

Gentoo Prefix for Windows

Markus Duft

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1 Preparing for Installation

Depending on the desired use of Gentoo Prefix, a few things require preparation before installing Gentoo Prefix itself. The following will give you a short overview of the available options.

1.1 Supported Platforms

Not all Windows versions are supporting SUA (or SFU as it was called in Windows 2000/XP). You can see whether Microsoft supports SFU/SUA on your Windows version by looking at Table 1 on page 3.

<i>Windows version</i>	<i>Editions</i>	<i>SUA support</i>	<i>x86</i>	<i>x64</i>	<i>ia64</i>
Windows 2000	All	SFU 3.5	✓	-	-
Windows XP	All	SFU 3.5	✓	✗	✗
Windows Server 2003	All	SFU 3.5	✓	✗	✗
Windows Server 2003 R2	All	SUA 5.2	✓	✓	✗
Windows Vista	Enterprise, Ultimate	SUA 6.0	✓	✓	✓
Windows Vista	Starter, Home, Business	none	✗	✗	✗
Windows Server 2008	All	SUA 6.0	✓	✓	✓
Windows 7	Enterprise, Ultimate	SUA 6.1	✓	✓	✓
Windows 7	Starter, Home, Business	none	✗	✗	✗
Windows Server 2008 R2	All	SUA 6.1	✗	✓	✓

- ✓ SFU/SUA is available
- ✗ SFU/SUA is not available

Table 1: SFU/SUA support in Windows

Looking at Table 2 on page 3 you can see which architectures and Windows versions are supported by *Gentoo Prefix*. Be aware that *ia64* support is completely untested (support is implemented though). Using the *Gentoo Prefix* snapshot from the installation medium on *x64* works fine, but upgrading installed packages or installing new packages can cause troubles in certain cases.

Windows version	<i>x86</i>	<i>x64</i>	<i>ia64</i>
Windows 2000	✓	✗	✗
Windows XP	✓	✗	✗
Windows Server 2003	⚠	✗	✗
Windows Server 2003 R2	✓	⚠	⚠
Windows Vista	✓	⚠	⚠
Windows Server 2008	✓	⚠	⚠
Windows 7	✓	⚠	⚠
Windows Server 2008 R2	✗	⚠	⚠

- ✓ Architecture is fully supported on this Windows version
- ⚠ Support is only partial, or untested.
- ✗ Architecture is not available.

Table 2: *Gentoo Prefix* support in SFU/SUA

1.2 .NET Framework 2.0



The Installer was written in C# using the .NET Framework 2.0. If you don't have it installed currently on your Windows, you will have to do so. A redistributable package for your platform is located on the DVD image (in the *Supplemental/NetFx* Directory).

1.3 Microsoft Visual C++

You can use Gentoo Prefix as platform for building native Windows libraries and applications, while still keeping a UNIX based build system. An excellent example for this are the “autotools” (*autoconf*, *automake*, *libtool*, etc.). In Gentoo Prefix, this is done by the means of *prefix-chaining* in combination with the *parity*¹ compiler wrapper.

Since *parity* is only a wrapper around the Microsoft Visual C++ command line interface, such an installation is required to be able to build native libraries and applications. You can choose from nearly any recent Microsoft Visual C++ edition, including the latest (2008) Express Edition. The only requirement is that the command line interface supports the x86 compiler. Be aware that certain editions of Visual Studio (for example the Standard Edition) seem to install x64 compilers only on x64 based systems, and offer no option to install the x86 compiler.

1.4 X11 Server

If you plan to use the advanced terminal(s) provided by Gentoo Prefix, or any other X11 based application, you should install an X11 Server. This can also be done after installing Gentoo Prefix. Recommended and most tested is *XMing*². The DVD Image contains a setup program for it in the *Supplemental/Xming* directory.

If you want to use a Linux/UNIX machine as X11 server, i suggest using Xephyr.

With either X11 server, if you want to use the bundled XFCE4 desktop, start the server with the root window enabled (not the default for XMing), otherwise there will be conflicts regarding window managers and other things.

