



Freefloat Proxy*One

version 1.0.9

User's Manual

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Introduction

What is Freefloat Proxy Server?

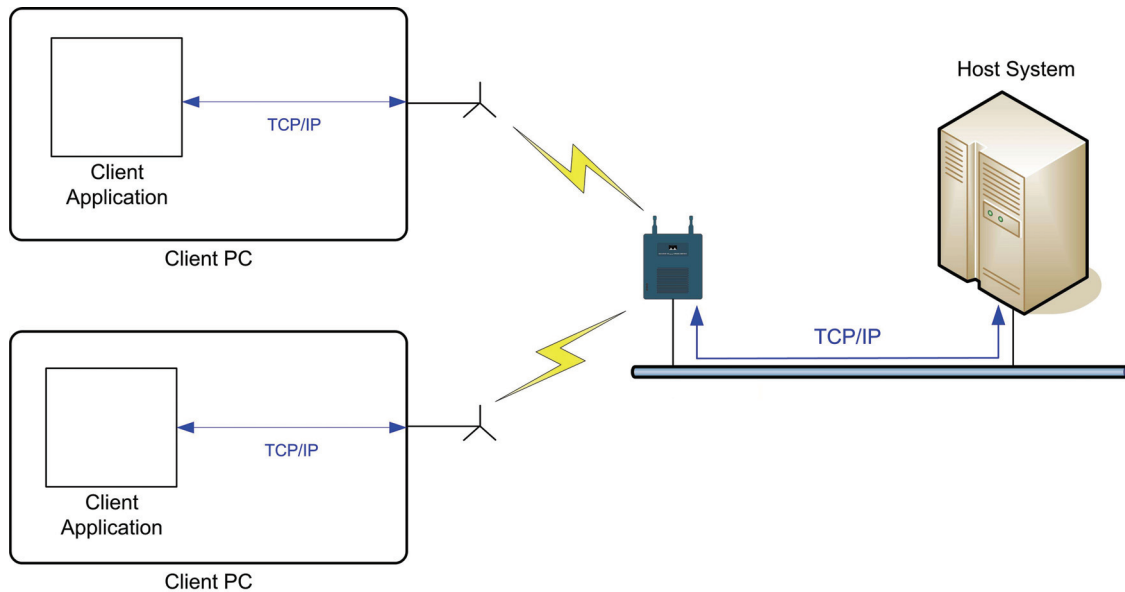
Freefloat Proxy*One is a software suite consisting of a server and a client part, from now on called the proxy server and the proxy client respectively.

The proxy server runs as a service on a Windows PC (Windows XP or later) and the proxy client runs on a client PC (Windows XP/XP Embedded/Windows CE).

It is very easy to administer one or more proxy servers by using the Proxy Admin program. It can be used locally or remote.

The primary goal of Freefloat Proxy*One is to ruggedize the TCP/IP connection of mobile clients in a WLAN environment. Mainly for clients running the Freefloat Access*One terminal emulator, but it can also be used with other software that uses a single TCP/IP connection.

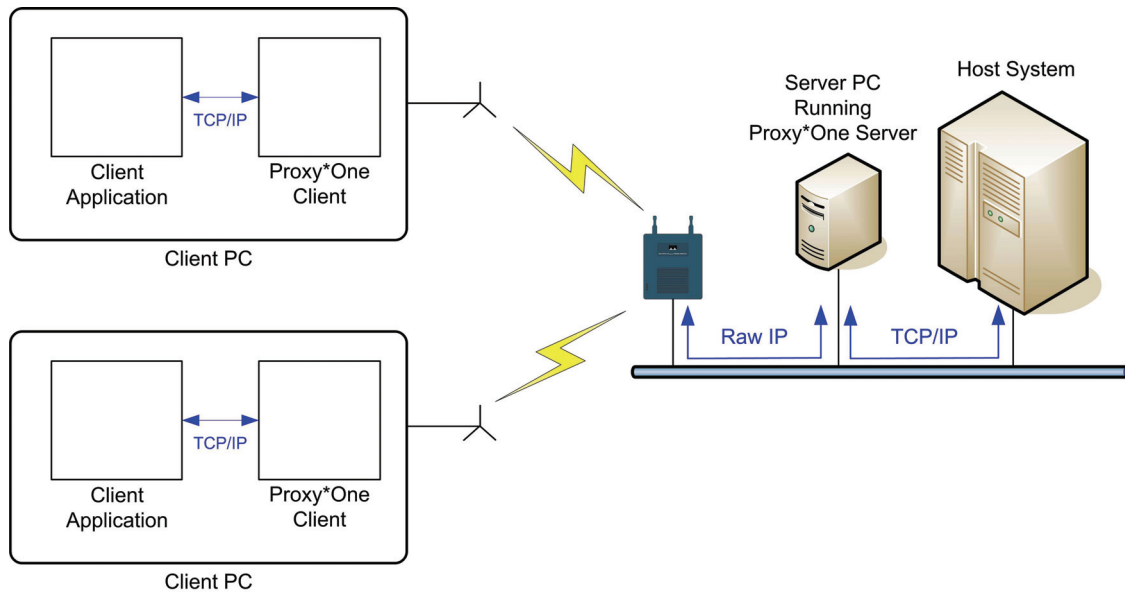
Typical Mobile Application



Freefloat Proxy*One addresses numerous scenarios where a connection could be lost in a typical mobile application:

- A client is moved outside the radio coverage area of an Access Point for some time and then back into the coverage area again. If the client would have a direct TCP/IP connection, the session would be terminated after some time. This time can be as low as 15 seconds in some environments.
- A client roams between Access Points and takes a long time to associate to the new Access Point and the connection is lost before the connection to the new Access Point is established.
- The client is a handheld mobile unit which turns itself off after some time to conserve batteries. At the same time the host is sending periodic keep-alive packets and terminates the connection if there is no response from the client.
- Faulty and/or cheap Access Points creating corrupted IP packets and sending duplicate packets which would degrade the quality and possibly disconnect a TCP connection.

Mobile Application with Freefloat Proxy*One



Freefloat Proxy*One does not use a TCP connection between the Proxy*One Client and the Proxy*One Server. Regardless of the circumstances there is no TCP connection that can be lost. This enables Freefloat Proxy*One to be much more robust in keeping the client to host connection than other proxy solutions.

The communication technique Proxy*One uses makes it unnecessary to have special features that, for example, refresh a terminal emulation screen or replay recorded data upon reconnection (which does not work very well in practice or require elaborate setup and testing). A solution for refreshing an emulator screen sometimes even requires the customer to adapt the host program/form.

The Proxy*One Server consumes very little memory for each session. It uses roughly 1400 bytes per session plus the memory Windows uses for two sockets.

Although Freefloat Proxy*One has been specifically developed to support Telnet client software, for example Freefloat Access*One, any application that uses a single TCP connection are possible candidates to be used together with Proxy*One.

Installation

When you run the installation package for Freefloat Proxy*One, the program folder is created and all files are unpacked. Start menu icons are created for this manual and the Freefloat Proxy*One Admin program.

Please read the section **Getting Started** for information on how to install and configure the server and client modules.

If you are evaluation Freefloat Proxy*One, you can connect one client to the Proxy*One Server. For this single evaluation license there is no time or functional limits.

Files Overview

Freefloat Proxy*One consist of three modules, the server, the client and the administration program. Below is a description of the different files and what module they belong to.

All file references are relative to the folder where you chose to install Freefloat Proxy*One.

File Name	Module	Description
ProxyOne.exe	Server	The server executable.
ProxyOne.lic	Server	Contains the installed licenses. This file is created when you add licenses.
ProxyOneServerLog.txt	Server	The default name of the proxy server's log file. This file is created and written to when the proxy server is installed and started.
ProxyAdmin.exe	Admin	The tool with which you monitor client sessions and configure the server
Platforms\Win32\ProxyOneClient.exe	Client	The proxy client executable for devices running regular Windows.
Platforms\ARMV4\ProxyOneClient.exe	Client	The proxy client executable for Windows CE ARMV4-based devices.
Platforms\x86\ProxyOneClient.exe	Client	The proxy client executable for Windows CE x86-based devices.
Manual.pdf	Other	This manual.
Uninstall.exe	Other	Uninstalls Freefloat Proxy*One.

Note! In each folder with the proxy client executable there is also a file called *ProxyOneClientSettings.txt* that contains the default proxy client settings.

Getting Started

Terminology used in this guide

Client PC – A computer running the Client Application. For example a forklift computer running Windows XP or a handheld Windows CE device.

Client Application – A Telnet client software used to interact with the Host System.

Proxy*One Client – The client module of Freefloat Proxy*One. Runs on the Client PC.

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Server PC – A computer suitable for handling many client sessions. Needs to be connected to the network backbone with a reliable network connection to the Host System.

Proxy*One Server – The server module of Freefloat Proxy*One. Runs on the Server PC.

Host System – A system accessed using the Client Application over the Telnet protocol. Common host systems include IBM AS/400 and different Unix or Linux versions.

Prerequisites

This guide assumes that Client Application is Freefloat Access*One version 1.4.12 or later and that the Client PC is running a regular Windows (i.e. Windows XP or similar).

Before starting to follow this guide on how to install, setup and test Freefloat Proxy*One you need to find out a couple of things. First you need to know the IP address of the Server PC which is going to run the Proxy*One Server. You also need to know the IP address of the Host System.

You will need administrator privileges on the Server PC to be able to install Proxy*One Server. You will need enough privileges on the Client PC to be able to install Proxy*One Client and possibly the Client Application.

