check box HSR+

Self-Contained Wireless Hotspot System

Set Up & User Guide

CheckBox Wireless Hotspotstm are designed to be simple to set up & simple to use.
Please take a moment to completely read through these instructions before you begin.

We have designed CheckBox Wireless Hotspots[tm] to be simple to use, easy to manage and straight forward to install. For best results, before beginning to set up your system, please take the time to read through this booklet completely. The answer to most questions can be found in here.

Thank you for purchasing a CheckBox System!

Locating the equipment

Locate the Checkbox in an area that is close to where your customers will be using the network. WiFi devices typically have a range that will work from 100' to 300' from the CheckBox, but walls and other devices can cause interference and shorten the range. Place the CheckBox at least one foot or more away from other electrical devices and large metal objects.

Connecting the equipment

First connect one end of the Ethernet cable to the single port on the back of the CheckBox and plug the other end of the Ethernet cable into your internet connection.

Next, connect the power adapter to a power outlet and connect the other end to the power jack on your CheckBox.

Allow the unit about 90 seconds to fully boot up.

The administration screens are used to manage your system, and view your system status. These screens are accessed through a web browser, and can be accessed from inside the hotspot or from anywhere on the internet. To learn how to access the system from outside the hotspot see *Accessing Your System from the Internet* section in this guide.

To access CheckBox from inside the hotspot make sure your computer is connected to the system, either by a wireless connection or through a wired Ethernet port connected to the CheckBox Master.

If you are connecting wirelessly select the wireless network "**hotspot**", the default name for the CheckBox wireless network. You can change this name later.

Open your web browser and you should see a generic welcome screen.

This is the welcome screen your guests will see when they first log on to your hotspot. From here they are prompted to log in before they can connect to the internet. Of course you can not log in to get to the Internet yet, as you have not set up a login method for your guests.

To access the administration screens enter the following in the address bar: **http://192.168.17.1:3456/admin**

This will bring up a page warning you that no password has yet been set for the administration screens for your CheckBox. Create a password that is a combination of letters and numbers.

Do not use any spaces or special characters (such as &,*,@, !)

Enter your chosen password twice and press **Set Password**. A box will pop up so that you can test your password. If your are asked for a user name, leave the user name box empty.

Setting up Guest Access There are several ways your guests can gain access to the Internet through your CheckBox system; using Access Tickets, using PermaCodes, and using Free Access. You can choose one or more of these methods to allow your guests to log on with.

Access Tickets allow you to create and distribute tickets to your guests that allow them an amount of time online that you determine. These tickets can be good for an amount of time ranging from 15 minutes to one year. You can give these tickets away or sell them.

To Create Tickets click or tap on Access Controls from the menu at the top to begin creating tickets for your users. Select the duration of the tickets you wish to generate and

their expiry date (shelf life), and then click on the "Create Tickets" button.

Shelf Life refers to how long the ticket is good. If you print a sheet of tickets each good for 7 days of access with a Shelf Life of 240 days and they are not used the system will delete them from the ticket database 241 days after their creation. If a customer activates that ticket 239 days after it is created they will still get a full 7 days of access. If they try to activate it 243 days after it is created the ticket will not be recognized by the system. Shelf Life is particularly handy for promotional events, for example; "today only free 30 minutes access with each purchase". Users can not save up these promotional tickets as you can set their Shelf Life to 1 day for this event. You can create tickets with different Shelf Lives and Access Times.

Free Access allows you to give your guests free access two different ways:

You can allow free access once per period, for example 15 minutes free every day, or 1 day free per month. This is great for a coffee shop or restaurant that wants to advertise free internet access but prevent guests from taking up a table for hours upon hours. The guests will still get your welcome screen when they first log on, and if they qualify for free access (if they have not had free access already in the predefined period) then they can click on Free Access. Once the free period has expired the guest will be required to enter a valid ticket number or Permacode.

If you wish to allow unrestricted access to your customers, but still have the customers view your site welcome page, you can set the Trial Time and Trial Period time to be the same. For example; by setting the Trial Time and Trial Period both to 60 minutes, your clients will see the site welcome page every hour.

