Research Computing Optimised Storage (RCOS) Guide
Version: November 2016

What is RCOS?

Research Computing Optimised Storage (RCOS) is a storage service based on a native NFS v4 file service. The purpose of RCOS is described in the diagram below:
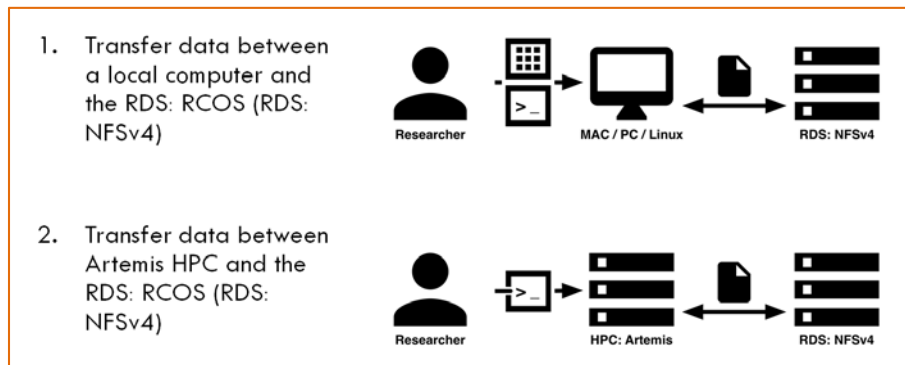

FIGURE 1 - SUPPORTED USE CASES

Requesting RCOS

To request RCOS, you need to do one of the following:
- Option 1 – Create a new RDMP
- Option 2 – Have an existing RDMP and request to migrate your data from Classic storage to RCOS

For more information about requesting RCOS, please refer to What is Research Computing Optimised Storage (RCOS)?

Tools

The following table contains some tools that are commonly used to interact with RCOS:

Operating System	Method/Tools				
	sftp (command line)	filezilla (gui)	scp (comamnd line)	rsync (command line)	cyberduck
Linux	yes	yes	yes	yes	no
Windows	no	yes	(winSCP)	(cwRsync)	yes
Mac	yes	yes	yes	yes	yes

FIGURE 2 - TOOLS

Downloads

The following freeware tools can be downloaded, to use with RCOS:

Tool	Link	Tip
Filezilla	https://filezilla-project.org	The first time you log in you may be presented with a warning – **Unknown host key** – if this is displayed, click **OK**
Cyberlink	https://cyberduck.io	
WinSCP	https://winscp.net	The first time you login you may be presented with a warning – **Unknown Server** – if this is displayed, click **Yes**

FIGURE 3 – DOWNLOADS

Directory Structure

There are two main directories that are available in RCOS, ie individual and research:

Type	Path	Example
Individual	/home/<unikey>	/home/test1234
Research	/rds/<rds project name>	/rds/PRJ-PANDORA

FIGURE 4

Document Key

KEY for code examples used in this guide		
Host:	rcos-int.sydney.edu.au	`Command lines`
RCOS Username:	test1234 (ie your UniKey)	`Information displayed by RCOS`
Password:	your UniKey password	
Port:	22	
Files to transfer are:	My-Very-important-data.xls more-very-important-data.tgz	
RDS Project Folder:	PRJ-PANDORA	

Method/Tool - Connect using sftp on a mac (applies to linux)

Step 1 - View local directory:

```
ls -l
total 53960
-rw-r--r--  1 test1234  linuxuser  27248922 25 Feb 12:12 My-Very-important-data.xls
-rw-r--r--@ 1 test1234  linuxuser    372778 25 Feb 12:14 more-very-important-data.tgz
alhambra:rdn-demo test1234$ pwd
/Users/test1234/rdn-demo
```

Start sftp command line tool:

```
sftp test1234@rcos-int.sydney.edu.au
```

then navigate to the project area:

```
Connected to rcos-int.sydney.edu.au
sftp> cd /rds/PRJ-PANDORA
```

Step 2 - Review files in remote directory:

```
sftp> ls
Files.in.PRJ-PANDORA.txt                more-very-important-data.tgz
```

Step 3 - Transfer local file to remote directory

```
sftp> put My-Very-important-data.xls
Uploading My-Very-important-data.xls to /rds/PRJ-PANDORA/My-Very-important-data.xls
My-Very-important-data.xls                        100%   26MB   8.7MB/s   00:03
sftp>
```