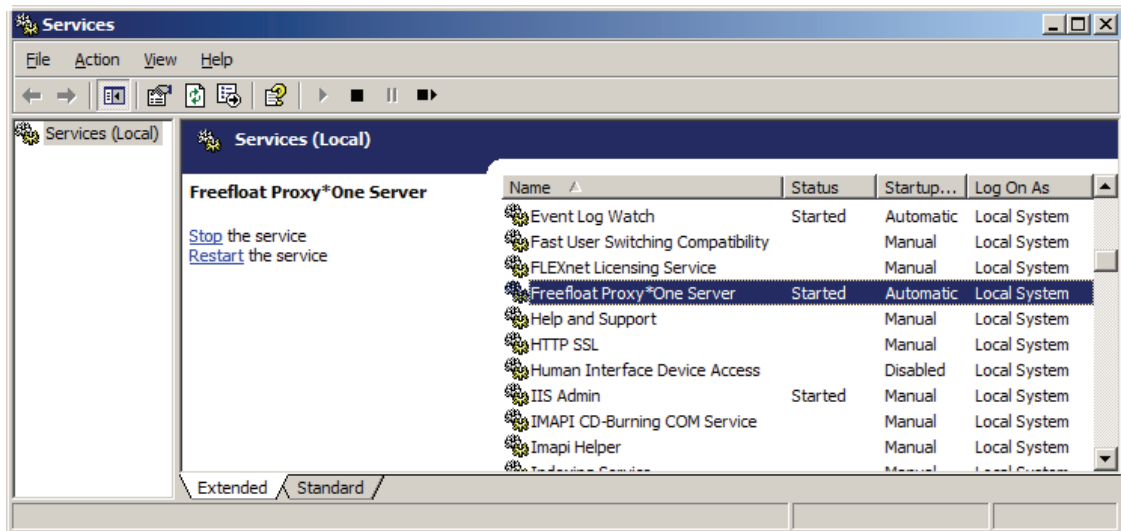
Installing Proxy*One Server

The files needed for installing Proxy*One Server on the Server PC is *ProxyOne.exe* and *InstallProxyServer.bat*. Create a suitable folder on the Server PC, for example *C:\Program Files\Freefloat\Freefloat Proxy One* and copy the two files to that folder.

If you already have obtained a license file for Proxy*One Server, make sure it is contained in a file called *ProxyOne.lic* and is placed in the same folder as above.

Run *InstallProxyServer.bat* to install and start Proxy*One Server.

Proxy*One Server runs as a service. If you want to verify that the Proxy*One Server is running, check its status using the management console for services (*services.msc*).



*Proxy*One Server Installed and Running*

Installing Proxy*One Client

Open ...*Platforms*\Win32*ProxyOneClientSettings.txt* in a text editor, for example Notepad. Edit the following line:

```
ProxyServer1=Enter proxy server address here:7000
```

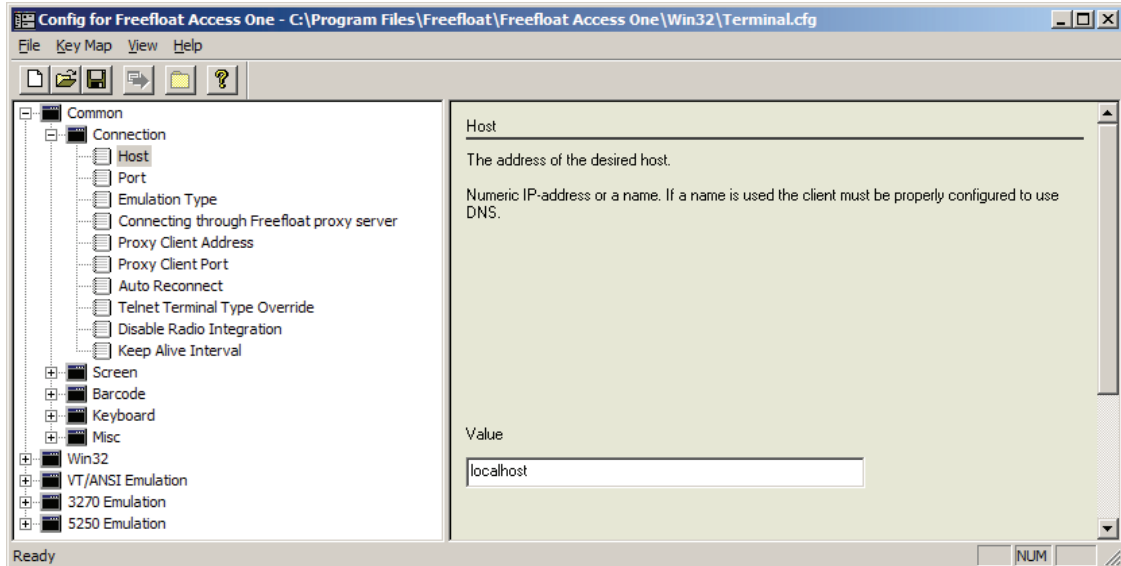
so that it points to the Server PC and the port of the Proxy*One Server. If the IP address of the Server PC is 192.168.1.10 and the default port (7000) is used, the line should read:

```
ProxyServer1=192.168.1.10:7000
```

Save the file and exit your editor. Please note that you can use DNS names instead of numeric IP addresses, for example *proxyserver.freefloat.com*.

