

MISER Alarm Notification Service

1 General Description

This service is intended to notify users about an alarm on a designated point via email and/or text message (SMS). In order to be reported, a point must be included in a sub-system alarm list using the MISER MTKON utility. As soon as such a point goes into an alarm state, MISER invokes the notification service (further referred to as “service”) and executes the notification procedure.

Each subsystem has its own list of points that the service is responsible for, as well as a corresponding list of notification “addresses” (i.e., personnel to notify) and respective schedules (i.e., a time frame for each addressee).

The service uses several settings, which determine the common rules guiding its behavior. These settings are defined as values in special MISER points:

- The value of the binary point, HMTK-CONTROL, informs the system whether the service is turned on.
- The value of the analog calculated point, HMTK-ALARM-DLY, is used by MISER to determine the timing for recognizing and reporting an alarm. This delay is represented in minutes.
- The value of the analog calculated point, EMAIL-DELAY, defines the time interval between subsequent notifications sent to addressees (as detailed below). This parameter is also represented in minutes.

For example, as soon as a point (in this example TEST) goes into alarm, the notification service (if turned on) is activated and the service:

1. Scans the list of the points that have been added to the system notification list. This list is maintained with the MISER utilities: MTKON, MTKOFF, MTKRP, and MTKDIAG. (These utilities are described in detail in the *MISERtalk User Manual*.)
If TEST is in alarm, but not on the list, the service skips its processing.
2. If TEST is on the list, the service uses the information found in the above list to determine the name of the file that contains the scheduling information (i.e., who and when to notify that this point is in an alarm state). This file may be unique (created specifically for this point) or generic (applying to all system points or some subset).
3. In cases where the file cannot be located, the service reports an error. Otherwise, it loads the file and determines which members of the team (addressees), and in which order, should be notified of the situation based on the current time.
The file can contain multiple records (each for every person/time frame combination). As a result, the service determines the list of addressees to notify.
4. The service sends the notification to the first address on the compiled list and then suspends. When the notification arrives at its destination, the notified person gets a chance to respond by acknowledging the alarm and can start resolving the problem.
5. The service will wake up after the delay defined by the point, EMAIL-DELAY, and double check the TEST point’s state. If the alarm has been acknowledged or the point is not in alarm anymore, it is removed from the service’s alarm list and the service proceeds to the next point. If the point is still in alarm, and

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this state has not been acknowledged, the service proceeds to the next addressee on the addressees list and sends a new notification to the corresponding destination, assuming the first message did not go through or the addressee is unavailable at the moment.

NOTE: If the file contains more than a single line for the same addressee and the alarm occurs at the time that fits those lines, the message will be sent to all related addresses simultaneously.

6. The routine repeats until either the alarm is acknowledged (or the point exits the alarm state) or there are no more entries on the compiled addressees list, then the service ceases.
7. The service is capable of simultaneously processing of up to 1024 points in the alarm state and up to sixteen addressees per point that can be notified at any given time.

The service will run continuously as long as MISER is active.

2 General Benefits

- The service provides system managers with a simple way to modify and maintain the list of message “addresses”, including days and times when individual addressees should be notified and their email address and/or wireless-provided phone number-based email address (further referred to as “SMS address”), to be used for sending messages that end up as a regular SMS on the addressee’s phone.
- The service allows for an initial delay option (i.e., a time interval before reporting an alarm).
- The service disregards an alarm as soon as the point is no longer in alarm or is acknowledged.
- The service provides for a notification repetition option (i.e., if a point remains unacknowledged and there are still unused entries on the notification list).
- The repetition interval accuracy is no greater than one minute.
- The service is flexible and easily modifiable in order to meet each customer’s requirements.

3 Message Addressee List Structure

The file format allows for easy manual editing and reviewing. To that purpose, a .txt format (used by Notepad for example) has been chosen.

The file is case-insensitive and provides a two-tier set of options: basic and enhanced (shown in green text below).

The file consists of lines, each of which may represent one of three types available:

- Comments (optional)
- File format version (optional)
- Addressees definitions

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3.1 Comments

These are lines that start with any special character. For instance, a single quote (') or a semicolon (;). It is recommended that the same character be used throughout the file – for readability purposes.

NOTE: In order to adhere to accepted MISER policies, it is strongly recommended denoting comments with an exclamation mark (!).

Introducing comments is convenient in cases where a user needs to be temporarily removed from a list (e.g., when on vacation or sick). Comments must occupy an entire line. Comment lines can appear anywhere inside the file. If a line is recognized as a comment, it is ignored by the program.

3.2 File Format Version

In order to be future-proof, while still maintaining backward compatibility, the file structure may contain the version number. It should take the form:

```
AddressBookVersion <Version>
```

Where <Version> should be an integer constant. The space between the code word AddressBookVersion and <Version> is mandatory.

NOTE: This line must be the first non-empty and non-comment line in the file.

