RemoteBox
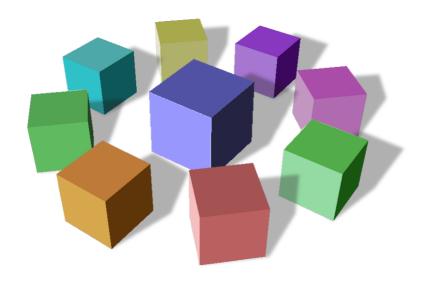# Version 2.3

Open Source VirtualBox Client with Remote Management

Documentation

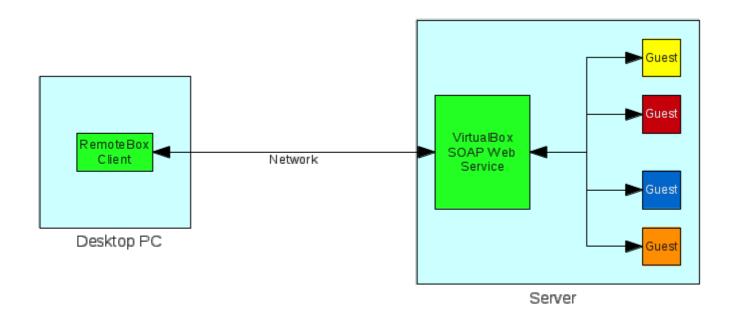# Table of Contents

1   Introduction

VirtualBox is traditionally considered to be a virtualisation solution aimed at the desktop, contrary to solutions such as KVM, Xen and VMWare ESX which are considered more server orientated. Whilst it is certainly possible to install VirtualBox on a server, it offers few remote management features beyond using the vboxmanage command line.

RemoteBox aims to fill this gap by providing a graphical VirtualBox client which is able to communicate with and manage a VirtualBox server installation. RemoteBox achieves this by using the vboxwebsrv feature of VirtualBox which allows its API to be accessed using a protocol called SOAP, even across a network. RemoteBox is similar in look and feel to the native VirtualBox interface and allows you to perform most of the same tasks, including accessing the display of guests – completely remotely. In addition, because both VirtualBox and RemoteBox are supported on many platforms you can for example manage a VirtualBox instance running on a Windows server using the RemoteBox client installed on FreeBSD.

2   RemoteBox General Requirements

Operating system specific instructions are provided further in this document

- Perl v5.10+ (older versions may work but no consideration is given)
- GTK 2 (minimum required version is 2.24)
- gtk2-perl (compiled against the same Perl and GTK 2 libraries)
- SOAP::Lite perl module (complied against the same Perl)
- An RDP client such as FreeRDP or rdesktop.
- VirtualBox 5.1.x installed on the server
- The Oracle Extension Pack should also be installed on the server. The pack may be obtained from http://www.virtualbox.org/wiki/Downloads Follow the instructions on that page to install them.

3 RemoteBox Client Installation

This section describes the basic installation of the RemoteBox client for various operating systems. Unless stated otherwise, all operations should be done with root or admin privileges. The configuration of the server is described elsewhere in this document.

3.1 Installing on CentOS

Before installing the dependencies, you will need to ensure your system receives packages from the EPEL repository. For more information see: https://fedoraproject.org/wiki/EPEL

Ensure the required dependencies are installed as follows

```
yum -y install perl-Gtk2 perl-SOAP-Lite perl-libwww-perl freerdp
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

3.2 Installing on Debian

Ensure the required dependencies are installed as follows

```
apt-get install libgtk2-perl libsoap-lite-perl freerdp-x11
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

- *If you wish to use rdesktop instead, replace the freerdp-x11 package with rdesktop and configure the RemoteBox preferences accordingly.*

3.3 Installing on Fedora

3.3.1 Repository Install

RemoteBox is available in the official Fedora repositories and can be launched from the applications menu after installation. Install RemoteBox as follows:

```
dnf install RemoteBox freerdp
```

3.3.2 Tarball Install

The required dependencies can be installed as follows:

```
dnf install perl-Gtk2 perl-SOAP-Lite freerdp
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

- *If you wish to use rdesktop instead, replace the freerdp package with rdesktop and configure the RemoteBox preferences accordingly.*

3.4 Installing on FreeBSD

3.4.1 Repository Install

FreeBSD has RemoteBox in it's official ports and binary repositories and can be installed as follows:

Binary package example:

```
pkg install freerdp remotebox
```

Ports (portmaster) Example:

```
portmaster net/remotebox net/freerdp
```

RemoteBox can be launched from the applications menu after installation

3.4.2 Tarball Install

Install the required dependencies as follows:

Binary package example:

```
pkg install freerdp p5-Gtk2 p5-SOAP-Lite
```

Ports (portmaster) example:

```
portmaster net/freerdp x11-toolkits/p5-Gtk2 net/p5-SOAP-Lite
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

• If installing freerdp from ports, ensure you build it with X11 and sound support

• If p5-libwww is installed from ports, it should be built with https support

• If you wish to use rdesktop instead, replace the freerdp package with rdesktop and configure the RemoteBox preferences accordingly.

