

**Reference Guide**

D301500X412

April 2012

---

# **OpenEnterprise Messaging Server Reference Guide (V2.83)**

Remote Automation Solutions

Website: [www.EmersonProcess.com/Remote](http://www.EmersonProcess.com/Remote)



## Contents

<b>1</b>	<b>Messaging Server</b> .....	<b>1</b>
1.1	Messaging Server Configuration Settings.....	1
1.2	Messaging Server Configuration - Ini File.....	2
<b>2</b>	<b>Interface</b> .....	<b>3</b>
<b>3</b>	<b>Overview Tab</b> .....	<b>3</b>
3.1	Database Name .....	4
3.2	Connected.....	4
3.3	License.....	4
3.4	Send Messages for Suppressed Alarms.....	4
3.5	Messages for Alarms being Un-suppressed.....	4
3.6	Check Alarms on Startup .....	4
<b>4</b>	<b>Database Tab</b> .....	<b>4</b>
4.1	Messaging Tables .....	5
4.1.1	Routine Table .....	6
4.1.2	Recipient Groups Table.....	6
4.1.3	Recipient Table.....	6
4.1.4	Recipient Associations Table .....	6
4.1.5	Pattern Group Table .....	6
4.1.6	Pattern Table .....	6
4.1.7	Response Action Groups Table.....	7
4.1.8	Response Action Table .....	7
4.1.9	Alarm Summary Table.....	7
4.1.10	Mail Format Table .....	8
4.2	Messaging Objects List.....	8
<b>5</b>	<b>POP3 Tab</b> .....	<b>8</b>
5.1	POP3 Server Name .....	9
5.2	POP3 Server IP Address .....	9
5.3	POP3 Authentication Dialog .....	9
5.3.1	POP3 User Name .....	10
5.3.2	POP3 Password .....	10
5.4	POP3 Port Number .....	10
5.5	POP3 Check Interval.....	10
5.6	Apply .....	10
<b>6</b>	<b>SMTP Tab</b> .....	<b>10</b>
6.1	Readable Name .....	11
6.2	E-Mail Address.....	11
6.3	Authentication Dialog .....	11
6.3.1	Authentication Method List .....	11
6.3.1.1	None.....	11
6.3.1.2	CRAM MD5 .....	11
6.3.1.3	LOGIN .....	11

- 6.3.1.4 PLAIN ..... 11
- 6.3.2 User Name..... 11
- 6.3.3 Password..... 12
- 6.4 Host Name - Address..... 12
- 6.5 Port Number..... 12
- 6.6 Apply ..... 12
  
- 7 Modems Tab ..... 12**
  - 7.1 Device List..... 12
  - 7.2 Dial-up Delay..... 13
  
- 8 Log File Tab..... 13**
  - 8.1 Log Entry List ..... 13
  - 8.2 Clear Window Button ..... 13
  - 8.3 Logging Settings Dialog ..... 13
    - 8.3.1 Location ..... 14
    - 8.3.2 Browse Button ..... 14
    - 8.3.3 Activate Debug Logfile..... 14
    - 8.3.4 Keep Logs for Extra Days..... 14
  
- 9 Statistics Tab..... 14**
  - 9.1 Number of Pattern Groups..... 15
  - 9.2 Number of Recipients..... 15
  - 9.3 Number of Patterns ..... 15
  - 9.4 Number of Mail Formats..... 15
  - 9.5 Messages Sent ..... 15
  - 9.6 Messages Received..... 16
  
- 10 Test Mail Tab ..... 16**
  - 10.1 To:..... 16
  - 10.2 Subject:..... 16
  - 10.3 Message: ..... 16
  - 10.4 Send Test Message Button ..... 16
  
- 11 Glossary ..... 17**
  
- 12 Index ..... 18**

# 1 Messaging Server

The Messaging Server sends messages to email or paging recipients when pre-defined alarm criteria appears within the 'Alarm Summary' table. Email recipients can also be set up to acknowledge alarms by email.

In order for the Messaging Server to implement OpenEnterprise Messaging, the following configuration must be completed: -

- Messaging Configuration - this includes the alarm criteria which triggers messaging, and the recipients who will be sent email or paged. This is done using the Messaging Configuration tool)
- SMTP Server configuration (configured from the Messaging Server)
- POP3 Server configuration (configured from the Messaging Server)

## 1.1 Messaging Server Configuration Settings

It is possible to provide general settings for the Messaging Server using the Settings Editor, but to also override these with a number of optional settings defined in a special OEMessaging.ini file. The values listed the table below define Messaging setup, and are located on the following Key in the Settings Editor:

**Key:** OpenEnterprise\Tasks\PagingServer .

Name	Comments
DataService	The Database for OEMessaging to connect to.
DailyLogFile	Set to 1 to force a new file to be generated for the log each day.
DebugLogActive	Activate (1) or deactivate (0) the debug log.
DebugLogDays	Number of days to keep this debug log.
DisplayLogEnabled	Setting this to 0 will prevent messages appearing in the Paging Server application, though messages may still appear in the log
DisplayLogMaxEntries	Maximum number of lines to show within the Paging Server.
IgnoreStartupAlarms	Set to 1 if you do not wish the Paging Server to scan the Alarm Summary table when it is launched
IncorrectAckJournal	Whether the application will send an e-mail to a recipient if they incorrectly ACK an alarm. 0 will be FALSE any other value will be TRUE.
LineAddressExclusion	Semi-colon delimited list of lines (modems) not to use with the paging system.
LogFileNames	Name of the standard log file used to

	store messages.
LogFileEnabled	Activate (1) or deactivate (0) the standard log file.
ModemDelayBetweenCalls	Specify the number of seconds a modem queue should wait after finishing its call and before commencing the next call.
Optimistic	Whether the application will be run in Optimistic mode. 0 will be FALSE any other value will be TRUE.
POP3CheckInterval	The numbers of seconds in between each check of the POP3 Inbox on the POP3 Server.
POP3HostName	The Network Name or IP address of the SMTP Server.
POP3HostPort	The Port Number of the SMTP Server.
POP3Password	The Password to connect to a POP3 Server with.
POP3ToAddress	The E-mail address that will appear in the 'From' field of Alarm E-mails.
POP3ToName	The readable name that Alarm E-mails will be from.
POP3Username	The Username for logging onto the POP3 Server.
SecondsInMinutes	Debug feature to allow us to speed up time! Set this to 30 and all the actions will occur twice as fast
SMTPAuthType	CRAM MD5; AUTH LOGIN or PLAIN LOGIN
SMTPFromAddress	Email address that will represent the Paging Server.
SMTPFromName	Readable name such as 'Project Paging Server'
SMTPHostName	IP address of name of the server that is running the SMTP server.
SMTPHostPort	Port on which the SMTP server is running. Usually this is 25 (decimal).
SMTPPassword	Password for authentication.
SMTPUsername	Username for authentication.
Wildcard	String that will be interpreted in Pattern matching as a wildcard.

**1.2 Messaging Server Configuration - Ini File**

It is possible to override each setting from the OpenEnterprise settings file in a special ini file created for the Messaging Server.

