

Project 2: SIP project

Implement the registrar & the redirect server

Outline

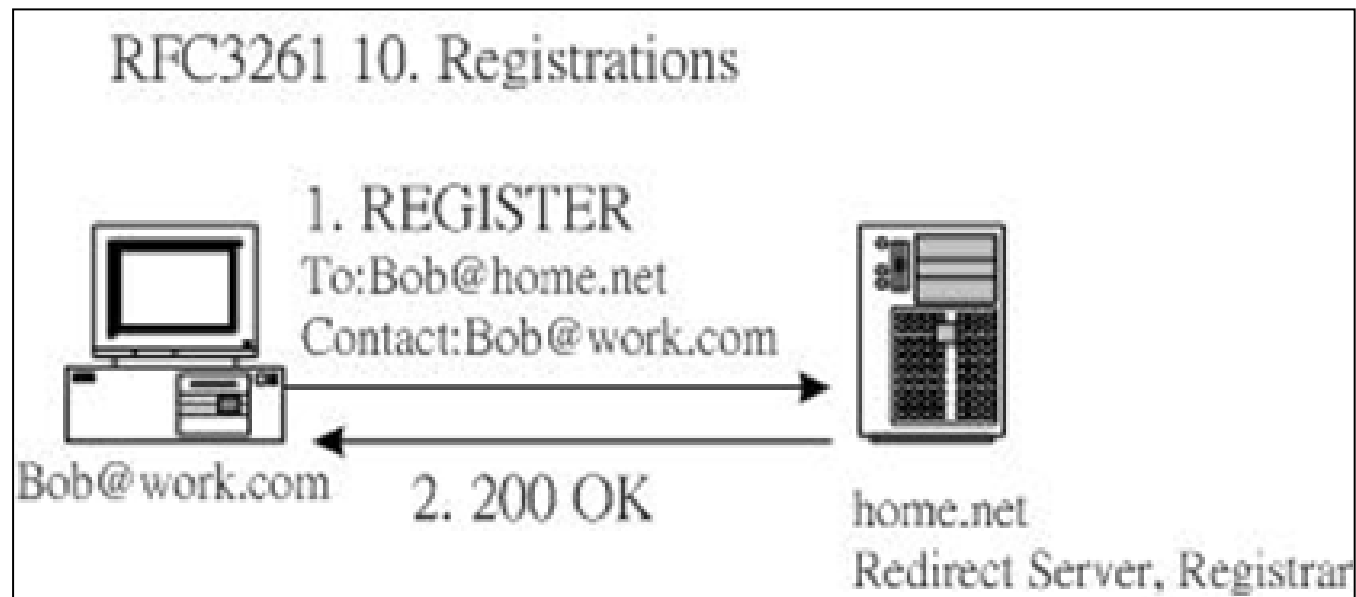
- Introduction
- Registrar
- Redirect Server
- CCL SIP User Agent
- Requirement

