected as the setup language as described in this manual.
Dialog boxes are shown in English in the following portions.

Fig. 3-1   Selection of a setup language

5) Install CDO. Click [Next].

Fig. 3-2   Installation of CDO (Welcome)

6) Confirm the CDO installation destination. Click [Next] if it is correct.
   Click [Change] to change the installation destination.

Fig. 3-3   Installation of CDO (change of an installation destination)

7) If there is no problem, click [Install] to start the installation process.
   To change settings, click [Return] and make appropriate changes.
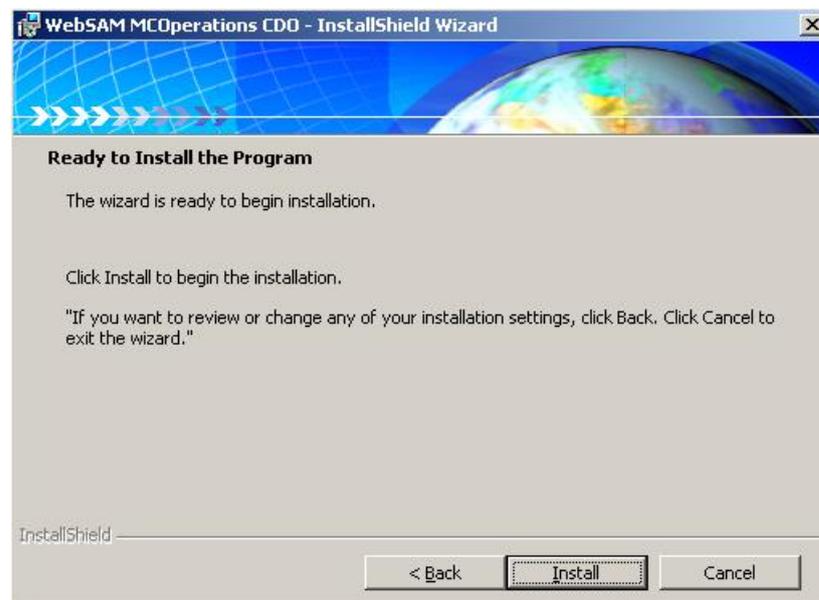
Fig. 3-4   Installation of CDO (Installation confirmation)

8) When the installation process has been finished normally, the following window appears. Click [Complete].

Fig. 3-5   Installation of CDO (Completion)

You have now completed the CDO message API installation process.

To start CDO message API operation, refer to "3.4 Preparation for operation" and then prepare for starting.

3.2.2. UNIX version

The procedure for installing the UNIX version of the CDO message API is described below.

1) Log in to the agent with a user account that has super-user privileges.

2) Insert the MasterScope Media into a DVD-ROM device.

3) Executing the following commands, install CDO (NECUMFMCOCDO).

・　HP-UX(IPF)

```
# swinstall -s /media/tools/MCO/CDO/HP-UX_PA/NECUMFMCOCDO.pkg NECUMFMCOCDO↲
```

・　Linux

```
# rpm -ivh /media/tools/MCO/CDO/Linux/NECUMFMCOCDO.pkg↲
```

・　Solaris

```
# pkgadd -d /media/tools/MCO/CDO/Solaris/NECUMFMCOCDO.pkg NECUMFMCOCDO↲
```

　* In this description, DVD-ROM device used is shown as mounted on /media. The device should be changed appropriately according to your environment.

　* pkgadd may not allow you to upgrade a product in default. To change it, please change the following file.
Filename:/var/sadm/install/admin/default
Before Change

```
・・・
instance=unique
・・・
```

After Change

```
・・・
instance=overwrite
・・・
```

If an error occurs during the installation, it is displayed on the standard output.
For HP-UX(IPF), the details are output to the following log.
　　/var/adm/sw/swagent.log

To start CDO message API operation, refer to "3.4. Preparation for operation" and then prepare for operation.

- **AIX**
  1. Please copy a file of AIX in an arbitrary directory.

     | # cp –p /media/tools/MCO/AIX/aix.tar.gz "directory name"↵ |

     * In this description, DVD-ROM device used is shown as mounted on /media. The device should be changed appropriately according to your environment.

  2. Please carry out the following command on the agent.
     (aix.tar.gz assumes the case copied to /home/agt.)

     | # cd /home/agt↵
gzip -dc aix.tar.gz \| tar xvf -↵ |

  3. Please move diux directory to a usr directory.

     | # cd aix↵
mv ./diux /usr↵ |

  4. Please copy a start shell script (dcomsgstart) and a start shell script (UMFMCOperationsCDO).
     Further please edit a start shell script and a start shell script according to the environment respectively. Please refer to "3.4.3 UNIX version".

     | # cd /usr/diux/sample↵
cp -p UMFMCOperationsCDO /etc/rc.d/init.d/↵
cp -p dcomsgstart /usr/diux/bin/↵ |

  1. After installation completion, please eliminate a file.
     (aix.tar.gz assumes the case copied to /home/agt.)

     | # cd /home/agt↵
rm ./aix.tar.gz↵
rm -r ./aix↵ |

3.3. <u>Uninstallation</u>

This section describes the procedure for uninstalling the CDO message API.

3.3.1. Windows version

The procedure for uninstalling the Windows version of the CDO message API is described below.

1) Log on to Windows by using an account having administrator rights.

2) Insert the MasterScope Media into a DVD-ROM device.

3) Double-click "setup.exe" in the following path to start the installer.
   D:\tools\MCO\CDO\Windows\setup.exe

   * In this description, the DVD-ROM device used is shown as D: drive. The device should be changed appropriately, according to your environment.

4) Uninstall CDO. Select your language environment. (Japanese or English)
   Japanese has been selected as the setup language as described in this manual.
   Dialog boxes are shown in Japanese in the following portions.

Fig. 3-6　Selection of a setup language

5) Uninstall CDO. Click [Next].
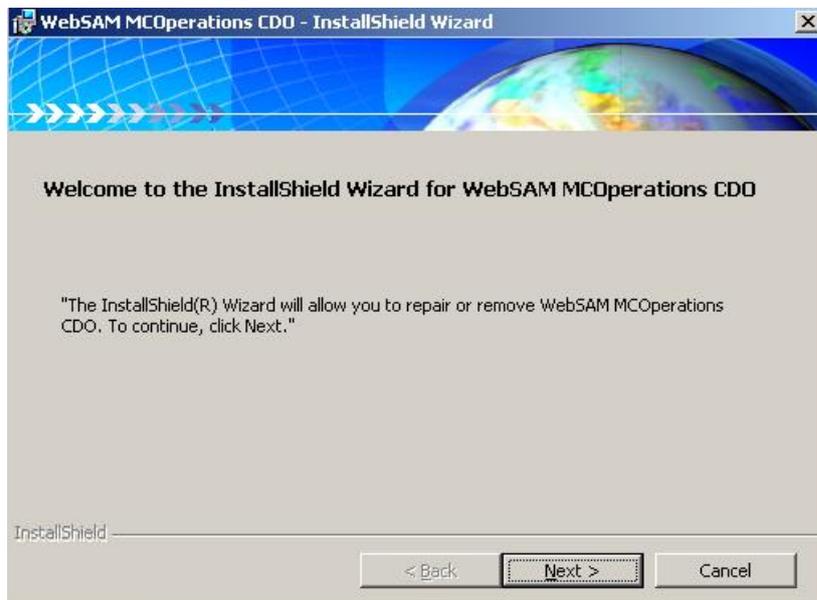
Fig. 3-7　Uninstallation of CDO (Welcome)

6) Select [Remove (<u>R</u>)] and click [Next].

Fig. 3-8   Uninstallation of CDO (program maintenance)

7) Click [Remove]. If no problem exists, the uninstallation process will start.

Fig. 3-9   Uninstallation of CDO (Uninstallation confirmation)

8) When the uninstallation process has finished normally, the following window appears. Click [Complete].

Fig. 3-10　Uninstallation of CDO (Completion)

You have now completed the CDO message API uninstallation process.

Notes
- Files created under the installation directory or environment variables added after installation will not be removed by the uninstaller.　Manually remove them if necessary.
- Manually cancel the settings that were made for CLUSTERPRO or MSCS.

3.3.2. UNIX version

The procedure for uninstalling the UNIX version of the CDO message API is described below.

1) Log in to the agent with a user account that has super-user privileges.

2) Executing the following commands to uninstall CDO (NECUMFMCOCDO).

・ **HP-UX(IPF)**

```
# cd /↵
# swremove NECUMFMCOCDO↵
```

・ **Linux**

```
# cd /↵
# rpm -e NECUMFMCOCDO↵
```

・ **Solaris**

```
# cd /↵
# pkgrm NECUMFMCOCDO↵
```

If an error occurs during the uninstallation, it is displayed on the standard output.
For HP-UX(IPF), the details are output to the following log.
/var/adm/sw/swagent.log

・ **AIX**

```
# rm -r /usr/diux↵
# rm /etc/rc.d/init.d/UMFMCOperationsCDO↵
```

Notes
・ Data files created after the installation are not deleted by the uninstallation. Manually delete them.
・ Manually cancel the settings that were made for MC/ServiceGuard.

3.4. <u>Preparation for operation</u>

This section describes the procedure for operation after installation of the CDO message API.

3.4.1. Filter setting for a monitoring terminal

In order to display messages which is output from CDO in the business view, import a filter setting according to the following procedure. For the list of output messages, click <u>here</u>.

1) Log on to the monitoring terminal as a user having the definition change right.

2) Create a new category under the business view.

3) Select [Filter Setting] from the right-click menu of the created category.

4) Click on [Import] to display the 'Import Setting" dialog box.

5) Import the following filter setting file in the monitoring terminal.
   <Monitoring terminal install directory>\Svc\knowledge\UMF_CDOMessageAPI.txt

<u>Notes</u>
   For messages issued by user API, create another filter settings separately.

3.4.2. Windows version

The procedure to prepare for operation of the Windows version of CDO message API is described below.

1) Using a maintenance command, create a message registration file in advance.
   * For how to use maintenance commands, refer to "<u>6.1.User message registration file.</u>"

2) Specify the message registration file you created in environment variable "DIA_CDOUSER."
   * In the absolute path, make settings including the file name (except for extension.dat or .idx).
   Example) In the case of a message registration file msg{.dat or .idx} existing in C:\CDO
      DIA_CDOUSER=C:\CDO\msg

3) To make the environment variable valid, restart the OS.
For setting environment variables, refer to "5. Command".

4) Please modify the following configuration file if necessary.
<Install_Path>\diux\sg\libMsgWrap.ini

Remarks
<Install_Path> is the directory specified at installation.

For the contents to edit, refer to "3.5. Setting file".

5) Activate "MasterScope MISSION CRITICAL OPERATIONS CDO" from the service list.

6) Create a user program by using the API.
For how to create user programs, refer to "6.2. Message output."

7) Ensure messages notified from API can be displayed in the category defined in the business view.

   ※ When installing MCOperations by specifying the service identifier, specify the settings referring to "3.5. Setting file".
   ※ .For details about the service identifier, see "WebSAM Media Release Notes" (relememo.pdf).
   ※ If MCOperations is being used in a cluster environment, start CDO in an environment in which the shared disk can be viewed. The startup of CDO fails if the shared disk cannot be viewed.

3.4.3. UNIX version

The preparation procedure for the UNIX version of CDO message API operation is described below.

1) Using a maintenance command, create a message registration file in advance.
   * For how to use maintenance commands, refer to "6.1.User message registration file."

