Windows Build Instructions

Build requirements

The following third-party tools/SDKs are needed to build PGP 6.5.1:

- Microsoft Visual C++ 6.0 (http://www.microsoft.com)
- Microsoft Visual Studio 6.0 Service Pack 2
- Microsoft Windows NT DDK January 1997
- Microsoft Windows 95 DDK July 1998
- Microsoft Windows 98 DDK October 1998
- Microsoft Windows Platform SDK September 1998
- Vireo VTOOLSD 2.05b (http://www.vireo.com/vtd95.htm)
- Vireo Driver::Works 1.20 (http://www.vireo.com/vdw.htm)
- InstallShield 5.5 Professional (http://www.installshield.com)
- InstallShield 5.5 Maintenance Pack 3 (http://www.installshield.com)
- WinRAR 2.50 (http://www.rarsoft.com)
- Microsoft Common Control 4.72 (http://download.microsoft.com/msdownload/ie401/patch/comcontrol/en/401comupd.exe)
- Microsoft MFC42.dll 4.21.7303 (Available in Windows NT 4 Service Pack 3 at C:\WinNT\System32\MFC42.dll)
- Microsoft Msvcrt.dll 5.00.7303 (Available in Windows NT 4 Service Pack 3 at C:\WinNT\System32\Msvcrt.dll)

Preparing the build environment

(1) Install Microsoft Visual C++ 6.0. Perform a "Custom" install and install all components except the online books.

(2) Install Microsoft Visual Studio 6.0 Service Pack 2 to update VC++ 6.0.

(3) Install the Microsoft Platform SDK. This is needed by the Microsoft Windows 95 DDK.

(4) Install the Microsoft Windows NT DDK, Microsoft Windows 98 DDK, and Microsoft Windows 95 DDK. Note that by default some of these will want to install into a directory named "DDK". Change the default installation location so each DDK is installed into a different directory.

(5) Install the remaining build tools:

- Vireo VTOOLSD
- Vireo Driver::Works
- InstallShield
- InstallShield Maintenance Pack 3
- WinRAR 2.50

(6) Modifications are necessary to Vireo VTOOLSD to allow correct operation with Microsoft Visual C++ 6.0. Open the file "Vireo VTOOLSD/include/ms9vxd.mak" in a text editor. Change line 32 from "/DEBUG /DEBUGTYPE:CV,MAP" to "/DEBUG /DEBUGTYPE:CV". Save the file.

(7) Modifications are necessary to Vireo Driver::Works to allow correct operation with Microsoft Visual C++ 6.0. Open the file "Vireo Driver::Works/source/KDEVICE.CPP" in a text editor. Remove line

66: "if (LinkName) ASSERT (DeviceName);". Save the file.

(8) Set the following System Variables using the Environment tab of the System control panel:

- BASEDIR = Path to Microsoft Windows NT DDK directory
- NT4DDKROOT = Path to Microsoft Windows NT DDK directory
- 98DDKROOT = Path to Microsoft Windows 98 DDK directory
- 95DDKROOT = Path to Microsoft Windows 95 DDK directory
- MSSDK = Path to Microsoft Windows Platform SDK directory
- VCINCLUDE = Path to Microsoft Visual C++ 6.0 include directory in 8.3 notation i.e. "C:\PROGRA~1\MICROS~1\VC98\INCLUDE"

Preparing the source code tree

Before compilation, several additional steps are needed to prepare the source tree:

(1) All of the binaries are located in the zip files of the name "binaresXXX.zip". The common source code has two such files ("binariesA.zip" and "binariesB.zip") and the Windows source code has two ("binaries1.zip" and "binaries2.zip"). These files contain the binaries in a "parallel" hierarchy to the source tree. Use your favorite zip utility to decompress these archives into the "clients" and "libs" directories.

(2) The Windows User's Guide was split into two files due to it's size. Join the file "docs/builds/ds/PGPWinUsersGuide.rar" using WinRAR 2.50. Save the resulting file as "docs/builds/ds/PGPWinUsersGuide.pdf".

(3) PGP 6.5.1 includes two drivers for Windows 95/98 and Windows NT which lock memory to prevent paging of sensitive data to disk. These drivers need to be built once during source code preparation. To build these drivers, open the workspace file "libs/pfl/win32/SecureMemory/PGPmemlock.dsw". Choose "Batch Build..." from the **Build** menu and click the **Rebuild All** button. Link warnings regarding missing code sections will be generated while building the Windows 95/98 drivers. These can be ignored.

(4) The PGPnet driver requires a wrappers library which needs to be built as part of source code preparation. To build this library, choose "Start->Programs->Development Kits->Windows 98 DDK->Free Build Environment" from the **Start** menu. This will open a "configured" shell window. Navigate to the directory "clients/net/win32/driver/shared/ndis/win95/" and execute the command "nmake -fwrappers.mak".

