

Bytix Archaea tools Installation and Tutorial

Table of Contents

1.	Installation.....	3
1.1.	RHEL Server.....	3
1.2.	RHEL Client	4
1.3.	SLE Server.....	5
1.4.	SLE Client.....	6
1.5.	Ubuntu(Debian) Server.....	7
1.6.	Ubuntu(Debian) Client	8
1.7.	Raspberry Pi OS	9
1.8.	Windows Client.....	10
1.9.	Windows Service.....	11
1.10.	macOS Client	12
1.11.	bash-completion utility.....	13
1.12.	Webmin extension.....	14
1.13.	RPM Install the software into a non-default place	15
1.14.	RPM Install the software by non-privileged users.....	17
1.15.	How to use hcpd by users without privilege	20
2.	Usage Examples.....	21
3.	Considerations	25
3.1.	Common considerations on performance characteristics	25
3.2.	Considerations on performance characteristics (HpFP).....	28
3.3.	Considerations Regarding Features	30

* In what follows, all package names are example.

1. Installation

1.1. RHEL Server

Make a copy of the following hcpd RPM package (included in the release package) and save it anywhere you like.

`bytix-archaea-tools-server-1.5.0-45.el9.x86_64.rpm`

Install the package using rpm command.

```
rpm -ivh bytix-archaea-tools-server-1.5.0-45.el9.x86_64.rpm
```

If you have a license key for Bytix Archaea tools, called as this software below, save it to the following file.

`/etc/hcp/license.key`

Start hcpd by running the following command.

```
systemctl start hcpd (systemd)
```

That is all for fundamental setup of hcpd.

The hcpd is installed with the following functions enabled.

Privilege separation : Enabled

PAM and public key authentication : Enabled

Cryptographic transport by a server host key : Enabled

The old package will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.2. RHEL Client

Make a copy of the following hcp RPM package (included in the release package) and save it anywhere you like.

bytix-archaea-tools-1.5.0-45.el9.x86_64.rpm

Install the package using rpm command.

```
rpm -ivh bytix-archaea-tools-1.5.0-45.el9.x86_64.rpm
```

That is all for fundamental setup of client commands.

This package installs hcp, hsync, hrm, hcp-ls, hmkdir, hpwd, hmv, hln, hchmod and hchown.

The old packages will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.3. SLE Server

Make a copy of the following hcpd RPM package (included in the release package) and save it anywhere you like.

bytix-archaea-tools-server-1.5.0-45.x86_64.rpm

Install the package using rpm command.

```
rpm -ivh bytix-archaea-tools-server-1.5.0-45.x86_64.rpm
```

If you have a license key for this software save it to the following file.

/etc/hcp/license.key

Start hcpd by running the following command.

```
systemctl start hcpd (systemd)
```

That is all for fundamental setup of hcpd.

The hcpd is installed with the following functions enabled.

Privilege separation : Enabled

PAM and public key authentication : Enabled

Cryptographic transport by a server host key : Enabled

The old package will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.4. SLE Client

Make a copy of the following hcp RPM package (included in the release package) and save it anywhere you like.

bytix-archaea-tools-1.5.0-45.x86_64.rpm

Install the package using rpm command.

```
rpm -ivh bytix-archaea-tools-1.5.0-45.x86_64.rpm
```

That is all for fundamental setup of client commands.

This package installs hcp, hsync, hrm, hcp-ls, hmkdir, hpwd, hmv, hln, hchmod and hchown.

The old packages will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.5. Ubuntu(Debian) Server

Make a copy of the following hcpd Debian package (included in the release package) and save it anywhere you like.

`bytix-archaea-tools-server_1.5.0-45_amd64.deb`

Install the package using `dpkg` command.

```
sudo dpkg -i bytix-archaea-tools-server_1.5.0-45_amd64.deb
```

If you have a license key for this software save it to the following file.

`/etc/hcp/license.key`

Start hcpd by running the following command.

```
systemctl start hcpd
```

That is all for fundamental setup of hcpd.

The hcpd is installed with the following functions enabled.

Privilege separation : Enabled

PAM and public key authentication : Enabled

Cryptographic transport by a server host key : Enabled

The old package will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.6. **Ubuntu(Debian) Client**

Make a copy of the following hcp Debian package (included in the release package) and save it anywhere you like.

