

# Comp 4985 - Assignment 1

---

Nicole Jingco, A01001875

## Overview

---

This document outlines the requirements, state diagram and pseudocode for the Lookup Application. This program allows the user to select the lookup option from the menu item and displays the converted output on the main window. The window will show the users original input as well as the reverted output. Conversion is done using the Winsock 2 API.

## Requirements

---

The requirements for this program follows the design and functionality listed below.

### Constraints

The program requirements must have the following:

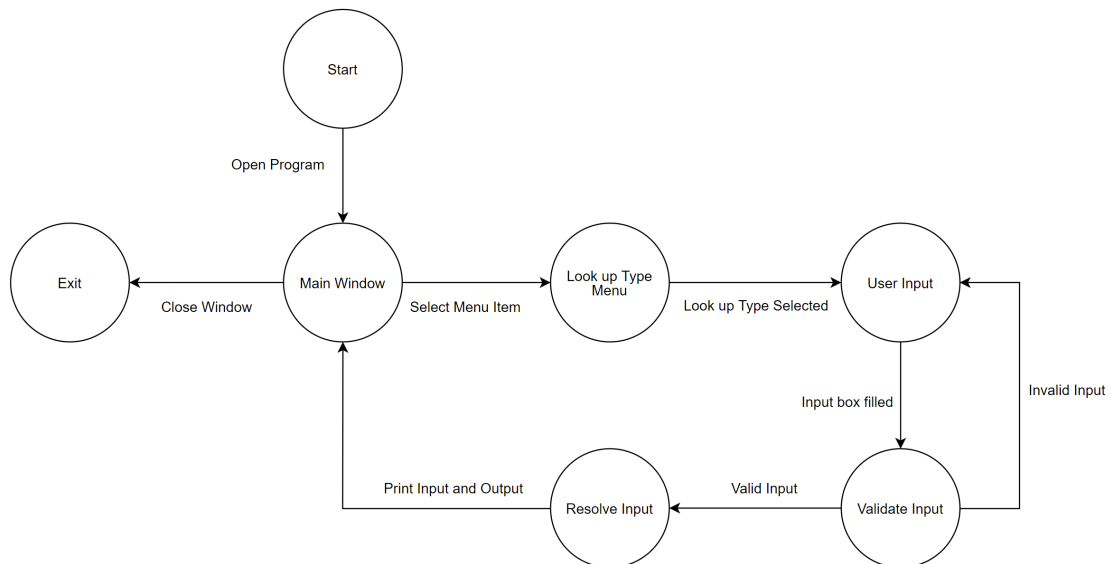
- Have a menu item to select from to do the following:
  1. Take a user specified host name and resolve it into a IP address.
  2. Take a user specified a IP address resolve it into an host name(s).
  3. Take a user specified service name/protocol and resolve it into its port number.
  4. Take a user specified port number/protocol and resolve it into its service name.
- Have a user input box
- Display the original user input and resolved output
- Must use the Winsock 2 API to resolve the lookup

### Design

The design requirements must have the following:

- The design must be a Windows Menu-Driven Application

# State Diagram



## Pseudocode

```
// Exit - closes the program
exit(){
    close program
}

// Main Window - Open the window
create_window(){
    create a window
    add menu items
    add input box
    add okay button
}

// Menu - sets how the input is getting converted
set_menu_item(){
    if menu item is "host name to ip"
        set lookup type to "host name to ip"
    else if menu item "ip to host name"
        set lookup type to "ip to host name"
    else if menu item "service to port"
        set lookup type to "service to port"
    else if menu item "port to service"
        set lookup type to "port to service"
    else
        Print "nothing selected from the menu item"
}

// User Input - Check is input box is filled
check_input_box(){
    if user input box is not empty
        return true
    Print "input box not filled"
    return false
}
```

```

}

// validate Input - Check if input is valid fro the chosen menu item
validate(input){
    if lookup type is "host name to ip"
        if input is a valid host name
            return true
    else if lookup type "ip to host name"
        if input is a valide ip
            return true
    else if lookup type is "service to port"
        if input is a valid service
            return true
    else if lookup type is "port to service"
        if input is a valid port
            return true
    else
        return false
}

// Resolve Input - Conver the input to the associated menu item
resolve_input(){
    if input is valid
        convert the input to its associated menu item
        print input
        print output
    else
        Print "invalid input"
}