To enable Free Access, select Access Controls in the top menu and then Free Access Setup from the drop down menu. Select the Trial Time, how much time you want to allow them on

the system, and then select the Trial Period, the amount of time that must elapse before they get a new free trial.

You may also customize the message your users see by selecting "Free Access Text" on the left hand menu and editing the message.

The system will automatically generate the appropriate buttons and boxes on your welcome screen; If you have not printed any tickets and have enabled free access , then the system will not display a box to enter access tickets. If you have not enabled free access and have created tickets then only the ticket box will be displayed on your welcome screen. If all of your tickets have been activated or expired then the system will remove the ticket box from the welcome screen.

Bandwidth Tiers - You can set the amount of bandwidth that Free Access users receive relative to others (ticketed, and Permanent users). Bandwidth Tiers allow you to provide a basic level of service free to customers while providing other users a higher level of service. If you set the *Bandwidth Tier for Free Clients* to 100%, then users pushing the Free Access button will get the same amount of bandwidth as all other users. You can also select 50% or 25% bandwidth level, providing Free Access users 25% or 50% of the bandwidth other users get, as determined your setting under the Client Usage Policy setting.

Permacodes are special Access Codes you can create. Usage is similar to ticket numbers, but these codes are reusable by multiple guests at the same time. You may change permacodes at anytime, and any guest laptops previously activated will still remain activated until the time set for their code has expired.

You can define two permacodes, either for different amounts of access time or for overlapping code rotation.

For example: You change the code guests would use, but leave the previous code active for a few days until you are sure all guests have been given the new access code. Both codes would have the same amount of access time.

You can also have two different codes defined, with different amounts of access time assigned to each code. Guests must be given the new code when you change it.

To set up Permacodes select on the Administration button on the top level menu, and then select Permacode from the drop down menu.

Create your code word(s) and select the amount of time each code word is valid for and press update.

Guests now need to simply type the code into the box on the welcome page, and they will be let on-line for the amount of time assigned to each code.

Permacodes can consist of letters and numbers, but not spaces or special characters. Permacodes are not case sensitive.

Room Prompt Setup

No matter if you use Free Access, Tickets or Permacode you can also require users to list their room, site or boat slip location using Room Prompt.

Selecting Room Prompt adds a second box to the welcome page that the guest must enter information into and the information entered will be listed on the Active Clients Screen next to the user.

To enable the Room Prompt, go to Customize Site then Room Prompt Setup. Select **Enabled** to turn on room prompts, and optionally you can change the text that appears above the prompt box.

Once Room prompts are enabled, in addition to clicking Free access, entering a ticket or permacode, uses will be required to enter something into a second box, and the information that they enter will be listed in the Active Clients table.

Customizing your Welcome Screen As you add access methods the system will add the appropriate buttons and boxes to your welcome screen. You can customize the look of your welcome screen by up-loading a picture or logo in .JPG format.

To upload an image click on **Customize Site** in the top menu and then select Upload Logo on the menu on the left hand side of the administration screen. You may also select the options to change the welcome messages and change the ticket graphics as well.

Accessing Your System from Outside The Hotspot But Inside Your Network

If you have your CheckBox connected to your company network you can access the Hotspot Administration Screens from any device on your network, even if these devices are not connected to the CheckBox system. In order to access your CheckBox from your company network you will need to know the WAN IP address assigned to the CheckBox by your network. If you have access to the Hotspot through a wireless client you can find this address in the Hotspot Administration Screen by clicking on *Network Setup* in the top menu. In the section marked "eth0.1" you will see the IP address listed below" This is the IP address assigned by your ISP or internal router to our system.

Once you have determined the IP address assigned to your CheckBox by your network you can access it by entering the IP address in the address bar of your web browser with **http://** in

front of the address and **:3456/admin** after the address. For example, if the IP address assigned by your network to the CheckBox was 10.0.0.21 then you would enter **http://**10.0.0.21**:3456/admin.**

This will bring up a password login box just as it would if you were connected from inside the hotspot, and all administrative functions are accessible.
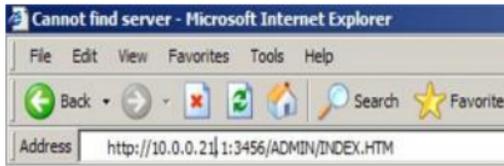
Accessing Your System From The Internet

There are two ways to access your CheckBox System remotely through the internet. The first way is to log in through the CheckBox Support System at www.checkboxsystems.net. The second way is to log on directly via the system's IP address.

