



## **J2 Wave Software Utilities**

### **User Manual**

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*September 2010*

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# J2 Setup

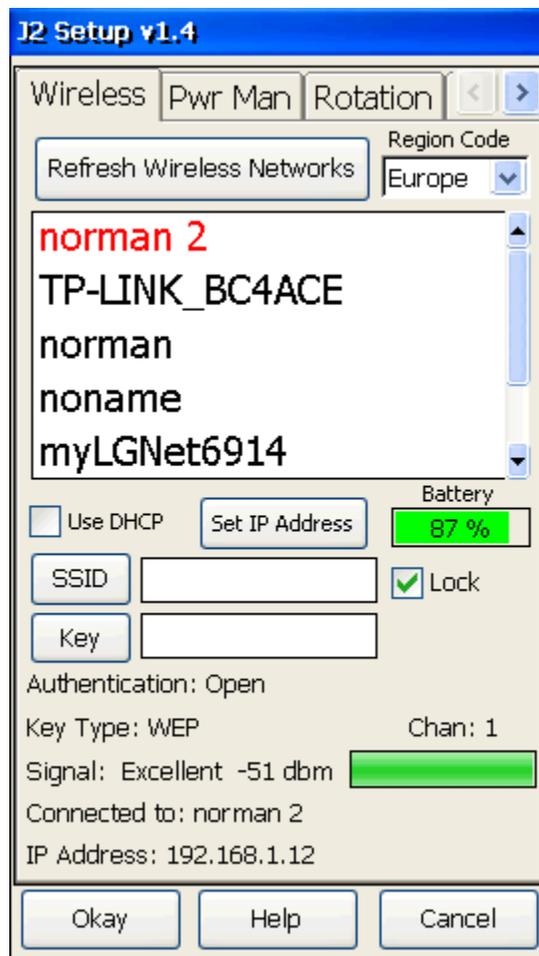
## Overview

The J2 Wave handheld computer comes with a simplified setup program that allows for quick and easy configuration of the wireless network and other options. This finger friendly utility runs on first boot up to allow the wireless network to be configured. All the Microsoft supplied utilities still work but in normal use only the J2 setup program should be needed to configure the J2 Wave handheld computer.

The program J2 Setup can be run at any time but will run automatically on boot up if it is detected that the wireless network has not yet been configured.

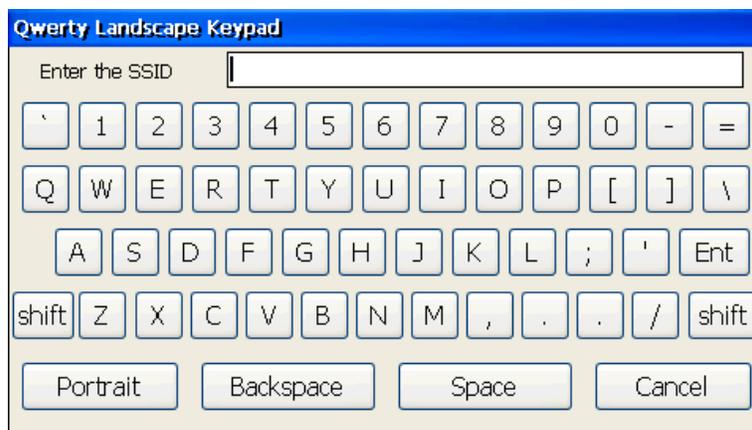
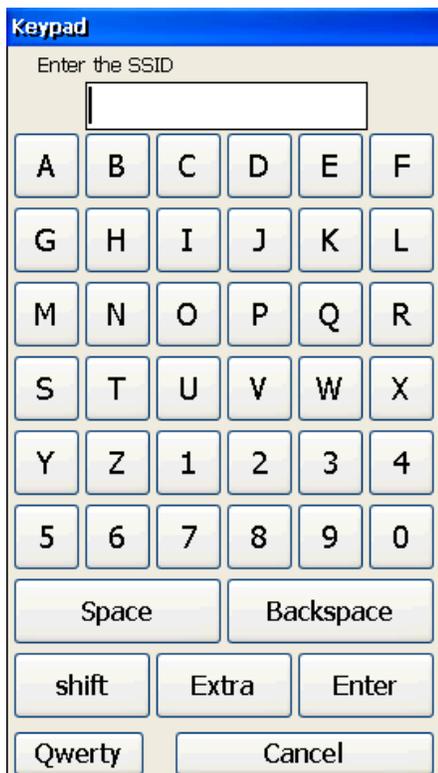
## Wireless Setup

The first program tab of the J2 Setup program shows the wireless network setup screen as shown below.



