## MATLAB Distributed Computing Server and Parallel Computing

前提Matlab要有mdce的toolbox。 多台電腦區域連線 相同的工作群組

### 首先找到matlab的安裝位置,依序找到toolbox、discomp、bin。 本人的mdce路徑是C:\Program Files\MATLAB\R2013a\toolbox\distcomp\bin 每個電腦的路徑,會根據安裝位置有所不同。



## 開啟matlab,更改mdce的路徑。

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### 根據上頁找到的mdce路徑,複製貼上到圓圈處後按下ENTER更改路徑完成。

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如果已安裝過可先輸入 !mdce uninstall 解除安裝,再重新安裝一次。

	Comma	and Window	$\odot$
	>>	> !mdce install	
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	Se	etting permissions on CHECKPOINTBASE C:\Windows\TEMP\MDCE\Checkpoint	
	Se	etting permissions on SECURITY_DIR C:\Windows\TEMP\MDCE\Checkpoint\security	
	wr	rapper   MATLAB Distributed Computing Server installed.	
	$fx \gg$	>	
•	•		

安裝成功後的樣子。



在Command Window 輸入 Imdce start 啟動mdce。

```
Command Window
>> !mdce install
Setting permissions on LOGBASE C:\Windows\TEMP\MDCE\Log
Setting permissions on CHECKPOINTBASE C:\Windows\TEMP\MDCE\Checkpoint
Setting permissions on SECURITY_DIR C:\Windows\TEMP\MDCE\Checkpoint\security
wrapper | MATLAB Distributed Computing Server installed.
fx >> !mdce start
```

#### 按下Enter成功啟動後,如下圖。

Con	nmand Window	$\odot$
	>> !mdce install	
	Setting permissions on LOGBASE C:\Windows\TEMP\MDCE\Log	
	Setting permissions on CHECKPOINTBASE C:\Windows\TEMP\MDCE\Checkpoint	
	Setting permissions on SECURITY_DIR C:\Windows\TEMP\MDCE\Checkpoint\security	
	wrapper   MATLAB Distributed Computing Server installed.	
	>> !mdce start	
	Setting permissions on LOGBASE C:\Windows\TEMP\MDCE\Log	
	Setting permissions on CHECKPOINTBASE C:\Windows\TEMP\MDCE\Checkpoint	
	Setting permissions on SECURITY_DIR C:\Windows\TEMP\MDCE\Checkpoint\security	
	wrapper   Starting the MATLAB Distributed Computing Server service	
	wrapper   MATLAB Distributed Computing Server started.	
fr		

## 機群的配置

進行機群的配置需先<mark>關閉防火牆</mark>,接著到mdce路徑裡,找到admincenter檔案。 點滑鼠右鍵,選擇[以系統管理員身分執行]。之後會出現右圖的視窗。

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	列印(P)	madea def						
9	<u>以系統管理員身分執行(A)</u>							
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#### 點選Hosts下方Add or Find...。會出現右圖的視窗, 之後在紅色圈圈處輸入自己[電腦的名稱 or IP],,按下 ok。

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#### 按下ok後會跳出視窗,然後一直點選Next, 到第4步驟按Start,第5步驟跑完後按結束, 就會出現右圖。Hosts增加自己電腦完成了。

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其他分散的電腦就只要自己和主機的Hostname。

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主機,加入完所有電腦後, 1.點選紅色圈圈Start建立Job。 2.然後隨便寫一個Job名字,我用test。 3.然後選擇由哪台電腦當主機來發起該計算。 接著按下OK。

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然後設置要開啟的總線程(workers),點紅圈處Start,跳出視窗。 服務器集群中的worker必須要統一,即大家都必須使用同等數量的worker 來協同工作,不能一台性能強就開啟四核,另一台弱點開啟兩核。 以右圖為例,我勾選了全部兩台主機作為計算集群,然後每台開啟二個 核,即二個worker,然後總共有4個worker為我同時進行計算。 到這裡就設置完成了。