In order to access your CheckBox from the internet, you need to know the IP address assigned to you by your internet service provider. Most ISP's use dynamic IP addresses which may change periodically, in order to conserve the pool of available IP addresses. Some ISP's will provide a static (non-changing) IP address upon request, and may charge for this service. If you intend to regularly administer your system from off site through the internet it will be easier if you have a static IP address.

If your CheckBox is connected to your cable or DSL modem through a router, you will need to enable static routing, DMZ, or virtual servers through your router. *Please refer to your router manufacturer's instructions for details on how to enable static routing or virtual servers.*

To access CheckBox through the internet you will enter the IP address assigned by your ISP in the address bar of your web browser with **http://** in front of the address and **:3456/admin** after the address. For example, if the static IP address for the CheckBox was 66.23.124.9 then you would enter

http:// 66.23.124.9**:3456/admin** .

This will then bring up a password login box just it would if you were connected from inside the hotspot, and all administrative functions are accessible.
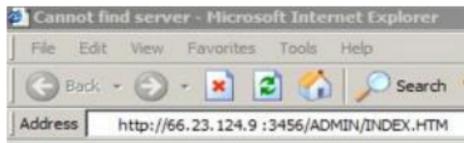
Accessing Your System From Anywhere - An Easier Way You can also access your system remotely using the Remote Access provided by the CheckBox Support Server. Accessing your system from the CheckBox Support Server does not require you to know or remember your IP address, & works no matter how often how often your IP address changes.

To access your CheckBox System remotely you will need your site ID number, user name and administration password. The site ID number is a four digit number assigned by CheckBox Support. Your user name is also assigned by CheckBox Support. Your administration password is the same password that you use to access your CheckBox System when you are on site. To obtain a site ID number and user name, please contact support@checkboxsystems.net to request one.

Network Setup

You probably will not need to make any changes in the network setup of your CheckBox system as most Internet Service Providers use DHCP, Dynamic Host Configuration Protocol, to tell the devices connected to their network what address and other parameters to use.

If your Internet Service Provider uses static IP addresses, or if you are connecting CheckBox to a an internal company network you may need to set some network parameters manually.

To enter Network Setup click on **Network Setup** on the top menu. Next click on **eth0.1** and the Network Setup page will appear. Enter the parameters as provided by your Internet Service Provider or network administrator and check off "Fixed" for IP assignment type. After you have entered the parameters press update and then reboot to restart the system.

Internet Connections

eth0.1	C0:C1:C0:07:07:6B	
Ip	192.168.1.36	N
Dns	192.168.1.1	

Local Address refers to the IP addresses the CheckBox system assigns to users on the system. By default this address is in the 192.168.17.xxx range. This setting should not be changed under most circumstances. If there is a need to change this address range, select **Local** from the menu side and enter the new address range in here, press update and reboot they system.

NEVER SET THE LOCAL ADDRESS RANGE TO BE THE SAME AS THE ADDRESS RANGE OF THE INTERNET CONNECTION. This will cause routing errors and you will lose contact with the unit.

Your CheckBox system, like most wireless access points, announces it's presence by broadcasting it's SSID the a name that your guests will see when their laptops connect to the CheckBox system. By default this name is hotspot. To change the SSID select **wireless** from the drop down menu under Network Setup. Enter in the new name and

press update. It is important that your name contain only letters and numbers - no spaces or symbols.

Under **Wireless** you may also change the system channel. There are 11 channels allocated for wireless networks. By default CheckBox is set to channel 6. Different networks can co-exist on the same channel in the same area, however if you are running another network or there are other networks in your area you may wish to change the channel. Simply select the channel from the drop down box and press update.

A Note About Time & Tickets

Your CheckBox system sets it's internal clock from a time server on the internet. The first time the unit powers up, or after it has been unplugged, it will attempt to connect to one of many time servers on the internet to set it's clock, including the date and year. Since tickets are time and date sensitive if the system does not know what time it is it can not determine if a ticket is still valid.

