WaveMail

User guide for WaveMail version 2.00 and higher

SCHUEMPERLIN ENGINEERING AG
August 2004

SCHUEMPERLIN ENGINEERING AG Moosburgstr. 2 CH-8307
EFFRETIKON Switzerland
phone +41 52 355 1660 fax +41 52 355 1666
info@schuemperlin.com
www.schuemperlin.com

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1. Overview

WaveMail is an e-mail software which is optimized for efficient messaging over radio modems, Inmarsat telephones, Thuraya or Iridium phones as well as ordinary telephone modems. WaveMail also allows the use of TCP/IP-connections.

WaveMail lets you create, send/receive and manage messages and binary attachments. Messages can be sent or received to/from other WaveMail stations or to/from the Internet (if the WaveNet Internet Gateway has been installed in your WaveMail network).
Swiss-PTC Pactor modems, Packet Radio modems, satellite phones (Inmarsat, Thuraya, Iridium), any AT-compatible telephone modems or TCP/IP-links can be used to exchange messages between WaveMail stations. Messages can be addressed to several recipients. WaveMail takes care of automatic forwarding.
Every WaveMail station is identified by a Station-ID. The Station-ID is used to address messages and to establish links between stations. Messages can be addressed to a station or to a particular person (user) on a station.

WaveMail uses very efficient methods for message transfers (automatic compression of messages, little protocol-overhead, resume of interrupted message transfers) and therefore allows efficient messaging over inexpensive radio links. This saves money and time.
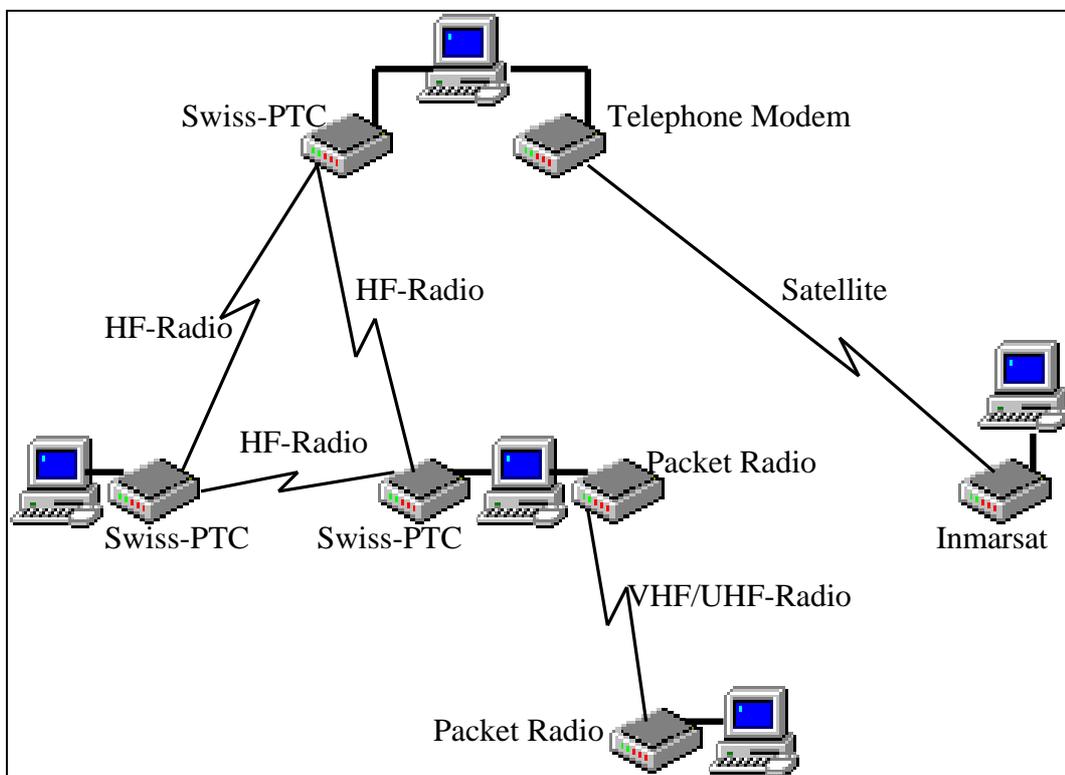
Example of a small WaveMail network

2. First Steps

2.1. System Requirements

PC with Windows 95 / Windows 98 / Windows NT 4.0 / Windows-2000 / Windows-XP.

2.2. Installation

1. Insert the WaveMail Diskette or CD into the drive.
2. Start the WM_SETUP_*n_n*.EXE installation program and follow instructions (*n_n* is the version, e.g. wm_setup_2_0.exe).
3. After the installation is complete you can start WaveMail.

2.3. Start WaveMail

- Doubleclick on WaveMail icon on the desktop
    or
- use the START button in Windows then go to Programs, then WaveMail, then click on WaveMail.

2.4. Help

Use function key F1 to get context sensitive help information in WaveMail.

2.5. Setup

2.5.1. Before you begin

Before you setup a station, you should

!   - select a **Station-ID** for that station. The Station-ID identifies a station within a WaveMail network. It is used to address messages and to establish connections. As an example you may use the name or abbreviation of the city where your station is operating (max 11 characters). Valid characters are: 'A' - 'Z' , '0' - '9' , and '_'. The Station-ID is not case sensitive.

   - obtain the **License Code** (software protection) from the supplier of WaveMail. You have to communicate the Station-ID to obtain the License Code, because the License Code is related to the Station-ID.

2.5.2. Minimum Setup

Select <u>Station Setup</u> from the Setup menu to
- enter the **Station-ID**
- enter the **License Code**
- add a **Modem**

Select <u>Network Setup</u> from the Setup menu to
- define at least one **Link** to another WaveMail station

2.5.3. More about Setup

☞   The section **'Step-by-Step Setup Examples'** in **chapter 'Advanced Setup'** will help you to understand how to setup WaveMail.

   More detailed informations about Setup can be found in **chapter 'Advanced Setup'.**

3. Routine Operation

3.1. POSTMASTER and Normal Users

The POSTMASTER is a user with special rights. Only the postmaster can change the Station Setup and Network Setup. If no users are defined on a WaveMail station, the only user is automatically the postmaster.

3.2. Start

Connect the modem(s) and switch it/them on before starting WaveMail

After you start WaveMail, the program will initialize the modem(s). This operation may take several seconds for every modem.

After that, you will either see the main screen or the 'Username and Password' dialog. In the latter case you have to enter your username and password to get access to your messages. (The 'Username and Password' dialog will only appear if a POSTMASTER or several users have been defined on a station.)

3.3. WaveMail Screen

The WaveMail screen is divided into the following areas:

3.4. Creating a new Message

1. Create new message

Click on the 'New' button of the toolbar to open a new message.

A new message appears.

2. Select recipient(s)

Click on the To button in the new message to open the addressbook.
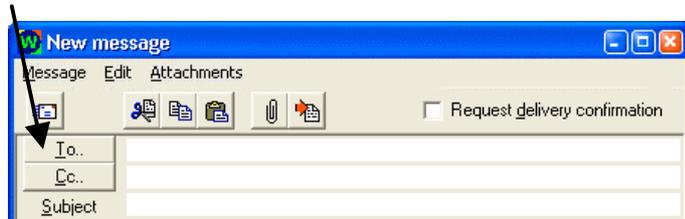
Select recipients from the addresslist on the left and use the To and Cc buttons to copy the recipients addresses to the 'To' and 'Cc' list on the right. Then click on OK to return to your new message. The selected addresses will be inserted into the 'To' and 'Cc' lines. For every recipient you will see the name and the e-mail address in angle brackets
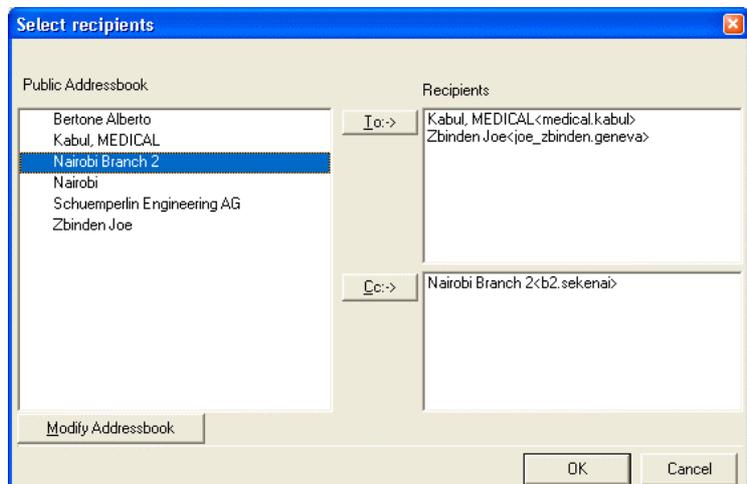
Use the Modify Addressbook button if the addressbook does not yet contain the desired recipient(s).

You can also enter the recipients address(es) directly into the 'To' or 'Cc' lines of the new message.
Multiple addresses must be separated by a semicolon ';'.

3. Enter subject and text

Enter text and subject.

You can also import text from a plain text file. Use 'Import Text from File' from the 'Edit' menu or use the ![icon] button. (TO:, CC: or SUBJECT: headers are copied to the respective fields of the new message if found in the first lines of the imported text.)

subject   text   request confirmation
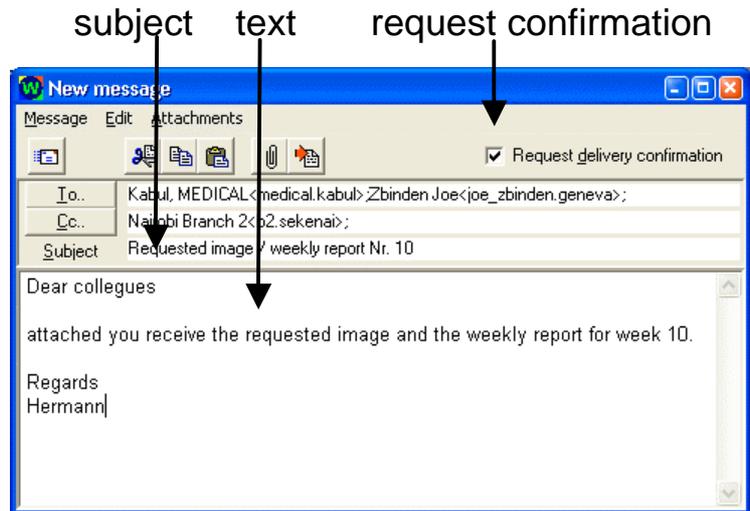
You can optionally request a delivery confirmation. You will then be notified, after the message has been delivered to the recipient(s). Messages addressed to the Internet may not return a delivery notification because this depends on the e-mail software and settings on the recipients PC.

If a message can not be delivered (e.g. bad address) you will get a non-delivery notification independent of whether you have requested a delivery confirmation or not.

4. Add Attachments (optional)

You can attach any type of files (e.g. spreadsheets, pictures, text documents...).
Press the ![icon] button or use the Attachments menu to add attachments.

You can also use the drag&drop method to drag files from the Explorer and to drop them on the new message.
Name and size of attachments are listed at the bottom of the message. Doubleclick on an attachment to open the 'Attachments' dialog that lets you remove or add more attachments.

5. Send the Message

Press the Send button on the **toolbar** or select Send from the Message menu to submit the message for sending.
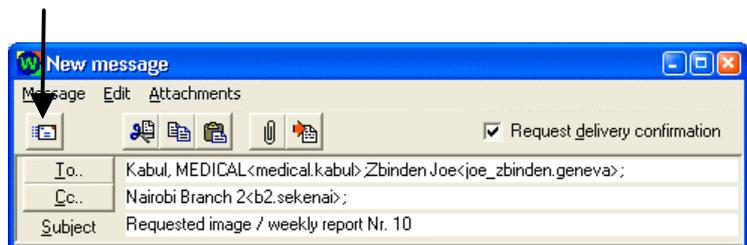
You can now find this message in the **OUT** folder. After the message has been sent, it will move to the **SENT** folder.

Notes:
- When you submit the message for sending, the message is stored in the outgoing queue. At what time the message will be sent to the destination station(s) or to the next station(s) on the route depends on the Network Setup of your station (manual or scheduled connection).
- The message and attachments are automatically compressed when sending. This saves transmission time. The message is automatically decompressed on the recipients side.

3.5. Sending and Receiving Messages

After you create a message, the message is not immediately sent. The message will be sent the next time a link is established to the destination station(s) or to the forwarding station(s).

You can manually establish a link by activating the Send+Receive button on the toolbar or by selecting Send+Receive from the Connection menu. If more than one link has been defined in the Network Setup, the 'Select Link' dialog appears to let you select the desired link.

WaveMail can be configured to automatically establish links on regular intervals, on predetermined times or when messages are in the queue (see Network Setup)

After the connection has been established, WaveMail performs the login procedure and exchanges messages and notifications between the two stations. This is only possible if both stations are correctly configured (a link between the two stations has to be defined on both stations, and passwords must match).

3.6. Folders and Message List

Messages are organized in folders. 5 folders are always available. You can add additional folders.

- Received messages   Contains received messages.
- Out messages   Messages that have been queued for sending and have not yet been sent to all destinations.
- Sent messages   Messages that have been sent (if a message is addressed to a station that can not be connected directly, the message is moved from the Out folder to the Sent folder after the message has been sent to the next station on the route, not when it has been delivered)
- Draft messages   When creating a message you can save it in the Draft folder if you want to edit the message before sending
- Deleted messages   Contains deleted messages.