The file's name is OEMessaging.ini, and it is located in the OpenEnterprise <Application Data> directory. For Windows XP, this will be 'C:\Documents and Settings\All Users\Application Data\Bristol\OpenEnterprise\Application Data'. For Vista it would be 'C:\Program Data\Bristol\OpenEnterprise\Application Data'.

Multiple configurations are available in the file, as it is split into sections (denoted by square brackets). To override settings in the main OpenEnterprise.ini file, the appropriate section name in the OEMessaging.ini file must be supplied on the command line.

For example, the following command line argument:

```
/S "OEMessaging_1"
```

will mean that OEMessaging will read the following section in OEMessaging.ini:

```
[OEMessaging_1]  
  
DataService=MyMachine:rtrdb1  
  
POP3ToAddress=me@somewhere.com  
  
POP3ToName=SCADA System
```

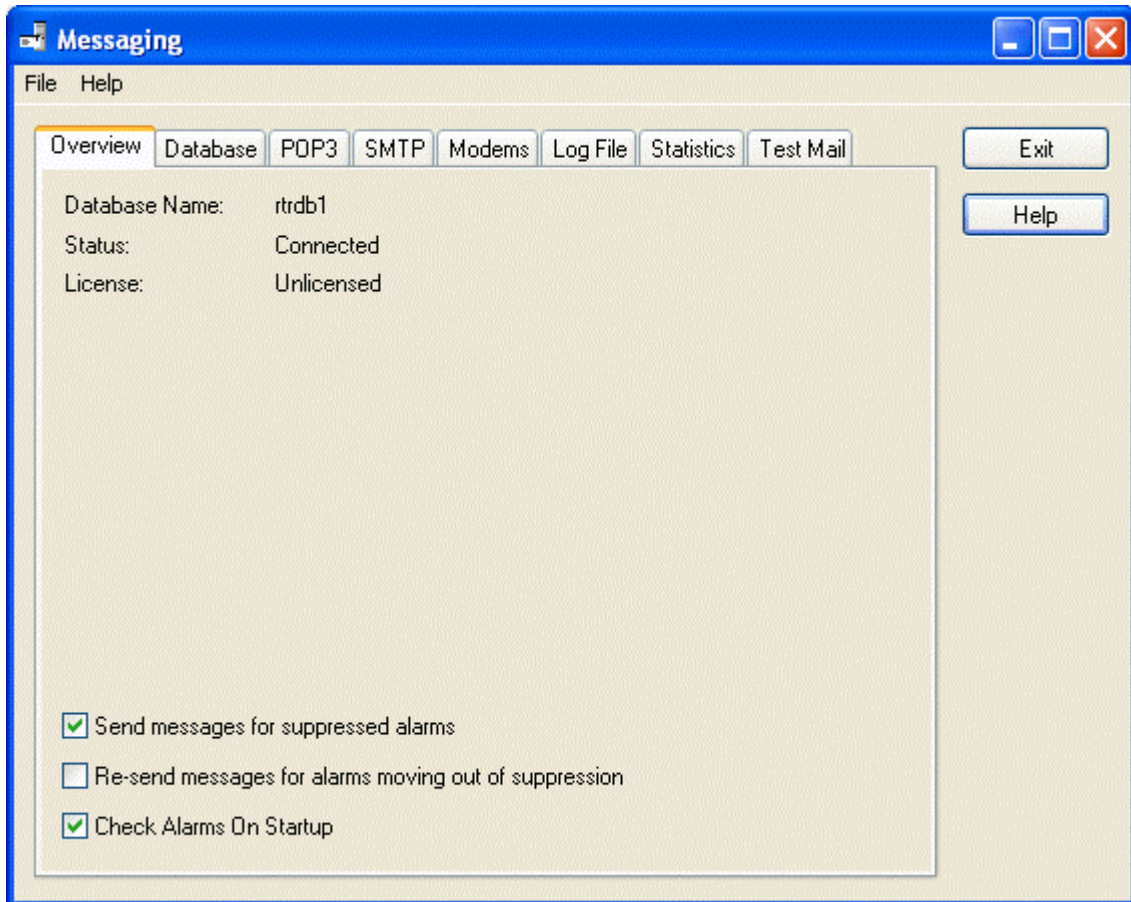
These values will override the values found in the general OpenEnterprise settings file.

## 2 Interface

The Messaging Server Interface is a tabbed dialog that enables the configuration of all aspects of the Messaging Server:-

## 3 Overview Tab

This is the default tab of the Messaging Server's User Interface. It provides important information.



### **3.1 Database Name**

The name of the database that the Messaging Server is currently connected to. Defaults to *rtrdb1* (the default local TCP socket connection for an OpenEnterprise database).

If a different TCP socket number is to be used for the Messaging Server to connect to the database, it must be mapped in the Services file found in the *Windows\System32\Drivers\etc* directory, and opened using the command line argument: -

```
-d [servername:]socket_addr
```

Where *socket\_addr* = the newly mapped TCP socket name (e.g. northdatabase). If the Messaging Server is connecting to a local database (the default configuration), the *servername:* part of the command line can be omitted.

### **3.2 Connected**

Displays the connection status of the Messaging Server. If this is 'No', then check that the database is running and that it has been set up properly.

### **3.3 License**

Displays the licensing status of the OpenEnterprise Messaging application package. Use the Bristol License Manager to obtain a License for this product by selecting:-

```
Start>Programs>Bristol Licensing>License Manager
```

### **3.4 Send Messages for Suppressed Alarms**

Leave this box checked if you want messages to be sent for Alarms that are Suppressed.

### **3.5 Messages for Alarms being Un-suppressed**

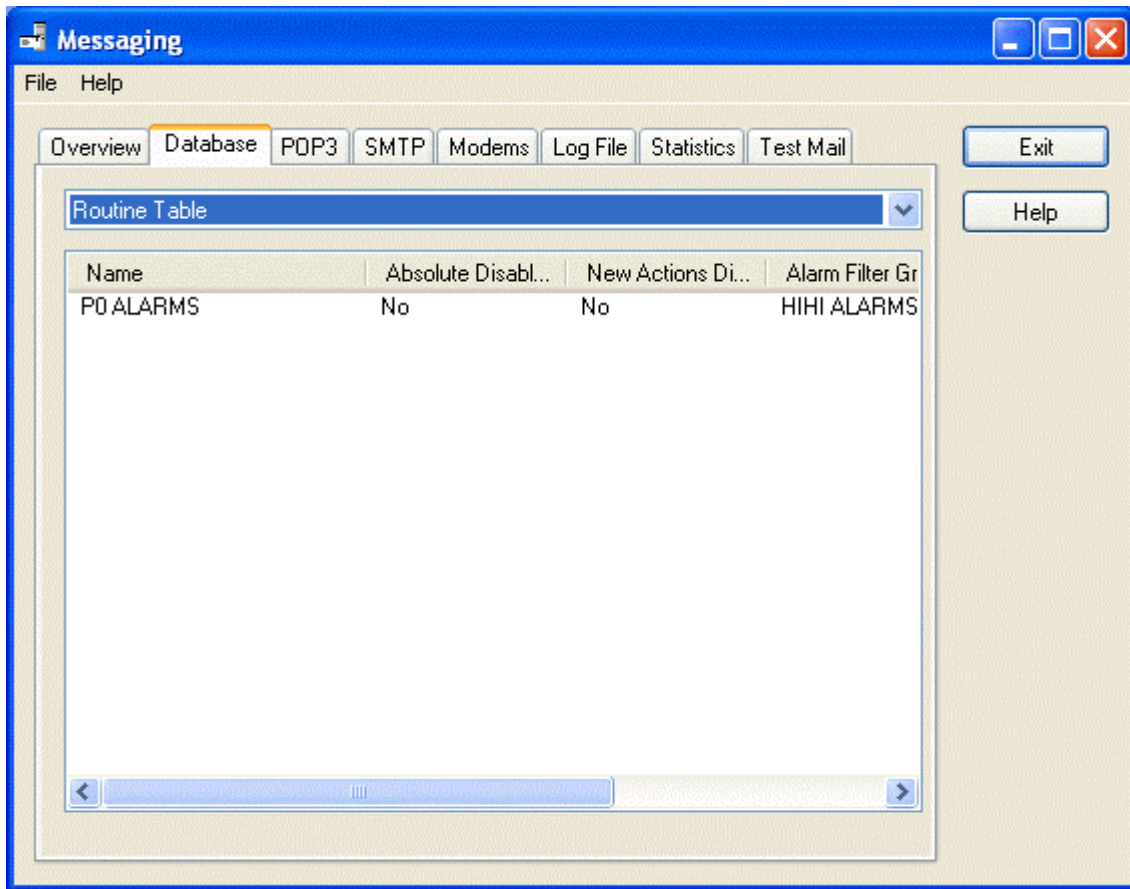
Check this box if you want messages to be sent when Suppressed Alarms become un-suppressed.