```

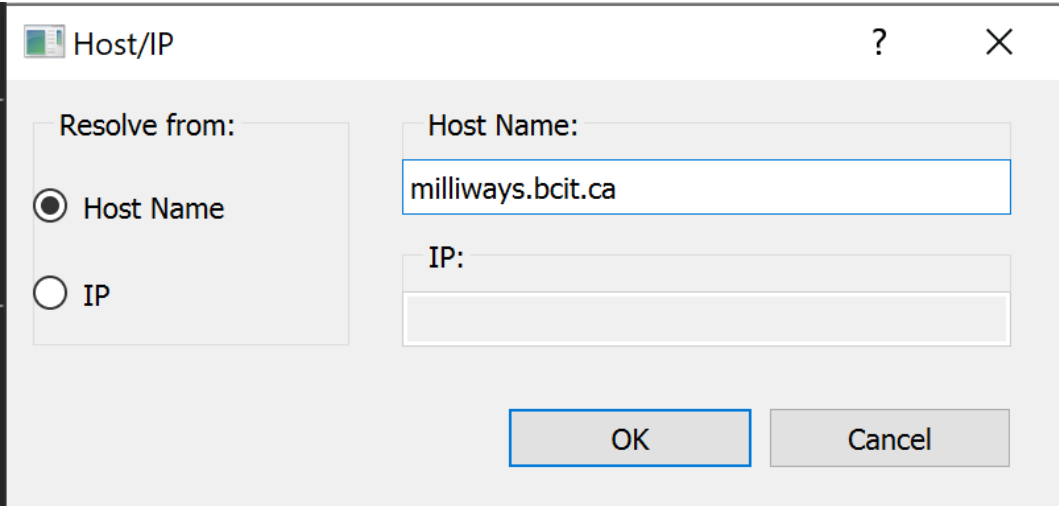
## Testing

The following are test result to the listed conditions:

### Host Name/IP

#### Host Name

1. Host Name Found



Host/IP

Resolve from:

☒ Host Name

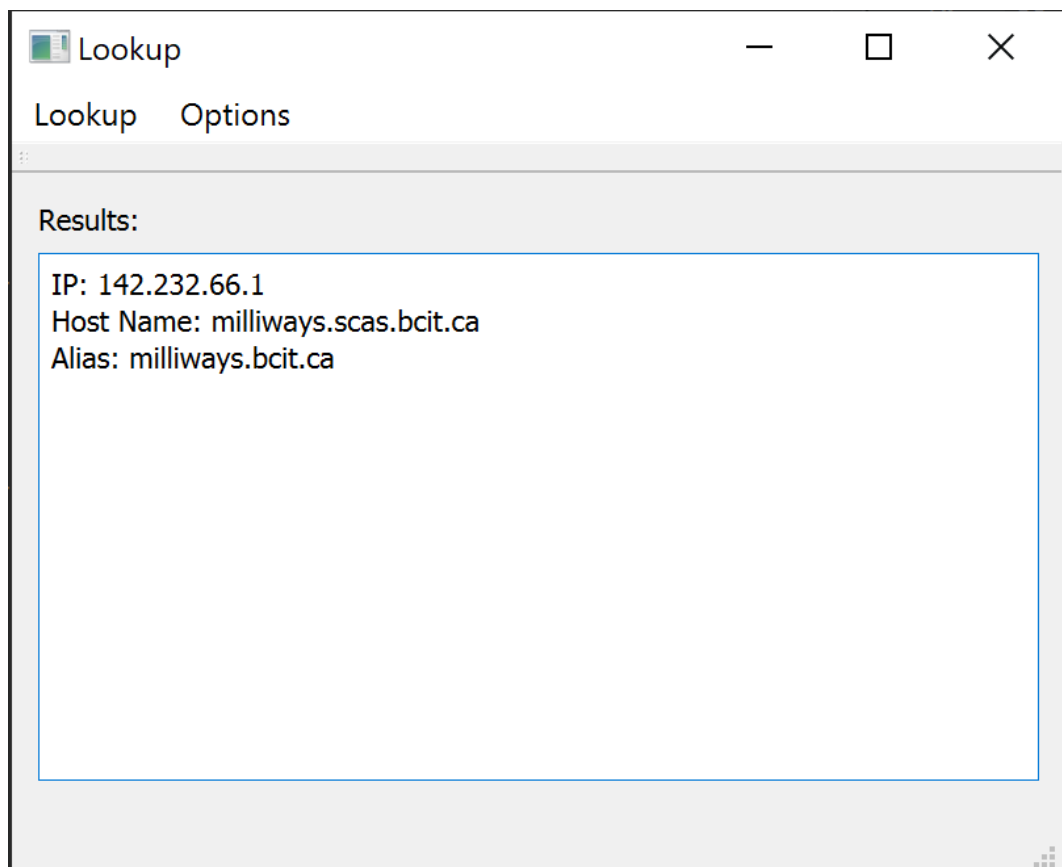
☐ IP

Host Name:

