Message Manager Configuration Guide: Foreseer 6.3

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Message Manager

Background: Channels, States, and Alarms

A Foreseer system has four types of channels: analog, digital, date/time, and text. Every channel has both a value and a state associated with it. A channel's value depends on the channel type:

- analog - a floating point number

- digital - true or false

- date/time - a calendar date and time

- text - a text string

All channels may also have a special value called No Value. No Value means that the channel cannot report a value, which may mean that the device is offline or a derived channel has no associated equation.

A channel may be in one of eight states:

- No Data

- Disabled

- Disarmed

- Delayed

- Critical

- Cautionary

- Acknowledged

- Normal.

The possible states a channel may be in depend on the properties for that channel.

All of the channel types except Text may have alarms enabled. Of the eight states, five of them are alarm states and a channel may only enter alarm states if it has alarms enabled in its properties. The five alarm states are:

- Disarmed

- Delayed

- Critical

- Cautionary

- Acknowledged

A Delayed alarm state may only be entered if the channel has an alarm delay associated with it. While in the Delayed state, a channel is considered Normal until the delay expires. A Disarmed channel is a channel that has alarm processing temporarily suspended during the disarm period.

Notifications

Of the five alarm states, four of them can trigger notifications:

- Critical

- Cautionary

- Acknowledged

- Normal

If notifications are enabled for a channel, when it enters into a notifiable alarm state a notification message is sent. The type of notification message sent depends on how the Message Manager is configured.

A Normal state means that the channel is reporting data and, if alarms are enabled, that the channel is not in an alarm state. A channel that does not have alarms enabled will always be in the Normal state as long as it has a value to report.

Note: In terms of notification, we are referring to a return to Normal from an alarm state. The Acknowledged and Normal states only apply after a channel has entered the Critical or Cautionary states.

Message Management

Notification messages are set up through the Message Manager. The Message Manager can use a number of services to send notifications. The built-in services that are common to the client and the server are:

- Numeric Paging

- Alpha (or text) Paging

- COM port output

- Printer output

- Email

- SNMP traps

- a generic Command Line service

The server currently has three additional services:

- An ASCII text interface over TCP (the North-bound interface)

- An AT&T protocol called TABS

- An HTML 1.0 interface

The generic command line service may be used if a specific type of interface is required but not currently supported. The Command Line interface will invoke an executable program, supplied by the customer, that accepts command line arguments which provide detailed information about the specific alarm. The command line program may then invoke any type of notification service to which it has access. The command line arguments that may be passed to the program are configurable through the message management system.

Message Manager Interface

Message Management setup has six tabbed property sheets associated with it. There is an implied left to right dependency on the tabs.

Modems

The Numeric and Alpha Paging services both require a modem to connect to their service, the rest of the services do not.

Services

This tab is the initial setup of the type of service that will used to implement notification. Each type of service has different options associated with it. For example, the Email service will require you to enter information about the Email server while the Printer service will require you to select a specific printer.

Subscribers

A subscriber is the destination of the notification message. In the case of the Email service, it will be a specific Email address. For an alpha page, it will be a phone number and PIN. A subscriber has a associated list of available times. Each available time may have a different associated service. For example, during business hours you may want a subscriber named "Fred" to be notified by sending an Email message to his cell phone. When Fred goes home, he may live in an area that doesn't have adequate cell phone reception. Therefore after business hours you may wish to have him notified using an alpha pager service. In this case the first available time entry would be from 8:00am to 5:00pm (Monday thru Friday) using the Email service. The second available time entry would be Saturday thru Sunday on "off" hours and would use an Alpha paging service.

Notification Lists

A notification list is a group of subscribers that will be notified when a notifiable event occurs. A notification list is made up of a list of subscribers, the order that they will be notified, and an optional delay time between notifications. The delay time allows for an escalation process. If two subscribers are to be notified and the delay between subscriber 1 and subscriber 2 is set to 15 minutes, subscriber 2 will only be notified if the notifiable event has not cleared within the delay period. To put it another way, the event will be escalated to subscriber 2 if the event has not been taken care of within 15 minutes.

Channel Message Settings

Channel Message Settings is where a notification list is assigned to a channel. Any channel may have one and only one notification list associated with it. If this channel enters a notifiable state, the associated notification list will be processed. This tab shows a list of all channels that are available. You may edit a channel individually or select a group of channels to edit at the same time. When you edit a channel, you have the option of assigning a notification list to any (or all of) the four notifiable states: Critical, Caution, Acknowledged, and Normal. Although a channel may enter any of these states, you have the option of which ones to notify on. For each of the states, you may select any of the notification lists that have been setup. Once a notification list has been selected for a state, you also have the option of configuring the details of the notification message that is sent. For example, when an Email or an Alpha page is sent, you may optionally include the server name, the device name, and the channel name in the message. Depending on the different services that are to be used in a notification list, you have many options to customize the notification message that is sent.

Default Notification

When a channel that has Default Notification enabled enters a notifiable state, the containing device is checked. If it has been setup for Default Notification, then its notification lists will be used. If not, then the containing server is checked. If the server has been setup for Default Notification, then its lists will be used. Last, the All Servers list will be checked and used if enabled. Each channel still has the option of not using notification, of using notification that is unique for that channel or using Default Notification.

If all channels that enter a notifiable state will use the same notification list, assign it at the All Servers level. If a different list will be used for different servers (i.e., the server in Denver will notify the people in Denver), assign it at the server level. If all UPSs will notify the same group of people, assign the lists at the device level to all of the UPS devices. If you want a combination such as:

- the Denver server will notify people in Denver

- the Atlanta server will notify people in Atlanta

- the NOC people will be notified in either case

then create separate lists for Denver and Atlanta that both include the NOC people and assign them at the server level - the Denver list to the Denver server and the Atlanta list to the Atlanta server.

A Default Notification object is considered to be set up if any state has a notification list assigned or an SNMP Trap enabled. If Default Notification is enabled, the Default Notification list being used will be in the column named Default Notify List. A Default Notification Object (DNO) is identified by either <*All Servers>, <ServerName>, or <ServerName><DeviceName>.

