

Comparison of SSH clients

An **SSH client** is a software program which uses the secure shell protocol to connect to a remote computer. This article compares a selection of notable clients.

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General

Name	Developer	Status	First release	Latest release	Current version	Based on	License	Sourceavailable
AbsoluteTelnet	Celestial Software (Brian Pence)	Active	1996	2016-10-12	10.16 ^[1]		Proprietary	No
Bitvise SSH Client	Bitvise Limited	Active	2001	2020-05-22	8.43 ^[2]		Proprietary	No
ConnectBot	Kenny Root / Jeffrey Sharkey	Active	2007-11	2019-11-12	1.9.6 ^[3]	Trilead SSH-2 for Java	Apache	Yes
CRAX Commander	Soft4U2 Marcin Slowik	Active	2013-09	2015-12-01	1.10.6	libSSH2	Proprietary	Yes
Dropbear	Matt Johnston	Active	2003-04-06	2020-06-26	2020.80		MIT	Yes
eSSH Client	Ecode Software	Inactive	2002-07				Proprietary	No
Ish	Niels Möller	Active	1999-05-23	2013-06-26	2.1		GPL	Yes
OpenSSH (OpenBSD Secure Shell)	The OpenBSD project	Active	1999-12-01	2020-09-27	8.4 ^[4]	ossh	BSD	Yes
PuTTY	Simon Tatham	Active	1999-01-22	2020-06-27	0.74 ^[5]		MIT	Yes
SecureCRT	VanDyke Software	Active	1998-06	2020-02-11	8.7.0 ^[6]		Proprietary	No
Tera Term	TeraTerm Project	Active	2004	2018-08-31	4.100 ^[7]	Tera Term Pro 2.3 (1994–1998)	BSD	Yes
TN3270 Plus	SDI USA, Inc.	Active	2006				Proprietary	No
TtyEmulator	FCS Software	Active	2002-05	2020-01-05	4.4.6.1 ^[8]		Proprietary	No
wolfSSH	wolfSSL	Active	2016-07-20	2019-10-31	1.4.3	wolfCrypt	GPL or Commercial Distribution	Yes
ZOC Terminal	EmTec, Innovative Software	Active	1995-07-01	2021-03-10	8.02.1 ^[9]		Proprietary	No

Platform

The operating systems or virtual machines the SSH clients are designed to run on without emulation include several possibilities:

- *Partial* indicates that while it works, the client lacks important functionality compared to versions for other OSs but may still be under development.

The list is not exhaustive, but rather reflects the most common platforms today.

Name	macOS	Windows	Cygwin	BSD	Linux	Solaris	Java	OpenVMS	z/OS	AIX	HP-UX	iOS	Android
<u>AbsoluteTelnet</u>	No	Yes	No	No	No	No	No	No	No	No	No	No	
<u>Bitvise SSH Client</u>	No	Yes	No	No	No	No	No	No	No	No	No	No	
<u>ConnectBot</u>	No	No	No	No	No	No	No	No	No	No	No	No	
<u>CRAX Commander</u>	Yes	No	No	No	No	No	No	No	No	No	No	No	
<u>Dropbear</u>	Yes	No	Yes	Yes	Yes	Yes	?	?	?	Yes	Yes	Yes ^[Note 1]	
<u>eSSH Client</u>	Yes	Yes	?	Yes	Yes	Yes	?	?	?	No	No	No	
<u>Ish</u>	Yes	No	No	Partial ^[Note 2]	Yes	Yes	?	?	?	No	No	No	
<u>OpenSSH(OpenBSD Secure Shell)</u>	Included	Included ^[Note 3]	Included	Included	Included ^[Note 4]	Yes	?	Yes	Yes	Yes	Yes	Yes ^[Note 1]	
<u>PuTTY</u>	Partial	Yes	?	Yes	Yes	Yes	No	?	?	No	No	No	
<u>SecureCRT</u>	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	
<u>SmartFTP</u>	No	Yes	No	No	No	No	No	No	No	No	No	No	
<u>Tera Term</u>	No	Yes	No	No	No	No	No	No	No	No	No	No	
<u>TN3270 Plus</u>	No	Yes	No	No	No	No	No	No	No	No	No	No	
<u>TtyEmulator</u>	No	Yes	No	No	No	No	No	No	No	No	No	No	
<u>WinSCP</u>	No	Yes	No	No	No	No	No	No	No	No	No	Yes ^[Note 1]	
<u>wolfSSH</u>	Yes	Yes	Yes	Yes	Yes	Yes	No	No	?	?	No	No	
<u>ZOC</u>	Yes	Yes	No	No	No	No	No	No	No	No	No	No	
Name	OS X	Windows	Cygwin	BSD	Linux	Solaris	Java	OpenVMS	z/OS	AIX	HP-UX	iOS	Android