3.6.1. Selecting a Folder

Use the Folder Selection drop-down-list to select the desired folder for display.

3.6.2. Sorting Messages

Click on a column header to sort the message list by the desired column. Click again to revert the sort order.

3.6.3. Symbols in the Message List

Used symbols:

- Unread message. The symbol will change to the 'Read message' symbol after you doubleclick on the message.
- Message has been read
- Message has attachment(s)
- Delivery notification
- Non-Delivery notification
- A red question mark next to the envelope marks a sent message, for which a nondelivery notification has been received (message could not be delivered to one or several recipients). Select the message and press '**S**' to get the status information for every recipient.

3.7. Viewing and Managing Messages

The text of the currently selected message is displayed in the preview window.
Doubleclick on the desired message on the message list to open the full message (including attachments) for viewing.

3.7.1. Viewing a Message

Doubleclick on the desired message on the message list to open a message.

Attachments:
Doubleclick on an attachment to see the popup menu that lets you Open/Run or Save attachments
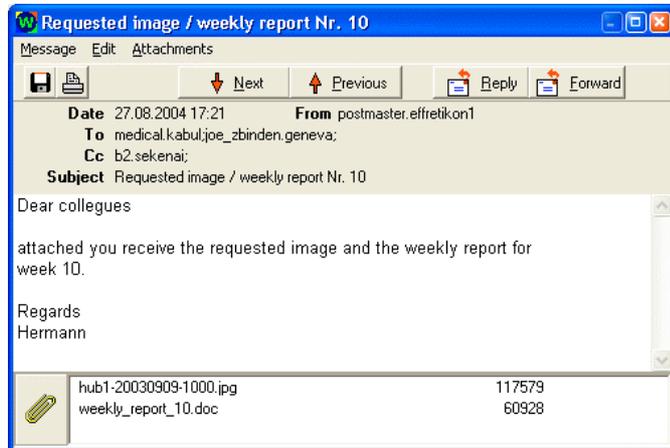
3.7.2. Printing Messages

Select one or several messages in the message list and click on the `Print` button of the toolbar. If you have opened the message for viewing, you can click on the `Print` symbol on the message windows toolbar. (You can setup WaveMail to automatically print incoming/outgoing messages. See menu Setup.) WaveMail will use the default printer for printing.

3.7.3. Responding to a Message

Select the desired message in the message list and click on the `Reply` button of the toolbar. A new message is created and the senders address of the original message is automatically inserted in the 'To' field.
The original text is copied to the new message and original lines are preceded by a '>' sign. You can select this text and delete it if you do not want to include the original message in the response.

3.7.4. Forwarding a Message

Select the desired message in the message list and click on the `Forward` button of the toolbar. A copy of the message (including attachments) is created. You can then select recipients and edit the message before sending it.

3.7.5. Deleting Messages

1. Select one or several messages in the message list
2. Press the DELETE key or select `Delete Messages` from the `File` menu
If you delete a message in any folder except the 'Deleted Messages' folder, the message is moved to the 'Deleted Messages' folder. You can recover the

message by selecting the desired message(s) in the 'Deleted Messages' folder and selecting the Move Messages function from the File menu.
After a message is deleted from the 'Deleted Messages' folder, it can not be recovered.

Tips:
Selecting several messages in sequence:
1. Click on the first message
2. Press and hold down the Shift key while you click the last message of the group

Selecting several messages out of sequence:
1. Press and hold down the Ctrl key while you click each message

From time to time you should use the Optimize Message Database function from the Folders submenu of the File menu. This function reclaims space released by deleted messages. This procedure may take several seconds.

3.7.6. Moving Messages
1. Select one or several messages in the message list
2. Use Move Message(s) to.. from the File menu to select the desired folder.

3.7.7. Popup Menu
Right-click in the message list to open the popup menu for quick access to message-management functions.

| Open |
| Print |
| Reply to Sender |
| Forward |
| Add Sender to Addressbook |
| Mark as Read |
| Mark as Unread |
| Show Status |
| Save as… |
| Move to ▶ |
| Delete |

3.8. Logout
If a POSTMASTER or several users have been defined on a station (see Station Setup), then you had to enter username and password to access your messages. In this case you should use Logout from the File menu to prevent other persons from accessing your messages while you are out to lunch.

After Logout, WaveMail can still send, receive and forward messages. It is also possible to communicate with other WaveMail stations in Chat mode without logging in.

4. Modem Status Window

The Modem Status Window shows one line for every connected modem.

Modem	Call / Nr	Station	Status	Estimated
SWISS-PTC	SEAFKAB	KABUL	RX 3 of 3 63% 518 bps	01:25
Packet WA8DED			standby	

4.1. Description of status display

Column	Description
Modem	Name of modem. Corresponds to the name in the Station Setup.
Call / Nr	Callsign of connected radio modem (Swiss-PTC or Packet Radio modem) or phone number of called telephone modem
Station	Station-ID of connected station
Status	Status of the link For SWISS-PTC modems, the status is followed by an asterisk '*' if the channel seems busy. For SWISS-PTC modems, the status is followed by **[P]** if the modem is in Public Mode .
Estimated	Estimated time that remains until all messages are received or until all messages are sent. This value is only shown after about 20 to 30 seconds in order to give a better estimation ('??:??' is displayed during the first 20 seconds of a transfer).

Status	Description
standby	no activity
answering call	WaveMail is answering an incoming call (establishing the connection) on a telephone type modem
connecting	establishing a connection
connected	modem is connected
command mode	WaveMail is waiting for the next command from the remote station
login requested	WaveMail has sent a login request to the remote station and is exchanging credentials
wait login data	WaveMail is waiting for login data from the remote station
messages requested	WaveMail has asked the remote station to send messages
TX	WaveMail is sending messages. The net average bit rate is displayed in bps or kbps. Because the displayed number is the net bit rate (does not include protocol overhead), it is lower than the effective number of bits transferred.

RX	WaveMail is receiving messages
chat requested	WaveMail is requesting an online dialog (chat mode)
terminal mode	WaveMail is in chat mode (online dialog)
disconnecting	ending connection
set channel	WaveMail is setting the channel in the transceiver (only if transceiver control is enabled, and only for Swiss-PTC modems)
test channel free	After setting the channel, WaveMail needs a few seconds to test whether the channel is free (only for Swiss-PTC modems)

4.2. Popup menu with modem functions

Select a modem in the modem status window by clicking the modem. Then rigth-click in the modem status window to open the popup menu.

Show Chat Window

Displays the Chat Window of the selected modem. This may be useful to review an online dialog after you have been communicating in chat mode with another station. You should limit the use of Chat Mode to a minimum possible, because chat mode is inefficient compared to messaging.

Disconnect

End the connection on the selected modem.

Force Standby

You should only use this function in special cases. Force Standby cuts the connection immediately, but the radio modem on the other side may keep on sending for a while because no proper disconnect has been made.

Reopen Modem

Reinitialize the modem and the serial port. This may be useful if the modem behaves in a strange way.

5. Menu Functions

Some functions are only enabled if a user is logged in, some are only enabled if the Postmaster is logged in.

5.1. File Menu

Many of the `File` menu functions operate on the selected message(s).

Tips:

Selecting several messages in sequence:
1. Click on the first message
2. Press and hold down the Shift key while you click the last message of the group

Selecting several messages out of sequence:
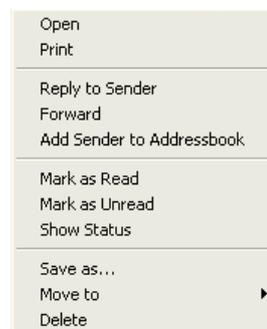1. Press and hold down the Ctrl key while you click each message

Many of the functions in the `File` menu are also available in the popup menu that you can open by right-clicking on the message list.

5.1.1. New Message

Create a new message. Only one new message can be open at a time.

5.1.2. View Message

Open the selected message for viewing. It is usually more convenient to doubleclick on the selected message or to press the Enter key.

5.1.3. Edit Message

This function is only available if a message in the 'Draft Messages' folder is selected. Edit Message opens a message for editing.

5.1.4. Print Message(s)

Print selected messages. The character font used to print can be changed with the Font function of the Setup menu. Messages are printed on the printer that has been installed in Windows as the default printer. A quicker way to print is to use the Print button of the toolbar. It is also possible to let WaveMail automatically print incoming or outgoing messages (use the Automatic Printing function of the Setup menu).

5.1.5. Move Message(s)

Move selected message(s) to another folder. This might be used to move messages to a folder that you created.

5.1.6. Delete Message(s)

Delete selected message(s). If you delete a message in any folder except the 'Deleted Messages' folder, the message is moved to the 'Deleted Messages' folder. You can recover the message by selecting the desired message(s) in

the 'Deleted Messages' folder and selecting the Move Messages function from the File menu.

After a message is deleted from the 'Deleted Messages' folder, it can not be recovered.

A quicker way to delete the selected message(s) is the Delete key.

5.1.7. Folders/Database - New Folder

Create a new Folder with a name of your choice. This may help to organize your messages.

5.1.8. Folders/Database - Delete Folder

Delete a folder. Only folders that you have created can be deleted. The 5 standard folders cannot be deleted. A folder must be empty before it can be deleted.

5.1.9. Folders/Database - Optimize Message Database

This function will optimize the message database (release unneeded disk space and re-order records for better performance). The operation may take several seconds to complete.

Depending on your use of WaveMail you might invoke this function maybe once a week or once a month.

5.1.10. Folders/Database - Backup Message Database

This operation will create a backup copy of the message database in directory ...wavemail\users\username\mail\bak . If a backup exists already, it will be replaced.

In case you ever need to restore the backup copy because of a database corruption, you have to copy the files in the backup directory to the directory one level above,

e.g. from `c:\programs\wavemail\users\postmast.er\mail\bak`

    to   `c:\programs\wavemail\users\postmast.er\mail`

The following files are saved as backup: msgs.dat, msgs.blb, msgat.dat, msgat.blb, msgstat.dat.

5.1.11. Addressbook

If you are the POSTMASTER, this function lets you edit the 'Public Addressbook' of a WaveMail station. The 'Public Addressbook' is available to all users of a station, but only the POSTMASTER can change it.

Normal users can modify their 'Personal Addressbook' with this function.

5.1.12. Logout

This function is only available if a POSTMASTER or several users have been defined on a station (see Station Setup). You can logout to prevent other

persons from accessing your messages while you are out to lunch. The POSTMASTER may logout to prevent other persons from changing Station Setup or Network Setup.

After Logout, WaveMail can still send, receive and forward messages. It is also possible to communicate with other WaveMail stations in Chat mode without logging in.

5.1.13. Exit

Stop WaveMail. WaveMail attempts to disconnect all links before exiting.

5.2. Connection Menu

5.2.1. Send + Receive Mail

Exchange messages with a remote station. If only one link is defined in the Network Setup, WaveMail will connect the station defined in this single link. If several links have been defined, you can select the desired link from a list.

You can only exchange messages with a remote station which has defined a link to your station in the remote stations Network Setup. If passwords are used on this link, passwords must match, otherwise a login error will result.

WaveMail will connect, exchange Station-ID and Password and then transfer the messages. First WaveMail sends messages to the other station. Then WaveMail receives messages from the other station. After that, WaveMail may exchange some notifications and then disconnect the link. Everything is fully automatic and needs no user intervention.

WaveMail always sends messages sorted by size. The shortest message is sent first, the biggest at the end.

You may sometimes wonder that WaveMail sends more messages than you created. Maybe another user on your station has created some messages or maybe your station is forwarding messages from other stations. The same is true for received messages, if your station receives 3 messages, this does not necessarily mean that all of them are for you.

You can use the button of the toolbar for the same operation.

It is possible to configure WaveMail so that this function is automatically executed at a regular interval, at certain times of the day or whenever messages are queued for sending, see Network Setup.

5.2.2. Send Mail

Same as Send+Receive Mail , but no messages are received.

5.2.3. Receive Mail

Same as Send+Receive Mail , but no messages are sent.

5.2.4. Chat

Establish a connection with another station and open a Chat Window to communicate in an online dialog. This may be helpful if you need an online dialog with the other person.

5.2.5. Disconnect

Select a modem in the Modem Status Window and then use this function to disconnect a link. This function is normally not used, because WaveMail will automatically disconnect after exchanging messages.

5.3. Special Menu

5.3.1. Show Connect Log

Open the 'Connect Log'. The 'Connect Log' shows a summary of the last 200 connections or connect attempts. The newest entry is on top of the list.

Column	Description
Time	Date and time when connection was disconnected
Station	Station-ID of remote station
Modem	Modem used
Result	**OK**: everything went fine **connect failed**: connect attempt failed **channel busy**: channel was busy **remote busy**: remote modem was busy **failed**: link failure **login error**: remote station has not defined a link with your station, wrong Station-ID, wrong Password **timeout**: no response from remote station **manual disconnect**: message transfer was interrupted by manual intervention **auto-disconnect**: WaveMail disconnected because of no activity **transceiver control error**: no response from transceiver **protocol error**: error during message transfer
X	**X** connection was established by this station. **1,2,3**... indicates that the connection was established by this station and the radio channel used. **-** connection was established by the remote station.
Minutes	Duration of connection in minutes
Sent	Number of bytes sent and in brackets number of messages and notifications sent. The number of bytes indicates the net byte count of the compressed message(s).
Received	Number of bytes received and in brackets number of messages and notifications received. The number of bytes indicates the net byte count of the compressed message(s).