3.5 Installing on Indiana

The installation procedure is the same as Solaris. Please see *3.14 Installing on Solaris*

3.6   Installing on Mac OS X

- The X server called XQuartz should be installed and is available from http://xquartz.macosforge.org/landing

- Your system should also be configured to use MacPorts. Please see http://www.macports.org for instructions. MacPorts may also required you to install XCode from the Mac App store.

Once MacPorts is configured, open a terminal and enter the following commands which will download, compile and install the required packages.

```
sudo port install perl 5 p5-gtk2 p5-soap-lite freerdp
```

Unpack the RemoteBox tarball and change into the RemoteBox directory. **Important!** You will need to modify the very first line in the remotebox file so that it uses the MacPorts implementation of Perl. Open the file in a text editor and replace:

```
#!/usr/bin/env perl
```

with:

```
#!/opt/local/bin/perl
```

Launch RemoteBox as follows:

```
./remotebox
```

3.7   Installing on Mageia

3.7.1   Repository Install

RemoteBox is available in the official Mageia repositories and can be launched from the applications menu after installation. Install RemoteBox as follows:

```
urpmi remotebox
```

3.7.2   Tarball Install

The required dependencies can be installed as follows:

```
urpmi perl-Gtk2 perl-SOAP-Lite freerdp
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

• If you wish to use rdesktop instead, replace the freerdp package with rdesktop and configure the RemoteBox preferences accordingly.

3.8   Installing on Mint

The installation procedure is the same as Debian Linux. Please see 3.2 Installing on Debian

3.9   Installing on NetBSD

Assuming pkgin is installed and in use with your NetBSD installation, the required dependencies can be installed as follows:

```
pkgin install p5-gtk2 p5-SOAP-Lite freerdp xdg-utils
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

- *If you wish to use rdesktop instead, replace the freerdp package with rdesktop and configure the RemoteBox preferences accordingly.*

3.10   Installing on OpenBSD

3.10.1   Repository Install

RemoteBox is available in the official OpenBSD repositories and can be launched from the applications menu after installation. Assuming you have remote package installation configured, install RemoteBox as follows:

```
pkg_add -r remotebox
```

3.10.2   Tarball Install

Assuming you have your system configured to install remote packages, the required dependencies can be installed as follows:

```
pkg_add -r freerdp p5-Gtk2 p5-SOAP-Lite
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

• If you wish to use rdesktop instead, replace the freerdp package with rdesktop and configure the RemoteBox preferences accordingly.

3.11   Installing on OpenSUSE

3.11.1   Repository Install

RemoteBox is available in the official OpenSUSE repositories and can be launched from the applications menu after installation. Install RemoteBox as follows:

```
zypper install remotebox
```

3.11.2   Tarball Install

The required dependencies can be installed as follows:

```
zypper install perl-Gtk2 perl-SOAP-Lite freerdp
```

To launch RemoteBox, unpack the RemoteBox tarball and run the 'remotebox' executable.

• *If you wish to use rdesktop instead, replace the freerdp package with rdesktop and configure the RemoteBox preferences accordingly*

3.12   Installing on Oracle Enterprise Linux

The procedure is the same as CentOS. Please see 3.1 Installing on CentOS

3.13   Installing on Red Hat Enterprise Linux

The procedure is the same as CentOS. Please see 3.1 Installing on CentOS

3.14   Installing on Solaris

Before installing any other packages, you must ensure that the media libraries (aka SUNWmlib) are installed, otherwise the OpenCSW packages **will** fail to operate correctly.

For example:

```
pkg install medialib
```

To provide the required dependencies, configure your system to install packages from the OpenCSW repository. OpenCSW installs packages in its own tree and so does not interfere or conflict with your standard system packages. This example sets up OpenCSW and installs the dependencies.