- Only for jailbroken devices.
- Ish supports only one BSD platform officially, FreeBSD.
- Included and enabled by default since windows 10 version 1803. Win32-OpenSSH can be installed as an optional component in the Windows versiones before Windows 10 version 1803 to Windows 10 version 1709. Portable version can be download from Win32-OpenSSH for other versions.
- The majority of Linux distributions have OpenSSH as an official package, but a few do not.

Technical

Name	User interface	SSH1	SSH2	Additional protocols		Port forwarding and Tunneling			Session multiplexing ^[Note 1]	Kerberos	IPv6	Terminal
				<u>TELNET</u>	<u>rlogin</u>	<u>Port forwarding</u>	<u>SOCKS</u> ^[Note 3]	<u>VPN</u> ^[Note 4]				
<u>AbsoluteTelnet</u>	GUI (multi-session, single-window)	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes
<u>Bitvise SSH Client</u>	<u>GUI</u> or <u>command line</u>	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<u>Dropbear</u>	<u>command line</u>	No	Yes	No	No	Yes	No	No	No	No	Yes	Yes
<u>Ish</u>	<u>command line</u>	No	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes
<u>OpenSSH(OpenBSD Secure Shell)</u>	<u>command line</u>	No ^[Note 5]	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<u>PuTTY</u>	<u>GUI</u> or <u>command line</u>	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes ^[Note 6]	Yes	Yes
<u>SecureCRT</u>	<u>GUI</u>	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
<u>SmartFTP</u>	<u>GUI</u> (multi-session, single-window)	No	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes
<u>Tera Term</u>	<u>GUI</u>	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes	Yes
<u>TN3270 Plus</u>	<u>GUI</u>	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes
<u>TtyEmulator</u>	<u>GUI</u> or <u>command line</u>	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes
<u>WinSCP</u> ^[Note 8]	<u>GUI</u> or <u>command line</u>	Yes	Yes	No	No	limited ^[Note 9]	No	No	No	Yes	Yes	simple
<u>wolfSSH</u>	<u>command line</u>	No	Yes	No	No	Yes	No	No	No	No	Yes	simple
<u>ZOC</u>	<u>TDI</u> or <u>command line</u>	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Name	User interface	SSH1	SSH2	Additional protocols		Tunneling			Session multiplexing ^[Note 1]	Kerberos	IPv6	Terminal
				<u>TELNET</u>	<u>rlogin</u>	<u>Port forwarding</u>	<u>SOCKS</u> ^[Note 3]	<u>VPN</u> ^[Note 4]				

1. [Accelerating OpenSSH connections with ControlMaster](#).
2. Can the SSH client connect itself through a proxy? This is distinct from offering a SOCKS proxy or [port forwarding](#).
3. The ability for the SSH client to perform dynamic port forwarding by acting as a local SOCKS proxy.
4. The ability for the SSH client to establish a VPN, e.g. using [TUN/TAP](#).
5. OpenSSH deleted SSH protocol version 1 support in [version 7.6 \(2017-10-03\)](#)
6. [The version 0.63 supports GSSAPI. Successfully tested on Win 8 using Active Directory](#)
7. The PuTTY developers provide SCP and SFTP functionality as binaries for separate download.
8. Winscp bundles a number of software components including putty. [\[1\]](#).
9. WinSCP connection tunneling.
10. [SCP and SFTP according to ZOC features page](#).