If the system can not set it's clock for some reason (i.e. your internet connection is not set up or your internet service provider is down) it will not generate tickets or allow users on the system. Users will receive a screen that let's them know that the system is temporarily unavailable. You will still be able to access the administrative pages.

Administering Active Clients Under normal circumstances guests will get online, use their time and then automatically be logged off the system with out any intervention from you or your staff. However there is an option to manually adjust a guest's time remaining, delete a guest from the system, and manually add a guest.

By selecting **Administration** in the top menu and then **Active Clients** on the drop down menu you will see a list of all client computers currently ticketed. Client computers are listed by their MAC address, a unique electronic serial number assigned to each network adapter. You can see their time remaining and whether or not they are online. By clicking on their ticket number or time left you can manually add time or delete the client from the system.

By selecting **All Clients** on the drop down menu under Administration you will see not only clients with tickets but also those clients that have connected with the hotspot system but who have not entered a ticket, permacode or free access. (Although these clients have been recognized by the system, they have not been allowed onto the internet yet, or have been on the internet and their time has expired.) Here you can manually allow them online.

The third column for each client lists how much data traffic they have put through the system. This information is in kilobytes, and is counted from the time they activate their ticket.

The last two columns list the access point or repeater that the client is connected to, and the strength of the signal that the system is receiving from the client. Generally the

received signal strength of the client is roughly equal the signal that the client is receiving from the system. In most cases, signals greater than 12 to 15 should result in a good connection. These signals are 5 minute averages, and it is normal for these to fluctuate.

For easy identification, you can change the label name for a user in the system. For example, if you have several computers in the office that are permanent clients, and some users that are employees with long term tickets, you can label them by their name.

To change the label of a user, simply click on their ticket number in the ticket column Enter the new label or name in the box marked "Identity" and press update. When entering a name or label, do not use spaces or special characters.

Client Usage Policy

With the Client Usage Policy function, you can set how much bandwidth a guest can consume. Bandwidth is the amount of data a guest passes through the system. The system can only pass a finite amount of data at a time, with the limiting factor usually being the internet connection itself. Most internet connections such as cable or DSL pass between 3Mb to 50Mb. Fiber can pass up to 1Gb of data, while satellite and T1 circuits can be slower than 1Mb. Some internet service providers, especially satellite based providers, have limits on how much data can be used per day or per month.

The Client Usage Policy is a system-wide rule that sets limits for all users of the system. It

allows you to set an hourly limit on the amount of data each user can consume. Before reaching the limit each user will have full access to the bandwidth on the internet connection—the system will divide the available bandwidth evenly among the active users. When a user begins to approach their hourly limit that user will be reduced to a slower speed calculated to prevent them from exceeding the hourly limit you have set in the Client Usage Policy.

To set the Client Usage Policy select the **Administration** on the top menu and then select the **Client Usage Policy** on the drop down menu. Choose what type of Internet connection you have and then choose one of the preset Policies or you can choose custom and manually set a limit.

The last column in the Active Clients table shows the Usage Policy status of each individual active user. If the policy box is green, the user has full access to available bandwidth. If the policy box is yellow, the user is approaching the bandwidth limit set by the system and their speed has been reduced. The reduced speed will be displayed in the yellow box.

You can allow exceptions to the usage policy for certain users to allow them unrestricted bandwidth - this feature is particularly handy for your own computer or the office computers. To set up a user for unrestricted bandwidth, simply click on the green or yellow policy box and a screen will open that allows you to select unrestricted usage. You only need to set unrestricted usage once per ticket, and the user will remain unrestricted until their ticket expires. If this is for an office computer consider setting a Permanent ticket by clicking on the ticket number and setting it to Permanent.

Tips for Uploading Graphics CheckBox provides the option to upload a graphic for the welcome page and a different graphic that prints out on the tickets. For best results these graphics should not be too large, either in pixels or file size.

Pixels refers to the number of dots in a picture, these dots make up the picture itself. If a picture is described as 200 x 400 pixels, the picture is 200 dots wide by 400 dots tall. If the pixel count is too big then the picture may not fit on the page or it may push other elements of the page off the screen. It is important to remember that not all screens are the same size! It may look fine on your screen but may not fit on somebody else's screen!