The button Copy to Clipboard copies the headers as well as the listed connections to the clipboard. You can then paste this information into an other document which can then be printed or saved.

The entries in the 'Connect Log' are also saved in a daily log file in the Log subdirectory of the WaveMail directory. Log files are automatically deleted after 60 days. (see Appendix for file format)

5.3.2. Show Queued Messages

Open the 'Queued Messages' window. The 'Queued Messages' window shows the list of messages queued for sending (if any).

Column	Description
Next station	destination station or next station in route of message
From	originator of message
Msg-Id	message-id of message
Queued	date and time the message was queued
Size	size in bytes of the (compressed) message

The same message (identical message-id) may appear multiple times if it is addressed to several recipients.
The list can be sorted by any column. Just click on a column header to sort the list. Click again to revert the sort order.

Redirect queued messages

The Redirect button is only visible if you are logged in as POSTMASTER.
Redirecting messages does not change the recipient(s), redirecting only changes the route the message(s) will take. This function is only needed on special circumstances.
If messages are in the queue for STATIONX and STATIONX is not working anymore, you might have an alternative station STATIONY in your network that would handle the forwarding of messages.
Select one of the messages queued for sending to STATIONX. Then activate the Redirect queued messages button. Select the desired station in the 'Redirect queued messages' dialog.
Note: You will probably never need this function, however it is available, just in case.

Delete message

The Delete button is only visible if you are logged in as POSTMASTER.
It should normally not be necessary to delete a message from the queue. However, in special cases it might be useful (e.g. if someone has sent a very large message which is now in the queue to be transmitted over a relatively slow link like a HF-radio link where it would block the channel for hours. In this case you might want to kill this message).
Note: To prevent from having very large messages block your transmission channels you can assign a maximum message size to every modem (see Station Setup).

Save to Clipboard

This function copies the headers as well as the list of queued messages to the clipboard. You can then paste this information into an other document which can then be printed or saved.

5.3.3. Show Link Scheduler

WaveMail can be configured to automatically establish connections (links) with other WaveMail stations at regular intervals or at preprogrammed times, see Network Setup .

The Link Scheduler window gives an overview of configured links and schedules.

Column	Description
Linkname	Identifies a link by the name of the remote station and the modem used.
Last Attempt	Time when the last attempt to establish the link has been made. This field is empty if no schedule has been defined.
Next Attempt	Next time when WaveMail will try to establish the link, this is either the next scheduled time or the time an automatic retry is due. This column shows 'no schedule' if no schedules have been defined. An asterisk '*' in this column indicates that a link will be established when a message has been queued for sending.
Busy	YES indicates that a link is established or is being established.

If WaveMail fails to establish a link on the scheduled time, it will automatically retry after a preprogrammed interval. After 3 unsuccessful attempts (per channel) WaveMail gives up and will try to establish the link on the next scheduled time. The case where the channel, line or remote modem is busy is not counted as an attempt and WaveMail will keep on trying with short intervals.

5.3.4. Modem Functions - Show Chat Window

Displays the 'Chat Window' of the selected modem. This may be useful to review an online dialog after you have been communicating in chat mode with another station. You should limit the use of Chat Mode to a minimum possible, because chat mode is inefficient compared to messaging.

5.3.5. Modem Functions - Force Standby

You should only use this function in special cases. `Force Standby` cuts the connection immediately, but the radio modem on the other side may keep on sending for a while because no proper disconnect has been made.

5.3.6. Modem Functions - Reopen Modem

Reinitialize the modem and the serial port. This may be useful if the modem behaves in a strange way.

5.4. Setup Menu

5.4.1. Font - Screen

Select the font used to display the message text on the screen. The font for text other than the message text cannot be changed.

5.4.2. Font - Printer

Select the font used for printing messages.

5.4.3. Email Signature Text

Define a text that will be appended to all messages you create.

5.4.4. Automatic Printing

Select automatic printing options.

Messages are only printed automatically while the respective user (recipient/sender of the messages) is logged in. Messages are printed on the default printer.

These options are private to users and therefore each user can set different options.

5.4.5. Station Setup

The `Station Setup` function is only available for the POSTMASTER.

Use `Station Setup` to configure parameters for your WaveMail station. The following minimum informations are required before you can use WaveMail:
- enter the **Station-ID**
- enter the **License Code**
- add a **Modem**

see chapter **Advanced Setup** for more information

5.4.6. Network Setup

The `Network Setup` function is only available for the POSTMASTER.

Use `Network Setup` to define links (connections) with other WaveMail stations. The following minimum information is requeired before you can use WaveMail to exchange messages with another station:
- define at least one **Link** to another WaveMail station

see chapter **Advanced Setup** for more information

5.4.7. Show Parameters

This function is for information only. A summary of parameters is displayed for quick information.
see chapter **Advanced Setup** for more information

5.5. Popup Menu in Message List

Right-click in the message list to open the popup menu for quick access to message-management functions.

```
Open
Print

Reply to Sender
Forward
Add Sender to Addressbook

Mark as Read
Mark as Unread
Show Status

Save as...
Move to          ▶
Delete
```
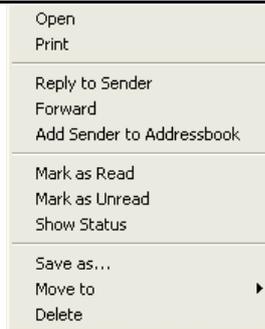
Most of these functions are self explaining or are explained in the section 'Viewing and Managing Messages'.

5.5.1. Show Status - Message Status

Select a message of the OUT Messages or SENT Messages folder. Open the popup menu by right-clicking. Then select Show Status from the popup menu to display the status of the desired message.

The message status window displays the status for every recipient. If a delivery or a non-delivery notification has been received, the status of a message is updated and the notification is stored in your RECEIVED Messages folder.

Status	Description
queued	message is in the send queue
sent	message has been sent (either to the destination station or to the next station on the route to the destination station)
delivered	message has been delivered (this status is only available if a delivery confirmation has been requested when the message was created)
address unknown	address unknown
recipient unknown	the message has arrived at the destination station, but there is no recipient with this username at the destination station (the message is delivered to the POSTMASTER of the destination station)
deleted	the message has been removed from the send queue (on this station or on a station between this station and the destination station)
timeout	the message was not forwarded for more than 2 days (on this station or on a station between this station and the destination station)
msg too big	the message could not be sent, because it was bigger than the maximum specified in Station Setup / Modem properties

The Subject of the message is shown for reference. The message-id (Msg Id) is an internal identifier that uniquely identifies every single message.

6. Addressbook

The e-mail addresses of your contacts can be saved in the Addressbook. When you create a message, you can select recipients from the addressbook.

6.1. Public Addressbook and Personal Addressbook

The 'Public Addressbook' is maintained by the POSTMASTER and all users can use it when selecting recipients for a new message.
The 'Private Addressbook' is maintained by normal users and only the owner of a 'Private Addressbook' can use it when selecting recipients for a new message.
Normal users can only modify the 'Private Addressbook'. The 'Public Addressbook' can only be modified by the POSTMASTER.

6.2. Adding contacts to the Addressbook

Select Addressbook from the File menu to modify the addressbook. When you are selecting recipients for a new message ('Select Recipients' dialog), you can activate the Modify Addressbook button to add new contacts to the addressbook.

Use the following buttons in the addressbook:
 - Use Add Address to add a new address.
 - Use Add List to add an address list.
 - Use Edit to modify the selected address or address list.
 - Use Close to close the addressbook.

6.2.1. Enter name and address

After you select Add Address or Edit, you will see the 'Address' dialog.

Name
You can enter any name. You may enter the last name first, in order to see the contacts sorted by lastname.
E-mail Address
Enter a valid e-mail address. See chapter 'E-mail Addresses in WaveMail' for details.

6.3. Addresslists

Addresslists contain a list of recipients. Addresslists are very convenient when you often have to send messages to the same group of persons. A message can be addressed to all members of an addresslist by a single mouseclick.

Use `Add List` in the address-book to add an address list.

List name
An address list is identified by the list name. You can enter any name or description into this field.
Example: Branch Offices Africa

Recipients
The Recipients list on the right side contains the members of this addresslist. Select the desired recipients from the left list and click on the `>` button to include the selected recipients in your addresslist. Use the `<` button to remove members of your addresslist.
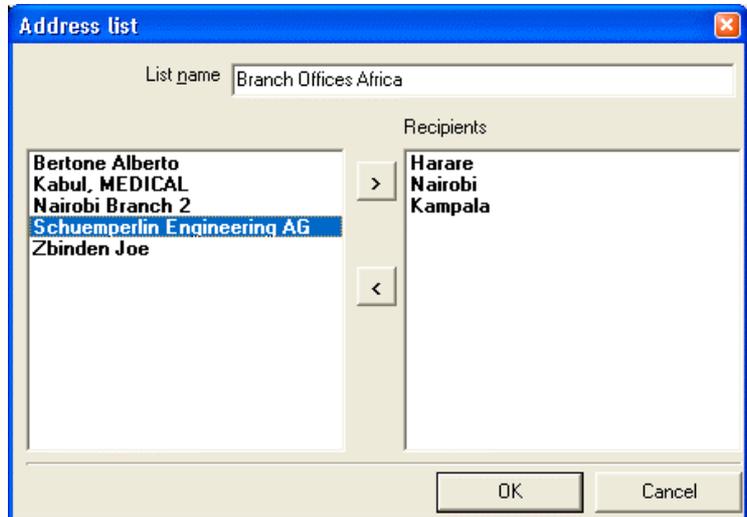
7. E-mail addresses in WaveMail

7.1. WaveMail address

A WaveMail address can consist of the Station-ID or a Username and the Station-ID. Username and Station-ID are separated by a period.
Examples:

```
nairobi
hermann_schuemperlin.nairobi
john.smith.nairobi
billclinton.washington
```

7.2. Other types of address

7.2.1. Internet address

Normal Internet e-mail addresses can be used when sending a message to an Internet recipient. WaveMail will automatically recognize Internet e-mail addresses and try to forward the message to a WaveNet gateway (WaveMail-Internet gateway) within your WaveMail network (of course you can only send messages to Internet recipients if a gateway is running in your WaveMail network and if you have the rights to send messages to Internet recipients).
Example:

```
hermann@schuemperlin.com
```

7.2.2. GLPLUS/RLPLUS address

You can address messages to stations that use GLPLUS or RLPLUS software. The address consists of the keyword 'GP:' and the call sign of the remote SWISS-PTC or Packet Radio modem.
Example:

```
GP:hb9cnm
```

see also section 'GLPLUS/RLPLUS Compatibility' in 'Appendix B'.

8. WaveMail over TCP/IP

8.1. Overview

WaveMail supports TCP/IP links as connection between two WaveMail stations. This is very convenient in places where a connection to the Internet is available but not reliable, because

- you can benefit from low traffic charges via Internet as long as the Internet access is ok
- WaveMail can use other types of connections (Pactor, Packet Radio, Inmarsat...) when the Internet access is down

The calling WaveMail station (client) can use a Dial-Up or a permanent connection to the Internet.
The called WaveMail station (server) should have a permanent connection to the Internet and a fixed IP-Address.
Typically you would setup the WaveMail station in your headquarter as a TCP/IP-Server. The remote WaveMail stations can then access this server over TCP/IP (or Pactor, or Inmarsat, or ...).

More than one WaveMail station in a network can be setup as a TCP/IP-Server, however all TCP/IP-Servers should have permanent Internet access and a fixed IP-Address. A WaveMail station can be setup as TCP/IP-Client and/or TCP/IP-Server.

8.2. Setup and operation of a WaveMail TCP/IP-Client station

8.2.1. Internet access

The PC where WaveMail is running must have access to the Internet, either via a Dial-Up connection or via a permanent connection. It is assumed that you have a well configured and working Internet access before you continue.

8.2.2. Prepare WaveMail for use of TCP/IP

1. Select `Station Setup` from the `Setup` menu
2. Activate the `Add Modem` button in the 'Station Setup' dialog (the word "modem" is a bit misleading, you do not add a modem, you add a TCP/IP-Connection. But because the procedures are very similar to adding a Swiss-PTC-Modem or a Telephone-Modem etc., we just kept the wording.)
3. Select **TCP/IP** in the 'Add Modem' dialog.
4. Select the appropriate options in the 'Modem Properties' dialog

Make dial-up connection
Check this option, if WaveMail should automatically establish the dial-up connection when necessary.

Always disconnect
Select this option, if WaveMail should always disconnect the dial-up connection after messages have been exchanged.

Disconnect only when dialled by WaveMail
Select this option, if WaveMail should only disconnect the dial-up connection when WaveMail has established the dial-up connection (this prevents WaveMail from disconnecting when the dial-up connection was already established by another application before WaveMail started to transfer messages).

Notes:
- If your PC does not have a permanent link to the internet, then it is recommended to select the options **Make Dialup Connection** and **Always Disconnect**
- If the option **Make Dialup Connection** is activated, WaveMail will establish the 'default dial-up connection' as defined in Windows.