When J2 Setup runs it will display a list of wireless access points within range of the unit. To select a network just touch the name (SSID) on the screen. The name will now appear in the SSID box below the network list. The program will also display the Authentication (security) type used, Key type, signal strength and WiFi channel used as shown above.

If the wireless network name (SSID) is not broadcast it may be entered manually by clicking on the SSID button. A keypad will appear allowing the user to type in the SSID name as shown below. The Qwerty button can be used to bring up a Qwerty type layout keypad if desired.



After the SSID is selected the security Key (password code/word) must be entered if required. The key length and type of characters required will vary depending on the authentication (security) type used. The most common security mode used nowadays is WAP2 which is more secure than WEP or WAP.

*Main Screen*

**J2 Setup v1.4**

Wireless Pwr Man Rotation

Refresh Wireless Networks Region Code Europe

**norman 2**  
myLGNet6914  
2WIRE5706  
norman

Use DHCP Set IP Address Battery 83 %

SSID norman 2  Lock

Key ABABABABAB

Authentication: Open

Key Type: WEP Chan: 1

Signal: Excellent -43 dbm

Okay Help Cancel

*Enter Static IP Address Screen*

**IP Address**

Enter the IP Address

192.168.1.12

1 2 3

4 5 6

7 8 9

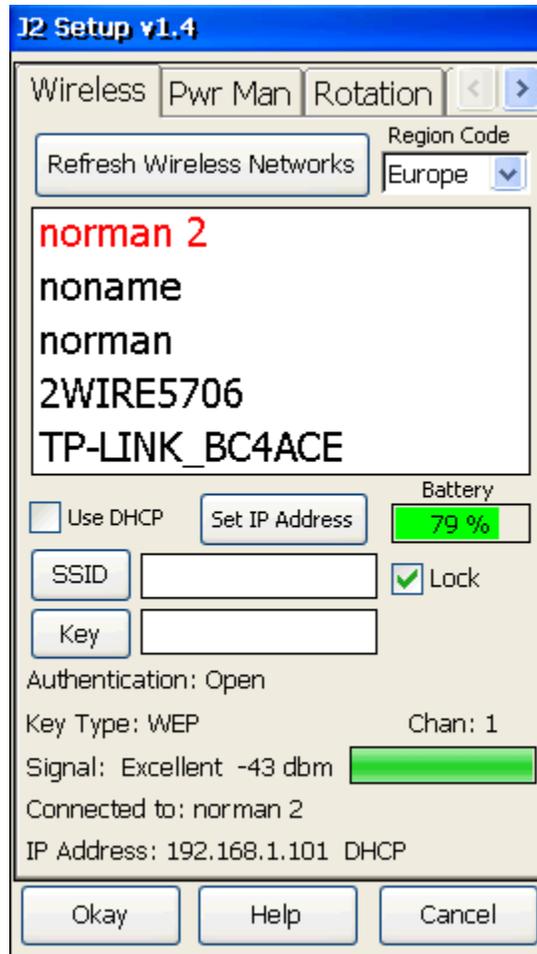
0 . Enter

Backspace Cancel

Once the Key is entered the user can set a fixed IP address or have the IP address set via DHCP. For most handheld application a fixed IP address is recommended. The SSID Lock option is also set on this page by checking the Lock tick box. Once the SSID, Key and IP address is entered the user clicks on Okay and the new settings will take effect and the Setup program will exit. The unit should now connect to the wireless access point selected. Setup may be run again at any time to change the wireless settings, check the wireless status or set other options.

## Wireless Setup Screen

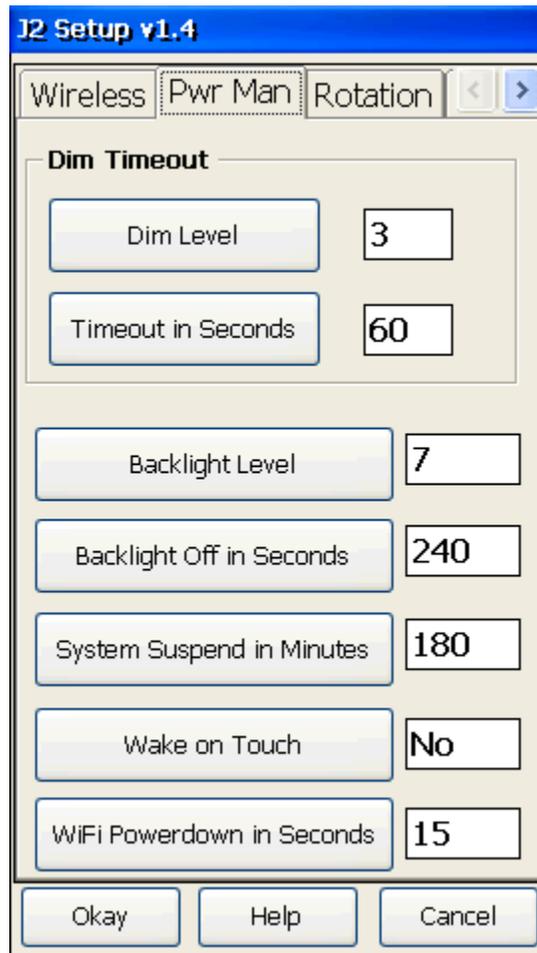
Once the wireless network is configured and Setup is run again the first page of the setup program can be used to check the status of the handheld. The currently used SSID will display in RED. The Authentication, Key Type, Signal Strength, Access Point Connection, Handheld IP address and Battery Charge level are all displayed on this screen. The battery charge level will display in Green, Yellow or Red depending on the level of charge. Some of this same information can also be display using the side button of the unit. Please see the Reset/Status section on this manual for more information.



If the IP address is set via DHCP the letters DHCP will follow the IP address displayed.

## Power Management Setup

A number of things control the amount of power used by the J2 Wave handheld computer which directly affect battery life. In normal usage the battery of the J2 Wave will last 9~11 hours or longer on one charge with power management enabled. Without any power management the battery will only last 3.5~5hours. With J2 power management enabled the performance of the handheld will be the same as without any power management.



The brightness of the display screen of the J2 Wave can be set to different levels depending on the user requirements. The level can be set 0-10 zero 0 being the dimmest setting and ten being the brightest. The default brightness is set via the *Backlight Level* button. A backlight brightness level of seven works well for most situations.

To maximize battery life the screen can also be set to dim after a preset timeout of no touch activity. The brightness level when dimmed is set by the *Dim Level* button with a brightness level of 2 or 3 recommended. The dim time out is controlled by the *Dim Timeout* box and can be set from 0-999 seconds. A value of zero disables this function. Any touch to the screen will reset the dim timeout counter and the screen will only dim if not touch during the timeout period.

The backlight can be set to turnoff after a preset period of no touch activity. The time out is set by the *Backlight Off in Seconds* button and can be set from 0-99999 seconds. A value of zero disables this function. The first touch to the screen after the backlight is turned off will turn on the screen but will not be recognized as a touch by the application.

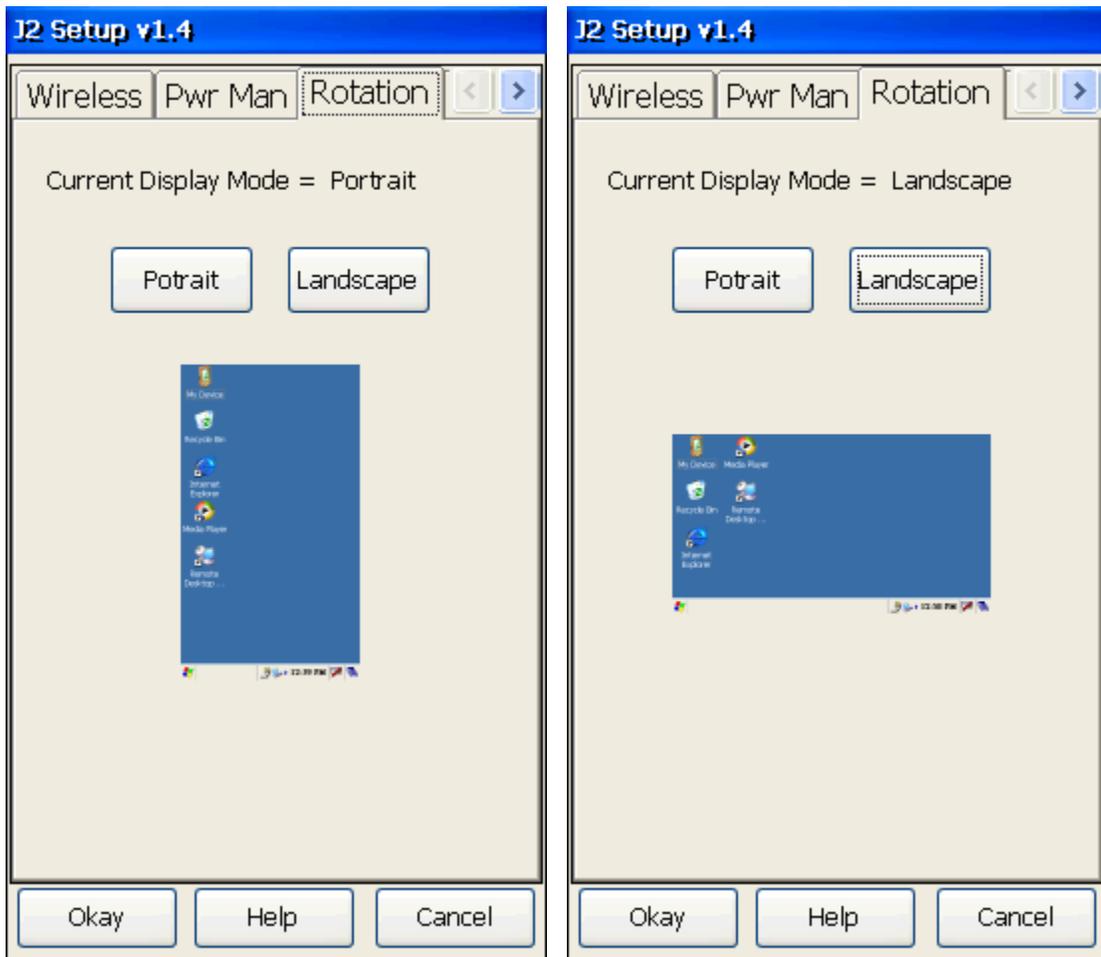
The system can be set to Suspend (Turn Off) after a preset period of no touch activity. The time out is set by the *System Suspend in Minutes* button and can be set from 0-99999 seconds. A value of zero disables this function. At the timeout the system will hibernate (suspend) and the wireless network and CPU will turn off. The system can be brought out of suspend by touching the screen (if Wake on Touch is enabled) or by pushing the center button on the navigation buttons. The system will return to the same place it was before suspended and the application will still be running and the wireless network will reconnect is less than 7 seconds (assume fixed IP address).

