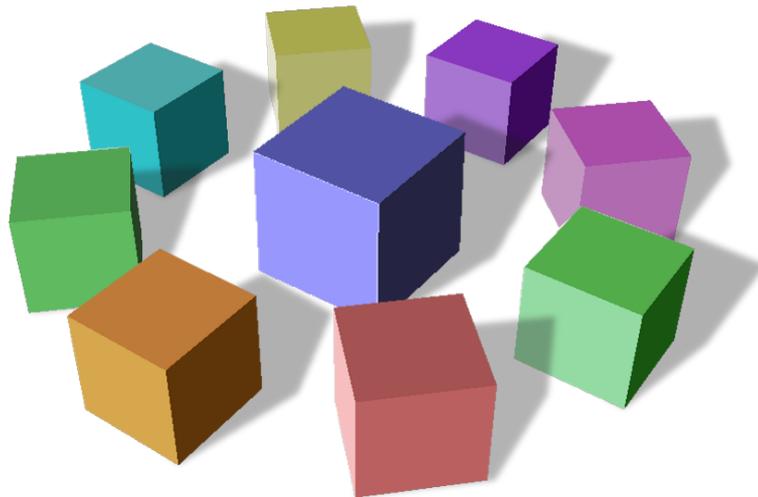


RemoteBox Version 2.0

Open Source VirtualBox Client with Remote Management



Documentation

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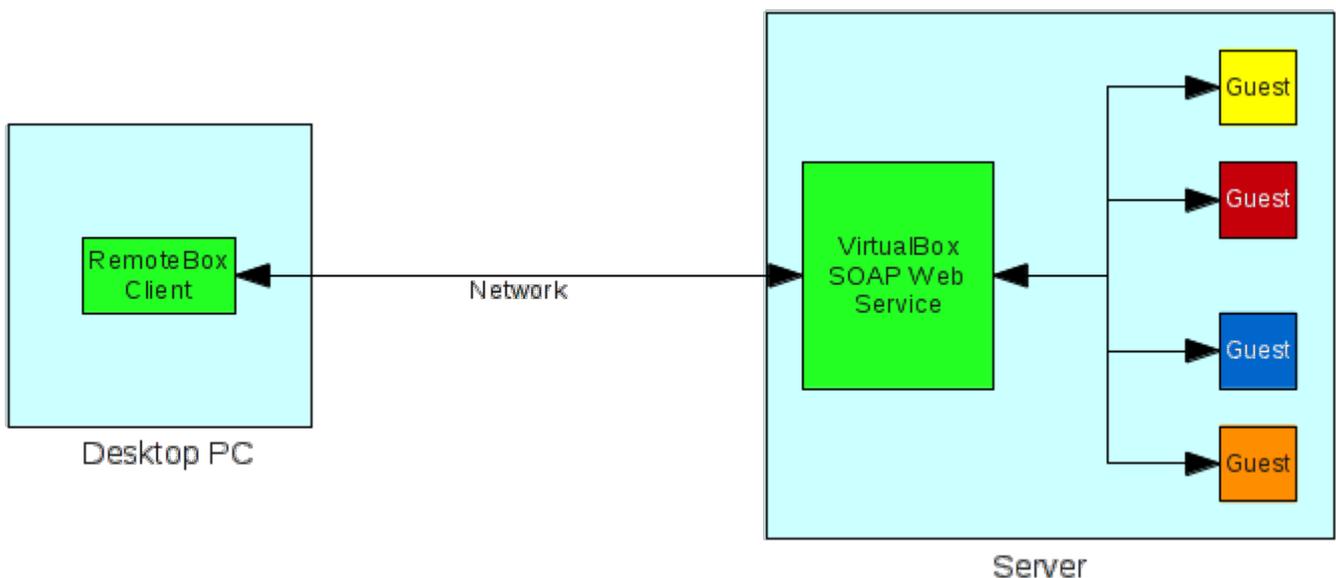
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1 Introduction

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 (compiled against the same Perl)
- An RDP client such as FreeRDP or rdesktop. Avoid rdesktop versions 1.8.0 and 1.8.1 as they are broken when connecting to VirtualBox.
- VirtualBox 5.0.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 installation of the RemoteBox client for various operating systems. You do not need VirtualBox to be installed on the same machine as RemoteBox, however VirtualBox will need to be configured to accept connections from RemoteBox which is described later in this document.

3.1 Installing on Debian

Use your preferred package management tool to ensure the correct DEB packages are installed. RemoteBox requires as least one RDP client to be installed and FreeRDP is now the recommended client. For example:

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory, then launch RemoteBox as follows:

```
./remotebox
```

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

3.2 Installing on Fedora

RemoteBox is available in the official Fedora repositories. It can be installed, complete with dependencies as follows:

```
yum install RemoteBox freerdp
```

It is available from the applications after installation.

For the tarball installation, use your preferred package management tool to ensure the correct RPM packages are installed. RemoteBox requires as least one RDP client to be installed and FreeRDP is now the recommended client.

For example:

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory, then launch RemoteBox as follows:

```
./remotebox
```

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

3.3 Installing on FreeBSD

FreeBSD has RemoteBox in it's official ports repository. Use your preferred ports management tool to install RemoteBox from net/remotebox. For example:

```
portmaster net/remotebox
```

It is available from the applications menu after installation.

For the tarball installation, use your preferred package management tool to ensure the correct packages are installed. RemoteBox requires as least one RDP client to be installed and FreeRDP is now the recommended client.

Binary package example:

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

Ports example:

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory, then launch RemoteBox as follows:

```
./remotebox
```

- 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.

3.4 Installing on Mac OS X

Before installation, you must have XCode installed, complete with the command line tools. If it's not installed please download and install it either from the Apple Developer Website or from the Mac App Store.

You must also install a suitable X Server if you do not have one installed. It is recommended that you download and install XQuartz from the XQuartz Website (<http://xquartz.macosforge.org/landing>)

In addition to Xcode and XQuartz you should configure your system to use the MacPorts repository (<http://www.macports.org>). Follow the instructions there to get MacPorts working. The remainder of these instructions assume you have a correct installation of Xcode, XQuartz and MacPorts.

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

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 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/perl
```

with:

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

Launch RemoteBox as follows:

```
./remotebox
```

3.5 Installing on Mageia

Use your preferred package management tool to ensure the correct RPM packages are installed. RemoteBox requires at least one RDP client to be installed and FreeRDP is now the recommended client. For example:

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory, then launch RemoteBox as follows:

```
./remotebox
```

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

3.6 Installing on Mint

The instructions are identical to installing on Debian Linux. Please see 3.1 Installing on Debian

3.7 Installing on NetBSD

Use your preferred package management tool to ensure the correct packages are installed. RemoteBox requires at least one RDP client to be installed and although FreeRDP is now the recommended client, only rdesktop is available in the official NetBSD repositories. For example:

```
pkgin install p5-gtk2 p5-SOAP-Lite p5-libwww rdesktop xdg-utils
```

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory. **Important!** You will need to modify the very first line in the remotebox file so that it uses NetBSD's implementation of Perl. Open the file in a text editor and replace:

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

with:

```
#!/usr/pkg/bin/perl
```

Launch RemoteBox as follows:

```
./remotebox
```

Lastly, you may wish to configure RemoteBox to use rdesktop to show the display of guests. To do this, run RemoteBox and open the RemoteBox Preferences window from the file menu. Select the 'Display' tab and change the RDP Client field to:

```
rdesktop -r sound:local -r clipboard:PRIMARYCLIPBOARD -T "%n - RemoteBox" %h:%p
```

3.8 Installing on OpenBSD

Use your preferred package management tool to ensure the correct packages are installed. RemoteBox requires at least one RDP client to be installed and FreeRDP is now the recommended client For example:

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory and launch RemoteBox as follows:

```
./remotebox
```

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

3.9 Installing on OpenIndiana

The instructions are identical to installing on Solaris. Please see 3.11 Installing on Solaris

3.10 Installing on OpenSUSE

RemoteBox is available in the official OpenSUSE repositories. It can be installed, complete with dependencies as follows:

```
zypper install remotebox
```

For the tarball installation, use your preferred package management tool to ensure the correct RPM packages are installed. RemoteBox requires as least one RDP client to be installed and FreeRDP is now the recommended client. *For example:*

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

Unpack the RemoteBox tarball and change into the RemoteBox-1.8.1 directory, then launch RemoteBox as follows:

```
./remotebox
```

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

3.11 Installing on Solaris

Before installing any dependencies, ensure you have the SUNWmlib Solaris package installed. It is usually installed by default, otherwise install it using the Solaris Package Manager tool. To provide the required dependencies it's recommended that you use the OpenCSW Repository (<http://www.opencsw.org>). OpenCSW installs packages in its own tree and so does not interfere or conflict with standard system packages. This can be done as follows:

```
pkgadd -d http://get.opencsw.org/now  
/opt/csw/bin/pkgutil -U
```

RemoteBox requires as least one RDP client to be installed and although FreeRDP is now the recommended client, only rdesktop is available as a package for Solaris. Once OpenCSW is configured, install the required packages as follows:

```
/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-1.8.1 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/perl  
with:  
#!/opt/csw/bin/perl
```

Launch RemoteBox as follows:

```
./remotebox
```

Lastly, you may wish to configure RemoteBox to use rdesktop to show the display of guests. To do this, run RemoteBox and open the RemoteBox Preferences window from the file menu. Select the 'Display' tab and change the RDP Client field to:

```
rdesktop -r sound:local -r clipboard:PRIMARYCLIPBOARD -T "%n - RemoteBox" %h:%p
```

3.12 Installing on Ubuntu

Note: Menu handling is broken under the Unity desktop on Ubuntu, which can result in menu entries not being ghosted when they should be. This is a bug with the Unity desktop. The instructions are identical to installing on Debian Linux. Please see 3.1 Installing on Debian

3.13 Installing on Windows

Download the 32bit version of Strawberry Perl (<http://strawberryperl.com>). The 32bit version should be used, even if you are running a 64bit edition of Windows. At the time of writing, RemoteBox is known to work with at least versions 5.18 and 5.20 of Strawberry Perl. Simply run the installer and follow the on-screen prompts. The remainder of the instructions assume you've installed Strawberry Perl to:

```
C:\strawberry
```

After installation, configure Strawberry Perl to use the Sisyphusion Perl Repository (<http://sisyphusion.tk/ppm>) and install additional perl modules not included with Strawberry Perl. This is done by opening a command prompt (eg enter 'cmd' into the start menu search box) and entering the following commands:

```
ppm set repository sisphusion http://sisyphusion.tk/ppm
ppm set save
ppm install Glib Cairo Pango Gtk2
```

Download the latest RemoteBox-x.y.tar.gz file from the Downloads Page and unpack the file using a suitable tool such as WinZip, WinRAR, PowerArchiver etc. For simplicity, rename the unpacked directory from RemoteBox-x.y to just RemoteBox and copy that directory to:

```
C:\Program Files (x86)
```

To add RemoteBox to the start menu, navigate to C:\strawberry\perl\bin, highlight the file called wperl.exe and from the right mouse button menu, select 'Create Shortcut'

Rename the shortcut from 'wperl.exe - Shortcut' to RemoteBox

Select the shortcut and choose 'Properties' from the right mouse button menu

Change the Target field to:

```
C:\strawberry\perl\bin\wperl.exe "C:\Program Files (x86)\RemoteBox\remotebox"
(include the quotes)
```

Move the shortcut to C:\ProgramData\Microsoft\Start Menu. This should create an icon in the start menu which should successfully run RemoteBox. If it doesn't, you should revisit the steps to make sure they're correct

Lastly, you may wish to configure RemoteBox to use the native RDP client in Windows to show the display of guests. To do this, run RemoteBox and open the RemoteBox Preferences window from the file menu. Select the 'Display' tab and change the RDP Client field to:

```
mstsc /w:%X /h:%Y /v:%h:%p >nul
```

The options are case sensitive so ensure you set them correctly.

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:	<i>virtual</i> (The chosen user MUST be a member of the <i>vboxusers</i> or <i>vboxuser</i> 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/vboxweb-service.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/vboxweb-service.log  
chown virtual:vboxusers /var/log/vboxweb-service.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/vboxweb-service.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 not be available.

## 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

Unfortunately 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 RemoteBox Preferences

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

#### 5.1.1 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.**

#### 5.1.2 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: It is recommended that you do not disable the heartbeat without good reason.**

#### 5.1.3 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.

#### 5.1.4 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                                  |

### **5.1.5 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:

3389-4389

### **5.1.6 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.

### **5.1.7 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.

## **5.2 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 elsewhere in this document. Pressing the 'Connect' button will open a dialog window.

The URL of the server to connect to is generally of the form `http://<server>:<port>`. If the port number is omitted it will assume the default of 18083. For example:

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

or

`http://192.168.1.5:18083`

### **5.2.1 Username**

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

### **5.2.2 Password**

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

## **5.3 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.

## **5.4 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.

### **5.4.1 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.

### **5.4.2 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.

## **5.5 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.

## **5.6 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.

## **5.7 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.

## 5.8 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

## 5.9 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>

## 7 Licence

RemoteBox itself, is published under the terms of the “GNU GENERAL PUBLIC LICENSE, v2” or any later version. The use of RemoteBox in whole or in part constitutes acceptance of these terms. For further information, please see <http://www.gnu.org/licenses/gpl-2.0.html>

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. Donating is of course entirely optional.

## 10 Contact

If you have any queries or bug reports regarding RemoteBox, please send an email to:

`packages [AT] amiga-hardware DOT com`