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R軟體安裝 (Windows和Linux)

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今天結束後，可以得到什麼..

Windows系統可以用RStudio跑基本的R程式

如何做R專案管理

Linux的Ubuntu系統可以執行Rscript

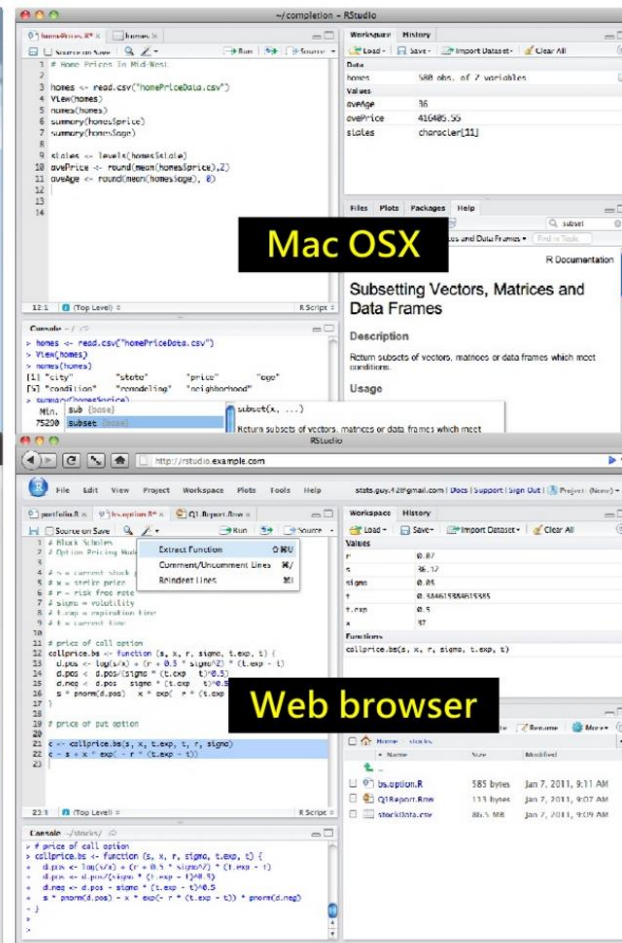
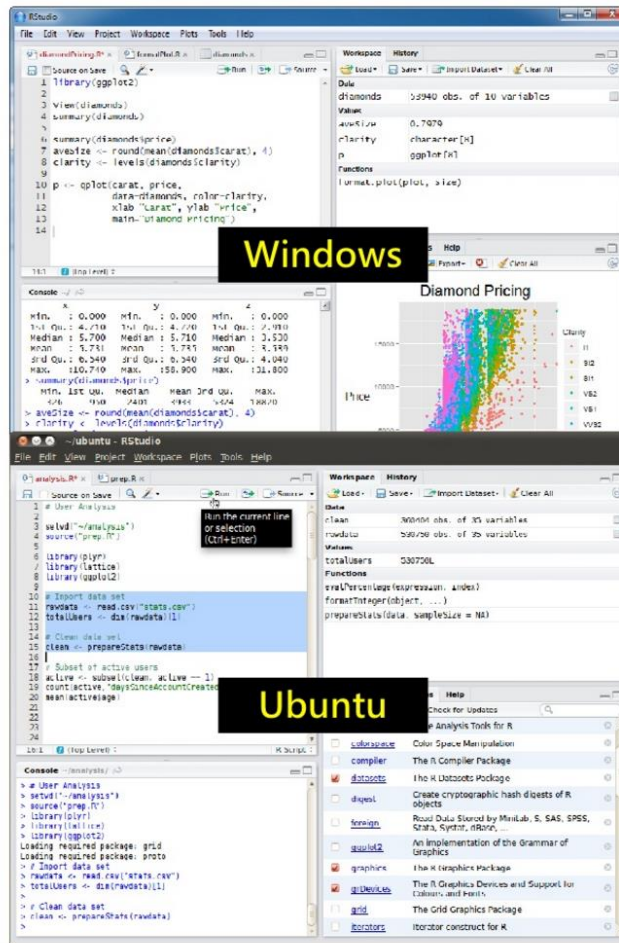
資料檔案可以在Ubuntu和Windows系統之間互相連通