```
pkgadd -d http://get.opencsw.org/now
```
```
/opt/csw/bin/pkgutil -U
```
```
/opt/csw/bin/pkgutil -i pm_gtk2 pm_soap_lite rdesktop pm_glib pm_pango gdk_pixbuf
```

Unpack the RemoteBox tarball and change into the RemoteBox directory. **Important!** You will need to modify the very first line in the remotebox file so that it uses the OpenCSW implementation of Perl. Open the file in a text editor and replace:

```
#!/usr/bin/env perl
```

with:

```
#!/opt/csw/bin/perl
```

Launch RemoteBox as follows:

```
./remotebox
```

Solaris does not have FreeRDP in it's repositories which is the default RDP viewer for RemoteBox. RemoteBox should be configured to use rdesktop instead. This can be done in the RemoteBox preferences window.

3.15   Installing on Ubuntu

Note: Menu handling is broken under the Unity desktop on Ubuntu, which can prevent menu entries being ghosted when they should be which in turn allows them to become activated incorrectly. **This is a bug with the Unity desktop** and does not present itself under other desktop environments.

The installation procedure is the same as Debian Linux. Please see 3.2 Installing on Debian

3.16   Installing on Windows

As RemoteBox was developed to run on Linux and UNIX-like operating systems, installation on Windows can be somewhat complicated, but is perfectly possible.

- Download the **32bit** version of Strawberry Perl from (http://strawberryperl.com), even if you have a 64bit edition of Windows.

- Run the Strawberry Perl installer, follow the instructions and install it to the following location:

  - `C:\Strawberry`

- Configure Strawberry Perl to use the Sisyphusion Perl Repository (http://sisyphusion.tk/ppm) and install additional modules. In order to do this, you need to open a 'DOS' style command prompt by running cmd.exe (consult google if you don't know how to do this). Run the following commands in the commmand prompt:

  - `ppm set repository sisyphusion http://sisyphusion.tk/ppm`

    - `ppm set save`

  - `ppm install Glib Cairo Pango Gtk2`

- Download the latest **RemoteBox-x.y.tar.gz** file from the RemoteBox website and unpack the archive using you're favourite tool such as WinZIP, WinRAR, 7Zip etc.

- For simplicity, rename the unpacked folder from **RemoteBox-x.y** to just RemoteBox and copy that folder to the following location:

  - `C:\Program Files (x86)`

- To create an icon for RemoteBox, navigate to the following folder in Windows Explorer

  - `C:\Strawberry\perl\bin`

- Select the file called **wperl.exe,** press the right mouse button and choose 'Create Shortcut'.

- Rename the newly created shortcut to simply RemoteBox

- Select the shortcut, press the right mouse button and choose 'Properties'

- Change the target field to say:

 `C:\Strawberry\perl\bin\wperl.exe "C:\Program Files (x86)\RemoteBox\remotebox"`

(include the quotes ")

- This shortcut should now launch RemoteBox when you double-click on it. The shortcut can be moved or copied to a preferred location, such as your desktop.

4   Configuring the VirtualBox Server

Before attempting to install VirtualBox and configure the server, it's very important you read and understand this chapter, as missing even a simple step may prevent the server from working and will lead to frustration.

4.1   Summary

VirtualBox should be installed on the server system and configured to allow RemoteBox to connect to it. VirtualBox provides a service called *vboxwebsrv* which requires some configuration and should be set to automatically start on boot, if your operating system supports it. It is this service that RemoteBox connects to in order to manage VirtualBox and the associated guests.

VirtualBox understands the concept of users and that different users may have their own VirtualBox configuration and guests. This is important to understand because the service *vboxwebsrv* must be configured to start as the user, whose VirtualBox configuration and guests you want to manage with RemoteBox. For example, if the service is started as the user *joe*, then when you connect with RemoteBox you will see Joe's guests. For a new setup, it is recommended you create a generic virtualization user called *virtual* and use that.

When connecting with RemoteBox, you will need to provide some login credentials. These login credentials can be any valid user that exists on the server. It is also important to understand that these login credentials are used for **authentication only** and do not determine whose guests you will see. In other words, if the *vboxwebsrv* service is running as the user *joe* and RemoteBox connects as the user *pete*, it will still show Joe's guests.

The Oracle Extension Pack should also be installed on the server and installed as the same user running *vboxwebsrv*. Instructions are available on the VirtualBox website if you are unsure how to install the extension pack. The pack provides additional features which are required by RemoteBox.

For the purposes of this documentation, we will assume the following settings but of course you should change them to match your settings and needs.

Vboxwebsrv user:	*virtual* (The chosen user **MUST** be a member of the vboxusers or vboxuser group, this group is normally created when VirtualBox is installed)
Server Name:	myserver.example.com
Server IP Address:	192.168.1.10
Default Port:	18083
Server Firewall:	If running a server firewall, it must permit TCP connections on port 18083

The following settings provide further instructions specific to different server operating systems.

4.2   Linux VirtualBox Server Configuration

4.2.1   Configuring the VirtualBox Web Service

Please read the section 4. Configuring the VirtualBox Server, before continuing. Unless stated otherwise, these steps should be performed as the *root* user on the server.

- Edit or create the following configuration file using your preferred text editor

```
/etc/default/virtualbox
```

- Add the following contents to the text file, adjusting the parameters as appropriate for your server. You may also use the IP address instead of the hostname if so desired and particularly if your server does not resolve via DNS.