When a new device is installed, select the channels that will notify (must have alarms enabled), and either assign the Notification Lists (and their messages) to be used for each channel or select Use Default Notify List from the Default tab. When Default Notification is enabled, the DNO that will be used shows in the Default Notify List column.

The Default Notify List column updates automatically as the lists are changed. If the DNO that will be used is the new device, and it hasn't been set up yet, then either <*All Servers> or <ServerName> will show in the column. If the device DNO is then set up, when you exit the DNO setup, the column for each of its channels will update autoatically to now show <ServerName><New DeviceName>. The Notify lists and SNMP Traps that were set up in the DNO will show in the channel's columns, as if it had been set up. Any change in the DNO will always update the channels using it, as soon as OK has been selected for the DNO edit. When Use Default Lists is checked, the remaining state level tabs and the SNMP tab will disappear.

If a channel that had been using Default Notify is edited and Use Default Lists has been unchecked, the state level tabs will be made visible and will be set to the lists and/or traps that the DNO had been using.

To navigate the list of all channels, any column header can be checked to sort the list by that column.

Overview of Message Manager Configuration

There are several tasks you must complete to configure a redundant Message Manager on a separate machine:

- Configure Notification Services: These are the various services that the Message Manager can use to notify users of alarms. You must set these up before you can create Notification Lists.

- Specify Subscribers: This is the list of persons who will receive notifications from the Message Manager. Notification Lists require both a method for notification (Services) and targets for message (Subcribers).

  Subscribers have "Available Times", and a subscriber can have multiple times that can overlap or run in parallel. Each available time uses a service. For example, from 9:00 to 17:00, a subscriber could use a shift pager, then from 18:00 to 3:00, they could use an email service. The "Available Times" can also be marked as Un-

available (for example, when on vacation). Depending on the service used, there may be additional parameters (i.e. the SMTP service will want an email address). A subscriber can use the same service multiple times (to use different email addresses depending on time of day).

- Configure Notification Lists: These are lists of subscribers, and you can create multiple lists and designate a default list.

- Connecting to Foreseer Servers: You must specify the Foreseer Server to connect to. Once a connection is established, when you save changes to the Message Manager configuration these are reflected in the Foreseer Server.

Also, if you're using an Alpha or Numeric pager, you may need to set up a modem. This is covered in "Setting up Modems" on page 15. At the end of this chapter you'll find information about backing up your configuration settings.

There are also Message Manager tasks that can only be completed on the Foreseer Server or the Device Configuration application. These include:

- Configuring which server, device, or channel alarms trigger alerts in the Message Manager.

- Setting up a list of servers or clients that, if they become disconnected from the Foreseer Server, will cause the Message Manager to alert personnel.

- Specifying global properties for the SNMP service. These govern the message resend behavior.

- Setting up a set of trusted connections, specified by either IP address or machine name, used to identify other machines that are allowed to connect to the Message Manager on the Foreseer Server machine. When configuring a redundant copy of the Message Manager on a separate machine, make sure that you add the redundant Message Manager machine to this list.

See the *Foreseer Server Guide* for these instructions.

Installing a Redundant Message Manager on a Separate Machine

You install the message manager from the Foreseer distribution CD-ROM. The Message manager installation .msi file is located in the Installer folder: `MsgManInstaller.msi`.

To install the Message Manager:

1. Insert the Foreseer Server Application CD into the machine's CD/DVD drive.

2. Select Run in the Windows Start menu.

3. Browse to locate the installation file on the Foreseer Server Application CD, then click OK.

4. In the Eaton Message Manager dialog box, click Next.

5. In the Select Installation Folder dialog box, either select an alternate folder or click Next.

6. In the Confirm Installation dialog box, click Next.

7. When you see the Installation complete dialog box, click Close.

8. Through Windows Explorer, navigate to the `C:\Program Files\Eaton Corporation\Foreseer` (on Windows XP) or `C:\Program Files (x86)\Eaton Corporation\Foreseer` folder.

9. Double click `ServiceSetup.exe`.

10. In the Service Setup dialog box, select Message Manager under Install as a Service.

11. Click OK. You should see a message box confirming installation as a service.

12. Verify that the service has started. You can launch the Services application through Windows Start > Administrative Tools > Services.

Setting up Notification Services

The Services tab defines the various notification services used by Message Management. Services include alpha/numeric paging, Windows Messaging, SMTP protocol to a mail server, printer, output to one of the computer's COM ports, or an additional means of communications controlled through the Windows command prompt.

The following sections detail setup for each service.