If this line is omitted, the version will default to “1”. If the user creates a new addressees file from scratch, it is advisable to consult the most recent HSQ manual to determine what the latest file structure is and what version it corresponds to.

3.3 Addressee Definitions

The user address definition should look like:

```
<USERNAME>/<address>/<days set>/<time set>
```

– or, alternatively –

```
<USERNAME>/<address>/<day>-<day2>/<time1>-<time2>
```

Where:

- The slash (/) is used as a separator (the username may contain spaces).
- All spaces before and after <USERNAME> are ignored.
- <USERNAME> is the name used in the message sent to this user. It is also used as the user’s unique identifier.
- <address> is an email or an SMS address for this user. If the user wants to be notified in more than one way, each of those addresses should occupy a separate line in the file.
- <days set> represents the days when the user is available and can contain one of the following:
 - Workdays1, Workdays2, Worknights1, Worknights2, Weekends1, Weekends2, Holidays, Always, UserDays1, and UserDays2, or it may contain a comma-separated list of the above.
 - The meaning of these macro-definitions is defined externally in a special file (see below).
- <time set> represents the time of day when a user is available. It may be one of the following:
 - Daytime1, Daytime2, Nighttime1, Nighttime2, Anytime, Uvertime1, or Uvertime2.

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- For the more elaborate and flexible format, <day> (and subsequently, <day2>) represents day(s) of the week/year when this user is supposed to receive the alarm message about this point. The day may be one of (only the first three characters):
 - Mon[day]
 - Tue[day]
 - Wed[nesday]
 - Thu[rsday]
 - Fri[day]
 - Sat[day]
 - Sun[day]
 - Wor[king]
 - Wee[kends]
 - Hol[iday]
 - Alw[ays]
- <time1> and <time2> should represent a time interval a user is to receive the messages. These entries should be written in 24 hour format (e.g., 8:00 p.m. as 20:00).

3.3.1 User Address Example

John Doe / john.doe@provider.com / workdays2 / daytime1

John Doe / john.doe@provider.com / workdays2 / 13:00 – 16:59

Peter Pan / 8008008000@txt.att.net> / weekends1 / nighttime2

Alice Snow / asnow@gmail.com / weekends2 / 0:00 – 23:59

Alice Snow / 8008008001@vtext.com / Always / 23:00 – 5:59

Alice Snow / 8008008001@vtext.com / Holidays / 0:00 – 23:59

! Now on vacation until 09/01/2020

! Jim Rains / jim@customer.com / workdays1 / 9:00 – 17:59

Jennifer Iceberg / gi@customer.com / work / Daytime1

Leroy Jenkins / 1234567890@tmomail.net / workdays1 / nighttime2

Buddy Guy / BGuy@blues.com / Always / Anytime

New Employee / ne@oldcompany.biz / Mon,Wed,Fri / nighttime1

The program can easily load and parse this file, and determine to whom, and in which order, a message should be sent. The addressees are processed in the order they are placed in the file – as long as the current day/time fits the parameters.

4 Day/Time Definitions

The addressee list file understands terms like Workdays1, Nighttime2, etc. In order to make these concise words easily definable and user-accessible, a special file is created containing the day/time “macro” definitions.

The file is located in: \$SITE : [DATA] MTKM_MACRO.S .DAT and has the following format:

- Every line defines one of the terms.
- Lines with unknown terms are ignored.
- Every line contains two fields: the term and its replacement list.
- The fields are separated by whitespace.
- The file entries are case-insensitive.
- The replacement list for days contains comma-separated weekday names (at least three characters for each name), for instance:
 - Mon, Tue, Wednes, thur, Fri

NOTE: Whitespaces between the names are ignored. Also, all characters greater than three are irrelevant (and not verified).

- The replacement list for time contains the time range in 24 hour format, for instance:
 - 08:00 - 17:15
 - 20:00 – 03:00
- The term “Holidays” is not defined in this file and is decoded programmatically.
- The typical daytime definitions file (with terms defined with default values) looks like:
 - Workdays1 Mon, Tue, Wed, Thu, Fri
 - Workdays2 Sun, Mon, Tue, Wed
 - Weekends1 Sat, Sun
 - Weekends2 Fri, Sat
 - Always Mon, Tue, Wed, Thu, Fri, Sat, Sun
 - Daytime1 08:00 - 16:59
 - Daytime2 12:00 - 19:59
 - Nighttime1 17:00 - 07:59
 - Nighttime2 20:00 - 11:59
 - Anytime 00:00 - 23:59
- The terms Userdays1, Userdays2, Usertime1, and Usertime2 do not have corresponding default values and, if used, should be explicitly defined in this file by the user. All other term definitions can be omitted, if any of them are not present, the service uses a corresponding default. However, for the sake of a better user experience, it is recommended that all terms defined in this file be kept in spite of being needed or not.

NOTE: This file is read only once when the service is started (since it is rarely changed, if ever). This means that if this file is edited, the MTK service MUST be restarted.