



Gpg4win for Novices

A publication of the Gpg4win project

based on original documents by

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Imprint Gpg4win

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Contents

1. About this manual	6
2. What is Gpg4win?	7
3. Installing Gpg4win	8
4. Creating a key pair	18
5. Publishing your key per email	25
6. Sending your key to a keyserver	31
7. Decrypting an email	32
8. Attaching a key to your key ring	38
9. Encrypting emails	43
10. How to archive/store encrypted emails	46
A. Suggestions regarding the Outlook plugin <i>GPGol</i>	49
A.1. Installation	49
A.2. Common Questions	50
B. Transferring from other GnuPG programs	52
C. History	53
D. GNU Free Documentation License	54

1. About this manual

The Gpg4win manual and exercise module consists of three parts:

- **an introductory guide called "Gpg4win for Novices"**, which you are reading right now,
- **the manual "Gpg4win for Advanced Users"** in PDF-Format, which can be found on your hard drive after you have installed Gpg4win,
- **the exercise robot Adele**, which allows you to practice the email en- and decryption process(an internet connection is required).

"**Gpg4win for Novices**" is a quick guide to the installation and everyday use of the Gpg4win software. You will need about half an hour to work through this manual, depending on your knowledge of computers and Windows.

"**Gpg4win for Advanced Users**" provides in-depth information about the basic principles and mechanisms used by Gpg4win, as well as its less commonly used capabilities.

Both manuals are available in PDF format; you can print your own manual if you did not receive a printed copy.

Each manual can be read independently. We suggest, however, that you read both manuals in order to get a better understanding of the software.

♠ This symbol references a link to the other manual.

The practice robot Adele is available on the Internet. Adele receives, sends and decrypts encrypted emails. You can use it to practice a complete cryptographic exchange, as often as you need to be fully familiar with the software.

Adele was developed as part of the older GnuPP project, where it is still used. "Gpg4win for Novices" also uses this very reliable practice robot and hereby wishes to express its gratitude to the owners of gnupp.de for operating Adele.

2. What is Gpg4win?

Gpg4win (GNU Privacy Guard for Windows) is an email encryption software. It is the result of a project initiated by the Federal Office for Information Security, and includes the following components:

GnuPG: its key component, the encryption software

GPA: GNU Privacy Assistant, a key manager

WinPT: Key Manager, which also supports encryption via your Clipboard

GPGol: a plugin for Microsoft Outlook which integrates the operation of GnuPG

GPGe: a plugin for Windows Explorer which allows encryption of data by right-clicking on your mouse

Sylpheed-Claws: a complete email program with integrated GnuPG operation

The encryption program GnuPG (GNU Privacy Guard) provides you with a secure, simple and free method of email encryption. It can be used privately or commercially without restrictions. The encryption technology used by GnuPG is extremely secure and cannot be broken using current technology.

GnuPG is a free software¹. This means that anyone can use the software for private or commercial purposes, as well as analyze or change the source codes (ie. the actual programming commands), and distribute the same.²

The transparency of the source code forms an essential part of a security software, as it is the only way to verify the trustworthiness of the program.

GnuPG is based on the international standard OpenPGP (RFC 2440), is fully compatible with PGP and uses the same infrastructure (key server etc.).

PGP ("Pretty Good Privacy") is not free software; many years ago it was available on a temporary basis under similar conditions as GnuPG, but is no longer considered state-of-the-art.

Additional information regarding GnuPG and other projects undertaken by the German government in the area of Internet security can be found on the website of the Federal Office for Information Security www.bsi-fuer-buerger.de

¹sometimes incorrectly identified as Open Source Software

²However, keep in mind that a fair amount of technical knowledge is required to change the program, otherwise the program's security may be compromised.

3. Installing Gpg4win

If you already have a GnuPG-based application such as GnuPP, GnuPT, WinPT or GnuPG Basics installed on your system, we recommend that you read the Appendix B to find out how to migrate existing keys.

Installing Gpg4win from a CD-ROM:

Insert the CD-ROM in the CD-ROM drive of your computer and log in as Administrator. On the screen click on the CD-ROM icon titled 'Gpg4win'. Once the CD-ROM icon opens, click on the installation icon titled 'Gpg4win'.

Installing Gpg4win from the Internet:

If you have downloaded Gpg4win from the Internet, click on the new file (it should be named `gpg4win-1.1.0.exe` or a newer version). Please ensure that you have downloaded the file from a trustworthy site.

The following installation steps apply to all situations:

You will be asked if you want to install the program; click on [Yes].

The following screen will appear:

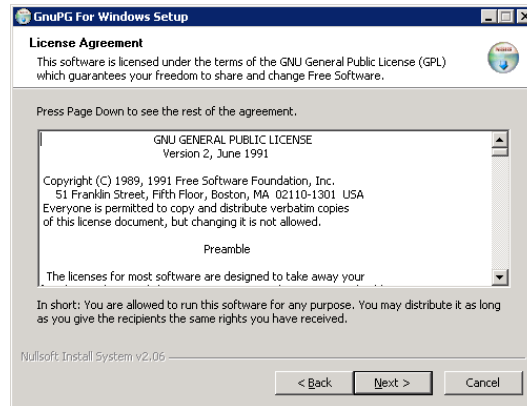


If you have other programs running on your computer, close them now and click on [Next].

The licencing page contains information regarding the licencing of this software.

If your sole intention is to install and use the software, you do not need to read this information.

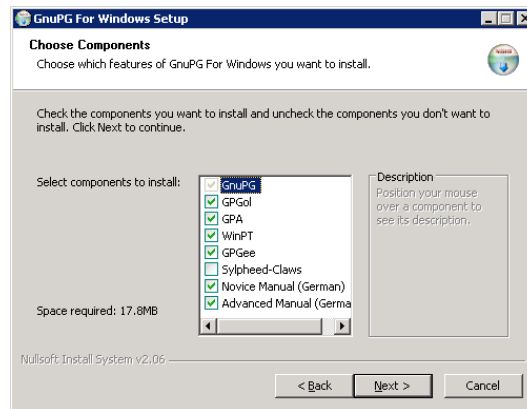
However, if you plan to distribute and/or alter the software, you must familiarize yourself with the conditions contained in the licencing agreement.



Click on [Next].

On the components page you can select which features of GnuPG For Windows you want to install.

To assist you with your selection, a short description window appears when you move the mouse over a selected item. At this point, you may want to check the available free space on your hard drive as well.

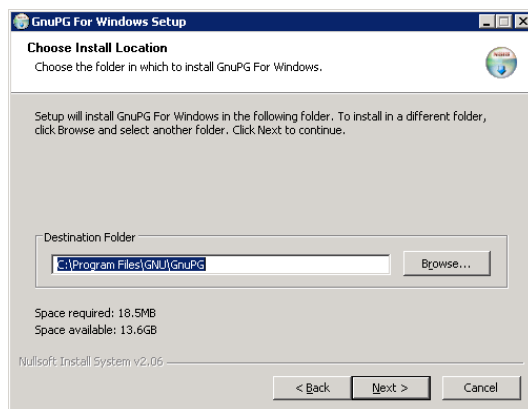


The recommended minimum installation consists of GnuPG, GPA, WinPT and the manuals. If required, the remaining programs can be installed later.

Click on [Next].

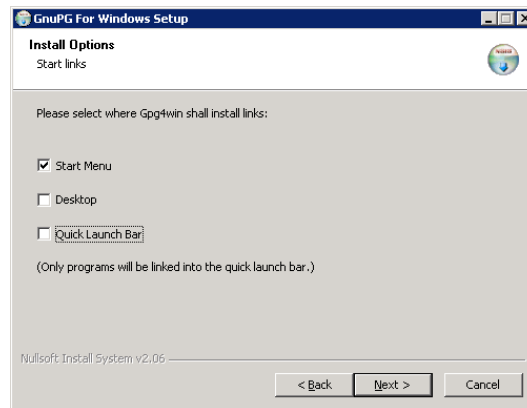
On this page you can choose the folder in which to install Gpg4win on your computer. If you do not enter a folder name, you should accept the default folder name, which is:

C:\Programme\GNU\GnuPG



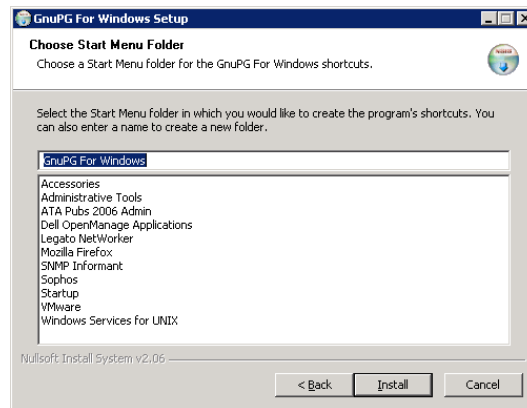
Click on [Next].