```
VBOXWEB_USER="virtual"
VBOXWEB_TIMEOUT=0
VBOXWEB_LOGFILE="/var/log/vboxwebservice.log"
VBOXWEB_HOST="myserver.example.com"
```

- Initialise and set the ownership of the log file. **If the log file is missing or has incorrect ownership, the web service will fail to start.**

```
touch /var/log/vboxwebservice.log
chown virtual:vboxusers /var/log/vboxwebservice.log
```

- Enable the service to automatically start on boot. This step varies between Linux distributions but for Fedora you would use:

```
systemctl enable vboxweb-service
```

- Either reboot your server or manually start the service. This step varies between Linux distributions but for Fedora you would use:

```
systemctl start vboxweb-service
```

- You can verify that the service is correctly running by entering this command.

```
ps -aef | grep vboxwebsrv
```

If the service fails to start, revisit the configuration steps to ensure nothing is missing or reboot the server to ensure all required services are started. Checking the contents of `/var/log/vboxwebservice.log` may provide you with additional information. You should now be able to connect to the server using RemoteBox on the client.

4.2.2   Auto-Starting Guests on Host Boot

If you wish to use the feature which allows guests to automatically start or stop when the host system is booted or shutdown, some additional configuration is required on the server.

First, create the permissions file. This file tells VirtualBox which users have permission to use the autostart feature. For this example, we will make the permissions very open but once it is working, you may want to tighten-up the permissions. Consult the VirtualBox documentation on how to tighten-up permissions.

- Edit or create the following file using your favourite text editor

  `/etc/default/vb-autostart-perms`

- Add the following contents to the file

  `default_policy = allow`

- Set the correct file permissions

  `chmod 0644 /etc/default/vb-autostart-perms`
  `chown virtual:vboxusers /etc/default/vb-autostart-perms`

- Create a directory which VirtualBox will use to hold it's autostart database

  `mkdir -p /var/lib/virtualbox-autostart`

- Set the correct permissions on the directory

  `chmod 1777 /var/lib/virtualbox-autostart`
  `chown virtual:vboxusers /var/lib/virtualbox-autostart`

- Next we need to tell vboxwebsrv about these files. Edit the following file

  `/etc/default/virtualbox`

- Add the following contents to the file and save it

  `VBOXAUTOSTART_DB="/var/lib/virtualbox-autostart"`
  `VBOXAUTOSTART_CONFIG="/etc/default/vb-autostart-perms"`

- Enable the autostart service to automatically start on boot. This step varies between Linux distributions but for Fedora you would use:

  - `systemctl enable vboxautostart-service`

You will need to restart the VirtualBox web service and Autostart service or reboot the server. This has configured the server side to allow autostarting and autostopping of guests. Once you connect with RemoteBox, you will also need to set the VirtualBox autostart database location in the VirtualBox preferences section and it should be identical to what you set the server to use. From this point onwards you can configure guests in their settings to automatically start when the host boots.

4.2.3   SSL

Before attempting to use SSL, it is highly recommended that you get the web service working without SSL first. Configuring the server to accept SSL connections is an **optional** feature to improve security. The connection is encrypted so that passwords are not sent in the clear across the network. Using SSL however is **significantly slower** because of the encryption overhead and you will notice an increase in lag with RemoteBox.

The example which follows uses a self-signed certificate which should be sufficient for most people's needs.

- Make a directory where you wish the certificates and server keys to be stored. In these examples, as we're running the web service as the user *virtual*, we will create a directory in that

user's homespace.

```
mkdir /home/virtual/vboxwebcerts
```

- Generate the server's RSA private key for use with the web service. You will be prompted for a password for the key. Our example will assume *mypassword* as the password.

```
cd /home/virtual/vboxwebcerts
openssl genrsa -des3 -out vboxweb.key 1024
```

- Generate the certificate signing request. You will be prompted for various X.509 attributes for the certificate. Most of them are purely informational, so fill them out as accurately as you see fit, however you should ensure that the '*Common Name*' attribute is set to either the fully-qualified hostname of your server, or its IP address. You can the '*Challenge Password*' empty unless you feel you need it.