8.2.3. Define a WaveMail link over TCP/IP

1. Select `Network Setup` from the `Setup` menu
2. Activate the `Add` button on the "Links" page of Network Setup
3. On the 'Link Properties' dialog:
   - enter the **Station-ID**
   - select **TCP/IP** as modem
   - enter **IP-Address** and **Port-Number** of the remote station in the Phone Number/Call line. IP-Address and Port-Number must be separated by a colon ':' . Below you find an example for IP-Address 193.200.322.15 and Port 56789
   Example:
   `193.200.322.15:56789`

8.2.4. Establishing a connection over TCP/IP

Establishing a connection over TCP/IP works exactly the same way as for connections over SWISS-PTC or Telephone-Modems:
1. Use the `Send+Receive` button or the functions of the `Connection` menu
2. Select the desired link (which you have defined in 'Network Setup', see above).

If you cannot establish a connection, check the following:

- is your Internet access OK (test Internet access with the normal Windows Dial-Up function)
- is the IP-Address correct
- is the Port-Number correct
- is the station you are calling configured as TCP/IP-Server

If you get a 'Login failed' error message, then the called TCP/IP server station has not defined a link with your station or you are using a wrong password (the connection works but you are not allowed to exchange messages).

8.3. Setup of a WaveMail TCP/IP-Server station

A WaveMail TCP/IP-Server is a WaveMail station which can accept incoming TCP/IP connect-requests from another WaveMail station. A WaveMail TCP/IP-Server should have a permanent connection to the Internet and it should have a fixed IP-Address.

Typically you would setup the WaveMail station in your headquarter as a TCP/IP-Server. The remote WaveMail stations can then access this server over TCP/IP (or Pactor, or Inmarsat, or ...).

You have to manually edit the file WAVEMAIL.INI to setup WaveMail as a TCP/IP-Server. Exit from WaveMail and make a backup-copy of WAVEMAIL.INI before you edit this file.

8.3.1. Changes in WAVEMAIL.INI

8.3.1.1. Minimum Setup
Add the following lines to WAVEMAIL.INI:
```
[TCPIPserver]
enabled=1
```
As a default, WaveMail will offer 5 Sockets, allowing 5 concurrent connections over TCP/IP. The WaveMail TCP/IP-Server will listen on Port-Number 56789 for incoming connections. See below to change these defaults.

8.3.1.2. Number of sockets
If you need more or less concurrent connections than the default value, you can add the line
```
sockets=n
```
where n must be in the range 1..10.

8.3.1.3. Port-Number
As a default WaveMail will listen on Port 56789. In order to define a different Port-Number, you can add the line
```
port=n
```

where n must be a valid port number. Remote stations must know the defined Port-Number in order to connect to the TCP/IP-Server.

8.3.1.4. Example for settings in WAVEMAIL.INI

```
[TCPIPserver]
enabled=1
sockets=7
port=4711
```

8.3.1.5. Remarks
- The changes in WAVEMAIL.INI will only be effective after you restart WaveMail.
- If you are using a firewall, make sure that connections to the defined Port-Number are enabled.
- Make sure that the selected Port-Number does not conflict with other applications.
- Make sure you do not insert the lines within the lines of an other section in WAVEMAIL.INI.

8.3.2. Network Setup

Only remote stations for which a link has been defined in the 'Network Setup' (menu Setup - Network Setup) can exchange messages with your TCP/IP-Server station. However, if a remote station sometimes connects using TCP/IP and sometimes connects using a SWISS-PTC or another modem, then it could be sufficient to enter just one link (even if only a link over SWISS-PTC is defined, the remote station can connect over TCP/IP).
But if you are using the "*Maximum Message Size*" option (in Setup / Station Setup / Modem Properties), then you should at least define a link over the modem which has the biggest (or unlimited) value for "*Maximum Message Size*" (links over other modems can also be defined but the link over the modem with the biggest value for "*Maximum Message Size*" is important, because otherwise messages might be rejected by WaveMail) (background: from those modems over which links are defined to a particular remote station, WaveMail takes the highest value of "*Maximum Message Size*" to determine whether a message should be accepted for that station or rejected because of oversize).
If you define a link over TCP/IP for a remote station, then you will probably not know the **IP-Address of the remote station**, because that station probably does not have a fixed IP-Address (dial-up). In this case you can enter any value in the 'Phone number/Call of remote station' field (e.g. 0.0.0.0) because this value is only used when your station is calling the remote station. If the remote station calls, the value of the 'Phone number/Call of remote station' field is not used.

9. Advanced Setup

9.1. Station Setup

Choose `Station Setup` from the `Setup` menu to change parameters of your WaveMail station.

The Station Setup can only be changed by the Postmaster.
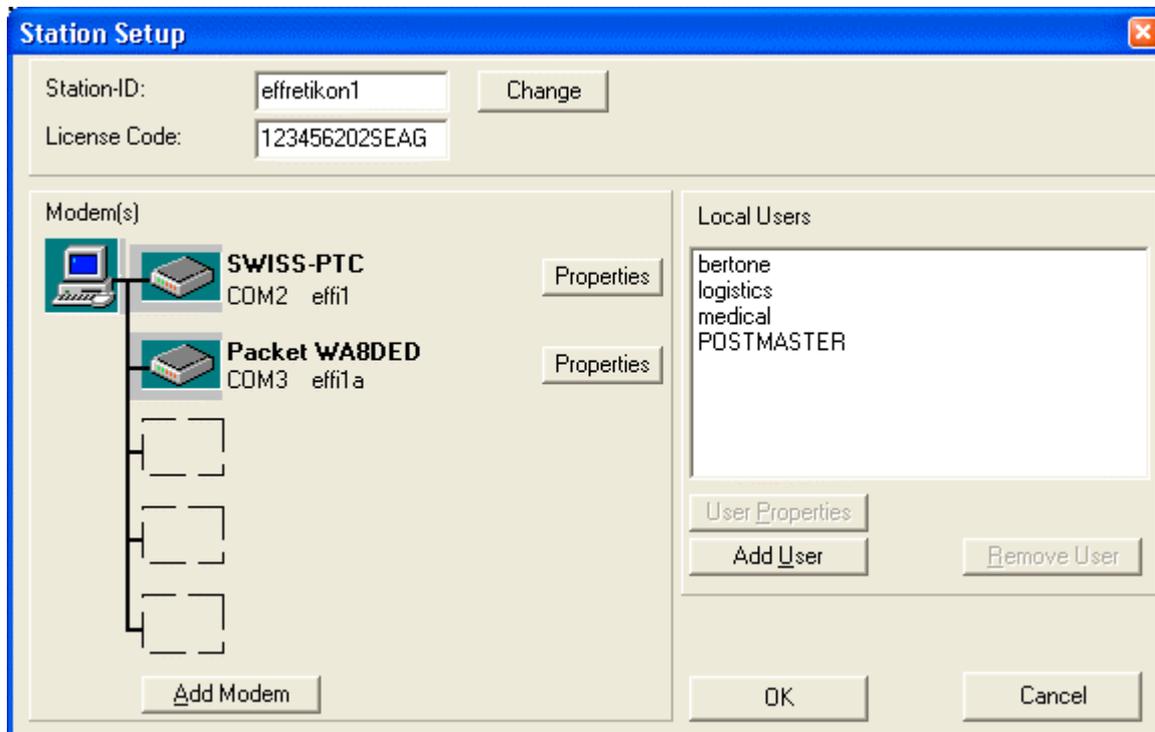
9.1.1. Station-ID

The Station-ID is used to identify a station in the network. Other stations will use your Station-ID to address messages to your station and to establish connections with your station.

The Station-ID must be a unique identifier, every station needs a different Station-ID. It is recommended to use a meaningful name, maybe the name of the city where you are located or a combination of abbreviations of your organizations name and the city name.

The Station-ID is limited to 11 characters.

Valid characters are: 'A' - 'Z' , '0' - '9' , and '_'.

The Station-ID is not case sensitive.

Examples:
```
Nairobi
US_Houston
```

9.1.2. License Code

The License Code is used to protect the WaveMail software from unauthorized use. This software has to be licensed for every station, this means an individual license is needed for every PC that has modems connected which are used by WaveMail.

You get the License Code from the supplier of this software. The License Code is related to the Station-ID. Therefore you have to pay the License Fee and to communicate your Station-ID and company name to the supplier of this software in order to get the License Code.

WaveMail can only be used after the correct License Code that corresponds to the Station-ID has been entered.

9.1.3. Modems

Up to 7 modems can be connected to a WaveMail station. In most cases you will only have one or two modems.

Use the Add Modem button to add a modem. You will then be asked what type of modem you want to add.

- All SWISS-PTC modems (SWISS-PTC plus, SWISS-PTC II, SWISS PTC-2A) can be defined as 'SWISS-PTC'
- Packet radio modems supporting WA8DED hostmode (including RDM-48) can be defined as 'Packet WA8DED'
- All telephone modems with an AT-command set can be defined as 'Telephone Modem' or they can be defined as 'Windows Modem (TAPI)'. If 'Windows Modem (TAPI)' is selected, then you will be asked to select the desired device from a list of installed modems (see section 'TAPI Overview, Advantages and Disadvantages' in chapter 'Special Topics).
- Select 'TCP/IP' if you want to establish a connection with another WaveMail station over TCP/IP. Of course TCP/IP is a protocol and not a modem, but the word 'modem' is just kept because all the other selections ('SWISS-PTC', 'Telephone-Modem' ... are modems).

After you select a modem type, the 'Modem Properties' dialog allows you to enter the properties for the modem.

9.1.4. Modem Properties

Use the `Properties` button next to the desired modem to change the properties of a modem.

Some of the fields of the 'Modem Properties' dialog are not visible for certain types of modems.
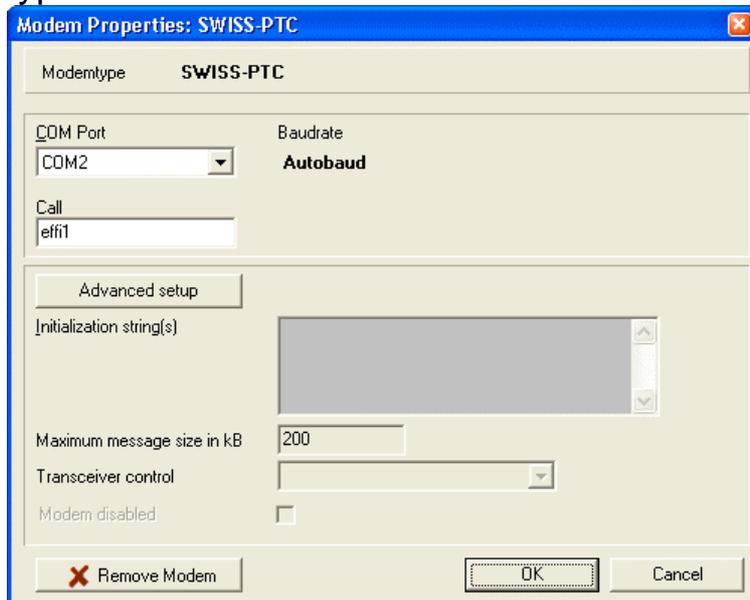
Com-Port

Select the COM port where the modem is connected.

Baudrate

Select the appropriate Baudrate for communications between the modem and the PC (this is NOT the over-air or line baudrate).

- The Baudrate does not have to be defined for SWISS-PTC Pactor modems (SWISS PTC 1 and SWISS PTC II) because WaveMail will automatically detect the correct baudrate.
- Telephone modems usually have an autobaud routine and accept many baudrates. Select a baudrate which is higher than the line speed.
- For Inmarsat terminals you should check the baudrate selected on the terminal.
- For Packet modems you have to specify the baudrate that has been selected in the modem. Use 9600 for the RDM 48 modem.

Call (for radio modems)

The Call (selcall) is needed for radio modems. WaveMail will automatically program the modem with the Call you define here. Remote stations must know your Call in order to establish a connection from the remote side.

Line Access (for 'Telephone Modems')

If your telephone modem is connected to a PBX, it will probably be necessary to dial a line access code and instruct the modem to wait with dialing the number until the external line is ready. Typical access codes are 0w or 0,, .

Leave this field empty if the modem is directly connected to an external line.

If you select 'Windows Modem (TAPI)' instead of 'Telephone Modem', then you can adjust the settings in the Windows Control Panel.

Dialing (for telephone modems)
Select Tone dialing if possible, use Pulse dialing if Tone dialing does not work (depends on telephone exchange).

Answer incoming calls (for telephone modems)
Check this box if incoming calls should be answered. Uncheck this box if this modem is only used for outgoing connections. If you share the same line for voice calls and data calls you might not want that the modem answers incoming calls.

Remove Modem
Click on the `Remove Modem` button to remove the modem from the setup.

Advanced Setup
Click on the `Advanced Setup` button to change any of the following properties:

Initialization string(s)
Normally everything should work fine without additional initialzation strings. However there are cases where some special initialization is required. You can enter several lines.
For SWISS-PTC modems: the first line must contain the 'LOCK 0 ' command
Examples: SWISS-PTC modem: Packet radio modem:
```
             LOCK  0                 P  128
             PSKA  280               @T2 20
             FSKA  200
```

Maximum message size in kB
You can define a maximum size for messages that may be sent over this modem. This may help to prevent from exorbitant costs if an extremely large message has been sent by accident. If this field is empty or '0' this is interpreted as 'unlimited'. The size is always the size of the compressed message. A message which shows a size of 100kB in your OUT Messages folder might have been compressed to 30 kB and will be transmitted even if the limit has been set to 50kB.

