Themenreihe FreePBX/Asterisk
Konfigurationsleitfaden Hylafax

1 HYLAFAX – INSTALLATION UND GRUNDKONFIGURATION

1.1 IAX-Nebenstelle in FreePBX konfigurieren

- Nebenstellennummer eintragen
- CID eintragen
- Passwort (ohne Sonderzeichen !!!)
- Port 4700
- requirecalltoken = No

1.2 Putty öffnen und nacheinander folgenden Befehle eingeben

```
yum update [ENTER]
```

```
yum install libtiff-tools libtiff-devel [ENTER]
```

```
adduser uucp [ENTER]
```

```
wget http://repo.firewall-services.com/centos/7/x86_64/iaxmodem-1.3.0-
1.el7.fws.x86_64.rpm && rpm -Uvh iaxmodem-1.3.0-1.el7.fws.x86_64.rpm
[ENTER]
```

```
cd /etc/iaxmodem && rm iaxmodem-cfg.ttyIAX [ENTER]
```

1.3 IAXModem konfigurieren

An der Konsole folgenden Befehl eingeben:

```
nano ttyIAX0 [ENTER]
```

Im Editor dann folgende Parameter einfügen:

```
device          /dev/ttyIAX0
owner           uucp:uucp
mode            660
port            4700
refresh         3600
server          127.0.0.1
peername        Nummer der Nebenstelle
secret          Passwort der Nebenstelle
codec           ulaw
```

1.4 Automatischen Start von faxgetty konfigurieren

Folgenden Befehl an der Konsole eingeben:

```
nano /etc/systemd/system/ttyiax0.service [Enter]
```

In den geöffneten Editor dann folgende Parameter eingeben:

```
[Unit]
Description=HylaFAX faxgetty for ttyIAX0

[Service]
User=root
Group=root
Restart=always
RestartSec=30
ExecStart=/usr/sbin/faxgetty ttyIAX0 &

[Install]
WantedBy=multi-user.target
```

1.5 Dienste aktivieren und starten

An der Konsole nacheinander folgende Befehle eingeben:

```
systemctl enable ttyiax0.service [ENTER]
```

```
systemctl enable iaxmodem && systemctl start iaxmodem [ENTER]
```

1.6 IAXModem prüfen

An der Konsole folgenden Befehl eingeben:

```
ps -ef |grep iaxmodem [ENTER]
```

Folgende Ausgabe sollte ander Konsole erfolgen:

```
root      1081     1  0 14:31 ?        00:00:00 /usr/sbin/iaxmodem
uucp      1083  1081  0 14:31 ?        00:00:00 /usr/sbin/iaxmodem
root      1211 32402  0 14:33 pts/1    00:00:00 grep --color=auto iaxmodem
```

1.7 FreePBX-Fax-Nebenstelle prüfen

```
asterisk -rx 'iax2 show peers' [ENTER]
     Folgende Anzeige sollte erscheinen:
[root@freepbx iaxmodem]# asterisk -rx 'iax2 show peers'
Name/Username  Host            Mask   Port      Status      Description
99             127.0.0.1 (D)  (null)  4700     OK (1 ms)
1 iax2 peers [1 online, 0 offline, 0 unmonitored]
```

Wenn Sie die Nebenstelle jetzt anrufen, sollte das Klingelzeichen zu hören sein. Das Gespräch wird allerdings nicht angenommen.

1.8 Hylafax installieren und konfigurieren

Zur Installation von Hylafax an der Konsole folgenden Befehl eingeben.

```
yum install hylafax+ [ENTER]
```