### **3.6 Check Alarms on Startup**

If this box is checked, then the Messaging Server will check the Alarm Summary on startup for alarms that match the Alarm Patterns found in the Messaging Routines. Otherwise, alarms will be checked when a new alarm is raised, or when an existing alarm changes its status, condition or value.

## **4 Database Tab**

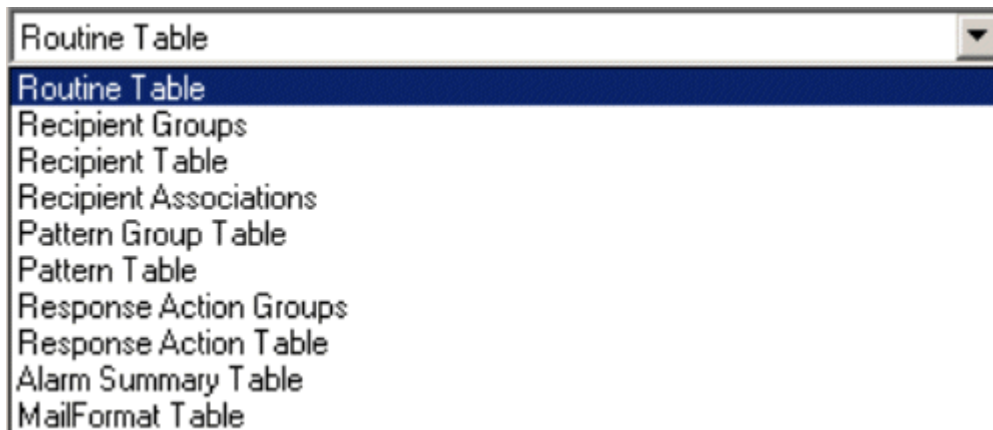
This tab enables you to view the objects in the tables used by OpenEnterprise Messaging.



### 4.1 Messaging Tables

This is a list of the tables which the Messaging Server keeps queries on. The data from these tables is used to implement OpenEnterprise Messaging.

When a different table is selected from the tables list, the appropriate objects from that table will be displayed in the Objects List. There will also be different attributes displayed, depending on the table. The image below displays the Tables List opened out.



Database Tab



**4.1.1 Routine Table**

If this table is selected, the objects in the Objects list will be configured Messaging Routines and the attributes displayed will be: -

Attribute Name	Description
Name	The name given to the Routine (must be unique).
Absolute Disable	Shows whether the Routine has been fully disabled.
New Actions Disabled	Shows whether the Routine has been set so that any new actions added to it will be disabled.
Alarm Filter Group	The Alarm Pattern Group name that belongs to this Routine.
Alarm Action Group	The Action Group that belongs to this Routine

**4.1.2 Recipient Groups Table**

Objects displayed from this table are, as the name suggests, Recipient Groups. The only attribute displayed is the Name of the Recipient Group.

**4.1.3 Recipient Table**

This table displays Recipients. The attributes displayed will be: -

Attribute Name	Description
Name	The name given to the Recipient (must be unique).
Email Address	Each recipient must have a valid Email address.
Disabled	Shows whether the Recipient has been disabled for messaging. If this value is set to True here, the Recipient will be disabled for messaging in any Recipient Group to which they belong.

**4.1.4 Recipient Associations Table**

This table displays Recipients and the Recipient Groups with which they are associated. The attributes displayed are: -

Attribute Name	Description
Recipient Group	The name of the Recipient Group
Recipient Name	The name of a Recipient associated with the Recipient Group.
Disabled	Shows whether the Recipient is disabled within that particular Recipient Group. It is possible for a Recipient to be disabled in one Recipient Group, but disabled in another.

**4.1.5 Pattern Group Table**

The only attribute that is displayed for Pattern Groups is the name.

**4.1.6 Pattern Table**

This table displays Alarm Patterns. There are quite a few attributes displayed for these objects: -

Attribute Name	Description
Name	The name given to the Alarm Pattern (must be unique).
Pattern Group	The name of the Pattern Group to which the Alarm Pattern

	has been assigned.
Disabled	Shows whether the Alarm Pattern has been disabled.
Device Name	The Devicename attribute that is part of the alarm criteria for this Alarm Pattern.
Name	The name of the signal that is part of the alarm criteria for this Alarm Pattern
Base	The Base section of the signal name that is part of the alarm criteria for this Alarm Pattern
Extension	The Extension section of the signal name that is part of the alarm criteria for this Alarm Pattern
Attribute	The Attribute section of the signal name that is part of the alarm criteria for this Alarm Pattern
Condition	The alarm condition that is part of the alarm criteria for this Alarm Pattern
Access Area	The Access Area (accessarea attribute) of the alarm that is part of the criteria for this Alarm Pattern
Plant Area	The Plant Area (plantarea attribute) of the alarm that is part of the alarm criteria for this Alarm Pattern
Status	The alarm Status that is part of the alarm criteria for this Alarm Pattern

Messaging Tables List

**4.1.7 Response Action Groups Table**

Selection of this table displays configured Action Groups in the Object List. The attributes displayed will be: -

Attribute Name	Description
Name	The name of the Action Group
Description	An optional textual description of the Action Group
Disabled	Shows whether the Action Group has been disabled

**4.1.8 Response Action Table**

This table displays configured Actions in the Object List. The attributes will be: -

Attribute Name	Description
Name	The name of the Action
Description	An optional textual description of the Action Group
Delay	The amount of time to wait before sending and re-sending messages
Repeat	The number of times to repeat an action (-1 = forever, or until the alarm is acknowledged)
Next Action	The name of the Next Action (if escalation has been configured)
Alarm Action Group	The Action Group to which this Action belongs
Recipient Group	The Recipient Group referenced by this Action

**4.1.9 Alarm Summary Table**

This table displays the alarms currently raised and active (i.e. uncleared) within the OpenEnterprise database.