Step 4 - Review files in remote directory:

```
sftp> ls
Files.in.PRJ-PANDORA.txt                My-Very-important-data.xls
more-very-important-data.tgz
sftp> ls -l
-rw-r--r--    1 test1234 RDN-TST-PANDORA        0 Feb 25 11:28 Files.in.PRJ-PANDORA.txt
-rw-r--r--    1 test1234 RDN-TST-PANDORA 27248922 Mar 15 10:24 My-Very-important-
data.xls
-rw-r--r--    1 test1234 RDN-TST-PANDORA   372778 Mar  4 16:36 more-very-important-
data.tgz
sftp>
```

Step 5 - Remove files from remote directory:

```
sftp> rm more-very-important-data.tgz
Removing /rds/PRJ-PANDORA/more-very-important-data.tgz
sftp> rm My-Very-important-data.xls
Removing /rds/PRJ-PANDORA/My-Very-important-data.xls
sftp> ls -l
-rw-r--r--    1 test1234 RDN-TST-PANDORA        0 Feb 25 11:28 Files.in.PRJ-PANDORA.txt
sftp>
```

Method/Tool - Using rsync on mac/linux to transfer files to RDS NFS Project

Step 1 - The contents of the local directory:

```
alhambra:rdn-demo test1234 $ ls -l
total 53960
-rw-r--r--  1 test1234  linuxusers   27248922 25 Feb 12:12 My-Very-important-
data.xls
-rw-r--r--@ 1 test1234  linuxusers     372778 25 Feb 12:14 more-very-important-
data.tgz
```

Step 2 - The command line rsync to copy the files to RCOS/NFS RDS

```
alhambra:rdn-demo test1234$ rsync -e ssh -avu *
test1234@rcos-int.sydney.edu.au:/rds/PRJ-PANDORA/

building file list ... done
My-Very-important-data.xls
more-very-important-data.tgz

sent 27625297 bytes   received 64 bytes   6138969.11 bytes/sec
total size is 27621700  speedup is 1.00
alhambra:rdn-demo test1234$
```

Step 2 continued - The contents of the remote directory after the transfer:

```
alhambra:rdn-demo test1234$ ssh test1234@rcos-int.sydney.edu.au ls -l /rds/PRJ-
PANDORA
total 0

-rw-r--r--. 1 test1234 RDN-TST-PANDORA  0 Feb 25 11:28 Files.in.PRJ-PANDORA.txt
-rw-r--r--. 1 test1234 RDN-TST-PANDORA  372778 Feb 25 12:14 more-very-important-data.tgz
-rw-r--r--. 1 test1234 RDN-TST-PANDORA  27248922 Feb 25 12:12 My-Very-important-data.xls
-rw-r--r--. 1 test1234 RDN-TST-PANDORA        0 Mar 15 15:21 new-file.txt
```

Method/Tool - Connect using filezilla

FileZilla provides a drag and drop means to transfer files between a local and remote system.

Step 1 - Enter the required information in the fields below:

Host: rcos-int.sydney.edu.au
Username: test1234 (ie your UniKey)
Password: ie your UniKey password
Port: 22