2) Edit RC shell scripts in the following directories.
   HP-UX   :   /sbin/init.d/UMFMCOperationsCDO
   Linux   :   /etc/rc.d/init.d/UMFMCOperationsCDO
   Solaris :   /etc/init.d/UMFMCOperationsCDO
   AIX :   /etc/rc.d/init.d/UMFMCOperationsCDO

   Please edit UMFMCOperationsCDO as described below.

```
<Omission>

# LANG=
# export LANG
Note: Set environment variable LANG and remove the comment out (#).

<Omission>
```

※ For Solaris, hard links are used. Therefore, the following RC scripts should also be corrected, if necessary, according to the correction contents.

      /etc/rc0.d/K05UMFMCOperationsCDO
      /etc/rc2.d/S95UMFMCOperationsCDO

3) Edit shell scripts in the following directories.
    usr/diux/bin/dcomsgstart

The dcomsgstart key is described below.
If a key is commented out (#), it can be made effective by removing the #.
For setting environment variables, refer to "".

```
UMF_BASE_PATH=/usr/diux
Note: No change is required.

PATH=/bin:/sbin:/usr/sbin:/usr/bin:$UMF_BASE_PATH/bin
export PATH
Note: No change is required.

MCO_INSTALL_PATH=/opt/UMF/Operations/Agent/bin
export MCO_INSTALL_PATH
Note: Use the path in which MCO has been installed.
      The Agent directory is specified by default.
      In the case of transmission to Manager, change to the Manager installation path.
<Omission>
DIA_CDOTP=$UMF_BASE_PATH/msg
export DIA_CDOTP
Note: Note: No change is required.

DIA_CDOJNL=$UMF_BASE_PATH/log
export DIA_CDOJNL
Note: Output destination of journal files. An appropriate change should be made.

DIA_CDOJOPT=5:2
export DIA_CDOJOPT
Note: Note: Output option for journal files. An appropriate change should be made.

# DIA_CDOUSER=
# export CDOUSER
Note: setting of message registration file (mandatory).
      In the absolute path, make settings including the file name (except for
      extension.dat or .idx).

# DIA_CDOERROUT=
# export DIA_CDOERROUT
Note: Standard output if the error output destination is not specified with a message
issued from the API.

# LANG=
# export LANG
Note: Setting of environmental variable LANG (mandatory)

<Omission>
```

4) Execute the following commands and activate MasterScope MISSION CRITICAL OPERATIONS CDO from the rc script.

- **HP-UX(IPF)**

```
# sh /sbin/init.d/UMFMCOperationsCDO start
```

- **Linux**

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO start
```

- **Solaris**

```
# sh /etc/init.d/UMFMCOperationsCDO start
```

- **AIX**

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO start
```

5) Appropriately edit setting files existing in the following directory.
   /usr/diux/sg/libMsgWrap.ini

   For the contents of properties, refer to "3.5. Setting file."

6) Create a user program by using the API.
   For how to create user programs, refer to "6.2.Message output."

7) Ensure messages notified from API can be displayed in the category defined in the business view.

3.5. Setting file

Settings such as connection (i.e. MISSION CRITICAL OPERATIONS) will be done here.

Setting files are stored in the following.

      Windows : <Install_Path>/sg/libMsgWrap.ini
      UNIX   : /usr/diux/sg/libMsgWrap.ini

Notes

    <Install_Path> is a directory that is specified during the installation.

Files that can be specified with setting files are as follows.

Table 3-1   Property file setting items

Parameter	Description	Default value	Minimum value	Maximum value
SendType	Specification of the sender Specify Agt/Mgr.	Not specified * When not specified, transmitted to the side where the installation has been finished. If the installation has been finished on both sides, messages are sent to Mgr.	--	--
SendHostName	Specification of the host name of the message sender (Up to 256 characters)	Not specified * When not specified, destination Agt or Mgr host name is used for the notification.	--	--
RetryInterval	Retry interval of connections with Agt or Mgr	30	10	3600
OutputQueueSize	Maximum number of message assurance files (Files)(*1)	5000	1	86400
MCOperationsPath	Specify MISSION CRITICAL OPERATIONS installation path	Not specified * Be sure to specify this item if Agt of MISSION CRITICAL OPERATIONS was installed by specifying the service identifier. (*2)When specifying this field, set the absolute installation path of the target agent.	--	--

(*1) When sending a message to Agt or Mgr fails, each message is saved to a file. When the value specified for OutputQueueSize is exceeded, the messages will be discarded. Note that when sending a message to Agt or Mgr fails, the log is output to the message journal file.

(*2) For a description of the service identifier, see "WebSAM Media Release Notes" (relememo.pdf).

The format of the setting file is as follows.

```
[Send]
SendType=<Destination Mgr or Agt>
[Message]
SendHostName=<Message sender/host name>
[Retry]
RetryInterval=<Retry interval (second)>
[Passage]
OutputQueueSize=<Number of message assurance files (files)>
```

4. Version up installation

Version up installation of this product will overwrite the previous versions.

4.1. <u>Preparing for version up installation</u>

Before starting version up installation of this product, please backup the following files.
(Windows)
   ・   files and directories under <Install_Path>\diux\log
   ・   files and directories under <Install_Path>\diux\sg
   ・   files required to make user message registration files. (*1)
(UNIX)
   ・   files and directories under /usr/diux/log
   ・   files and directories under /usr/diux/sg
   ・   files required to make user message registration files. (*1)

  (*1) Files used by batch type operation   for user message registration files, and/or files exported by "save" command.
  (*2) When using "save" command prior to Ver. 3.4.0, please set the LANG environment variable to ja_JP.eucJP.

4.2. <u>Windows Version</u>

Following shows the version up installation steps for the CDO message API for Windows.

1)   Log on to Windows with an account with administrative privileges.

2)   Insert the MasterScope Media into a DVD-ROM device.

3)   Double click on "setup.exe" in the following path to start the installer.
        D:\tools\MCO\CDO\Windows\setup.exe

※ Path above assumes that MasterScope Media is mounted on D: drive.　Use the drive name which has the MasterScope Media on your environment.

4) Please select the language to use through the CDO version up procedure.
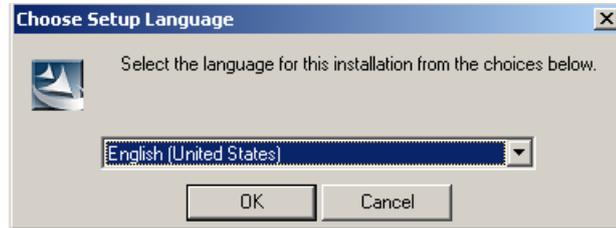
Figure 4-1 Setup language selection dialog.

5) Click on the [Next] button to start the CDO version up procedures.
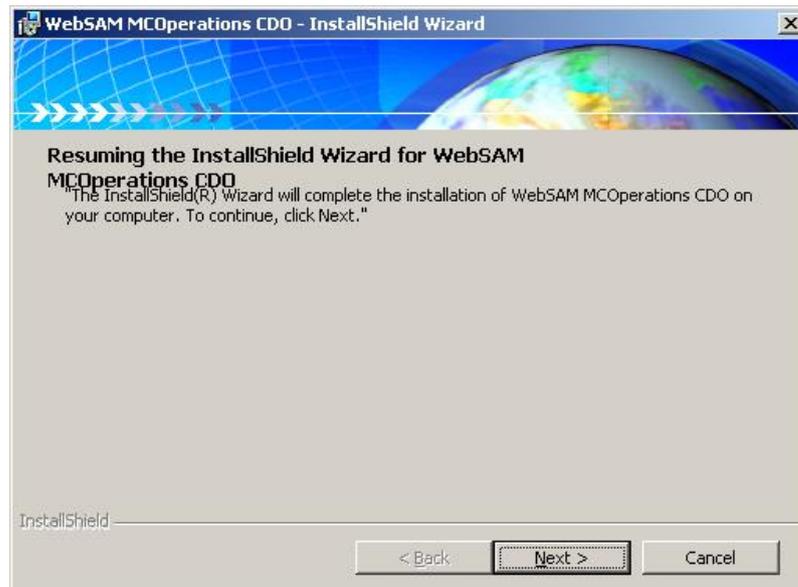
Figure 4-2. Version up CDO installation (Welcome)

6) After a successful version up installation, following dialog will be shown. Click on the [Complete] button to finish the installation process.
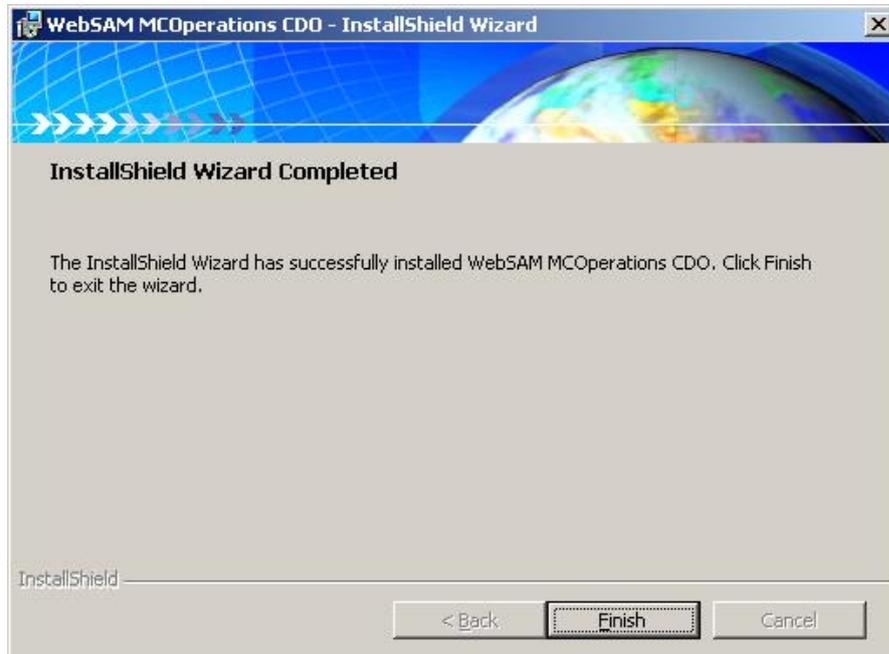
Figure 4-3 Version up CDO installation (Complete)

4.3. <u>UNIX version</u>

Following shows the version up installation step for the CDO message API for UNIX.

1) Log in as a super user.

2) Insert the MasterScope Media into a DVD-ROM device.

3) Execute the following command to stop CDO(NECUMFMCOCDO)

・ **HP-UX**
Execute the following command

```
# sh /sbin/init.d/UMFMCOperationsCDO stop ↵
```

・ **Linux**
Execute the following command

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO stop ↵
```

・ **Solaris**

Execute the following command

```
# sh /etc/init.d/UMFMCOperationsCDO stop ↵
```

- **AIX**

Execute the following command

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO stop ↵
```

4) Execute the following command to start the version up installation.

- **HP-UX(IPF)**

```
# swinstall -s /media/tools/MCO/CDO/HP-UX_IPF/NECUMFMCOCDO.pkg NECUMFMCOCDO↵
```

- **Linux**

```
# rpm -Uvh --nodeps /media/tools/MCO/CDO/Linux/NECUMFMCOCDO.pkg↵
```

- **Solaris**

```
# pkgadd -d /media/tools/MCO/CDO/Solaris/NECUMFMCOCDO.pkg NECUMFMCOCDO↵
```

[Note]Commands above assumes that MasterScope Media is mounted on /media.   Specify the appropriate mount point according to your environment.

[Note]When using pkgadd command, default settings may be set to reject upgrade installation.
  Modify configuration file as follows, to avoid this behavior.
  file name：/var/sadm/install/admin/default

  before

```
・・・
instance=unique
・・・
```

  after

```
・・・
instance=overwrite
・・・
```

[Note]If any warnings or an error occur during installation, it will be written to standard out. On HPUX(IPF) details will be written to following log files.
  /var/adm/sw/swagent.log

- **AIX**
    1. Please copy a file of AIX in an arbitrary directory.
        ```
        # cp –p /media/tools/MCO/AIX/aix.tar.gz "directory name"↵
        ```

* In this description, DVD-ROM device used is shown as mounted on /media. The device should be changed appropriately according to your environment.