Introduction

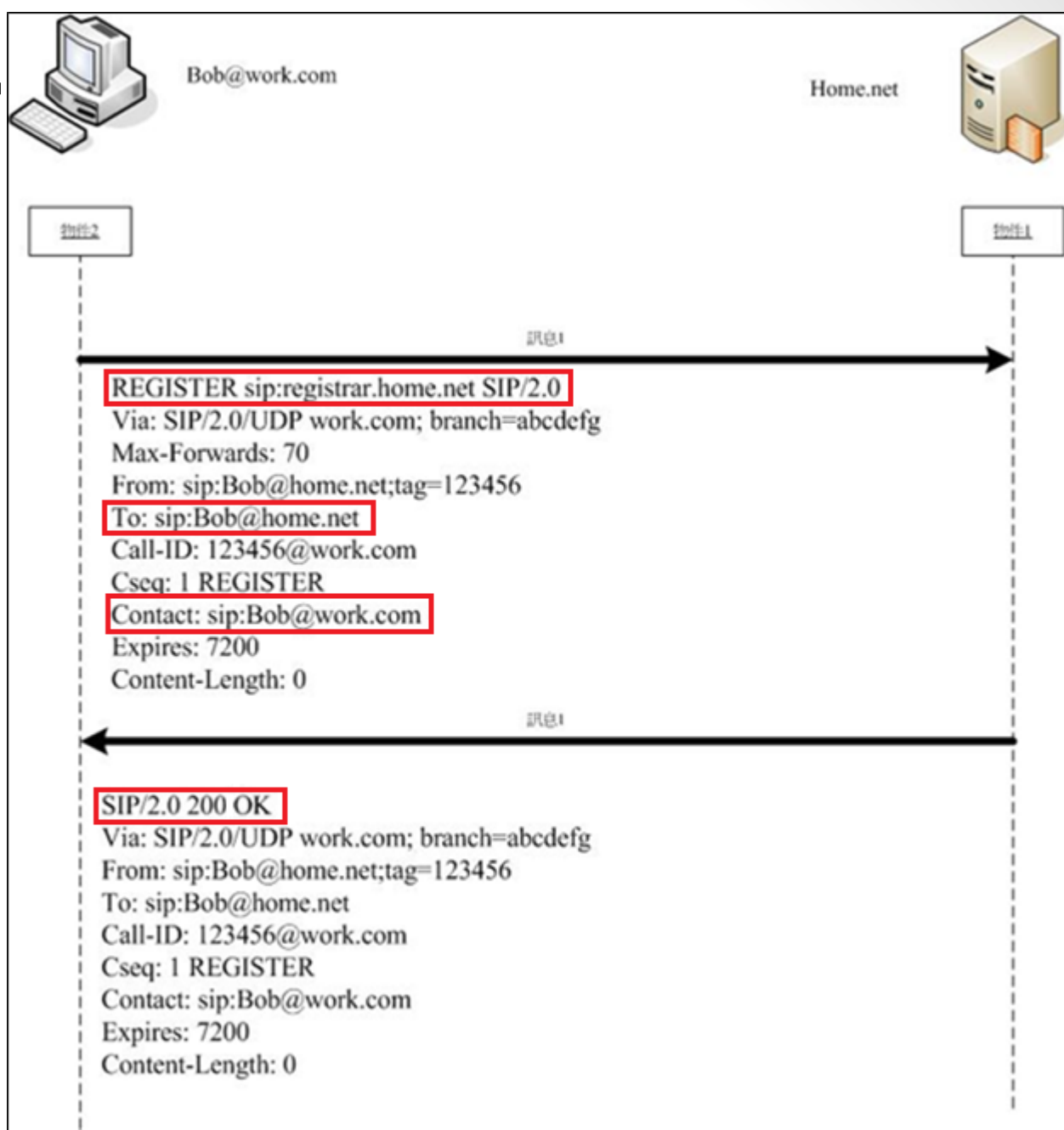
- Goal
 - 藉由實作SIP Registrar 及 Redirect Server，深入瞭解SIP的運作及訊息格式。
- Content
 - 1) 實作一個 Registrar 來接收 SIP REGISTER Request，回送 SIP 200 OK Response 並將 REGISTER Request 中 Contact header 及 To header 裡的位址資訊下來。
 - 2) 實作一個 Redirect server 來接收 SIP INVITE Request，並回送 SIP 302 Moved Temporarily Response及新的位址。

Registrar

- 接收 SIP REGISTER Request，紀錄 Contact header 及 To header 裡的位址
- 回送 SIP 200 OK Response