Create a suitable folder on the Client PC and copy ...*Platforms*\Win32*ProxyOneClient.exe* and the newly edited ...*Platforms*\ProxyOneClientSettings.txt to this folder.

Now configure the Client Application, in this case Freefloat Access*One, to connect locally to the Proxy*One Client.



*Freefloat Access*One Settings*

In the configuration for Access*One, enter the address and port to the host (*Host* and *Port*). Also make sure you enable *Connecting through Freefloat proxy server*. When using the default settings, you should not have to change *Proxy Client Address* and *Proxy Client Port*. Install Access*One with this configuration on the Client PC.

You should now have Proxy*One Server running on the Server PC. Also the Client Application (Access*One) and Proxy*One Client are installed and configured on the Client PC.

Start Proxy*One Client first and then Access*One. If everything is setup correctly, Access*One will connect to the Host System via Proxy*One.

Proxy*One Client

The Proxy*One Client is a Windows program available for Windows XP and Windows CE. Two different Windows CE CPUs are supported, ARMV4 and x86.

The user interface in Proxy*One Client is a system tray icon with a menu and the indicator window.

System Tray Icon

When no connection is established, the Proxy*One Client will display a tray icon with a red cross:

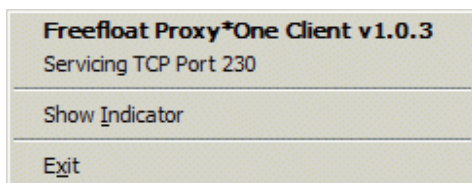


When a connection is established, the tray icon is changed to a box. The box is filled with a light-green color indicating the current link quality.



Tray Icon Menu

When you click on the tray icon, a context menu will be displayed:



The two topmost lines displays program version and the port number to which a Client Application should connect.

The command **Show Indicator** displays the indicator window. This command is changed to **Hide Indicator** when the indicator window is visible.

The command **Exit** will terminate the Proxy*One Client. A message box will appear requiring you to confirm that you want to exit the Proxy*One Client.

Indicator Window

When the Client Application establishes the connection to Proxy*One Client, the indicator window is displayed. The indicator window looks like this:



If the connection is lost, the indicator will display a decreasing bar and percentage value giving the user an indication that there is a communication problem:



When the communication link is available again, this will be indicated by an increasing bar and percentage value.

By default, the indicator window can be dragged to a new position on the screen. The new position is saved in the configuration file.

Configuration

You configure the Proxy*One Client by editing a text file called *ProxyOneClientSettings.txt*. This configuration file should be placed in the same folder as the Proxy*One Client executable.

Configuration Settings

In this section, each setting in the Proxy*One Client configuration file is explained.

ListenPort=230

The port on which the client accepts an incoming connection. Each instance of Proxy*One Client can serve one Client Application. Multiple instances of Proxy*One Client can run on the same Client PC. Each instance then requires its own configuration file.

ProxyServer1=192.168.1.149:7000

Address and port to the Proxy*One Server. One or more backup proxy servers can be defined. ProxyServer2 would be the first backup server. This proxy server will be used if the first proxy server does not reply.

HostAddress=linuxserver.company.se

The address to the Host System. **Note!** If the Client Application is Freefloat Access*One, HostAddress and HostPort settings are not used. Instead they are set in the Access*One configuration.

HostPort=23

The application port on the Host System.

ProxyAwareApplication=1

When enabled, Proxy*One will wait for host information to be sent from the Client Application. Note that this requires the Client Application to send host information to Proxy*Client when it connects. Freefloat Access*One is an example of a Client Application that send host information.

If you use a Client Application which does not send host info, for example Microsoft Telnet client, you should set this parameter to zero to avoid an unnecessary connect delay.

LogFile=ProxyOneClientLog.txt

The path and filename of the log file. If no path is given, the log file will end up in the current folder of Proxy*One Client. On Windows CE, which has no concept of current folder, the log file will end up in the root of the file system if no path is given.

LogLevel=2

Specifies the amount of details written to the log file. Level 1 only logs errors. Level 2 logs errors and informational message. Level 3 is full logging with all possible details.

Note! Only use Level 3 when troubleshooting.

UseOutputDebugString=0

Only used for internal diagnostics.

AllowExit=1

When set to zero, the **Exit** command on the context menu will be disabled.

IndicatorAllowMove=1

When set to zero, the indicator window can't be moved.

IndicatorAutoShowAndHide=0

When set to one, the indicator will only be visible when the link quality is below 100%. When the link quality reaches 100%, the indicator will be hidden after a little while.



