

HCP Tools Command Overview

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1. Introduction

HCP tools provide the following commands:

hcpd

Provides the network service for client commands in HCP tools (Unix daemon).

hcpd_session

Provides privilege separation in the Unix daemon (associated software with the Unix daemon).

hcpd_winserv

Provides the network service for client commands in HCP tools (Windows service).

hcpd_winserv_genkey

Provides the function needed to generate a Windows service key. Normally, you do not need to use this command because it is automatically executed if no key is available at the time of installation.

hcpd_winserv_backup_conf

Provides the function needed to back up the configuration file for the Windows service. Normally, you do not need to use this command because it is automatically executed when the server software is deleted or updated.

hcp

Provides the function needed to perform remote file copy, local copy, and file synchronization from among the hcpd (hcpd_winserv) commands (equivalent to cp, scp, rsync).

We were able to increase file transfer efficiency at the application level by improving techniques for confirming file delivery, among others. We were also able to achieve efficient file transfer even in BDP (high-latency) or high-loss environments by adopting the HpFP protocol in the transport layer (OS-standard TCP is also available).

hrm

Provides the function needed to delete files on the site executing the hcpd (hcpd_winserv) command (equivalent to ssh + rm).

hcp-ls

Provides the function needed to list files on the site executing the hcpd (hcpd_winserv) command (equivalent to ssh + ls/dir). Executes the list command (ls or dir) on the server and sends the result to the client as text information.

hmkdir

Provides the function needed to create directories on the site executing the hcpd (hcpd_winserv) command (equivalent to ssh + mkdir).

hpwd

Provides the function needed to retrieve the working directory on the site executing the hcpd (hcpd_winserv) command (equivalent to ssh + pwd). It is used to check which directory will be the working directory on the server when other commands are executed.

hmv

Provides the function needed to move files on the site executing the hcpd (hcpd_winserv) command (equivalent to ssh + mv).

hln

Provides the function needed to move files on the site executing the hcpd command (equivalent to ssh + ln).

Windows service does not support this command.

hcp_backup_conf

Provides the function needed to back up the configuration file for the Windows client. Normally, you do not need to use this because it is automatically executed when the client software is deleted or updated.

2. Configuration files

hcpd (hcpd_winserv)

/etc/hcp/hcpd.conf

C:/ProgramData/Clealink/HCP Tools/hcpd.conf

hcpd (hcpd_winserv) command system configuration file.

Describes communication services (TCP/HpFP), server security, authentication, logs, statistics, and tuning.

/etc/hcp/users

C:/ProgramData/Clealink/HCP Tools/users

HCP user definition file.

Recognizes the users described in this file.

Describes the list of authentication methods, UID/GID, and home directory.

/etc/hcp/passwd

C:/ProgramData/Clealink/HCP Tools/passwd

LPA (Local Password Authentication) credentials definition file.

Describes the credentials (hashed user password) to be used for LPA authentication.

Supports MD5, SHA1, and SHA2. Can be generated using OpenSSL utility.

/etc/init.d/hcpd

Daemon startup script.

/usr/lib/systemd/system/hcpd.service

Daemon service description file (systemd format).

/etc/pam.d/hcpd

PAM authentication configuration file.

hcp

/etc/hcp/hcp.conf

C:/ProgramData/Clealink/HCP Tools/hcp.conf

hcp command system configuration file.

Describes client security, logs, statistics, and tuning.

Similar to /etc/profile, settings are first loaded from the command.

<user home directory>/.hcp/hcp.conf

<user home directory>/_hcp/hcp.conf

hcp command user configuration file.

Describes the same contents as the system configuration file.

Similar to ~/.bash_profile, this is loaded after the system configuration file is loaded.

Since this version, the include function for the external configuration file has been added. The external configuration file created by the user for settings common to all client commands can be included at any location to overwrite setting values.

hrm

/etc/hcp/hrm.conf

C:/ProgramData/Clealink/HCP Tools/hrm.conf

hrm command system configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

<user home directory>/.hcp/hrm.conf

<user home directory>/_hcp/hrm.conf

hrm command user configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

hcp-ls

/etc/hcp/hcp-ls.conf

C:/ProgramData/Clealink/HCP Tools/hcp-ls.conf

hcp-ls command system configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

<user home directory>/etc/hcp/hcp-ls.conf
<user home directory>/_etc/hcp/hcp-ls.conf
hcp-ls command user configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

hmkdir

/etc/hcp/hmkdir.conf
C:/ProgramData/Clealink/HCP Tools/hmkdir.conf
hmkdir command system configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

