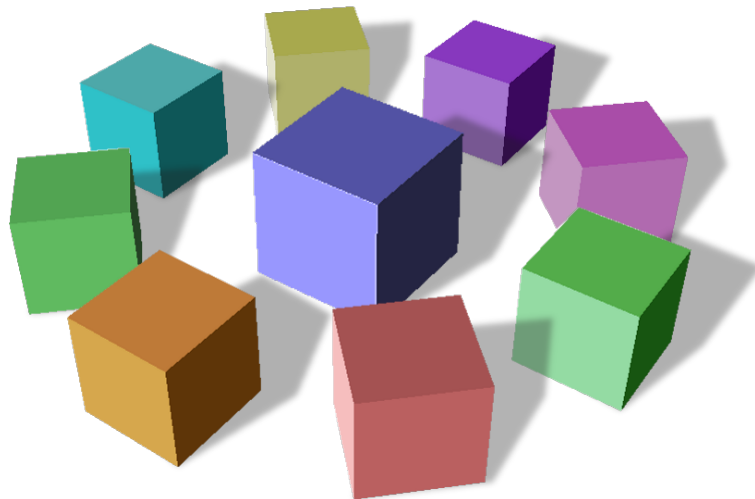


# **RemoteBox**

## **Version 1.8.1**

**Open Source VirtualBox Client with Remote Management**



# **Documentation**

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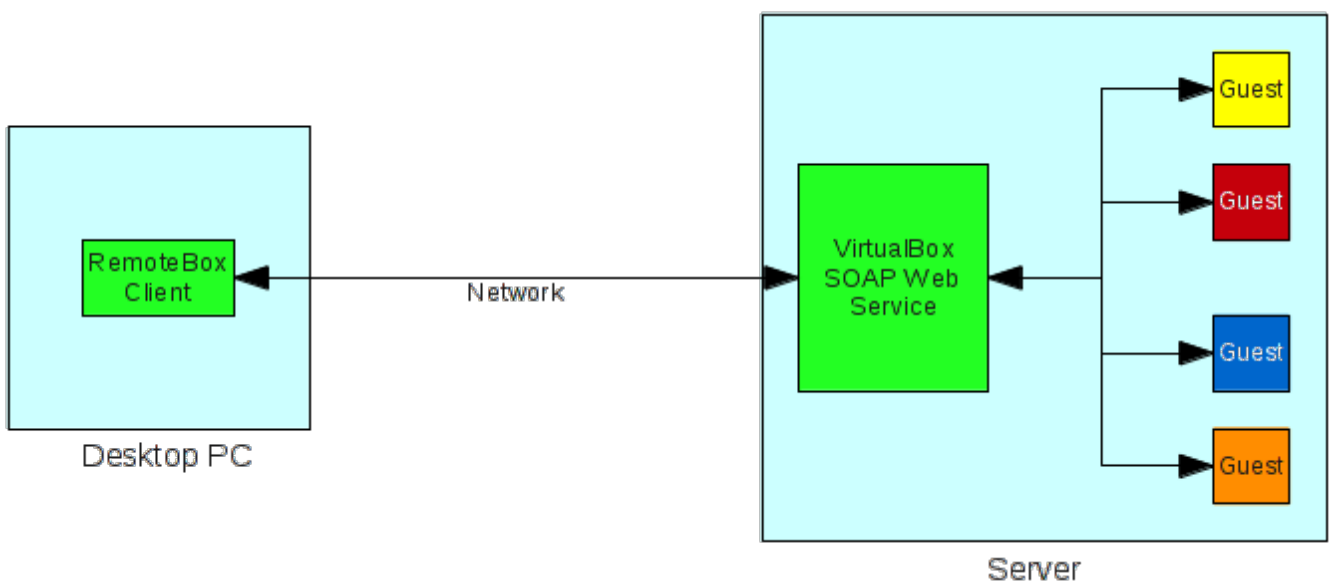
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# 1 Introduction

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 1.8.0 and newer.
- VirtualBox 4.3.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 Installation