The first time you log in you may be presented with a warning – Unknown host key – if this is displayed, click OK.
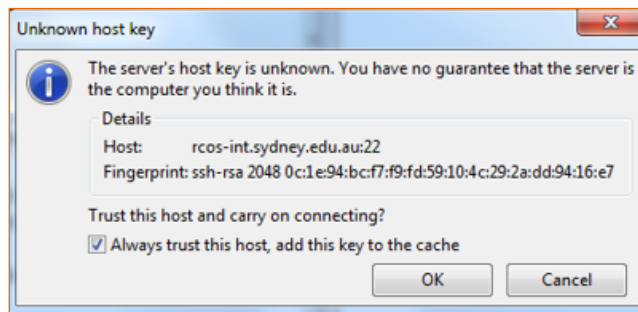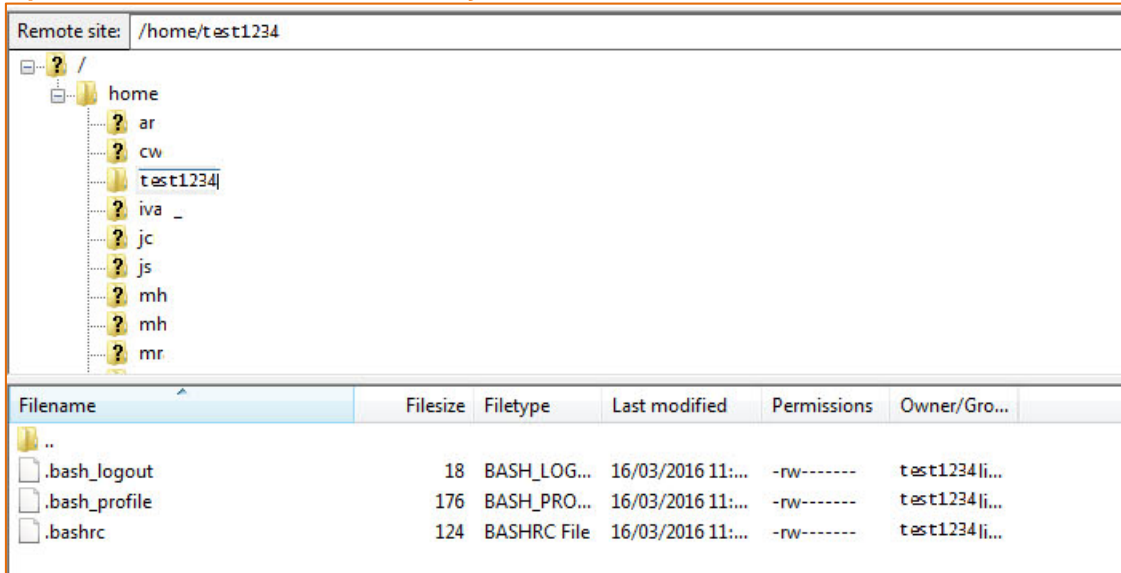

Step 2 – Enter the source directory in the text box labelled <Local site>:
Alternatively navigate in the pane below to the local directory for the file exchange
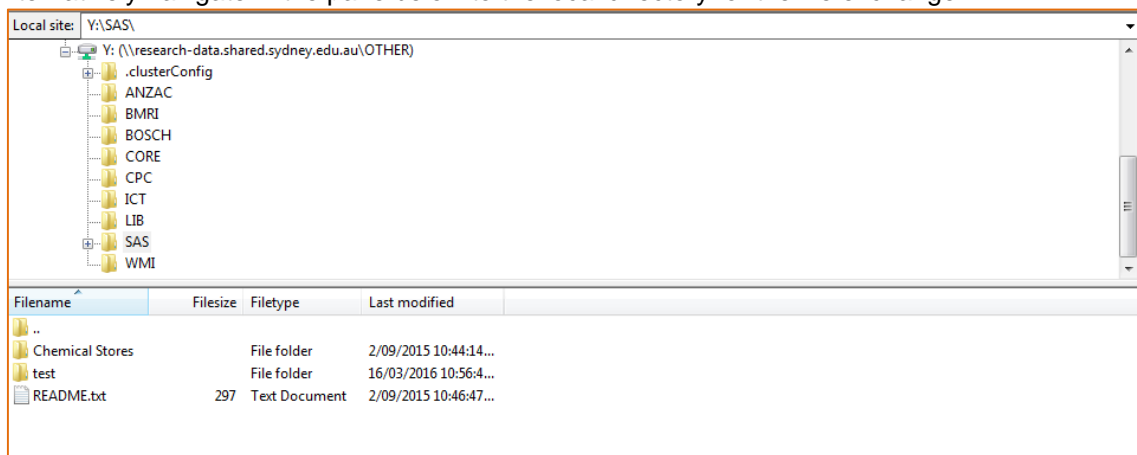
Source directory: /Users/user name/rdn-demo/

Step 3 – Enter the destination directory in the text box labelled <Remote site>:

Step 4 - Transfer files by selecting them in the local site and dropping them into the right hand pane.
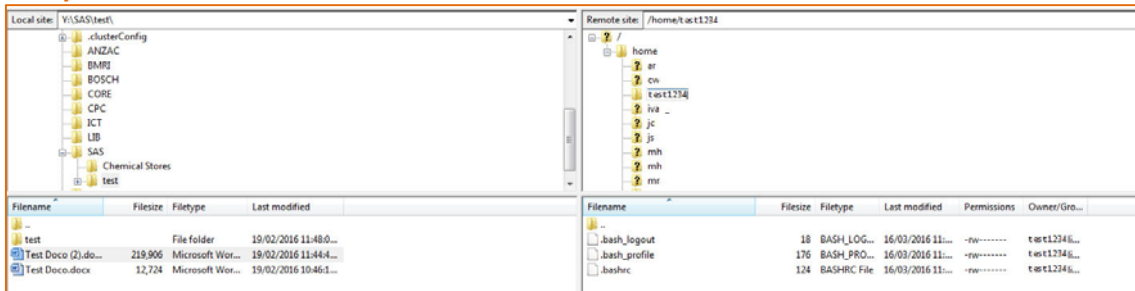
The lower pane will display the file transfer progress and the files will then appear in the right hand pane.