This page allows you to set start links for the program. The default setting adds Gpg4win to the start menu only. You can change these settings within Windows at anytime.



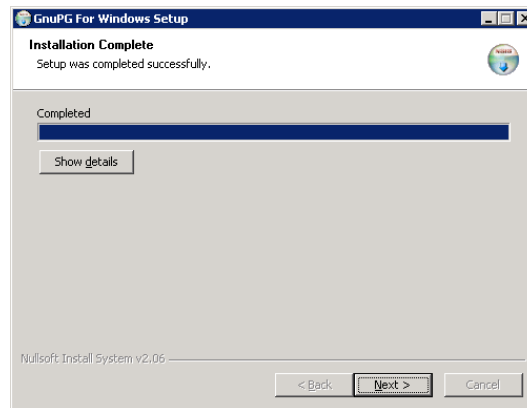
Click on [Next].

If you chose to add the program to the Start Menu (as per previous page), this page allows you to choose a Start Menu subfolder for the program.



For a standard installation, select the default setting and click on [Install].

During the installation a progress bar displays the file being installed. You can click on [Show details] to see a log of the installation.



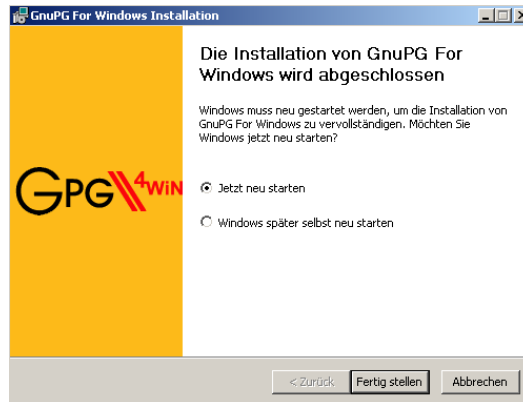
Once the installation is complete, click on [Next].

The following page shows the last step of the installation process:



Click on [Finish].

You may need to restart Windows for the settings to take effect. In that case, instead of showing the installation completion page, the following page appears:



At this point you can choose to restart Windows automatically or restart later manually.

Click on [Finish].

And that's it!

You have now installed Gpg4win and are ready to use the program.

Prior to starting Gpg4win, we recommend reading Chapter 3 and 4 of the manual "Gpg4win for Advanced Users" (PDF-File). These chapters highlight the ingenious theory behind Gpg4win's ability to encrypt emails in a safe and user-friendly manner.

Of course you do not need to know all the technical details of Gpg4win to be able to use it. However, since you will use Gpg4win to handle your most sensitive correspondence and it probably is a good idea to understand the theory behind it.

...

The following section provides you with tips for creating a secure yet easy-to-remember passphrase.

♠ **At this point, please read Chapter 3 and 4 in the manual "Gpg4win for Advanced Users" before reading on.**

4. Creating a key pair

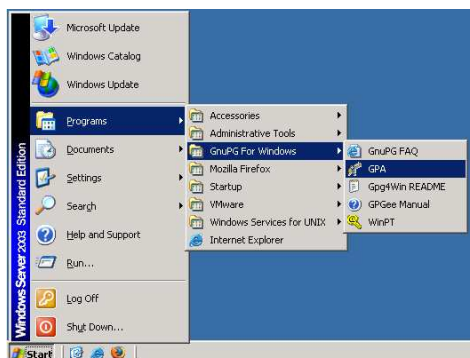
After reading the information explaining Gpg4win's security features and the creating of a good passphrase to protect your private key, this section shows you how to create a key pair.

The processes of creating a key, encryption and decryption are very important - so important that it should be possible to practice . . .

And this is what you actually can do: Run through the whole processes as often as you want. Those "dry-runs" help you gain confidence in using the program, so that some of the more intricate steps in creating keys will not pose any problems later on. You can use Adele to do this. It is a test server which was developed as part of the GnuPP project. Adele allows you to try and test several practice keys before creating your own set.

Let's get started!

Start the GPA program from your Windows Start menu:

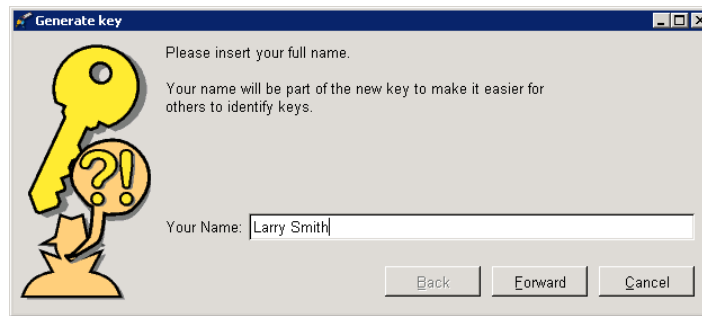


The following window appears:



Click on [Generate key now].

For practice purposes you can enter any name in the window for now, e.g. "Larry Smith".

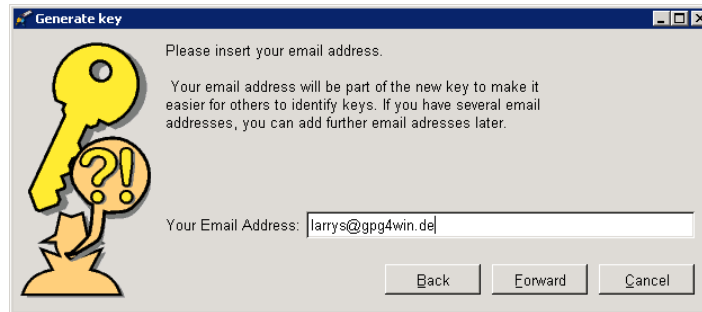


Or you can generate your 'real' key in which case you should enter your real name.

When you are done, click on [Forward].

Now enter your email address.

Again, if this is a test run, you can use an imaginary email address such as "larrys@gpg4win.de"



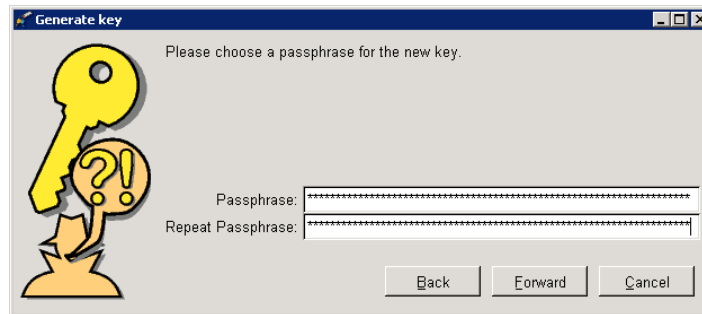
Or you can enter your real email address, and click on [Forward].

This option allows you to enter notes regarding your key. Usually this field is empty; however, if you are creating a test key, you should make a note, such as "test". The notes are a part of your User-ID and will be made public along with your name and email address. Now click on [Forward].

Entering a passphrase is one of the most important steps in the program, as the program is only as good (and as secure) as your passphrase!

Chapter 4 ("The Passphrase") from the manual "Gpg4win for Advanced Users" already provided you with suggestions on creating a secure passphrase. So, at this point you should have come up with your own passphrase - one that is private, easy to remember, and difficult to crack.

Enter your passphrase now.