2. Please carry out the following command on the agent.
   (aix.tar.gz assumes the case copied to /home/agt.)

   ```
   # cd /home/agt↵
   # gzip -dc aix.tar.gz | tar xvf -↵
   ```

3. Please backup a directory of /usr/diux.
   (When a backup directory is usr/diux_backup.)
   ```
   # cd /usr
   # cp -p -r diux diux_backup↵
   ```

4. Please move diux directory to a usr directory.
   ```
   # cd aix↵
   # mv ./diux /usr↵
   ```

5. After installation completion, please eliminate a file.
   (aix.tar.gz assumes the case copied to /home/agt.)
   ```
   # cd /home/agt↵
   # rm ./aix.tar.gz↵
   # rm -r ./aix↵
   ```

5. Command

This chapter describes the commands provided by the CDO message API.

(1) dcomsgdmn.mco command

Function
   Activates the message edit daemon (resident process)

Format

```
dcomsgdmn   [ -w | -c ]
            [ -s ]
            [ -l [ -D level ] [ -U level ] ]
            [ -L ]
            [ -a l | M [ -t restraint time ] [ -n store num ] ]
```

Parameter description

[-w | -c]

> Specifies warm start or cold start.
>
> Selection of -w performs a warm start. The message is written from the end of the message journal file used previously.
>
> Selection of -c performs a cold start. A new message journal file is created. The message written during the previous start is deleted.
>
> By default, -w is selected.

[-s]

> Prevents deleting spaces of the user message except for a character.
>
> Omission of this parameter deletes the space of the 2nd character and subsequent spaces from the user message, leaving one character in the residual space. Both half-width and full-width are supported.

[-l]

> The message edit daemon controls display levels.
>
> Omission of this parameter transmits all system messages and user messages that have received requests for output.
>
> * Even if level control has been performed, all messages are written to the message journal file.

[-D Display level standard value for system (CDO)]

> Specifies a display level standard value for system (CDO) message.
>
> Number: 1 (highest) to 5 (lowest).
>
> Omission of the value defaults to "5." This is used together with -1.
>
> Since all messages are currently set to 1 (highest), level control cannot be accomplished.

[-U Display level standard value for user]

> Specifies the display level standard value for user message.
>
> Number: 1 (highest) to 5 (lowest)
>
> Omission of the value defaults to "5." This is used together with -1.

[-a I|M]

> Deters the display of the same message generated within a certain period.
>
> All messages are entered into the message journal file without deterrence.

Parameter	Description
I	Deterrence in units of message (Deterrence of messages whose message ID is the same)
M	Deterrence of the entire message (Deterrence of messages whose entire portions including replacement text are the same)

[-t deterrence time]

> Specifies a period for which a message is to be deterred.(Minimum of 5 seconds to a maximum of 60 seconds)
>
> Even if the same message is generated during this period, it is not output.
>
> By default, it is set to 5 seconds. This is used together with the -a option.

[-n stored messages]

Specifies the number of stored messages to control deterred messages.(Integer: 1000 to 10000)

- The message edit daemon stores as many messages as specified here.

By default, it is set to "10000."

- Message deterrence is performed using stored messages. This means that, if the number of messages generated within the deterrence time exceeds the number of stored messages, messages will be displayed without deterring them.

  This is used together with the -a option.

Environment variables

The environment variables referred to by the message edit daemon are as follows.

Environment variable	Setting contents	Default
DIA_CDOTP	The name of the directory in which the following message registration files exist is specified with the absolute path. It is specified with 1 to 256 bytes. 　　　ditpcdotp.dat (data) 　　　ditpcdotp.idx (index)	/usr/diux/msg
DIA_CDOUSER	The user message registration file including the file name is specified with the absolute path. When specifying it, the extensions (.dat and .idx) are excluded. It is specified with 1 to 256 bytes. 　　　Arbitrary.dat (data) 　　　Arbitrary.idx (index)	By default, it is assumed that there is no message registration file for the user.
DIA_CDOUSERADD	The message registration file including the file name for additional users is specified with the absolute path. When specifying it, the extensions (.dat and .idx) are excluded. Only when "DIA_CDOUSER" has been set is this environment variable to be specified effectively. It is specified with 1 to 256 bytes. 　　　Arbitrary.dat (data) 　　　Arbitrary.idx (index)	By default, it is assumed that there is no message registration file for additional users.
DIA_CDOJNL	The following directory name to create a common message journal file is specified with the absolute path. It is specified with 1 to 256 bytes. 　　　dimsjnl_nn.{dat,idx}	Directory where dcomsgdmn has been activated
DIA_CDOJOPT	The maximum size of and the maximum number of message journal files are specified in the following format. 　　　　　　NN:nn NN: Specifies the maximum size, with integers 1 to 10.The unit is the number of megabytes. nn: Specifies the maximum number of files, with integers 2 to 10. Since a message journal file includes an ISAM control record, the actual file size is approximately 20% larger than the specified value.	5 megabytes Number of files: 2

File Name	Usage	Related environment variable
DIA_CDOAPIRETRYCNT	The retry number of times on message sending failure is specified. nnnnnnnnnn nnnnnnnnnn: Specifies the number, with intergers 0 to 2147483647. This environment variable is valid on HP-UX(IPF), Linux, Solaris and AIX only.	20 times
DIA_CDOAPIRETRYINT	The retry interval (mil sec) on message sending failure is specified. Please specify 0 or more to retry. nnnnnnnnnn nnnnnnnnnn: Specifies the number, with intergers 0 to 2147483647. This environment variable is valid on HP-UX(IPF), Linux, Solaris and AIX only.	100 mil sec

Related files

The message edit daemon uses the following files.

File Name	Usage	Related environment variable
ditpcdotp.dat ditpcdotp.idx	Message registration file for system (ISAM data) (ISAM index)	DIA_CDOTP
Arbitrary.dat Arbitrary.idx	Message registration file for user (ISAM data) (ISAM index)	DIA_CDOUSER DIA_CDOADDUSER
dimsgjnl_nn nn(1 to 10)	Message journal file	DIA_CDOJNL DIA_CDOJOPT
[HP-UX, Solaris, AIX] /tmp/.ditpcdolock [Linux] /var/lock/diux/.ditpcdolock [Windows] %TMP%\.ditpcdolock * %TMP% is a system environment variable.	Message edit daemon lock file	None
[HP-UX, Solaris, AIX] /tmp/.ditp_cdodisp /tmp/.ditp_cdotpp [Linux] /var/lock/diux/.ditp_cdodisp /var/lock/diux/.ditp_cdotpp [Windows] None	File for TCP/IP UNIX domain communication	None

Users do not have to be aware of whether there are message edit daemon lock files or files

for TCP/IP UNIX domain communication.

<u>Notes</u>

・ Only one message edit daemon is allowed to be activated within the same host.

(2) dcomsgstop command

<u>Function</u>
    Stops the message edit daemon (resident process).

<u>Format</u>

```
dcomsgstop
```

<u>Parameter description</u>
    None

<u>Environment variable</u>
    None

<u>Related files</u>
    None

<u>Notes</u>
    ・ Execute the command at a host where a message edit daemon has been activated.

(3) dcomsgmtn command

<u>Function</u>
Activates the maintenance function for message registration files.
For details on how to use the function, refer to "6.1. User message registration file.."

<u>Format</u>

dcomsgmtn   [-f file name]

<u>Parameter description</u>

-f file name	
	Specify a file where an indication for maintenance of the message has been described.
	If the specified file is effective, message registration files are edited by one operation.
	By default, the indication for maintenance is to be entered interactively according to the prompt.

<u>General rules</u>
1) Omission of the parameter for file name allows the user to perform interactive operation.
2) Specifying the parameter for file name allows the user to perform a command batch type operation.

<u>Environment variable</u>

Environment Variable	Context	Default
SHLIB_PATH or LD_LIBRARY_PATH (*1)	Specify paths to executables and libraries. Please add the following path. /usr/diux/bin:/usr/diux/lib (Example: Bourne shell) LD_LIBRARY_PATH=/usr/diux/bin:/usr/diux/lib: $LD_LIBRARY_PATH export LD_LIBRARY_PATH	

(*1) Specify environment variable depending on your platform.
        HP-UX(IPF)   : LD_LIBRARY_PATH or SHLIB_PATH
        Linux,Solaris : LD_LIBRARY_PATH

<u>Related files</u>
None

<u>Notes</u>

- To conduct maintenance of messages by the command batch type operation, stop the message edit daemon.
- In Unix, designate environment variable LANG as a character code used in the operation before executing this command. (Make this setting same as LANG in /usr/diux/bin/dcomsgstart)

(4) dcomsgjnl command

<u>Function</u>
Search the message journal file contents and display them on the standard output.

<u>Format</u>

dcomsgjnl	[-F [yyyy/]mm/dd] [-f HH:MM[:SS]] [-T [yyyy/mm/dd] [-t HH:MM[:SS]] [-b MM[:SS]]

<u>Parameter description</u>

[-F [yyyy/] mm/dd]
>Specifies the oldest date of a message to be output with the format
>(yyyy/mm/dd).
>The default value differs depending on whether the -f option has been
>provided.
>With -f omitted
>The oldest date existing in the message journal file
>With -f specified
>The year can be omitted by specifying month and day. In this case, the
>system year is to be set.

[-f HH:MM [:SS]]
>Specifies the oldest time of a message to be output with the format
>(HH:MM:SS).
>HH is specified in the 24-hour format.(0 to 23)
>By default, it is set to (00:00:00).
>Seconds can be omitted by specifying hours and minutes. When omitted, it is
>set to 0 seconds.

[-T [yyyy/]mm/dd]
>Specifies the newest date of a message to be output with the format
>(yyyy/mm/dd).
>When omitted, it is set to the system year, month, day.
>The year can be omitted by specifying month and day. In this case, the system
>year is to be set.

[-t HH:MM [:SS]]
>Specifies the newest time of a message to be output with the format
>(HH:MM:SS).
>HH is specified in the 24-hour format.(0 to 23)
>By default, it is set to (11:59:59 PM).
>Seconds can be omitted by specifying hours and minutes. When omitted, it is
>set to 59 seconds.

[-b MM [:SS]]
>Specifies the oldest time of a message to be output with the relative time from
>the current time. When specifying the time, the format (MM:SS) is used.
>Seconds can be omitted by specifying minutes. When omitted, it is set to 0
>seconds.

The environment variables referred to by this command are as follows.