¹<http://www.sourceforge.net/projects/parity>

²<http://www.straightrunning.com/XmingNotes/>

2 Installation

2.1 Installation Media

At the moment, Gentoo Prefix for Windows is provided on a *Universal DVD Image*, which covers all supported Windows platforms. At the time of writing, this DVD image is approximately 2GB big. It can be downloaded from all Gentoo mirror sites³.

2.2 Running the Installation

Installing Gentoo Prefix is done through a custom Setup Program, written especially for this purpose. The following shows what possibilities you have to influence its behaviour, and how you can get extended diagnostic messages during setup.

2.2.1 Autorun

The DVD contains autorun information which will attempt to automatically run Setup as soon as the DVD is inserted (Figure 1 on page 5). If you wish to see extended diagnostic messages, please cancel Setup, and start it the way described in 2.2.2.

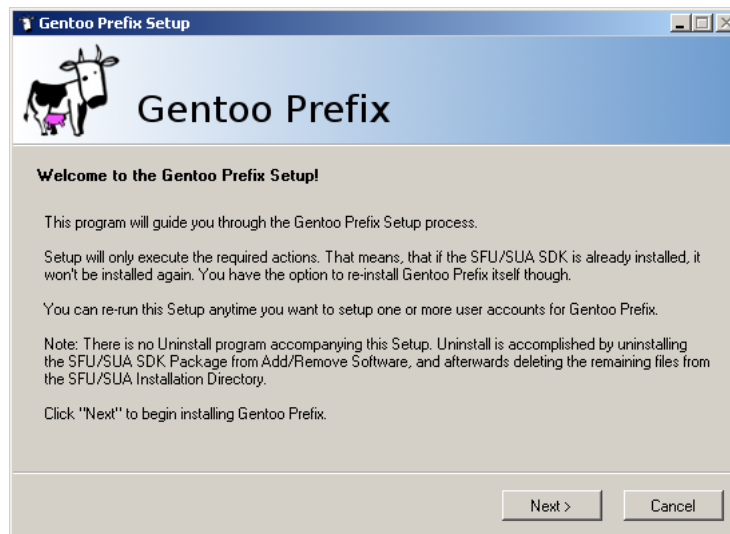


Figure 1: Setup welcome screen after autorun

2.2.2 Running with extended diagnostics enabled

You can enable extended diagnostic messages by running `Data\Setup.exe` from the DVD with the command line switch `/debug`. This will make setup open a debug console as soon as it starts (Figure 2 on page 6).

³<http://distfiles.gentoo.org/experimental/prefix/x86-interix>

Figure 2: Setup welcome screen with `/debug`

2.3 Choosing the SDK Package

The DVD contains a copy of all SDK installer packages available from Microsoft at the time of packaging for all supported platforms, so it should not be necessary to override the package location. However if you still need another version of the SDK package, or you are on a platform that wasn't supported at the time of packaging, you can still choose to provide a custom location for the SDK (Figure 3 on page 6).



Figure 3: SDK package options

If you received the Setup as stand alone program without SDK installer packages, you will have to find and download the SDK installer package appropriate for your platform from the Microsoft download site⁴.



On Windows versions newer than XP, Setup will automatically install the SUA component, if it is not there yet. A small notice will be displayed on this page, if setup queues execution of this step. Installing the SUA component may require you to insert the Windows Installation Medium, so keep those at hand.

If the SDK is to be installed (i.e. it is not already installed), you will be presented a few options (Figure 4 on page 8). It is highly recommended to enable all of them, for full functionality of *Gentoo Prefix*. If you really know what you are doing, you can disable any of them at your own risk. Here is a short explanation of the options:

- **Enable SetUID.** This controls whether binaries with the *setuid* bit set can be executed. Otherwise those executables will refuse to start. Examples of binaries requiring this are *cron*, *sendmail*, etc.
- **Enable SuToRoot behaviour** (This is available on Windows Vista/Server 2008 or newer only). This controls whether impersonating *root* (*Administrator*) is possible for SUA binaries.