Method/Tool - Using Cyberduck

Step 1 - In the Cyberduck window, select Open Connection
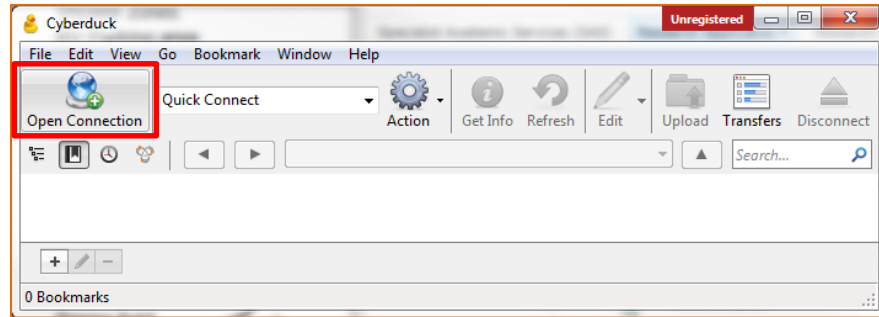
Step 2 - On the Open Connection dialog, select 'SFTP (SSH File Transfer Protocol)' from the drop-down menu.
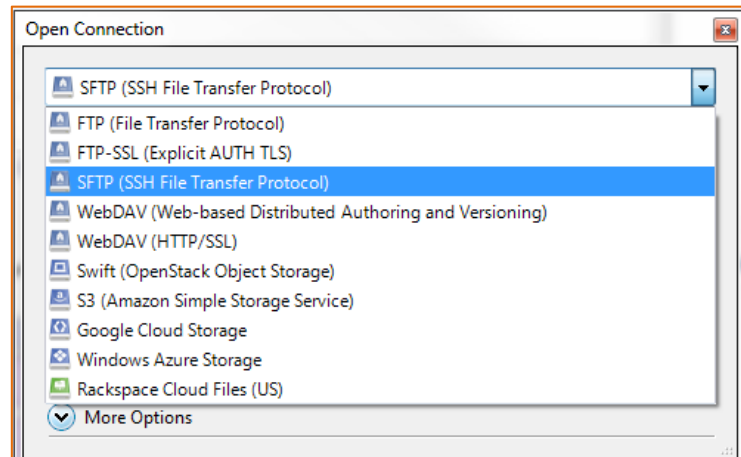
Step 3 - On the Open Connection dialog, enter the connection details as follows:

Server: rcos-int.sydney.edu.au
Port: 22
User name: Your UniKey login name
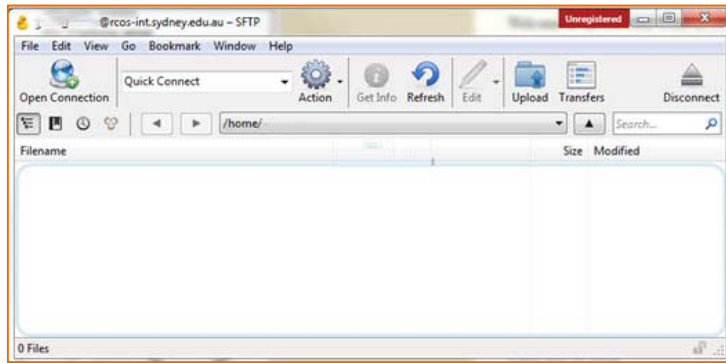**Password:** Your UniKey password