Launching the Message Manager Configuration Application

You can either launch the Message Manager configuration app from etiher Windows Start > Foreseer > MsgMan or through Message Manager in the Windows Control Panel.
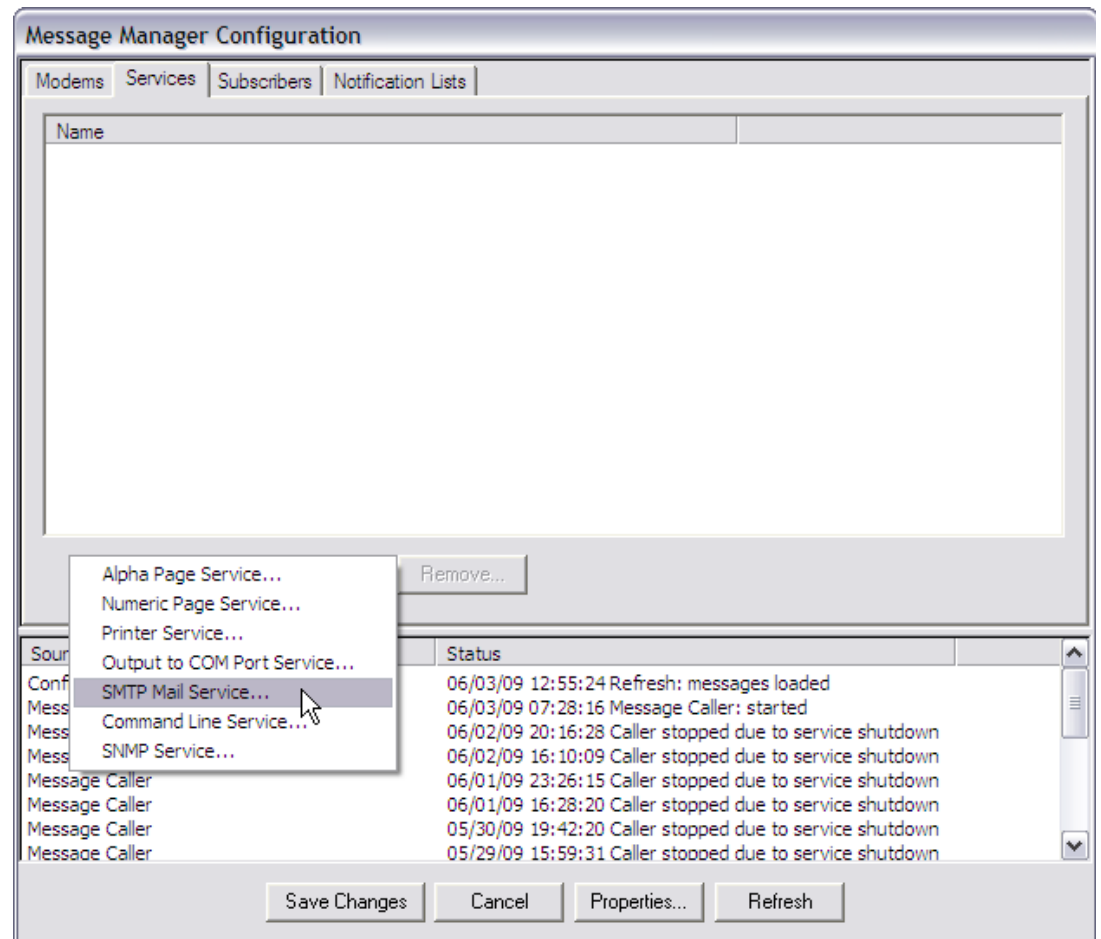
SMTP

SMTP is probably the service that you'll use the most, as it is a common method for connecting to a mail server. To configure it:

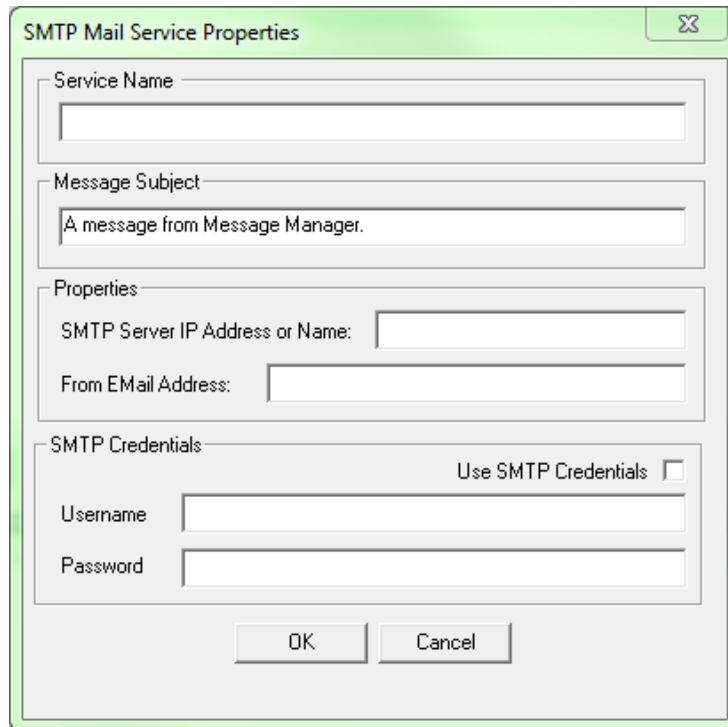1. In the Message Manager configuration application, select the Services tab, then select New.
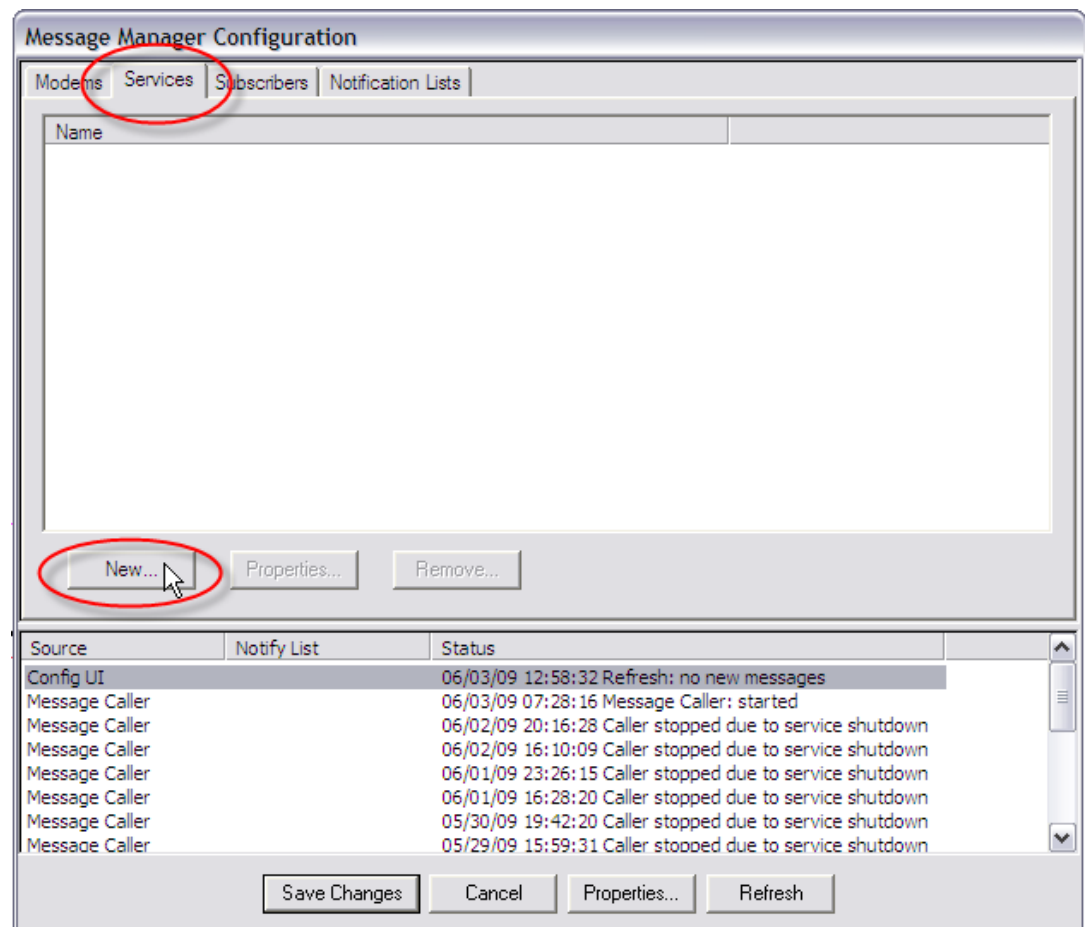
2. Select SMTP Mail Service from the list.