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不同作業系統的Rstudio

R統計軟體 - 安裝與使用



Clip slide



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Windows系統安裝，很簡單

- 去Google搜尋R並下載檔案執行
- 去Google搜尋RStudio並下載檔案執行
- 打開Rstudio

- 編輯程式常用快捷鍵

Ctrl+Enter 執行該行

Ctrl+shift+C 新增/移除註記



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RStudio 介面介紹

The screenshot shows the RStudio interface with the following components and labels:

- Source Editor (程式碼編輯區):** The top-left pane showing R code for data analysis. The code includes comments in Chinese and R commands for setting the working directory, installing packages (magrittr, dplyr, ggplot2), loading data, and summarizing it.
- Environment (記憶體中的物件管理):** The top-right pane, currently empty, showing the Global Environment.
- Files (繪圖視窗.資料檔):** The bottom-right pane showing a file explorer view of the project directory, listing files like 'Natality-2007-2014.txt', 'practice2.Rproj', and 'US-birth.R'.
- Console (程式執行區):** The bottom-left pane showing the R version (3.3.2) and the R startup message.

```
1 # 資料說明：US Natality, 2007-2014 Results
2 # https://wonder.cdc.gov/controller/saved/D66/D7E203
3
4
5 # (一) 設定檔案路徑
6 getwd()
7 # setwd("c:/users/clucy0115/Desktop/US Birth")
8 setwd()
9
10
11 # (二) 安裝及呼叫套件
12 install.packages("magrittr")
13 install.packages("dplyr")
14 install.packages("ggplot2")
15 library("magrittr")
16 library("dplyr")
17 library("ggplot2")
18
19 # (三) 處理資料
20
21 # (A) 讀取資料、看一下結構
22 Natality <- read.csv(file = "Natality, 2007-2014 Results.csv", as.is = TRUE, encoding = "BIG5", stringsAsFactors = F)
23 str(Natality)
24 head(Natality)
25 tail(Natality)
26
27 # (B) 基本敘述統計
28 summary(Natality)
29
30 # (C) 定義欄位名稱
```

R version 3.3.2 (2016-10-31) -- "Sincere Pumpkin Patch"
Copyright (C) 2016 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