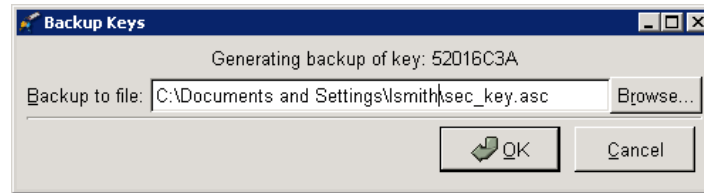
If the passphrase you entered is not very secure, a warning will be displayed, allowing you to enter a more secure passphrase.

Again, you can enter a test passphrase for practice purposes, or your real passphrase.

Once you have entered your passphrase twice, click on [Next].

This starts the creation of your key pair, which can take a few minutes. In the meantime, you can continue to work with other programs on your computer which will slightly increase the quality of the key being generated.

Once the key is generated, the following window appears:



This window asks you to create a back-up copy of your key. Please do this now, even if this is just a test run.

If the default file name is acceptable, click on [OK]. If you would like to store the back-up in a different location, please select a different file name now.

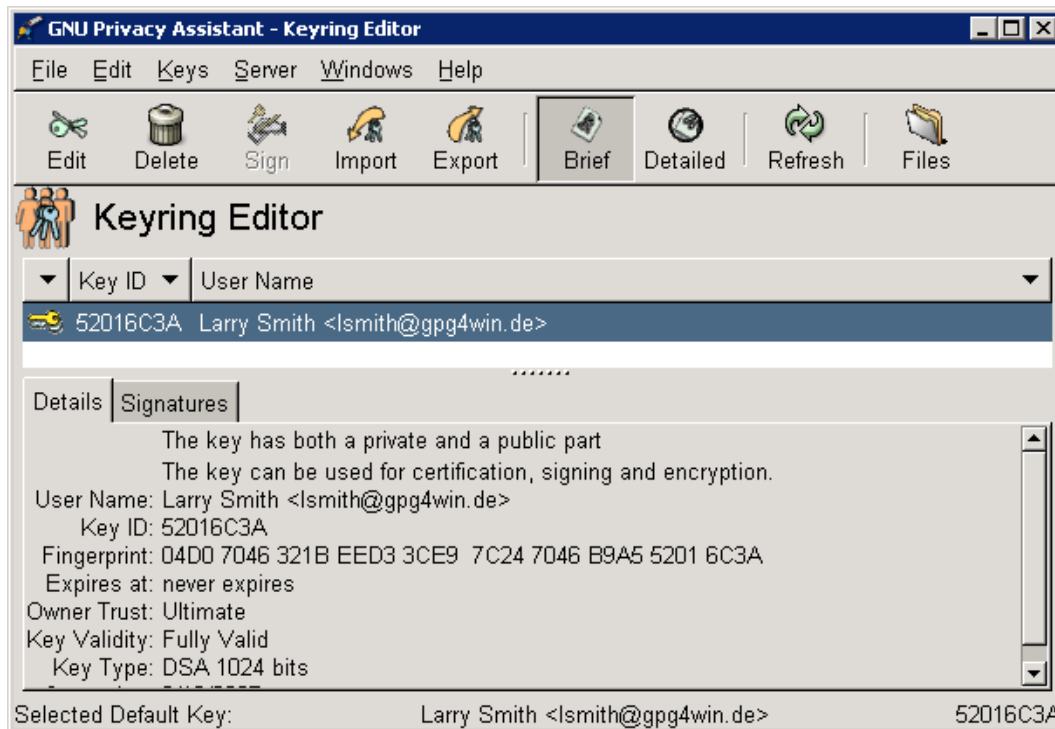
Important: Once the the back-up file is saved onto your hard drive, you should save this file onto a removable storage device (e.g. USB stick, diskette or CD-ROM), and subsequently delete the original file. Be sure to keep the storage device in a secure place.

Please note that you can create back-up copies at any time by selecting the following option from the main menu: *Key*→*Backup*.

This concludes the installation of Gpg4win and the generation of your key pair. You are now the owner of a unique and secure digital key.

You should now see the GPA's main window. The key pair you just created will be shown in the middle of the window, beside the key pair symbol.

Clicking on the key pair symbol will provide details about your key pair, which are discussed in more detail below.



What is the significance of the notes regarding your key? Your key has no built-in expiry date and is, therefore, valid indefinitely. You can, however, change the key's validity period - more about this later.

A key consisting of 1024 bits is considered very secure, without creating undue strain on your computer's capacity.

♠ **More information on this topic can be found in Chapter 5 "More about keys" in the manual "Gpg4win for Advanced Users".**

5. Publishing your key per email

One of the more practical aspects of Gpg4win is its ability to use a "non-secret" public key for the encryption and decryption of data. As long as your key and its corresponding passphrase are secure, you have gone a long way towards keeping your information confidential.

Everyone can and should have your public key, just as you can and should have the public keys of the people you correspond with.

Because:

In order to exchange secure emails, each party must have access to the public key of the other party.

In order to send someone encrypted emails, you must have their public key in order to encrypt the emails to send to them.

Similarly, someone wanting to send you encrypted emails must have your public key in order to encrypt the email being sent to you.

This is the reason that your public key should be made widely available. Depending on the number of correspondence partners, you can do this in two ways:

- **directly sending an email** to selected recipients
- **or publishing the key on a key server** — making it available to anyone

The first way to distribute your public key is to send it by email to one or more selected recipients. Alternatively you can make your email address available to anyone in the Internet. The second option is somewhat risky, as it can result in considerable SPAM activity on your email account. Therefore it is a good idea to only use an address with a good SPAM filter.

You can use Adele to practice the following steps:

Adele is a very good email robot for practicing secure correspondence. Because most people prefer to correspond with a real person rather than with a piece of software (which is what Adele is, after all), we developed the following scenario:



You first send Adele your public key. Once Adele has received your key, she uses it to encrypt an email which she sends to you along with her own public key. You can now decrypt Adele's email using your own private key, and you can also respond to Adele by encrypting your email with her public key.

You can now export your public key, copy it into an email und send it to Adele.

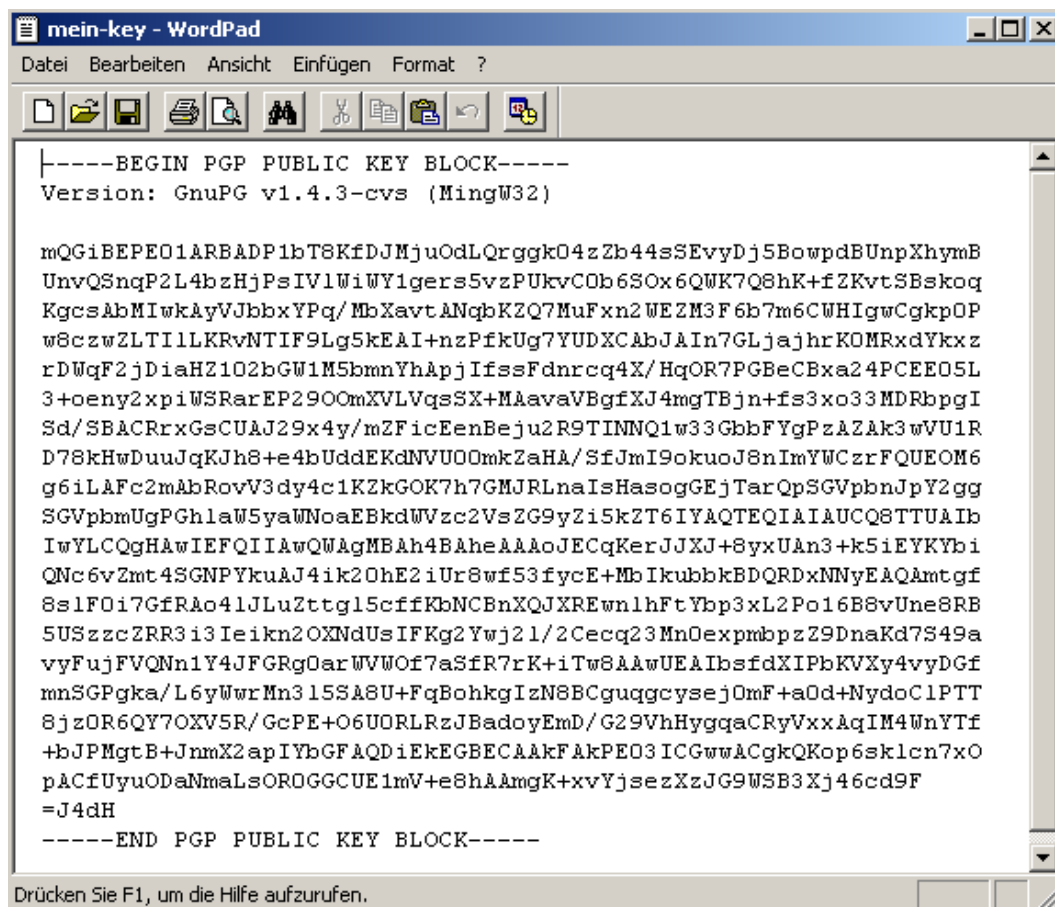
Here is one possible way of doing just that, a method which works even if your email service does not allow attachments. This procedure also gives you a first in-depth look at your key and its components.