and then select the Connect button
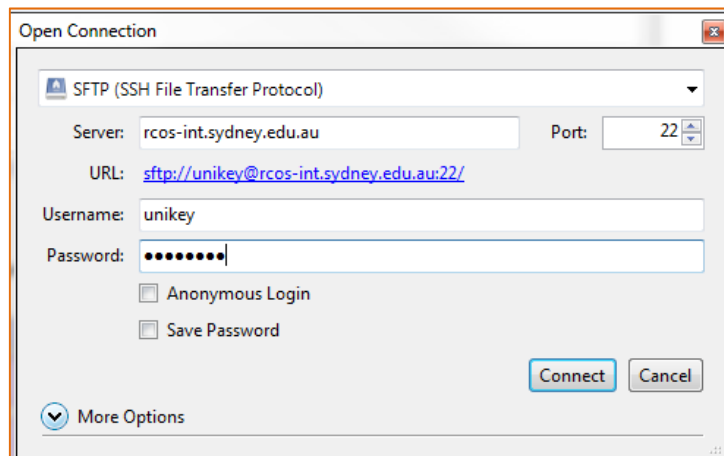
Step 4 - If the Unknown fingerprint dialog displays, select Allow
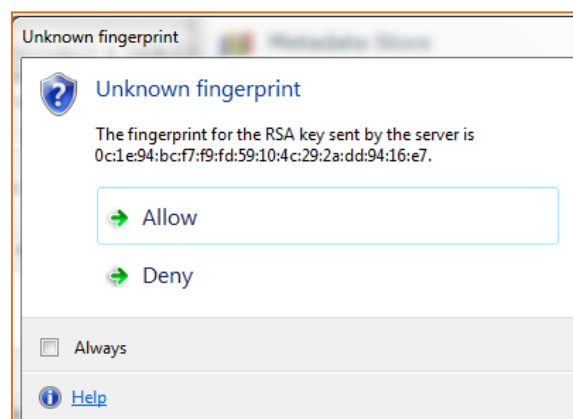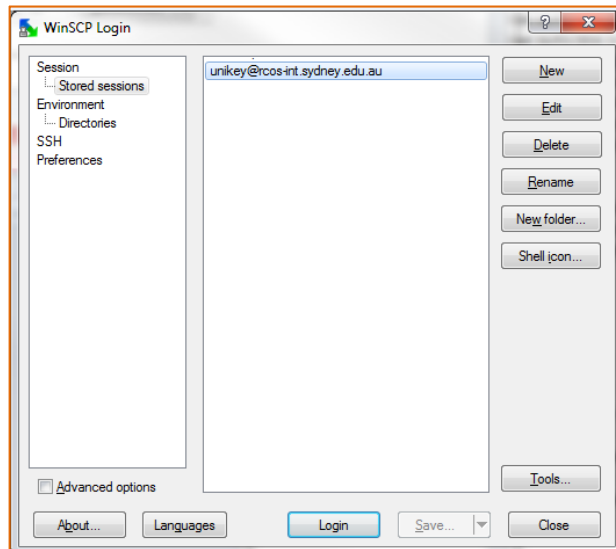
Step 5 -. Drag and drop files into it to transfer, or use the 'Upload' button and interface to select local files to transfer to the RCOS server.

The main window represents your directory on the RCOS server
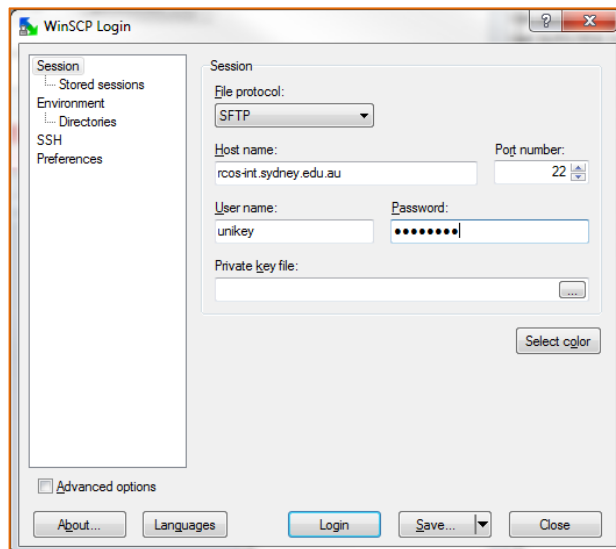
Method/Tool - Connect using winSCP