3. A dialog box will open.

    a.   For Service Name, enter any unique identifiable name.

    b.   The subject is the subject of the emails (currently, only one subject used for all emails).

    c.   The SMTP address is the address of your email server.

    d.   The "From" field typically must be an authorized user with a valid password Email servers typically won't accept messages without a valid From field (an anti-spam feature).

    e.   If you must authenticate to the SMTP server, select Use SMTP Credentials and specify the Username and Password.

SMTP Mail Service Properties

Service Name

Message Subject

A message from Message Manager.

Properties

SMTP Server IP Address or Name:

From EMail Address:

SMTP Credentials

Use SMTP Credentials ☐

Username

Password

OK   Cancel

4. Click OK

Alpha Page Service

Refer to the documentation provided by your Alpha Page provider to configure this type of device.

Note: If using a Windows Modem for Alpha Paging functions, it must be configured to 2400 Baud Rate, 7 Data Bits, Even Parity and 1 Stop Bit or communications cannot be established.

Numeric Page Service

Refer to the documentation provided by your Numeric Page provider to configure this type of device. Clicking on the Advanced tab to access those Numeric Paging Properties.

Printer Service

Message Manager can print to one or a set of printers. Use the Printer Service Properties to specify when and how messages are printed.

COM Service

You can direct messages directly to a device attached to a specific COM serial port. Refer to the documenation that accompanied your device to find the serial port setup parameter.

Command Line Service

In most instances where this service is used, it is to direct messages to a mail server via a protocol other than SMTP, such POP3 or IMAP. Foreseer. The "Edit the Command Line" button in Message Management -> Setup on the server (Channel Message Settings) provides a way to pass data to the command line. Pre-defined tokens are available in the Custom Message and Command Line dialogs. These are replaced by their actual value when an alarm occurs.

Note: The token $SERIAL#$ is no longer supported as of 6.2.

SNMP Service

Simple Network Management Protocol (SNMP) provides a framework for communication between various network devices using the UDP protocol. SNMP employs a Manager/Agent model. The Network Management System (NMS) monitors and controls one or more Agents. The Agent, in this case Foreseer, has the ability to asynchronously send alerts, or traps, to specified SNMP Managers to report predefined events.

The Foreseer SNMP Virtual Agent™ allows such messages to be sent from the Message Manager to an NMS to furnish enterprise-wide notification of critical events. By adding the SNMP option, the NMS can monitor critical events occurring within all of the foundation equipment supported by Foreseer.

There are 25 predefined Cautionary and 25 predefined Critical traps available through the Foreseer SNMP Virtual Agent. They may be used to identify unique channels, or they may group channels by category. It is possible to use a single Trap Number multiple times.

SNMP Service Installation

The Microsoft SNMP service must be installed on the machine that also hosts the Message Manager. Trap destinations and community strings are configured using the SNMP service properties. For more information about installing and configuring SNMP in Windows, see http://blogs.technet.com/b/networking/archive/2009/06/25/snmp-traps-in-windows-server.aspx.

After installing the Windows SNMP service, you must next add the SNMP devices to it. All SNMP managers must be added through the Windows SNMP service. After configuring the Windows SNMP service, you must next enable the SNMP service in the Foreseer Message Manager.

To enable the SNMP service in Foreseer:

1. Launch the Message Manager Configuration through Start > All Programs > Foreseer > MsgMan.

2. Click the Services tab.

3. Click New.

4. Choose SNMP Service from the pop-up menu.

5. In the SNMP Service Properties dialog box, click OK. The SNMP Service will appear in the list of services.
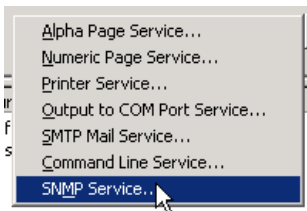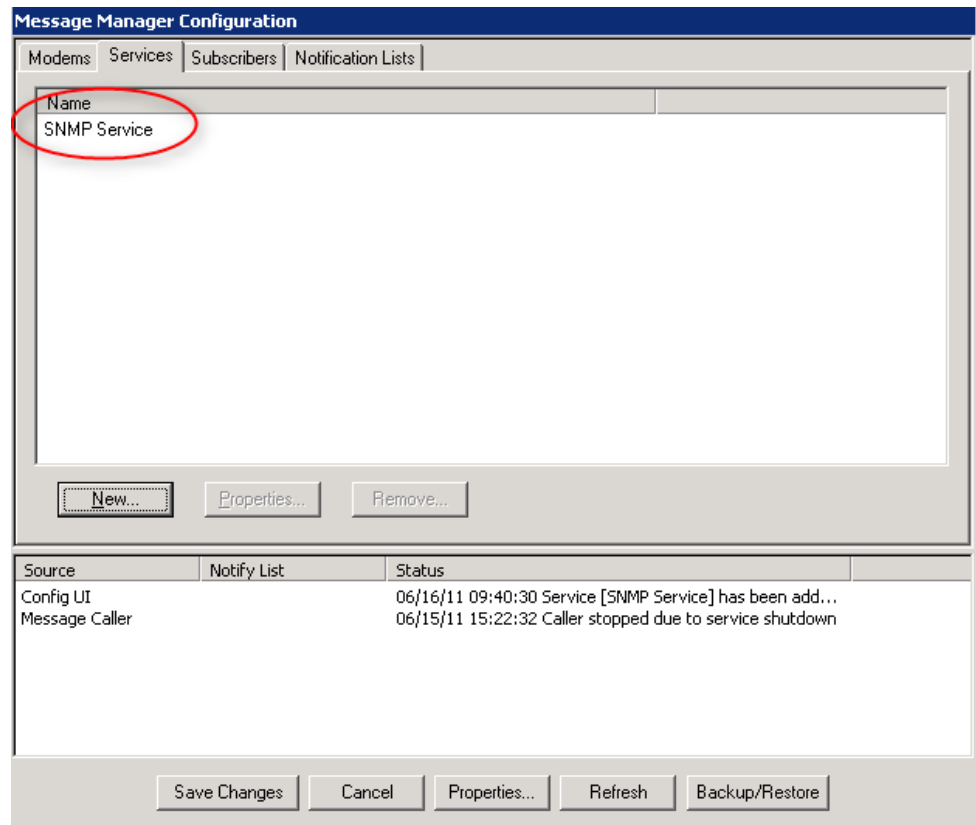
Figure 2.1 The SNMP Service Shown in the Services List