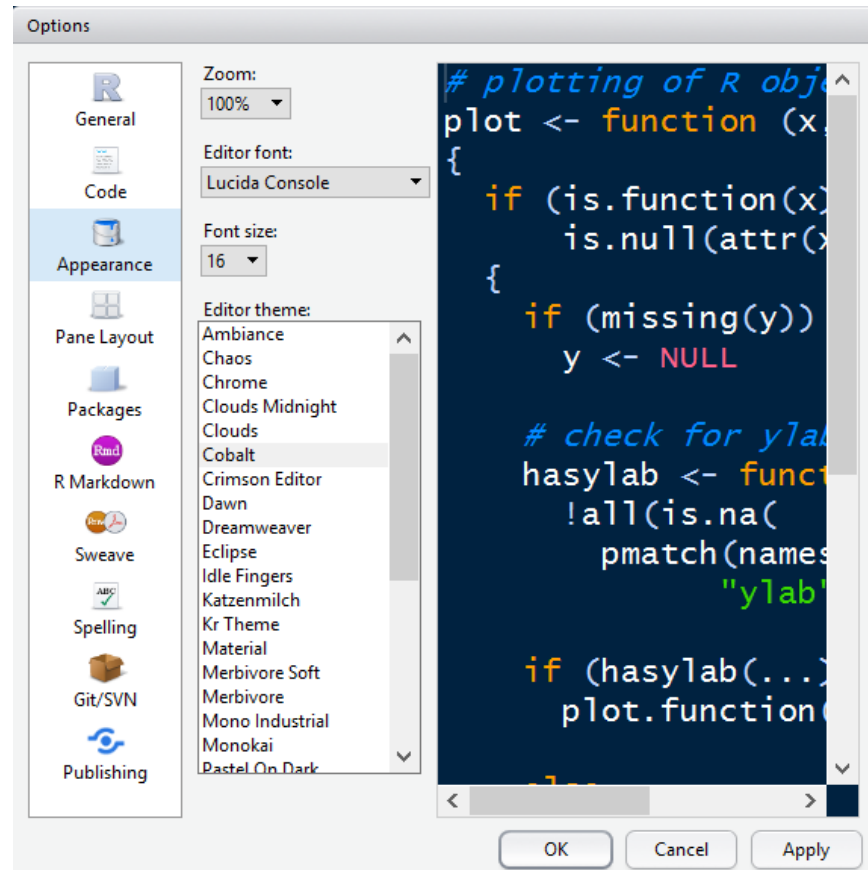
> |



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可設定背景格式和字體大小

- For Windows: Tools → Global Options → Appearance





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什麼是R專案

- 目的: 方便做分析時的檔案管理
- 在此我們不使用版本控制系統 (若想使用可使用 `github` 來管理)

*版本控制: 版本控制是一個能夠記錄一個或一組檔案在某一段時間的變更，使得讀者以後能取回特定版本的系統。

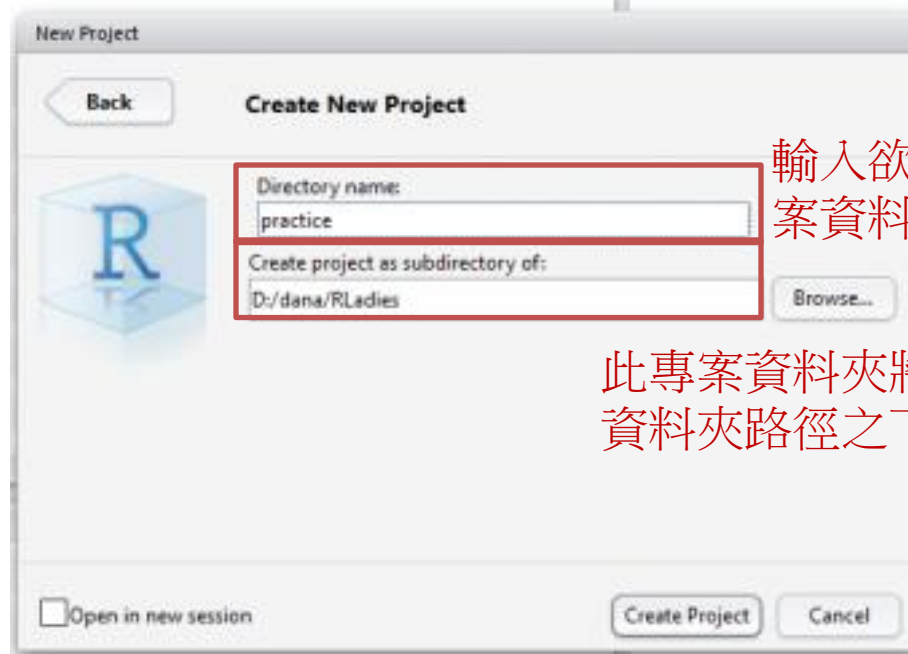
- 以後只要在檔案總管點擊(檔名).Rproj，就能直接開啟Rstudio，並直接在指定目錄下工作
- 詳情參考網站: http://scchen.com/Reproducible-Think/2_init/Project.html



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建立新專案(Demo)