`bytix-archaea-tools_1.5.0-45_amd64.deb`

Install the package using dpkg command.

```
sudo dpkg -i bytix-archaea-tools_1.5.0-45_amd64.deb
```

That is all for fundamental setup of client commands.

This package installs hcp, hsync, hrm, hcp-ls, hmkdir, hpwd, hmv, hln, hchmod and hchown.

The old packages will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.7. **Raspberry Pi OS**

Make a copy of the following hcp Debian package (included in the release package) and save it anywhere you like.

`bytix-archaea-tools_1.5.0-45_armhf.deb`

Install the package using dpkg command.

```
sudo dpkg -i bytix-archaea-tools_1.5.0-45_armhf.deb
```

This package installs hcp, hsync, hrm, hcp-ls, hmkdir, hpwd, hmv, hln, hchmod and hchown.

The old packages will be replaced as obsolete. Configuration files having some changes from the original one will be kept.

1.8. Windows Client

Make a copy of the following MSI installer of client commands (included in the release package) and save it anywhere you like.

BytixArchaeaToolsInstaller.msi

Run the installer, accept the usage agreement, and run the installation. HCP commands (hcp, hsync, hrm, hcp-ls, hmkdir, hpwd, hmv, hln, hechmod, hchown) and configuration files will be installed at the following folders.

C:\Program Files\Clealink\HCP Tools

C:\ProgramData\Clealink\HCP Tools

* “HCP tools” is the old name of this software. The specification of the directory structure has no changes.

When removing the client or updating it, configuration files will be backuped to the following folder.

C:\Program Files\Clealink\HCP Tools\Previous

When installing the client or updating it, configuration files placed at C:\ProgramData\Clealink\HCP Tools will be overwritten by new configuration files. So please replace them by yourself if you use the previous configuration files.

Installers of revised edition (version notation like 1.3.xR) do not support update. So at first, please remove the client from [Programs and Features] on the control panel or by an MSI installer that you use to install the client and then install new client.

1.9. Windows Service

Make a copy of the following MSI installer of server commands (included in the release package) and save it anywhere you like.

BytixArchaeaToolsServerInstaller.msi

Run the installer, accept the usage agreement, and run the installation. HCP commands (hcpd_winserv and hcpd_winserv_genkey) and configuration files will be installed at the following folders.

C:\Program Files\Clealink\HCP Tools

C:\ProgramData\Clealink\HCP Tools

When removing the client or updating it, configuration files will be backuped to the following folder.

C:\Program Files\Clealink\HCP Tools\Previous

When installing the client or updating it, configuration files placed at C:\ProgramData\Clealink\HCP Tools will be overwritten by new configuration files. So please replace them by yourself if you use the previous configuration files.

Installers of revised edition (version notation like 1.3.xR) do not support update. So at first, please remove the client from [Programs and Features] on the control panel or by an MSI installer that you use to install the client and then install new client.

1.10. macOS Client

Make a copy of the following pkg installer of client commands (included in the release package) and save it anywhere you like.

bytix-archaea-tools.x64.pkg (for Intel version)

bytix-archaea-tools.arm64.pkg (for M1/M2 version)

Run the installer, by double click.

That is all for fundamental setup of client commands.

This package installs hcp, hsync, hrm, hcp-ls, hmkdir, hpwd, hmv, hln, hchmod, hchown and configuration files in the following folders.

/usr/local/bin

/usr/local/etc/hcp

1.11. **bash-completion utility**

On the client environment of Linux, you can use a bash-completion utility. Please prepare either an RPM package or a Debian package subject to your client environment from the following packages.

bytix-archaea-tools-bash-completion-1.5.0-45.noarch.rpm (RPM)

bytix-archaea-tools-bash-completion_1.5.0-45_all.deb (Debian)

When using the RPM package, please make its installation by the following instruction.

```
rpm -ivh bytix-archaea-tools-bash-completion-1.5.0-45.noarch.rpm
```

When using the Debian package, please make its installation by a same way.

```
dpkg -i bytix-archaea-tools-bash-completion_1.5.0-45_all.deb
```

This utility depends on the following packages.

bytix-archaea-tools

bash-completion

And the utility does not depend on versions of distributions and architectures.

1.12. Webmin extension

On the server environment of Linux, you can use a Webmin extension for the server management. Please prepare either an RPM package or a Debian package subject to your client environment from the following packages.