6. Click Save Changes.

Setting up Subscribers

1. Select the Subscribers tab, then select New to add a subscriber.

2. Specify a Name for the subscriber (you'll use this name when adding subscribers to the subscription list).

3. If the subscriber is currently not available (such as during trips or vacation), select Unavailable.
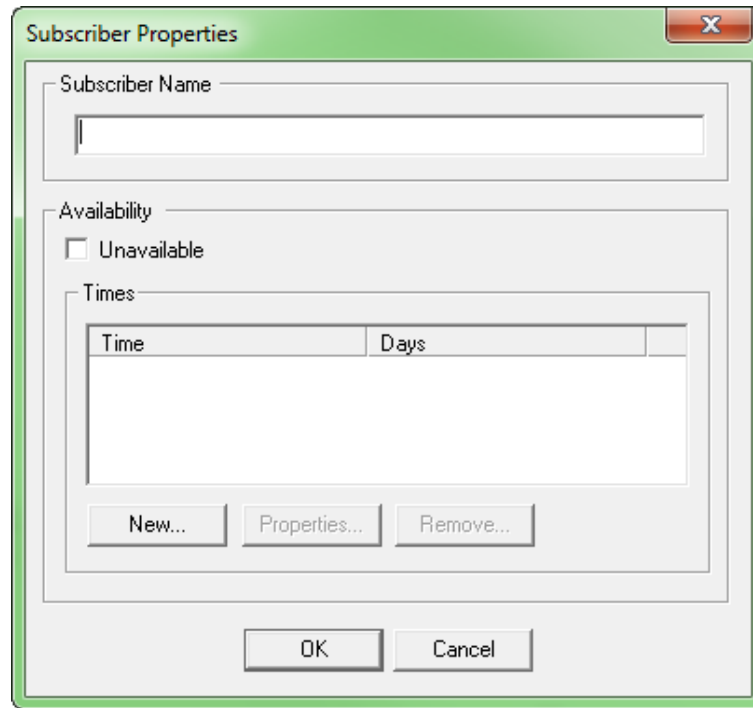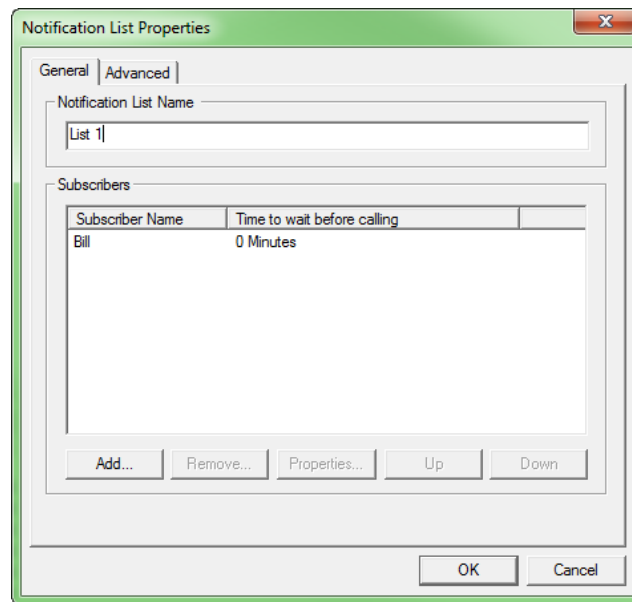
4. Click New. The Available Time Properties window will open. Provide the subscriber's availability information.

    a.   The Subscriber will only be notified during the specified times.

    b.   Any notifications occurring during an unavailable time will not be sent.

