

Windows 95/98 Support in PJLIB/PJSIP/PJMEDIA

PJLIB supports both the older Windows 95/98/ME family of Microsoft OSes (win95/win98/winme) and the more advanced Windows NT family of OS'es (WinNT/2000/XP/2003/Vista). However, support for Win95/98 is not turned ON by default so it needs a bit of tweaking in both configuration and project settings.

This short article describes how to enable Win95/98 support in the software. The instructions here have been tested on Windows 98, however it should work on Windows 95 and Windows ME as well.

Thanks **Sebastian E. Ovide** for reporting and testing this.

Undefine WinNT in config_site.h

The following configuration is needed in your `pj/config_site.h` file to activate Win95/98 support:

```
#undef PJ_WIN32_WINNT
#define PJ_WIN32_WINNT 0x0300
#undef _WIN32_WINNT
```

These would disable the use of NT features in PJLIB's `os_core_win32.c` file.

Disable Win32 Native File I/O in pjlib

Still in `pjlib`. Since version 0.5.10, `pjlib` uses Win32 native `CreateFile()`/`ReadFile()`/`WriteFile()` API for dealing with file I/O, since the ANSI `fopen()` has a limitation that it can only open a maximum of `FOPEN_MAX` simultaneous files, and the limit on Windows is about 64 (or maybe less). But unfortunately, it looks like `CreateFile()` doesn't work as expected on Win98, although it doesn't look like it uses any NT specific features.

So we need to disable Win32 native file I/O and replace it with ANSI stream I/O. To do this:

1. Open `pjlib` project
2. Exclude `file_io_win32.c` from `pjlib` build.
3. Include (do not exclude) `file_io_ansi.c` in `pjlib` build.

Disable IoCompletionPort in pjlib

On **Debug** build, `pjlib` Visual Studio project will use socket `select()` as the back-end implementation for PJLIB's `ioqueue`, which is fine.

However, on **Release** build, the Visual Studio workspace will use WinNT **IoCompletionPort** (IOCP) as the `ioqueue` backend, and IOCP is not available on Win95/98/ME.

So we need to exclude IOCP from the build, and use `select()`. To achieve this:

1. open the **pjlib** project settings,
2. exclude `ioqueue_winnt.c` from the Release build, and
3. include (do not exclude) `ioqueue_select.c` in the Release build.

Disable DirectSound in pjmedia

By default, PJMEDIA uses PortAudio on Windows with DirectSound set as the preferred sound backend. This may not work properly on Win95/98, and it may be better to disable DirectSound support and just use **waveIn/waveOut** device.

To disable DirectSound in PortAudio in PJMEDIA:

1. Open pjmedia project settings
2. Add `PA_NO_DS` macro in the project's **Preprocessor** settings.

Problems?

These settings have been tested okay, but should you have any problems specific to Win95/98/ME, please ~~complain Sebastian~~ send email to pjsip mailing list for help. :D

Thanks again **Sebastian E. Ovide** <sebastian dot ovide at gmail . com> for testing this.