`bytix-archaea-tools-server-webmin-1.5.0-45.noarch.rpm`

`bytix-archaea-tools-server-webmin_1.5.0-45_all.deb`

When using the RPM package, please make its installation by the following instruction.

```
rpm -ivh bytix-archaea-tools-server-webmin-1.5.0-45.noarch.rpm
```

When using the Debian package, please make its installation by a same way.

```
dpkg -i bytix-archaea-tools-server-webmin_1.5.0-45_all.deb
```

This utility depends on the following packages.

`bytix-archaea-tools-server`

`webmin`

And the extension dose not depends on versions of distributions and architectures.

1.13. RPM Install the software into a non-default place

When installing, please specify the following options.

--relocate
--badreloc

And you can generate server keys on the specified place if you use the following environment variable.

ARCHAEA_TOOLS_INSTDIR

Example:

```
[user@localhost ~]$ sudo  
ARCHAEA_TOOLS_INSTDIR=/usr/local/archaea_tools rpm -ivh --relocate  
/=/usr/local/archaea_tools --badreloc  
bytix-archaea-tools-server-1.5.0-45.el9.x86_64.rpm
```

Since the following configuration files are still supposed to be placed on /usr or /etc, please change by yourself after this installation.

/usr/lib/systemd/system/hcpd.service
/etc/pam.d/hcpd
/etc/sysconfig/hcpd

You can go to use clients without any such changes.

When uninstalling, you just make it in a normal way with specifying package names.

* Do not specify --relocate and --badreloc.

Example:

```
[user@localhost ~]$ sudo  
ARCHAEA_TOOLS_INSTDIR=/usr/local/archaea_tools rpm -e  
bytix-archaea-tools-server
```

When commands are installed on non-default place, their help options (-V) shows the following information about the place.

```
[user@localhost bin]$ ./hcp-ls -V
hcp-ls client (hcp-ls) 1.5.0_45 / Linux (HpFP2 2.0.0.91_21 WSAPI 0.0.1.30 WS
4.2.0-1)
Installed prefix: /usr/local/archaea_tools (/usr/local/archaea_tools/usr/bin/hcp-ls)
```

```
[user@localhost sbin]$ ./hcpd -V
hcp server session (hcpd_session) 1.5.0_45 / Linux (HpFP2 2.0.0.91_21 WSAPI
0.0.1.30 WS 4.2.0-1)
Installed prefix: /usr/local/archaea_tools (/usr/local/archaea_tools/usr/sbin/hcpd)
```

- In cases where any prefix is not detected.

```
[user@localhost temp_bin]$ ./hcp-ls -V
hcp-ls client (hcp-ls) 1.5.0_45 / Linux (HpFP2 2.0.0.91_21 WSAPI 0.0.1.30 WS
4.2.0-1)
Command placed at : /home/user/archaea_tools/temp_bin/hcp-ls
```


1.14. RPM Install the software by non-privileged users

When installing, please specify the following options.

```
--relocate  
--badreloc  
--nodeps  
--dbpath
```

Installation registry information will be saved at the place specified by the `--dbpath` option that is a directory where you want to save the information.

And you can skip unnecessary processing, e.g. systemd service registration, for non-privileged users if you use the following environment variable.

`ARCHAEA_TOOLS_USER_INSTALL` yes

Example:

```
[user@localhost ~]$ export ARCHAEA_TOOLS_USER_INSTALL=yes  
[user@localhost ~]$ export  
ARCHAEA_TOOLS_INSTDIR=/home/user/archaea_tools  
[user@localhost ~]$ rpm -ivh --nodeps --dbpath=/home/user/rpm --relocate  
/=/home/user/archaea_tools --badreloc  
bytix-archaea-tools-1.5.0-45.el9.x86_64.rpm
```

Please make the following attentions when using the server package in the above manner.

- No to use systemd.
Run the `hcpd` command by yourself.
- Use non-privileged port numbers.
- Specify PID file from command line.
- When you cannot access to PAM authentication and account information by non-privileged users, please consider to use LPA authentication, UID/GID specification and public usage (anonymous access with port number limitation or

network access limitation).

When uninstalling, please specify the following options.

--nodeps

--dbpath

* Do not specify **--relocate** and **--badreloc**.

Example:

```
[user@localhost ~]$ rpm -e --nodeps --dbpath=/home/user/rpm  
bytix-archaea-tools
```

For clients, you need the following packages on your system.

libicu, openssl, zlib

For servers, you need the following packages on your system.

libicu, pam, openssl, zlib

You can confirm them by **--qa** option of the **rpm** command.