Transceiver Control
This option is only applicable to SWISS-PTC modems. It is used to define the type of radio used if WaveMail should automatically control the transceiver channel when establishing connections.
Leave this field empty (select '--disabled--' from the list) if you only use a single frequency.

Disabled

You can check the Disabled checkbox if you want to temporarily disable a modem without completely removing it from the setup.

9.1.5. Local Users

Several local users can be defined. This allows to address messages to an individual person.

- Select Add User to add a new user. The 'Username and Password' dialog appears and you can enter the Username and Password. The first registered user is always the POSTMASTER.
- Select User Properties to change the password of the selected user.
- Select Remove User to remove a user. This will also delete all mail of the removed user (except if WaveMail is running on a LAN and the user has his mail on his PC where WaveMail is running in Client mode).

Username

The username is used to login and to address messages to a specific user.
Valid characters are: 'A' - ' Z' , 'a' - 'z' , '0' - '9' , '-', '_', '.'
Maximum length: 40 characters
Examples:

```
john-smith
James007
Hermann.Schuemperlin
```

Note: Usernames are not case sensitive. This means that 'Miller' and 'miller' is interpreted as the same user.

Password

The password is used to login.
Valid characters: all characters
Maximum length: 30 characters

Note: Passwords are not case sensitive.

9.2. Network Setup

The 'Network Setup' can only be changed by the Postmaster.

9.2.1. Links

The 'Links' page allows you to define links between your WaveMail station and other WaveMail stations. A link is characterized by:
- Station-ID of the remote station
- modem to be used (WaveMail can handle several modems)
- phone number / call of the remote station
- optionally a password
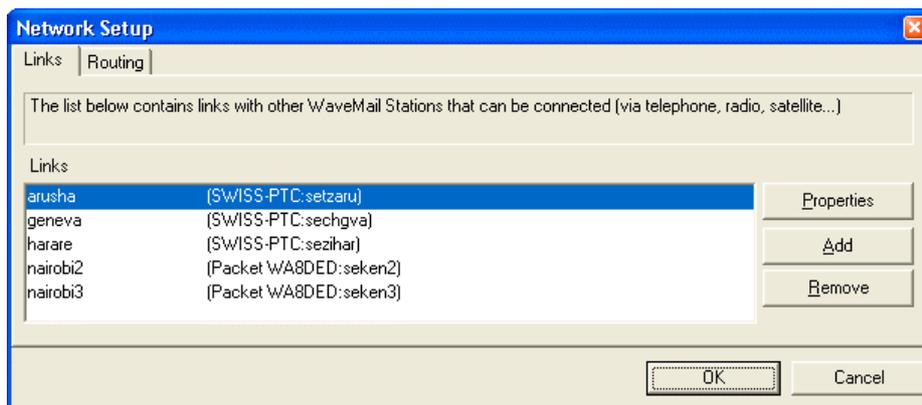
Activate the Add or Properties button to add/modify a link.

Important note:
- You can only exchange mail with remote stations after you have defined the parameters for the link to that station. You can only exchange mail with remote stations which have defined a link with your station. If a password has been assigned for a link, the password must be the same on both sides of the link.
- Chat connections (online dialog) are not protected, therefore you can chat with a remote station even if the remote station has not defined a link with your station or if the passwords do not match.
- If your station has more than one modem connected, then a remote station can exchange mail through any modem as long as at least one link to that particular remote station has been defined (if the link is defined for modem1, the remote can also connect on modem2 and exchange mail even if no link over modem2 is defined).

9.2.2. Link Properties
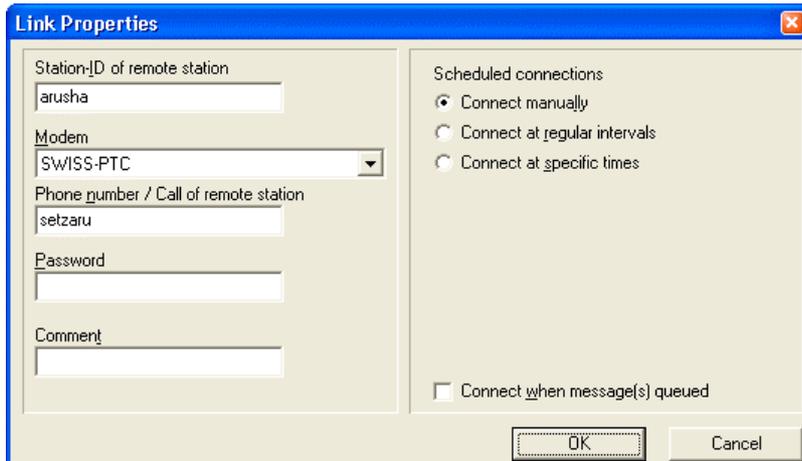
Messages can only be exchanged, if the remote station has defined a link with your station and if the passwords (if used) are the same.

Station-ID of remote station

Enter the Station-ID of the remote station. If you want to chat with a remote station which is not using WaveMail, you can enter any name as Station-ID, however you can only exchange messages with other WaveMail stations if you enter the correct Station-ID.

If you want to exchange messages with stations that are running the GLPLUS or RLPLUS software you must enter a special Station-ID of the form 'GP:*call*' where *call* must be set to the call sign of the remote SWISS-PTC or Packet Radio modem, example: `GP:hb9cnm`.

Modem

Select the modem that should be used to establish a connection with the remote station. The remote station must have the same type of modem. A drop-down list lets you choose from the modem(s) defined in your Station Setup.

Phone number / Call of remote station

If you use a telephone modem or an Inmarsat terminal to connect to a remote station, then you have to enter the phone number of the remote station.

If you use a SWISS-PTC Pactor modem or a Packet Radio modem you have to enter the callsign of the remote station.

Notes:
- Callsign and Station-ID are two different things, however they may have the same value.
- To connect a SWISS-PTC modem in Longpath-Mode, the callsign must be preceded by a '!' sign
- To connect a SWISS-PTC modem in Public-Mode, the callsign should be preceded by a '+' sign.

  Example: `!hb9cnm` connect hb9cnm in Longpath-Mode

  Example: `+hb9cnm` connect hb9cnm in Public-Mode

  Example: `+!hb9cnm` connect hb9cnm in Longpath and Public-Mode

Password

A link between two stations may be protected by a passsword. This is very useful in order to prevent from unauthorized intrusion into your messaging network.

Scheduled connections

You can configure WaveMail to automatically establish a link and exchange messages at regular intervals or at specific times.

If you select 'Connect at regular intervals', you can define the interval in minutes and the starttime in hours and minutes. The starttime allows you to arrange the connect times so that not all links will connect at the same time.

If you select 'Connect at specific times' you can enter a list of times in the hh:mm format (hours:minutes).

Connect when message(s) queued

If you check this box, WaveMail will automatically establish a connection on this link if a message is queued for the station defined in this link. If the a link has recently been active, WaveMail will not immediately reconnect. In this case WaveMail will only connect after a delay of one to several minutes.

Channels

This button is only visible if a SWISS-PTC is used on this link and if 'Transceiver Control' has been defined for this modem (see also section 'Station Setup' and 'Modem Properties'). Use the `Channels` button to define the channel(s) to be used when establishing the connection.

On the left side of the dialog you may define up to 3 channels to be used when establishing a connection during the time specified in the **Between** / **And** fields. On the right side of the dialog you may define up to 3 channels for the rest of the day. This allows adaptation to changing propagation conditions.

WaveMail first attempts to connect on **1. Channel** . If the connection fails, WaveMail attempts to use the 2. and 3. channel (if defined). If still no connection is possible, WaveMail will retry several times (with a delay between attempts).

9.2.3. Routing

WaveMail may need some informations in order to find the route to deliver messages. WaveMail automatically forwards messages until they arrive at the destinations. If you have only one link defined, you can leave the 'Default Routing' field and 'Specific Routing' list empty because WaveMail will send all messages over that single link.
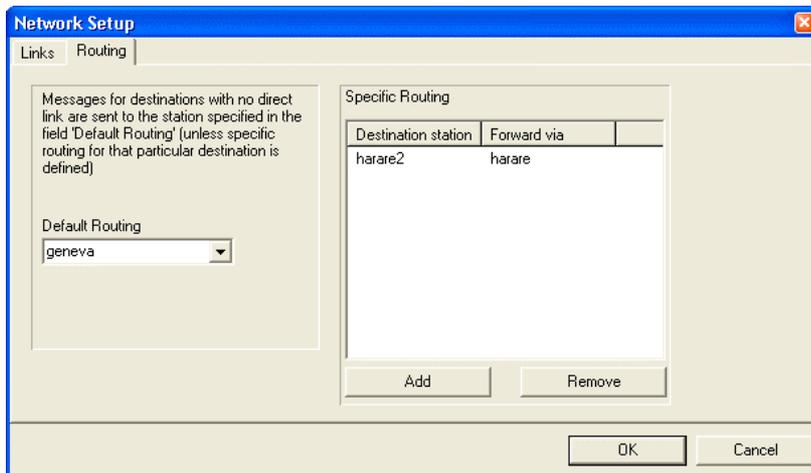
Default Routing
Messages for destinations with no direct link are sent to the station specified in the 'Default Routing' field (unless specific routing for that particular destination has been defined). WaveMail assumes, that the station that has been defined in the 'Default Routing' field will know how to forward messages. If you have only one link defined, you can leave this field empty and WaveMail will use this single link for default routing.

Specific Routing
You can specify a specific forwarding station for messages which are addressed to a certain destination station.
Use the Add and Remove buttons to add/remove specific routing informations.

Background information for better understanding:
If WaveMail has to forward a message to STATIONX it will use the following scheme to decide where to send the message next:
1. If a **Specific Routing** has been defined for STATIONX, then WaveMail uses this routing information.
2. If a **Link** with station STATIONX is defined, then WaveMail will forward the message over this link.
3. If neither 1 nor 2 are true, then WaveMail will forward the message to the station defined in the **Default Routing** field.
4. If neither 1 nor 2 are true and no Default Routing is defined, then WaveMail will return a 'Address Unknown Notification' to the originator of the message.

9.3. Transceiver Control

WaveMail supports automatic control of transceiver channels (channels not frequencies!) if a Swiss-PTC modem is used.
The following transceivers are supported as standard:
- Icom M-700 TY types with Scanner Control
- Barrett 950
- Codan 9360
- Use integrated Transceiver Control of Swiss-PTC-II (SWISS-PTC-II TRX-CONTROL)

Other transceivers are supported on request.

If you are using the integrated Transceiver Control of the Swiss-PTC-II, then you must program the channels and scan parameters in the Swiss-PTC-II. You can do this in SETUP / STATION SETUP / MODEM PROPERTIES. You have to add a few lines in the **Initialization String(s)** box. Example:

```
lock 0
trx ty r 9600
trx ch 1 14280.5
trx xscan 1 1
trx ch 2 7200.8
trx xscan 2 1
trx wait 10
trx dwell 30
trx scan 1
```

For details, contact Schuemperlin Engineering AG.

9.3.1. Setup for Transceiver Control

Before you can use Transceiver Control you have to perform the following tasks:
1. A control cable has to be connected between the Swiss-PTC modem and the transceivers control port.
2. Program the desired channels on the transceiver.
3. Station Setup: The appropriate transceiver type must be selected in the 'Transceiver Control' field of the 'Modem Properties' dialog of the Swiss-PTC modem.
4. Network Setup: Use the Channels button of the 'Link Properties' dialog to enter the desired channels for every link.

9.4. Step-by-Step Setup Examples

The following examples show a network that grows from a very simple 2 station network to a network with several stations and different types of modems.

Every station in a WaveMail network has to be identified by a **Station-ID**. The Station-ID is NOT the same as the callsign of a radio modem (however, they may have the same value). The Station-ID is used to establish links between stations and to address messages.

The organisation in this example has decided to use city names or abbreviations of city names as Station-IDs. The corresponding **License Codes** are obtained from the supplier of WaveMail.

In this example, callsigns for radio modems are organized as follows:

2 letter company code (**se** for setup example), followed by 2 letter country code, followed by 2-4 letters city code.

9.4.1. Minimum WaveMail Network with 2 Stations

This example shows a simple WaveMail network with 2 stations in Geneva and Nairobi using SWISS-PTC HF-radio modems.

The operators (POSTMASTER) in Geneva and Nairobi use the Station Setup function of the Setup menu to define Station-ID, License Code and Modem.
Then they use the Network Setup function of the Setup menu to define the parameters for the link to Geneva / Nairobi. **It is important to define the link on both stations of the link, otherwise a Login Error will occur when attempting to send/receive messages.**
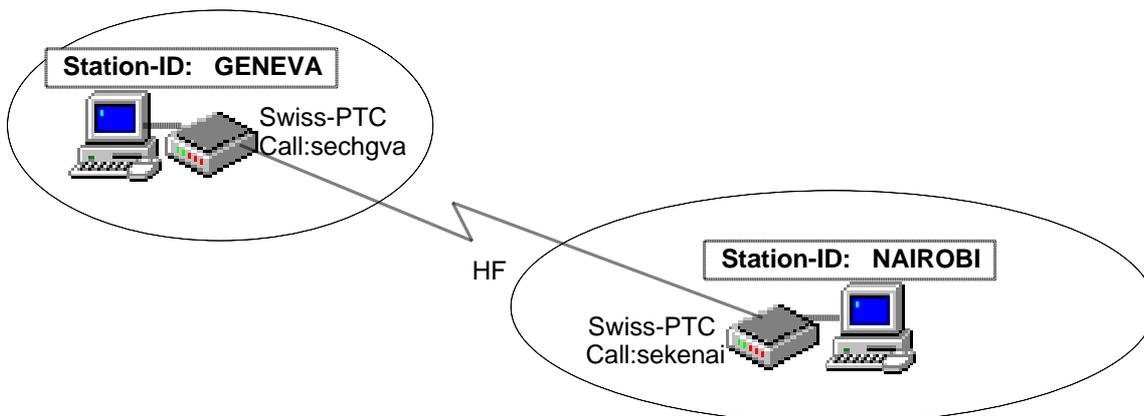
Simple network with 2 stations using Swiss-PTC modems.