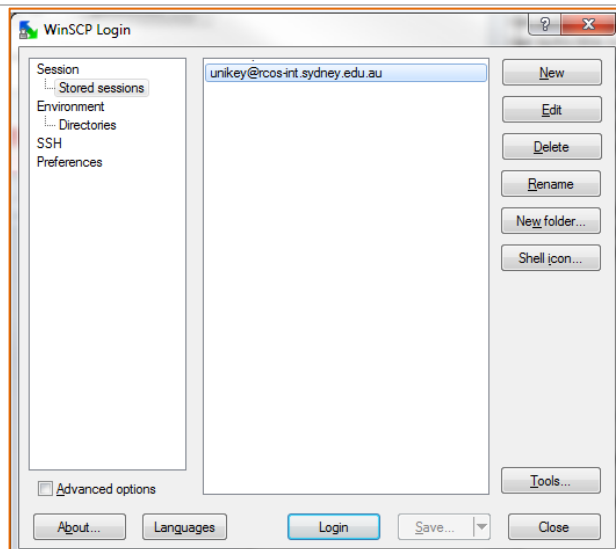**Step 1 -** In the WinSCP Login window, create a New profile:

Step 2 - In the profile window, use the following connection details:

Host Name: rcos-int.sydney.edu.au
Port Number: 22
User name: Your UniKey
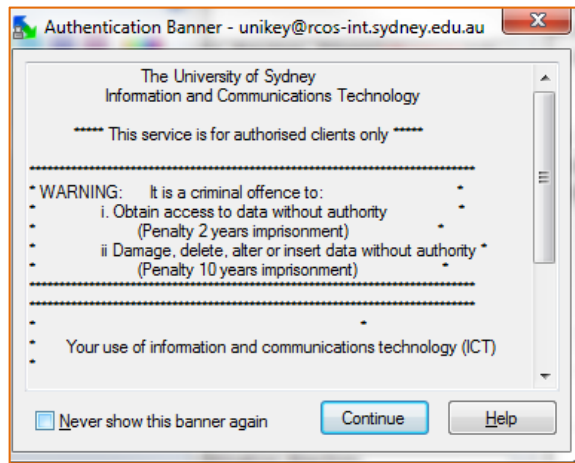**Password:** Leave this blank
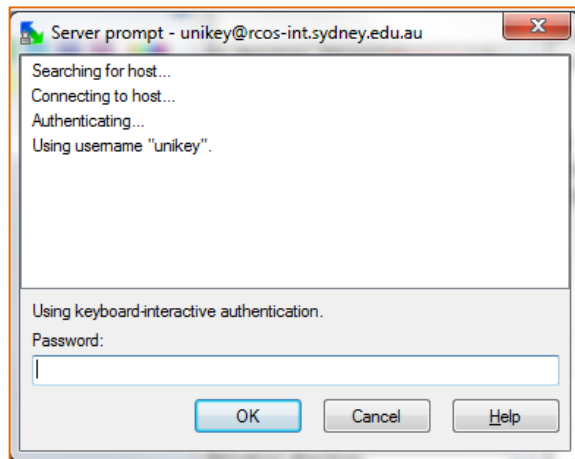
and save the profile.

Step 3 - In the WinSCP Login window, select the profile and click the Login' button.

Step 4 - In the Authentication banner window, read the banner and click Continue
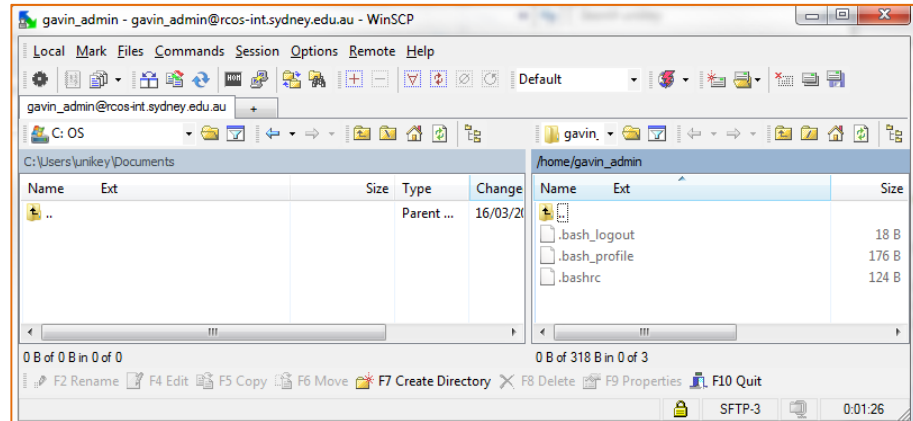
Step 5 - At the Server prompt window, enter your password and click OK

The first time you log in you may be presented with a Warning – if this is displayed, click Yes

Step 6 - Drag-and-drop files to move files from one repository to the other.
Files on your computer are in the left-hand window, and files on the RCOS server are in the right-hand window.

You can monitor the progress of the transfer: