

# **MailMeAnywhere HylaFAX Fax Server**

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# 1 Fax Capability

Fax capability is provided as a generalized module that can be customized and integrated in various ways.

## 1.1 MMA Hylafax Resource Center

Hylafax (<http://www.hylafax.org>) is a mature and feature rich open-source software package for Linux.

We have put together a complete collection of related software available at <http://www.mailmeanwhere.org/>

## 1.2 Inbound Faxes

Based on the incoming fax phone line, the fax becomes an email attachment and an email is sent to the fax distributor operator. Which then forwards or resends the inbound fax to its proper destination.

## 1.3 Outbound Faxes

A number of different interfaces for sending out faxes are supported.

# 2 Fax Server

The hylafax software is installed, configured and managed using an mma interface.

## 2.1 mmaFax Interface

A complete mmaFax module has been put together. See `mmaFaxRoadmap.sh` for an overview.

## 2.2 Current Modem Setting

Currently, the fax server is run on Linux machine named Janeway. The modem that are currently used is "Hayes Century 2 Rack System" modem. It can hold up to 16 serial modem, but for now it only has 8 modems installed on that rack.

## 2.3 KNOWN PROBLEM WITH MODEM

- Use Class 2 modem when setting up the modem (i.e. when running the `faxaddmodem`)
- To debug the modem on Linux, use `minicom`  
Common command line:
  - `at&f` - factory setting
  - `at&v` - current setting
  - `at&w` - write new setting
- If there is error occur when receiving fax with message "Missing EOL after 5 seconds", edit the `config.ttySx` and change the following value:

```
Class2RecvDataTrigger: "\022"
```

This is caused by a flow control configuration problem. This happen if the trigger is wrong.

## 3 Fax Clients

### 3.1 Outbound Fax Clients Interface - UNIX

Hylafax comes with a number of GUI and script based interfaces. sendfax is the primary command. These client programs are a standard part of the HylaFax distribution.

### 3.2 Windows HylaFax Client (WHFC)

The WHFC package is available at <http://www.mailmeanywhere.org/>

It needs to be configured with the fax server information. When installing this software, choose custom installation for English version otherwise the default installation would be in German.

Make sure that the Sender information is filled in the User preferences menu.

In order to use the fax client, the user need to be added to hylafax's permission file. Use the following command to add the user: `mmaFaxAdmin -p username=lisa -i faxUserAdd.`

As of version 1.0.9 (the latest as of May 1, 2003) you can enable passive ftp connections when setting the registry key `HKEY_LOCAL_MACHINE\SOFTWARE\Whfc\UsePasv` to 1. If you want active connection (default) set this key to 0. This might be useful in the firewall environment.

In order to be able to view the incoming fax, you need to configure and install several things:

1. Install tiff viewer (get it from <http://www.mis2.udel.edu/terence/tiffview/>). Install it in `C:/ProgramFiles/TiffViewer`.
2. Alternatively, Kodak Imaging for Windows is included with the Windows 98 and Windows 2000 operating systems. Use this instead of tiffview.
3. To view the incoming fax, first you have to export the directory `/var/spool/fax/recvq` on your HylaFAX host e.g. via samba. If you do it with samba you can put the following entry in `smb.conf` :

```
[recvq]
comment = Fax Receive Queues
browsable = yes
path = /var/spool/fax/recvq
public = yes
writable = no
```

4. Edit your `/var/spool/hylafax/etc/config.ttySx` and change the following:

```
RecvFileMode:      0644
LogFileMode:       0644
DeviceMode:        0666
```

5. enter "c:\ProgramFiles\TiffViewer\TIFFVIEW\hylaifaxhost\recvq\%s" or C:\Program Files\Windows NT\Accessories on the systemsettings dialog in the field "Program and arguments for viewing received faxes" (replace hylaifax host with the correct hostname of your HylaFAX server).