5. Select a service.

6. Type in the subscriber's email address if the email service was selected.
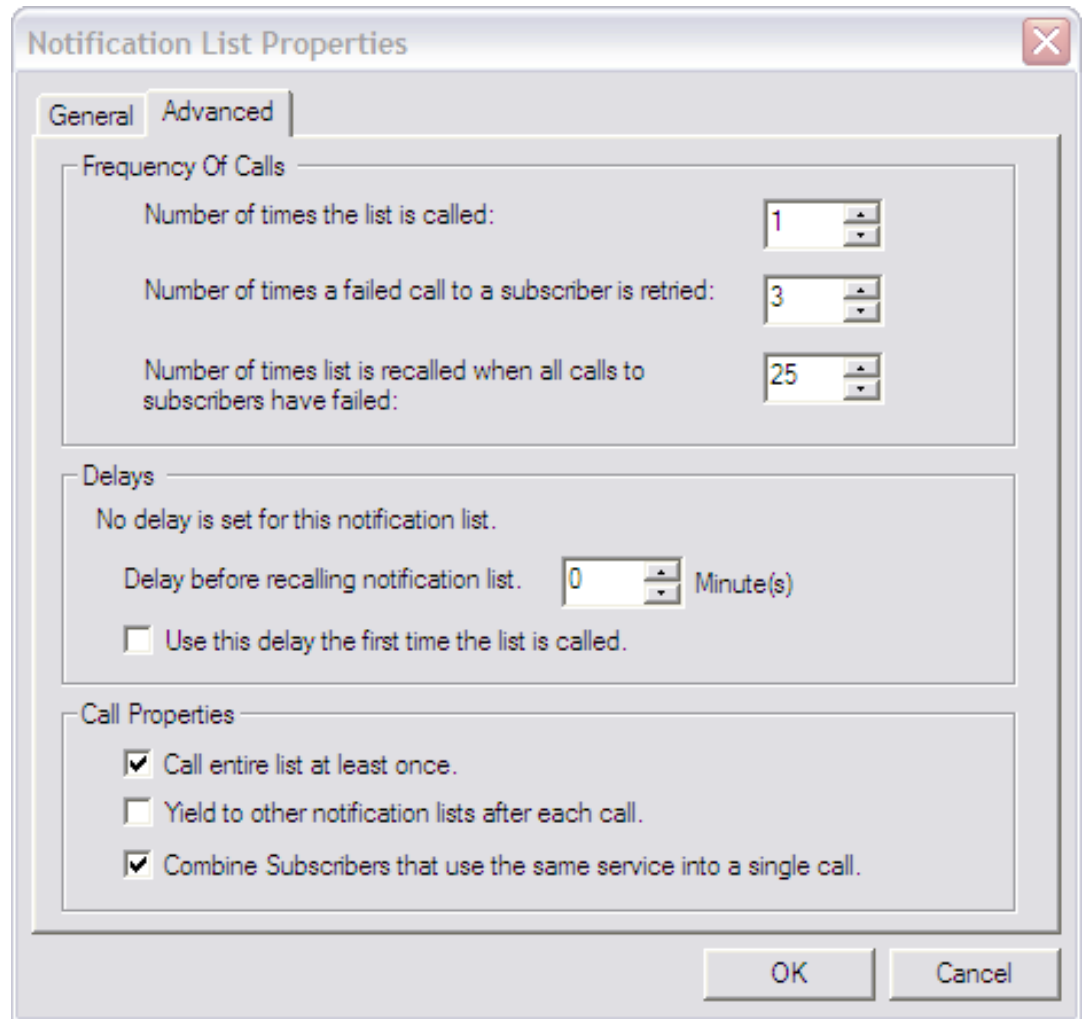
7. Click OK.
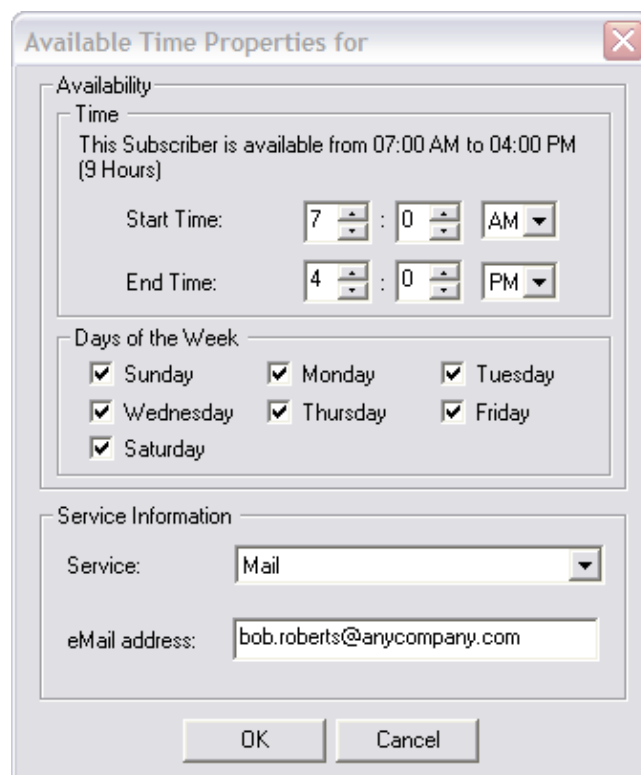
Setting up Notification Lists

1. Select the Notification Lists tab, then select New.

2. Provide a name for the Notification List and select Add.

3. Select all of the Subscribers who are to be included in the List and, with the desired personnel highlighted, press OK to return to the Notification List Properties dialog box. A person's place in the contact queue can be changed by highlighting their Subscriber Name and then moving them Up or Down one position at a time. You can delete individual entries simply by highlighting them and clicking Remove. Click Properties to specify a delay for an individual entry.

4. Click on the Advanced tab.

Notification List Properties

General | Advanced

Frequency Of Calls

Number of times the list is called: `1`

Number of times a failed call to a subscriber is retried: `3`

Number of times list is recalled when all calls to subscribers have failed: `25`

Delays

No delay is set for this notification list.

Delay before recalling notification list. `0` Minute(s)

☐ Use this delay the first time the list is called.

Call Properties

☑ Call entire list at least once.

☐ Yield to other notification lists after each call.

☑ Combine Subscribers that use the same service into a single call.

OK | Cancel

5. Enter the desired Frequency of Calls to specify the number of times the Notification List will be called as well as how many times each individual on the List will be called until a response is received.

6. Specify the Delay to determine how long after an alarm is reported before messaging is initiated on the Notification List. Also designate whether this Delay is observed the first time the List is called.

7. Enable the desired Call Properties to indicate whether to call the entire Notification List regardless of whether a response is received, allow higher priority Lists to take call precedence, and if listed personnel using the same Service should be notified with the same call.