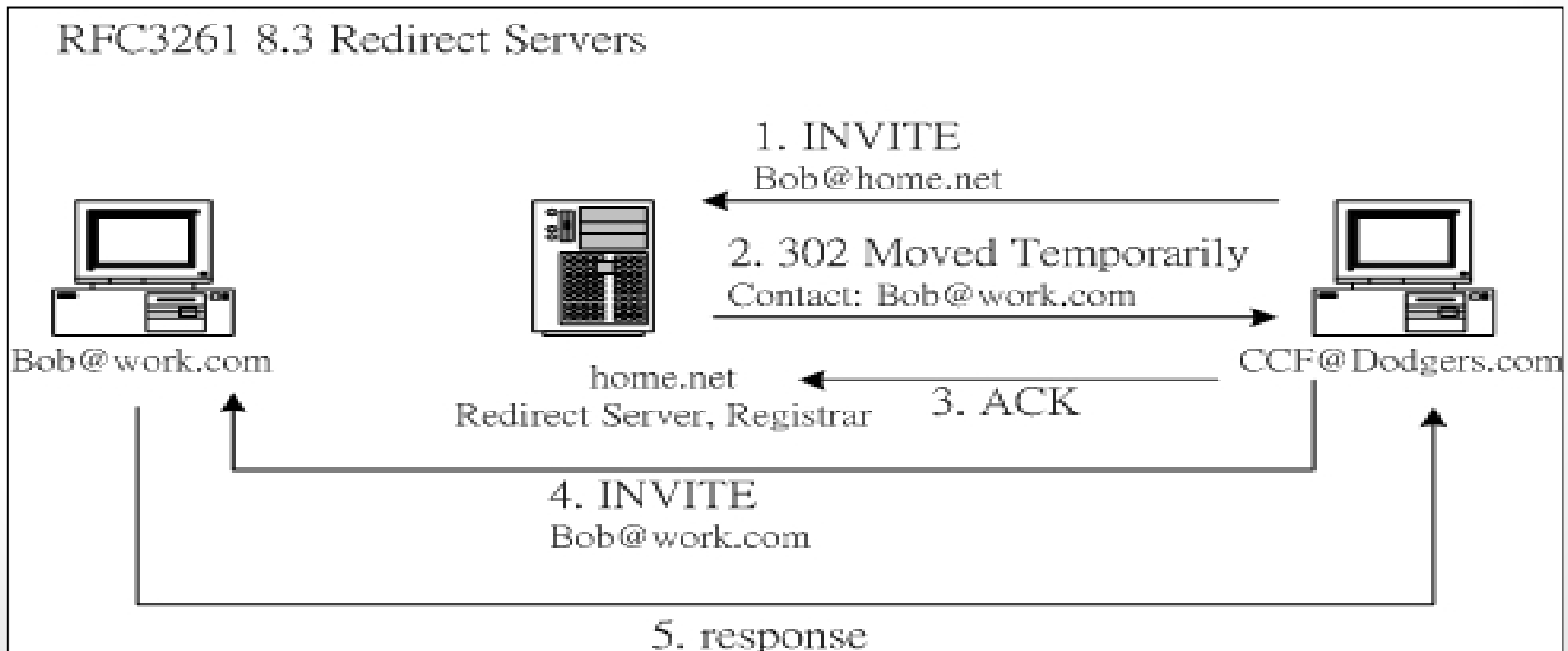


Registrar

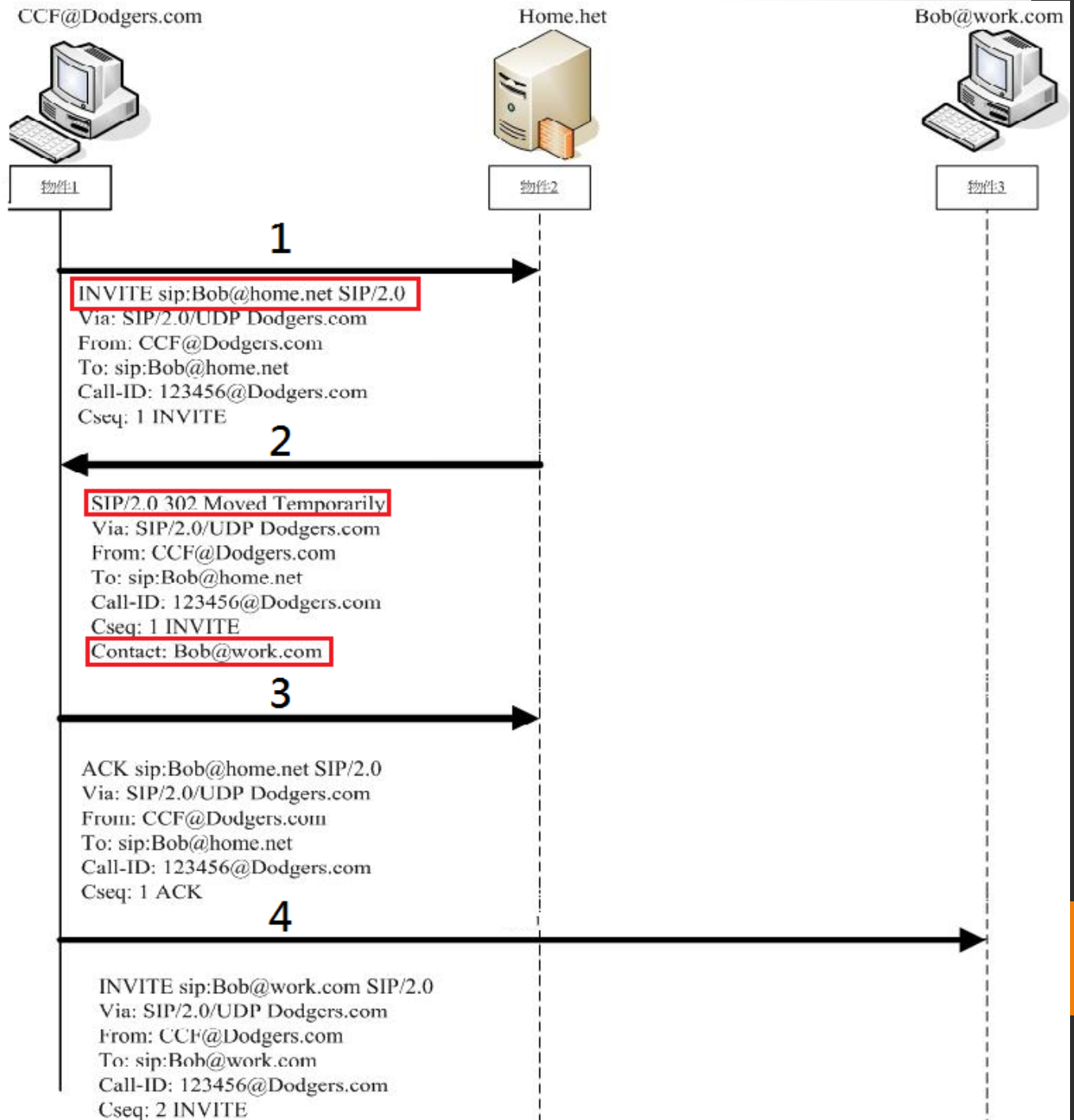


Redirect Server

- 接收 SIP INVITE Request，將 Request 中要求的位址對應至新的位址。
- 回傳 SIP 302 Moved Temporarily Response 及新的位址



Redirect Server



CCL SIP User Agent

- Setup

- 下載 CCLUA.zip

- 32 bits Windows

- 移動檔案 UCom.dll 至 C:\Windows\System32
 - 執行 setup.bat
 - 執行 UComTestd

- 64bits Windows

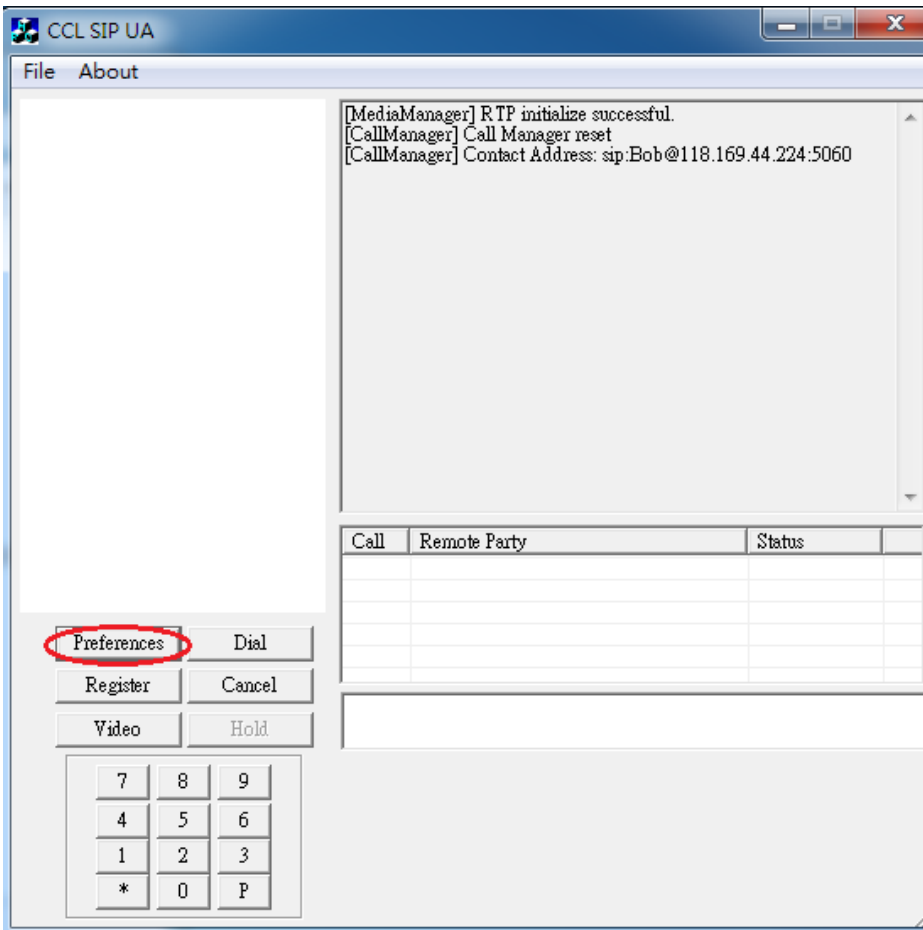
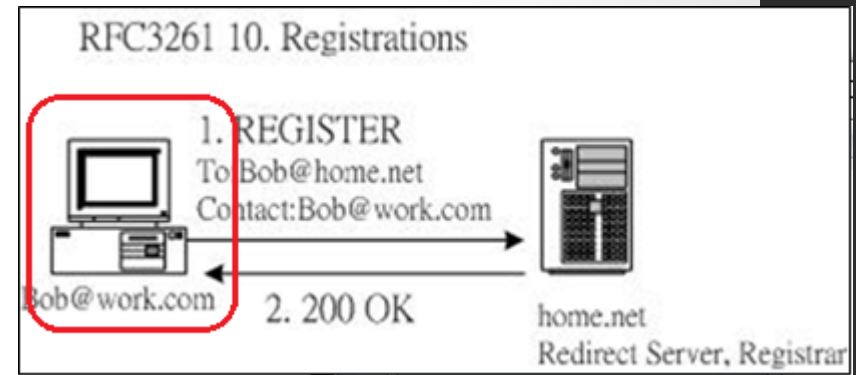
- 改寫 setup.bat

```
copy /Y UCom.dll %SystemRoot%\SysWOW64\UCom.dll  
regsvr32 %SystemRoot%\SysWOW64\UCom.dll
```

- 移動檔案 UCom.dll 至 C:\Windows\SysWOW64
 - 執行 setup.bat
 - 執行 UComTestd

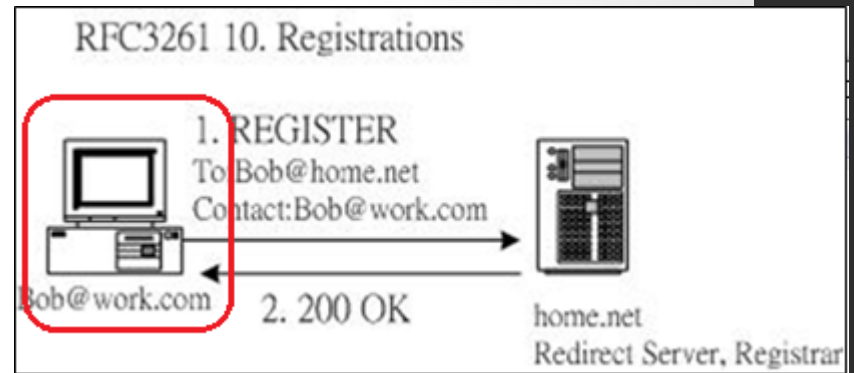
CCL SIP User Agent

- Setup User : Bob



CCL SIP User Agent

- Setup User : Bob



UA Preferences

Codec Settings | Credential Setting | RTP Settings

User Settings | Server Settings

User Information

Display Name : Bob

User Name : Bob

Public Address : sip:Bob@140.96.102.211:5060

Contact Address : sip:Bob@118.169.44.224:5060

Local Settings

Use IP Address : 140.114.71.200

Static Assign : 118 . 169 . 44 . 224

UA Port : 5060 UDP TCP

確定 取消 套用(A)