```
cd /home/virtual/vboxwebcerts
openssl req -new -key vboxweb.key -out vboxweb.csr
```

- Generate the self-signed certificate. This example will generate a certificate which is valid for 365 days but you can set this value as you see fit. You will be prompted for the password you used to generate the key.

```
cd /home/virtual/vboxwebcerts
openssl x509 -req -days 365 -in vboxweb.csr -signkey vboxweb.key -out vboxweb.crt
```

- The VirtualBox web service expects both the private key and the certificate to be in the same file. So combine them as follows:

```
cd /home/virtual/vboxwebcerts
cat vboxweb.key vboxweb.crt > vboxweb-both.crt
```

- Create a text file using your preferred text editor and enter the password you chose and save the file at `/home/virtual/vboxweb.pwd` . This file should contain nothing but the password on the first line and will be use by the web service to unlock the private key.

- Fix up the permissions so that the files are more secure and less prone to prying eyes.

```
chown virtual:vboxusers /home/virtual/vboxwebcerts/*
chmod 0600 /home/virtual/vboxwebcerts/*
```

- Edit the web service configuration file located in `/etc/default/virtualbox` and add the following parameters:

```
VBOXWEB_SSL_PASSWORDFILE="/home/virtual/vboxwebcerts/vboxweb.pwd"
VBOXWEB_SSL_KEYFILE="/home/virtual/vboxwebcerts/vboxweb-both.crt"
```

- Finally, restart the web service. On most distributions, this is done as follows:

```
systemctl restart vboxweb-service
```

When connecting to the server from RemoteBox, you should now prefix the URL with `https://`. Also note that non-SSL connections will be unavailable.

4.3 Windows VirtualBox Server Configuration

4.3.1 Configuring the VirtualBox Web Service

Please read the section 4. Configuring the VirtualBox Server, before continuing. Unfortunately the VirtualBox web service does not integrate with Windows as a standard system service, unlike the other supported operating systems. You may be able to manually create a service by using the windows command called 'sc'. Further information on using this command is available at http://support.microsoft.com/kb/251192

Otherwise, it must be manually started each time the server is booted. Assuming you are using a specific user called *virtual* then log into the server as *virtual* and perform the following commands from the DOS or PowerShell.

- Change to your VirtualBox installation directory. The default location is:

```
cd "C:\Program Files\Oracle\VirtualBox"
```

- Then run the VirtualBox web service

```
vboxwebsrv -t0 -H myserver.example.com
```

You can also use the IP address of your server instead of the hostname. You should now be able to connect to the server using the RemoteBox client.

4.3.2 Auto-Starting Guests on Host Boot

At this time, VirtualBox does not support autostarting guests at boot on Windows.

4.4 Solaris VirtualBox Server Configuration

4.4.1 Configuring the VirtualBox Web Service

Please read the section 4. Configuring the VirtualBox Server, before continuing. Unless stated otherwise, these steps should be performed as the *root* user.

- Configure the web service to run as the user *virtual*.

```
svccfg -s svc:/application/virtualbox/webservice:default setprop config/user=virtual
```

- Add the timeout property to the web service.

```
svccfg -s  svc:/application/virtualbox/webservice:default  setprop config/timeout=integer: 0
```

- Add the log file property to the web service

```
svccfg -s webservice:default setprop config/logfile=astring: /var/log/vboxwebservice.log
```

- Set the hostname. The IP address may also be used instead.

```
svccfg -s svc:/application/virtualbox/webservice:default setprop config/host=myserver.example.com
```

- Tell SMF to commit the changes to the service

```
svcadm refresh svc:/application/virtualbox/webservice:default
```

- Initialise and set the ownership of the log file. **If the log file is missing or incorrectly owned then the web service may not start**

```
touch /var/log/vboxwebservice.log
chown virtual:vboxuser /var/log/vboxwebservice.log
```

- Start the web service and enable it on boot

```
svcadm enable svc:/application/virtualbox/webservice:default
```

If the service fails to start, revisit the configuration steps to ensure nothing is missing. Checking the contents of `/var/log/vboxwebservice.log` or the output of `svcs -x` `svc:/application/virtualbox/webservice:default` may provide you with additional information. You should now be able to connect to the server using RemoteBox on the client.

4.4.2   Auto-Starting Guests on Host Boot

If you wish to use the feature which allows guests to automatically start or stop when the host system is booted or shutdown, some additional configuration is required on the server.

First, create the permissions file. This file tells VirtualBox which users have permission to use the autostart feature. For this example, we will make the permissions very open but once it is working, you may want to tighten-up the permissions. Consult the VirtualBox documentation on how to tighten-up permissions.

- Edit or create the following file using your favourite text editor

