# 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 <u>What is Research Computing Optimised</u> <u>Storage (RCOS)?</u>

### Tools

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

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

FIGURE 2 - TOOLS

# Downloads

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

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

FIGURE 3 – DOWNLOADS

## **Directory Structure**

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

Туре	Path	Example
Individual	/home/ <unikey></unikey>	/home/test1234
Research	/rds/ <rds name="" project=""></rds>	/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 -1
-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 -1
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 -1 /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
-rw-r--r-. 1 test1234 RDN-TST-PANDORA
-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.

Ste	p 1 - Enter the required in	formation in the fields below:		
Ei	le <u>E</u> dit <u>V</u> iew <u>T</u> ransfer <u>S</u> erver <u>B</u> o	ookmarks <u>H</u> elp <u>N</u> ew version available!		
2	🛿 - 🔜 t. t. Q 🚯 💁 🛇 (	X R   \$+ 55 ∞ n		
Н	ost: x//rcos-int/sydney. Username:	test1234 Pass <u>w</u> ord: •••••••	<u>P</u> ort: 22	Quickconnect 💌

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

Local site: Y:\SAS\			-
🖃 🖵 Y: (\\research-dat	a.shared.sydney.edu.au	I\OTHER)	A
.clusterConfig			
ANZAC			
BMRI			
BOSCH			
CORE			
ICT			
📔 LIB			
🗄 ··· 퉬 SAS			
🚺 WMI			-
Filename File	size Filetype	Last modified	
Jan 1997 - 1997			
Chemical Stores	File folder	2/09/2015 10:44:14	
퉬 test	File folder	16/03/2016 10:56:4	
README.txt	297 Text Document	2/09/2015 10:46:47	

Source directory: /Users/user name/rdn-demo/

Kemote site: //home/test1234					
<pre></pre>					
		Table Torong			
Filename	Filesize	Filetype	Last modified	Permissions	Owner/Gro
Filename	Filesize	Filetype	Last modified	Permissions	Owner/Gro
Filename	Filesize	Filetype BASH_LOG	Last modified 16/03/2016 11:	Permissions	Owner/Gro test1234 j
Filename	Filesize 18 176	Filetype BASH_LOG BASH_PRO	Last modified 16/03/2016 11: 16/03/2016 11:	Permissions -rw	Owner/Gro test1234 i test1234 i

# Step 4 - Transfer files by selecting them in the local site and dropping them into the right hand pane.

Local site: Y:\SAS\test\		<ul> <li>Remote site: /home/tast1234</li> </ul>
AusterConfig     Active     Active     Active     Active     Active     BMR     BMR     BOSCH     CORE     CORE		<ul> <li>B // Bone</li> <li>B one</li> <li>C one</li></ul>
Filename Filesize Filet	type Last modified	Filename Filesize Filetype Last modified Permissions Owner/Gro
<u></u>		<u>.</u>
🚜 test 🛛 🛛 File 1	folder 19/02/2016 11:48:0	bash_logout 18 BASH_LOG 16/03/2016 11:nv t+st1234E
Test Doco (2).do 219,906 Mici	:rosoft Wor 19/02/2016 11:44:4	.bash_profile 176 BASH_PRO 16/03/2016 11:rw t+st1234E
Test Doco.docx 12,724 Micr	crosoft Wor 19/02/2016 10:46:1	.bashrc 124 BASHRC File 16/03/2016 11:rw test1234E

The lower pane will display the file transfer progress and the files will then appear in the right hand pane.

Server/Local file	Direction	Remote file	Size	Priority	Time
👤 sftp://test1234.@rdocda005					
Y:\SAS\test\Test Doco (2)	>>	/home/test1234/Test Doco (2	219,906	Normal	16/03/2016 11:13:26 AM

# Method/Tool - Using Cyberduck



### Research Computing Optimised Storage (RCOS)

**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:

S WinSCP Login		8 ×
Session	unikey@rcos-int.sydney.edu.au	New
Environment Directories		Edit
SSH Preferences		Delete
		Rename
		Ne <u>w</u> folder
		Shell <u>i</u> con
		Tools
Advanced options		<u></u> 00ls
About Languag	Login Save	Close

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.	WinSCP Login         Session         - Stored sessions         Environment         - Directories         SSH         Preferences         Preferences         Private key file:         Select ogl         Select ogl         Advanced options         About       Languages         Login       Save  Cose	×
Step 3 - In the WinSCP Login window, select the profile and click the Login' button.	WinSCP Login         Session         Stored sessions         Environment         - Directories         SSH         Preferences         Bename         New folder.         Shell jcon         About         Languages       Login         Save       Close	

### Research Computing Optimised Storage (RCOS)



**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.

🛃 gavin_admin - gavin_admin@rcos-int.syd	ney.edu.au - Win	SCP					• <b>X</b>
Local Mark Files Commands Session	Options <u>R</u> emote	e <u>H</u> elp					
🔹 💷 🖓 - 🗄 📽 🎨 🔤 🧬	<b>6 %</b> 🕂 🖃	∀ \$	ØØD	efault	• 🐗 • 논	i 📑 - 🛓	
gavin_admin@rcos-int.sydney.edu.au +							
🚣 C: OS 🔹 👻 🔄 🖓	• 🔿 • 🚺 🖾	1 🚮 🙋	t a	📗 gavin	- 🗁 🔽 🗍 🔶 -		🚮 🙋 📴
C:\Users\unikey\Documents			/home/gavin_admin				
Name Ext	Size	Туре	Change	Name	Ext		Size
😫		Parent	16/03/20	<u>*</u> .			
				bash_lo	ogout		18 B
				bash_p.	rofile		176 B
				bashrc 🗋			124 B
٠ III			F.	•	m		•
0 B of 0 B in 0 of 0				0 B of 318 B	in 0 of 3		
🛛 🖋 F2 Rename 📝 F4 Edit 🗃 F5 Copy 🗃	F6 Move 💣 F7	Create Dire	ctory $ imes$ R	3 Delete 💣	F9 Properties 🚊 F1	l0 Quit	
					<b>a</b> :	SFTP-3 🗐	0:01:26

You can monitor the progress of the transfer:

% Copying				? <mark>×</mark>
				Cancel <u>M</u> inimize
File: C:\User Target: /home/	s\unikey\Doc 'gavin_admin/	uments\dummy.	bat	Once <u>f</u> inished: Stay idle
Time left: Bytes transferred:	0:05:59 22,983 KiB	Time elapsed: Speed:	0:00:02 11,599 KiB/s	Speed (KiB/s): Unlimited