Environment variable	Setting contents	Default
DIA_CDOJNL	Using the absolute path, specifies the name of a directory where the message journal file to be read by this command exists. It is specified with 1 to 256 bytes. dimsjnl_nn.{dat,idx}	Directory where dcomsgjnl has been activated
DIA_CDOJOPT	Specifies the maximum number of message journal files to be read by this command. NN:nn NN: Not used with this command. nn: Specifies the maximum number of files with integers 2 to 10.	Number of files 2
SHLIB_PATH or LD_LIBRARY_PATH (*1)	Specify paths to executables and libraries. Please add the following path. /usr/diux/bin:/usr/diux/lib (Example: Bourne shell) LD_LIBRARY_PATH=/usr/diux/bin:/usr/diux/lib: $LD_LIBRARY_PATH export LD_LIBRARY_PATH	

(*1) Specify environment variable depending on your platform.
    HP-UX(IPF)   : LD_LIBRARY_PATH or SHLIB_PATH
    Linux,Solaris : LD_LIBRARY_PATH
(*2) Environment variable should be set, though this command doesn't refer.
    For information on how to set, please refer to (1)dcomsgdmn.mco
    command "Environment Variable".
    Example)
        DIA_CDOJOPT=5:2

Related files
  None

Output format

HH:SS:MM(1) yyyy/mm/dd(2) XXXXX(3) X(4) XXXXX(5) xxxxxx(6) xxxxxx(7) xxxxx(8)
xxxx(9) X(10) xxxxxxxxx(11)

  (1) Time
  (2) Date
  (3) Message ID
  (4) Message type
  (5) Process ID
  (6) Node Name

(7) Process name
(8) Message group name
(9) Object Name
(10) Message display level
(11) Message Text

<u>Notes</u>
- ・ If the number of digits entered for year, month, day, hours, minutes and/or seconds is less than the specified number of digits, pad with 0.
- ・ This command locks message journal files. If the command is frequently executed, it affects the performance of the message edit daemon.
- ・ The execution of this command requires the "DIA_CDOJOPT" and "DIA_CDOJNL" environment variables. For the operation, use a value equal to that for activating the message edit daemon.

<u>Usage example</u>
(1) Displays all messages.
   % dcomsgjnl

(2) Displays messages output today (it is April 1 today).
   % dcomsgjnl -F 04/01

(3) Displays messages between 9:00 and 15:00 today.
   % dcomsgjnl -f 09:00 -t 15:00

(4) Displays messages between 8:30 on December 24 of the previous year and the present time.
   (It is January 3, 2008, today.)
   % dcomsgjnl -F 2008/12/24 -f 08:30

(5) Displays messages between October 10 and 21:30:45 on October 15.
   % dcomsgjnl -F 10/10 -T 10/15 -t 21:30:45

(6) Displays messages for the last 10 minutes and 30 seconds.
   % dcomsgjnl -b 10:30

(7) Displays messages for the last 2 hours.
   % dcomsgjnl -b 120

(8) Displays messages for the last 10 seconds.
   % dcomsgjnl -b 00:10

(5) dcomsgeflswap command

<u>Function</u>
Swaps the name of the message transmission error file with an alias.

<u>Format</u>

dcomsgeflswap

<u>Parameter description</u>
None

<u>General rules</u>
A swapped transmission error file is renamed to the following in the same directory.
Error file name.mmddHHHMM (mm: month, dd: day, HH: hour, MM: minute)

<u>Environment variable</u>
The environment variables referred to by this command are as follows.

Environment variable	Setting contents	Default
DIA_CDOERROUT	Specifies a file to be written into an error message with the absolute path when an error occurs in the transmission of a telegraphic message to the message edit daemon. It is specified with 1 to 256 bytes.	Displays an error message on the standard output.

<u>Related files</u>
None

<u>Notes</u>
・　The execution of this command requires the "DIA_CDOERROUT" environment variable.
A specified value is recognized only when it is equal to the value used when the message is issued with the API.

(6) dcomsgelchg command

<u>Function</u>
Changes the display level standard value for which the level is controlled by the message edit daemon.

<u>Format</u>

dcomsglchg [-D	-U	-B] display level

<u>Parameter description</u>

[-D | -U | -B] display level
Specifies a display level standard value to be changed.
1 (highest) to 5 (lowest)

Parameter	Description
-D	Changes the message display level standard value for system (CDO).
-U	Changes the message display level standard value for user
-B	Changes message display level standard values for system (CDO) and users.

<u>General rules</u>
A notification message is provided for the completion of a change in a display level.
Different message display level standard values for system (CDO) and for users are not available, even when the command is executed only once.

<u>Environment variable</u>
None

<u>Related files</u>
None

<u>Notes</u>
・ This command is available only when the message edit daemon has been activated or when the message edit daemon performs level control.

(7) dcomsgeldisp command

Function
On the standard output, displays the display level standard value for which the level control is carried out by the message edit daemon.

Format

```
dcomsgldisp
```

Parameter description
None

General rules
None

Environment variable
None

Related files
None

Notes
・ This command is available only when the message edit daemon has been activated or when the message edit daemon performs level control.
・ For Windows, please set environment variable "TMP" from command prompt to the same value as system environment variable "TMP". This setting is valid only for the command prompt you have set. This command will fail without this setting.
How to set environment variablea "TMP")
1. Right click "My Computer" and click "Properties. Then select "Advanced" tab and push "Environment Variables".
2. Confirm system environment variable "TMP".
(Hereinafter, "TMP" is supposed to be C:\WINDOWS\Temp.)
3. Launch command prompt.
4. Run the following command.
set TMP=C:\WINDOWS\Temp

.

(8) dcomsguseraddopen command

<u>Function</u>
   Directs the message edit daemon to open additional user messages.

<u>Format</u>

dcomsguseraddopen

<u>Parameter description</u>
   None

<u>General rules</u>
   None

<u>Environment variable</u>
   None

<u>Related files</u>
   None

<u>Notes</u>
   ・ This command is available only when the message edit daemon has been activated or when the message edit daemon has been activated by setting the environment variable "DIA_CDOUSERADD."
   ・ When the same message ID as the user message specified in "DIA_CDOUSER" exists in the additional user message specified in "DIA_CDOUSERADD", the user message specified in "DIA_CDOUSER" overrides.

(9) dcomsguseraddclose command

<u>Function</u>
    Indicates that the message edit daemon is to close additional user messages.

<u>Format</u>

```
dcomsguseraddclose
```

<u>Parameter description</u>
    None

<u>General rules</u>
    None

<u>Environment variable</u>
    None

<u>Related files</u>
    None

<u>Notes</u>
- This command is available only when the message edit daemon has been activated or when the message edit daemon is using an additional user message registration file.

6. User messages

Outputs of arbitrary messages require the creation of a message registration file for user and the execution of a message output function within the user application by using the API.

6.1. <u>User message registration file</u>

CDO edits messages and send them to MISSION CRITICAL OPERATIONS them based on messages registered in a message registration file. This requires the user to register messages in a message registration file.

(1). Maintenance command overview

Registration of messages in a message registration file and the maintenance are carried out by various maintenance commands that are provided. The command type maintenance functions are divided into two types: interactive operations that interactively enter parameters from prompts; and batch type operations that collectively perform registration and maintenance operations by files in which indications for maintenance have been described.

(2). Character code designation

In Unix, designate environment variable LANG as a character code used in the operation before executing this command. (Make this setting same as LANG in /usr/diux/bin/dcomsgstart)

(3). How to activate maintenance commands

To activate a maintenance command, enter the activation command.

■ Interactive operation

```
dcomsgmtn
```

■ Command batch type operation

```
dcomsgmtn -f file name
```

(4). Commands provided by maintenance commands

- Registration or maintenance of messages is carried out by entering one of the following commands.
  add : Registration/replacement
  delete : Deletion
  copy : Copy
  print : printout of a list
  read : output of details
  save : Output of text file (delimited by pipeline)
  load : Reading of text files (delimited by pipeline)
  csvsave : CSV file output (delimited by commas)
  csvload : Reading of CSV files (delimited by commas)
  txtsave : TXT file output (delimited by tabs)
  txtload : Reading of TXT files (delimited by tabs)
  exit : End of maintenance

Notes
- The registration contents are not strictly checked for errors when messages are registered by using load, csvload and txtload.
- To use load, csvload and txtload, additionally correct text-formatted files that were converted from registered messages by using save, csvsave and txtsave.

(5). Regular expression of message ID

Message IDs are used to manage the registration and maintenance of message registration files. Maintenance commands can specify multiple message IDs by using regular expressions (*, ? and ").Regular expressions, adopting a method for usage conforming to meta characters, are functionally restricted.

---

*

Represents zero or more arbitrary character strings.
Characters cannot be described in the portion marked with '*' and later. For this reason, the number of times it can be specified is one.
Combinations can be made with the expression "^" at the head and the preceding expression "?".

?

Represents an arbitrary character.
Expression '?' can be specified multiple times at arbitrary positions of a message ID.
Combinations can be made with the expression "^" at the head and the expression "*" at the end.

^

Displays other than character strings when they appear after this specification.
"^" can be specified only once, at the head of the message ID.
If '^' is specified, the message ID may consist of 7 digits.
Combinations can be made with subsequent "^" and the expression "*" at the end.

■ Usage examples of regular expression
If regular expressions are available for message IDs, IDs can be specified as shown below.

① Displays all messages
Message ID = *

② A character string specifies all message IDs for specific patterns.
Message ID = AB* (all message IDs beginning with character string AB)

③ Specifies all message IDs whose character string has specific patterns and whose length is fixed.
Message ID=????AB (all message IDs that consist of 6 characters and whose low-order 2 digits are AB)

④ Specifies all message IDs whose character string is different from specific patterns
Message ID = ^AB* (all message IDs beginning with character string AB)

(6). Interactive operation

45

The following outlines the operation procedure for interactively registering user message registration files.

(a). add (message registration/replacement)

Format

```
COMMAND ?        Add
ADD: MSGID ?     Message ID
ADD: USEDATE ?   [ Usage start date ]
ADD: MSGAS ?     I | W | E | U
ADD: LEVEL ?     1 | 2 | 3 | 4 | 5
ADD: REPLY       N
ADD:             Message English text
MSGATEXT ?       Message Japanese text
ADD:             Message group name
MSGNTEXT ?
ADD: MSGGRP ?

* Records already exist. Key = XXXXXXYYYY-MM-DD
*REPLACE(y/n) ?    [ Y | N ]
```

*: A message to be output when the relevant record already exists.
    XXXXXX   : Message ID
    YYYY-MM-DD : Usage start date
The key of the message is the message ID + usage start date.
If the same message ID has different usage start dates, the effective message is the latest one that has a usage start date older than the business date (that can be specified with the API).

Parameter description

MSGID?   Message ID
Specifies a message ID to be registered or replaced by using 6 alphanumeric characters. (Mandatory)
Regular expressions (meta characters) are not available.

USEDATE?   [Usage start date]
Specifies a usage start date for messages, in the "YYYY-MM-DD" format. (omissible)
When omitted, the usage start date is set to the system date.

MSGAS?   I|W|E|U
Displays a message type.(Mandatory)

Parameter	Description
I	NORMAL
W	WARNING
E	ABNORMAL
U	UNKNOWN

LEVEL   1|2|3|4|5
Displays a message level.(Mandatory)

Parameter	Description
1	Highest
2	High
3	Middle
4	Low
5	Lowest

REPLY?   N
Specify the response type.(Required)
Always specify "N" because this item cannot be used for this version.

MSGATEXT?   Message English text
Specifies an English message of 1 to 170 bytes. (mandatory)
A maximum of 10 replacement characters (one-byte or two-byte @) can be specified.}

MSGNTEXT?   Message Japanese text
Specifies a Japanese message of 1 to 170 bytes. (mandatory)
A maximum of 10 replacement characters (one-byte or two-byte @) can be specified.}

MSGGRP?   Message group name
Displays a message group name, with a maximum length of 32 bytes. (omissible)

REPLACE? [Y|N]
Specifies replacement.(Omissible)
When omitted, it is set to "N."

Parameter	Description
Y	Replaced
N	Not replaced

(b). delete (deleting of messages)

<u>Format</u>

```
COMMAND ?        delete
DELETE:          Message ID
MSGID ?          [ Usage start date ]
DELETE:
USEDATE ?
```

<u>Parameter description</u>

<u>MSGID?</u>   Message ID
Specifies a message ID to be deleted. (Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be
deleted.