You need to make sure, that the *Administrator* account is not disabled, otherwise impersonating *root* will always fail. You need to impersonate *root* for at least some of the system maintenance tasks.

- **Install latest Hotfixes.** If there were Hotfixes available for your SUA version at time of packaging, they will be installed. This is highly recommended. For example there is a hotfix fixing massive problems with multi-core CPUs.

⁴<http://download.microsoft.com>

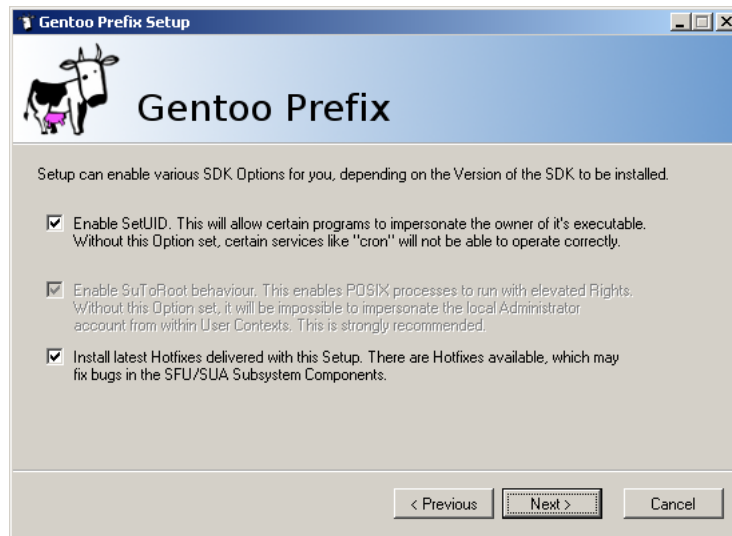


Figure 4: SDK package installation customizations

2.4 Installation of the SUA SDK

Next, Setup will install the SUA SDK (and possibly the SUA components for your Windows version) (Figure 5 on page 9). It will apply the selected SDK options, and install hotfixes if selected. Installation of the SUA SDK will always require a reboot after completion (Figure 6 on page 9).

On some Windows versions you may be required to insert the Windows installation medium during SUA component setup. After the SUA component has been installed, Setup requires access to the installation medium again. If Setup cannot find the installation medium, it will prompt you to reinsert the medium.

Setup will schedule itself for restart, after the current user logs in again. This will not work, if you are running Setup from a Network location. If you do, or if for some other reason Setup does not start automatically after you log in, please start Setup again manually after reboot.

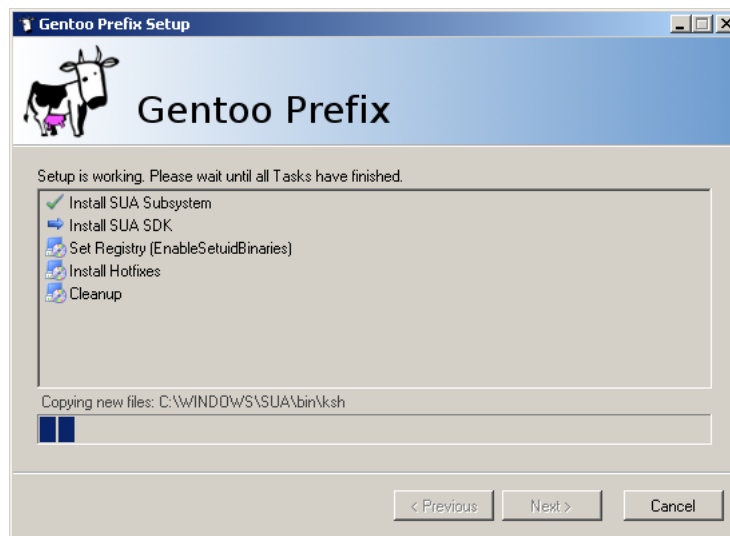


Figure 5: Installing SUA component and SDK package

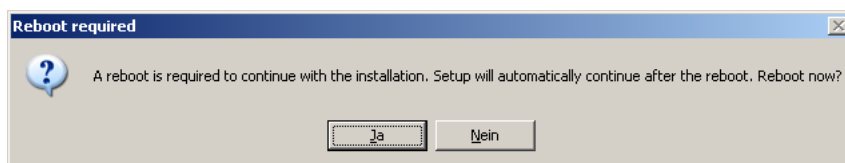


Figure 6: Reboot after SDK package installation

2.5 Choosing the snapshot package

The *Universal DVD Image* contains snapshots of *Gentoo Prefix* for all supported platforms. If you have a newer snapshot available, you can choose to use that file (Figure 7 on page 10).