IndicatorXPos=0





IndicatorYPos=0


IndicatorWidth=30

IndicatorHeight=80

The position and dimensions of the indicator window.

<p>IndicatorBorderColor=192,192,192 The color of the thin window border.</p>	
<p>IndicatorMargin=3 The margin between the window edge and the top, right, and left edges of the indicator bar in vertical (0) orientation. In horizontal (1) orientation, it is the margin between the window edge and the left, top and bottom edges of the indicator bar.</p>	

<p>IndicatorOffColor=0,128,0</p>	 <p>A vertical bar with a black border, divided into two sections: a top dark green section and a bottom light green section. A blue arrow points to the top dark green section. The text '60%' is displayed at the bottom of the bar.</p>
<p>IndicatorOnColor=0,255,0</p>	 <p>A vertical bar with a black border, divided into two sections: a top dark green section and a bottom light green section. A blue arrow points to the bottom light green section. The text '60%' is displayed at the bottom of the bar.</p>
<p>IndicatorBackgroundColor=0,0,0 The background color used for the area not covered by the indicator.</p>	 <p>A vertical bar with a black border, divided into two sections: a top dark green section and a bottom light green section. A blue arrow points to the white background area below the bar. The text '60%' is displayed at the bottom of the bar.</p>
<p>IndicatorTextAreaSize=16 In vertical orientation the height reserved for the percentage value. In horizontal orientation it is the width.</p>	 <p>A vertical bar with a black border, divided into two sections: a top dark green section and a bottom light green section. A blue bracket highlights the height of the '60%' text at the bottom of the bar.</p>

<p>IndicatorFontName=Tahoma IndicatorFontSize=8 IndicatorTextColor=255,255,255 The font properties of the percentage value.</p>	
---	---

IndicatorAlphaBlending=255

The transparency of the entire indicator window. Not supported in Windows CE.

IndicatorOrientation=0

In vertical orientation (0) the percentage value is displayed below the indicator bar. The indicator grows upwards. In horizontal orientation (1) the percentage value is displayed to the right of the indicator bar. The indicator grows to the left.

IndicatorSavePosition=1

If set to one and moving the indicator window will save the new position in the configuration file.

OutputStatistics=0

When set to one, a statistics file will be created for each session. The information in the statistics file will be updated on regular intervals. The statistics file contains for example information on how much data was sent and received and how many errors that happened during the session.

StatisticsFolder=.

Specifies the folder where statistics files should be created.

ConnectRetries=0

Determines how many times each **ProxyServer** entry will be retried when a connection could not be established, before moving on to the next **ProxyServer** entry.

A value of 0 means just one connection attempt will be tried.

In some environments the first connection attempt is prone to fail, while a second attempt to the same destination usually succeeds.

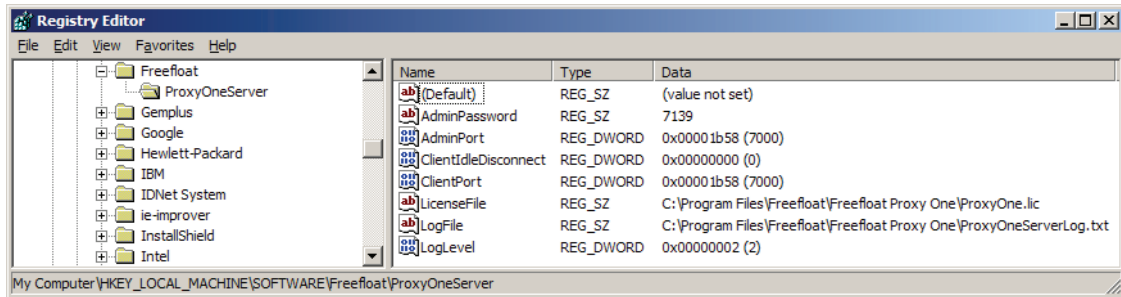
IgnoreBindError=0

If set to one the MessageBox "Error: listener.init() failed" will not be shown.

Useful when starting the client and the application from a batchfile and the client is already started.

Proxy*One Server

When Proxy*One Server is installed, the default settings are created. They are in the registry under the key *HKEY_LOCAL_MACHINE\Software\Freefloat\ProxyOneServer*. For a detailed explanation of all settings, please refer to section **Proxy*One Admin**.



The Default Settings

There are two reasons why you should not use the Registry Editor to modify the Proxy*One Server settings. The Proxy*One Server service does not read any changed settings while running. Also, you may enter invalid data that will prevent the service from starting. It is instead recommended that you use the Proxy*One Admin tool to modify the Proxy*One Server's configuration.

Proxy*One Server Service Command Line Options

Option	Description
-help	Displays the available command line options.
-install	Installs the service. Does not start the service.
-start	Starts the service.
-stop	Stops the service.
-remove	Removes the service from the system. The service must not be running when issuing this command.
-debug	Runs the Proxy*One Server as a command line application and displays the output to the log on the screen. Do not issue this command if Proxy*One Server service is running. Running Proxy*One Server in application mode might be a good idea during training and troubleshooting.