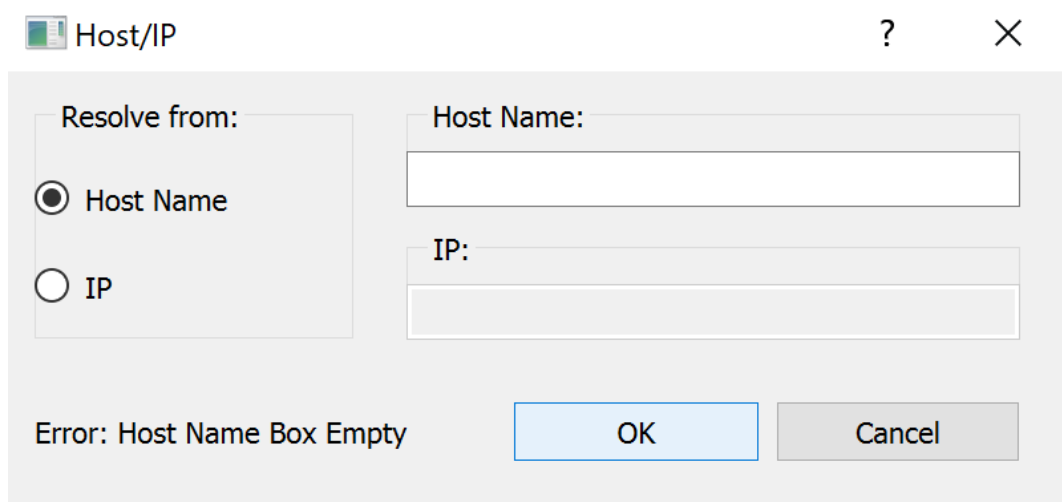
milliways.bcit.ca

IP:

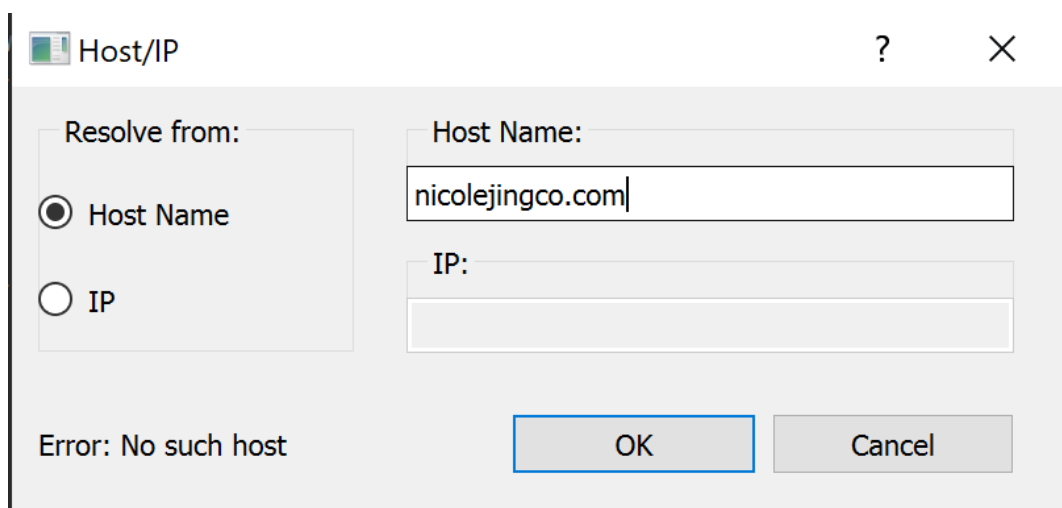
OK Cancel



2. Empty Host Name Box:



3. Host Name not found



#### 4. IP used in the Host Name Box

Host/IP

Resolve from:

☒ Host Name

☐ IP

Host Name: 142.232.66.1

IP:

Error: Not a Host Name

OK Cancel

## IP

#### 1. IP Found

Host/IP

Resolve from:

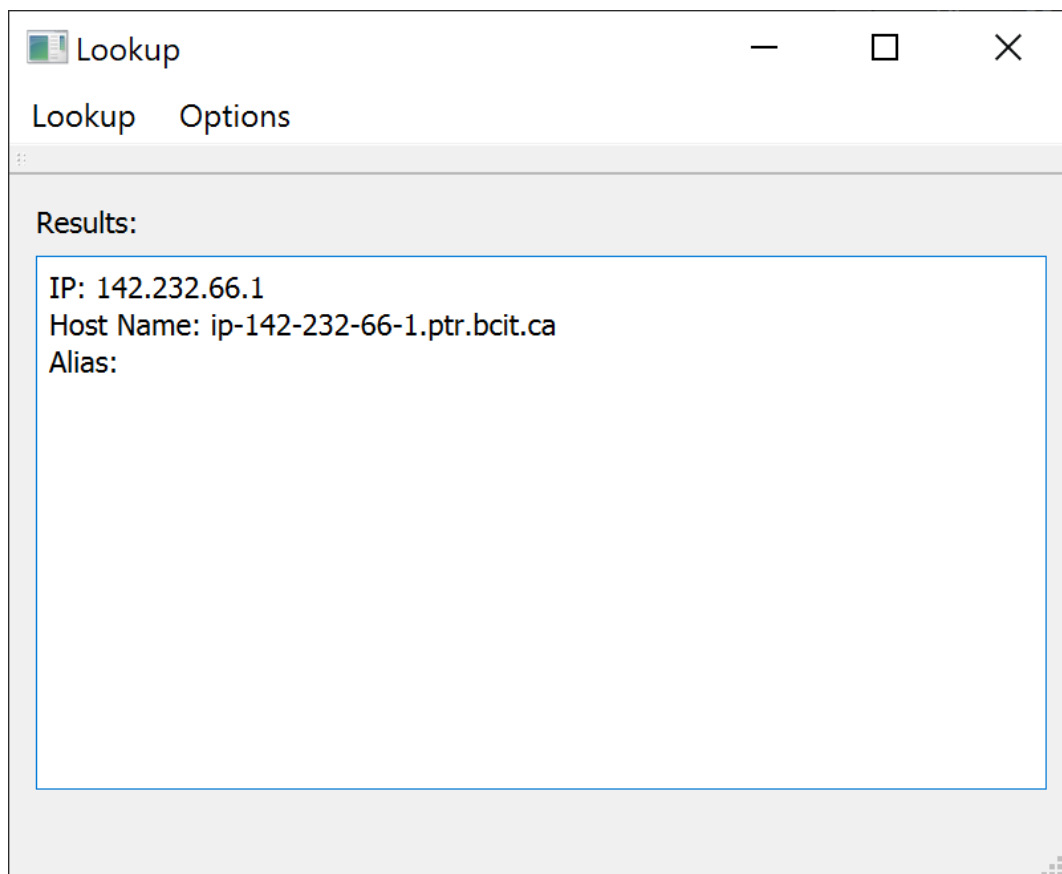
☐ Host Name

☒ IP

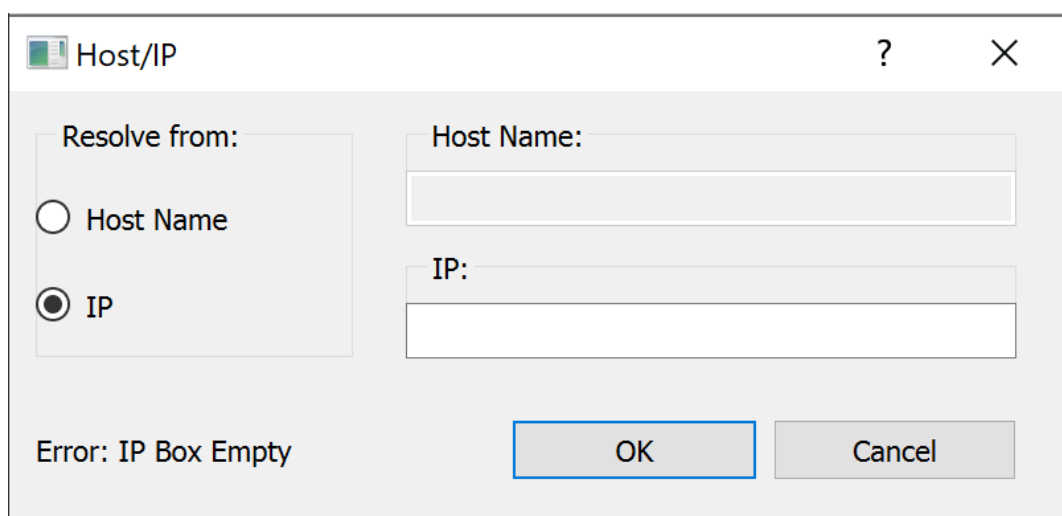
Host Name:

IP: 142.232.66.1

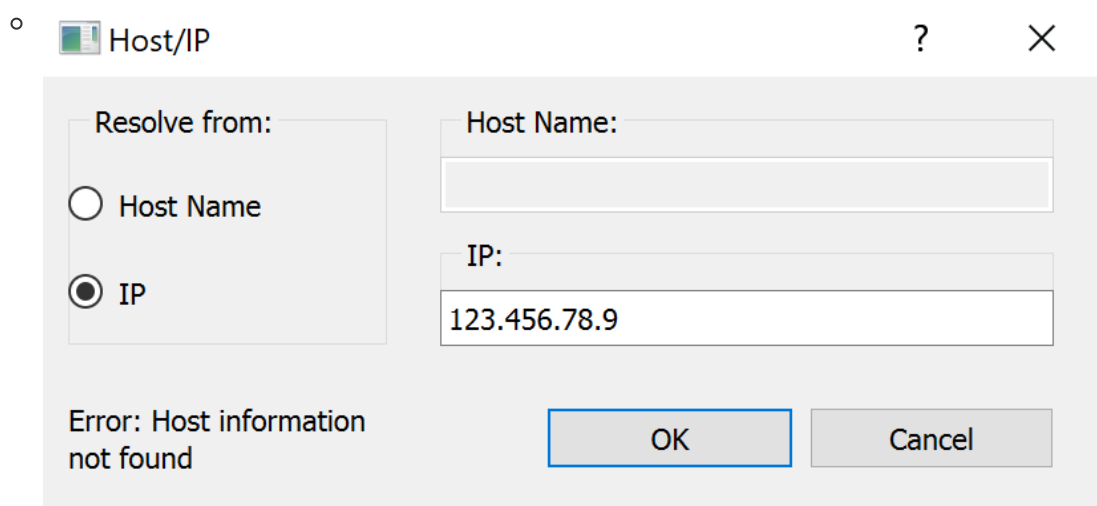
OK Cancel



2. Empty IP Box



3. IP Not Found



#### 4. Host Name used in the IP Box

Host/IP

Resolve from:

☐ Host Name

☒ IP

Host Name:

IP:

milliways.bcit.ca

Error: Not an IP

OK Cancel

## Service/Port

### Service

#### 1. Service Found

Service/Port

Revert from:

☒ Service/Protocol

☐ Port/Protocol

Service Name:

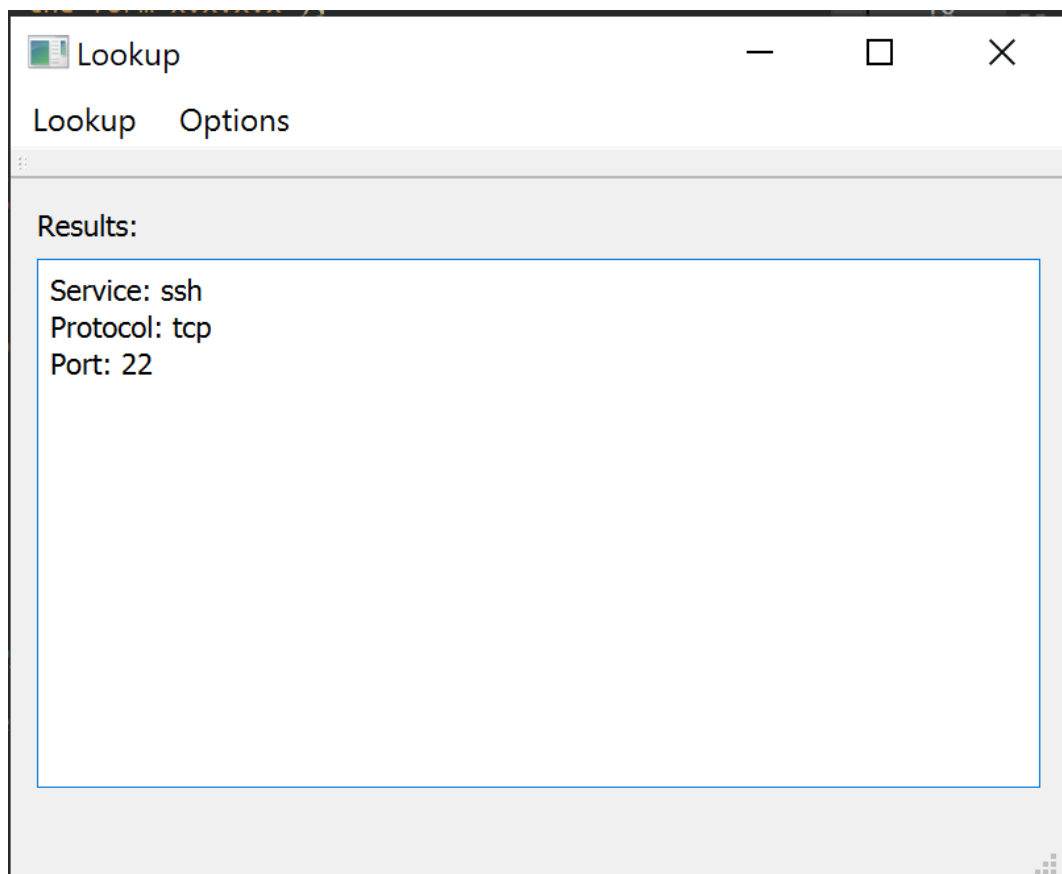
ssh

Protocol:

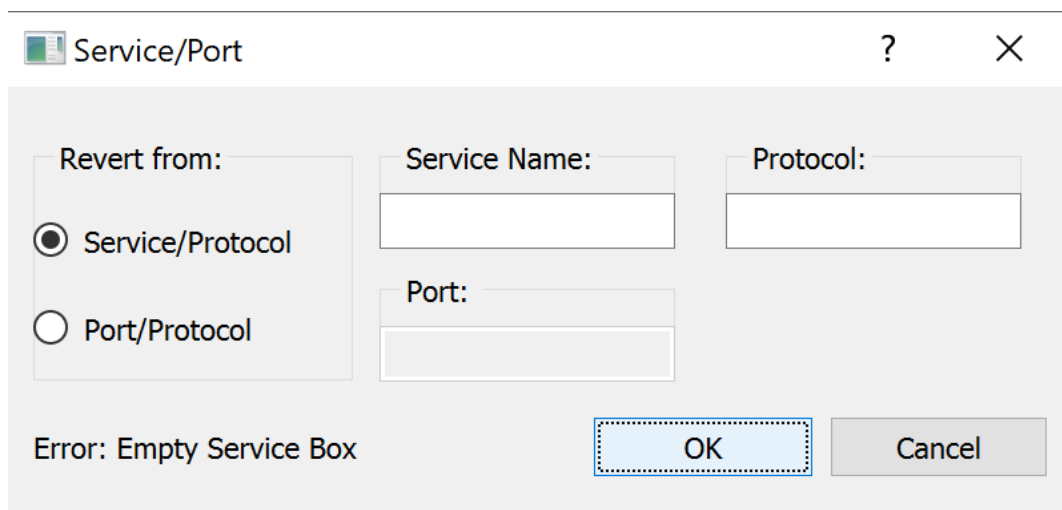
tcp

Port:

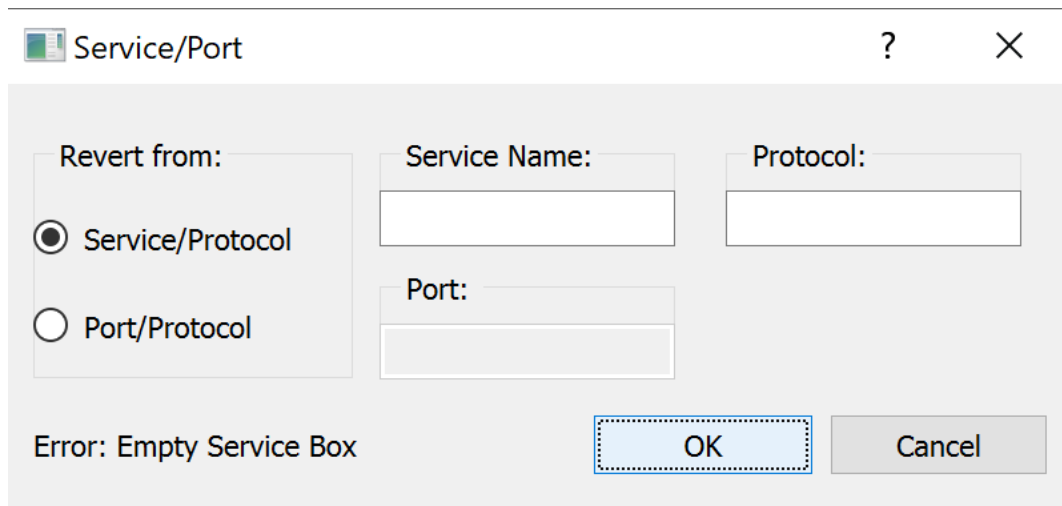
OK Cancel



2. Service and Protocol Boxes Empty



3. Service Box Empty





#### 4. Protocol Box Empty

The dialog box titled "Service/Port" has a "Revert from:" section with two radio buttons: "Service/Protocol" (selected) and "Port/Protocol". The "Service Name:" field contains "ssh". The "Protocol:" field is empty. The "Port:" field is also empty. At the bottom, the error message "Error: Empty Protocol Box" is displayed. The "OK" button is highlighted with a blue dashed border, and the "Cancel" button is also visible.