UA Preferences

Codec Settings | Credential Setting | RTP Settings

User Settings | **Server Settings**

Use Proxy

Proxy

IP Address : 140 . 96 . 102 . 211

Port : 5060 UDP TCP

Registration

Registrar

IP Address : 140 . 114 . 71 . 200

Port : 2000

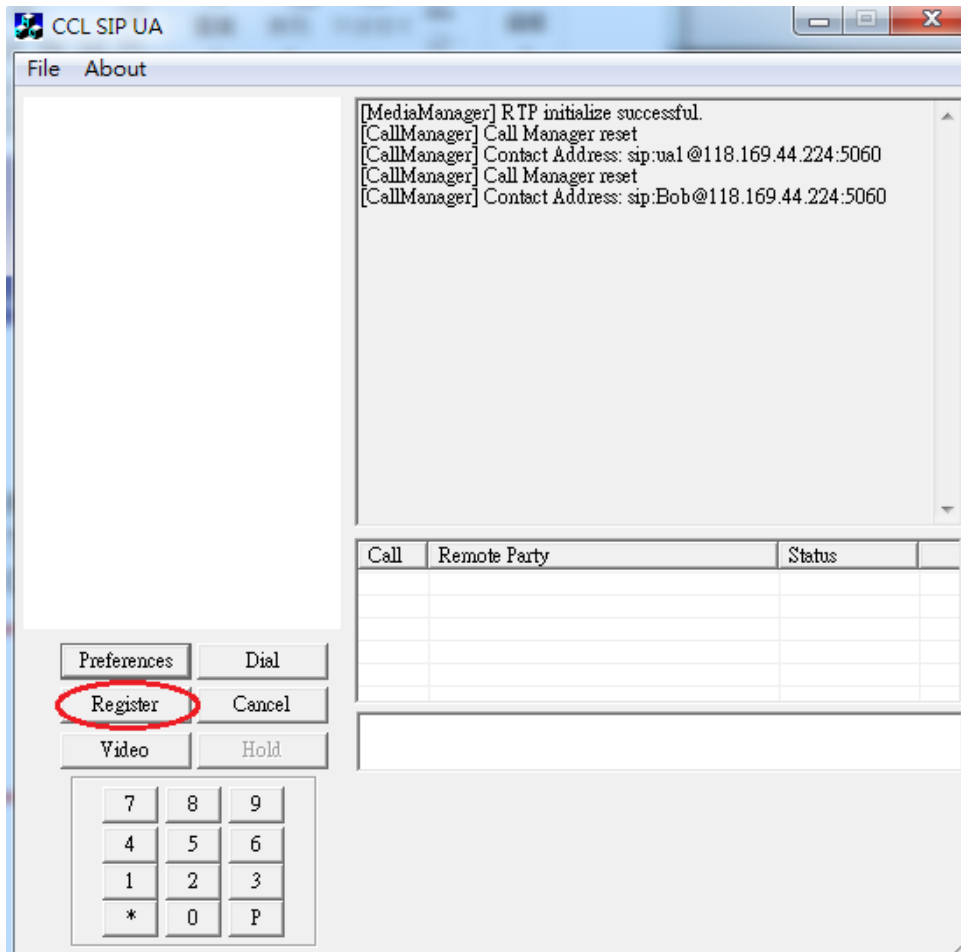
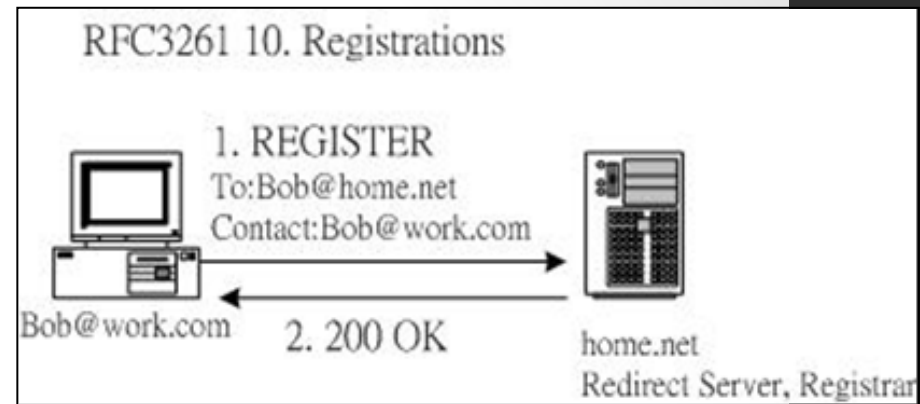
Expire Time : 3600