Example:

```
[user@localhost ~]$ rpm -qa | grep -E -e "^(libicu|pam|openssl|zlib)-"  
libicu-67.1-9.el9.x86_64  
openssl-pkcs11-0.4.11-7.el9.x86_64  
libicu-devel-67.1-9.el9.x86_64  
openssl-libs-3.0.1-43.el9_0.x86_64  
openssl-devel-3.0.1-43.el9_0.x86_64  
openssl-3.0.1-43.el9_0.x86_64  
pam-1.5.1-12.el9.x86_64  
pam-devel-1.5.1-12.el9.x86_64  
zlib-1.2.11-35.el9_1.x86_64  
zlib-devel-1.2.11-35.el9_1.x86_64
```

```
[user@localhost ~]$ find /usr/lib64 | grep -E -e  
"^/usr/lib64/lib(icudata|icuuc|pam|crypto|ssl|z)¥."  
/usr/lib64/libicudata.so.67.1  
/usr/lib64/libicudata.so.67  
/usr/lib64/libz.so.1  
/usr/lib64/libz.so.1.2.11  
/usr/lib64/libicuuc.so.67  
/usr/lib64/libicuuc.so.67.1  
/usr/lib64/libcrypto.so.3  
/usr/lib64/libcrypto.so.3.0.1  
/usr/lib64/libssl.so.3  
/usr/lib64/libssl.so.3.0.1  
/usr/lib64/libpam.so.0.85.1  
/usr/lib64/libpam.so.0  
/usr/lib64/libcrypto.so  
/usr/lib64/libz.so  
/usr/lib64/libssl.so  
/usr/lib64/libicudata.so  
/usr/lib64/libicuuc.so  
/usr/lib64/libpam.so
```

1.15. How to use hcpd by users without privilege

Save hcpd configuration files under your home directory at the following paths.

```
~/hcpd.conf  
~/.hcp/hcpd.conf
```

Change the service ports to port numbers that do not require privilege.

```
TCPListenAddress 0.0.0.0:1874  
HPFPListenAddress 0.0.0.0  
WSSListenAddress 0.0.0.0:8443  
WSListenAddress 0.0.0.0:8080  
* Edit hcpd.conf.
```

If you use a license key, save it under your home directory at the following paths.

```
~/hcp_license.key  
~/.hcp/license.key
```

Start hcpd daemon by running hcpd command and specifying a configuration file, a PID file, and a license key as command options.

```
hcpd -c ~/hcpd.conf -p ~/hcpd.pid -k ~/hcp_lisense.key
```

Please be careful of collision of PID files or port numbers of transport services like TCP if hcpd daemon is running.

2. Usage Examples

- Copy files in local.

```
hcp my_src.txt my_dst.txt
```

- Copy files recursively in local.

```
hcp -R my_src_dir my_dst_dir
```

- Copy a file to a remote server.

```
hcp my_src.txt 192.168.100.100:874:my_dst.txt
```

- Copy a file at a remote server to the local host.

```
hcp 192.168.100.100:my_src.txt my_dst.txt  
(you can omit the port number of 874)
```

- Copy files using HpFP2.

```
hcp --hfp my_src.txt 192.168.100.100:my_dst.txt  
(65520 port is used as default for HpFP)
```

- Copy files using WebSocket (TLS/SSL).

```
hcp --wss --wss-no-check-certificate my_src.txt 192.168.100.100:my_dst.txt  
(443 port is used as default for WSS)
```

- Copy files at Windows platform with path separators.

```
hcp C:\Users\MyUser\my_src.txt C:\Users\MyUser\my_dst.txt
```

- Copy a file saved at Windows to a Linux server.
You need to use Unix path separators for specifying files or directories at

the Linux server side.

```
hcp C:\Users\MyUser\my_src.txt 192.168.100.100:/home/my_user/my_dst.txt
```

- Measuring communication performance with file access overhead excluded.

```
hcp -n 10000:1048576 /home/my_user/src_dir 192.168.100.100:/home/my_user/dst_dir
```

* This -n options means sending 10,000 files of 1MB.