### 3.2.1 Outbound Email To Fax Gateway

An email to fax gateway which takes email with attachments addresses to 425-644-2886@fax.someDomain.com will also be setup.

## 4 Recommended Configuration

The comprehensive configuration that we recommend is shown in Figure 1 and Figure 2.

### 4.1 Fax Modems

External modems work a lot better than internal modems for fax server.

With external modems, one can visually view the current status of each modem, one can add and remove modems of various types, one can physically turn on and off individual modems, ...

### 4.2 Ultra High Speed PCI I/O Card

#### 4.2.1 PCI-800H-25 Specificaion

Manufacturer: VScom

Description:

- 8-port Serial, 16950 UARTs (128-byte FIFO), RS-232, PCI-bus 5-volt, plug & play card.
- Settable to COM1-COM99.
- Supports fast data transfer rates (up to 921,600 bps).
- Provides 8 DB25 (25-pin male) serial connectors via an included octopus cable that plugs on to the back of the card.
- Uses only 1 IRQ and can share an interrupt with other plug & play devices in your system.
- Designed for use with Windows 95, 98, ME, 2000, XP, NT 4.0, DOS, Linux kernel 2.0.xx and later & OS/2. Drivers/instructions for these operating systems are included.

#### 4.2.2 Installation

- 1) At present, this board was installed on Debian Linux with kernel version 2.4.18

- 2) Install devfsd: Daemon for the device filesystem (new type of device interface to Linux, starting with kernel 2.4).
- 3) The board should have been recognize at boot time  
Run:

```
setserial -g /dev/ttyS*
```

you'll see some info about how that device driver is configured for your ports. Note that where it says "UART: unknown" it probably means that no uart exists. In other words you probably have no such serial port and the other info shown about the port is meaningless and should be ignored. If you really do have such a serial port, setserial doesn't recognize it and that needs to be fixed.

The possible outcome of setserial command is as follow:

```
/dev/ttyS0, UART: 16550A, Port: 0x03f8, IRQ: 4  
/dev/ttyS10, UART: 16950/954, Port: 0xe410, IRQ: 10  
/dev/ttyS11, UART: 16950/954, Port: 0xe418, IRQ: 10  
/dev/ttyS4, UART: 16950/954, Port: 0xdc00, IRQ: 10  
/dev/ttyS5, UART: 16950/954, Port: 0xdc08, IRQ: 10  
/dev/ttyS6, UART: 16950/954, Port: 0xdc10, IRQ: 10  
/dev/ttyS7, UART: 16950/954, Port: 0xdc18, IRQ: 10  
/dev/ttyS8, UART: 16950/954, Port: 0xe400, IRQ: 10  
/dev/ttyS9, UART: 16950/954, Port: 0xe408, IRQ: 10
```

## 4.3 Intranet Features

Within the Intranet, the email-to-fax gateway is disabled.

Within the Intranet, the client server feature is enabled. Because we are in a secure environment, client access restrictions can be minimal.

- Incoming Fax Through Email Distribution
- Outbound Fax For Intranet Clients

### 4.3.1 Incoming Fax Through Email Distribution

The incoming fax is sent to dedicated email address (i.e. fax@somedomain.com) and from there it will be distributed to the correct recipient. In order to do this, the fax server need to create the fax dispatch:

- Create a file /var/spool/hylafax/etc/FaxDispatch  
This file will contain the following line:

```
FILETYPE=pdf  
SENDTO=fax@somedomain.com
```