Attribute Name	Description
Name	The name of the alarm - usually it is the name of the signal that went into alarm
Cleared	Shows whether the alarm has been cleared
Acknowledged	Shows whether the alarm has been acknowledged
Call Out Area	The Call Out Area of the alarm
Occurrence Time	The time that the alarm was entered into the Alarm Summary table

**4.1.10 Mail Format Table**

If this table is selected, the Object List is populated with configured Mail Formats. The attributes displayed will be: -

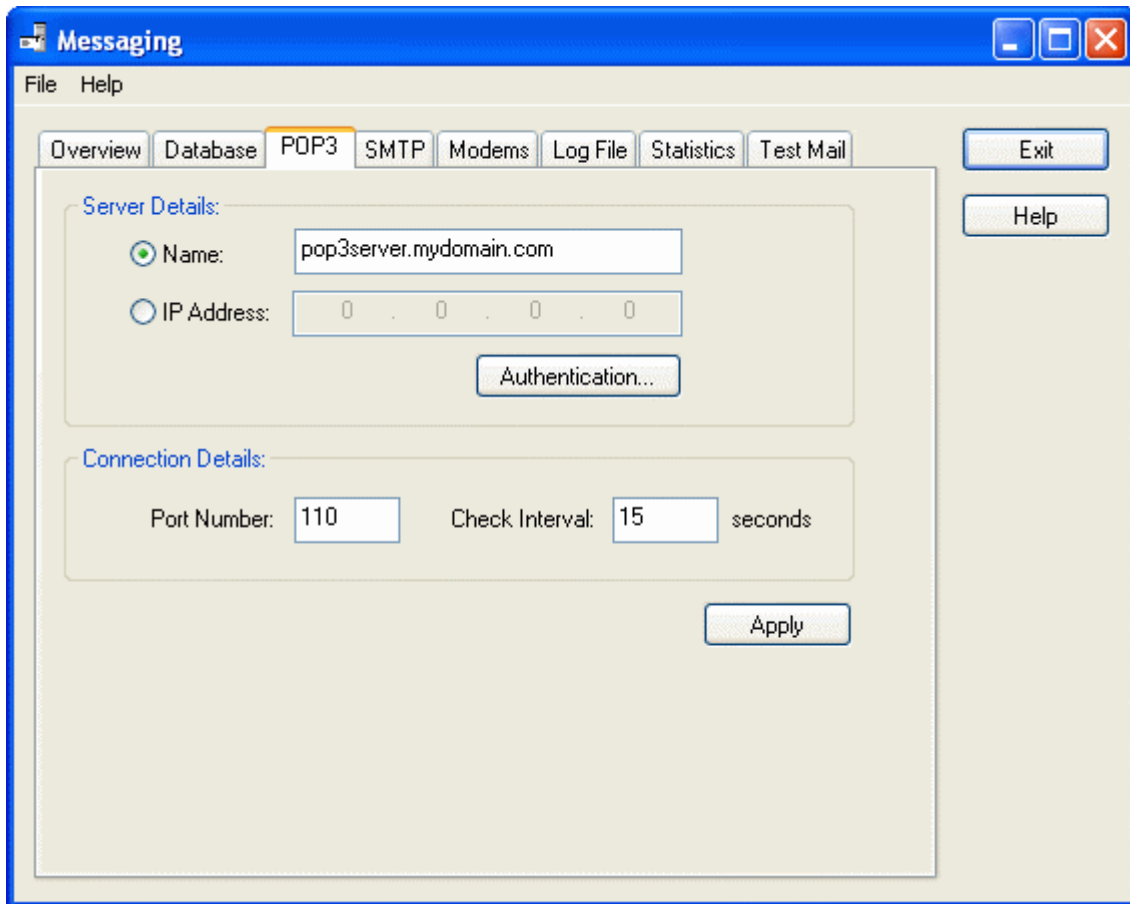
Attribute Name	Description
Name	The name of the Mail Format
Subject	Shows the text that has been configured to go into the Subject part of the message. Elements within chevrons (e.g. <description> refer to attributes taken from the Alarm Summary table for the alarm that meets the criteria of the Alarm Pattern
Body	The actual message that will be sent in the email. Again, aliases can be specified within the chevrons to be taken from the actual alarm as part of the message

**4.2 Messaging Objects List**

Every time a new table is selected from the Messaging Tables List, the objects in that table are shown here. Different attributes of the objects will be shown, depending on what type of objects they are. To see a full list of the tables and the attributes that will be displayed here see the Messaging Tables List page.

**5 POP3 Tab**

This tab enables the user to designate a **POP3** server for receiving OpenEnterprise Messaging Recipient responses.



### 5.1 POP3 Server Name

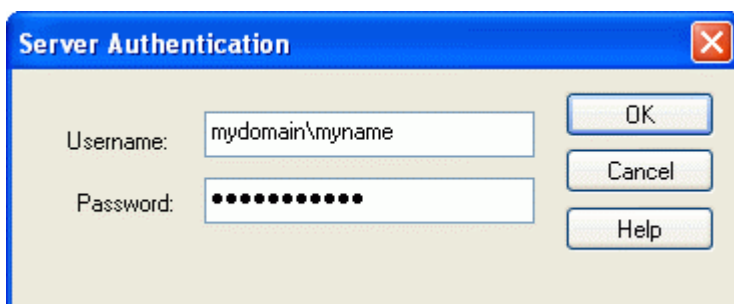
This is the name of the designated POP3 server as it is known to the Messaging Server. You can choose to identify the POP3 server by its network name or by its IP address. The Server Name check button is selected by default. To identify it by its IP address, select the 'IP Address' button.

### 5.2 POP3 Server IP Address

If the network name of the POP3 server is unknown, it can be accessed by typing its IP address in here. You can choose to identify the POP3 server by its network name or by its IP address. The Server Name check button is selected by default. To identify it by its IP address, select the 'IP Address' button.

### 5.3 POP3 Authentication Dialog

This dialog enables you to specify your user name and password for verification by your chosen POP3 mail server.



### 5.3.1 POP3 User Name

Type a valid POP3 Server user name in here.

### 5.3.2 POP3 Password

Type the password for the POP3 server user here.

### 5.4 POP3 Port Number

Type the TCP/IP port number used by the POP3 server for receiving email. The default is port number 25.