- Synchronize files in archive mode.

```
hsync -a -v backup_src/ user@192.168.100.100:backup_dst/
```

(you can add a user name on the first remote path)

- Remove a file at a server.

```
hrm 192.168.100.100:/home/my_user/my_dst.txt
```

- Remove a directory at a server without prompting for yes or no.

```
hrm -Rf 192.168.100.100:/home/my_user/dst_dir
```

- Use hcp-ls command to query the name of the list command at a server.

```
hcp-ls -q 192.168.100.100
```

ls

```
hcp-ls -q 192.168.100.101
```

dir

(Windows service will respond this value)

- Print on standard output the list of files in a directory on a server in 'ls' format.

```
hcp-ls 192.168.100.100:/home/my_user/dir1
```

file01.txt

file02.txt

- Make a directory on a server.

```
hmkdir 192.168.100.100:/home/my_user/dir2
```

- Make directories using short notation on the second path or latter.

```
hmkdir 192.168.100.100:/home/my_user/dir1 :/home/my_user/dir2
```

- Print the working directory on a server which works as it is on other commands.

```
hpwd 192.168.100.100:874  
/home/my_user
```

- Move a file to another place on a server.

```
hmv 192.168.100.100:/home/my_user/file1 :/home/my_user/file2  
hmv 192.168.100.100:file1 :file2 :to_dir
```

- Create a link to a file or a directory on a server.

```
hln -s 192.168.100.100:/home/my_user/file1 :/home/my_user/link1
```

- Change permissions or owner (and group) of files or directories on a server.

```
hchmod 644 192.168.100.100:/home/my_user/file1  
hchown user:user 192.168.100.100:/home/my_user/file1
```

You can use long options to specify a host name or a port number on commands that manipulate files or directories on a server. It makes you being free from describing them on path arguments.

```
hcp-ls --host=192.168.100.100 --port=874 /home/my_user/dir1  
hcp-ls --host=192.168.100.100  
hmkdir --host=192.168.100.100 /home/my_user/dir1 /home/my_user/dir2
```

```
hmv -host=192.168.100.100 /home/my_user/file1 /home/my_user/file2  
hln -host=192.168.100.100 /home/my_user/file1 /home/my_user/link1  
hchmod -host=192.168.100.100 644 file1  
hchown -host=192.168.100.100 user:user file1
```


3. Considerations

3.1. Common considerations on performance characteristics

Application performance would be affected by the following factors.

- File Size

Throughput tends to decrease when transferring many small size files.

In our performance evaluations throughput starts to decrease with files of size around 128KB (files are of the same size).

- Encryption, Compression and Digest Calculation

Transfer throughput would decrease with CPU load increase due to encryption and decryption processing bottleneck.

And it also would decrease in encryption working when your computer do not have AES-NI acceleration.

On network over 1Gbps, cipher suites including CBC mode or HMAC digest might make a bottleneck even if AES-NI is available to work.

- Block Size

When you run a file transfer over 10Gbps utilizing multi-channel function, it is recommended that you set the following parameters to a value from 1MB to 4MB.

`InitContentBlockSize`

`MaxContentBlockSize`

When the parameters are around 100KB, the software cannot make an expected performance (about from 60Gbps to 70Gbps on TCP multi-channel) due to a load of locking to bond blocks each channel to the sequence available to the application layer.

When using encryption and setting this parameter over 1MB, its performance might meet a decrease because of data transfer between

AES-NI module's buffer and system memory (load of cache in-out). Please try again setting a parameter less than current one you set.

- Number of Connections in Multi-Channel

A number of connections from 8 to 16 is optimal for multi-channel function. When the number is over the range, the performance tends to decreasing due to overhead on processing many connections.

Reference (data from CLEALINK TECHNOLOGY Co., Ltd.)

TCP plain : single 14Gbps, 8 channels 61Gbps, 12 channels 68Gbps, 16 channels 62Gbps

TCP encrypted : single 5Gbps, 8 channels 28Gbps, 12 channels 26Gbps, 16 channels 25Gbps

- Usage on Wide-band Disk I/O (Linux)

When a limited disk I/O performance appears with disks having I/O performance from 40Gbps to 100Gbps in a normal usage of reading and writing files, using options of Direct I/O or asynchronous I/O might improve the I/O performance.

When you don't make the performance of 100Gbps in the default configuration using the asynchronous I/O, please try to use `--fio-direct-reuse-aligned` that enables caching buffers for Direct I/O to reuse them and reduce loads of memory allocation or change a value of `--fio-async-max-events` to a larger one.

- Memory Usage Management (limitation)

MaxTotalBufferSize might cause a performance bottle neck because it shares the limitation among sessions.