Features

Name	Keyboard mapping	<u>Session tabs</u>	<u>ZMODEM</u> transfers	Find text in buffer	Mouse input support ^[Note 1]	Unicode support	URL hyperlinking	Public keyauthentication	Smart cardsupport
AbsoluteTelnet	full	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bitvise SSH Client	?	No	No	No	Yes	Yes	No	Yes	No
OpenSSH(OpenBSD Secure Shell)	?	No	No	?	Yes ^[Note 2]	Yes	not native ^[Note 3]	Yes	Yes ^[Note 4]
PuTTY	No	No ^[Note 7]	No	No	Yes	Yes	No ^[Note 8]	Yes	No ^[Note 9]
SecureCRT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SmartFTP	Partial	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Tera Term	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
TN3270 Plus	Yes	Yes	No	No	No	No	Yes	Yes	No
TtyEmulator	No	No	No	Yes	Yes	No	Yes	Yes	No
wolfSSH	No	No	No	No	No	Yes	No	Yes	No
ZOC	full	Yes	Yes	Alt+F	Yes	UTF-8	Yes	Yes	Yes

1. The ability to transmit mouse input to text mode applications such as [Midnight Commander](#)
2. Only when the terminal itself supports mouse input. Most graphical ones do, e.g. [xterm](#)
3. No native URL highlighting; however most graphical consoles support URL highlighting
4. OpenSSH needs to be patched to ask for the pin of the smartcard. If you don't want to patch OpenSSH [you can use ssh-agent \(the link is in french\)](#).
5. [Validated when running OpenSSH 2.1 on Red Hat Enterprise Linux 6.2 in FIPS mode or when running OpenSSH 1.1 on Red Hat Enterprise Linux 5 in FIPS mode](#)
6. OpenSSH supports the minimal certificate format since v5.4. See the release notes for OpenSSH v5.4. [\[2\]](#)
7. PuTTY does not support *tabs* directly, but many wrappers are available that do (e.g. [PuTTY Connection Manager](#), [SuperPuTTY](#), [MTPuTTY](#), [PuTTYTabManager](#), [mRemoteNG](#), [WinSSHTerm](#), [PuTTY Manager](#), [PuttyTabs](#) and [TWSC \(Terminal Window ShortCuts\)](#)).
8. PuTTY does not support this, some forks of PuTTY do (e.g. [PuTTY Tray](#) and [KiTTY](#)).
9. PuTTY does not support smart cards, but is supported in [puttywincrypt](#), [PuTTY-CAC](#), and in [Smartcard Authentication – Secure & Easy putty version](#).
10. Putty v71.0 doesn't support Openssh Certificates. See Ben Harris' 2016-04-21 wish. [\[3\]](#) and [\[4\]](#)

See also

- [Comparison of SSH servers](#)
- [Comparison of FTP client software](#)
- [Comparison of remote desktop software](#)

References

1. <https://www.celestialsoftware.net/absolutetelnet-ssh-client/absolutetelnet/ssh-version-history-9.53.html>
2. ["Bitvise SSH Client Version History | Bitvise"](#). *bitvise.com*. Retrieved 2020-06-19.
3. <https://github.com/connectbot/connectbot>
4. ["OpenSSH 8.3 Release Notes"](#).
5. ["PuTTY Change Log"](#).
6. ["SecureCRT Release History"](#).
7. ["Download Files List – Tera Term – OSDN"](#).
8. ["What's new"](#).
9. ["ZOC version number and version history"](#).