This section describes the installation of RemoteBox. You do not need VirtualBox to be installed on the same machine as RemoteBox. Once RemoteBox is installed, you should configure the VirtualBox server which is described later in this document. The **general** procedure for installing RemoteBox is as follows:

1. Install the required dependency packages. Operating system specific instructions are described in following sections.

2. Unpack the tarball archive as follows:

For the bzip2 archive:

```
tar -xvjf RemoteBox-1.8.tar.bz2
```

For the gzip archive:

```
tar -xvzf RemoteBox-1.8.tar.gz
```

3. Change into the RemoteBox directory:

```
cd RemoteBox-1.8
```

4. Run RemoteBox from the command line as follows:

```
./remotebox
```

If RemoteBox does not launch, please consult the operating system specific instructions.

#### 3.1 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
```

*\* If you wish to use rdesktop instead, replace the freerdp-x11 package with rdesktop*

#### 3.2 Fedora

Fedora 19+ includes RemoteBox in it's official repositories which you may prefer instead of using the one downloaded from the RemoteBox website. To install this version, do the following as root:

```
yum -y install RemoteBox
```

Alternatively, use the 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 -y install perl-Gtk2 perl-SOAP-Lite freerdp
```

*\* If you wish to use rdesktop instead, replace the freerdp package with rdesktop*

### 3.3 FreeBSD

FreeBSD has RemoteBox in it's official ports repository which you may prefer instead of using the one downloaded from the RemoteBox website. It can be installed using your favourite ports management tool and is located at net/remotebox.

Alternatively, 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. For example with pkg\_add as root:

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

If you use the ports system and portmaster:

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

*\* If installing freerdp from ports, ensure you build it with X11 and sound support. If p5-libwww is installed from ports (a p5-SOAP-Lite dependency) it should be built with https support. If you wish to use rdesktop instead, replace the freerdp package with rdesktop*

### 3.4 Mac OS X

Mac OS X typically does not come with the vast majority of dependencies for running complex UNIX graphical apps, so usually a 3<sup>rd</sup> party repository system is required. MacPorts (<http://www.macports.org>) is known to provide everything you need to get RemoteBox up and running. Follow the instructions on the MacPorts web site to get it installed and configured. The rest of these instructions will assume MacPorts is correctly installed.

You will also need to ensure that the X11 and XCode packages are installed on your Mac. If not, they can be found on your operating system DVD or downloaded for free from the Apple store.

Install the required MacPorts as follows from the command line:

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

*\* If you wish to use rdesktop instead, replace the freerdp package with rdesktop*

**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 the first line as follows:

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

**replace with**

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

### 3.5 Mageia

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:

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

*\* If you wish to use rdesktop instead, replace the freerdp package with rdesktop*

### 3.6 Mint

Use your preferred package management tool to ensure the correct DEB packages are installed. For example, running apt-get:

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

*\* If you wish to use rdesktop instead, replace the freerdp-x11 package with rdesktop*

### 3.7 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
```

**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 the first line as follows:

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

**replace with**

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

### 3.8 OpenSUSE

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:

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

*\* If you wish to use rdesktop instead, replace the freerdp package with rdesktop*

### 3.9 Solaris / OpenSolaris / OpenIndiana

**Before installing any dependencies, you must** ensure you have the 'SUNWmlib' standard Solaris package installed. If your edition of Solaris is new enough, this can be installed directly through Package Manager, otherwise it should be available on your install DVDs.

Solaris doesn't provide all of the required dependencies out of the box, so it is recommended that you use the OpenCSW (<http://www.opencsw.org>) repository to supply those dependencies. It is quite trivial to set up, especially on recent editions of Solaris. As OpenCSW uses a separate tree for installing its packages, it does not interfere or conflict with the standard system files and packages. 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 Solaris or OpenCSW repositories. Once OpenCSW is configured, please install the following packages as root using pkgutil, for example:

```
/opt/csw/bin/pkgutil -U
```

```
/opt/csw/bin/pkgutil -i pm_gtk2 pm_soap_lite rdesktop pm_glib pm_pango gdk_pixbuf
```

**Important:** You will need to modify the very first line in the remotebox file so that it uses OpenCSW's implementation of Perl. Open the file in a text editor and replace the first line as follows:

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

**replace with**

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

## 3.10 Ubuntu

Use your preferred package management tool to ensure the correct DEB packages are installed. For example, running `apt-get`:

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

*\* If you wish to use `rdesktop` instead, replace the `freerdp-x11` package with `rdesktop`*

## 4 Configuring the 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 start on boot. 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 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 should be installed as the same user used to start `vboxwebsrv`. Instructions are available on the VirtualBox website if you are unsure how to install this pack. The extension pack provides features such as remote desktop display which RemoteBox requires in order to be fully functional.

For the purposes of this documentation, we will assume the following settings, which you should adjust to match your server or needs.

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

## 4.2 Linux Server Configuration

### 4.2.1 Configuring the VirtualBox Web Service

Please read the section 4. Configuring the 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 Server Configuration

### 4.3.1 Configuring the VirtualBox Web Service

Please read the section 4. Configuring the 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 Server Configuration

### 4.4.1 Configuring the VirtualBox Web Service

Please read the section 4. Configuring the 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/web-service:default setprop config/user=virtual
```

- Add the timeout property to the web service.

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

- Add the log file property to the web service

```
svccfg -s web-service:default setprop config/logfile=astring: /var/log/vboxweb-service.log
```

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

```
svccfg -s svc:/application/virtualbox/web-service: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 Server Configuration

### 4.5.1 Configuring the VirtualBox Web Service

Please read the section 4. Configuring the 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 what the options are and do 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.

### 5.1 RemoteBox Preferences

Accessible from the '*File->RemoteBox Preferences*' menu. These preferences should not to be confused with the VirtualBox preferences as this dialog configures settings specifically for the RemoteBox client.

#### 5.1.1 Default Stop Action

This defines what action RemoteBox takes when the "Stop" button is pressed. Please note that 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. Equivalent to removing the power from virtual machine. Use with care.

**ACPI Shutdown:** An ACPI request is sent to the guest to power it off cleanly. Exact behaviour is guest operating system dependent.

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

**The safest way to shutdown a guest is from within the guest's operating system.**

#### 5.1.2 Enable Heartbeat

If enabled, then RemoteBox will send a heartbeat to the VirtualBox web service every 60 seconds to monitor the connection status and keep the connection alive. **Disabling this option is not recommended** without fully understanding the consequences. The default is enabled.

#### 5.1.3 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. There should be little need to disable this option. The default is enabled.

#### 5.1.4 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 such as rdesktop may also be used. **Please note, that rdesktop v1.8.0 and newer does 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

The default value is:

```
xfreerdp -g %Xx%Y --plugin cliprdr --plugin rdpsnd -T "%n - RemoteBox" %h:%p
```

### 5.1.5 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 Open Guest's Display on Guest Start

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 '*Remote Display*' button. The default is enabled.

### 5.1.7 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 you're RDP client command uses any of the %X, %Y or %D substitutions, the corresponding values will be inserted as parameters.

## 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 that the VirtualBox web service is running as. If you have authentication disabled, then you can leave it empty.

### 5.2.2 Password

The password of the user that the VirtualBox web service is running as. 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 has occurred outside of RemoteBox (e.g. another process powered on a guest) you can use the '*Refresh*' button.

## 5.4 Remote 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

## 6 FAQ & Troubleshooting

When troubleshooting problems with RemoteBox, launching it from the command line may provide additional debugging information. Consulting the web service logs and the guest logs is also useful.

### **6.1.1 Does the client that RemoteBox runs on, need to be running the same operating system as the server that VirtualBox runs on?**

No, the client machine can be running a different operating system to the server. For example, you can have RemoteBox installed on a Linux machine and connect to a VirtualBox server running Windows.

### **6.1.2 Can I use RemoteBox to administer VirtualBox on the same physical machine?**

Yes. Just ensure the VirtualBox web service is running on the same machine and by default connect to <http://localhost:18083> with RemoteBox.

### **6.1.3 Does RemoteBox run on Windows?**

The short answer is no. I'm not aware of any Perl distribution for Windows that supports all of the modules required to run RemoteBox. If you do get RemoteBox to run on Windows, please let me know. You can however connect to a VirtualBox server running Windows.

### **6.1.4 Does RemoteBox run on my favourite flavour of 'UNIX'?**

It should be possible to get RemoteBox to run on any reasonably modern flavour of UNIX, or UNIX-like operating system. You may however need to manually compile and install the required dependencies yourself, rather than having them conveniently available in a repository.

### **6.1.5 Does RemoteBox support Teleport?**

No, not at this time. It is unlikely RemoteBox will ever support this feature.

### **6.1.6 Does RemoteBox support importing and exporting Virtual Appliance images (e.g. OVF)?**

No, not at this time. There are plans to support this in the future, although VirtualBox currently seems very picky about what appliances it will and won't import.

### **6.1.7 Does RemoteBox support iSCSI LUNs?**

RemoteBox does not support connecting to iSCSI LUNs directly from its Virtual Media Manager. However you can use `vboxmanage` on the server to attach an iSCSI LUN, which will then be visible as hard disk in RemoteBox.

### **6.1.8 Can I convert a hard disk image to another format?**

Yes. Open the VMM and ensure the “*Hard Disk*” tab is select. Choose the hard disk to want to copy and convert. Select the “*Copy & Convert*” option and select the format you require. You will be prompted where you would like to save the new image. This operation will not alter the source image.

### **6.1.9 Why is RemoteBox restricted to certain versions of VirtualBox?**

VirtualBox versions are generally of the form Major.Minor.Micro (e.g. 4.2.1). VirtualBox only guarantees API compatibility between versions if it is the Micro suffix which has changed. For example 4.2.1 is compatible with 4.2.0, but 4.2.1 is not compatible with 4.1.0. To reduce code complexity RemoteBox only targets the latest version of the API at the time of release. It will warn you, if you use an incompatible version but you may experience problems if you choose to continue.

### **6.1.10 Why are the mouse pointers are out of sync when using the Remote Display?**

To enable mouse synchronisation, ideally Guest Additions should be installed and running within the guest operating system. If this is not possible, then changing the mouse type to “*USB Tablet*” and ensuring USB support is enabled will work, providing the guest operating system supports USB and recognises USB Tablets correctly.

### **6.1.11 When I try to open the manual in RemoteBox, nothing is displayed...**

RemoteBox requires the `xdg-open` command which is part of the `xdg-utils` package. This package is usually installed by default on most distributions, however if it is not installed, please install it along with an appropriate PDF viewer.

### **6.1.12 I run an older version of VirtualBox, what version of RemoteBox do I need?**

Old versions of RemoteBox are downloadable from the website but should be considered unsupported, although user submitted bug fixes are welcome. See the table below for reference.

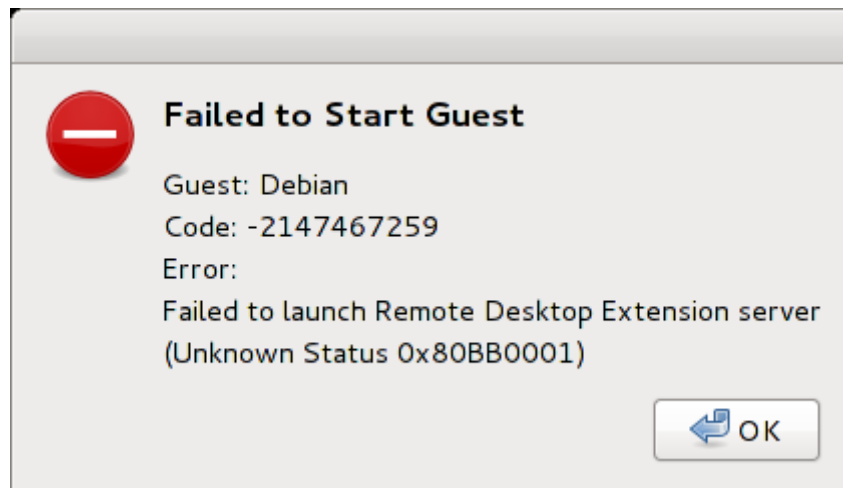
<b>RemoteBox Version</b>	<b>Required VirtualBox Version</b>
v1.6 and newer	v4.3.x
v1.4 - v1.5	v4.2.x
v1.0 - v1.3	v4.1.x
v0.6 - v0.9	v4.0.x
v0.1 - v0.5	v3.2.x
NONE	v3.1.x and earlier editions

### **6.1.13 I have a version of GTK2 older than 2.24, can I still use RemoteBox?**

Old versions of RemoteBox are downloadable from the website but should be considered unsupported, although user submitted bug fixes are welcome. See the table below for reference.

<b>RemoteBox Version</b>	<b>Minimum GTK2 Version</b>
v1.6 and newer	v2.24
v1.2 - v1.5	v2.22
v0.1 – v1.1	v2.16

**6.1.14 I get an error message similar to the following:**



You do not have the Oracle Extension Pack installed or you have an old version of the pack installed. Please download and install the appropriate Oracle Extension Pack for your version of VirtualBox.

**6.1.15 I get an error message on the command line similar to the following “Incorrect parameter at <path>/SOAP/Lite.pm” line xxxx”. What can I do?**

This seems to be a bug in your particular perl-SOAP-Lite implementation. If possible upgrade your version of perl-SOAP-Lite or report a bug against perl-SOAP-Lite with your distribution maintainers. You can also work around this by editing the SOAP/Lite.pm file and changing the line from:

```
die "Incorrect parameter" unless $itself =~/^\d$/;
                                replace with
die "Incorrect parameter" unless $itself =~/^\d*$/;
```

(Note the addition of the asterisk \*)

**6.1.16 I'm using Perl v5.18 or newer and can't seem to be able to login, what's wrong?**

Changes in Perl v5.18 introduced an incompatibility with RemoteBox v1.7 and earlier which prevents logins from working correctly. The recommendation is to upgrade to RemoteBox v1.8 or newer.

**6.1.17 What is the default port that the VirtualBox web service runs on?**

The VirtualBox web service runs on port 18083 unless configured otherwise

**6.1.18 I repeatedly get disconnected from the server, what's wrong?**

Unless you have a particularly bad network, you probably either have a low timeout configured on the web service, or you have disabled the heartbeat in RemoteBox. Please ensure the heartbeat is enabled in RemoteBox (*File->Preferences->Heartbeat*). Ensure that the web service has timeouts disabled or is not configured lower than 60 seconds.

### **6.1.19 When using rdesktop it gives me the following error:**

```
Autoselected keyboard map en-us
Failed to negotiate protocol, retrying with plain RDP.
WARNING: Remote desktop changed from 800x600 to 1280x1024.
X Error of failed request: BadWindow (invalid Window parameter)
Major opcode of failed request: 18 (X_ChangeProperty)
Resource id in failed request: 0x0
Serial number of failed request: 38
Current serial number in output stream: 43
```

Rdesktop 1.8.0 and newer have severe problems when connecting to VirtualBox. Either downgrade Rdesktop to an earlier version or use the recommended FreeRDP client.

### **6.1.20 Sometimes the interface is slow, why?**

RemoteBox is completely dependent on the responsiveness of your network and VirtualBox. Almost every action in RemoteBox requires a transaction to the VirtualBox server. If the server's response is slow, then RemoteBox will be slow as a consequence.

### **6.1.21 Unable to take a screenshot of the guest, or set a screenshot as an icon.**

Increasing the amount of Video RAM assigned to the guest seems to resolve the issue. Otherwise it could be that your build of VirtualBox was built without PNG support.

## **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.

RemoteBox is not affiliated with Oracle. All trademarks belong to their respective owners.

## **9 Contact**

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

packages [AT] amiga-hardware DOT com