Also if Setup detects that *Gentoo Prefix* is already installed on your system, it offers the option to backup your old *Gentoo Prefix* installation, and unpack the fresh snapshot from the DVD (Figure 8 on page 10). Choosing this option moves the "/opt/gentoo" directory to "/opt/gentoo.bakN" where "N" is the first free number. If you just want to continue with setup without reinstalling Gentoo Prefix (i.e. you just want to setup another user account), keep the default setting (the "Move the existing installation ..." checkbox is unchecked), and continue.

Figure 7: *Gentoo Prefix* snapshot optionsFigure 8: *Gentoo Prefix* reinstatement options

2.6 Selecting users to set up



The User setup tries to manipulate each Users Registry Hive remotely, which is currently (due to a bug) likely to fail, except for the *current* user. However to work around the problem, either each user sets the HOME environment variable manually in the system properties, or reruns setup to only setup himself. If the user in question will only log in through SSH, and not through remote desktop, you can safely skip this manual fixing, as it only sets the home directory for *local* logins.

Setup offers the option to setup user accounts for use with *Gentoo Prefix*. Setup creates a home directory for each user, sets the “HOME” environment variable, and manipulates the account database to allow *su* and *ssh* logins with the user account.

For each user you want to set up, click the “...” button. This will open an extra window, where you can choose from all detected user accounts (Figure 10 on page 12). Selecting a user fills Setups dialog with default values appropriate for that user (Figure 9 on page 11). You can modify the values before clicking “Add >”. Clicking this button will update the list on the right hand side of the dialog, and add the selected user.

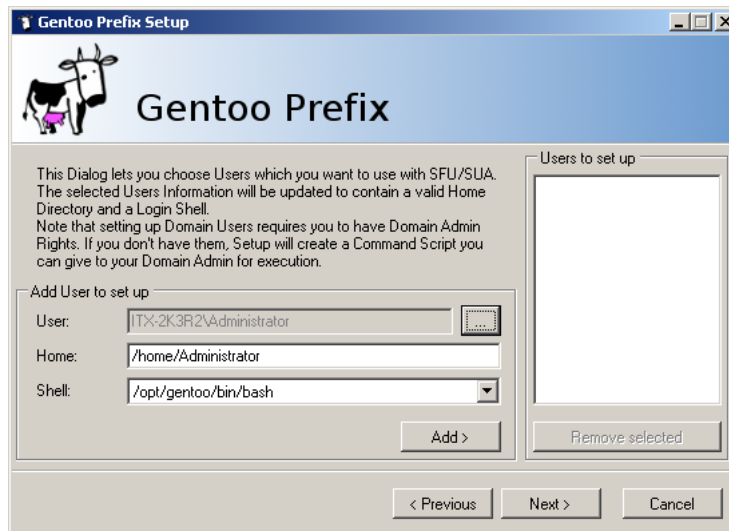


Figure 9: User setup preferences

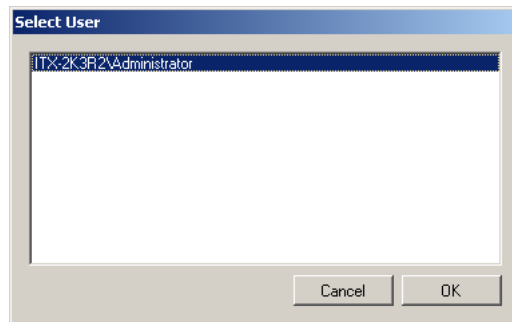


Figure 10: Choose an user account to set up



You need to make sure, that each account you want to set up has logged in at least once, so that it's registry has been created. Otherwise, setting the "HOME" environment variable is not possible. User setup will succeed anyway, but local logins (by starting a shell through a Start Menu link, etc.) will not work as expected.