File size refers to the amount of data used to record the picture information. Too little data and the picture looks course, blurry or grainy. Too much information and the picture takes too much space on the hard drive and takes too long to download.

So what is the "right" size? For the welcome screen logo generally an image that is no bigger than 640 pixels wide and 240 pixels tall works best. You can make them less wide or less tall. As for file size, somewhere between 20Kb and 100Kb is about right.

For the logo on your ticket, an image that is 110 pixels tall by 200 pixels wide is ideal, with a file size around 20 kb.

There are many tools you can use to resize your graphic, including Adobe Photoshop, and free shareware tools. Whichever tool you use, make sure to save your graphic in a .jpg format.

Signal Strength, Power Levels & Antennas Data communication between your guest's devices and the CheckBox is a two-way affair. For a successful connection not only does a signal need to get from the CheckBox to the user's device, but they need to get a signal back to the CheckBox. WiFi devices are not all created equal and few have an external antenna. It is not unusual for a guest to "see" a signal of a few bars, or "good" on their device but have a difficult time maintaining a connection. This is usually a case of the device seeing the signal from the CheckBox but the CheckBox not being able to see the Laptop.

User's can be misled by the signal strength displays on their screens. These displays are an approximation of the signal strength received and do not take into account signal noise, the interference inherit in every radio transmission. This can lead to users seeing a strong signal displayed, but still not be able to establish a connection.

Of course just the opposite can occur; sometimes users will see a weak signal but yet make a solid connection. Regardless of what the signal strength display reads the bottom line for the user is always this: Can they connect and is the connection fast enough?

One way to improve the range of the signal is by adding a long range antenna to your access point (the access point in this case is the CheckBox system). Long range antennas are rated in "dbi" and can sometimes help and sometimes can make the situation worse. While a standard antenna sends out radio waves equally in all directions like a balloon, long range antennas achieve greater range by changing the shape of the signal.

Instead of sending out the signal in a balloon shape some antennas flatten out the balloon into more of a donut, sending less of the signal straight up into the sky and more out towards the edges. These antennas can generally extend the usable range from 10% to 30%. However they can introduce two new problems; the case of the laptop seeing the CheckBox but the CheckBox not being able to see the laptop mentioned above, or a case where the "donut" is so flat that it shoots over the heads of the users, like a layer of fog traveling a few feet off of the ground.

A second type of antenna re-shapes the signal even more, sending it in a pinpoint beam. These antennas can increase range ten-fold or more, however if the user is not in the direct path of the signal they will not be able to see it. Even if they are in the direct path if they are not able to send a signal back the full distance they will not be able to establish a connection. These high-gain point-to-point antennas are best used in pairs, one on each end of the path, and while not practical for use on guest's devices they are good for connecting buildings in remote locations or repeaters in areas not contiguous to other units.

There are other ways to improve the range of the signal for users. One way is to improve the sensitivity of the radio receiver at both ends. While we do not have control over the quality of the user's laptops we have made the receiver in the CheckBox very sensitive.

Another way to improve range is to increase transmit power. Again, since we do not have control over the quality of the user's laptops we cannot affect their transmit power, but we could boost ours. CheckBox uses the maximum legal power for unlicensed operation in the frequencies (channels) it occupies. There are some hotspot companies that do use higher power, but that is a dangerous game.

Unlicensed operation at higher power can result in the property owner being fined.

When you boost the transmit power on one end of the connection but not the other you also run into the problem of one side being able to see the signal from the other side but not being able to send a signal back.

Using antennas that did not come with your CheckBox system or connecting your CheckBox system to an amplifier or booster will void your warranty and could cause illegal operation.

System Alerts

You can receive an email or text message if your CheckBox Master unit, one of your repeaters, or your internet connection goes off-line. These System Alerts are issued by the CheckBox Support Server, which monitors your system. This monitoring service is included in the first year warranty that comes with every CheckBox System, and is also included in the Extended Warranty Program.

Before you can set up alerts you will need a Remote Site log-in. If you do not have a remote site log-in you can request one from CheckBox by sending an email to support@checkboxsystems.net.