```
/etc/default/vb-autostart-perms
```

- Add the following contents to the file

```
default_policy = allow
```

- Set the correct file permissions

```
chmod 0644 /etc/default/vb-autostart-perms
chown virtual:vboxuser /etc/default/vb-autostart-perms
```

- Create a directory which VirtualBox will use to hold it's autostart database

```
mkdir -p /var/lib/virtualbox-autostart
```

- Set the correct permissions on the directory

```
chmod 1777 /var/lib/virtualbox-autostart
chown virtual:vboxuser /var/lib/virtualbox-autostart
```

- Next we need to tell vboxwebsrv about these files. Edit the following file

```
/etc/default/virtualbox
```

- Add the following contents to the file and save it

```
VBOXAUTOSTART_DB="/var/lib/virtualbox-autostart"
VBOXAUTOSTART_CONFIG="/etc/default/vb-autostart-perms"
```

- Configure the service as follows

```
svccfg -s svc:/application/virtualbox/autostart:default setprop
            config/config=/etc/default/virtualbox
```

- Enable the autostart service to automatically start on boot.

```
svcadm enable svc:/application/virtualbox/autostart:default
```

You will need to restart the VirtualBox web service and Autostart service or reboot the server. This has configured the server side to allow autostarting and autostopping of guests. Once you connect with RemoteBox, you will also need to set the VirtualBox autostart database location in the VirtualBox preferences section and it should be identical to what you set the server to use. From this point onwards you can configure guests in their settings to automatically start when the host boots.

4.5   Mac OS X VirtualBox Server Configuration

4.5.1   Configuring the VirtualBox Web Service

Please read the section 4. Configuring the VirtualBox Server, before continuing. A standard plist file is included with VirtualBox which is usually located in:

```
$HOME/Library/LaunchAgents/org.virtualbox.vboxwebsrv.plist
```

Edit the file with a text editor and change the `Disabled` key from `true` to `false`. The service can then be started by typing:

```
launchctl load ~/Library/LaunchAgents/org.virtualbox.vboxwebsrv.plist
```

4.6   Disabling Web Service Authentication

Disabling authentication to the web service is not recommended because it will effectively allow anybody to access the virtual machines, however it may be useful for debugging purposes particularly if you are experiencing trouble logging in. To disable authentication, execute the following command on the server as the user that the web service runs as:

```
vboxmanage setproperty websrvauthlibrary null
```

* This command may be installed as 'VBoxManage' on some operating systems

When connecting with RemoteBox simply leave the username and password options blank.

5   Using RemoteBox

This section describes some basic principles of using RemoteBox, with emphasis on where RemoteBox differs significantly from VirtualBox. This section does not go into great depth because using RemoteBox should be reasonably familiar to anybody that has used VirtualBox's native interface. RemoteBox makes heavy use of tool-tips to describe the options so you're highly encouraged to read them.

RemoteBox is essentially a web client application. Almost everything you do with RemoteBox requires communicating with the server, over the network. If your network is poorly configured and unreliable then RemoteBox will not perform well either.

RemoteBox works by connecting to a server running VirtualBox, if VirtualBox has been configured correctly to accept remote connections. It allows you to administer VirtualBox and the virtual machines, performing many of the same tasks as the native VirtualBox interface. Guest's are interacted with, via the Remote Desktop Protocol (RDP) using a client such as rdesktop or XFreeRDP. The RDP client is automatically handled by RemoteBox if configured correctly.

When launching RemoteBox for the first time, it's recommended that you configure and set the preferences to your needs.

5.1   Connection Profiles

Accessible from the '*File→Connection Profiles*' menu. From the Connection Profiles dialog, you can predefine connection parameters to VirtualBox servers so that that do you need to type them manually every time you connect to a VirtualBox server. When connecting to a VirtualBox server you can simply select the desired profile and the connection parameters will be automatically filled.

5.2   RemoteBox Preferences

Accessible from the '*File→RemoteBox Preferences*' menu. These preferences should not to be confused with the VirtualBox preferences as these apply specifcally to the RemoteBox client.

5.2.1   General → Default Stop Action

This defines what action RemoteBox takes when the "*Stop*" button is pressed on the main toolbar. Whatever option you choose, all actions are still available in the sub-menu next to the "*Stop*" button. The options are described as follows:

Instant Power Off: This is the default. This will instantly stop the guest without making any attempt to shut it down cleanly. This is equivalent to switching off the power on a real machine.

ACPI Shutdown: An ACPI request is sent to the guest to power it off cleanly. How the guest behaves is completely dependent on the guest operating system. There is **no guarantee** the guest will shut down.

Save Guest State: Saves the execution state of the guest. This is approximately equivalent to "hibernating" but does not require any operating system support.

Note: The safest way to shutdown a guest is from within the guest operating system.

5.2.2   General → Enable Heartbeat

If enabled, RemoteBox will send a heartbeat to the VirtualBox web service every 60 seconds to monitor the connection status and keep the connection alive. The default is enabled.

Note: You should not disable the heartbeat without good reason.

5.2.3   General → Automatically Add Guest Additions to VMM

If enabled, when RemoteBox connects to a server it will automatically add the guest additions ISO to the Virtual Media Manager so that it's available for attaching to guests. The default is enabled.

5.2.4   Display → RDP Client

Configures the RDP client that RemoteBox should use when opening the display of a guest. By default, RemoteBox is configured to use FreeRDP (aka xfreerdp), however alternatives can be used and several presets are available for selection. **Avoid rdesktop v1.8.0 and v1.8.1 as they do not work correctly with VirtualBox.**

RemoteBox uses special variables which are substituted when the RDP client is launched and these should be used where your RDP client expects to see options such as the hostname or port number.

The supported variables are:

%h	Will be substituted with the hostname of the VirtualBox server
%n	Will be substituted with the guest's name (useful for setting the xfreerdp window title)
%o	Will be substituted with the guest's operating system
%p	Will be substituted with the RDP port number
%P	Will be substituted with the user's password used to connect to VirtualBox
%U	Will be substituted with the username used to connect to VirtualBox
%X	Will be substituted with the Auto-Hint Resolution width
%Y	Will be substituted with the Auto-Hint Resolution height
%D	Will be substituted with the Auto-Hint Resolution depth

5.2.5   Display → RDP Ports for New Guests

When RemoteBox creates a new guest, it automatically enables the RDP functionality for the guest and assigns a range of RDP ports for the guest to use. The reason why a range should be specified is because when each guest starts it must use a unique port number for its RDP service. If a port number is already in use by another process or guest, then VirtualBox will automatically assign the next available port in the range. If your server is running a firewall then these ports should be opened as appropriate. The default value is:

<p align="center">3389-4389</p>

5.2.6   Display → Open Guest's Display at Power On

If enabled, then RemoteBox will automatically open the display of the guest when you power on or resume a guest. If disabled then you will manually need to open the remote display by pressing the '*Guest Display*' button on the toolbar. The default is enabled.

5.2.7   Display → Auto-Hint Resolution

When a guest's display is opened, automatically send the requested display resolution hint. A display hint tries to keep the guest's display at the specified resolution. In addition, if your RDP client command uses any of the %X, %Y or %D substitutions, the corresponding display values will be inserted as parameters.

Please note, the exact behaviour is dependant on your RDP client, the guest operating system and whether you have guest additions installed or not.

5.3   Connecting to Server

In order to administer the virtual machines and guests, you should connect to the server running the VirtualBox web service. If you experience problems logging on, consider disabling authentication to the web server for testing purposes. Details on how to do this are described in 4.6 Disabling Web Service Authentication. Pressing the '*Connect'* button will open the Connect dialog window.

5.3.1   Connection Profile

You can select a pre-defined connection profile which will automatically fill in the remaining connection fields for you. Connection profiles are described in 5.1 Connection Profiles

5.3.2   URL

The URL of the server you'd like to connect to. The URL is generally of the form `http://<server>:<port>`. If the port number is omitted it will assume the default of 18083. If the prefix is omitted, it will assume `http://`. SSL connections will require the `https://` prefix instead. For example:

<div align="center">

`http://myserver.home.lan:18083`

or

`https://192.168.1.5:18083`

</div>

5.3.3   Username

The username of any valid user on the server. If you have authentication disabled, you can leave it empty.

5.3.4   Password

The corresponding password of the user. If you have authentication disabled, you can leave it empty.

5.4   The Main Window

The main window should be familiar to users of VirtualBox. It's worth mentioning however that the status of the guests are not updated in real-time. To see changes in a guest's status which have occurred outside of RemoteBox (e.g. another process powered on a guest) you can use the '*Refresh'* button.

5.5   Guest Display

RemoteBox uses the RDP feature of VirtualBox to show the guest's display. To use this option, each guest should be configured with the RDP server enabled. If a guest was created through RemoteBox it will automatically have this feature enabled. Several aspects of how RDP is used can be configured in the RemoteBox preferences.

5.5.1   Remote Display with Sound

Remote sound support is also possible and is enabled by default in RemoteBox with the FreeRDP client. In other words, when opening the remote display of a guest you can also hear its audio.

For this to work, the guest must have audio support enabled in its settings and the guest operating system must also have support for the virtual sound card. When enabling audio support in the guest, it's recommended that you set the '*Host Audio Driver*' to be '*Dummy Audio Driver*', otherwise the guest will try to also output the sound through the server's own sound device, which is probably not what you want.

5.5.2 Remote Display with Clipboard Sharing

Clipboard sharing (ie copy and paste with the guest and the client) is also possible and is enabled by default in RemoteBox with the FreeRDP client. For this to work fully, the guest must have 'Shared Clipboard' set to 'Bidirectional' in its settings. The guest must also have the Guest Additions installed and running.

5.6 Creating New Guests

Creating guests is similar to VirtualBox except that RemoteBox will automatically enable the RDP server of the guest. This also allows the 'Remote Display' option to work in RemoteBox.

5.7 Virtual Media Manager

All media is from the reference point of the server and not the RemoteBox client, so when adding additional media such as CD/DVD images, expect to see the file system layout of the server and not your client machine. This also means that any media images must be available from the server.

5.8 Installing Guest Additions

RemoteBox will automatically add the `VBoxGuestAdditions.iso` to the Virtual Media Manager (VMM) when it connects to the server. To install the guest additions, just attach this ISO to the virtual CD/DVD drive of the guest as you would with any other ISO and install as normal.

5.9 Hot Plugging and Unplugging vCPUs

RemoteBox has the ability to hot plug and unplug vCPUs from a guest, even while it is running. This should be considered an experimental feature. There are a number of pre-requisites which must be met in order for this to work correctly. They are listed as follows:

- The guest must be using hardware virtualisation which is usually the default anyway.

  Edit Settings→System→Acceleration→Enable VT-x/AMD-V

- The guest must have CPU hot plugging enabled.

  Edit Settings→System→Processor→Allow CPU Hot Plugging

- Most operating systems will require `I/O APIC` to be enabled. Due to the limitations of Windows, this option should not be changed for a guest running Windows. Windows requires this option to be set, **before** installation. Other operating systems are not affected.

  Edit Settings→System→Motherboard→Enable IO APIC

- Lastly, the guest operating system itself must support CPU hot plugging and/or hot unplugging.

The exact process for hot plugging and unplugging a CPU is operating system dependant. Many versions of UNIX, including Linux support hot plugging and unplugging CPUs. Windows has very limited support for CPU hot plugging and no version of Windows supports CPU hot unplugging. You should consult the documentation for the guest operating system to find the exact procedure and its support status. A general set of guidelines follows.

The general process for hot plugging a vCPU is:

- Enable the vCPU in RemoteBox

- At this point, some operating systems may automatically detect it and bring it online, others will require you to bring the CPU online manually.

The general process for hot unplugging a vCPU is:

- Disable or offline the vCPU in the guest **first**.

- Disable the vCPU in RemoteBox

5.10   Command Line Options

RemoteBox supports some command line options. They are not compulsory but are available as a convenience.