- Logging

The following logging features might decrease the performance.

hcpd.conf

SystemLogLevel and set it to DEBUG

hcp.conf or other client configuration files
DiagnosticLogLevel and set it to DEBUG

All commands

--investigation option and use it

- Anti Virus Software

The real-time protection of the Windows Defender might decrease a file transfer throughput due to a decrease in disk I/O performance by it. It has not been found on Norton Internet Security provided by Symantec Corporation.

3.2. Considerations on performance characteristics (HpFP)

Transport performance would be affected by the following factors.

- MTU Size

When transport with MTU about 1.5KB it is difficult for HpFP to work with throughputs around 10Gbps. If you want to get that performance it is recommended that you use jumbo frame whose MTU is about 9KB.

- IP Network Buffer Size

When the following parameters of operating system are small (Ex. CentOS 122KB), HpFP might not be able to achieve throughput around 10Gbps.

```
net.core.rmem_max
net.core.wmem_max
```

- CPU Power Saving Mode

Under the following OS power saving configuration, HpFP performance might degrade due to operation under CPU performance which is lower than performance required for high bandwidth transport.

Windows

Processor Power Management

Linux

```
/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor
```

- Packet Queue Size on Intermediate Network Equipment

When there are intermediate equipments having very small packet queue size or equivalent conditions, HpFP performance might degrade in terms of performance or fairness due to improper congestion control, which is triggered by packet loss even when there is no increase in RTT (Round Trip Time).

- Congestion Control Mode

Aggressive mode of HpFP is experimental. Some loss of packets might cause a decrease of the performance when it is on a environment over 10Gbps or it is under a high load of processing. Especially if you utilize the multi-channel function, the throughput might be unstable due to uneven distribution of processing on CPUs that would be driven by RSS (Receive Side Scalling) function of NIC (Network Interface Card).

3.3. Considerations Regarding Features

- Using the same UDP port across hcpd processes.

It might cause connecting to a server timed out though service ports of the daemons on UDPListenAddress (deprecated) are different.

(HPFPListenAddress is out of this problem)

An example is given below.

hcpd1

UDPListenAddress 0.0.0.0:884

* The UDP port number 65520 is used as default. The service port is 884.

systemctl start hcpd

* Start hcpd as daemon.

hcpd2

UDPListenAddress 0.0.0.0:1884

* The UDP port number 65520 is used as default. The service port is 1884.

hcpd -f -c ~/hcpd.conf -p ~/hcpd.pid

* Start hcpd in foreground.

This configuration result in using the same UDP port of 65520 on two hcpd processes while service ports of 884 and 1884 are different.

Connect from the client to the host running in the above configuration as follows.

```
hcp --udp=D:D:D:D:D my_src.txt 192.168.100.100:884:my_dst.txt
```

This would result in server connection time out.

For fixing it you should change the UDP port number used by one of the hcpd processes, as in the following.

UDPListenAddress 0.0.0.0:1884:**65519**

- Process is killed by Linux OOM (Out Of Memory) Killer

As an OS mechanism, Linux monitors memory consumption trends of processes and terminates (KILL signal) processes which run out of memory.

When you set the following buffer size options in this software to values large than system memory, Linux OOM Killer might kill the process.

hcp.conf :
MaxBufferSize

hcpd.conf :
MaxTotalBufferSize

For fixing it you have to specify smaller buffer size values for the options, extending the system memory, or take on other measures to get around the problem.

- Logging

The following logging features might cause a timeout because the ending process of file transfer takes long. It has been found on an environment via NAT.

hcpd.conf
SystemLogLevel and set it to DEBUG

hcp.conf or other client configuration files
DiagnosticLogLevel and set it to DEBUG

All commands

--investigation option and use it

History of editing

Date	Changes
2024/10/15	Added a description in common consideration of performance.
2024/04/22	Added a description in common consideration of performance.
2023/10/20	Changed a name of configuration item described. Added a description in common consideration of performance.
2023/07/28	Added installation descriptions of bash-completion utility and Webmin extension.
2023/03/31	Added description of changing installation place and installing by non-privileged users in RPM.
2022/12/02	Modified the installation description of macOS.
2022/10/07	Modified the installation description. Added a description of performance characteristics.
2022/06/30	Modified the total description on translation from Japanese.
2019/04/25	Supplement of performance consideration on using HpFP
2019/03/21	The first edition was made.