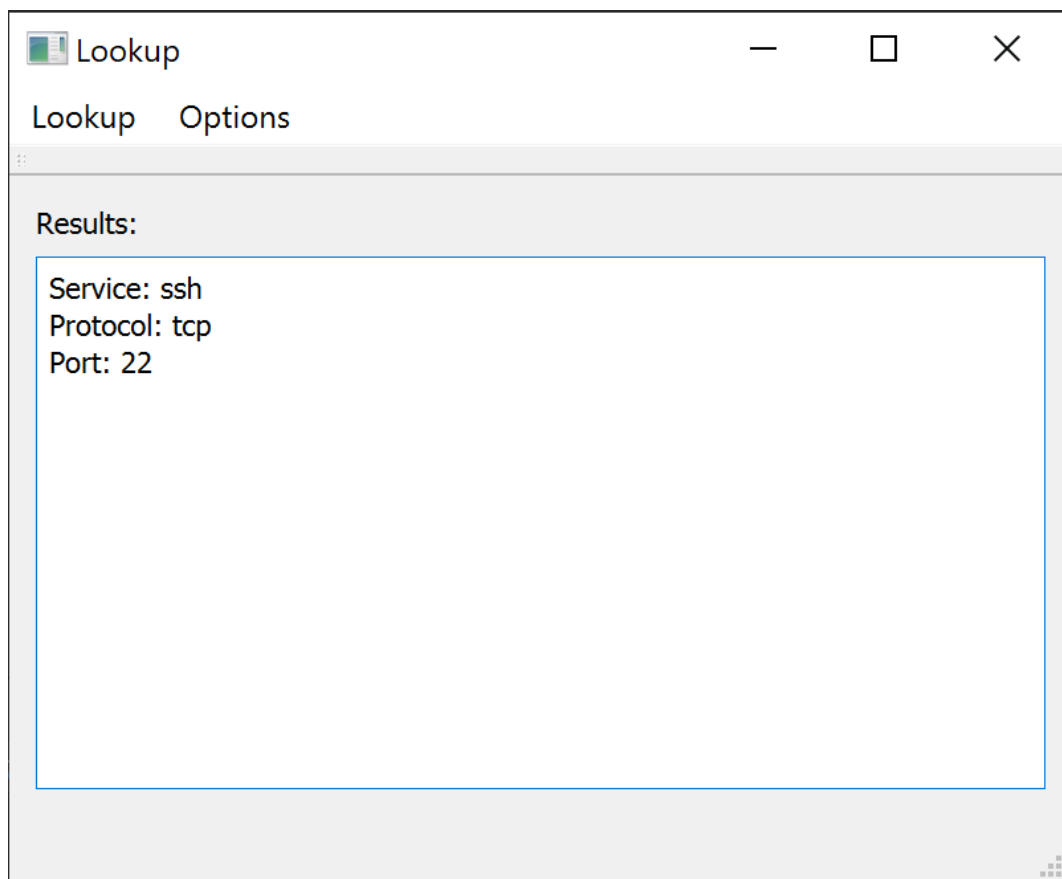
#### 5. Service Not Found

The dialog box titled "Service/Port" has a "Revert from:" section with two radio buttons: "Service/Protocol" (selected) and "Port/Protocol". The "Service Name:" field contains "ssh". The "Protocol:" field contains "tc". The "Port:" field is empty. At the bottom, the error message "Error: Error in getservbyname" is displayed. The "OK" button is highlighted with a blue dashed border, and the "Cancel" button is also visible.

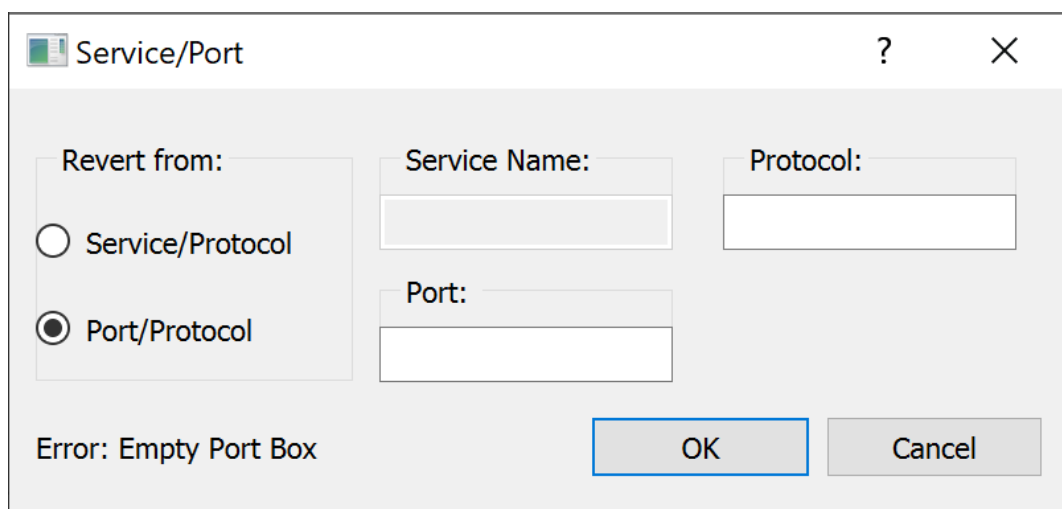
### Port

#### 1. Port Found

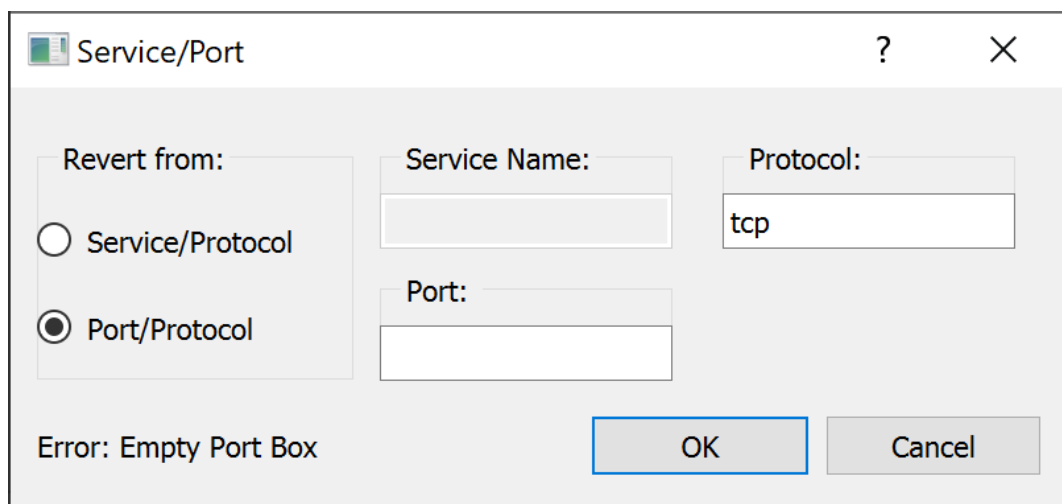
The dialog box titled "Service/Port" has a "Revert from:" section with two radio buttons: "Service/Protocol" and "Port/Protocol" (selected). The "Service Name:" field is empty. The "Protocol:" field contains "tcp". The "Port:" field contains "22". At the bottom, the "OK" button is highlighted with a blue border, and the "Cancel" button is also visible.