Proxy*One Server Licensing

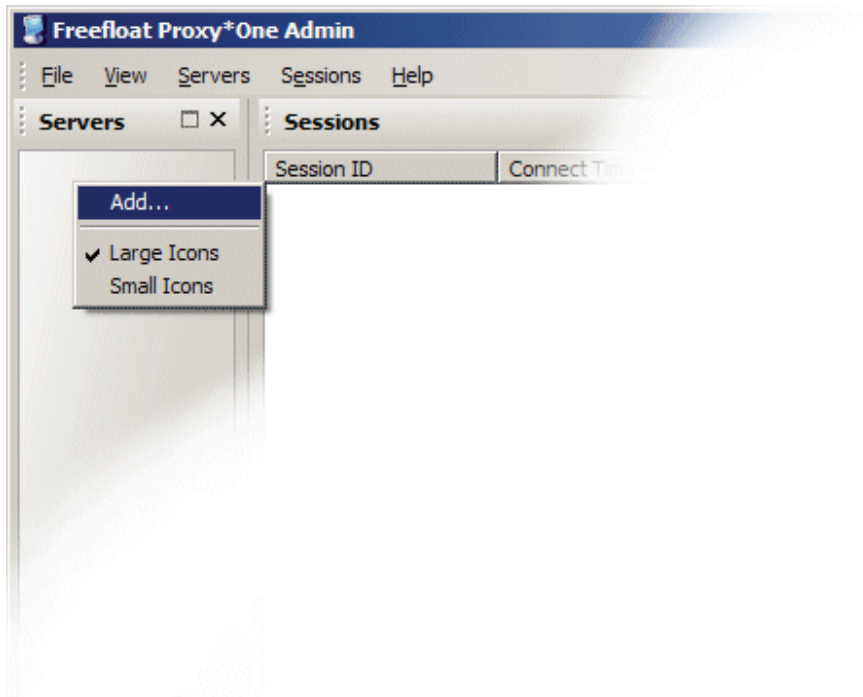
In demo mode (no licenses installed) a single Proxy*One Client can connect to the server. Licenses can be added without stopping the Proxy*One Server using Proxy*One Admin.

By default the license file is called *ProxyOne.lic* and is expected to exist in the same folder as *ProxyOne.exe*.

Proxy*One Admin

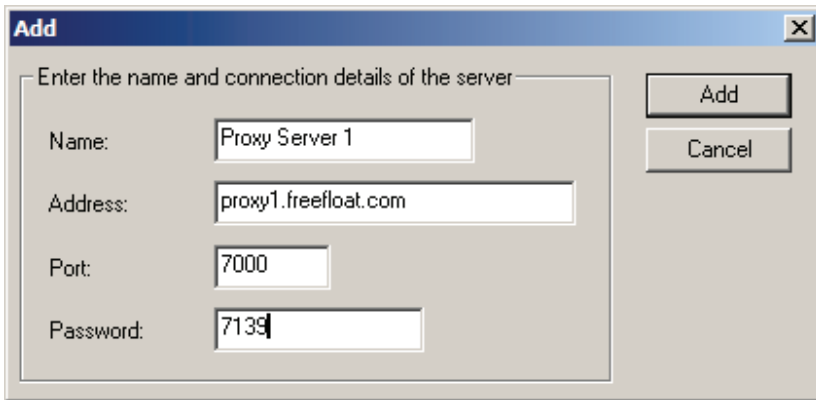
The Proxy*One Admin tool lets you modify the configuration of one or more Proxy*One Servers. It may also be used for monitoring the status of a Proxy*One Client session.

*Getting Started with Proxy*One Admin*



Adding a Server Definition

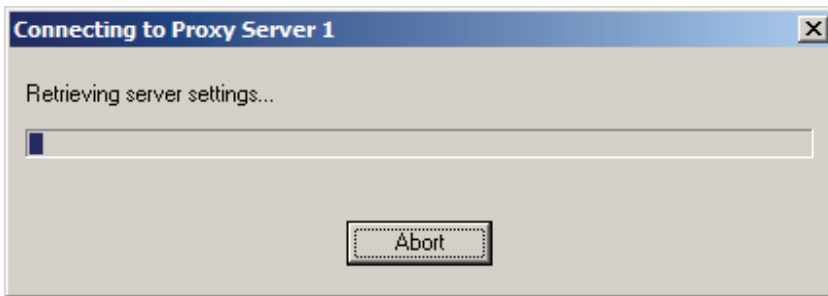
The first time you run Proxy*One Admin, you need to add a server definition for your Proxy*One Server. Right-click with the mouse in the empty area called **Servers** and select **Add...**



Entering the Server Details

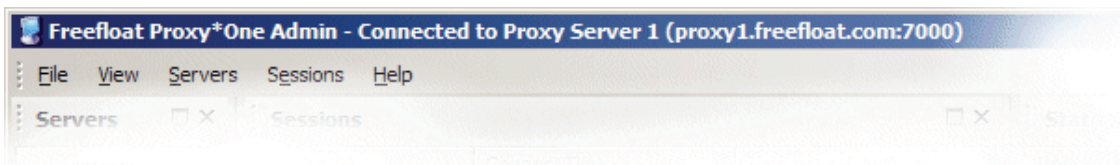
Give it a name of your choice and fill in the address to the Server PC running Proxy*One Server. Port 7000 and password 7139 are the defaults. You can change the port and/or password once you connect to the server.