- File → New Project → New Directory → Empty Project



輸入欲建立的專案資料夾名稱

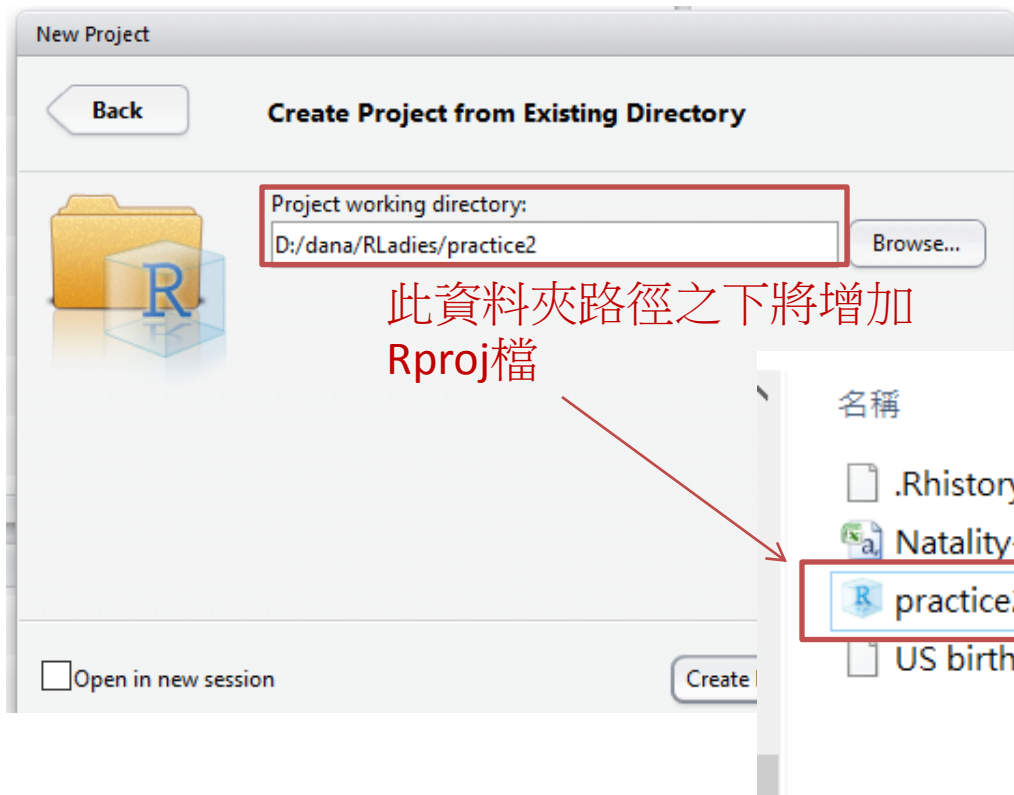
此專案資料夾將建立在此資料夾路徑之下



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建立既有資料夾專案(Demo)

- File → New Project → Existing Directory



此資料夾路徑之下將增加
Rproj檔

名稱	修改日
.Rhistory	2017/
Natality-2007-2014	2017/
practice2	2017/
US birth.R	2017/



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來用看看Linux系統

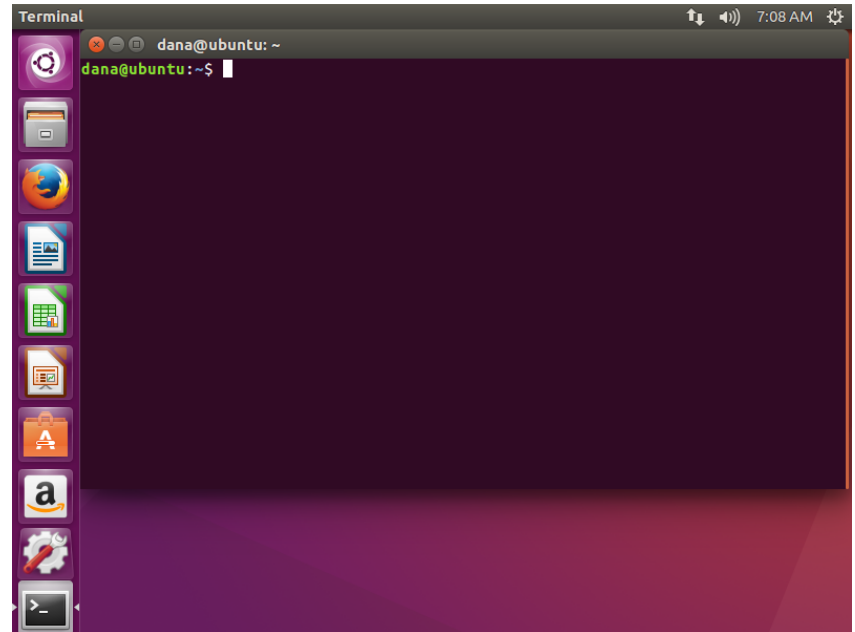
- 安裝虛擬機(VMware Player是其中一種軟體)
- 虛擬機上執行Linux(Ubuntu)
- Ubuntu有分server和desktop版本
- Desktop版就像一般Windows也可以使用RStudio下R指令 (不過工程師通常不安裝)
- 來用command的方式執行R檔案吧(看起來很炫!)
- 跑好的檔案怎麼拿回Windows使用(作業系統之間的資料如何互通?!)