(c). copy (copy message)

<u>Format</u>

```
COMMAND ?          copy
COPY:              Message registration file name
OUTISAM ?          Message ID
COPY: MSGID ?      [ Usage start date ]
COPY:
USEDATE ?


* Records already exist. Key = XXXXXXYYYY-MM-DD
*REPLACE(y/n)?     [ Y | N ]
```

*: A message to be output when the relevant record already exists.

<u>Parameter description</u>

<u>OUTISAM?</u>   Message registration file name
Specifies the name, except for the extensions (.idx, and .dat), of the message registration file at the copy destination. (mandatory)
<u>MSGID?</u>   Message ID
Specifies a message ID to be copied. (Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be copied.

<u>REPLACE?</u>   [Y|N]
Specifies replacement.(Omissible)
When omitted, it is set to "N."

Parameter	Description
Y	Replaced
N	Not replaced

(d). print (message list output)

<u>Format</u>

```
COMMAND ?          print
PRINT: PRFILE ?    [ File Name ]
PRINT: MSGID ?     Message ID
PRINT:             [ Usage start date ]
USEDATE ?
```

<u>Parameter description</u>

<u>PRFILE?</u>   [File Name]
Specifies the name of the file to which a list is to be output. (Omissible)
When omitted, the list is output to the standard output.

<u>MSGID?</u>   Message ID
Specifies a message ID for which a list is to be output. (Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be output.

(e). read (message detail output)

<u>Format</u>

<u>COMMAND ?</u>	read
<u>READ: PRFILE ?</u>	[File Name]
<u>READ: MSGID ?</u>	Message ID
<u>PREAD:</u>	[Usage start date]
<u>USEDATE ?</u>	

<u>Parameter description</u>

<u>PRFILE?</u>   [File Name]
Specifies the name of the file to which a detail list is to be output. (Omissible)
When omitted, the list is output to the standard output.

<u>MSGID?</u>   Message ID
Specifies a message ID for which a detail list is to be output. (Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>   [Usage start date]
Specifies a usage start date for messages, in ”YYYY-MM-DD” format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be output.

(f). Save (export to a text file)

```
COMMAND ?        save
SAVE: OUTFILE ?  [ File Name ]
SAVE: MSGID ?    Message ID
SAVE:            [ Usage start date ]
USEDATE ?
```

Parameter description

OUTFILE?   [File Name]
Specifies the name of the file to be output in the text format. (Mandatory)

MSGID?   Message ID
Specifies the message ID to be output in the text format. (Mandatory)
Regular expressions (meta characters) are available.

USEDATE?   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be
output.

(g). load (import from a text file)

<u>Format</u>

```
COMMAND ?          load
LOAD: INFILE ?     [ File Name ]
LOAD: MSGID ?      Message ID
LOAD:              [ Usage start date ]
USEDATE ?


* Records already exist. Key = XXXXXXYYYY-MM-DD
*REPLACE (y/n)?      [ Y | N ]
```

*: A message to be output when the relevant record already exists

<u>Parameter description</u>

<u>INFILE?</u>   [File Name]
Specify the file name of the text-formatted file of the input source. (Mandatory)

<u>MSGID?</u>   Message ID
Specifies the message ID of the text-formatted file to be input. (Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be read.

<u>REPLACE?</u>   [Y|N]

Specifies replacement. (Omissible)
When omitted, it is set to "N."

Parameter	Description
Y	Replaced
N	Not replaced

(h). csvsave (export to a CSV file)

Format

<u>COMMAND ?</u>	Csvsave
<u>CSVSAVE:</u>	[File Name]
<u>OUTFILE ?</u>	Message ID
<u>CSVSAVE:</u>	[Usage start date]
<u>MSGID ?</u>	
<u>CSVSAVE:</u>	
<u>USEDATE ?</u>	

Parameter description

<u>OUTFILE?</u>　　[File Name]
Specifies the name of the file to be output in the CSV format. (Mandatory)

<u>MSGID?</u>　　　Message ID
Specifies the message ID to be output in the CSV format. (Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>　　[Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be output.

(i). csvload (import from a CSV file)

Format

```
COMMAND ?        Csvload
CSVLOAD:         [ File Name ]
INFILE ?         Message ID
CSVLOAD:         [ Usage start date ]
MSGID ?
CSVLOAD:
USEDATE ?


* Records already exist. Key = XXXXXXYYYY-MM-DD
*REPLACE (y/n)?      [ Y | N ]
```

*: A message to be output when the relevant record already exists

Parameter description

INFILE?   [File Name]
Specify the file name of the text-formatted file of the input source. (Mandatory)

MSGID?   Message ID
Specifies a message ID to be registered in the message registration file. (Mandatory)
Regular expressions (meta characters) are available.

USEDATE?   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be read.

REPLACE?   [Y|N]

Specifies replacement.(Omissible)
When omitted, it is set to "N."

Parameter	Description
Y	Replaced
N	Not replaced

(j). txtsave (export to a TAB-delimited TXT file)

<u>Format</u>

```
COMMAND ?          txtsave
TXTSAVE:           [ File Name ]
OUTFILE ?          Message ID
TXTSAVE:           [ Usage start date ]
MSGID ?
TXTSAVE:
USEDATE ?
```

<u>Parameter description</u>

<u>OUTFILE?</u>   [File Name]
Specifies the name of the file to be output in the TXT format. (Mandatory)

<u>MSGID?</u>   Message ID
Specifies the message ID to be output in the TXT format (delimited by TABs).
(Mandatory)
Regular expressions (meta characters) are available.

<u>USEDATE?</u>   [Usage start date]
Specifies a usage start date for messages, in ”YYYY-MM-DD” format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be output.

(k). txtload (import from a tab-delimited TXT file)

Format

```
COMMAND ?          txtload
CSVLOAD:           [ File Name ]
INFILE ?           Message ID
CSVLOAD:           [ Usage start date ]
MSGID ?
CSVLOAD:
USEDATE ?


* Records already exist. Key = XXXXXXYYYY-MM-DD
*REPLACE (y/n)?    [ Y | N ]
```

*: A message to be output when the relevant record already exists

Parameter description

INFILE?   [File Name]
Specify the file name of theTXT-formatted file of the input source.(Mandatory)

MSGID?   Message ID
Specifies a message ID to be registered in the message registration file. (Mandatory)
Regular expressions (meta characters) are available.

USEDATE?   [Usage start date]
Specifies a usage start date for messages, in "YYYY-MM-DD" format. (omissible)
When omitted, all messages having a message ID specified with MSGID are to be read.

REPLACE?   [Y|N]

Specifies replacement.(Omissible)
When omitted, it is set to "N."

Parameter	Description
Y	Replaced
N	Not replaced

(l). exit (end of maintenance)

<u>Format</u>

<u>COMMAND ?</u>   exit

(7). Batch type operation

The following outlines the batch type operation of user message registration files.

・　Create a command batch file
Creates a file in which an arbitrary name is used to describe indications of batch operations.
A command batch file describes file indication parameters and commands.

File indication parameters and a command list are given below.
File indication parameters
INISAM : Message registration file targeted for maintenance
OUTISAM : Message registration file of copy destination
PRFILE : List/detail output file
LOGFILE : History information file
INFILE : Input text file
OUTFILE : Output text file

Command
Refer to "(4) Commands provided by maintenance commands"

Notes
・　Multiple commands can be described in a command batch file.
・　In the command batch processing, processes are carried out in the order described in the file.
・　If an error occurs during a command process, the process is terminated to prevent execution of subsequent commands.
・　For file specification parameters, enter "=" following the keyword, and add "," to the end. Example) Keyword = file name
・　The MSGATEXT and MSGNTEXT texts specified by the register/replacement command (add) should be placed within double quotation marks "".A text is to end just before "," or ";". Description within a text is allowed. Example) MSGATEXT="this is "test message"";
・　Please set the line break code of a command batch file to CR+LF on Windows and to LF on other platforms respectively.
・　Please set the character set of a command batch file to the same one as running LANG environment variable. (Set to the equal value as LANG in /usr/diux/bin/dcomsgstart)

Relationships between file indication parameters and commands are as follows.

(◎…Mandatory, ○…Arbitrary, ─…Unnecessary)

Command name	Description	File indication parameters					
		INISAM	OUTISAM	PRFILE	LOGFILE	INFILE	OUTFILE
add	Registration/ replacement	◎	─	─	○	─	─
delete	Remove	◎	─	─	○	─	─

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copy	Copy	◎	◎	―	○	―	―
print	List output	◎	―	○	○	―	―
read	Detail output	◎	―	○	○	―	―
save	Text file export	◎	―	―	○	―	◎
load	Text file import	◎	―	―	○	◎	―
csvsave	CSV file export	◎	―	―	○	―	◎
csvload	CSV file import	◎	―	―	○	◎	―
txtsave	TXT file export	◎	―	―	○	―	◎
txtload	TXT file import	◎	―	―	○	◎	―

(a). File indication parameters

<u>Format</u>

```
  INISAM    =    Message registration file name
[ OUTISAM   =    Message registration file name of copy destination; ]
[ PRFILE    =    Output file name; ]
[ LOGFILE   =    History information file name; ]
[ INFILE    =    Input text file name;]
[ OUTFILE   =    Output text file name; ]
```

<u>Parameter description</u>

INISAM   =   Message registration file name
Specifies the name, except for the extensions (.idx, and .dat), of the message registration file. (Mandatory)

OUTISAM   =   Message registration file name of copy destination
Specifies the name, except for the extensions (.idx, and .dat), of the message registration file at the copy destination.
Specified only when the copy command is executed. (mandatory)

PRFILE   =   Output file name
Specifies the name of the file to which a list or details is to be output.
Specified only when the list output/detail output command is executed. (omissible)
When omitted, it is output to the standard output.

LOGFILE   =   History information file name
Specifies the name of the file to which information on each command is to be output. (omissible)
When omitted, it is output to the standard output.

INFILE   =   Import file name
Specifies an import file name.
Specified only when the LOAD command is executed. (mandatory)

OUTFILE   =   Export file name
Specifies an export file name.
Specified only when the SAVE command is executed. (mandatory)

(b). add (message registration/replacement)

Format

```
add       , MSGID     =    Message ID
          [ , USEDATE =    Usage start date
            , MSGAD   =    I | A | R | W | E | U
            , LEVEL   =    1 | 2 | 3 | 4 | 5
            , REPLY   =    Y | N
            ,         =    Message English text
          MSGATEXT    =    Message Japanese text
            ,         =    Message group name
          MSGNTEXT
;           , MSGGRP
          [ ,REPLACE ]
```

Parameter description
   The parameters are the same as those of the interactive type message registration file.
   Refer to "add (message registration/replacement)."

General rules
   If a specified file is not found in INISAM, the file is automatically generated in the
   maintenance command activation directory.

(c). delete (message registration/replacement)

Format

```
delete     , MSGID    =    Message ID
          [ , USEDATE =    Usage start date
;
```

Parameter description
   The parameters are the same as those of the interactive type message registration file.
   Refer to "delete (deleting of messages)."

(d). copy (copy message)

```
copy      , MSGID      =      Message ID
          [ , USEDATE    =      Usage start date
          [ , REPLACE ]
;
```

Parameter description
   The parameters are the same as those of the interactive type message registration file.
   Refer to "copy (copy message)."

General rules
   If a specified file is not found in OUTISAM, the file is automatically generated in the
   maintenance command activation directory.

(e). print (message list output)

Format

```
print     , MSGID      =      Message ID
          [ , USEDATE    =      Usage start date
;
```

Parameter description
   The parameters are the same as those of the interactive type message registration file.
   Refer to "print (message list output)."

(f). read (message detail output)

Format

```
read      , MSGID      =      Message ID
          [ , USEDATE    =      Usage start date
;
```

Parameter description
   The parameters are the same as those of the interactive type message registration file.
   Refer to "read (message detail output)."