Right-click on the server definition you just added and select **Connect**. A dialog box appears and displays the connection progress.



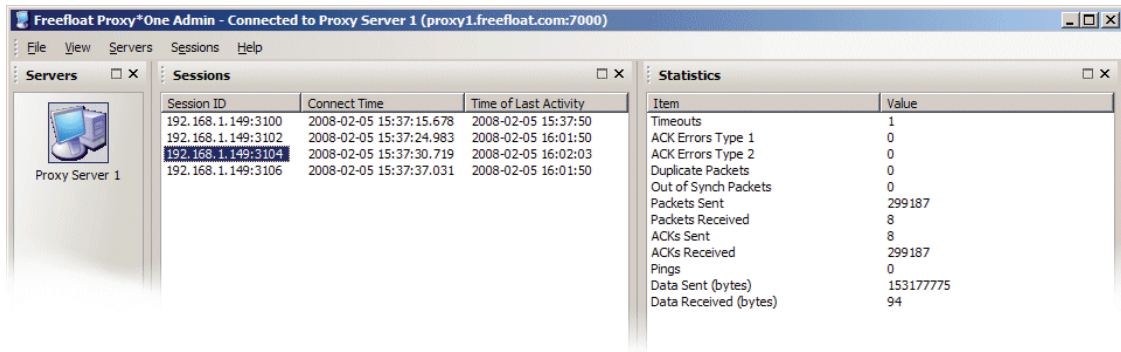
Connect Progress Dialog

Once connected, the window title will reflect this:



Currently Connected Server

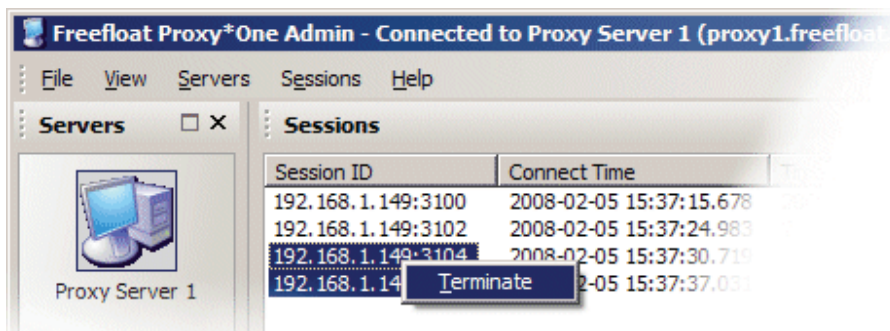
To display the session statistics for a Proxy*One Client, select the client in the **Sessions** section:



Session Statistics

While the client session is selected, the statistics for that session is continuously refreshed.

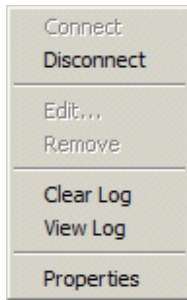
To terminate one or more client sessions, select them in the **Sessions** list and right-click. Then select **Terminate**.



Terminate Sessions

To keep the communication overhead to a minimum, the Proxy*One Admin does not automatically refresh the session list. You do this manually by selecting the command **Refresh** on the **Sessions** menu or by pressing the F5 key.

The Server Context Menu



Command	Description
Connect	Connects to the selected server
Disconnect	Disconnect from the currently connected server
Edit...	Modifies the selected server definition
Remove	Removes the selected server definition
Clear Log	Clears the connected server's log file
View Log	Transfers the connected server's log file and displays it. Note! You may need to associate a text edit with the .tmp file type.
Properties	Displays the properties of the connected server.

The Properties Dialog

You display the properties dialog by right-clicking on the server definition of the connected server and then selecting **Properties**.

The screenshot shows a 'Properties' dialog box with the following settings:

Admin Port:	<input type="text" value="7000"/>	<input type="button" value="Apply"/>
Password:	<input type="text" value="7139"/>	<input type="button" value="Cancel"/>
Client Port:	<input type="text" value="7000"/>	
Client Idle Disconnect:	<input type="text" value="0"/> seconds (0 = off)	
License File:	<input type="text" value="C:\Program Files\Freefloat\Freefloat Proxy One\ProxyOne.lic"/>	
Log File:	<input type="text" value="C:\Program Files\Freefloat\Freefloat Proxy One\ProxyOneServerLog.txt"/>	
Log Level:	<input type="text" value="Info"/>	
Max Log Lines:	<input type="text" value="10000"/>	
Number of Client Licenses Installed:	100	<input type="button" value="Add License..."/>
Licenses in Use:	10	

Note! Changing any settings in this dialog and clicking **Apply** will directly set the changed settings in the Proxy*One Server.