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Linux上的R安裝(Demo)

- 開啟**terminal**視窗
Ctrl+Alt+T
- \$後即可輸入指令
，輸入好後按下Enter





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terminal下的R安裝指令

- 安裝R

(Install R)

`sudo apt-get install r-base`

(Install R runtime)

`sudo apt-get install -y r-base-core`

- 安裝Rstudio (以64位元為例)

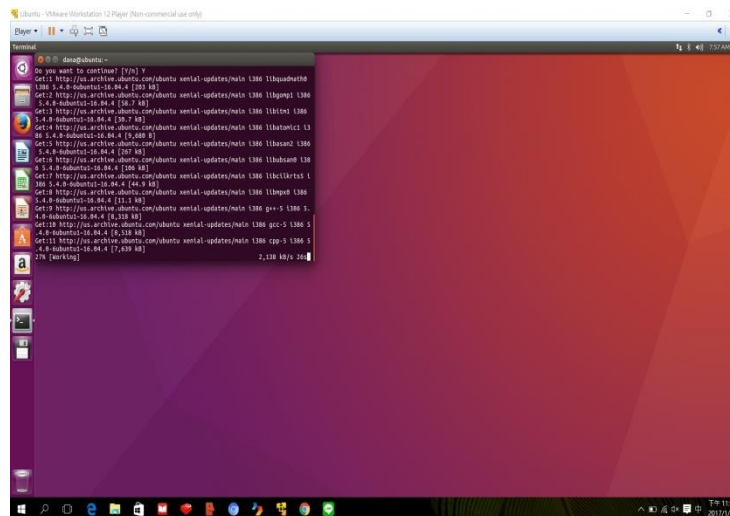
`sudo apt-get install gdebi-core`

`sudo wget https://download2.rstudio.org/rstudio-server-1.0.136-amd64.deb`

`sudo gdebi rstudio-server-1.0.136-amd64.deb`

- 詳情

<https://www.rstudio.com/products/rstudio/download-server/>



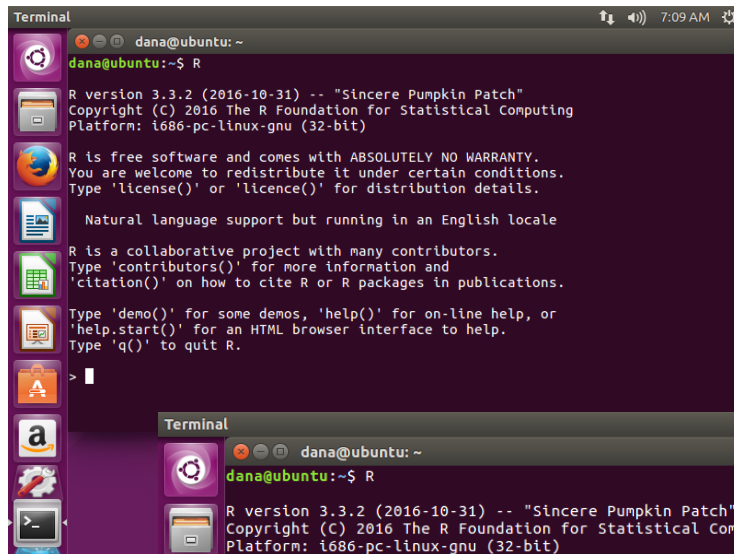


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在terminal下執行R檔案

- 進入R環境

R



```
Terminal
dana@ubuntu: ~
dana@ubuntu:~$ R

R version 3.3.2 (2016-10-31) -- "Sincere Pumpkin Patch"
Copyright (C) 2016 The R Foundation for Statistical Computing
Platform: i686-pc-linux-gnu (32-bit)

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Natural language support but running in an English locale

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'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |
```

- 離開R環境

quit()



```
Terminal
dana@ubuntu: ~
dana@ubuntu:~$ R

R version 3.3.2 (2016-10-31) -- "Sincere Pumpkin Patch"
Copyright (C) 2016 The R Foundation for Statistical Computing
Platform: i686-pc-linux-gnu (32-bit)

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Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> quit()
Save workspace image? [y/n/c]: n
dana@ubuntu:~$
```

看到這行代表跳出R了



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執行整個R檔案