To set up alerts for your CheckBox;

1. Log in to the CheckBox support servers through your remote site login but do not click on the name of your site to log all the way into your local CheckBox.

2. After logging into the support site click on "Update Site Information".

3. Set your Alerts to either Aggressive, Normal or Relaxed

4. Enter the email address you want the alerts sent to

Site Name	Lake Wobegon
Username	Garrison
Password	••••
Email Alerts	○ Disabled ○ Aggressive ◉ Normal ○ Relaxed
Alert Email Address	GK@Yahoo.com

5. Click the "Update Site Info" button

The first time you activate the alerts for your CheckBox, the support system will need to download some configuration updates to your CheckBox units, which may take up to 4 hours to complete.

Setting alerts to Aggressive will generate an alert if a CheckBox mesh node or a master unit is late for any of it's scheduled check in cycles. This may cause an excessive amount of alerts to be generated. It is not uncommon for a unit to be late or to miss a check in cycle due to network congestion or high traffic.

Setting alerts to Normal will generate an alert if a CheckBox mesh node or a master unit is late or misses two check in cycles. This is the setting most users will want.

Setting alerts to Relaxed will generate an email if a CheckBox mesh node or a master unit fails to check in with the support server within the last 60 minutes. This setting is suitable for users with frequent power issues or issues with their internet service provider.

Many cell phone providers allow you to receive emails as text messages. If you wish to have the alerts sent to your cell phone as a text message, check with your cell phone provider as to the address format to use (often it looks something like yourphonenumber@cellphoneprovider.net) Some cell phone providers charge for incoming text messages. You may be charged by your cell phone provider to receive these messages.

Warranty & Site Support

All hardware sold by CheckBox is warranted for one year from date of purchase. This warranty includes telephone support for the property management and employees during regular business hours and repair or replacement of failed hardware. After the first year you have the option of extending the original warranty and support for a nominal annual subscription. This warranty does not include supporting end users. Full warranty information can be found on the back cover.

Optional Services: Guest Support

- ✓ 24/7 live support for guests and end users
- ✓ Dedicated toll free number
- ✓ Tracking of support incidents and escalation
- ✓ Can be used seasonally - no long term contract required.

Guest support is provided 24/7 by professional support staff at a dedicated support number. Support staff are available to assists guests connecting to the wireless service, configuring their wireless settings and logging on. Support staff have instant, real-time access to systems, can perform diagnostics, and when appropriate restart networks and alert property owners to issues, as well as escalating critical system issues to advanced technical support.

Guest support is priced on a per-room/per-campsite/per-boat-slip basis per month. Guest support requires that the site is also subscribed to Site Monitoring. *For more information or to order these services please contact your dealer.*

Support Options Comparison	Hardware Warranty & Standard Support	Guest Support
Support for Staff & Management	Yes	Yes
Support for Guests	No	Yes
Hours of Availability (Eastern)	9am to 7pm Mon—Fri	24/7/365
cost	$60 per unit, per year	$1.50 per guest unit (requires Hardware Warranty & Support if not under original warranty)

Your Suggestions are Welcome This is the seventh generation of this product, and many of the added features, improvements and refinements have been made at the suggestion of our customers. We absolutely welcome your feedback and suggestions.

Warranties and Service

We want you be completely satisfied with your system. If you are not completely satisfied please let us know and we will try to make it right. If you are still not satisfied you may return the system in it's original condition within 30 days from the date of purchase for a full refund, less shipping and installation.

This system includes a one year warranty from the date of purchase and one year of standard support. This warranty covers repair or replacement of the components of the system as we determine necessary. The warranty does not cover damage due to improper installation, use of unauthorized accessories (including, but not limited to external antennas and power amplifiers) lightning, vandalism or physical abuse. Standard support is for use by the site management and employees and is provided via telephone or email at our option delivered during standard business hours. Standard support does not include guest support, on-site visits, after hours calls, or assistance with other network issues and items not related to this system. In no event shall CheckBox Systems LLC be responsible for consequential damages due to the failure of this system or any of it's components. We reserve the right to terminate support in the unlikely event of excessive, or abusive calls. Under no circumstances will Checkbox Systems LLC's liabilities exceed the original purchase price of the product. This is a network access device, and the end user is ultimately responsible for network and data security.