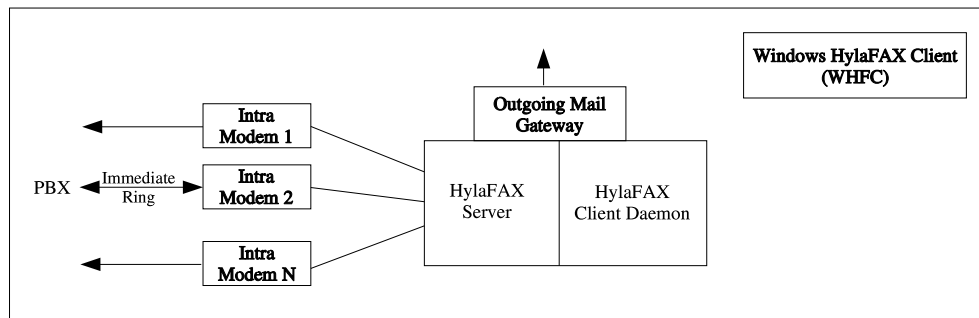


Figure 1: Intranet Fax Server Configuration

The FILETYPE can be either ps, pdf, or tiff

- If the FILETYPE is pdf, customization of /var/spool/hylafax/bin/faxrcvd is needed.
- Download fax2pdf source file from:  
<http://sourceforge.net/projects/fax2pdf> or  
 from local (/opt/public/mmaSrc/fax2pdf)  
 gunzip, tar it, and run make. Copy fax2pdf application to TIFFBIN (usually it's /usr/local/bin).  
 If in doubt, you can check the variable of TIFFBIN in /var/spool/hylafax/etc/setup.cache.
- Download mimencode from:  
<ftp://www.fax2send.com/ac000609/misc/mimencode.tgz> or  
 from local (/opt/public/mmaSrc/fax2pdf)  
 gunzip and then tar it. Copy mimencode application to /usr/bin (you can copy it anywhere you want as long as it's in your path)
- Edit the /var/spool/hylafax/bin/faxrcvd as the following:  
 Add line:  
 FAX2PDF=\$TIFFBIN/fax2pdf

Edit the if clause for FILETYPE=pdf to be like:

```

elif [ "$FILETYPE" = "pdf" ]; then
    echo "Content-Type: application/pdf; name=\"c$COMMID.pdf\""
    echo "Content-Description: FAX document"
    echo "Content-Transfer-Encoding: base64"
    echo "Content-Disposition: attachment; filename=\"c$COMMID.pdf\""
    echo ""
    $FAX2PDF $FILE $FILE.pdf 2>/dev/null
    $MIMENCODE $FILE.pdf 2>/dev/null
    $RM -f $FILE.pdf 2>/dev/null
else # default as Postscript
    .....

```

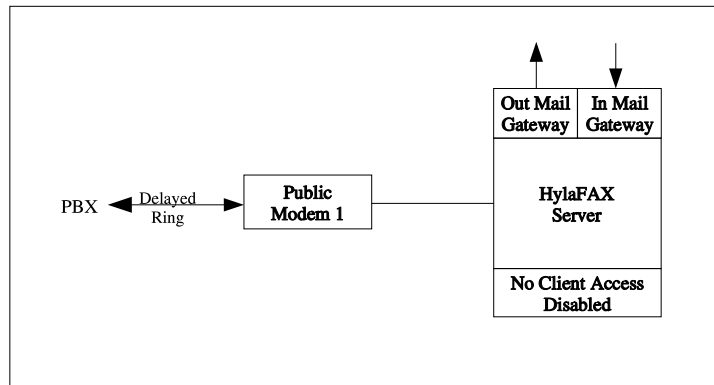


Figure 2: Public Fax Server Configuration

.....

#### 4.4 DMZ Features

On the DMZ side, the client server feature is disabled. This makes the DMZ server more secure.

On the DMZ side, the email-to-fax gateway is enabled.

- Incoming Fax Through Email Distribution
- Email To Fax Gateway

#### 4.5 PBX and Modem Configuration

Generally speaking, external modems are preferred.

In order to provide for continuous incoming fax processing, enable immediate ringing on the primary server (Intranet) and delayed ringing on the secondary server (DMZ).

Program all incoming fax modems uniformly for first ring pick-up.

Allow for incoming fax modems to also be used for outgoing but out them at lower priority than dedicated outgoing faxes.