How it works:

Select the key you want to export by clicking on the corresponding key on your list, and then clicking on the [Export] icon of the main GPA menu. Choose a file to export your key to, e.g.

my-key.asc. A popup window will let you know whether the operation was successful. Then click on [OK].

You can access the file through Windows Explorer; make sure you choose the same folder you chose when exporting the key. You can open the file with a text editor (ex. WordPad), which will show your public key as a series of blocks containing text and numbers.



```

-----BEGIN PGP PUBLIC KEY BLOCK-----
Version: GnuPG v1.4.3-cvns (MingW32)

mQGibEPEO1ARBADP1bT8KfDJMjuOdLQrggk04zZb44sSEvyDj5BowpdBUnpXhymB
UnvQSnqP2L4bzHjPsIV1WiWY1gers5vzPUkvCOb6SOx6QWK7Q8hK+fZKvtSBskoq
KgcsAbMIwKAYVJbbxYPq/MbXavtANqbKZQ7MuFxn2WEZM3F6b7m6CWHIgwCgkpOP
w8czwZLTi1LKrvNTIF9Lg5kEAI+nzPfkUg7YUDXCAbJAIn7GLjaJhrKOMRxdYkxz
rDWqF2jDiaHZ102bGW1M5bmnYhApjIfssFdnrcq4X/HqOR7PGBeCBxa24PCEE05L
3+oeny2xpiWSRarEP290OmXVLVqsSX+MAavaVBgfXJ4mgTBjn+fs3xo33MDRbpgI
Sd/SBACRrxGsCUAJ29x4y/mZFicEenBeju2R9TINNQ1w33GbbFYgPzAZAk3wVU1R
D78kHwDuuJqKJh8+e4bUddEKdNVU00mkZaHA/SfJmI9okuoJ8nImYWCzrFQUEOM6
g6iLAfc2mAbRovV3dy4c1KZkGOK7h7GMJRLnaIsHasogGEjTarQpSGVpbnJpY2gg
SGVpbmUgPGhlaW5yaWNoaEBkdWVzc2VsZG9yZi5kZT6IYAQTEQIAIAUCQ8TTUAIb
IwYLCQgHAwIEFQIIAwQWAgMBAh4BAheAAaoJECqKerJJXJ+8yxUAn3+k5iEYKYbi
QNc6vZmt4SGNPYkuAJ4ik2OhE2iUr8wf53fycE+MbIkubbkBDQRDxNNyEAQamtgf
8slFOi7GfRAo4lJLuZttgl5cfffKbNCBnXQJXREwnlhFtYbp3xL2Po16B8vUne8RB
5USzzcZRR3i3Ieikn2OXNdUsIFKg2Ywj2l/2Cecq23MnOexpmbpzZ9DnaKd7S49a
vyFujFVQNn1Y4JFGRgOarWVWOf7aSfr7rK+iTw8AAwUEAIbsfdXIPbKVXy4vyDGf
mnSGPgka/L6yWwrMn3l5SA8U+FqBohkgIzN8BCguqgcysjOmF+aOd+NydoClPTT
8jzOR6QY7OXV5R/GcPE+O6U0RLRzJBadoyEmD/G29VhHygqaCRyVxxAqIM4WnYTF
+bJPMgtB+JnmX2apIYbGFAQDiEkEBECAAkFAkPEO3ICGwwACgkQKop6sklcn7xO
pACfUyuODaNmalsOROGGCUE1mV+e8hAAmgK+xvYjsezXzJG9WSB3Xj46cd9F
=J4dH
-----END PGP PUBLIC KEY BLOCK-----

```

Drücken Sie F1, um die Hilfe aufzurufen.

Highlight the whole key portion from

```
-----BEGIN PGP PUBLIC KEY BLOCK-----
```

to

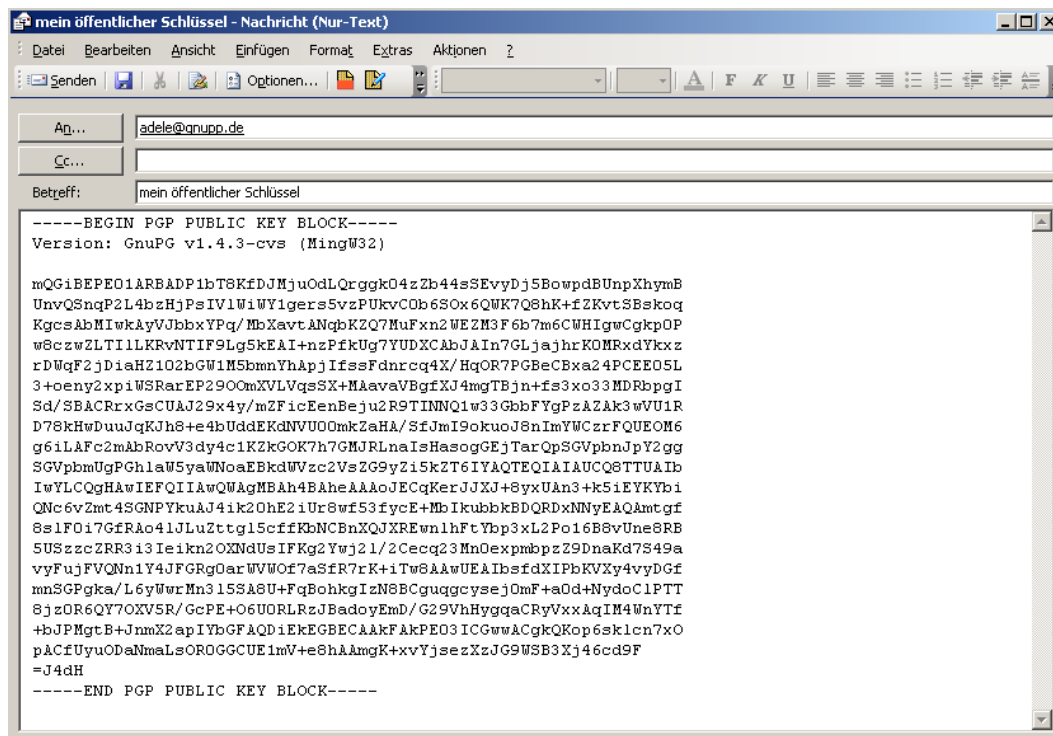
```
-----END PGP PUBLIC KEY BLOCK-----
```

and copy it using the copy function on your toolbar or a keyboard shortcut such as Ctrl-C. This saves your key on the clipboard until you are ready to paste it, as described below.

Start your email program. Open a new email message and paste your public key (Windows users may use a shortcut key such as Ctrl-V). Before doing this, you should configure your email program to send messages in text-only format rather than HTML.

Put `adele@gnupp.de` into the address line of the email, and **my public key** on the subject line.

Your email should look like this:



Now send this email to Adele. Make sure that you include your proper email address as sender rather than your practice address, otherwise you will never get a response from Adele!

This process works exactly the same way if you send your key to a real email address. You can add other text, just like in any other email. Obviously, this is not required for emails addressed to Adele, as the robot's only purpose is to help you with the technical aspects of this process.

Summary: You have now sent your public key by email to someone else (e.g. Adele).