Anschließend das System neu starten:

```
reboot [ENTER]
```

Nach dem Neustart mit PuTTY die Konsole wieder öffnen und folgenden Befehl eingeben. Die im Dialog rot markierten Antworten müssen manuell eingegeben bzw. durch eigene Werte ersetzt werden. Alle anderen Fragen können mit ENTER übersprungen werden.

```
[root@freepbx ~]# faxsetup [ENTER]

Setup program for HylaFAX (tm) 7.0.3.

Created for x86_64-unknown-linux-gnu on Fri Jul 31 22:38:20 UTC 2020.


There does not appear to be an entry for the FaxMaster either in
the YP/NIS database or in the /etc/aliases file.  The
FaxMaster is the primary point of contact for HylaFAX problems.
The HylaFAX client-server protocol server identifies this alias as
the place to register complaints and HylaFAX directs automatic mail
messages to this user when problems are identified on a server
machine or when the routine server maintainence scripts are run
(e.g. faxcron).

Should an entry be added for the FaxMaster to /etc/aliases [yes]?
Users to receive fax-related mail [root]? IhrAdmin@IhrMailhost.de
Rebuilt /etc/aliases database.
Update /var/spool/hylafax/status/any.info.
Generate etc/ssl.pem for SSL Fax [yes]? N   →Ganz wichtig!!!
Skipping creation of etc/ssl.pem for SSL Fax.

        HylaFAX configuration parameters are:

        [1] Init script starts faxq:            yes
        [2] Init script starts hfaxd            yes
        [3] Start paging protocol:              no
Are these ok [yes]?

Modem support functions written to /etc/hylafax/setup.modem.
Configuration parameters written to /etc/hylafax/setup.cache.

No scheduler config file exists, creating one from scratch.
Country code [1]? 49
Area code [000]? 5525
Long distance dialing prefix [1]? 0
International dialing prefix [011]? 00
Dial string rules file (relative to /var/spool/hylafax) ["etc/dialrules"]?
Tracing during normal server operation [1]?
Default tracing during send and receive sessions [0xFFF]?
Continuation cover page (relative to /var/spool/hylafax) []?
Timeout when converting PostScript documents (secs) [180]?
Maximum number of concurrent jobs to a destination [1]?
Define a group of modems []?
Time of day restrictions for outbound jobs ["Any"]?
Timeout before purging a stale UUCP lock file (secs) [30]?
Max number of pages to permit in an outbound job [0xffffffff]?
Syslog facility name for ServerTracing messages [daemon]?

The non-default scheduler parameters are:
```

```
CountryCode:            49
AreaCode:               5525
LongDistancePrefix:     0
InternationalPrefix:    00

Are these ok [yes]?

Creating new configuration file /var/spool/hylafax/etc/config...

Restarting HylaFAX server processes.
Should I restart the HylaFAX server processes [yes]?

Executing '/bin/systemctl start hylafax-faxq'...
Executing '/bin/systemctl start hylafax-hfaxd'...

Looks like you have some faxgetty processes running (PIDs are):

    631

It is usually a good idea to restart these processes after running
faxsetup; especially if have just installed new software.  If these
processes are being started by init(8C) then sending each of them a
QUIT message with the faxquit command should cause them to be restarted.
Is it ok to send a QUIT command to each process [yes]?

Done verifying system setup.
[root@freepbx ~]#
```