### 5.5 POP3 Check Interval

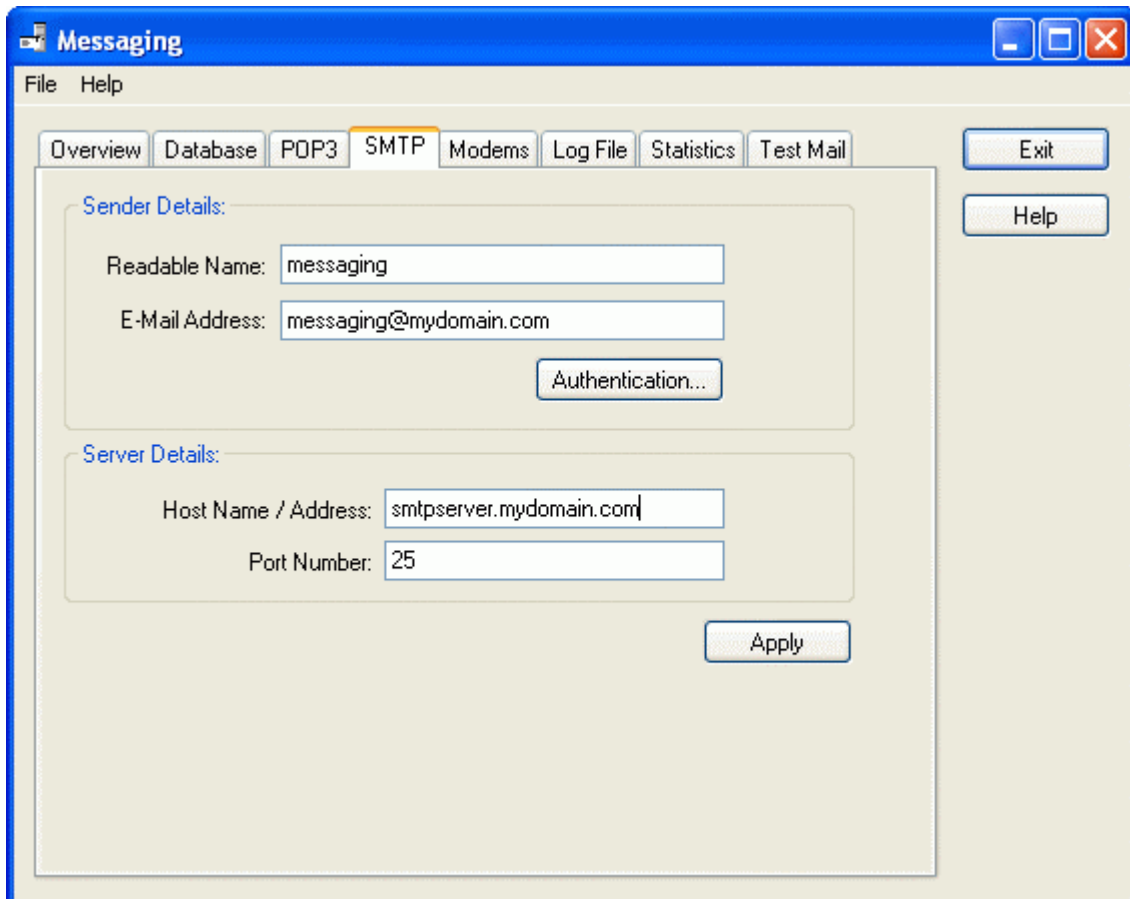
Type the number of seconds which should elapse between successive connections made by the Messaging Server to the POP3 server to check for email responses from Recipients.

### 5.6 Apply

**Important:** The settings entered on this page will only be applied to the database if you click this button.

## 6 SMTP Tab

This tab enables the user to set up the designated SMTP server for sending OpenEnterprise Alarm Messages.



## 6.1 Readable Name

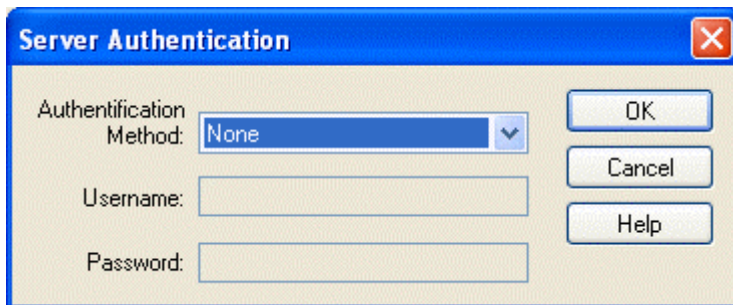
The readable name of the designated email user from the Mail Server whose account will be used to send OpenEnterprise Alarm Messaging. It can be any existing user with an account on the Mail Server, or a special OpenEnterprise Alarm Messaging user account could be opened by the administrator.

## 6.2 E-Mail Address

This is the email address which will be used to send messages by the OpenEnterprise Messaging Server. It must exist on the designated Mail Server.

## 6.3 Authentication Dialog

This dialog enables you to configure an authentication method, if your chosen mail server requires one.



### 6.3.1 Authentication Method List

This is a drop-down list of authentication methods used by Mail Servers. Select the appropriate one. There are four entries in this list: -

#### 6.3.1.1 None

No authentication will be required. As long as the email account is genuine, messages will be sent.

#### 6.3.1.2 CRAM MD5

This requires a User Name and Password, which must be typed into the relevant fields of the Authentication Dialog.

#### 6.3.1.3 LOGIN

This requires a User Name and Password, which must be typed into the relevant fields of the Authentication Dialog.

#### 6.3.1.4 PLAIN

This requires a User Name and Password, which must be typed into the relevant fields of the Authentication Dialog.

Authentication Dialog

### 6.3.2 User Name

If an Authentication method is being used, the User Name must be typed into this field. It must match the user name of the email account being used to send messages. If None is specified, this field is disabled.

### 6.3.3 Password

If an Authentication method is being used, the password for the user must be entered here. As usual, the Password is case sensitive. If None is specified, this field is disabled.

### 6.4 Host Name - Address

This is the Host name of the chosen Mail Server. It would normally be the name of the Mail Server for the company where the OpenEnterprise project has been installed.