範例 執行home/dana/practice2下的test.R

- 先指定到R檔案的資料夾路徑

`cd home/dana/practice2`

- 執行R檔案
`Rscript test.R`

```
Terminal
dana@ubuntu: ~/practice2
-rw-r--r-- 1 dana dana 26 Jan 20 04:27 .Rhistory
-rw-rw-r-- 1 dana dana 60782548 Aug 12 2014 rstudio-0.98.1014-amd64.deb
-rw-r--r-- 1 dana dana 86667552 Jan 21 07:06 rstudio-1.0.136-i386.deb.part
-rw-r--r-- 1 dana dana 0 Jan 18 07:52 .sudo_as_admin_successful
drwxr-xr-x 2 dana dana 4096 Jan 18 07:40 Templates/
drwxr-xr-x 2 dana dana 4096 Jan 18 07:40 Videos/
-rw-r--r-- 1 dana dana 51 Jan 23 07:06 .Xauthority
-rw-r--r-- 1 dana dana 82 Jan 23 07:06 .xsession-errors
-rw-r--r-- 1 dana dana 1658 Jan 22 01:46 .xsession-errors.old
dana@ubuntu:~$ cd practice2
dana@ubuntu:~/practice2$ ll
total 760
drwxrwxr-x 3 dana dana 4096 Jan 21 07:25 ./
drwxr-xr-x 18 dana dana 4096 Jan 23 07:07 ../
-rw-rw-r-- 1 dana dana 325719 Jan 21 04:26 Natality-2007-2014.csv
-rw-rw-r-- 1 dana dana 410179 Jan 21 02:37 Natality-2007-2014.txt
-rw-rw-r-- 1 dana dana 218 Jan 21 02:56 practice2.Rproj
drwxrwxr-x 4 dana dana 4096 Jan 21 07:00 .Rproj.user/
-rw-rw-r-- 1 dana dana 35 Jan 21 07:24 test.R
-rw-r--r-- 1 dana dana 12288 Jan 21 07:20 .test.R.swp
-rw-rw-r-- 1 dana dana 3227 Jan 21 07:25 USbirth.R
dana@ubuntu:~/practice2$ Rscript test.R
[1] 3
dana@ubuntu:~/practice2$
```

顯示Rstudio下執行時console會呈現的結果



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下載Rstudio (For desktop版)

The screenshot shows the RStudio website's download page. A file manager window is open over the page, displaying the 'Downloads' folder. The file 'rstudio-1.0.136-amd64.deb' is highlighted. Below the file manager, the download table is visible.

