# 1.8 Multilanguage Support

The user interface internal data structure and communications protocol for SoftEther VPN supports multiple languages. This enables localization for various languages for use of VPN service for multinational companies and for SoftEther VPN itself.

## 1.8.1 Unicode Support

SoftEther VPN uses Unicode character code for the internally used data structure, interface to be actually used, and TCP/IP-based communications protocol communicated as SoftEther VPN protocol. So multiple language characters can be set and communicated mixed.

**Data Structure Unicode Support**

Of user information and group information for SoftEther VPN, parts using multibyte characters for names and explanations, etc., and parts where there is a high probability of multibyte character code other than numbers (full size characters such as hiragana and kanji) has been used for treatment of registration item X.509 certificate for various other objects that are managed by Unicode. In a Windows environment, UTF-16 Little Endian is used for local memory space within the SoftEther VPN process; UCS-4 is used in UNIX environments such as Linux, FreeBSD, Solaris and Mac OS X (the situation differs according to the actual platform). UTF-8 is used uniformly when writing out this data to the disk. Because all configuration files and log files are written out by SoftEther VPN that are used with UTF-8 character code having consistent, characters of multiple languages can be mixed.

**Unicode Support of User Interface**

Server Administrator Manager, Client Connection Manager and Command Line Utility (vpncmd), which are user interfaces of SoftEther VPN, are supported Unicode as display and input character. Thus if the environment of the operating system execut these utility programs (system call, etc.) which fully supports Unicode, you can input/output any Unicode character.

**Unicode Support of SoftEther VPN Protocol**

SoftEther VPN protocol is stream protocol based on TCP/IP. And UTF-8 is used for delivering Unicode character strings. UTF-8 is the de facto standard Unicode character code system used in worldwide by multi-platforms that do not depend on endian of the CPU. Thus SoftEther VPN protocol enables mutual operation without recognizing

difference in computer architecture and operating system on the sending and receiving sides.

## 1.8.2 User Interface that Supports Multiple Languages

All menu message explanations and error character strings displayed by Server Administrator Manager, Client Connection Manager and Command Line Utility (vpncmd), which are user interfaces of SoftEther VPN, are defined as Unicode character strings. Thus the character string table data can be localized to languages other than Japanese (such as English, Chinese, Korean, French and Russian) in the future and it can be easily transplanted into multiple languages by simply translating the character string table data.

## 1.8.3 Limitations

Part of SoftEther VPN Unicode support depends upon the operating system running the SoftEther VPN software. With operating systems that do not support Unicode, for example, the character code may not be converted correctly, and when some Unicode characters are not contained in the available fonts, those characters cannot be displayed.

Because Unicode character strings are not fully supported by Windows 98, Windows 98 Second Edition and Windows Millennium Edition, some characters that rely upon Unicode may not be able to be displayed. The operating system kernel of Windows NT 4.0, 2000, XP and Server 2003 support Unicode, so the impact of Unicode can be fully exhibited. Concerning support of Unicode by UNIX operating systems including Linux, refer to the specifications of the manual for those operating systems.