Auto Config : _____

確定 取消 套用(A)

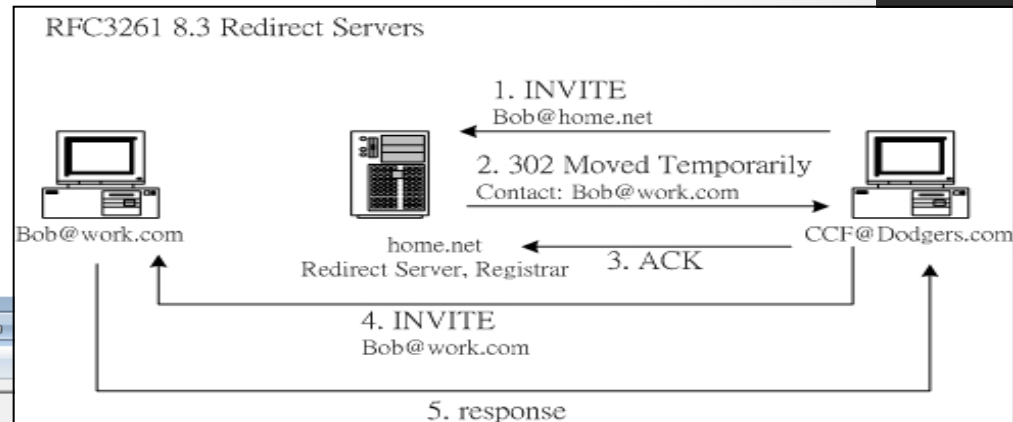
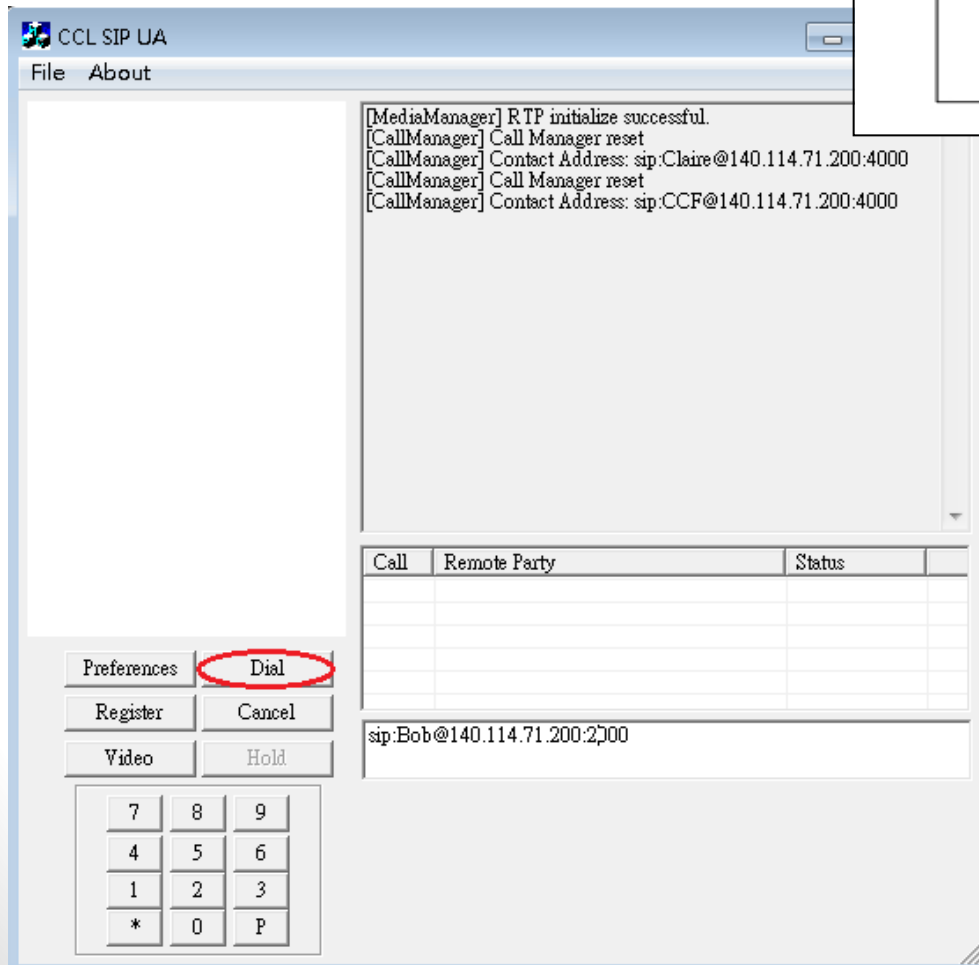
CCL SIP User Agent