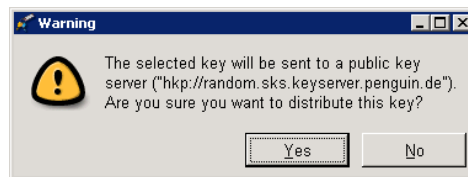
♠ **The "Copy & Paste" method shown in this example is easily understood by beginners. Chapter 7 of the manual "Gpg4win for Advanced Users" describes how to send your key as a file attachment, which is a more commonly used method.**

6. Sending your key to a keyserver

You can use this option even if you are exchanging encrypted emails with only a few people. By making your key available on a keyserver, it is always accessible to you and/or others.

PLEASE NOTE: ALTHOUGH THERE ARE NO INDICATIONS THAT SPAMMERS ARE CURRENTLY COLLECTING ADDRESSES FROM KEYSERVERS, IT IS TECHNICALLY POSSIBLE TO DO SO. WE DO NOT, THEREFORE, RECOMMEND PUBLISHING YOUR KEY TO A KEY SERVER IF YOU DO NOT HAVE AN EFFECTIVE SPAM FILTER.

Choose your key by clicking on it. Then click on *Server* → *Send key* which is found under *Server* → *Server*. A popup window will alert you that your key is about to be sent to a public key server.



This window also displays a default key server. If you click on [Yes], your key will be automatically sent to the server, from where it is sent to a network of worldwide key servers. Now anyone can download your key, and use it to send you a secure email.

If this is a practice run, do NOT send your practice key to the key server because once sent, it cannot be removed.

Summary: You now know how to distribute your key via a key server on the Internet.

♠ Chapter 6 of the manual "Gpg4win for Advanced Users" explains how to find someone else's key on a keyserver.

7. Decrypting an email

Adele has received your public key, and uses it to encrypt an email which she sends back to you.



The email will look like this:

From: Adele (The friendly email-Robot) <adele@gnupp.de>
Subject: Re: my publis key
To: larrys@gpg4win.de
Date: Thu, 12 Jan 2006 09:17:28 +0100

-----BEGIN PGP MESSAGE-----

Version: GnuPG v1.4.1 (GNU/Linux)

hQE0A9FS8I3hSvdPEAP/W6W6f4MBwqTdzd90/7F0TDHh//bQ+GUWoT0k9Y0i96UZ
Q01VhQSia6a8DZrFQj7SlJWmB1MM7RNhkmhfZsD5Bn9ICmwwOt2xJDBkCQ34gu5N
NxQ92WXZjHCaI0dSlynNziNbK8Ik26YPBYkQjLUDhHN4CRZ7q67eVEd/B9DI04wD

....

ujbjyj09L/9NvoBniWrgqVUayKr1Ls80IZkyiex6mKypPGADJFAzvTwjubj5S6zJ
A+QvSXUB9Hj8Ft2Nt3j0B/gWn5no3Er2/15UcBn/UPSxW9or0w9seDxCuSXvpakX
bcne0m/pcJNEHcApXWxpoNOxRZ1MksM300w+79M6p2w=
=VCHb

-----END PGP MESSAGE-----

(Please note that the encryption sequence has been considerably shortened to save space in this manual.)

Using WinPT to decrypt this email.

WinPT (Windows Privacy Tray key management tool) serves as PnuPG's "front end". This program is used to encrypt and decrypt emails; it also creates and verifies digital signatures. One of WinPT's advantages is that it works with all email programs.

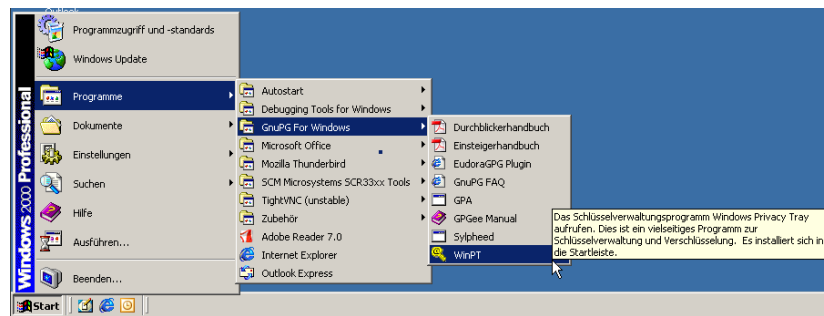
Most email programs (e.g. MS Outlook for Windows) also have special plug-ins which can encrypt and decrypt email directly within the program.

♠ Chapter 8 of the manual "Gpg4win for Advanced Users" provides more information on this particular function.

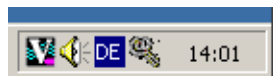
WinPT performs the en/decryption function using your computer's memory. This means that any text to be en/decrypted must be copied onto the computer's clipboard.

To do this, highlight the complete text in Adele's email and copy it onto the Clipboard using the copy function or the shortcut Ctrl-C.

Starting WinPT from Windows Start Menu:

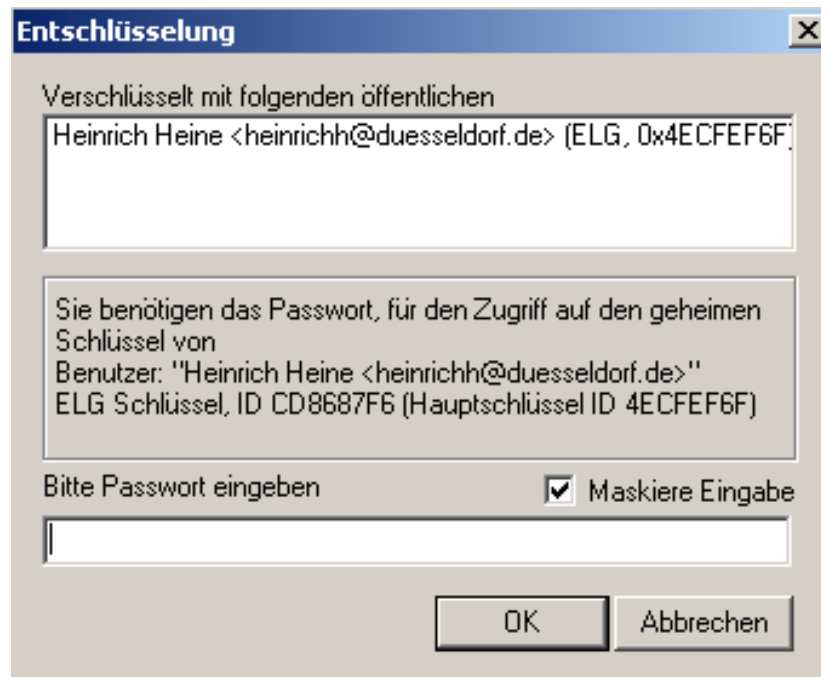


Once you open the program, the WinPT icon (a key) appears in the Windows taskbar, which is located in the lower right hand corner of the screen.



Right-click on the icon to open the menu box, and click on *Clipboard*→*Decrypt/Verify*.

The program will then ask you for your secret passphrase and proceed to decrypt Adele's email.



A popup window will notify you when the decryption process is complete.

The decrypted text is now located on the clipboard, much in the same way as was done during the encryption process. You can copy the text (using shortcut key Ctrl-V) into your text editor or email program.

Adele's decrypted email will look something like this³:

Hello Larry Smith,

here is an encrypted response to your email.

I received your public key with the ID 57251332CD8687F6 and a description '<larrys@gpg4win.de>'.

I have enclosed the public key of adele@gnupp.de.

Sincerely,
adele@gnupp.de

The text sequence following this message is Adele's public key.

The next section shows you how to import someone's public key and attach it to your key ring, which allows you to use this key anytime to encrypt messages to that person (in this case, Adele) or to verify a digital signature.

Summary:

1. You know how to decrypt an encrypted email using your private key.
2. You know how to send an encrypted response using the public key of the sender.

³Depending on Adele's software version, it might look slightly different.

8. Attaching a key to your key ring

You can store your friends' public keys on your "key ring" so they do not have to send you their public key every time they write to you.

First Option:

To import a public key (ie. attach it to your key ring), you can save the key as a text block, much like you did with your own key.

