How To Do Invite: Reverse Remote Control

This note describes how to control a computer that's on a limited network connection, i.e. one where it can call you but you cannot call it. It describes how to setup Timbuktu control sessions and ssh connections.

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Controlling a computer that's on a limited network connection

Introduction

A limited network connection is one in which a computer can connect to other internet computers, but other internet computers cannot connect to it. This often happens when the internet connection is provided via a cellphone modem, or when the computer is connected to the internet via a limiting router, such as a firewall, a home wireless system or a shared internet connection. The solution described here allows you to contact and control a remote machine that's on a limited network connection.

Background

In a limited or protected network connection, the network traffic is either deliberately or inadvertently filtered and incoming connection requests are frequently blocked. The result is that you cannot start a Timbuktu control session to a remote machine, even if you have its IP address. Although the remote machine may be able to connect to a central machine for data (push) transfers, the central machine cannot call it because the network does not route the connection request to the remote machine. The limited connection only affects the remote machine's ability to be called, not its ability to call out or to pass data. Once connected, data can be transferred in both directions.

How To Fix This

There are two separate solutions that can be used separately or together, depending on your needs. The first option offers Timbuktu control over the remote computer, and it should be used when you need full access to an application's graphics display and want to control it using a mouse. The second option provides command line access to a shell, which you should use if the bandwidth is too low to support Timbuktu, typically less than 64kbps.

Solution 1. Timbuktu.

Step 0. On the central machine, setup Timbuktu with an account for the remote machine. Be sure to enable incoming access for TCP/IP transport connections. Check that you can establish a control session to the central machine from another nearby computer.

Step 1. On the remote machine, setup Timbuktu and establish a control session to the central machine, entering the user name and password. Be sure to make Timbuktu remember the password. Check that you can subsequently establish a new control session without reentering the login details.

Step 2. On the remote machine, create a text file with the following content. It's important to not use TextEdit or programs that save the file in non-text formats such as RTF, HTML, DOC, etc. Use TextWrangler and save in unix text format. Better still, use vi. You should also use the IP address for your central machine, rather than the one given below.

```
tell application "Timbuktu Pro"

activate

make new invite session connecting to internet address {internet name:"128.120.248.62", platform:MacOS} when rejected let user reenter

set invitation service of window 1 to control service

invite window 1

end tell
```

Name the file “invite” and stored it in a place where you can find it easily, such as the home directory of the user codar, /Users /codar.

Step 3. On the remote machine, test the invite script by running the command below from a terminal window.

```
osascript invite
```

There should be a delay of about 5 seconds after which you should see the terminal prompt reappear. If running the script causes Timbuktu to popup a window asking you for login or service information, enter it and continue. When the invite session from the remote machine to the central machine is established, nothing appears to happen on the remote machine, but on the central machine Timbuktu pops up a control window with which you can control the remote machine. On the remote machine you can check whether the invite connection is running by opening the “Show Connected Users” window. If so, you can stop it using the “Disconnect Current Users” command, accessible via the Timbuktu menu bar icon at the top of the screen.

Step 4. On the remote machine, add a cron job to run the script once per day, or at whatever interval suits your needs. You can do this using cronnix (from the CODAR SeaSonde Combine Suite FileExchange package) or you can use the crontab command from within a terminal window. Be sure to enter the command as shown below, assuming that you placed the invite script in the home directory of the user codar.

```
/usr/bin/osascript /Users/codar/invite
```

Step 5. On the central machine, check that the command session works as expected. It may time out and freeze. You should close the control window and wait until the next invite connection time.

Option 2. Reverse ssh connection.

Step 0. On the central machine, setup a login account for the remote machine, or use the standard codar account.

Step 1. On the remote machine, setup ssh keys to allow automatic login to the central machine for the remote machine's login. You can do this by following the instructions in the CODAR application document called “Guide_FileExchange_SSH”. Verify that you can login to the central machine from the remote machine, without entering a password.

Step 2. On the remote machine, setup a cron job to run the following command once per day, shortly after the daily reboot.

```
/usr/bin/ssh -nNT -R 8022:localhost:22 codar@128.120.248.62 &> /dev/null
```

Be sure to replace the IP address with that of your central machine and 'codar' with your login name, if different. The command should not produce any output. You may want to set the cron job to run more frequently to help restore a connection that gets interrupted. Alternatively, put the ssh command in a script that retries when the connection fails.

Step 3. On the central machine, you can connect to the remote machine using the following command.

```
ssh codar@localhost -p 8022
```

You should see a shell prompt from the remote machine, as per a normal ssh connection. If the connection does not appear, retry later or just after the remote machine initiates the connection.