Setup will try to manipulate the user account database. If this fails (for example because of insufficient permissions), Setup will create a command script, that can be given to an administrator with sufficient permissions to execute the commands. This is done for both local and domain users.



Be aware that some actions in *Gentoo Prefix* require administrative priviledges! Setup will display a notice, if a chosen user is not member of the *Administrators* group. Unpriviledged users may still work fine, depending on your use case; However running certain programs (for example during building of native Windows libraries/applications through Visual C++, etc.) may not work, and can even fail without notice of the occured error!

If you instruct Setup to operate on the currently logged in user (which you usually will want to do), a logout will be required at the end of Setup, for the changes to the user account database to take effect. Any new login will get the changes immediately.

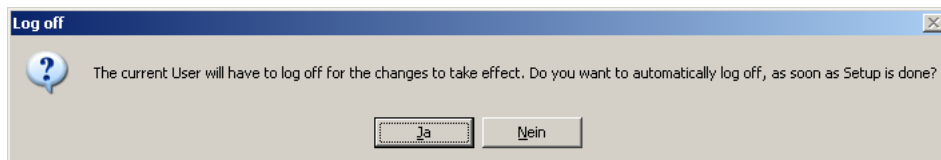


Figure 11: Log off to complete user account setup

2.7 Installation of Gentoo Prefix and user setup

Setup will now install *Gentoo Prefix*. It will be installed to “/opt/gentoo” (Figure 12 on page 13). The Windows location of the installation will be “%SystemDrive%\SFU\opt\gentoo” on Windows 2000/XP, and “%SystemRoot%\SUA\opt\gentoo” on all later versions.

After unpacking *Gentoo Prefix*, setup will run post-installation tasks, and after that, setup the selected user accounts.

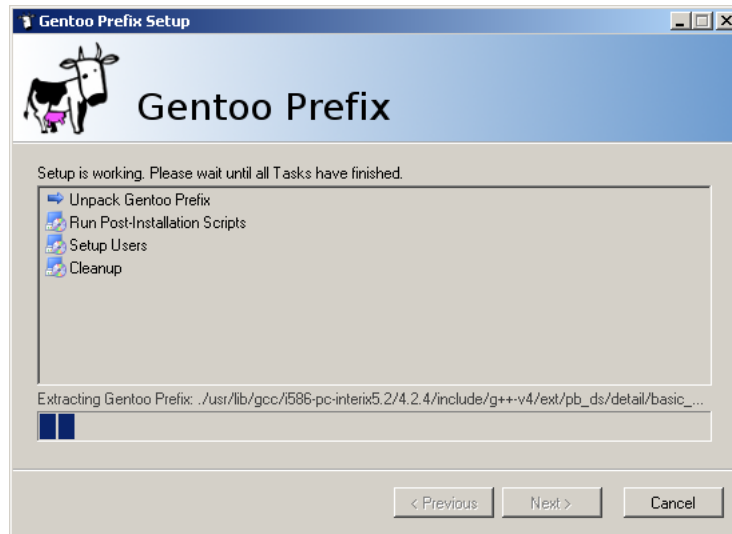


Figure 12: Installation of the *Gentoo Prefix* snapshot

3 Finalizing Tips

After installation, *Gentoo Prefix* is ready for use. However, there are still things to be done, in order to finalize the installation.

3.1 SSH Daemon

Gentoo Prefix comes with an SSH daemon, which automatically starts at boot time. If you don't want the SSH daemon to start automatically, remove the files “/etc/rc2.d/S32sshd” and “/etc/rc2.d/K68sshd”. To manually start the SSH daemon, run “/etc/init.d/sshd start”.



Don't forget to add an exception to your firewall for port 22, if you have one running! Otherwise external clients won't be able to connect to your SSH daemon!