Setup in Geneva

Station Setup		Network Setup	
Station-ID	= GENEVA	Add a link to Nairobi:	
License Code	= *license code*	Station-ID of remote stat.	= NAIROBI
		Modem	= SWISS-PTC
Add a modem:		Call of remote station	= sekenai
Modem type	= SWISS-PTC		
Call	= sechgva		

Setup in Nairobi

Station Setup		Network Setup	
Station-ID	= NAIROBI	Add a link to Geneva:	
License Code	= *license code*	Station-ID of remote stat.	= GENEVA
		Modem	= SWISS-PTC
Add a modem:		Call of remote station	= sechgva
Modem type	= SWISS-PTC		
Call	= sekenai		

No routing information is necessary in this example and the Routing page of the Network Setup on both WaveMail stations is empty.

9.4.2. A third Station joins the Network

A new station in Kabul joins the network. Kabul uses a Swiss-PTC modem.

The operator in Kabul uses the `Station Setup` function of the `Setup` menu to define Station-ID, License Code and Modem. Then he uses the `Network Setup` function of the `Setup` menu to define the parameters for the link to Geneva.

The operator in Geneva uses the `Network Setup` function of the `Setup` menu to define the parameters for the link to Kabul. **It is important to define the link on both stations of the link, otherwise a Login Error will occur when attempting to send/receive messages.**
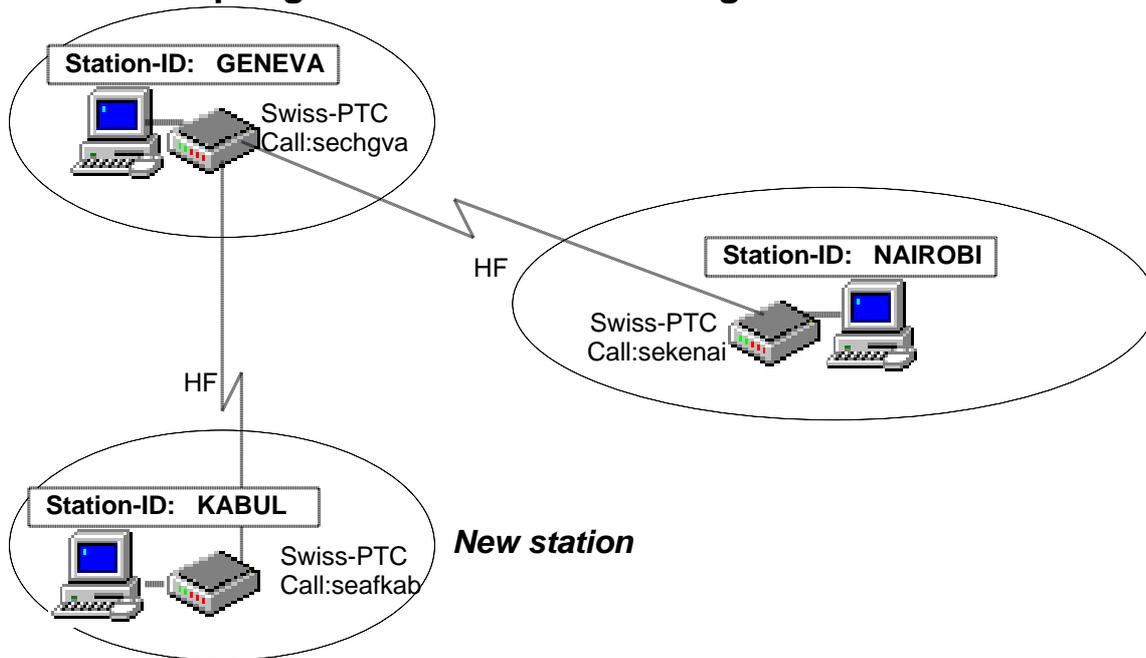
Setup in Kabul

Station Setup		Network Setup	
Station-ID	= KABUL	Add a link to Geneva:	
License Code	= *license code*	Station-ID of remote stat.	= GENEVA
		Modem	= SWISS-PTC
Add a modem:		Call of remote station	= sechgva
Modem type	= SWISS-PTC		
Call	= seafkab		

Setup in Geneva

Station Setup	Network Setup	
no change	Add a link to Kabul:	
	Station-ID of remote stat.	= KABUL
	Modem	= SWISS-PTC
	Call of remote station	= seafkab

A direct link between Kabul and Nairobi could also be defined. However, in our example this is not done, and all messages between Kabul and Nairobi are transferred via Geneva (automatic Store-and-Forward in Geneva).

9.4.3. A Station with a different Modem joins the Network

A new station in Nairobi joins the network. The Station-ID NAIROBI2 is assigned to this station. Because the two stations in Nairobi are within a relatively short distance, Packet Radio modems on VHF or UHF are used to connect NAIROBI2 and NAIROBI.
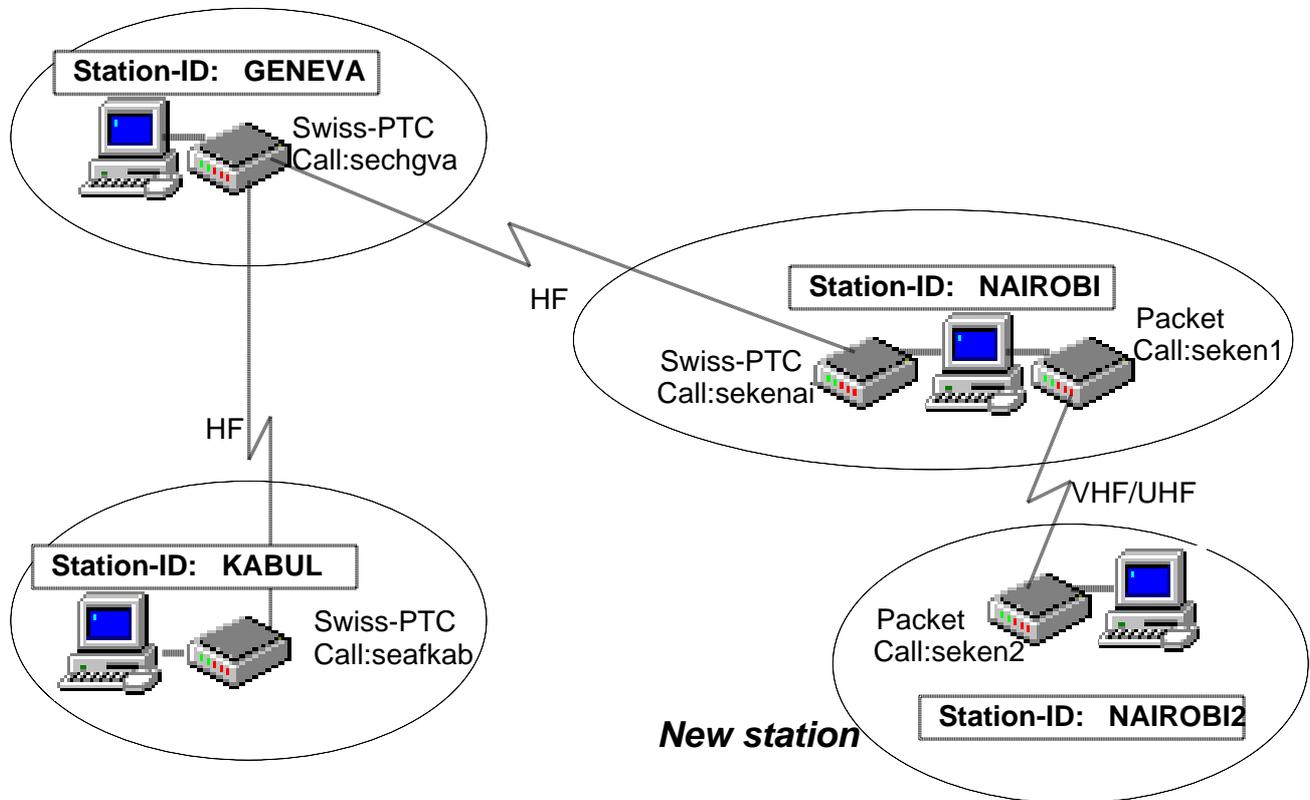
Setup at NAIROBI2

Station Setup		Network Setup	
Station-ID	= NAIROBI2	Add a link to NAIROBI:	
License Code	= *license code*	Station-ID of remote stat.	= NAIROBI
Add a modem:		Modem	= Packet WA8DED
Modem type	= Packet WA8DED	Call of remote station	= seken1
Call	= seken2		

Setup at NAIROBI

Station Setup		Network Setup	
		Add a link to NAIROBI2:	
Add a modem:		Station-ID of remote stat.	= NAIROBI2
Modem type	= Packet WA8DED	Modem	= Packet WA8DED
Call	= seken1	Call of remote station	= seken2

As the network gets more complex, WaveMail needs some routing information.

Imagine that KABUL writes a message for NAIROBI2. The WaveMail station in Kabul will forward the message to Geneva, because there is no other

choice (only 1 link defined). Now the WaveMail station in Geneva is having a problem:
to which station should Geneva forward a message for NAIROBI2 ?

Therefore the operator in Geneva uses the `Network Setup` function of the `Setup` menu to define routing information for messages destined to NAIROBI2. He clicks on the Routing page of the Network Setup dialog. Then he activates the `Add` button and enters the routing information.

Setup in Geneva

Station Setup	Network Setup

no change	Add specific routing for NAIROBI2:
	  Destination station = NAIROBI2
	  Forward via = NAIROBI

As the station NAIROBI now has 2 links, this WaveMail station is also having a problem:
to which station should NAIROBI forward a message for KABUL?

The operator in Nairobi could add specific routing information for messages destined for Kabul. However, there is another possibility. The operator at the NAIROBI station can use the the 'Routing' page of the 'Network Setup' dialog to define a 'Default Routing' station. He selects GENEVA as the 'Default Routing' station, because Geneva is the central station of this growing network. This solution has the advantage, that Nairobi does not have to update the routing information for every new station in the network. WaveMail assumes that the station defined as 'Default Routing' station knows how to forward messages.

Setup at NAIROBI

	Network Setup
	Define Default Routing: Default Routing = GENEVA

9.4.4. WaveNet Internet Gateway

The WaveMail network in our example is now enhanced by a WaveNet gateway to the Internet. The gateway is installed at the WaveMail station in Geneva. See the WaveNet User Guide for installation informations.

Now messages can be exchanged between the Internet and WaveMail, normal Internet e-mail addresses can be used. In our example a user at the NAIROBI2 station might address a message to `info@schuemperlin.com`. WaveMail automatically interprets this address as an Internet e-mail address. The message will be forwarded to NAIROBI (this is the only link from NAIROBI2). NAIROBI will forward the message to GENEVA (Default Routing). WaveMail in GENEVA will forward the message to the WaveNet gateway where the FROM: address is mapped and the message is forwarded to the Internet.
Messages from the Internet are forwarded in the reverse order.
A message can be addressed to several recipients and a mixture of WaveMail and Internet destinations is possible. Attachments can also be sent/received to/from the Internet.

Depending on the setup of the WaveNet gateway, not all stations or users might have the right for Internet access.

10. Special Topics

10.1. POSTMASTER and Normal Users

10.1.1. POSTMASTER

The POSTMASTER is a user with special rights. The person who is in charge of managing the WaveMail station should be the POSTMASTER. On single user stations (no users defined) the only user is automatically the POSTMASTER.

Special POSTMASTER rights:
- change the setup of the station (station setup and network setup)
- modify public addressbook
- redirect and delete messages from the message queue

Messages addressed to an unknown user on your WaveMail station will be delivered to the POSTMASTER.

10.1.2. Normal Users

Several local users can use WaveMail in a certain location. Messages can be addressed to an individual user. A user is identified by a username. Only the addressed user will have access to his messages.

There are two possibilities for local users:
1. There is only a single PC running WaveMail.
   Every user can use this single PC. He has to login on this PC before he can read/write messages. After he has read/written his mail, he will logout in order to prevent other users from reading his messages.
2. The PC running WaveMail is connected to a LAN.
   WaveMail can be installed on other PCs on the LAN in a special 'Client' mode. See chapter 'Installing WaveMail on a LAN. Local users can then read/write messages from their PC. Modems and connections can only be controlled from the PC with the modem(s).

10.1.3. Adding Users

Select `Station Setup` from the `Setup` menu to add users. WaveMail always makes sure, that the first user added is the POSTMASTER.

10.2. Delivery / Non-Delivery Notifications

WaveMail creates Non-Delivery Notifications to inform the sender of a message about delivery problems.