(5) Open the workspace file "libs/pfl/win32/InstallDLL/install.dsw" and make the "Win32 Release" configuration.

At this point, the source code hierarchy should be replicated for multiple builds.

Setting source code flags

The following library flags are located in "libs/pgpcdk/priv/include/pgpSDKBuildFlags.h":

- PGP_RSA: Set to 1 for RSA-enabled builds
- PGP_RSA_KEYGEN: Set to 1 to allow RSA key generation
- PGP_USECAPIFORRSA: Set to 1 to use Microsoft's Crypto API (CAPI) for RSA operations.
- PGP_USECAPIFORMD2: Set to 1 to use Microsoft's Crypto API (CAPI) for MD2 hashing operations.
- PGP_USEBSAFEFORRSA: Set to 1 to use RSA's BSAFE library for RSA operations. Note that

BSAFE is not included in these source code books.

- PGP_USEPGPFORRSA: Set to 1 to use the PGP implementation for RSA operations.
- PGP_USERSAREF: Set to 1 to use the RSAREF library for RSA operations. Note that RSAREF is not included in these source code books.

These flags should be set as follows for all three of the supported builds: PGP_RSA = 1, PGP_RSA_KEYGEN = 1, PGP_USECAPIFORRSA = 0, PGP_USECAPIFORMD2 = 0, PGP_USEBSAFEFORRSA = 0, PGP_USEPGPFORRSA = 1, PGP_USERSAREF = 0.

The following client flags are located in clients/pgp/shared/pgpBuildFlags.h:

- BETA: Set to 0 for release builds
- PGP_DEMO: Set to 0 for regular builds
- PGP_FREEWARE: Set to 1 when building PGPfreeware
- PGP_BUSINESS_SECURITY: Set to 1 when building PGP Desktop Security
- PGP_PERSONAL_PRIVACY: Set to 1 when building PGP for Personal Privacy
- NO_RSA_KEYGEN: Set to 1 to disable RSA key generation
- NO_RSA_OPERATIONS: Set to 1 to disable encrypting/signing with RSA keys
- CREDIT_RSA_BSAFE: Set to 1 when building an RSA-enabled version which uses RSA's BSAFE library

These flags should be set as follows for the three supported builds:

- Desktop Security: BETA = 0, PGP_DEMO = 0, PGP_FREEWARE = 0, PGP_BUSINESS_SECURITY = 1, PGP_PERSONAL_PRIVACY = 0, NO_RSA_KEYGEN = 0, NO_RSA_OPERATIONS = 0, CREDIT_RSA_BSAFE = 0
- Personal Privacy: BETA = 0, PGP_DEMO = 0, PGP_FREEWARE = 0, PGP_BUSINESS_SECURITY = 0, PGP_PERSONAL_PRIVACY = 1, NO_RSA_KEYGEN = 0, NO_RSA_OPERATIONS = 0, CREDIT_RSA_BSAFE = 0
- Freeware: BETA = 0, PGP_DEMO = 0, PGP_FREEWARE = 1, PGP_BUSINESS_SECURITY = 0, PGP_PERSONAL_PRIVACY = 0, NO_RSA_KEYGEN = 0, NO_RSA_OPERATIONS = 0, CREDIT_RSA_BSAFE = 0

Finally, the file "clients/pgp/win32/INCLUDE/pgpVersion.h" contains a single flag which needs to be changed for each of the three supported builds. Set the "PGPPRODUCTNAME" field in this file to the following:

- Desktop Security: PGPPRODUCTNAME = "PGP Desktop Security"
- Personal Privacy: PGPPRODUCTNAME = "PGP Personal Privacy"
- Freeware: PGPPRODUCTNAME = "PGPfreeware"

Building the code

(1) Modify the variables in the following batch files to point to your Developer Studio and PGPdisk source code directories:

- clients/disk/win32/PGPdiskDrvWin95/PGPdiskDrvDebug.bat
- clients/disk/win32/PGPdiskDrvWin95/PGPdiskDrvRelease.bat
- clients/disk/win32/PGPdiskDrvNT/RunBuild.bat

(2) Open the workspace file "clients/pgp/win32/PGPclient.dsw" and make the "Win32 Release" configuration of the "PGPclient" project.

(3) Close "PGPclient.dsw" and open the workspace file "clients/net/win32/PGPnet.dsw". Choose "Batch Build..." from the **Build** menu. Check only the "Release" (but not "Release Auth Only") configurations and click the **Build** button.

(4) Close "PGPnet.dsw" and open the workspace file "clients/net/win32/install/enumerator/Lister.dsw". Choose "Batch Build..." from the **Build** menu and click the **Rebuild All** button.

(5) Close "Lister.dsw" and open the workspace file "clients/disk/win32/PGPdisk.dsw". Choose "Batch Build..." from the **Build** menu. Check only the "Release" and "free" configurations and click the **Build** button.