(g). Save (export to a text file)

<u>Format</u>

```
save      , MSGID      =    Message ID
          [ , USEDATE    =    Usage start date
;
```

<u>Parameter description</u>
The parameters are the same as those of the interactive type message registration file.
Refer to "<u>Save (export to a text file)</u>."

(h). load (import from a text file)

<u>Format</u>

```
load      , MSGID      =    Message ID
          [ , USEDATE    =    Usage start date
          [ , REPLACE ]
;
```

<u>Parameter description</u>
The parameters are the same as those of the interactive type message registration file.
Refer to "<u>load (import from a text file)</u>."

(i). csvsave (export to a CSV file)

<u>Format</u>

```
csvsave     , MSGID     =    Message ID
            [ , USEDATE     =    Usage start date
;

```

<u>Parameter description</u>
The parameters are the same as those of the interactive type message registration file.
Refer to "<u>csvsave (</u>export to a CSV file<u>).</u>"

(j). csvload (import from a CSV file)

<u>Format</u>

```
csvload     , MSGID     =    Message ID
            [ , USEDATE     =    Usage start date
            [ , REPLACE ]
;

```

<u>Parameter description</u>
The parameters are the same as those of the interactive type message registration file.
Refer to "<u>csvload (</u>import from a CSV file<u>).</u>"

(k). txtsave (export to a TAB-delimited TXT file)

Format

```
txtsave      , MSGID      =    Message ID
          [ , USEDATE    =    Usage start date
;
```

Parameter description
The parameters are the same as those of the interactive type message registration file.
Refer to "txtsave (export to a TAB-delimited TXT file)."

(l). txtload (import from a TAB-delimited TXT file)

Format

```
txtload      , MSGID      =    Message ID
          [ , USEDATE    =    Usage start date
          [ , REPLACE ]
;
```

Parameter description
The parameters are the same as those of the interactive type message registration file.
Refer to "txtload (import from a TAB-delimited TXT file)."

6.2. <u>Message output</u>

This section describes the API and commands provided by CDO.

(a). dioscdodisp (request for console message display)

<u>Description</u>
Displays messages.

<u>Format</u>

```
#include <di_apm.h>   //include file for Windows
#include <di_cdo.h>   //include file for UNIX
#include <di_retcode.h> //return code include file

int dioscdodisp ( dicdouca *cdouca )
```

<u>Parameter description</u>

dicdouca *cdouca (input/output type)
Specifies the pointers of a message transfer area related to message display.
For details, refer to "(3).dicdouca(dicdouca area definition)."

<u>Return codes</u>

Return value	Status	Description
DI_DONE(0)	Normal	Normal completion
DI_PARAMEERR(10)	Abnormal	Errors have been found in the parameter.
DI_SOCKERR(63)	Abnormal	The message has not been displayed due to a communication failure.

<u>General rules</u>
・ When an error occurs in the transmission of a telegraphic message to the message edit daemon, it writes the error message into a file specified by the environment variable DIA_CDOERROUT.
If the environment variable DIA_CDOERROUT has not yet been set up, the error message is output to the standard output.

Make option

OS type	Model	Thread	Compile option	Link option
HP-UX	32-bit	Single	-I/usr/diux/include	-L/usr/diux/lib -lccdo -ldiaCdoAln
		Multi	-I/usr/diux/include -D_REENTRANT	-L/usr/diux/lib -lccdo_r -ldiaCdoAln_r -lpthread
	64-bit IPF	Single	-I/usr/diux/include +DD64	-L/usr.diux/lib/hpux64 -lccdo -ldiaCdoAln
		Multi	-I/usr/diux/include -D_REENTRANT +DD64 -D_POSIX_C_SOURCE=199506L	-L/usr/diux/lib/hpux64 -lccdo_r -ldiaCdoAln_r -lpthread
Solaris Linux	32-bit	Single	-I/usr/diux/include	-L/usr/diux/lib -lccdo -ldiaCdoAln
Linux	64-bit*	Single	-I/usr/diux/include	-L/usr/diux/lib/linux64 -lccdo_r -ldiaCdoAln_r
		Multi	-I/usr/diux/include -D_REENTRANT	-L/usr/diux/lib/linux64 -lccdo_r -ldiaCdoAln_r -pthread
AIX	64-bit	Multi	-I/usr/diux/include -D_REENTRANT -q64	-L/usr/diux/lib/aix64 -lccdo_r -ldiaCdoAln_r -lpthread -brtl
Windows	32-bit 64-bit*	Single	Include file path <Insall_Path>\NEC\diux\Include	Library path <Insall_Path>\NEC\diux\Lib Library module libccdo.lib libdiaCdoAln.lib

* The operation is carried out in the 32-bit compatible mode.

Environment variable

Environment	Setting contents	Default

variable		
DIA_CDOERROUT	Specifies the file to be written into an error message with the absolute path when an error occurs in the transmission of a telegraphic message to the message edit daemon occurs. It is specified with 1 to 256 bytes.	Displays an error message on the standard output.

Notes
・ Before using this function, dicdouca shall be initialized with the dioscdoucainit macro.
・ For the items that are currently unavailable (color, anklen, ankprt, jplen, jpptr, replyptr, replylen, and rtntime), only initial values specified by the dioscdoucainit macro can be specified.

(2). dioscdoucainit (initialization of console message UCA)

<u>Description</u>
  Initializes dicdouca.

<u>Format</u>

```
#include <di_apm.h>   //include file for Windows
#include <di_cdo.h>   //include file for UNIX

void dioscdoucainit ( dicdouca cdouca )
```

<u>Parameter description</u>

  dicdouca cdouca (input/output type)
    Transfer area related to message display

<u>Return codes</u>
  None

<u>General rules</u>
- This function sets an initial value in each item of dicdouca.
- For the initial values, refer to "(3).dicdouca(dicdouca area definition)."
- After the execution of this function, set necessary items and issue a message with discdodisp.

(3). Dicdouca (dicdouca area definition)

<u>Description</u>

    Defines the information storage area (UCA) to display console messages.

<u>Format</u>

```
#include <di_apm.h>   //include file for Windows
#include <di_cdo.h>   //include file for UNIX

Storage area name to display dicdouca console messages;
```

<u>Item</u>

(a). Item Description:

Item	Description			Initial value
msgid	Message ID of a message to be displayed			Space
fsend	Transmission mode			DI_TNORMAL
	DI_TFORCE	:	Transmits forcibly.	
	DI_TNORMAL	:	Does not transmit forcibly.	
level	Message display level			DI_CDEPD
	DI_CDEPD	:	Value registered in the message registration file	
	DI_CHIGHEST	:	Highest	
	DI_CHIGH	:	High	
	DI_CMEDIUM	:	Middle	
	DI_CLOW	:	Low	
	DI_CLOWEST	:	Lowest	
color	Message display color (currently unavailable)			DI_CDEPD
	DI_CDEPD	:	Value registered in the message registration file	
	DI_CYELLOW	:	Yellow	
	DI_CLBLUE	:	Light blue	
	DI_CGREEN	:	Green	
	DI_CBLUE	:	Blue	
	DI_CPURPLE	:	Purple	

func	Process category			DI_CDISPOUT
	DI_CDISPOUT	:	Performs message output	
	DI_CEDIT	:	processing.	
			Performs message edit	
			processing.	
			(The edit processing is not	
			available.)	
division	Message type			DI_CDEPD
	DI_CDEPD	:	Value registered in the message	
			registration file	
	DI_CNOTICE	:	Normal	
	DI_CWARN	:	WARNING	
	DI_COBST	:	Abnormal	
	DI_CUNKOWN	:	UNKNOWN	
	DI_CACTION	:	Operation request (currently	
			unavailable)	
	DI_CRETURN	:	Reply request (currently	
			unavailable)	
date	Specifies a business date in the yyyymmdd format.			"00000000"
	yyyy	:	Specifies the year, in the range	
			from 0000 to 9999.	
	mm	:	Specifies the month, in the range	
			from 01 to 12.	
	dd	:	Specifies the day, in the range	
			from 01 to 31.	
	It is set to the system date with "00000000" specified.			
ap	Application Name			NULL
	Specify an arbitrary character string of up to 32 bytes.			
	NULL displays a process name.			
object	Object Name			NULL
	Specify an arbitrary character string of up to 32 bytes.			
	Specifying NULL displays "CDO."			
msggrp	Message group name (category name)			NULL
	Specify an arbitrary character string of up to 32 bytes.			
	With NULL specified, a value registered in the			
	message registration file is given.			
anklen	ANK type message length (currently unavailable)			0
	Entry of the length of an NK type edit message			
	storage area returns the actual ANK type message			
	length.			
	This parameter is effective only with DI_CEDIT.			
ankptr	ANK type message storage pointer (currently			NULL
	unavailable)			
	The maximum value of the area is 708 bytes.			
	This parameter is effective only with DI_CEDIT.			
jplen	Japanese message length (currently unavailable)			0
	Entry of the length of a Japanese message storage			
	area returns the actual ANK type message length.			

	This parameter is effective only with DI_CEDIT.	

jpptr	Japanese message storage area pointer (currently unavailable)
	    The maximum value of the area is 708 bytes.
	    This parameter is effective only with DI_CEDIT.
		NULL

text	Replacement text pointer
	    Up to 50 bytes can be specified per replacement text, and up to 10 replacement texts can be specified.
	    If the specified text has 50 bytes or more, the portion exceeding 50 bytes is truncated.
	    If a multi-byte character is specified at the 50th byte or 1st byte, the 50th byte is truncated.
		NULL

replyptr	Reply message storage area pointer (currently unavailable) The maximum value of the area is 200 bytes.	NULL
replylen	Reply message length (currently unavailable) Entry of the length of a reply message storage area returns the actual reply message length.	0
rtntime	Reply message wait time (currently unavailable) The unit is seconds. Specifying DI_CETER(0) keeps waiting for an infinite time.	DI_CETER

(b). Development types

```
typedef struct{
        char    msgid[6];
        char    fsend;
        char    level;
        char    divison;
        char    date[8];
        char    *ap;
        char    *object;
        char    *msggrp;
        char    *text[10];

}dicdouca
```

(4). Supported languages

The languages supported by the API are shown below.

Platform	UNIX(HP-UX Solaris Linux AIX)	Windows
Language	C and C++	C only

(5). Programming example

```c
#include <stdio.h>
#include <string.h>
#include <strings.h>
#include <stdlib.h>

#include <di_cdo.h>
#include <di_retcode.h>

main(int argc, char *argv[])
{
    int i;
    dicdouca cdouca;
    int rtn;

    dioscdoucainit(cdouca);

    memcpy(cdouca.msgid, "MSG001", 6);

    cdouca.text[0] = argv[1];
    cdouca.text[1] = argv[2];
    cdouca.text[2] = "0123456789";

    rtn = dioscdodisp(&cdouca);

    switch(rtn)
    {
      case DI_DONE:
        break;
      default:
        printf("Error code=%d\n", rtn);
        exit(1);
    }
    exit(0);
}
```
* When compiling on Windows, change the following include file.
    di_cdo.h → di_apm.h

7. List of output messages

The list of messages output by MasterScope MISSION CRITICAL OPERATIONS CDO is shown below.

DIA404 < E >
　[English] @1.　@2 Fail to write cdoerr file=@3 systemcall=@4 errno=@5
　　[Description]
　　Writing to the send error file specified by the environment variable DIA_CDOERROUT failed.
　　　　@1: Logical system name (Currently not displayed)
　　　　@2: APM name (Currently not displayed)
　　　　@3: Send error file name
　　　　@4: System call name
　　　　@5: UNIX error code
　　[Corrective action]
　　The following corrective actions corresponding to the value of "errno" are required.
　　　　2: The directory specified by the environment variable DIA_CDOERROUT does not exist.
　　　　Create a directory or change the file name specified in DIA_CDOERROUT.
　　　　12: Not enough memory space for process. Memory space consumed by user programs must
　　　　be reduced.
　　　　13: You do not have the access authority for the send error file. Change the access authority
　　　　for the send error file or the directory.