1.9 Modem in Hylafax hinzufügen

An der Konsole folgenden Befehl eingeben. Die rot markierten Parameter müssen manuel eingegeben und individuell angepasst werden. Alle anderen können mit ENTER übersprungen werden.

```
[root@freepbx ~]# faxaddmodem [ENTER]

Serial port that modem is connected to []? ttyIAX0

Ok, time to setup a configuration file for the modem.  The manual
page config(5F) may be useful during this process.  Also be aware
that at any time you can safely interrupt this procedure.

Reading scheduler config file /var/spool/hylafax/etc/config.

No existing configuration, let's do this from scratch.

Country code [49]?
Area code [5525]?
Phone number of fax modem [+1.999.555.1212]?
Local identification string (for TSI/CIG) ["NothingSetup"]?
Long distance dialing prefix [1]? 0
International dialing prefix [011]? 00
Dial string rules file (relative to /var/spool/hylafax) [etc/dialrules]?
Tracing during normal server operation [1]?
Tracing during send and receive sessions [0xFFF]?
Protection mode for received facsimile [0600]?
Protection mode for session logs [0600]?
Protection mode for ttyIAX1 [0600]?
Rings to wait before answering [1]?
```

```
Modem speaker volume [off]?
Command line arguments to getty program ["-h %l dx_%s"]?
Pathname of TSI access control list file (relative to /var/spool/hylafax)
[""]?
Tag line font file (relative to /var/spool/hylafax) [etc/LiberationSans-
25.pcf]?
Tag line format string ["From %%l|%c|Page %%P of %%T"]?
Time before purging a stale UUCP lock file (secs) [30]?
Hold UUCP lockfile during inbound data calls [Yes]?
Hold UUCP lockfile during inbound voice calls [Yes]?
Percent good lines to accept during copy quality checking [95]?
Max consecutive bad lines to accept during copy quality checking [5]?
Max number of pages to accept in a received facsimile [25]?
Syslog facility name for ServerTracing messages [daemon]?
Set UID to 0 to manipulate CLOCAL [""]?
Use available priority job scheduling mechanism [""]?

Your facsimile phone number (+1.999.555.1212) does not agree with your
country code (49) or area code (5525).  The number
should be a fully qualified international dialing number of the form:

    +49 5525 <local phone number>

Spaces, hyphens, and periods can be included for legibility.  For example,

    +49.5525.555.1212

is a possible phone number (using your country and area codes).

The non-default server configuration parameters are:

CountryCode:            49
AreaCode:               5525
FAXNumber:              +1.999.555.1212
LongDistancePrefix:     0
InternationalPrefix:    00
DialStringRules:        etc/dialrules
RingsBeforeAnswer:      1
SpeakerVolume:          off
GettyArgs:              "-h %l dx_%s"
LocalIdentifier:        "NothingSetup"
TagLineFont:            etc/LiberationSans-25.pcf
TagLineFormat:          "From %%l|%c|Page %%P of %%T"
MaxRecvPages:           25

Are these ok [yes]?

Now we are going to probe the tty port to figure out the type
of modem that is attached.  This takes a few seconds, so be patient.
Note that if you do not have the modem cabled to the port, or the
modem is turned off, this may hang (just go and cable up the modem
or turn it on, or whatever).

Probing for best speed to talk to modem: 38400 OK.

About fax classes:

The difference between fax classes has to do with how HylaFAX interacts
with the modem and the fax protocol features that are used when sending
or receiving faxes.  One class isn't inherently better than another;
```

```
however, one probably will suit a user's needs better than others.

Class 1 relies on HylaFAX to perform the bulk of the fax protocol.
Class 2 relies on the modem to perform the bulk of the fax protocol.
Class 2.0 is similar to Class 2 but may include more features.
Class 1.0 is similar to Class 1 but may add V.34-fax capability.
Class 2.1 is similar to Class 2.0 but adds V.34-fax capability.

HylaFAX generally will have more features when using Class 1/1.0 than
when using most modems' Class 2 or Class 2.0 implementations.  Generally
any problems encountered in Class 1/1.0 can be resolved by modifications
to HylaFAX, but usually any problems encountered in Class 2/2.0/2.1 will
require the modem manufacturer to resolve it.

Use Class 1 unless you have a good reason not to.

This modem looks to have support for Class 1 and 1.0.
How should it be configured [1]?

Hmm, this looks like a Class 1 modem.
Product code (ATI0) is "spandsp".
Other information (ATI3) is "www.soft-switch.org".
DTE-DCE flow control scheme [default]?
Modem manufacturer is "spandsp".
Modem model is "IAXmodem".

Using prototype configuration file iaxmodem...

The modem configuration parameters are:

ModemResetCmds:         AT+VCID=1
ModemResetDelay:        0
ModemSoftResetCmdDelay: 0

Are these ok [yes]?

Creating new configuration file /var/spool/hylafax/etc/config.ttyIAX1...
Done setting up the modem configuration.

Checking /var/spool/hylafax/etc/config for consistency...
...everything looks ok; leaving existing file unchanged.

Don't forget to run faxmodem(8C) (if you have a send-only environment)
or configure init to run faxgetty on ttyIAX1.
[root@freepbx ~]#
```

Dann Hylafax neu starten mit:

```
systemctl restart hylafax-hfaxd && systemctl restart hylafax-faxq
```

1.10 Fax-User für den Windows-Fax-Client erstellen

An der Konsole folgenden Befehl eingeben:

```
faxadduser -a adminpass -p fax0 -u 100 fax0
```

Dieser Befehl erstellt einen Hylafax-User mit dem Username „fax1“ und dem Passwort „fax1“. Zusätzlich erhält der Fax-User noch das Admin-Passwort „adminpass“. Erfolgt die Anmeldung mit dem Adminpasswort, hat der Fax-User administrativen Zugriff. Das Adminpasswort wird für den Windows-Fax-Client nicht benötigt.

2 POSTFIX KONFIGURIEREN

In der Konsole folgenden Befehl eingeben:

```
nano /etc/postfix/generic [ENTER]
```

Bis zum Ende der Datei scrollen und folgende Zeile eingeben:

```
fax@freepbx.sangoma.local      IhrPostfach@IhreMaildomain.xx
```

Erläuterung:

fax@freepbx.sangoma.local

Das ist die Standardabsenderadresse, die Hylafax beim Versenden von Mails benutzt. Sie setzt sich zusammen aus dem Namen des lokalen Postfachs „fax“ und dem Hostnamen der FreePBX (Standard: freepbx.sangoma.local). Dieser Hostname wird in der FreePBX-Verwaltungsoberfläche unter Administrator/System Admin/Hostname festgelegt. Wenn Sie den Standardhostnamen verändert haben, dann müssen Sie hier Ihren neuen Hostnamen eingeben.