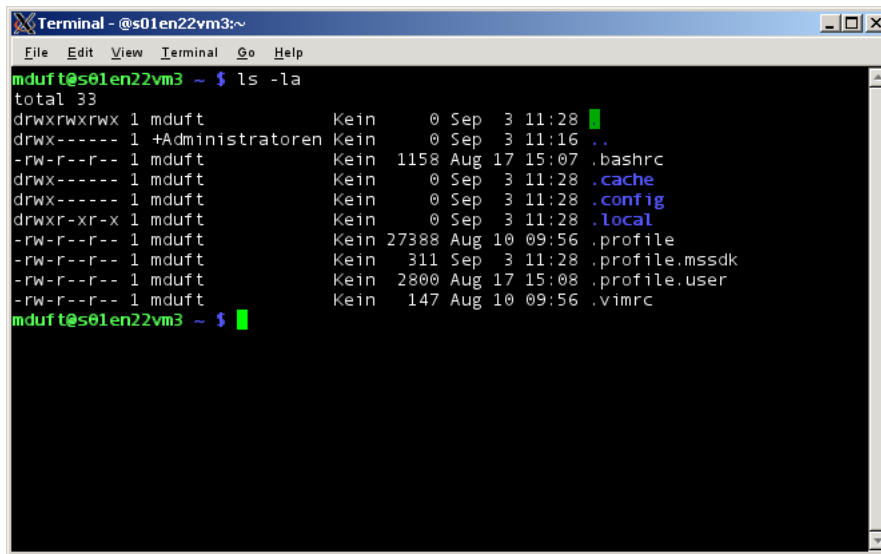
3.2 Portage

Gentoo Prefix uses portage as its package manager. You can use portage just as on any Gentoo Linux system. Thus the portage manual⁵ applies.

3.3 Terminal

The DVD image contains a prebuilt XFCE4 Terminal (Figure 13 on page 15), which you can launch by calling *terminal* from a Gentoo Prefix shell. Don't forget to set DISPLAY to point to a running X11 Server (e.g. Xming on the local machine) with appropriate access permissions (a remote X11 server must allow TCP connections).

⁵<http://www.gentoo.org/doc/en/handbook/handbook-x86.xml?part=2&chap=1>

A terminal window titled "Terminal - @s01en22vm3:~" with a menu bar (File, Edit, View, Terminal, Go, Help). The terminal shows the command "ls -la" and its output. The output lists files and directories with their permissions, owner, group, size, and modification date. The files listed are: ".", ".bashrc", ".cache", ".config", ".local", ".profile", ".profile.mssdk", ".profile.user", and ".vimrc".

```
mduft@s01en22vm3 ~ $ ls -la
total 33
drwxrwxrwx 1 mduft      Kein    0 Sep  3 11:28 .
drwx----- 1 +Administratoren Kein    0 Sep  3 11:16 ..
-rw-r--r-- 1 mduft      Kein 1158 Aug 17 15:07 .bashrc
drwx----- 1 mduft      Kein    0 Sep  3 11:28 .cache
drwx----- 1 mduft      Kein    0 Sep  3 11:28 .config
drwxr-xr-x 1 mduft      Kein    0 Sep  3 11:28 .local
-rw-r--r-- 1 mduft      Kein 27388 Aug 10 09:56 .profile
-rw-r--r-- 1 mduft      Kein   311 Sep  3 11:28 .profile.mssdk
-rw-r--r-- 1 mduft      Kein  2800 Aug 17 15:08 .profile.user
-rw-r--r-- 1 mduft      Kein   147 Aug 10 09:56 .vimrc
mduft@s01en22vm3 ~ $
```

Figure 13: A terminal over Xming right after installation

3.4 XFCE4

In the current Release, an experimental build of XFCE4 is included with the DVD image. It contains only the very basic Desktop and some utilities. Please note that it is not really in a production usable state (yet), as for example, there is no file manager, no browser, etc.

If you still want to give it a try, start an X11 server with root window enabled (Xephyr on a Linux machine, or Xming with explicitly enabling the root window on Windows), and do “DISPLAY=<machine>:<disp> startxfce4”.