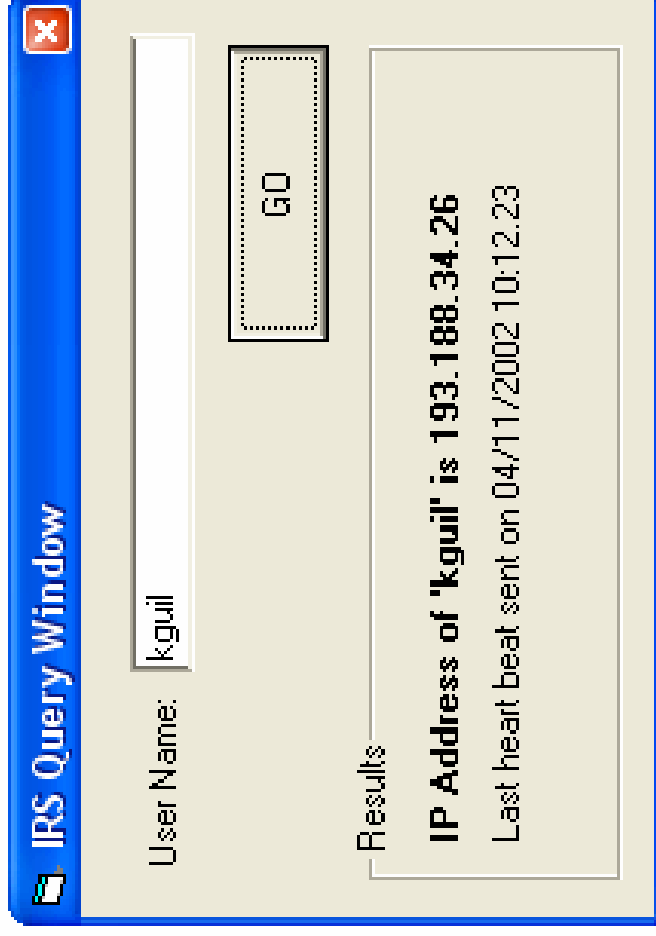


IP Resolution Service (IRS)

- **IRS has two components:**
 - A Client.
 - A Server.
- The client should minimise to a system tray icon.
- Optionally the server may run as an NT service.

IRS Client (1)

- The client should have:
 - An interface to query the server for the IP Address of a registered user.
 - A mechanism to update the server with it's IP Address.



IRS Client (2)

- The client should implement a timer.
- After **XX** seconds (read from an ini file) the client should send a **Heart Beat** to the server to refresh it's IP address.
- To do this, the client can query the machine for it's IP address and send it to the server. The following is an idea of what the protocol may look like:

`NOTIFYIP UserName, Password, IPAddress + CHR(13)`

IRS Client (3)

- Getting the IP address and sending it is not strictly required as the server can infer it from the client's socket. So you could only send:

```
NOFITYIP UserName, Password + CHR(13)
```

Useful Functions (1)

- Convert a long IP address to dotted notation:

```
Function NET_IpToString(ByVal ip As Long) As String
    Local b As Byte Ptr
    b = VarPtr(ip)
    Function = Format$(@b[0]) & "." & _
        Format$(@b[1]) & "." & _
        Format$(@b[2]) & "." & _
        Format$(@b[3])
End Function
```

Useful Functions (2)

- Convert dotted IP to long:

```
Function NET_StrIPToIP(ByVal StrIP As String) As Long
    Dim a As AsciiZ * 15
    a = StrIP
    Function = inet_addr(a)
End Function
```

Useful Functions (3)

- Get the IP address and host name given a socket number:

```
Sub NET_GetInfoOfSocket(ByVal sFileNum As Long, ByRef StrIP As String * 15, _  
    ByRef StrName As String * 30)  
  
    Dim sock_sa As sockaddr_in  
    Dim lResult As Long  
    Dim sIp As AsciiZ Ptr  
    lResult = GetPeerName(sFileNum, sock_sa, SizeOf(sock_sa))  
  
    If lResult <> %SOCKET_ERROR Then  
        sIp = inet_ntoa(sock_sa.sin_addr.s_addr)  
        If sIp = %NULL Then  
            StrIP = "UNKNOWN"  
        Else  
            StrIP = @sIp  
            STRNAME = "UNKNOWN"  
            Host Name inet_addr(@sIp) To StrName  
        End If  
    Else  
        StrIP = "UNKNOWN"  
        End If  
    End Sub
```

Querying the Server

- The protocol to query the server for the IP address of a register used could be:

```
QUERYUSER UserName + CHR(13)
```


IRS Server (1)

- The server should maintain a table storing information about its 'registered' users.
- The information stored in the server could be:

`UserName , Password , LastIP , LastInteractionDT`

IRS Server (2)

- When the server receives a NOTIFYIP message, it should locate the entry in its table from the UserName and Password supplied.
- It could respond with a message:
`NOTIFYOK + CHR(13)`
- Or
`NOTIFYUNKNOWN + CHR(13)`
`NOTIFYBADPWD + CHR(13)`

IRS Server (3)

- The server should be able to respond to client queries.
- A response could be:

`QUERYOK UserName,LastNotifyDT,IPAddress + CHR(13)`

- Or

`QUERYUNKNOWN + CHR(13)`