To do this:

Highlight the public key portion of the email you received, from

```
-----BEGIN PGP PUBLIC KEY BLOCK-----
```

to

```
-----END PGP PUBLIC KEY BLOCK-----
```

and use Copy & Paste to insert it into your text editor. We recommend using a file and folder name that is easily found later; e.g. `adeles-key.asc` in folder `My Documents`.

2nd Option:

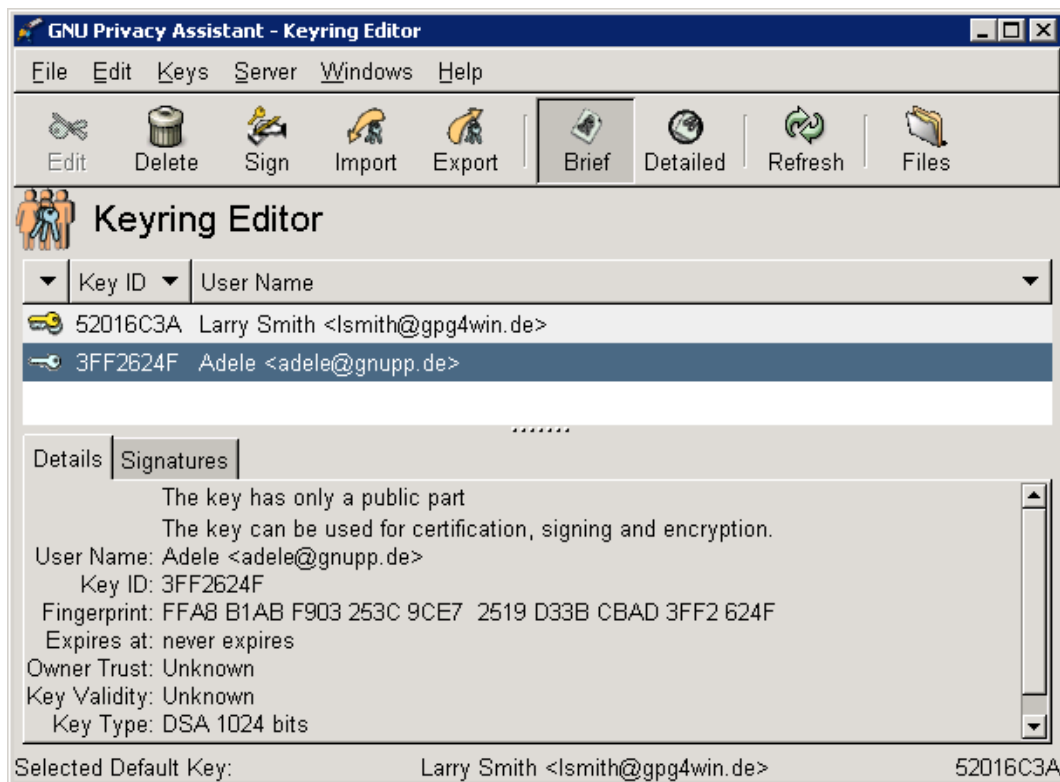
The key is sent to you as a file attachment to the email. No matter which mail program you use, you can always save attachments onto your hard drive. Do this now (again using names you will easily recognize and find later on, e.g. My Documents).

It does not matter whether you save the key as text or directly as an email attachment, as both methods import the key into your GnuPG-"Key Ring".

This is how it works:

Start the GNU Privacy Assistant (GPA) from Windows (this is necessary only if you shut it down after the previous practice session).

Click on Import, then select and load the key file.



You have now imported someone else's (in this case Adele's) public key and attached it to your key ring. Now you can use this key to send encrypted messages to the owner of that public key, as well as to verify his or her signature.

Before continuing, it is important to address the following concern:

It is possible that the email was sent by someone else using Adele's name, therefore how do you know that the public key sent to you is really Adele's key?

♠ Chapter 9 ("Key Verification") in the "Gpg4win for Advanced Users" manual deals with this important question. You may want to read that section now before continuing with this manual.

Chapter 9 of the manual "Gpg4win for Advanced Users" shows you how to validate a key as well as how to sign a message (i.e. attach a signature) using your private key.

Chapter 10 of the advanced manual also discusses ways to attach a signature to email messages. This is the equivalent of attaching an electronic seal to your message, allowing the recipient to verify whether the email has been altered during transmission (and that it came from you).

The signature verification process is simple. For this, you need the sender's public key on your Gpg4win-"key ring" (see Chapter 8 of "Gpg4win for Advanced Users" for more information).



You can tell whether an email has been electronically signed if the text of the email is framed with the sender's signature (like a border). It will look something like this:

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1
```

and ends email-message with

```
-----BEGIN PGP SIGNATURE-----
Version: GnuPG v1.4.2 (MingW32)