```
remotebox [-h]
remotebox [-H <host>] [-u <user>] [-p <pass>]


-h        : Help
-H <host> : Automatically connect to this virtualbox host
-u <user> : Connect using this username. If omitted an empty username is assumed. Only useful with -H
-p <pass> : Connect using this password. If omitted an empty password is assumed. Only useful with -H
```

For example:

```
        ./remotebox -H myserver.example.com -u myusername -p password123
```

6   FAQ & Troubleshooting

Please consult this page for FAQ and troubleshooting:

http://remotebox.knobgoblin.org.uk/documentation.cgi

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RemoteBox ships with icons which originate from the VirtualBox Open Source Edition, released under the GPL.

8   Disclaimer

For the full details, please see the "NO WARRANTY" section of the GPL. In short, you are entirely and wholly responsible for all consequences resulting from your use, or misuse of RemoteBox. This includes, but is not limited to, loss or damage to data, hardware, money and all consequences that arise as a result.

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9   Donating

RemoteBox is completely developed in my spare time. If you like it or have found it useful, please consider a donation. Head over to the website at http://remotebox.knobgoblin.org.uk and hit the donate button.

10   Contact

For questions regarding RemoteBox, please send an email to:

```
packages [AT] amiga-hardware DOT com
```

Note: Bug reports and support queries can be submitted through the website. Please post there, rather than emailing me directly. That way, other users can also benefit from any discussion and solutions.