### 6.5 Port Number

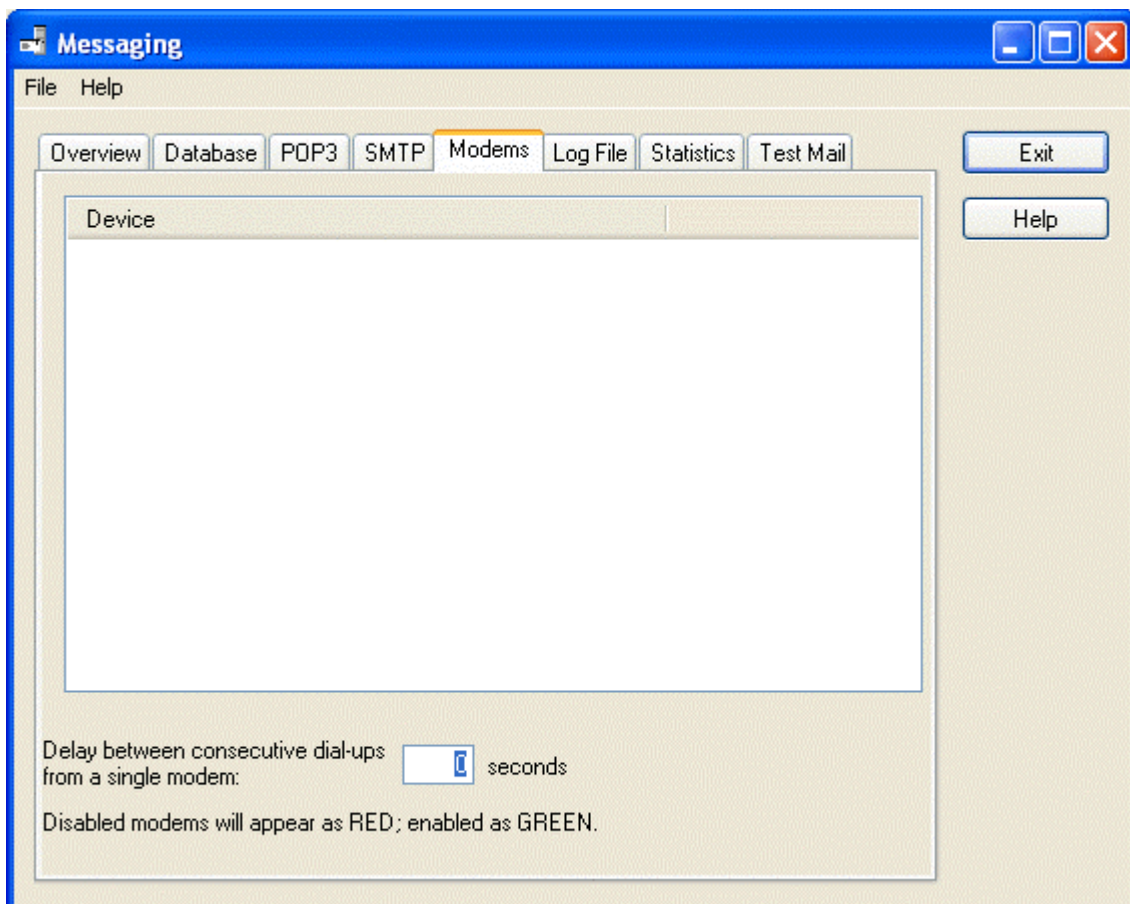
The port number used by the Mail Server to send email messages. The default is port number 25.

### 6.6 Apply

**Important:** The settings entered on this page will only be applied to the database if you click this button.

## 7 Modems Tab

This tab displays the Modems connected to the OpenEnterprise Server, and allows the user to set a Dial-up delay.



### 7.1 Device List

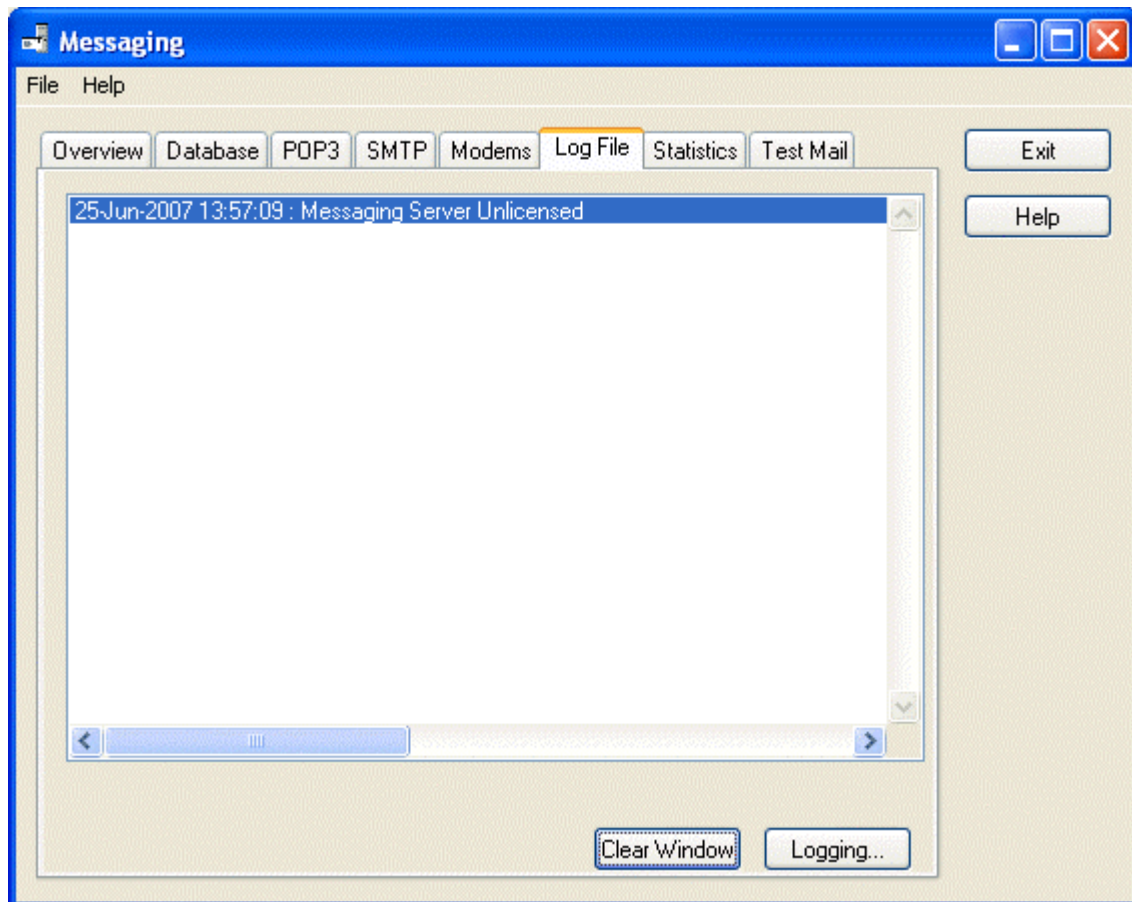
This list displays any Modems available to the host computer.

## 7.2 Dial-up Delay

Provides a delay period (in seconds), that the Messaging Server will use before sending messages in the event that it finds a match between alarms and Alarm Pattern criteria. This delay will come after any delay period set up within the Action object.

## 8 Log File Tab

The Log File tab displays entries in the Messaging Server's Log File.



### 8.1 Log Entry List

Displays the list of actions performed by the Messaging Server since it was started, complete with any error messages.

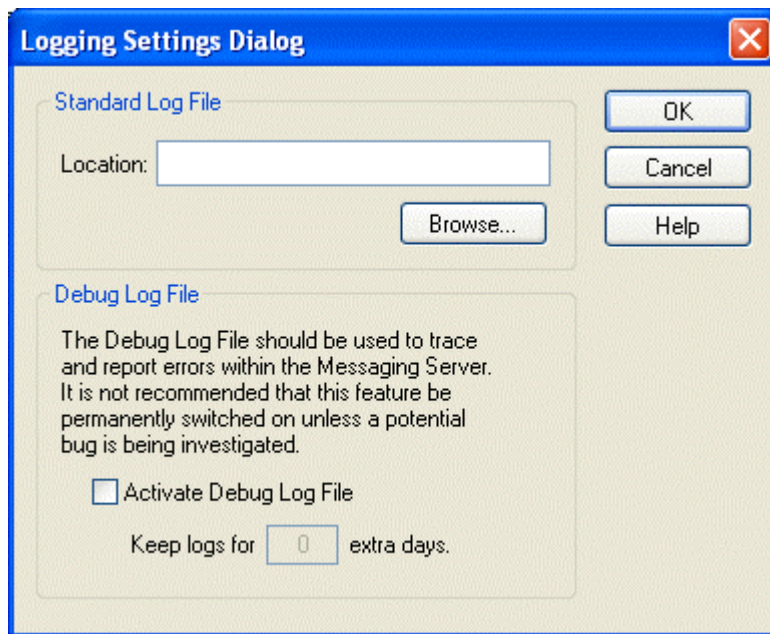
### 8.2 Clear Window Button

When selected, the contents of the Log Entry List will be cleared.