(6) Close "PGPdisk.dsw" and open the workspace file "clients/pgp/cmdline/PGPcmd.dsw". Choose "Batch Build..." from the **Build** menu. Check only the "Release" (but not "Release Auth Only") configurations and click the **Build** button.

Building the installer

(1) Before building an installer, the uninstaller need to be built first. Open a command prompt window and navigate to the directory "clients/pgp/win32/PGPInstall/uninstall".

(2) Execute the batch file "MakeDirs.bat". This batch file creates several needed directories.

(3) Open the InstallShield Pro project file "clients/pgp/win32/PGPInstall/uninstall/uninstall.ipr" and choose "Media->Media Build Wizard..." from the **Build** menu.

(4) Hilight the "Default" entry in the existing media list and click the **Next** button.

(5) Choose "CD-ROM" from the media types list and click the **Next** button.

(6) Choose the "Full Build" option and click the **Next** button.

(7) Continue to click the **Next** button and accept the defaults for subsequent wizard panels.

(8) Click the **Finish** button after the uninstaller has been built and close the InstallShield project file "uninstall.ipr".

(9) Copy the file "clients/pgp/win32/MakeSEA/Release/MakeSEA.exe" to the directory "clients/pgp/win32/PGPInstall/uninstall/Media/Default/".

(10) Open a command prompt window and navigate to the directory "clients/pgp/win32/PGPInstall/uninstall/Media/Default/".

(11) Execute the following command. Note the need for quotation marks around the last parameter: makesea.exe ..\..\Uninstall.exe ".\Disk Images". This will create the file "clients/pgp/win32/PGPInstall/uninstall/Uninstall.exe".

(12) Open a command prompt window and navigate to the directory "clients/pgp/win32/PGPInstaller/install".

(13) Execute the batch file "CopyFiles.bat". This batch file copies all relevant files from the build directories into the install directories. This batch file takes one of the following three parameters:

- DS - Desktop Security build
- PP - Personal Privacy build
- FREEWARE - Freeware build

(14) Copy the Microsoft Common Control update executable file "401comupd.exe" to the directory "clients/pgp/win32/PGPinstall/install/DATA/TEMP/".

(15) Copy the MFC42.dll and Msvcrt.dll shared library files to the directory "clients/pgp/win32/PGPinstall/install/DATA/PGPDISK/MFC/".

(16) Rules for the installer are located in the InstallShield script file "clients/pgp/win32/PGPinstall/install/Script Files/setup.h".Several switches at the top of the file need to changed for the various builds. Here are the correct values for the various builds:

- Desktop Security: TITLE = "PGP Desktop Security 6.5.1 RSA", PERSONALPRIVACY = "FALSE", FREEWARE = "FALSE", TITLE2 = "Desktop Security 6.5.1", PRODUCT_VERSION = "Desktop Security, version 6.5.1 RSA", INCLUDE_PGPDISK = "TRUE", WINNTONLY = "FALSE", ALLOWDUALPROCESSORS = "TRUE"

- Personal Privacy: TITLE = "PGP Personal Privacy 6.5.1 RSA", PERSONALPRIVACY = "TRUE", FREEWARE = "FALSE", TITLE2 = "Personal Privacy 6.5.1 RSA", PRODUCT_VERSION = "Personal Privacy, version 6.5.1 RSA", INCLUDE_PGPDISK = "TRUE", WINNTONLY = "FALSE", ALLOWDUALPROCESSORS = "TRUE"

- Freeware: TITLE = "PGPfreeware 6.5.1", PERSONALPRIVACY = "FALSE", FREEWARE = "TRUE", TITLE2 = "PGPfreeware 6.5.1", PRODUCT_VERSION = "PGPfreeware, version 6.5.1", INCLUDE_PGPDISK = "FALSE", WINNTONLY = "FALSE", ALLOWDUALPROCESSORS = "TRUE"

(17) Open the InstallShield Pro project file "clients/pgp/win32/PGPInstall/install/PGP.ipr" and choose "Media->Media Build Wizard..." from the **Build** menu.

(18) Hilight the "Default" entry in the existing media list and click the **Next** button.

(19) Choose "CD-ROM" from the media types list and click the **Next** button.

(20) Choose the "Full Build" option and click the **Next** button.

(21) Continue to click the **Next** button and accept the defaults for subsequent wizard panels.

(22) Click the **Finish** button after the installer has been built and close the InstallShield project file "PGP.ipr".

(23) Copy the directory "clients/pgp/win32/PGPInstall/install/Media/Default/Disk Images/"to a temporary directory.

(24) Copy the file "clients/pgp/win32/MakeSEA/Release/MakeSEA.exe'" to the temporary directory created in the previous step.

(25) Open a command prompt window and navigate to the tempory directory created above.

(26) Execute the following command. Note the need for quotation marks around the last parameter: makesea.exe Setup.exe ".\Disk Images".This will create the packaged installer "Setup.exe".

End of build instructions.