📣 Admin Center						. 🗆 🗙	🔺 Admin Center		a X
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#### 配置完成後,回到Matlab。

#### 接下來要在Matlab上調用以上配置。Matlab稱之為Cluster Profile。

1.點選Parallel後出現選擇。
 2.選擇Manage Cluster Profiles。



打開管理器後,默認情況下只有一個local檔案(這是给Matlab開啟本機 多核計算的檔案,不要刪除了)。我們直接點擊那個Discover Clusters就 可以了,不需要手動配置,選擇On your network(本地局域網內),按 下Next。





## 選擇設置的Job後,按下Next。

Oiscover Clusters The following Select a cluster to	clusters were fo o use:	und.		
Cluster Name	Host	Workers	Туре	Profile Name
test	HPTouchSmar	4	MJS	
test	HPTouchSmar	4	STW 5	
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#### 完成後出現MJSProfile1。

📣 Cluster Profile Manage	formation Germen at			
Add Discover Import Edit	Duplicate & Rename	Validate (?)		
CREATE	MANAGE	VALIDATE HELP		
Cluster Profile	MJSProfile1		Type: MJS	
local	Properties Validation Results			
MJSProfile1 (default)	Description of this cluster Description Hostname of the machine where MJS is running.	Auto-generated by the discover cl		
	(Required) Host The name of the	test	Edit	

點右鍵,按Rename可更改名稱。						
🔺 Cluster Profile I	Manager	ted Computing	Ser		topped.	_ <b>D</b> X
Add Discover Impo Clusters CREATE	t Edit Duplicate	Rename	Validate	Help		
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MJSProfile1 (defau	Set as Default Validate Edit Duplicate Rename Export Unning. Export		Auto-generated by the discover cl HPTouchSmart600			ver cl
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我更改名稱為test01。之後點1.Validation Results,按下2.Validate。檢測 一下是否一切正常。如果有測試未通過,可以點驚嘆號看原因,很多 時候是防火牆未關造成的。



回到Matlab的Command Window後,test01是Cluster Profile更改的名稱。輸入 matlabpool open test01;是調用cluster配置文件,開啟多個worker的指令,右下角 顯示的是成功開啟的worker數量。

matlabpool close; 是關閉分布式計算/並行計算的指令,建議每次用完都執行一次。 2017命令碼更改: matlabpool open test01 → parpool 用來查看使用幾個Worker

HOME PLOTS APPS PHO CONTROL PLOTS APPS PHOTOS APPS APPS APPS APPS APPS APPS APPS APPS	Childense 20 New Variable @ Analyze Code @ Preferences @ @ Community 20 Open Variable • @ Run and Time Simuline Layout @ Set Path 20 Char Workspace • @ Char Commands • Lobary • ☆ Pasifiel • • ☆ Add-Ons • Hell 0000 Minute			Search Documentation P
	8 · R2013a · toolbox · distomp · bin ·	Workspace		
<ul> <li>Name</li> <li>util</li> <li>win64</li> <li>addMatlabToWindowsFirewall</li> <li>admincenter.bat</li> <li>createSharedSecret.bat</li> <li>mdce.bat</li> <li>mdce_def.bat</li> <li>MicrosoftHPCServerSetup.bat</li> <li>nodestatus.bat</li> <li>remote.bat</li> <li>remotec.bat</li> <li>remotec.bat</li> <li>startjobmanager.bat</li> <li>stopiobmanager.bat</li> <li>stopiobmanager.bat</li> <li>MicrosoftHPCServerSetup.xml</li> </ul>	>> matlabpool open test0l ; Starting matlabpool using the 'test01' profile connected to 4 workers. fx >>	Name - Name - Command History Timber ins -Indee ins	Min III III III Stall Stall	Value
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- <u>ex\_parallel</u>
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檢視方式: 大圖示▼