<user home directory>/etc/hcp/hmkdir.conf
<user home directory>/_etc/hcp/hmkdir.conf
hmkdir command user configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

hpwd

/etc/hcp/hpwd.conf
C:/ProgramData/Clealink/HCP Tools/hpwd.conf
hpwd command system configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

<user home directory>/etc/hcp/hpwd.conf
<user home directory>/_etc/hcp/hpwd.conf
hpwd command user configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

hmv

/etc/hcp/hmv.conf
C:/ProgramData/Clealink/HCP Tools/hmv.conf

hmv command system configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

<user home directory>/_hcp/hmv.conf

<user home directory>/_hcp/hmv.conf

hmv command user configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

hln

/etc/hcp/hln.conf

C:/ProgramData/Clealink/HCP Tools/hln.conf

hln command system configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

<user home directory>/_hcp/hln.conf

<user home directory>/_hcp/hln.conf

hln command user configuration file.

Describes the same contents as the hcp command configuration file. The rules for the reading order are the same as well.

Common to clients

<user home directory>/_hcp/known_hosts

<user home directory>/_hcp/known_hosts

known_hosts file (equivalent to SSH, communication security function).

Records verified public keys and host information, similar to known_hosts in SSH.

3. Functions

In addition to the main functions discussed previously, the commands are provided with the following functions for uses that are similar to typical software or on the Internet.

- File permission (file attribute) control
- File copy operation control (copy conditions, overwrite conditions, action specification on failure)
- File digest verification
- Multiple source support (equivalent to mput/mget in FTP)
- Transfer encoding negotiation
- Terminal function (equivalent to FTP/SFTP/SSH sessions. Client uses a separate API)
- User authentication (unique authentication, PAM authentication, Windows authentication, RSA authentication, client certificate authentication)
- Privilege separation (equivalent to PrivilegeSeparation in SSH)
- Communication security (server certificate, public key. Equivalent to SSL/SSH)
- Communication data compression
- Communication bandwidth throttling (simple traffic shaping)
- Communication failure (timeout) detection
- Communication access restriction (admission, ACL)
- Protocol version negotiation
- File system access restriction (server)
- Resume function
- Interactive interface
- Logging (syslog compatible)
- Statistical record
- Log rotation function
- Unix daemon function (/etc/init.d, systemd)
- Windows service function

4. Platforms

Linux

- RHEL (CentOS 6 or CentOS 7)
- Debian (Ubuntu 16.04 or Ubuntu 18.04)

Windows

- Windows 10 (client)
- Windows Server 2012 (server)

Platforms under development:

Windows Server 2016 (server)

SUSE Linux

FreeBSD

macOS (client)

Raspberry pi (client)

5. Requirements

Hardware requirements

hcpd

CPU	Intel Core i3 multi-core processor at about 3 GHz
Memory	2 GB or more (8 GB or more recommended)
Storage	10 GB or more free space (100 GB or more recommended, excludes file data storage area)
Network	1 Gbps or more Requires a network environment that can communicate with the hcp and hrm commands

hcp

CPU	Intel Core i3 multi-core processor at about 3 GHz
Memory	1 GB or more (2 GB or more recommended)
Storage	10 GB or more free space (100 GB or more recommended, excludes file data storage area)
Network	100 Mbps or more (1 Gbps recommended) To make remote copies, requires a network environment that can communicate with the hcpd command

hrm/hcp-ls/hmkdir/hpwd

CPU	Intel Core i3 multi-core processor at about 3 GHz
Memory	1 GB or more (2 GB or more recommended)
Storage	1 GB or more free space (10 GB or more recommended)
Network	100 Mbps or more (1 Gbps recommended) Requires a network environment that can communicate with the hcpd command

Software requirements

Maximum number of simultaneous sessions	TCP: 1000, HpFP: 1000
Supported communication session bandwidth	From several hundred Kbps to 10 Gbps (around 1 Gbps for Windows)
Maximum file size	8 EiB (signed 64-bit integer maximum value)

HCP Tools Command Overview

Number of simultaneous file entries	100,000
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Revision History

Date	Changes
February 10, 2020	Revised hardware requirements
December 11, 2019	Added functions
November 19, 2019	Corrected errors
November 12, 2019	Corrected errors
November 1, 2019	Added hcpd_session command description
June 7, 2019	Added command description, function description, development platform
April 26, 2019	Corrected header errors
April 25, 2019	Deleted commands, revised platforms, revised software requirements, changed style
February 1, 2019	Supplemented explanation (key generation command, include function for setting)
January 20, 2019	Added explanation for additional commands
July 30, 2018	Corrected text on software requirements