	Size	Time	Hash
RStudio 1.0.136 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (32-bit)	85.4 MB	2016-12-21	30c09299d30ec83b38098e51e9bf49b8
RStudio 1.0.136 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (64-bit)	86.6 MB	2016-12-21	ea2a262f650e92f568f48edc1c093902

Source Code

A tarball containing source code for RStudio v1.0.136 can be downloaded from [here](#)

Firefox automatically sends some data to Mozilla so that we can improve your experience.



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下載WinSCP和Putty

- 在此使用WinSCP互通Linux和Windows資料夾，也可使用Samba

samba的詳細介紹

http://linux.vbird.org/linux_server/0370samba.php#theory

WinSCP安裝網址

- 網站上搜尋winscp即可找到下載連結
- 下載連結<https://winscp.net/eng/download.php>
- 分別安裝WinSCP和Putty

WinSCP Downloads

[\[Download WinSCP\]](#) [\[WinSCP Release Notification\]](#) [\[Download PuTTY\]](#)

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必須先知道二台電腦的IP位址 並設定連線

- For ubuntu

ifconfig

- For Windows

(命令提示字元)

Ipconfig

- 於ubuntu設定SSH連線

sudo apt-get install ssh

```
dana@ubuntu: ~  
> quit()  
Save workspace image? [y/n/c]: n  
dana@ubuntu:~$ ifconfig  
ens33  Link encap:Ethernet  HWaddr 00:0c:29:95:44:ea  
        inet addr:192.168.0.128  Bcast:192.168.61.255  Mask:255.255.255.0  
        inet6 addr: fe80::e1a7:13c9:743d:26a/64 Scope:Link  
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
        RX packets:550 errors:0 dropped:0 overruns:0 frame:0  
        TX packets:569 errors:0 dropped:0 overruns:0 carrier:0  
        collisions:0 txqueuelen:1000  
        RX bytes:49646 (49.6 KB)  TX bytes:468471 (468.4 KB)  
        Interrupt:19 Base address:0x2000  
  
lo      Link encap:Local Loopback  
        inet addr:127.0.0.1  Mask:255.0.0.0  
        inet6 addr: ::1/128 Scope:Host
```

命令提示字元

無線區域網路介面卡 Wi-Fi:

```
連線特定 DNS 尾碼 . . . . . : hitronhub.home  
連結-本機 IPv6 位址 . . . . . : fe80::1c0e:fb6b:8999:a880%10  
IPv4 位址 . . . . . : 192.168.0.181  
子網路遮罩 . . . . . : 255.255.255.0  
預設閘道 . . . . . : 192.168.0.1
```

通道介面卡 isatap.hitronhub.home:

```
媒體狀態 . . . . . : 媒體已中斷連線  
連線特定 DNS 尾碼 . . . . . : hitronhub.home
```