WaveMail can (optionally) create Delivery-Notifications to inform the sender of a message about the delivery of a message. Check the 'Request delivery

confirmation' checkbox while creating a message, if you want to receive a positive confirmation when the message has been delivered to the recipient(s). Note that negative notifications (e.g. unknown user, unknown station) are created regardless of the state of the Request delivery confirmation checkbox .

WaveMail displays received Notifications in the 'Received Messages' folder. The status of the sent message in the OUT or SENT folder is also updated. Select a message in the OUT or SENT folder and press the 'S' key to view the status of a message (see section 'Show Status - Message Status' for more information).

Notifications contain the Message-ID of the referenced message, a code and some other information. When a notification is received, it is translated into text and the subject of the referenced message is retrieved from the OUT or SENT folder.

10.3. How WaveMail handles problem messages

10.3.1. Message addressed to an unknown station

If a message is addressed to an unknown station (or if there is a problem with routing informations on one of the station on the route), WaveMail returns a Non-Delivery notification to the sender, indicating which station was unable to forward the message.

10.3.2. Message addressed to an unknown user on a known station

WaveMail delivers the message to the Postmaster of the destination station and returns a Non-Delivery notification to the sender.

10.3.3. Message is not forwarded for more than 2 days

If a message was not forwarded for more than 2 days (on the senders station or on a station between the sender and the destination), WaveMail returns a Non-Delivery notification to the sender. However, the message remains in the queue for 7 days. Therefore it is still possible that the msg is forwarded after 2 days.
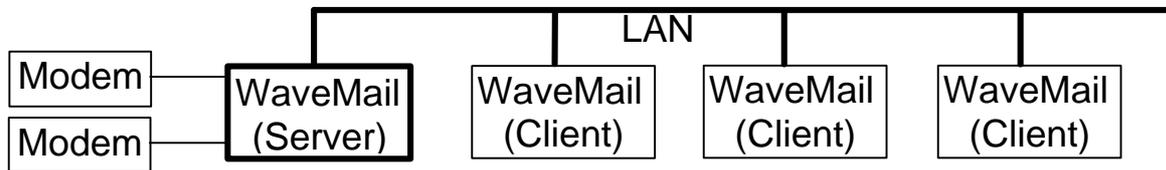
10.3.4. Message too big to forward

If a message is bigger (after compression) than the maximum size specified for a certain modem (and no alternative link is available), a non-delivery notification will be returned.

10.4. Installing WaveMail on a LAN

WaveMail can be used on a LAN. Users can then send and receive their messages from their workstation. However, modem related functions (see Connection and Special menu) are only available on the station that has the modems connected.

```
                              ┌──────────────┬──────────────┬──────────────┐
                              │    LAN                                     │
┌──────┐  ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│Modem │──│ WaveMail │   │ WaveMail │   │ WaveMail │   │ WaveMail │
├──────┤  │ (Server) │   │ (Client) │   │ (Client) │   │ (Client) │
│Modem │──│          │   │          │   │          │   │          │
└──────┘  └──────────┘   └──────────┘   └──────────┘   └──────────┘
```

On the PC where the modem(s) is/are connected, WaveMail is running in Server-Mode (normal mode). On the other PCs WaveMail must be running in Client-Mode (see WAVEMAIL.SI below).

10.4.1. Installation of WaveMail server

1. Install WaveMail on the PC with the modems (WaveMail server).
2. Use Station Setup from the Setup menu to add local users.
3. Select the Show Parameters function from the Setup. In section
   `------WaveMail Directory--------` you find the WaveMail Directory which you will need in step 4. below.
4. Share two directories:
   a) The WaveMail directory must be set for Sharing (with read access). The Share-Name must be **WMSRV$** .
   b) The ...wavemail\user_trx\ directory must be set for Sharing (with read and write access). The Share-Name must be **WMTRX$** .

   example:
   `C:\programs\wavemail\`   share as **WMSRV$** (read)
   `C:\programs\wavemail\user_trx`   share as **WMTRX$** (read + write)
   (The Dollar-Sign at the end of the share-names makes these shared directories 'invisible' to Windows-Explorer on other PCs on the LAN).

10.4.2. Installation of WaveMail client(s)

1. Install WaveMail on the users workstation (WaveMail client).
2. On the users workstation a file WAVEMAIL.SI must be created/edited. This file must be in the same directory where WAVEMAIL.EXE is (normally this is C:\programs\wavemail\program\ ). (A template file is available as WAVEMAIL.SI$. You can copy WAVEMAIL.SI$ to WAVEMAIL.SI and edit WAVEMAIL.SI.)

   Edit WAVEMAIL.SI as follows:
   ```
   [SPECIAL]
   MODE=CLIENT
   WMSERVER=computername
   ```
   where *computername* must be replaced by the name of the PC where WaveMail is running in Server-Mode (PC where the modems are connected).

  If WaveMail has to be installed on several client stations, the same WAVEMAIL.SI file can be copied to all stations.

10.4.3. Comments on LAN operation of WaveMail:

- The message database with a users messages is stored on the users local drive.
- If the LAN connection is 'down' when WaveMail is started, then WaveMail will operate in Offline-Mode. In this mode you have full access to the messages that you have received earlier. You can also create new messages. When you are reconnected to the LAN and after restarting WaveMail, the newly created messages will automatically be forwarded to WaveMail server for sending.
- While connected to the LAN, WaveMail client stations will periodically check whether there is new mail on the WaveMail server (every 30 seconds). If you have a bad LAN, WaveMail might 'freeze' while checking for new messages. (If the line `OfflineTXRX=1` is added to the [SPECIAL] section of WAVEMAIL.SI, then WaveMail will only check for new mail after Send+Receive button has been pressed).
- A WaveMail User should always login from the same PC because his message database is stored on the local drive. (It is possible to tell WaveMail to store the message database of every user on the WaveMail server station. However this option has some disadvantages: no offline-operation possible, possibility of corruption of message database is increased because all databse operations must be performed over the LAN). If you really need the possibility to store the users message databases on the server, you should contact Schuemperlin Engineering AG for details).
- The POSTMASTER can only perform login on the PC where WaveMail runs in Server-mode.

10.5. Swiss-PTC Modem specific topics

10.5.1. Public-Mode with Swiss-PTC Modems

As a default, SWISS-PTC modems operate in the so called Non-Public Mode. In Non-Public Mode only modems with the same code can be connected, thus having a closed network. If you want to establish a connection with a remote station that uses the so called Public-Mode (same as Amateur Pactor), the modem must be forced to Public-Mode.

If you are the calling station, you can add a '+' sign in front of the remote stations callsign, e.g. +hb9cnm   (in Link Properties of Network Setup). Whenever you attempt to establish a link with that particular station, WaveMail will force the SWISS-PTC Modem to Public-Mode. The SWISS-PTC Modem automatically returns to Non-Public mode after disconnect.

If you are the receiving station, you select the SWISS-PTC Modem on the Modem Status Window of the main screen. Then you press CTRL+SHIFT+P to force the modem to Public-Mode. The Public-Mode is indicated by [P] in the status of the modem. If you press CTRL+SHIFT+N the modem will return to Non-Public Mode.

10.5.2. Adjusting Audio Level on Swiss-PTC II Modems

The audio level of Swiss-PTC II modems is adjusted by a software command. Select Station Setup from the Setup menu. Then select Properties for the desired Swiss-PTC modem. Enter the following lines in the 'Initialization string(s)' list:

LOCK 0
FSKA fff
PSKA ppp

Replace fff and ppp with the values for Frequency-Shift-Keying and Phase-Shift-Keying. Default values are FSKA 210 and PSKA 300. The LOCK 0 line is needed to unlock the Swiss-PTC parameter locking mechanism.

10.6. TAPI (Windows Modems)

10.6.1. Overview

TAPI (Telephony Application Programming Interface) is part of the Windows operating systems. TAPI offers services to manage modems, to dial modem connections and to answer modem connections.

When adding a normal telephone modem to the WaveMail configuration (`Setup - Station Setup - Add Modem`), you have the choice between 'Telephone Modem' and 'Windows Modem (TAPI)'. After you choose 'Windows Modem (TAPI)' you can select the particular modem from the list of installed modems.

Satellite phones with data capabilities like Inmarsat, Iridium or Thuraya can also be used as 'Windows Modem (TAPI)' .

10.6.2. Advantages when using TAPI.
- TAPI supports modem sharing. If a 'Windows Modem (TAPI)' type modem is configured in WaveMail, the same modem can be used by a second application (unless the modem is busy with a call). If you define a modem as 'Telephone Modem' , then a second application cannot use that modem while WaveMail is running.
- TAPI handles configuration and initialization of modems.
- TAPI supports the Windows dialing properties. If a phone number is defined in the format
  `+country (area) number` (e.g. +41 (52) 355 1666), then TAPI will assemble the number to be dialled based on the location and dialing properties defined in Windows (Start > Settings > Control Panel > Phone and Modem Options).
- Modems which are connected via USB or infrared and that do not have a driver for a Virtual COM port can be used with TAPI (if a modem is configured as 'Telephone Modem' , then WaveMail needs a corresponding COM port, real or virtual) .

10.6.3. Disadvantages when using TAPI.
- WaveMail does not have direct control over the modem and error detection is limited.
- In some situations TAPI may have slow response times (e.g. when aborting a connection while TAPI is dialing).

11. Background information

11.1. Message Flow

After you create a message, WaveMail creates a compressed version of the message (including attachments). WaveMail evaluates to which stations the message should be sent (destination station(s) and forwarding station(s)) and saves a copy of the compressed message in the queue(s) for the respective station(s). The next time a link is established with a station, the messages in the queue for that particular station are sent. This may include messages which are not addressed to that station but which have to be forwarded by that station.

When you select Send+Receive from the toolbar (or when a scheduled connection is executing), WaveMail will perform the login operation, send messages (smallest message first, biggest message last) and then receive messages (again smallest first). All notifications are packed into one special message for exchange between stations.

11.2. Message Routing

If WaveMail has to forward a message to STATIONX it will use the following scheme to decide where to send the message next:
1. If a **Specific Routing** has been defined for STATIONX, then WaveMail uses this routing information.
2. If a **Link** with station STATIONX is defined, then WaveMail will forward the message over this link.
3. If neither 1 nor 2 are true, then WaveMail will forward the message to the station defined in the **Default Routing** field.
4. If no Default Routing is defined, WaveMail will return a 'Address Unknown Notification' to the originator of the message.

11.3. Automatic Link Establishment

11.3.1. Single channel radio links / telephone links

If WaveMail fails to establish a link on the scheduled time, it will automatically retry after a preprogrammed interval (1 min for telephone modems, 10 min for radio modems). After 3 unsuccessful attempts WaveMail gives up and will try to establish the link on the next scheduled time. The case where the channel, line or remote modem is busy is not counted as an attempt and WaveMail will keep on trying with short intervals (60 seconds for telephone modems, 120 sec for radio modems).

11.3.2. Multi channels

If a Swiss-PTC modem is connected and 'Transceiver Control' is enabled, WaveMail executes the following procedure for automatic link establishment:
At the scheduled time, WaveMail
- attempts to connect on the 1.Channel (depending on the time of day) defined in the 'Channels' dialog of the 'Link properties'
- if the channel is busy or the connect attempt fails, WaveMail attempts to connect on the 2. Channel (if defined)
- if the channel is busy or the connect attempt fails, WaveMail attempts to connect on the 3. Channel (if defined)

After a preprogrammed time, WaveMail will retry on the 1.Channel and so on. After 3 unsuccessful attempts (per channel) WaveMail gives up and will try to establish the link on the next scheduled time. If a channel is busy at the time of a connect attempt, this is not counted as attempt. WaveMail will continue to check that channel (with a preprogrammed delay between attempts) until the channel seems free. If a channel is busy, WaveMail will retry on that channel after 2 minutes. After a failed connect attempt on a non-busy channel, WaveMail will retry on that channel after 10 minutes.

For every channel the following action is taken:
1. Test whether transceiver is responding (for transceivers that acknowledge commands).
2. Set channel
3. Wait a few seconds to let the Swiss-PTC check whether the channel is busy.
4. Try to connect remote station

After a failed connect attempt or after disconnecting, WaveMail instructs the transceiver to resume scanning.

12. Tips and Tricks

How to delete messages older than a certain date
Select the desired folder. Sort messages by date (click on the header of the Date column). Click on the first message to be deleted. Then press and hold the Shift key and click on the last message to be deleted. Now press the Delete key.

Importing existing text from a file into a new message
Text from a plain text file may be imported to a new message. In the New Message window you can select Insert Text from File from the Edit menu or you can use button . Even the TO:, CC: and SUBJECT: headers of the imported text file are copied to the respective fields of the new message (headers must be in first 10 lines and no empty line may preceed these headers).

Saving a draft version of a new message
When you are creating a new message, you might want to save it while the message is not yet complete for sending.
In the 'New Message' window, select Save in Draft Folder from the Message menu. You can then later select the saved message in the 'Draft Messages' folder and open it to continue editing before sending the message.