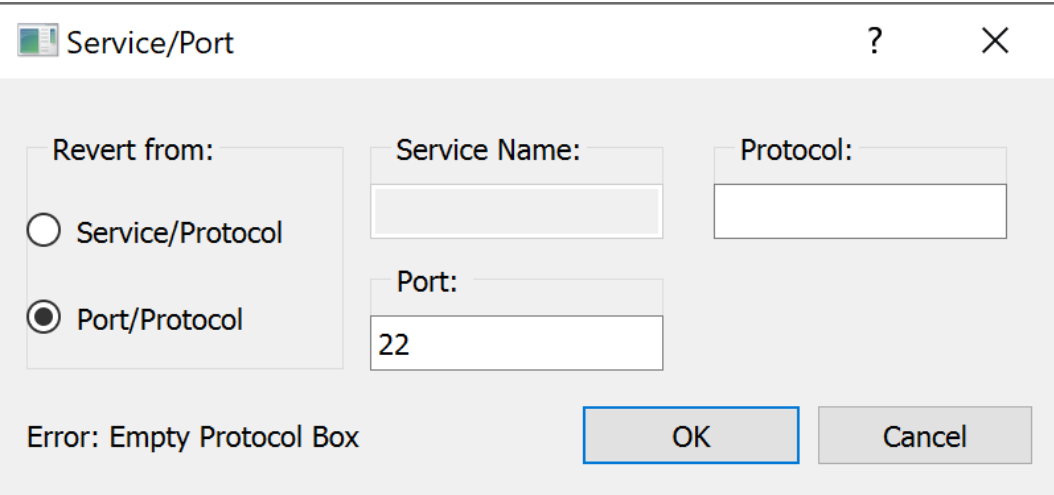
2. Port and Protocol Boxes Empty



3. Port Box Empty



#### 4. Protocol Box Empty



The dialog box titled "Service/Port" has a question mark icon and a close button. It contains a "Revert from:" section with two radio buttons: "Service/Protocol" and "Port/Protocol". The "Port/Protocol" option is selected. To the right, there are three input fields: "Service Name:" (empty), "Protocol:" (empty), and "Port:" (containing "22"). At the bottom, an error message "Error: Empty Protocol Box" is displayed next to "OK" and "Cancel" buttons.

Service/Port

Revert from:

☐ Service/Protocol

☒ Port/Protocol

Service Name:

Port:

22

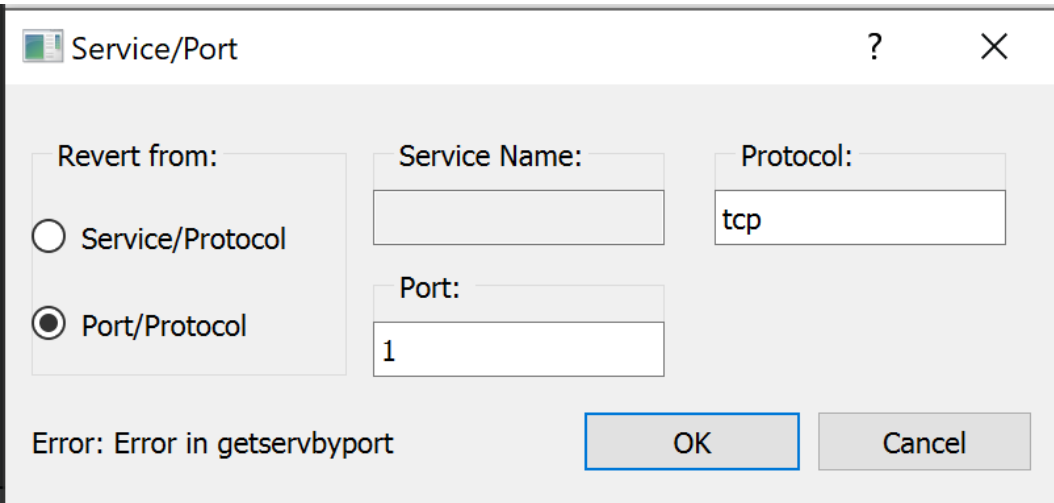
Protocol:

Error: Empty Protocol Box

OK

Cancel

#### 5. Port Not Found



The dialog box titled "Service/Port" has a question mark icon and a close button. It contains a "Revert from:" section with two radio buttons: "Service/Protocol" and "Port/Protocol". The "Port/Protocol" option is selected. To the right, there are three input fields: "Service Name:" (empty), "Protocol:" (containing "tcp"), and "Port:" (containing "1"). At the bottom, an error message "Error: Error in getservbyport" is displayed next to "OK" and "Cancel" buttons.

Service/Port

Revert from:

☐ Service/Protocol

☒ Port/Protocol

Service Name:

Port:

1

Protocol:

tcp

Error: Error in getservbyport

OK

Cancel