DIA409 < E >
　[English] select Err errno=@1
　　[Description]
　　Multiple queuing for the message failed. Message cannot be received.
　　　　@1: UNIX error code
　　[Corrective action]
　　The following corrective action corresponding to the value of "errno" is required.
　　　　12: Not enough memory space for process. Memory space consumed by user programs must
　　　　be reduced.

DIA410 < E >
　[English] Socket Accept Error between dcomsgdmn and someone func=@1 errno=@2
　　[Description]
　　Message edit daemon (dcomsgdmn) failed to connect to the socket. Message cannot be received.
　　　　@1: Communication opposite end
　　　　@2: UNIX error code
　　[Corrective action]
　　The following corrective action corresponding to the value of "errno" is required.
　　　　12: Not enough memory space for process. Memory space consumed by user programs must
　　　　be reduced.

DIA430 < E >
　[English] Can't Open Message-File filename=@1 isamerr=@2

[Description]

Opening the message registration file failed. Stopped the message edit daemon.

@1: Message registration file name

@2: Error code

[Corrective action]

The following corrective actions corresponding to the error code are required.

2: The specified message registration file does not exist. Specify the correct file name for the environment variables DIA_CDOTP and DIA_CDOUSER.

13: Access authority for the message registration file is not granted. Change the attribute of the message registration file to "writable".

DIA431 < E >

[English] @1.@2 Can't Read Message-File MessageID=@3 filename=@4 isamerr=@5 TEXT @1=[@6] @2=[@7] @3=[@8] @4=[@9] @5=[@10] @6=[@11] @7=[@12] @8=[@13] @9=[@14] @10=[@15]

[Description]

Reading the message registration file failed. Message editing and output are not performed.

@1: Logical system name (Currently not displayed)

@2: APM name (Currently not displayed)

@3: Message ID

@4: Message registration file name

@5: Error code

@6: Message replacement text (@1)

@7: Message replacement text (@2)

@8: Message replacement text (@3)

@9: Message replacement text (@4)

@10: Message replacement text (@5)

@11: Message replacement text (@6)

@12: Message replacement text (@7)

@13: Message replacement text (@8)

@14: Message replacement text (@9)

@15: Message replacement text (@10)

[Corrective action]

The following corrective actions corresponding to the error code are required.

12: Not enough memory space for process. Memory space consumed by user programs must be reduced.

13: Access authority for the message registration file is not granted. Change the attribute of the message registration file to "writable".

DIA432 < E >

[English] @1.@2 Message Not Registered MessageID=@3 filename=@4 TEXT @1=[@5] @2=[@6] @3=[@7] @4=[@8] @5=[@9] @6=[@10] @7=[@11] @8=[@12] @9=[@13] @10=[@14]

[Description]

The message is not registered to the message registration file. Message editing and output are not performed.

@1: Logical system name (Currently not displayed)

@2: APM name (Currently not displayed)

@3: Message ID

@4: Message registration file name

@5: Message replacement text (@1)

@6: Message replacement text (@2)

@7: Message replacement text (@3)

@8: Message replacement text (@4)

@9: Message replacement text (@5)

@10: Message replacement text (@6)

@11: Message replacement text (@7)

@12: Message replacement text (@8)

@13: Message replacement text (@9)

@14: Message replacement text (@10)

[Corrective action]

Register the message identified by the message ID to the message registration file.

DIA433 < E >

[English] @1.@2 Message Date Error MessageID=@3 filename=@4 TEXT @1=[@5] @2=[@6] @3=[@7] @4=[@8] @5=[@9] @6=[@10] @7=[@11] @8=[@12] @9=[@13] @10=[@14]

[Description]

The message record registered to the message registration file is outside the duration of use.

Message editing and output are not performed.

@1: Logical system name (Currently not displayed)

@2: APM name (Currently not displayed)

@3: Message ID

@4: Message registration file name

@5: Message replacement text (@1)

@6: Message replacement text (@2)

@7: Message replacement text (@3)

@8: Message replacement text (@4)

@9: Message replacement text (@5)

@10: Message replacement text (@6)

@11: Message replacement text (@7)

@12: Message replacement text (@8)

@13: Message replacement text (@9)

@14: Message replacement text (@10)

[Corrective action]

Modify the starting date of use of the message registration file.

DIA434 < E >

[English] @1.@2 Message Record Rocked MessageID=@3 filename=@4 TEXT @1=[@5] @2=[@6] @3=[@7] @4=[@8] @5=[@9] @6=[@10] @7=[@11] @8=[@12] @9=[@13] @10=[@14]

[Description]

Reading the message record failed because the message record identified by the message ID is locked by other process.

Message editing and output are not performed.

@1: Logical system name (Currently not displayed)

@2: APM name (Currently not displayed)

@3: Message ID

@4: Message registration file name

@5: Message replacement text (@1)

@6: Message replacement text (@2)

@7: Message replacement text (@3)

@8: Message replacement text (@4)

@9: Message replacement text (@5)

@10: Message replacement text (@6)

@11: Message replacement text (@7)

@12: Message replacement text (@8)

@13: Message replacement text (@9)

@14: Message replacement text (@10)

[Corrective action]

Exit processes that access the message registration file such as the message registration file maintenance function.

DIA435 < E >

[English] Can't Open Message-Journal-File filename=@1

[Description]

The account of the user who started the message edit daemon (dcomsgdmn) is not granted write permission for the message journal file or the directory to which the message journal file is output. Or, the message journal file cannot be opened due to insufficient disk space.

@1: Message journal file name

[Corrective action]

Grant write permission for the message journal file and the directory in which the message journal file is created, and check the available disk capacity.

DIA436 < E >

[English] @1.@2 Can't write Message-Journal-File MessageID=@3 filename=@4 Message=@5

[Description]

Writing to the message journal file failed. The message cannot be confirmed in the message journal file.

@1: Logical system name (Currently not displayed)

@2: APM name (Currently not displayed)

@3: Message ID

@4: Message journal file name

@5: Output message

[Corrective action]

The disk space of the message journal file write destination may be insufficient. Check the available disk capacity.

DIA437 < E >

[English] Can't Close Message-Journal-File filename=@1

[Description]

Closing the message journal file failed. The processing is continued.

@1: Message journal file name

[Corrective action]

No action required.

DIA438 < E >

[English] Can't Delete Message-Journal-File filename=@1 isamerr=@2
    [Description]
    Deleting the message journal file failed. Stopped the message edit daemon.
        @1: Message journal file name
        @2: Error code
    [Corrective action]
    Resolve the error according to the error code, and then restart the message edit daemon.
    Numbers 1 through 99 and 200 or greater are assigned to UNIX error codes, and numbers 100
    through 199 are assigned to C-ISAM error codes.

DIA439 < E >
    [English] @1.@2 Don't Enter User-Message-File MessageID=@3 TEXT @1=[@4] @2=[@5]
    @3=[@6] @4=[@7] @5=[@8] @6=[@9] @7=[@10] @8=[@11] @9=[@12] @10=[@13]
        [Description]
    Editing the user message failed because the user message registration file is not specified.
        @1: Logical system name (Currently not displayed)
        @2: APM name (Currently not displayed)
        @3: Message ID
        @4: Message replacement text (@1)
        @5: Message replacement text (@2)
        @6: Message replacement text (@3)
        @7: Message replacement text (@4)
        @8: Message replacement text (@5)
        @9: Message replacement text (@6)
        @10: Message replacement text (@7)
        @11: Message replacement text (@8)
        @12: Message replacement text (@9)
        @13: Message replacement text (@10)
    [Corrective action]
    Stop the message edit daemon using the dcomsgstop command, specify the full path of the
    message registration file for the user using the environment variable DIA_CDOUSER, and then
    restart the message edit daemon.

DIA451 < I >
    [English] Stop dcomsgdmn
        [Description]
    Stopped the message edit daemon (dcomsgdmn) and message display daemon (dcomsgcsl). All
    opened files and socket files were closed and the response messages waiting to be received was
    discarded.
    [Corrective action]
    No action required.

DIA453 < E >
    [English] Environment-Value not Defined envname=@1
        [Description]
    The environment variable required to start the message edit daemon (dcomsgdmn) and message
    display daemon (dcomsgcsl) is not specified. Stopped the message edit daemon and message
    display daemon.

@1: Environment variable name
[Corrective action]
Specify the environment variable @1, and then start the message display daemon and message edit daemon.

DIA456 < E >
[English] Specified hostname is invalid. hostname=@1
[Description]
Starting the message edit daemon failed because the host specified by the parameter cannot be recognized.
[Corrective action]
Specify the host name described in /etc/hosts, and then start the message edit daemon.

DIA457 < W >
[English] Specified restraint time is extraordinary value, then revise restraint time to 5 seconds. specified restraint time=@1
[Description]
Started the message edit daemon using the default value because the specified restraint time is outside the range.
[Corrective action]
No particular action required.

DIA458 < W >
[English] Memory Get Error. Can not restraint message. errno=@1
[Description]
Obtaining memory failed.
[Corrective action]
The following corrective action corresponding to the value of "errno" is required.
12: Not enough memory space for process. Memory space consumed by user programs must be reduced.

DIA459 < E >
[English] Send error to dcomsgdmn. systemcall=@1 errno=@2
[Description]
Sending a request for reconnecting to the message edit daemon failed.
@1: System call name
@2: UNIX error code
[Corrective action]
Resolve the error according to the error code (errno), and then restart the message edit daemon.

DIA461 < W >
[English] Specified store message number is extraordinary value, then revise store message number to 1000. specified store number=@1
[Description]
Started the message edit daemon using the default value because the number of the specified stored suppress messages is outside the range.
[Corrective action]
No action required.

DIA471 < E >
  [English] Lock file access error. Lock filename=@1
    [Description]
  Starting the message edit daemon failed because the message edit daemon lock file
  (/tmp/.ditpcdolock) cannot be created.
      @1: Message edit daemon lock file name
    [Corrective action]
  Check the disk space of the /tmp directory, the write permission, and if a file with the same name
  exists, and then start the message edit daemon.

DIA473 < E >
  [English] dcomsgdmn has started already
    [Description]
  Multiple message edit daemons (dcomsgdmn) cannot be started on the same host.
    [Corrective action]
  Confirm the existence of the message edit daemon using the ps command. A new daemon cannot
  be started unless the existing daemon is stopped. If the message edit daemon is not started,
  delete the lock file (/tmp/.ditpcdolock) and start the message edit daemon.

DIA475 < E >
  [English] Can't Use The PortNumber PortNumber=@1
    [Description]
  Starting the message display daemon failed because the port number specified by the
  environment variable DIA_CDOPORT is not available.
      @1: Port number specified by the environment variable
    [Corrective action]
  Specify the port number from 5001 to 65535, and then start the message display daemon.

DIA477 < E >
  [English] dcomsgdmn Abnormal end
    [Description]
  The message edit daemon (dcomsgdmn) ended abnormally.
    [Corrective action]
  Restart the message edit daemon.

DIA480 < W >
  [English] Because Appointed journal file size is error, journal file size is 5M. Appointed file size=@1
    [Description]
  The message journal file size was changed to the default value 5M bytes because the size
  specified by the environment variable is invalid.
      @1: Specified message journal file size
    [Corrective action]
  No action required. Specify a value between 1M and 10M bytes at the next startup.