IhrPostfach@IhreMaildomain.xx

Dies ist Ihre Absenderadresse, welche Sie bereits bei der früheren Konfiguration von Postfix verwendet haben.

Sie finden diese Adresse in der FreePBX-Verwaltungsoberfläche unter Administrator/System Admin/Meldungseinstellungen im Feld „Von Adresse“

Nach dem Speichern der Datei muss sie mit dem folgenden Befehl in ein für Postfix lesbares Format übersetzt werden

```
postmap /etc/postfix/generic
```

Dann muss der Aufruf dieser Datei noch in der main.cf konfiguriert werden:

```
nano /etc/postfix/main.cf
```

Bis ans Ende der Datei scrollen und dort folgende Zeile eingeben:

```
smtp_generic_maps = hash:/etc/postfix/generic
```

Zum Abschluss Postfix neu starten mit

```
systemctl restart postfix
```

3 WEITERE FAXGERÄTE/MODEMS UND FAXUSER HINZUFÜGEN

3.1 IAX-Nebenstelle erstellen

Erstellen Sie in der FreePBX-Verwaltungsoberfläche eine weitere IAX2-Nebenstelle und passen Sie in der Konfiguration folgende Parameter an:

- Nebenstellennummer eintragen
- CID eintragen
- Passwort (ohne Sonderzeichen !!!)
- Port 4701 (Portnummer mit jeder zusätzlichen Nebenstelle um 1 erhöhen)
- requirecalltoken = No

3.2 IAX-Modem hinzufügen

Putty öffnen und an der Konsole folgenden Befehl eingeben:

```
nano /etc/iaxmodem/ttyIAX1 [ENTER]
```

Anmerkung: Die Nummer am Ende des Modem-Namens (ttyIAX**1**) muss mit jedem weiteren Modem um 1 erhöht werden.

In das Editorfenster folgende Zeilen hineinkopieren und die Nebenstellendaten und Portentsprechend ergänzen:

```
device          /dev/ttyIAX1
owner           uucp:uucp
mode            660
port            4701
refresh         3600
server          127.0.0.1
peername        Nummer der Nebenstelle
secret          Passwort der Nebenstelle
codec           ulaw
```

3.3 Erstellen des Dienstes für das IAX-Modem

Folgenden Befehl an der Konsole eingeben:

```
nano /etc/systemd/system/ttyiax1.service [ENTER]
```

Anmerkung: Auch hier muss die Nummer des Modems im Modemnamen wieder entsprechend angepasst werden.

Ins geöffnete Editorfenster die folgenden Parameter hineinkopieren

```
[Unit]
Description=HylaFAX faxgetty für ttyIAX1

[Service]
User=root
Group=root
Restart=always
RestartSec=30
ExecStart=/usr/sbin/faxgetty ttyIAX1 &

[Installieren]
WantedBy=multi-user.target
```

Anmerkung: Und die Nummer im Modemnamen wieder anpassen.

Dann den folgenden Befehl an der Konsole eingeben, um das Modem zu aktivieren und zu starten (Nummer Im Modemnamen wieder anpassen):

```
systemctl restart iaxmodem && systemctl start ttyiax1.service && systemctl
enable ttyiax1.service [ENTER]
```