- Register



CCL SIP User Agent

- Setup User : CCF
- Dial



CCL SIP User Agent

The screenshot shows the CCL SIP UA interface with a call log and a call table. The call log contains the following text:

```
[MediaManager] RTP initialize successful.  
[CallManager] Call Manager reset  
[CallManager] Contact Address: sip:CCF@140.114.71.200:4000  
[CallManager] Call Manager reset  
[CallManager] Contact Address: sip:CCF@140.114.71.200:5060  
[CallManager] Call Manager reset  
[CallManager] Contact Address: sip:Bob@140.114.71.200:[UAEvtCF  
[UAEvtCB] New incoming call  
[DlgMAP] insert dialog handle #0  
[Dialog #0] Alerting...  
[Dialog #0] user answer call  
[Dialog #0] call accepted  
[Dialog #0] call connected  
[Dialog #0] start media  
[MediaManager] RTP packet size = 160  
[MediaManager] Open local RTP port successful.  
[MediaManager] Open peer RTP: 140.114.71.200:0  
[MediaManager] Local RTP port (9000)  
[Dialog #0] Transaction terminated
```

Call	Remote Party	Status
1	sip:CCF@140.114.71.200:2000	Connected

Below the call table are buttons for Preferences, Dial, Register, Drop, Video, and Hold, and a numeric keypad with digits 7, 8, 9, 4, 5, 6, 1, 2, 3, *, 0, and P.

The screenshot shows the CCL SIP UA interface with a call log and a call table. The call log contains the following text:

```
[MediaManager] RTP initialize successful.  
[CallManager] Call Manager reset  
[CallManager] Contact Address: sip:Bob@140.114.71.200:5060  
[CallManager] Call Manager reset  
[CallManager] Contact Address: sip:CCF@140.114.71.200:4000  
[DlgMAP] insert dialog handle #0  
[Dialog #0] dialing...sip:Bob@140.114.71.200:2000  
[Dialog #0] dialing state  
[Dialog #0] proceeding state  
[Dialog #0] peer is ringing  
[Dialog #0] call connected  
[Dialog #0] start media  
[MediaManager] RTP packet size = 160  
[MediaManager] Open local RTP port successful.  
[MediaManager] Open peer RTP: 140.114.71.200:0  
[MediaManager] Local RTP port (9002)
```

Call	Remote Party	Status
1	sip:Bob@140.114.71.200:5060	Connected

Below the call table are buttons for Preferences, Dial, Register, Drop, Video, and Hold, and a numeric keypad with digits 7, 8, 9, 4, 5, 6, 1, 2, 3, *, 0, and P.

Requirement

- 實作Registrar (UDP server)
- 實作Redirect server (UDP server)
- 可用各種程式語言開發實作, ex. C/C++、Java...

Requirement

- 配分
 - Demo (80%) : Registrar (30%) + Redirect server (30%)
 - Demo 時間 : 2013/5/2(四) 12:30-17:30
(時間不方便的同學可以另外寄信給助教約demo)
 - Demo 地點 : 台達館705室
 - 書面報告 (20%)
 - 請簡述你的程式架構,使用何種language, library, platform,與實驗心得 (1頁以內)
 - Deadline : 2013/5/2(四) 23:59 (上傳至 ilms 系統)

Note

- 注意：
 - SIP text file每行斷行結尾不是以\n 結尾，而是以\r\n 結尾：

REGISTER sip:registrar.work.com SIP/2.0\r\n

Via: SIP/2.0/UDP station1.work.com;branch=z9hG4bk123\r\n

Max-Forwarcs:70\r\n

From: sip:Collins@work.com; tag=123456\r\n

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- 在作parser 與送SIP message時需特別注意