DIA481 < W >
  [English] Because Appointed journal file amount is error, journal file amount is 2. Appointed file
  amount=@1

[Description]

The number of message journal files was changed to the default value 2 because the number specified by the environment variable is invalid.

@1: Specified number of message journal files

[Corrective action]

No action required. Specify a value between 2 and 10 at the next startup.

DIA482 < E >

[English] Memory Get Error errno=@1

[Description]

Obtaining memory failed. Message edit daemon cannot be started.

@1: UNIX error code

[Corrective action]

Resolve the error according to the error code (errno), and then restart the message edit daemon.

DIA483 < E >

[English] Node name get error errno=@1

[Description]

Obtaining memory failed. Message edit daemon cannot be started.

@1: UNIX error code

[Corrective action]

Resolve the error according to the error code (errno), and then restart the message edit daemon.

DIA487 < W >

[English] Message History File Rename Error filename=@1 errno=@2

[Description]

Renaming the message log file to a backup file failed. Existing message contents were deleted.

@1: Message log file name

@2: UNIX error code

[Corrective action]

Resolve the error according to the error code (errno).

DIA488 < W >

[English] Specified display level is extraordinary value, then revise display level to 5(lowest).
sort=@1 specified display level=@2

[Description]

The display message reference value specified by the startup parameter of message edit daemon is invalid because it is not from 1 to 5. "5" is used as the message display level reference value.

@1: Message classification

DIOSA: Message display level reference value for DIOSA

USER: Message display level reference value for users

@2: Display level reference value specified by the parameter

[Corrective action]

No particular action required. To change the default display level reference value, use the display level reference value change command (dcomsglchg).

DIA489 < W >

[English] Message daemon can not change display level

[Description]

The message display level reference value change command was executed, however, the command is invalid because the message edit daemon does not control the level ("-l" [lowercase L] option is not suffixed).

[Corrective action]

No particular action required. To control the level using the message edit daemon, add "-l" [lowercase L] option, and then restart the daemon.

DIA490 < E >

[English] Can't Write Control-Record Message-Journal-File filename=@1 isamerr=@2

[Description]

Writing the control record when initializing the message journal file failed. Stopped the message edit daemon.

@1: Message journal file name

@2: Error code

[Corrective action]

Resolve the error according to the error code, and then restart the message edit daemon. Numbers 1 through 99 and 200 or greater are assigned to UNIX error codes, and numbers 100 through 199 are assigned to C-ISAM error codes.

DIA491 < E >

[English] Can't Search Message-Journal-File dirname=@1 isamerr=@2

[Description]

The positioning relationship (swapping order) with the swapped message journal file in use has become unclear. Stopped the message edit daemon.

@1: Name of the directory in which the message journal file is saved

@2: Error code

[Corrective action]

Resolve the error according to the error code, and then restart the message edit daemon. In most cases, the message journal file is corrupted. Cold start the message edit daemon (dcomsgdmn -c) and delete all message journal files. Numbers 1 through 99 and 200 or greater are assigned to UNIX error codes, and numbers 100 through 199 are assigned to C-ISAM error codes.

DIA492 < W >

[English] Message level temporary file access error. func=@1 errno=@2

[Description]

Accessing the temporary file (/tmp/.ditpcdoldisp) used by the message display level reference value reference command failed. The message display level reference value cannot be referenced.

@1: System call name

@2: UNIX error code

[Corrective action]

The following corrective actions corresponding to the value of "errno" are required.

12: Not enough memory space for process. Memory space consumed by user programs must be reduced.

13: Temporary file exists and access authority has not been granted. Delete temporary files.

DIA493 < I >

[English] Message level changed. sort=@1 old level=@2 new level=@3
[Description]
The message display level reference value has been changed by the message display level reference value change command.
@1: Message classification
DIOSA: Message display level reference value for DIOSA
USER: Message display level reference value for users
@2: Previous reference value (before the change)
@3: Current reference value (after the change)
[Corrective action]
No action required.

DIA494 < E >
[English] Sigaction error. errno=@1
[Description]
Registering the signal handler (sigaction) failed. Stopped the message edit daemon.
@1: UNIX error code
[Corrective action]
The following corrective action corresponding to the value of "errno" is required.
12: Not enough memory space for process. Memory space consumed by user programs must be reduced.

DIA495 < E >
[English] Sighold error. errno=@1
[Description]
Registering the signal mask (sighold) failed. Stopped the message edit daemon.
@1: UNIX error code
[Corrective action]
The following corrective action corresponding to the value of "errno" is required.
12: Not enough memory space for process. Memory space consumed by user programs must be reduced.

DIA496 < E >
[English] Sigrelse error. errno=@1
[Description]
Deleting the signal mask (sigrelse) failed. Stopped the message edit daemon.
@1: UNIX error code
[Corrective action] The following corrective action corresponding to the value of "errno" is required.
12: Not enough memory space for process. Memory space consumed by user programs must be reduced.

DIA497 < W >
[English] Addition User Message-File is open already
[Description]
The additional user message registration file open command was executed, however, the command was ignored because the additional user message registration file is already opened.
[Corrective action]
No action required.

DIA498 < W >
  [English] The EnvironmentalVariable for user message is not defined. Addition User Message-File can not be used. EnvironmentalVariableName=@1
    [Description]
  The additional user message registration file open command was executed, however the additional user message registration file could not be opened because no environment variables for the user message registration file have been specified.
    @1: Environment variable name
  [Corrective action]
  Specify the environment variables "DIA_CDOUSER" and "DIA_CDOUSERADD", and then restart the message edit daemon.

DIA499 < I >
  [English] Addition User Message-File Close
    [Description]
  The additional user message registration file is closed because an error occurred while executing the additional user message registration file close command or while reading the additional user message registration file.
  [Corrective action]
  A read error occurred if "DIA431" is displayed before this message. Resolve the error, and then reopen the additional user message registration file using the additional user message registration file open command.
  The file is closed by the additional message registration file close command if "DIA431" is not displayed. It is possible to reopen the file by executing the additional user message registration file open command.

DIA4A0 < I >
  [English] Addition User Message-File Open
    [Description]
  The additional user message registration file was opened by executing the additional user message registration file open command.
  [Corrective action]
  No action required.

DIA4A1 < I >
  [English] dcomsgdmn start
    [Description]
  The CDO message edit daemon started.
  [Corrective action]
  No action required.

8. Recovery in case of abnormal completion

MasterScope MISSION CRITICAL OPERATIONS CDO uses lock files to prevent duplicated activation and to transfer information. In cases of abnormal completion due to failures, such lock files must be deleted before   reactivation.

Lock files are listed below.

OS	Lock file
HP-UX	/tmp/.ditp_cdodisp
Solaris	/tmp/.ditp_cdotpp
AIX	/tmp/.ditpcdolock
Linux	/var/lock/diux/.ditp_cdodisp
	/var/lock/diux/.ditp_cdotpp
	/var/lock/diux/.ditpcdolock
Windows (*)	%TMP%\.ditpcdolock

  * %TMP% is a system environment variable.
  * On Windows, the "MasterScope MISSION CRITICAL OPERATIONS UnixPort Cleanup" service
    can be reactivated to delete lock files.

9. Setting for Duplicating Manager

For information on duplicating and using your manager, refer to the appropriate duplicating setup guide in MISSION CRITICAL OPERATIONS.

The duplicating setup guide is stored in the following path in MasterScope Media.
　\doc\MCO\

　・ Windows
　　When using CLUSTERPRO X, refer to "Cluster_Win_EXPRESSCLUSTER_X.pdf."

　　<u>Notes</u>
　　・　Be sure to activate MasterScope MISSION CRITICAL OPERATIONS before activating MasterScope MISSION CRITICAL OPERATIONS CDO. Be sure to stop MasterScope MISSION CRITICAL OPERATIONS CDO before stopping MasterScope MISSION CRITICAL OPERATIONS. Neglecting to observe this order in activation/stopping may prevent normal operations.
　　・　Please store a user message registration file on the shared disk. For information on how to change where to store a user message registration file, please refer to "<u>3.4. Preparation for operation</u>".

10. Remarks

10.1. <u>Reactivation</u>

The following describes the steps to manually restart MISSION CRITICAL OPERATIONS CDO.

■ **Windows**
Restart the Windows service (service name: WebSAM MCOperations CDO).

■ **HP-UX**
Execute the following.

```
# sh /sbin/init.d/UMFMCOperationsCDO stop ↵
# sh /sbin/init.d/UMFMCOperationsCDO start ↵
```

■ **Linux**
Execute the following.

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO stop ↵
# sh /etc/rc.d/init.d/UMFMCOperationsCDO start ↵
```

■ **Solaris**
Execute the following.

```
# sh /etc/init.d/UMFMCOperationsCDO stop ↵
# sh /etc/init.d/UMFMCOperationsCDO start ↵
```

■ **AIX**
Execute the following.

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO stop ↵
# sh /etc/rc.d/init.d/UMFMCOperationsCDO start ↵
```

* In UNIX (HP-UX, Linux, Solaris, AIX), run the command with an account that has super-user privileges.

11. Notes

11.1. Notes on Duplicated Environment

Store the user message registration file on the shared disk, and specify the message registration file path for the environment variable "DIA_CDOUSER"
For details, see "3.4 Preparation for operation".

11.2. Products which cannot coexist

This function cannot coexist with the following products.
- This function cannot be used in an environment in which the APBASE version CDO function is installed. Contact the maintenance service center if you want to use this function in an environment in which APBASE is used.

11.3. Impact to MasterScope Products

This function uses libraries of MasterScope MISSION CRITICAL OPERATIONS. Hence, please stop this function before overwriting or uninstalling MasterScope MISSION CRITICAL OPERATIONS. Installation and Uninstallation will fail without stopping this function.

Note: Please similarly stop this function when installing or uninstalling a MasterScope product which has been installed to the same install path as MISSION CRITICAL OPERATIONS. The following describes steps to stop.

■ **Windows**
Stop Windows service (service name: WebSAM MCOperations CDO).

■ **HP-UX**
Execute the following.

    # sh /sbin/init.d/UMFMCOperationsCDO stop ↵

■ **Linux**
Execute the following.

    # sh /etc/rc.d/init.d/UMFMCOperationsCDO stop ↵

■ **Solaris**
Execute the following.

```
# sh /etc/init.d/UMFMCOperationsCDO stop ↵
```

■ **AIX**
Execute the following.

```
# sh /etc/rc.d/init.d/UMFMCOperationsCDO stop ↵
```

11.4. <u>Service startup order</u>

When starting the system, be sure to start MasterScope MISSION CRITICAL OPERATIONS first, then start MasterScope MISSION CRITICAL OPERATIONS CDO. When shutting down, stop WebSAM MISSION CRITICAL OPERATIONS CDO before MasterScope MISSION CRITICAL OPERATIONS is stopped. The system may not operate normally when the startup or shutting down is not performed in the correct order.
Startup and shutting down must be performed in the correct order for redundant environments as well.

11.5. <u>Directory authority</u>

The following directories are used during MasterScope MISSION CRITICAL OPERATIONS CDO execution.
■ **Windows**
%TMP%\.ditpcdolock
* %TMP% is a system environment variable.

■ **Linux**
/var/lock/diux

■ **HP-UX, Solaris**
/tmp

For the Windows version, full control access authority with an account having SYSTEM authority is required. For UNIX, full control access authority with an account having root authority is required.

12. Specifications

12.1. Maximum message length

When this function is used to issue a message, the maximum length of the message is as follows.
  a) The maximum length of a message that can be registered in a message registration file is 170 bytes.
  b) The maximum length of a replacement character string that can be specified from the API is 50 bytes.(Up to 10 character strings can be specified)
  c) The maximum length is 660 bytes; i.e., it is calculated by excluding the number of bytes of the replacement character "@" from the total of (a) and (b).