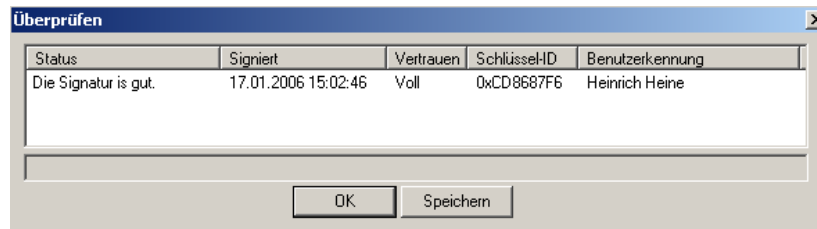
iEYEARECAAYFAjxeqy0ACgkQcwePex+3Ivs79wCfW8u
ytRsEXgzCrFpnjGrDDtb7QZIAN17B8l8gFQ3WIUUDCMfA5cQajHcm
=O6lY
-----END PGP SIGNATURE-----
```

Highlight the text starting from *BEGIN PGP SIGNED MESSAGE* to *END PGP SIGNATURE* and copy it (using Ctrl-C) to your clipboard.

Now continue to decrypt the email as shown in Chapter 7 of this manual.

Right-click on the WinPT icon on your Windows taskbar and select *Clipboard* → *Decrypt/Verify*.

You should see the following window:



If the status line on the window displays the following message *Invalid Signature*

it means that the message has been altered after being sent. This does not always mean that a third party has altered the message, as it could also have been altered by a technical error during transmission through the Internet.

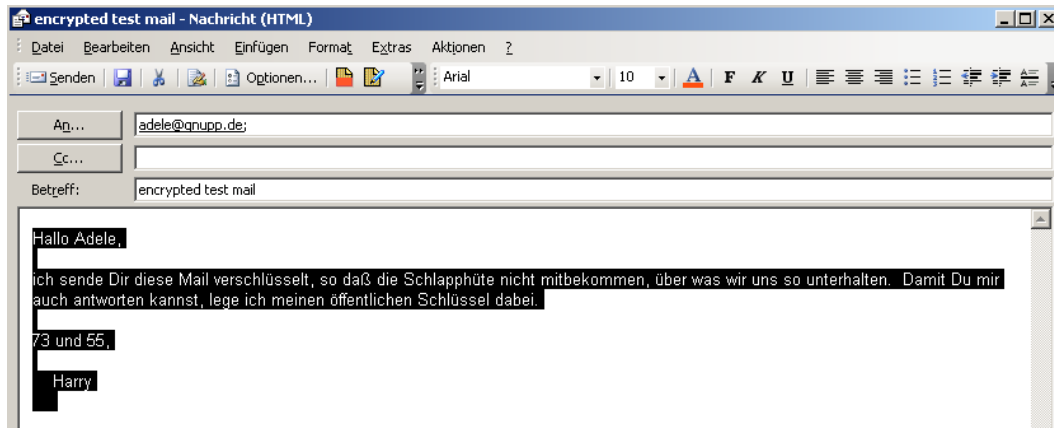
♠ **Before continuing, you may want to read Chapter 10 of the manual "Gpg4win for Advanced Users" which contains additional information on how to deal with invalid signatures.**

9. Encrypting emails

Encrypt an email and send it to Adele (or another person).

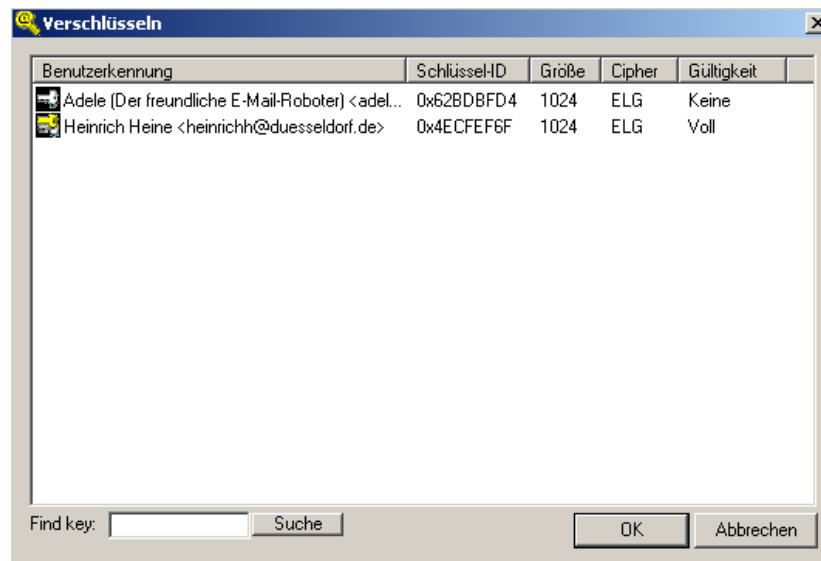
Open your email program and write a message (if you are sending the message to Adele, any text will do as Adele can not actually read . . .)

Highlight the text and copy it onto your Clipboard (Windows) using the copy function or the Ctrl-C shortcut.



Right click on the WinPT icon on your Windows Taskbar and select *Clipboard*→*Encrypt*.

You should now see a window containing the keys on your key ring. Using the examples featured in this guide, you would see Adele's key (the one she sent to you), as well as your own key, which you created in Chapter 2 (FIXME: Use dynamic reference).



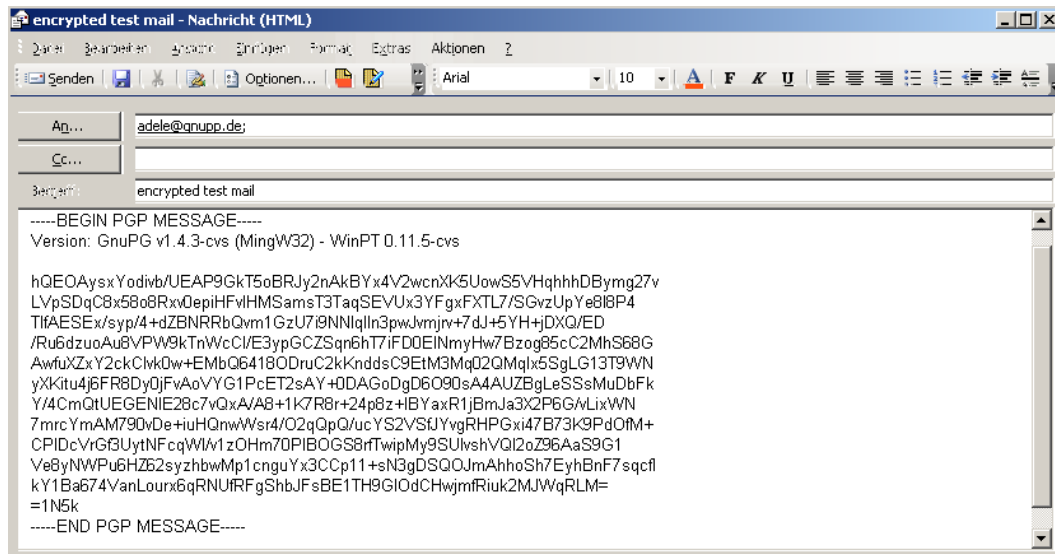
Click on Adele's key to encrypt the message you just composed, keeping in mind the following principle:

In order to send someone encrypted emails, you need to have that person's public key in order to encrypt the message properly.

Clicking on [OK] starts the encryption process, which will be confirmed by the program if successful.

The encrypted message can be found on your computer's clipboard, from which you can copy it into the email window. You can erase the unencrypted text or just copy and paste the contents of the clipboard.

It will look something like this:



Now send your email to Adele. Remember to use your proper email address (rather than the previous practice email) otherwise you will not receive a response. . . .

Congratulations! You have just encrypted your first email!

10. How to archive/store encrypted emails

It is probably not wise to store the readable (clear)text of your encrypted emails on your computer (after all, they were encrypted for a reason). Therefore it is sensible to store encrypted copies of the emails.

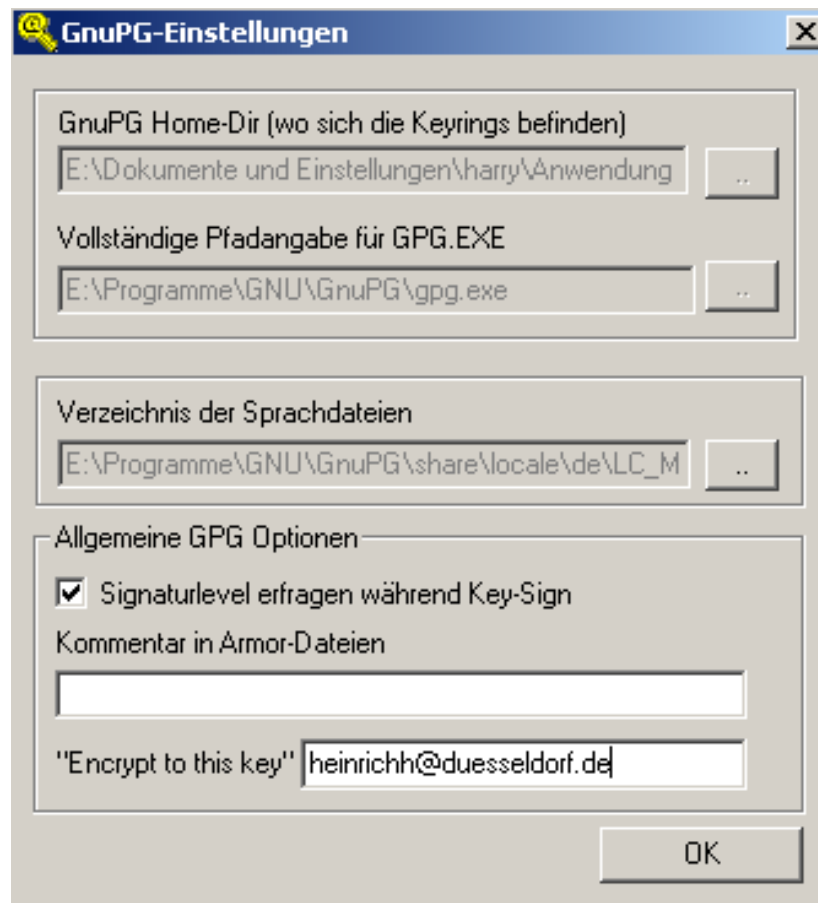
You may already have guessed resulting problem: To decrypt the archived emails you need the private key of the recipient, which will (should) never be available to you. . . .

The solution: You encrypt the messages to yourself as well.

You can encrypt a message designated for a recipient (e.g. Adele) using their own as well as your own public key, which allows you to decrypt the text later using your own private key.

Since Gpg4win cannot tell the difference between the different keys used to encrypt a message (ie. you could have more than one key), you need to set up the program accordingly.

To use this option, right click on the WinPT icon select *Preferences* → *GPG*.



This opens the GnuPG Preferences Window. You can add your key in the "Encrypt to this key" field using your emailaddress.

email programs which directly support GnuPG will also feature this option.

Summary:

1. You responded to the recipient by encrypting an email with his/her public key.
2. You also set up WinPT to encrypt archived copies of your emails with your own public key.

And that's it - welcome to the world of free and secure email encryption!

♠ We recommend you read Chapter 10 to 12 of the manual " Gpg4win for Advanced Users" for additional information on adding signatures to emails, as well as importing and using an existing private key in GnuPG.

♠ Furthermore, Chapters 13 and 14 of the manual "Gpg4win for Advanced Users" give you additional information about the ideas behind GnuPG's security features, as well as detailed insights into the mathematical concepts used. These chapters are easy to read, they were written for the every day user, not mathematicians and cryptographers.

A. Suggestions regarding the Outlook plugin *GPGol*

GPGol, a Microsoft Outlook plugin, integrates the operation of GnuPG. Here are some tips about the operation of this plugin.

While it is fairly easy to operate the plugin in other email programs, technical difficulties associated with its integration of OpenPGP into Outlook make it harder to operate in this context.

The current version of GPGol works only with Outlook 2003 SP2 and will notify you if you are using an older version.

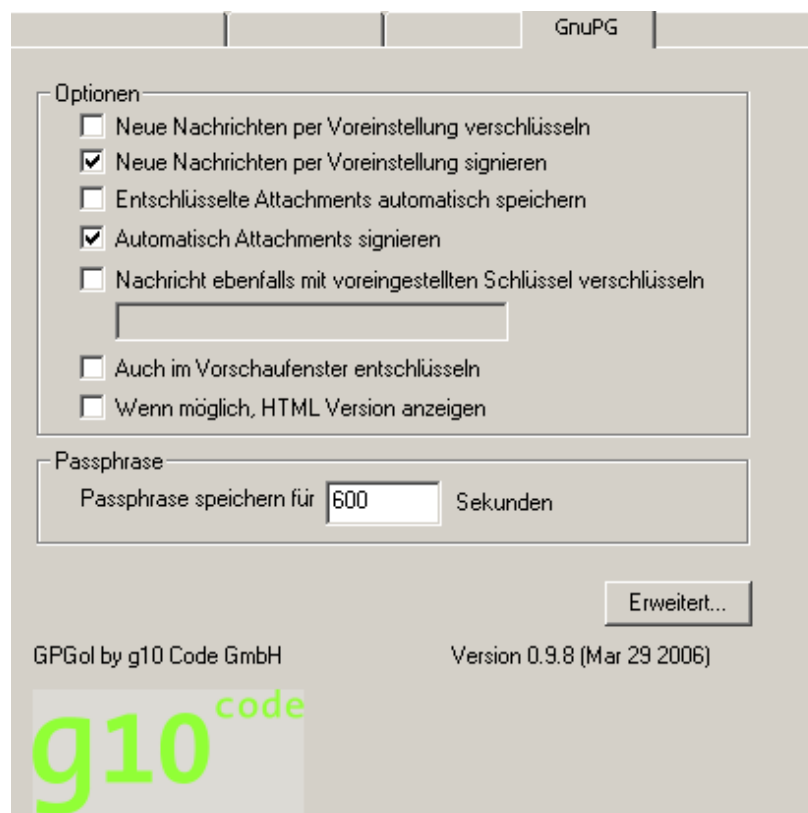
Please be aware of the following limitations:

- Do not use Word as your text editor.
- Inline-PGP or the conventional PGP is fully supported, however, PGP/MIME emails cannot be created.

On the other hand, decryption and signature verification of simple, as opposed to more complex, PGP/MIME emails, is not supported.

A.1. Installation

The plugin can be installed using the the Gpg4win Installer. The next time you start Outlook, a *GnuPG* tab will be added in the *Tools*→*Options* menu :