通道介面卡 區域連線* 5:

```
媒體狀態 . . . . . : 媒體已中斷連線  
連線特定 DNS 尾碼 . . . . . :
```

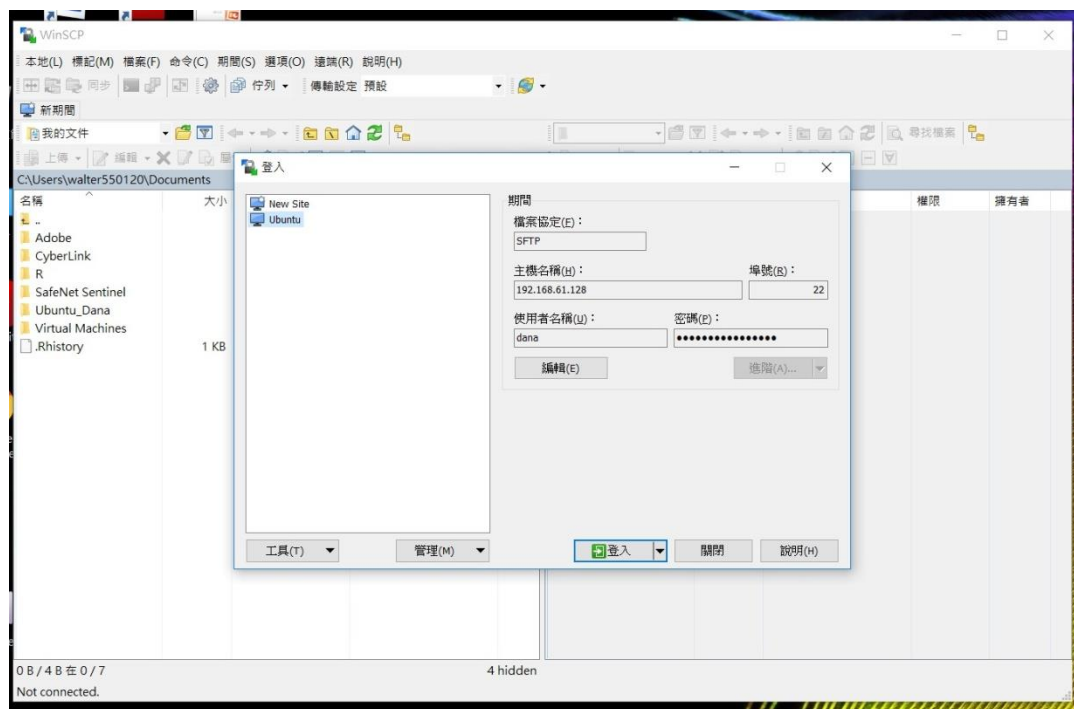
通道介面卡 isatap.{FD2C60D9-3422-4C62-8904-A64B37492B70}:



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下載WinSCP(Demo)

- 點開WinSCP
- 主機名稱輸入ubuntu的IP位址

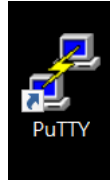




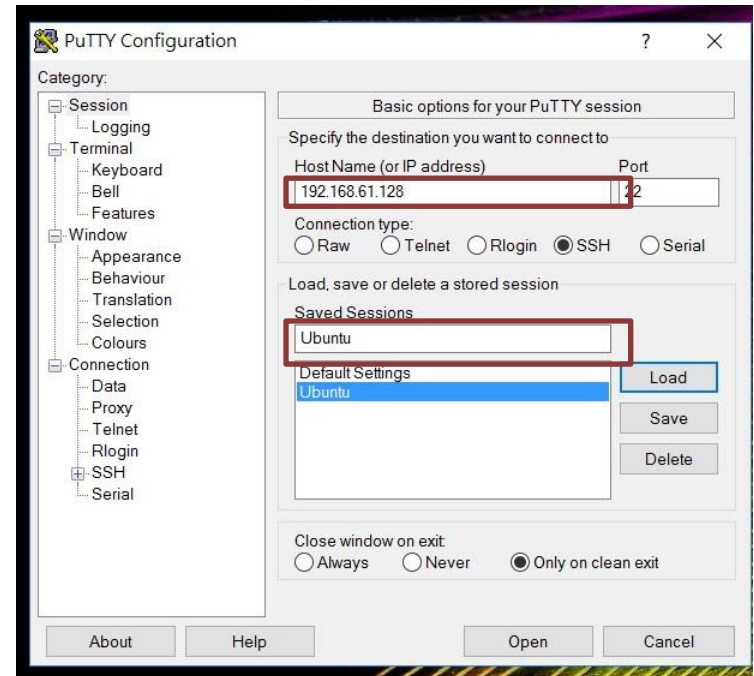
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下載Putty(Demo)

- 點開Putty
- 輸入欲連線ubuntu的IP位址和session名稱
- 輸入ubuntu的帳號密碼便進入VM下terminal畫面



```
dana@ubuntu: ~  
login as: dana  
dana@192.168.61.128's password:  
Welcome to Ubuntu 16.04.1 LTS (GNU/Linux 4.4.0-59-generic i686)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/advantage  
  
220 packages can be updated.  
4 updates are security updates.  
  
Last login: Fri Jan 20 08:45:28 2017 from 192.168.61.1  
dana@ubuntu:~$
```





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Thank you!!!