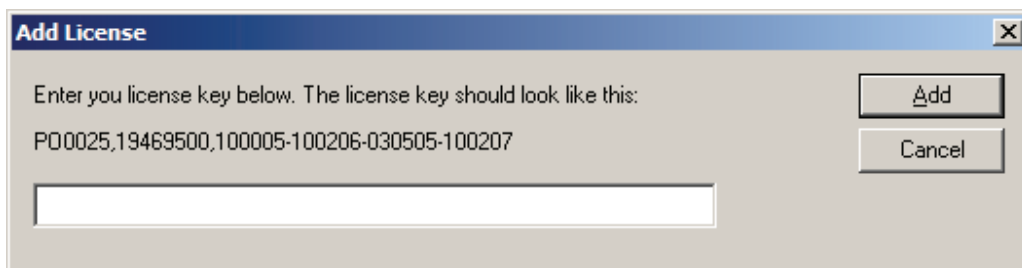
Proxy*One Server Settings

Setting	Description
Admin Port	The port that Proxy*One Admin tool uses to talk to the Proxy*One Server. Can be the same as the Client Port.
Password	The password used when the Proxy*One Admin tool connects to the Proxy*One Server.
Client Port	The port Proxy*One Clients uses when connecting to the Proxy*One Server.
Client Idle Disconnect	Number of seconds of idle time Proxy*One Clients are allowed to have before being disconnected from the Proxy*One Server. Note! Be careful when changing this setting!
License File	The name and location of the file containing license information. Note! Be careful when changing this setting!
Log File	The name and location of log file.
Log Level	Determines the amount of details written to the log file.
Max Log Lines	When the log file grows beyond this value it will be trimmed. The trimming is done once an hour.

The number of installed licenses and the number of currently used licenses (connected Proxy*One Clients) are also displayed in the **Properties** dialog.

Add Licenses

When you click the **Add License** button in the **Properties** dialog, the **Add License** dialog is displayed:



When you buy licenses for Freefloat Proxy*One, this is the recommended way of adding them. When you enter a license key and click Add, the Proxy*One Server will verify the license key and append it to the license file. The number of available licenses will be increased directly. If you do it manually, by editing the license file, you will have to stop and start the Proxy*One Server before the new licenses will be used.

Appendix A. Removing Proxy*One

When upgrading Freefloat Proxy*One, it might be necessary to remove the previous version.

Follow this guide to completely remove Freefloat Proxy*One from a PC:

1. Run *UninstallProxyServer.bat* to stop and remove the Proxy*One Server service from the system.
2. Run *Uninstall.exe* to remove all files installed.
3. Use Windows Explorer to manually delete log files etc. **Note!** Take a backup of any license files.
4. Use the Registry Editor to remove the registry key
HKEY_LOCAL_MACHINE\Software\Freefloat\ProxyOneServer.
5. Use the Registry Editor to remove the registry key
HKEY_CURRENT_USER\Software\Freefloat\Freefloat Proxy Admin
(this key contains the server definitions used by Proxy*One Admin)

Appendix B. Version History

Version	Changes	Date
1.0.0	First release	2007-11-20
1.0.1	Multi-server support in Proxy Client and fallback to direct host connection.	2007-11-23
1.0.2	Proxy Client ported to Windows CE (x86 and ARMV4). Fix for context menu on system tray icon in Proxy Client. All Proxy Client settings must be read from settings file. The previous way of having default values sometimes lead to confusion.	2007-12-03
1.0.3	Admin tool added. User's guide written. Installer finalized. Log cleaning implemented for server and client.	2008-02-04
1.0.4	Implemented workaround for WIN CE which doesn't propagate "ICMP port unreachable" messages to UDP sockets. This workaround also works for WIN32 when the server has been restarted while the client was out of contact and a firewall blocks the "ICMP port unreachable" from being transmitted to the client. Added option "ConnectRetries" to ProxyClient. Added "Time Last Seen" column in Proxy Admin.	2008-03-19
1.0.5	Autolicensing for Access*One 2.0	2010-01-20
1.0.6	Fixed Admin application to work on Windows 7	2010-04-20
1.0.7	Added option "IgnoreBindError" to ProxyClient	2010-11-03
1.0.8	Added some more detailed debugging info Changed default installation directory to "C:\Freefloat\Freefloat Proxy One" to avoid issues with UAC on Vista/Win7	2012-01-11
1.0.9	Fix: Proxy Client icon on taskbar was not shown on CE6	2012-01-31