



AvRDP Data Server User Guide

i. Prerequisites

1. SSH client program

You may check if SSH client installed or not by using "ssh -v" command which would shows its version number

Example of "ssh -v" command

```
$ ssh -V
OpenSSH_6.6.1p1 Ubuntu-2ubuntu2.3, OpenSSL 1.0.1f 6 Jan 2014
```

2. Login username and a RSA private key must be obtained from HKO (pcheung@hko.gov.hk).

3. A 4096-bit RSA private key should be given for communicating with AvRDP File Server.

Sample of 4096 bits RSA private key file content

```
-----BEGIN RSA PRIVATE KEY-----
[RSA KEY CONTENT OMITTED]
-----END RSA PRIVATE KEY-----
```

[4. For successful connection to the data server, the Internet firewall at HKO side needs to be configured properly to allow traffic from specified hosts. All participants shall inform HKO the IP ranges of the machine(s) that will access the AvRDP data server.]

ii. SSH Login Procedure

AvRDP File Server is at "data.avrdp.hko.gov.hk" (IP: 124.248.215.76).

For Linux, SSH client program ("ssh" command) is built in. From the shell command prompt, you may login by using:

```
"ssh -i [SSH_PRIVATE_KEY_FILE_PATH] [USERNAME]@[AvRDP_IP_ADDRESS]"
```

Example of SSH login procedure

```
[user@hostname ~] $ ssh -i ~/.ssh/id_rsa username@data.avrdp.hko.gov.hk
X11 forwarding request failed on channel 0
Last login: Fri Oct 16 12:05:53 2015 from xx.xx.xx.xx

Welcome to AvRDP data server. Only the following commands are available:
"ls mkdir mv rm tree rsync"
```

Remarks: for Windows, the terminal program "putty.exe" is recommended.

iii. Security Settings

For Security reason, only "ls", "mkdir", "mv", "rm", "tree", "rsync" commands are allowed.

If you do not input anything for 2 minutes after login, the server would terminate your SSH session.

iv. Upload and download files/folders

Issue Linux commands to AvRDP FTP server:

```
ssh -i [SSH_PRIVATE_KEY_FILE_PATH] [USERNAME]@[AvRDP_IP_ADDRESS] '[COMMAND]'
```

```
ssh -i $HOME/.ssh/id_rsa hko@1.2.3.4:/ 'ls -al'
```

**CAUTION: rsync may overwrite files.
Test rsync with single file before batch sending is recommended**

rsync your local directories or files to AvRDP FTP server:

```
rsync -avz -e "ssh -i [SSH_PRIVATE_KEY_FILE_PATH]" --progress [FULL_LOCAL_PATH]  
[USERNAME]@[AvRDP_IP_ADDRESS]:[FULL_REMOTE_PATH]
```

```
rsync -avz -e "ssh -i $HOME/.ssh/id_rsa" --progress /tmp/test/test.txt  
hko@1.2.3.4:/
```

rsync directories or files from AvRDP FTP server to your local directory

```
rsync -avz -e "ssh -i [SSH_PRIVATE_KEY_FILE_PATH]" -progress  
[USERNAME]@[AvRDP_IP_ADDRESS]:[FULL_REMOTE_PATH] [FULL_LOCAL_PATH]
```

```
rsync -avz -e "ssh -i $HOME/.ssh/id_rsa" --progress hko@1.2.3.4:/test.txt  
/tmp/test/
```

v. Recommended File Structure

```
$ tree -L 4 /  
.  
|-- home  
|---|-- airports  
|   |   |-- cdg  
|   |   |-- hkg  
|   |   |--- BLEND  
|   |   |--- FORECAST  
|   |   |--- NOWCAST  
|   |   |--- NWP  
|   |   |--- OBS  
|   |   |-- hkg_home_directory.txt  
|   |   |-- jnb  
|   |   |-- sha  
|   |   |-- yfb
```



```
| | `-- yyz
| | `-- players
| | |-- caac
| | |-- ecan
| | |-- hko
| | | |-- ATM
| | | |-- MET
| | | `-- VERIFICATION
| | |-- meteof
| | `-- saws
```

The 2 main directories are "/home/airports/xxx" and "/home/players/yyy". Data shared out by participating aerodromes collected during their respective IOP will be put under "/home/airports/xxx", whereas data produced by participating organisations is under "/home/players/yyy".

It is best for participating aerodromes should group their data into different categories. While the "OBS" folder is essential for storing observational data, either from in-situ or remote-sensing equipment, other folders are optional, depending on the availability of relevant systems for that aerodrome.

It is also recommended to create a "xxx_home_directory.txt" file containing a full list of all files under the user account (using the 'tree' command for example). Players interested can simply download the file to their local storage for further viewing/searching or constructing scripts to retrieve the actual data. In this regards, please endeavor to keep the file content update to date.

vi. Troubleshooting

Symptom 1

```
$ ssh -i hko hko@ftp-avrdp
Received disconnect from 1.2.3.4: 2: Too many authentication failures for hko
```

Reason 1

Your ssh agent tried all ssh keys but all failed to login
'ssh-add -l' command would show all keys used by your ssh agent

Solution 1

Specify a private key when issuing ssh command
ssh -i [SSH_PRIVATE_KEY_FILE_PATH] [USERNAME]@[AvRDP_IP_ADDRESS]

Example

```
ssh -i ~/.ssh/id_rsa hko@1.2.3.4
```

Symptom 2

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@                WARNING: UNPROTECTED PRIVATE KEY FILE!                @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions 0664 for '~/.ssh/id_rsa' are too open.
```



```
It is required that your private key files are NOT accessible by others.  
This private key will be ignored.  
bad permissions: ignore key: ~/.ssh/id_rsa
```

Reason 2

Your ssh private key permission should be 600 (-r-----)
'ls -al' command would show the permission of your files

Solution 2

Change file permission for your private key to 600

```
chmod 600 ~/.ssh/id_rsa
```

Symptom 3

```
$ ssh -i hko hko@ftp-avrdp  
Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
```

Reason 3

This error may be caused by several problems and is mainly caused by the server side.
Make sure you are using the correct SSH private key to login.

Solution 3

Specify a private key when issuing ssh command

```
ssh -i [SSH_PRIVATE_KEY_FILE_PATH] [USERNAME]@[AvRDP_IP_ADDRESS]
```

Example

```
ssh -i ~/.ssh/id_rsa hko@1.2.3.4
```

If the problem persists, please feel free to contact the server administrator (pcheung@hko.gov.hk).