The remote WaveMail station has not yet defined a link with my station, but I want to send a message.
Exchanging messages is only possible, after a link has been defined on both stations. However, you can send a message to the Postmaster of the remote station even if the link to your station has not yet been defined on the remote station. You could send a short message, asking the remote Postmaster to add a Link to your station in his Network Setup.
1. Use Chat from the Connection menu to establish an online dialog with the remote station.
2. After connection is established, press the Enter key to start e new line.
3. Enter the 4 letters ZCZC followed by the Enter key. This will start message saving on the remote side.
4. Enter your text.
5. On a new line, enter the 4 letters NNNN followed by the Enter key. This will end message saving on the remote side. The text you entered is delivered to the postmaster on the remote station.

Automatic use of alternative links between two stations
If you have an HF-connection (Swiss-PTC) as well as an Inmarsat connection between two stations, then you might wish that normally messages are transmitted over HF (no airtime cost). However, because of varying propagation conditions, HF might not always be available. Therefore you

would prefer that messages are transferred over Inmarsat if it was not possible to send/receive over HF.

You can easily do this by scheduling an automatic connection over Inmarsat at regular times. As an example you could schedule a connection over Inmarsat once early in the morning and once early in the evening. If all messages have already been transferred by HF, then the Inmarsat connection will be extremely short. However, if some messages were not transferred over HF, then they will be transferred over Inmarsat.

Like this you take full advantage of both systems:
- save cost using HF if possible
- use the high availabilty of Inmarsat as backup

See section 'Network Setup' in chapter 'Advanced Setup', for details about how to configure scheduled connections.

Copying the addressbook
The public addressbook is saved as WAVEMAIL.ADR at the same location where WAVEMAIL.EXE is stored (normally c:\programs\wavemail\program\). You can copy this file from one WaveMail station to another if you want to have the same addressbook available.

You can also distribute WAVEMAIL.ADR by sending it as an attachment. If you send the WAVEMAIL.ADR as an attachment in a message to the postmaster of a WaveMail station, the recipient will have the option `Save as Addressbook` when he double-clicks the WAVEMAIL.ADR attachment. This will replace the public addressbook with the attached WAVEMAIL.ADR.

Using Thuraya
Setup of WaveMail for Thuraya:
- in STATION SETUP select ADD MODEM
- then select THURAYA
- select 19200 as baudrate

- make sure that the baudrate on the Thuraya phone is also 19200 (MENU - SETTINGS - Data Link Rate)

Using Iridium
Setup of WaveMail for Iridium:
- in STATION SETUP select ADD MODEM
- then select IRIDIUM
- select 19200 as baudrate

- make sure that the baudrate on the Iridium phone (MOTOROLA 9500) is also 19200

Note: Tests have been made with WaveMail and a MOTOROLA 9500 Iridium phone. It works but there is a little problem due to a strange behaviour of the MOTOROLA 9500:

The Iridium phone gives the CONNECT message and sets DCD active as soon as the line at the other end of the connection is ringing. Normally the CONNECT should only come after the modem on the other side answers the call and the connection is established. WaveMail starts to login when it receives the CONNECT message (and DCD signal) but because this message comes too early (before the connection is really established), WaveMail will make several attempts to login. In most cases this worked fine, but if it takes long to establish the connection, WaveMail might give a timeout.

Packet Radio Modems - TX-Delay Parameter

WaveMail configures Packet-Radio modems with default parameters which work fine for most applications. However there are situations where you should add different parameters.

TX-Delay

In WaveMail the default value for the TX-Delay is T 25 (on most Packet-Radio modems this value is multiplied by 10 and therefore corresponds to 250 msec). On some modems (e.g. TNC-3) the TX-Delay is not multiplied and therefore you should enter a higher value (e.g. T 250).

How to do that:

In WaveMail open `Setup / Station Setup`. Then click on `Properties` next to the desired PACKET-RADIO modem. The 'Modem Properties' dialog will be displayed. Click on `Advanced Setup` and enter the following line in the 'Initialization string(s)' box:

```
T  250
```

Packet Radio Modems - Optimize Throughput

If on a particular frequency only one Packet-Radio link is active at a time, you can optimize the throughput by setting more aggressive parameters. If several links are active at the same time then you should not change the default parameters.

How to set aggressive parameters:

In WaveMail open `Setup / Station Setup`. Then click on `Properties` next to the desired PACKET-RADIO modem. The 'Modem Properties' dialog will be displayed. Click on `Advanced Setup` and enter the following lines in the 'Initialization string(s)' box:

```
P  128
@T2 20
```

13. Troubleshooting

Connection with remote WaveMail station is possible, but messages are not sent/received

Select `Show Connect Log` from the `Special` menu to view the 'Connect Log' and check the column 'Result' of the 'Connect Log'.

If the result is '**login error**', then the remote WaveMail station has not defined a link with your station or it has defined a different password to protect this link.

If the result is '**timeout**', then WaveMail is probably not running on the remote station.

Address unknown

If you get non-delivery notifications of the following type:

`Address unknown : address_y (Station station_x has no routing information) 26.06.2000 22:07`

then station_x (which may be your station or another station on the route) does not know where to send the message. This may be because the address is wrong or because the 'Network Setup' is not correct. If your station does not have a direct link to the destination, then you should either define a default routing station or a specific routing information for this address (see 'Network Setup').

The modem(s) are not properly configured

It is important to switch the modem(s) on before starting WaveMail, because WaveMail initializes the modem(s) at startup.

You can also use the Reopen Modem function (select Modem Functions from the Special menu) to completely reinitialize a modem.

Login / LAN operation

The following is only applicable if you use WaveMail with several users on a LAN.

If you define local users on a WaveMail station, these users can either login on the WaveMail-Server PC (where the modems are connected) or they can login from another PC where WaveMail is installed for Client access over LAN.

After a user has logged in from a WaveMail-Client, it is not possible for this user to login directly on the WaveMail-Server PC. This is made in order to prevent from losing messages. If you try to login directly on the WaveMail-Server PC after having logged in from a WaveMail-Client, then you will receive the message *'This account can only be accessed by CLIENT WaveMail PCs!* '.

Problems with US-Robotics modem

Some types of US-Robotics modems need a special Initialization string. If you define the modem as a 'Telephone Modem', then you have to enter this string in the 'Modem Properties' dialog (this is not necessary for 'Windows Modem (TAPI)').

As a default, WaveMail ititializes 'Telephone Modems' at startup with AT&F (set factory defaults). (In addition to that WaveMail sends the string ATE0Q0X4V1&D2&C1S0=0 before dialing.)

For some US Robotics modems the string to set factory defaults is AT&F1. You can set this in Setup / Station Setup / Modem Properties. Activate Advanced Setup and enter **AT&F1** as 'Initialization string(s)'.

APPENDIX A. WaveMail Logfiles

WaveMail saves information about connections, sent messages and received messages in logfiles.

There are 3 types of logfiles:
1. Connect Log
2. Transmit Log
3. Receive Log

A.1. Connect Log

WaveMail writes a summary of every connection to a daily logfile.

General Format

- Connect Logs are saved in the directory LOG within the WaveMail-directory structure.
- A new file is created for every day.
- Connect Log files have the extension `.WCL` .
- The filename has the form ddmmyyyy.WCL (example 30092002.WCL for 30.Sep.2002).
- Every line contains the data for one connection.
- The fields of the Connect Log are separated by a TAB-stop (decimal 9)

Fields of a Connect Log Entry

Field	Description	Example
Date	Date when connection was disconnected.	`30.09.2002`
Time	Time when connection was disconnected.	`14:38:45`
Station-ID	Station-ID of remote station	`KABUL`
Modem	Modem used	`SWISS-PTC`

Result	`OK`
	    connection OK
	`remote busy`
	    remote modem was busy
	`manual disconnect`
	    message transfer interrupted by manual disconnect
	`connect failed`
	    connect attempt failed
	`channel busy`
	    channel was busy
	`login error`
	    wrong Station-ID or Password
	`auto-disconnect`
	    WaveMail disconnected because of no activity
		`OK`

	`protocol error`
	    error during message transfer
	`timeout`
	    no response from remote station
	`transceiver control error`
	    no response from transceiver
	`dial-up error`
	    dialup not possible (only TCP/IP)
	`modem busy`
	    modem (of this station) busy
	`failed`
	    connection failed, reason unknown
	`already logged in`
	    same station already logged in on other modem	

Origin/Channel	`–` connection established by remote `x` connection established by this station `1,2,..` connection established by this station on channel n (if transceiver control enabled)	`–`
Minutes	Duration of connection in minutes and decimals of minutes (e.g. 2.75 is 2 minutes and 45 seconds)	`2.92`
Bytes sent	Number of bytes sent. This is the net byte count of the compressed message(s).	`8743`
Bytes received	Number of bytes received. This is the net byte count of the compressed message(s).	`15244`
Messages sent	Number of messages and notifications sent.	`2`
Messages received	Number of messages and notifications received.	`3`

A.2. Transmit Log

WaveMail writes a summary of every message sent to a daily logfile.

General Format

- Transmit Logs are saved in the directory LOG within the WaveMail-directory structure.
- A new file is created for every day.
- Transmit Log files have the extension **.WTL** .
- The filename has the form ddmmyyyy.WTL (example 30092002.WTL for 30.Sep.2002).
- Every line contains the data for one message.
- The fields of the Transmit Log are separated by a TAB-stop (decimal 9)

Fields of a Transmit Log Entry

Field	Description	Example
Date	Date when message transfer was completed.	`30.09.2002`
Time	Time when message transfer was completed.	`14:38:45`
Local Station-ID	Station-ID of local station	`GENEVA`
Remote Station-ID	Station-ID of remote station	`KABUL`
Direction	Direction of message transfer (always TX)	`TX`
Size of message	Size of the message in bytes. This is the net byte count of the compressed message.	`2763`
Transfer duration	Duration of transfer in minutes and decimals of minutes (e.g. 2.75 is 2 minutes and 45 seconds)	`1.93`
Type of message	`MSG` normal message `NOTIF` notification `UNKNOWN` unknown type	`MSG`
Modem	Modem used.	`SWISS-PTC`
Originator	Sender of message.	`user@isp.com`
Message-ID	Message-ID of message. (notifications from WaveMail to Internet have no Message-ID and therefore this field is then 'NOTIFICATION').	`<76354@xy.com>`

Note concerning Notifications:
Notifications from Internet to WaveMail are handled as normal messages.

A.3. Receive Log

WaveMail writes a summary of every received message to a daily logfile.

General Format

- Receive Logs are saved in the directory LOG within the WaveMail-directory structure.
- A new file is created for every day.
- Receive Log files have the extension **.WRL** .
- The filename has the form ddmmyyyy.WRL (example 30092002.WRL for 30.Sep.2002).
- Every line contains the data for one message.
- The fields of the Receive Log are separated by a TAB-stop (decimal 9)

Fields of a Receive Log Entry

Field	Description	Example
Date	Date when message transfer was completed.	`30.09.2002`
Time	Time when message transfer was completed.	`14:38:45`
Local Station-ID	Station-ID of local station	`GENEVA`
Remote Station-ID	Station-ID of remote station	`KABUL`
Direction	Direction of message transfer (always RX)	`RX`
Size of message	Size of the message in bytes. This is the net byte count of the compressed message.	`2763`
Transfer duration	Duration of transfer in minutes and decimals of minutes (e.g. 2.75 is 2 minutes and 45 seconds)	`1.93`
Type of message	`MSG` normal message `NOTIF` notification `UNKNOWN` unknown type	`MSG`
Modem	Modem used.	`SWISS-PTC`
Originator of message	Sender of message.	`user1.kabul`
Message-ID	Message-ID of message. (notifications from WaveMail to Internet have no Message-ID and therefore this field is then 'NOTIFICATION').	`kabul.1234.56`

APPENDIX B. GLPLUS/RLPLUS Compatibility

It is recommended to equip the complete network with the WaveMail software to take full advantage of all WaveMail features. However, if you wish to use GLPLUS or RLPLUS software on some of your stations (e.g. during the transition phase) you can do so.

Features and Limitations of GLPLUS/RLPLUS Compatibility

Features:
- Messages can be exchanged between WaveMail stations and GLPLUS/RLPLUS stations.
- WaveMail stations and GLPLUS/RLPLUS stations can communicate in Chat mode (online dialog).

Limitations:
- Attachments will NOT be sent to GLPLUS or RLPLUS stations.
- Forwarding capabilities are limited.

Special actions on WaveMail Station
Define a link to a GLPLUS/RLPLUS station:
Define a link to the GLPLUS or RLPLUS station as you do for WaveMail stations (see Network Setup). You must enter a special Station-ID of the form 'GP:*call*' where *call* must be set to the call sign of the remote SWISS-PTC or Packet Radio modem
 example: `GP:hb9cnm`

Address a message to a GLPLUS/RLPLUS station:
You can address messages to a GLPLUS or RLPLUS station using the special Station-ID as address (`GP:hb9cnm` in the above example). The `'GP:'` tells WaveMail that the remote station is using GLPLUS or RLPLUS software.

Send+Receive messages (WaveMail is calling station):
You can use the Send + Receive button on the main screen to exchange messages with GLPLUS or RLPLUS stations.

Special actions on GLPLUS/RLPLUS Station
Send+Receive messages (GLPLUS/RLPLUS is calling station):
The remote GLPLUS or RLPLUS station can use the ..EXCHANGE and ..READALL commands to exchange/read messages. Other GLPLUS/RLPLUS commands (e.g. ..DIR) are not supported.

Chat mode:
A GLPLUS/RLPLUS station can enter `..CHAT` after connecting a WaveMail station in order to open the chat window on the WaveMail station.

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