3.4 Modem in Hylafax hinzufügen

An der Konsole folgenden Befehl eingeben. Die rot markierten Parameter müssen manuel eingegeben und individuell angepasst werden. Alle anderen können mit ENTER übersprungen werden.

```
[root@freepbx ~]# faxaddmodem [ENTER]

Serial port that modem is connected to []? ttyIAX1

Ok, time to setup a configuration file for the modem.  The manual
page config(5F) may be useful during this process.  Also be aware
that at any time you can safely interrupt this procedure.

Reading scheduler config file /var/spool/hylafax/etc/config.

No existing configuration, let's do this from scratch.

Country code [49]?
Area code [5525]?
Phone number of fax modem [+1.999.555.1212]?
Local identification string (for TSI/CIG) ["NothingSetup"]?
Long distance dialing prefix [1]? 0
International dialing prefix [011]? 00
Dial string rules file (relative to /var/spool/hylafax) [etc/dialrules]?
Tracing during normal server operation [1]?
Tracing during send and receive sessions [0xFFF]?
Protection mode for received facsimile [0600]?
Protection mode for session logs [0600]?
Protection mode for ttyIAX1 [0600]?
Rings to wait before answering [1]?
Modem speaker volume [off]?
Command line arguments to getty program ["-h %l dx_%s"]?
Pathname of TSI access control list file (relative to /var/spool/hylafax)
[""]?
Tag line font file (relative to /var/spool/hylafax) [etc/LiberationSans-
25.pcf]?
Tag line format string ["From %%l|%c|Page %%P of %%T"]?
Time before purging a stale UUCP lock file (secs) [30]?
Hold UUCP lockfile during inbound data calls [Yes]?
Hold UUCP lockfile during inbound voice calls [Yes]?
Percent good lines to accept during copy quality checking [95]?
Max consecutive bad lines to accept during copy quality checking [5]?
Max number of pages to accept in a received facsimile [25]?
Syslog facility name for ServerTracing messages [daemon]?
Set UID to 0 to manipulate CLOCAL [""]?
Use available priority job scheduling mechanism [""]?

Your facsimile phone number (+1.999.555.1212) does not agree with your
country code (49) or area code (5525).  The number
should be a fully qualified international dialing number of the form:

    +49 5525 <local phone number>

Spaces, hyphens, and periods can be included for legibility.  For example,

    +49.5525.555.1212

is a possible phone number (using your country and area codes).
```

```
The non-default server configuration parameters are:

CountryCode:            49
AreaCode:               5525
FAXNumber:              +1.999.555.1212
LongDistancePrefix:     0
InternationalPrefix:    00
DialStringRules:        etc/dialrules
RingsBeforeAnswer:      1
SpeakerVolume:          off
GettyArgs:              "-h %l dx_%s"
LocalIdentifier:        "NothingSetup"
TagLineFont:            etc/LiberationSans-25.pcf
TagLineFormat:          "From %%l|%c|Page %%P of %%T"
MaxRecvPages:           25

Are these ok [yes]?

Now we are going to probe the tty port to figure out the type
of modem that is attached.  This takes a few seconds, so be patient.
Note that if you do not have the modem cabled to the port, or the
modem is turned off, this may hang (just go and cable up the modem
or turn it on, or whatever).

Probing for best speed to talk to modem: 38400 OK.

About fax classes:

The difference between fax classes has to do with how HylaFAX interacts
with the modem and the fax protocol features that are used when sending
or receiving faxes.  One class isn't inherently better than another;
however, one probably will suit a user's needs better than others.

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Class 2.1 is similar to Class 2.0 but adds V.34-fax capability.

HylaFAX generally will have more features when using Class 1/1.0 than
when using most modems' Class 2 or Class 2.0 implementations.  Generally
any problems encountered in Class 1/1.0 can be resolved by modifications
to HylaFAX, but usually any problems encountered in Class 2/2.0/2.1 will
require the modem manufacturer to resolve it.

Use Class 1 unless you have a good reason not to.

This modem looks to have support for Class 1 and 1.0.
How should it be configured [1]?

Hmm, this looks like a Class 1 modem.
Product code (ATI0) is "spandsp".
Other information (ATI3) is "www.soft-switch.org".
DTE-DCE flow control scheme [default]?
Modem manufacturer is "spandsp".
Modem model is "IAXmodem".

Using prototype configuration file iaxmodem...

The modem configuration parameters are:
```

```
ModemResetCmds:         AT+VCID=1
ModemResetDelay:        0
ModemSoftResetCmdDelay: 0

Are these ok [yes]?

Creating new configuration file /var/spool/hylafax/etc/config.ttyIAX1...
Done setting up the modem configuration.

Checking /var/spool/hylafax/etc/config for consistency...
...everything looks ok; leaving existing file unchanged.

Don't forget to run faxmodem(8C) (if you have a send-only environment)
or configure init to run faxgetty on ttyIAX1.
[root@freepbx ~]#
```

Dann Hylafax neu starten mit:

```
systemctl restart hylafax-hfaxd && systemctl restart hylafax-faxq
```

3.5 Faxuser für den Windows Fax-Client erstellen

An der Konsole den folgenden Befehl eingeben:

```
faxadduser -a adminpass -p fax1 -u 101 fax1
```