8. Click OK

To verify the configuration from the Notification List tab:

1. Select the Test Call button to open the Test Call window.

2. Enter a sample message and click OK.

3. The status of the message will be displayed in the list at the bottom of the page.

4. Double-click on the Message Caller Source to view the status messages.

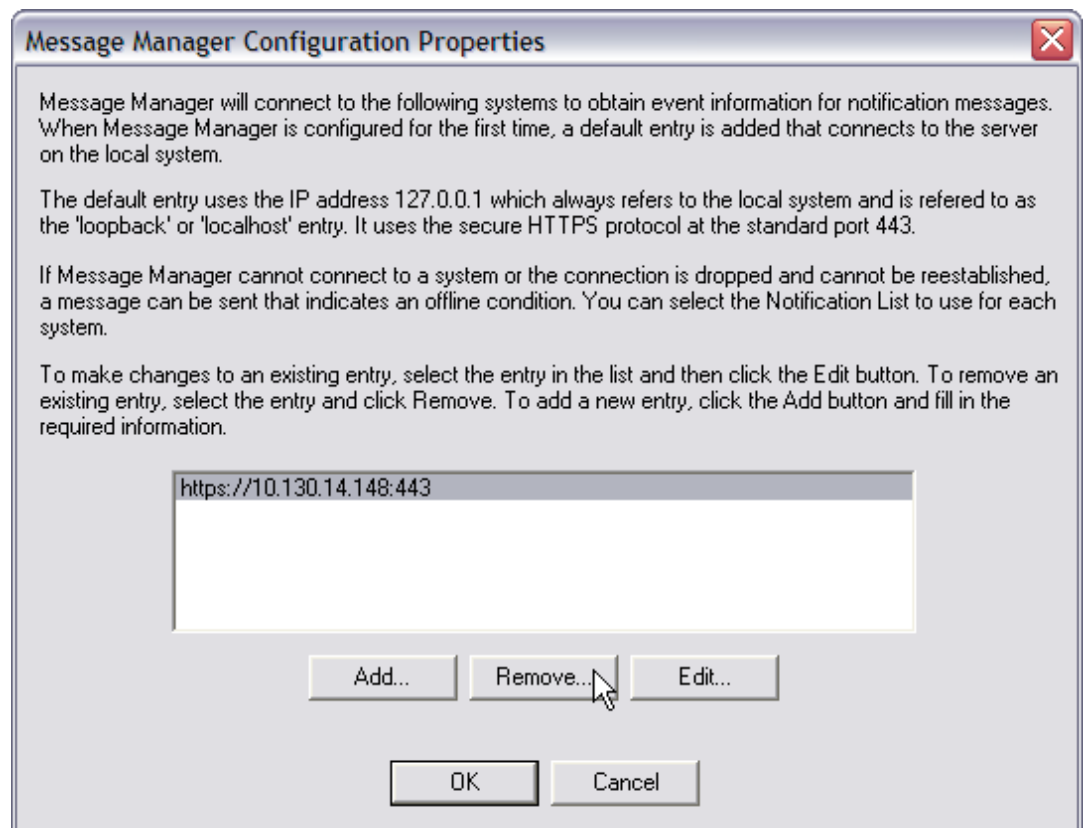## Connecting to a Remote Foreseer Server

The Message Manager is set, by default, to communicate with a Foreseer server running on the local machine. However, you may wish to run the Message Manager on a separate machine and connect via the network to the Foreseer server. This redundant message manager can

To connect the Message Manager service to a remote Foreseer system:

1. Launch the Message Manager configuration utility. The Message Manager Configuration utility can either be launched via the Message Manager selection in the Windows Control Panel, or via Start > All Programs > Foreseer > MsgMan.

2. Click the Properties button in the lower pane of the dialog box.

3. If you don't have the Foreseer Server installed on the local machine, select the following line in the list of servers...

   `https://127.0.0.1:443`

   ...and then click Remove.

4. Click Add to add the address of a remote Foreseer Server.

5. In the Connect to dialog box, you can specify the computer name or IP address of the Foreseer server, as well as the protocol and port number. For added security, the default connection uses HTTPS and port 443 (which is typical for this type of connection). While port 443 is likely already open, a good practice is to check this in your firewall settings.

   If you opt to use HTTP for communications with Foreseer, port 80 is the default. If you must use another port, remember to set this in the Foreseer server as well.
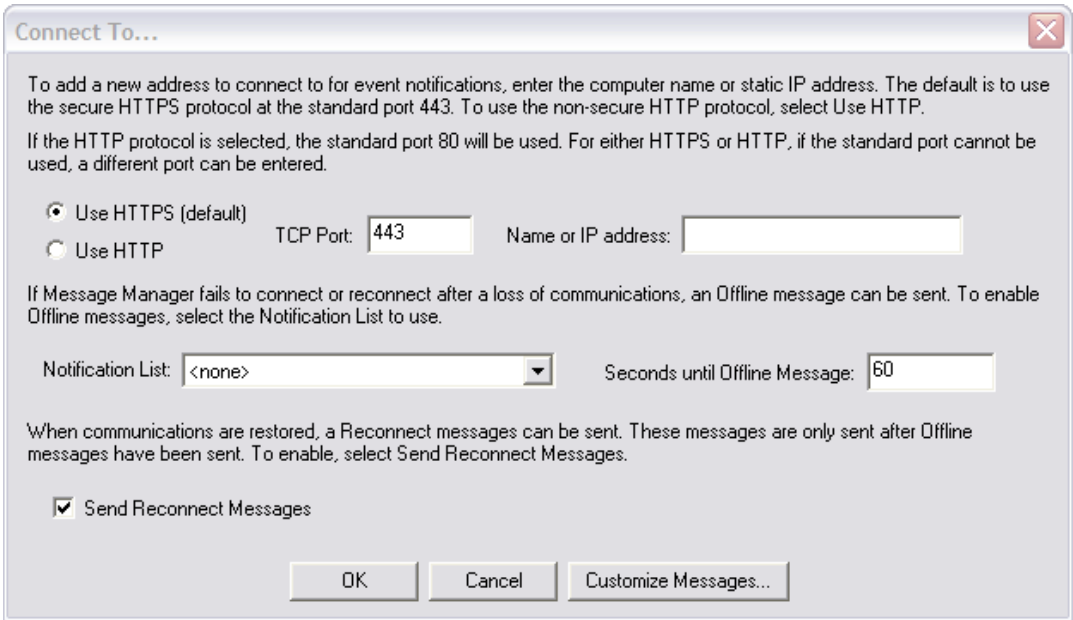
To configure the message sent when the specified computer is offline, click Customize Messages. The variable CONNECT_TO will be replaced with the address of the specified machine and the CURRENT_TIME variable will be replaced with the time that communications was lost.
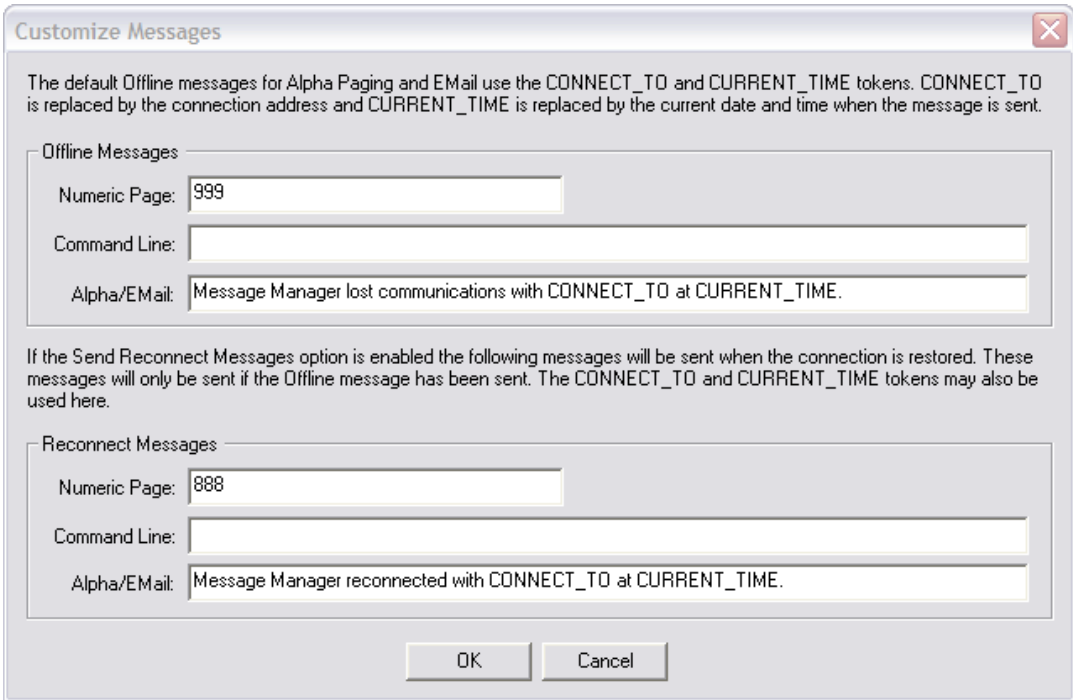
Setting up Modems

Connection to pager services is often via modem, so if you've selected to use a pager service you'll need to configure a modem as well.

To configure a new Modem for use:

1. Click on the Modems tab.

Note: Any modems already configured within Windows can be added by just clicking Add Windows Modems.

2. Click New... and the Modem Properties dialog box is displayed.

3. Enter a unique Name to identify the new Modem.

4. Review the default Connection Settings for the Modem and change them if necessary. These Settings must be correct or Foreseer cannot forward alarm information to your Modem. If you're using a Windows modem for Alpha Paging functions, it must be configured in the Control Panel to 2400 Baud Rate, 7 Data Bits, Even Parity and 1 Stop Bit or communications may not be established. Verify these settings with your pager server provider.

5. Verify the Port setting and change it to the communications Port to which the modem is attached, if necessary.

6. Similarly verify the Baud rate for the device, altering it as required. The Baud rate is available from the device's manual or the paging company. Also review the Data Bit, Parity and Stop Bit settings to ensure that they are correct for the named modem. most alpha paging companies require a Baud Rate of 2400 with 7 Data Bits, Even Parity and 1 Stop Bit.

7. Enter any special Modem Initialization Strings. Typically this setting remains blank. If the modem does not respond with an "OK," refer to its operation manual to determine a Modem Init string (with a maximum of 80 characters) that will work properly.

8. Also enter any required Modem Dial String characters. This setting should only be specified if the Modem Dial String is not "ATDT."


Saving Settings

To save the configuration, always make sure that you click Save Changes. If you exit from the configuration application before doing so, you're changes will be lost.

Backing Up and Restoring Message Manager Settings

After you've successfully configured the Message Manager, it's a good practice to backup the settings.

To save the settings:

1. Click Backup/Restore.

2. Either accept the default location for the backup file or click the browse button to select a folder.
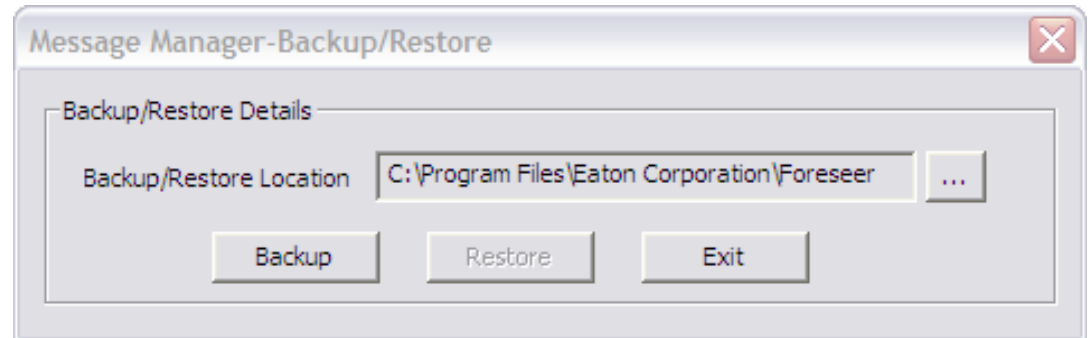
3. Click Backup. A message box will confirm that the settings file was successfully written.

4. Click Exit.

An additional way to copy the current Message Manager setup is to copy the Data folder that is created during Message Manager configuration. This folder contains 2 files: MessageManager.mxm, the configuration, and MessageManagerStatus.sxm, saved status messages

If you are setting up a remote Message Manager, copy the current settings from the local Message Manager. For setting up a remote, just copy the .mxm file.