### 8.3 Logging Settings Dialog

This dialog enables you to configure the Messaging Server's Log and Debug Log files.





### 8.3.1 Location

This text box specifies a desired location for the Messaging Server's Log File. The Log file records the Messaging Server's actions and error messages. The default location is the root directory (i.e. C:\). Log files will be saved in the default location unless another location is configured here.

### 8.3.2 Browse Button

Selection of this button opens a directory browser dialog, which enables you to set a new location for the Log file.

### 8.3.3 Activate Debug Logfile

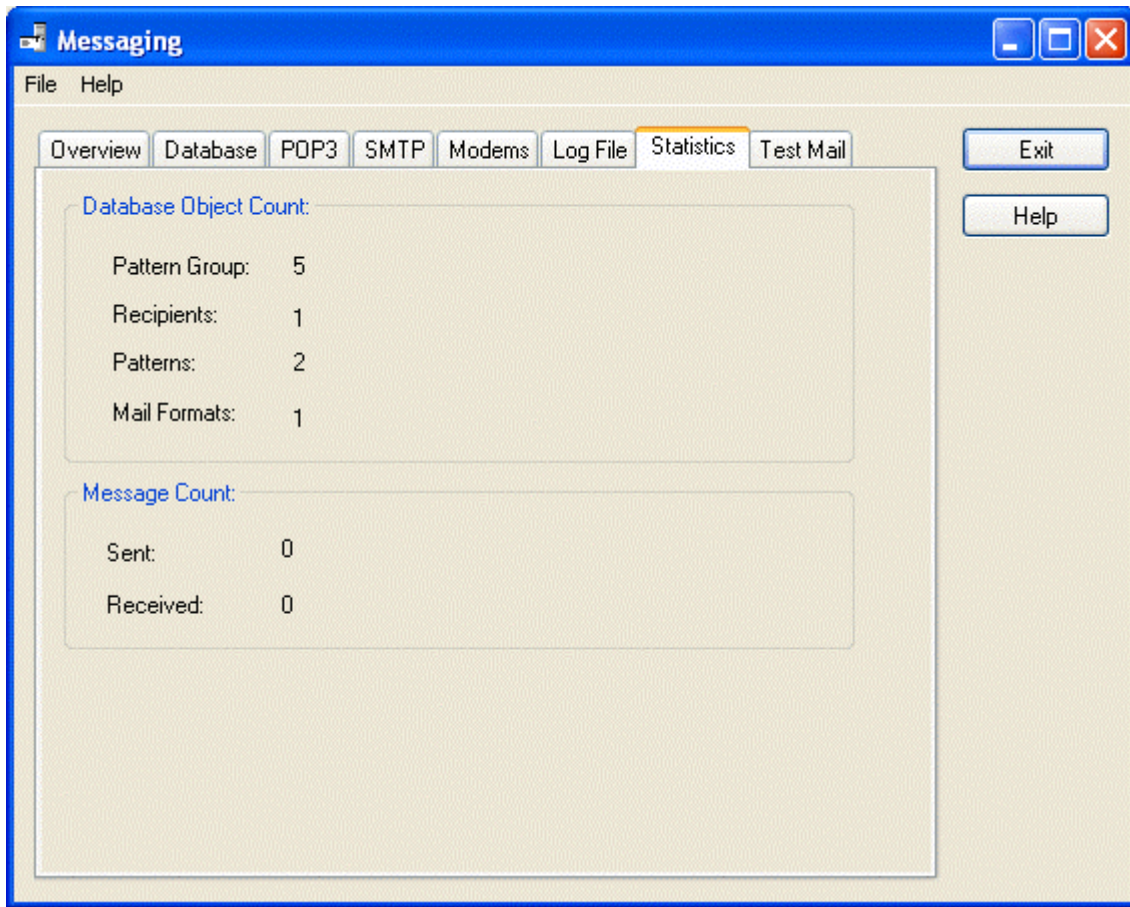
As well as the normal Log file, the Messaging Server is able to output a Debug Logfile, that records the inner workings of the code within it, providing useful information when debugging any problems. This feature can be activated by checking this box.

### 8.3.4 Keep Logs for Extra Days

Normally, the Messaging Server writes one Debug file per day, when enabled, and starts deleting the oldest file after one week. This can be changed, so that files are left for a longer period before deletion. The number of extra days to keep the Log files before beginning deletion of the oldest one can be specified in this field.

## 9 Statistics Tab

The Statistics tab enables users to quickly view current Messaging configuration statistics.



### 9.1 Number of Pattern Groups

The number of Messaging Pattern Groups currently configured. Pattern Groups contain Alarm Patterns, which define the conditions under which alarm mail messages will be sent.

### 9.2 Number of Recipients

The number of recipients currently configured to receive email based on alarm activity.

### 9.3 Number of Patterns

The number of Alarm Patterns currently configured. The Messaging Server examines alarms on the system, and when a match is found with an Alarm Pattern, email is sent to the designated recipients. Recipients who are allowed to may need to respond by returning the email with an acknowledgement based on a predefined key code.

### 9.4 Number of Mail Formats

The number of email message formats currently defined. Mail formats are templates used to compose the email messages that will be sent to recipients.