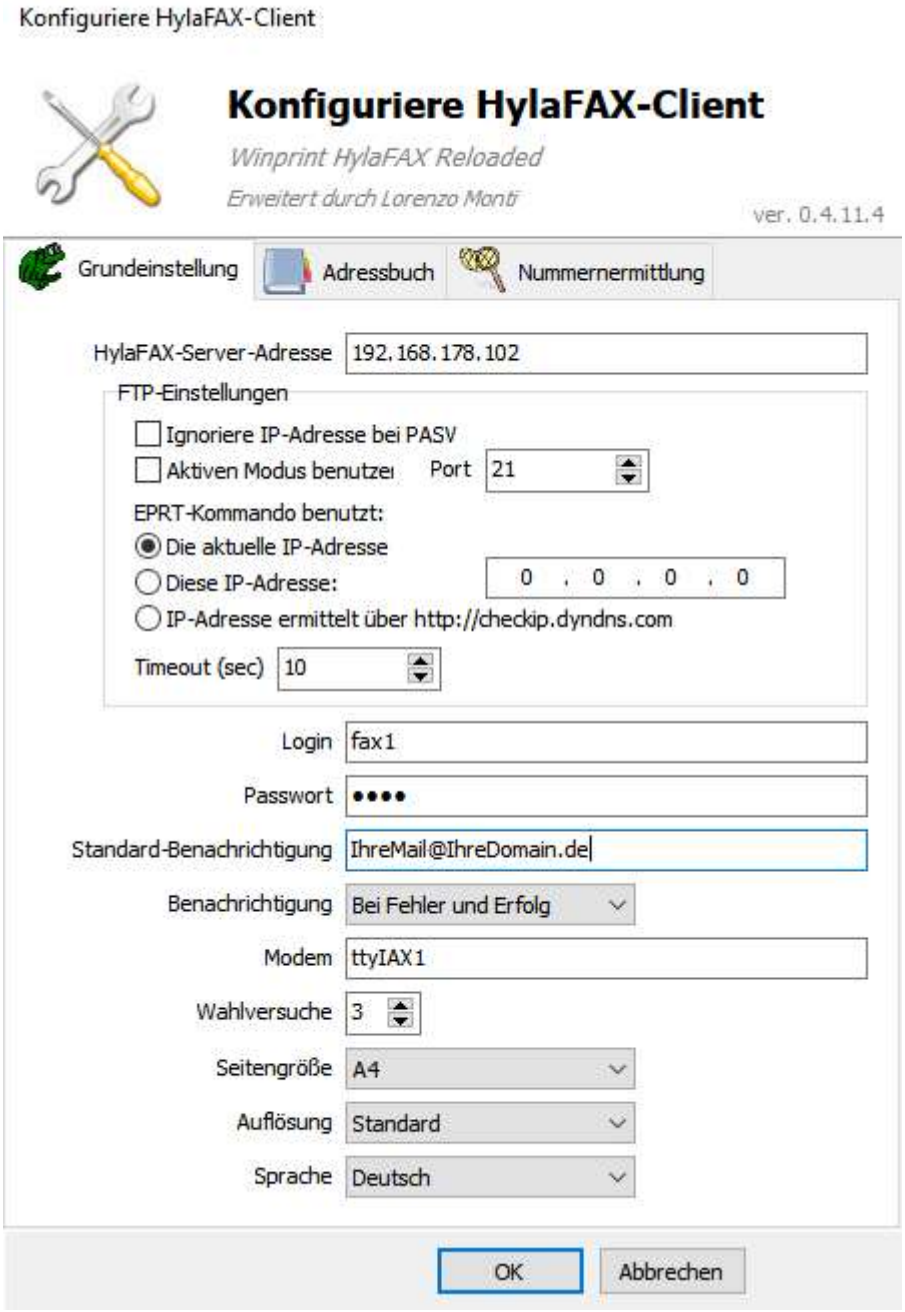
Benutzername und Passwort sind natürlich frei wählbar. Bitte keine Sonderzeichen verwenden. Siehe auch Punkt 1.10

4 Windows Fax-Client installieren und Konfigurieren

4.1 Installation

Download des Winprint-Hylafax-Clients unter:
https://sourceforge.net/projects/wphf-reloaded/files/latest/download

4.2 Konfiguration



Die wichtigsten Einstellungen:

- Hylafax-Server-Adresse: IP der FreePBX
- Login, Passwort: Ihr Faxuser (z. B. fax1, fax2 in dieser Anleitung
- Standard-Benachrichtigung: E-Mail-Adresse des Faxbenutzers
- Modem: Name des Modems (z.B. ttyIAX0 oder ttyIAX1 in dieser Anleitung)