The first two options of this tab allow you to set default settings to do with encrypting and signing new messages. Note that you can always change these settings when creating new messages.

The option "Save decrypted message automatically" will save attachments as unencrypted text (after decryption). As a result, the attachment can be read anytime without having to decrypt it again.

The option "Automatically sign attachments" ensures that attachments are automatically signed along with your main text. For this purpose, an attachment with a signature is created for every attachment included in the message.

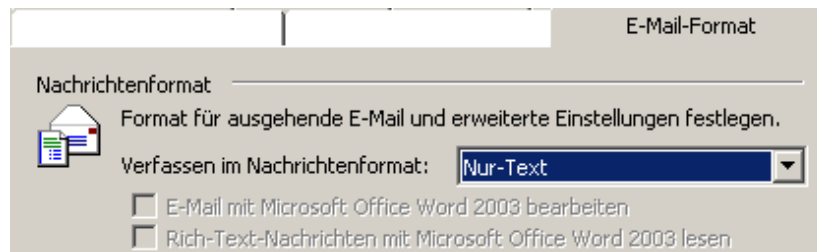
The option "Also encrypt message with the default key" allows you to enter the Key ID of your own key so that your messages are automatically (and additionally) encrypted using your own key. This allows you to later retrieve, decrypt and read messages in the Sent folder.

The option "Also decrypt in preview window" is only feasible with very fast computers; at the present time it has only limited operational capacity.

The option "Show HTML view if possible" enables you to view a message in HTML format. In most cases, or when an HTML format is not available, it will be shown in text format.

There are a number of preset default settings which take effect after initial installation. However, you should also ensure that you are not using **Microsoft Word** to compose messages. We also do not recommend using HTML messages.

You can set these options using the *Mail Format* tab in the *Tools*→*Options* menu. Your settings should look like this:



A.2. Common Questions

Encryption icons are not visible in the notification area/system tray. If the system tray contains a large number of icons, it may not display all of them. Clicking on the arrow at the right end of the system tray (located on the bottom right hand side of most computers) will open up the tray to show all icons, including the Key Manager icon.

Again, make sure that you are not using Microsoft Word to compose messages (see installation instructions).

What is the meaning of the letters included in the GnuPG tab? GPGol lists the components and their associated file names as part of the decryption or message signature verification. File names containing encrypted attachments are prefaced with "E", and signed attachments are marked with an "S".

Where can I locate information regarding the latest version GPGol? Click on the logo on the lower left side of your GnuPG options menu.

Why is it not possible to cancel an encryption process? GPGol begins the encryption process as soon as you press the Send button. An error contained in Outlook prevents you from interrupting or cancelling this process. To avoid this, we recommend configuring Outlook so that messages are not sent immediately. This gives you the opportunity to cancel the message before it is sent. As a security measure, GPGol will try to erase the contents of the message if the encryption process is interrupted, but this is not always successful.

Why does the confirmation window appear when accessing certain emails? If

GPGol is not installed as a trusted plugin, Outlook assumes that it is trying to access internal information without authorization. GPGol attempts to prevent this from happening, but sometimes it is necessary in order to properly display encrypted or signed emails.

GPGol is still "in development". One outstanding issue is its registration as a trusted plugin. Future versions of GPGol should be able to solve the issue of needing to confirm some or all emails.

How come GPGol cannot create PGP/MIME messages? At the present, there is no way of telling Outlook that a PGP/MIME message is to be created. Outlook decides on its own which "Content-Type" is to be used, as the plugin is not able to preset a certain type. You may want to contact Microsoft directly to talk about this setting and/or missing documentation regarding this setup.

Why are signature verifications not performed automatically? We are currently working on an automatic signature verification option to be used when opening an email. However, given Outlook's complex technical environment, this is not an easy issue to solve.

B. Transferring from other GnuPG programs

This section explains how to migrate from out GnuPG-based programs to Gpg4win. The installation program recognizes some of these programs and notifies you if that is the case.

As a general rule it is recommended that existing GnuPG-based programs be removed before installing Gpg4win.

Always save a backup of the existing keys. The best way to do this is to use the options in the existing system before installation Gpg4win. Select the option to save any private (secret) keys, as well as all existing public keys. Save these in one or two files.

As soon as Gpg4win is installed, check if your existing keys are listed in the new program (using either GPA or WinPT). If yes, Gpg4win was able to detect the previous key storage and you need take no further action.

If the program does not list the existing keys, you must import them from your backup file(s). For more information on this topic, refer to Chapter 12 in the manual "Gpg4win for Advanced Users".

If your older system also includes GPA, you can use its back-up option, which should be very similar to the operation of GPA in Gpg4win.

If you are not able to locate your existing keys, use the 'Search' function in Windows to find the files named `secring.gpg` and `pubring.gpg` and import them per GPA.⁴

⁴This is not the official procedure, but it works with all current versions of GnuPG.

C. History

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