### 9.5 Messages Sent

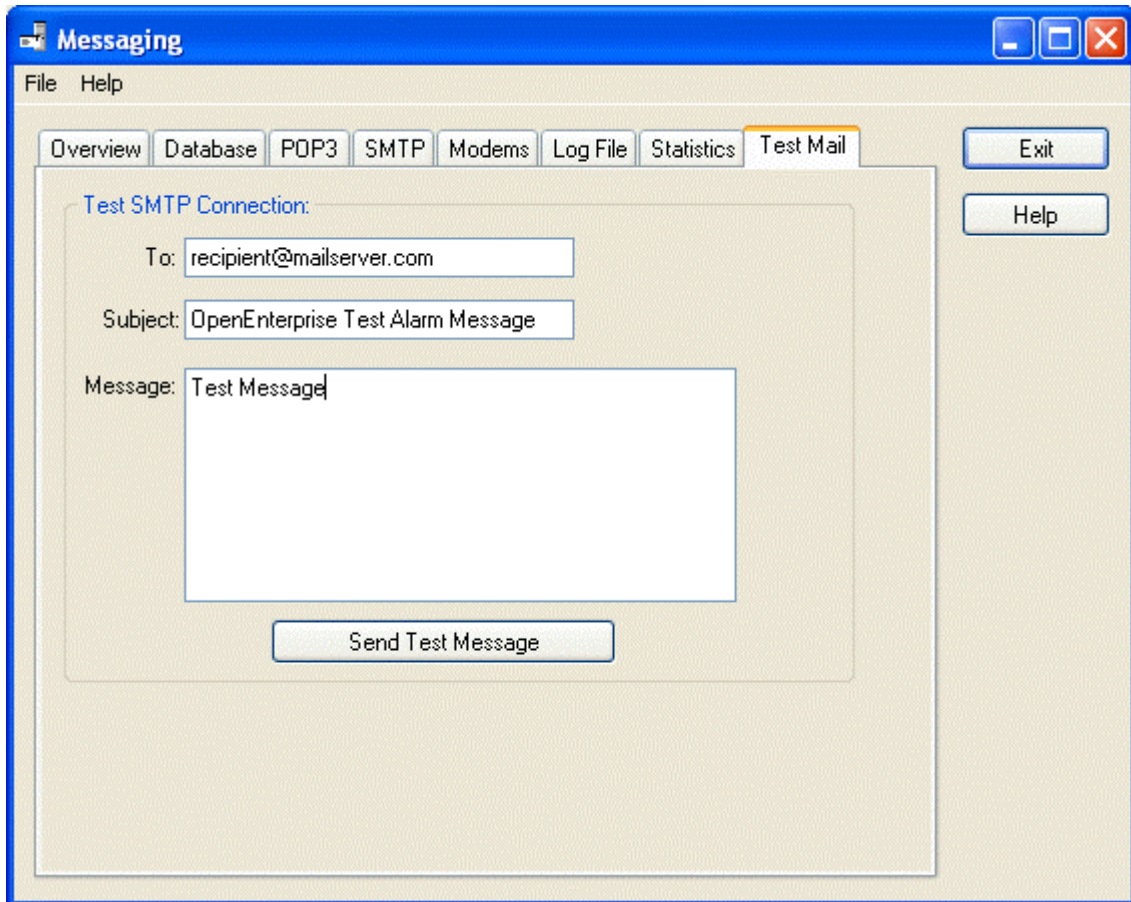
The total number of alarm email messages currently sent by the Messaging Server.

## 9.6 Messages Received

The number of responses to alarm email received by the Messaging Server to date.

## 10 Test Mail Tab

The Test Mail tab enables the user to test the email set-up configured on the **SMTP** page by sending a test email message.



### 10.1 To:

The email address of the person to whom the email message will be sent.

### 10.2 Subject:

The subject of the message may be typed in here. Any text will do.

### 10.3 Message:

The main body of the message goes here. Type in any text.

### 10.4 Send Test Message Button

When you select this button, the Messaging Server will attempt to send the email via the **SMTP** server configured on the SMTP Tab. A message will inform you if there is an error sending the email.

## 11 Glossary

**HMI:** Human Machine Interface. Basically, the data that is presented to the Control room operator from the processing plant. This consists typically of graphical displays that mimic the processing plant. It will also usually include trend displays that show a signal's value over a period of time and an Alarm View display that enables the operator to see and acknowledge alarms. The OpenEnterprise HMI utilizes these and many other ways of presenting data to the user.

**IP:** An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address.

**OPC:** Object linking and embedding for Process Control applications. A set of seven open standards for connectivity and interoperability of industrial automation and the enterprise systems.

**POP3:** Version 3 of the Post Office Protocol. POP3 allows a client computer to retrieve electronic mail from a POP3 server via a (temporary) TCP/IP or other connection. It does not provide for sending mail, which is assumed to be done via SMTP or some other method.

**RDI:** Remote Device Interface. The OpenEnterprise driver and the related tables that provide an interface to a remote device for data collection.

**RTU:** Remote Telemetry Unit. A device which interfaces objects in the physical world to a SCADA system by transmitting telemetry data to the system and/or altering the state of connected objects based on control messages received from the system.

**SCADA:** Supervisory Control and Data Acquisition system. Standard systems include a processing plant connected to data collection devices, communication systems to transmit the data back to a Control room Server database, and Workstations which display the data.

**SMTP:** Short for Simple Mail Transfer Protocol, a protocol for sending e-mail messages between servers. Most e-mail systems that send mail over the Internet use SMTP to send messages from one server to another; the messages can then be retrieved with an e-mail client using either POP or IMAP. In addition, SMTP is generally used to send messages from a mail client to a mail server. This is why you need to specify both the POP or IMAP server and the SMTP server when you configure your e-mail application.

## 12 Index

### A

Activate Debug Logfile ..... 17  
Address ..... 14  
Authentication Dialog ..... 13  
Authentication Method List..... 13

### B

Browse Button..... 17

### C

Check Alarms on Startup ..... 7  
Clear Window Button ..... 16  
Connected..... 7

### D

Database Name ..... 6  
Database Tab..... 7  
Device List..... 15  
Dialup Delay..... 15

### E

E-Mail Address..... 13

### H

Host Name ..... 14

### K

Keep Logs ..... 17

### L

License..... 7  
Location..... 17

Log Entry List..... 16  
Log File Tab..... 15  
Logging ..... 16

### M

Modems Tab..... 14

### O

Object List..... 11  
Overview Tab..... 6

### P

Password ..... 14  
Port Number..... 14

### R

Readable Name..... 13

### S

Send Test Message Button ..... 19  
Server Overview ..... 4  
SMTP Tab..... 12  
Subject..... 19

### T

Table List ..... 8  
Test Mail Tab..... 19

### U

User Name..... 14



## Reference Guide

D301500X412

April 2012

---

### DISCLAIMER

Bristol, Inc., Bristol Babcock Ltd, Bristol Canada, BBI SA de CV and the Flow Computer Division, are wholly owned subsidiaries of Emerson Electric Co. doing business as Remote Automation Solutions ("RAS"), a division of Emerson Process Management. ROC, FloBoss, ROCLINK, Bristol, Bristol Babcock, ControlWave, TeleFlow and Helicoid are trademarks of RAS. AMS, PlantWeb and the PlantWeb logo are marks of Emerson Electric Co. The Emerson logo is a trademark and service mark of the Emerson Electric Co. All other marks are property of their respective owners.

The contents of this publication are presented for informational purposes only. While every effort has been made to ensure informational accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. RAS reserves the right to modify or improve the designs or specifications of such products at any time without notice. All sales are governed by RAS' terms and conditions which are available upon request. RAS does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any RAS product remains solely with the purchaser and end-user.

Engineered and supported by:

Remote Automation Solutions,

Blackpole Road, Worcester, WR3 8YB, UK

Registered office: Meridian East, Leicester, LE19 1UX

Registered in England and Wales, Registration No. 00671801

VAT Reg No. GB 705 353 652

**Emerson Process Management**  
**Remote Automation Solutions**  
1100 Buckingham St  
Watertown, CT 06795  
T 1 (860) 945 2200  
F 1 (860) 945 2278  
[www.EmersonProcess.com/Remote](http://www.EmersonProcess.com/Remote)  
[binfo@EmersonProcess.com](mailto:binfo@EmersonProcess.com)

**Emerson Process Management**  
**Remote Automation Solutions**  
Blackpole Road  
Worcester, WR3 8YB  
T 44 (0) 1905 856848  
F 44 (0) 1905 856930  
[www.EmersonProcess.com/Remote](http://www.EmersonProcess.com/Remote)  
[oedsupport@EmersonProcess.com](mailto:oedsupport@EmersonProcess.com)