If it is desired for the unit to *Wake on Touch* when in suspend then than this option should be set to *Yes*. Since any touch to the touch screen will wake up the unit this may not be the best option if the unit is placed in an apron or belt holder as the screen will more than likely be touch when doing this waking the unit up.

One addition power management option is the *WiFi Powerdown in Seconds* button. This sets a timeout period of no touch or network activity that will cause the Wireless controller to go into low power mode. This value can be set from 0-99999 seconds. A value of zero disables this function. A default value of ten seconds' works well with most applications but longer time out can be used to insure the unit always response in the fastest way possible.

## Screen Rotation

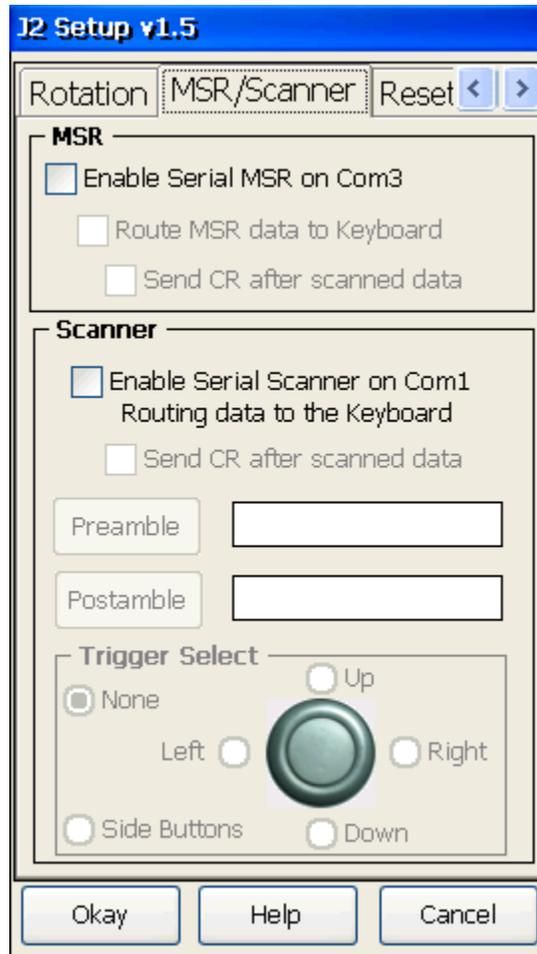
If the application to be run works in only one orientation this screen can be used to set the default rotation. When set to *Landscape* the unit will automatically flip the screen for right or left handed users. Other options are available for auto rotate using the *Display* icon in *Control Panel*.



## MSR/Scanner

When the MSR is installed it normally needs to be enabled in this screen. If the application is written to work with a keyboard wedge type MSR, enable the *Route MSR data to Keyboard* option. This will cause all data read from the MSR to be sent to the keyboard port. WordPad could be used to test the MSR in this case.

Some applications enable the MSR themselves in which case these options do not need to be changed.



The Scanner, normally located on COM1, can be made to route any scanner data to be input on the keyboard port. In this mode the scanner can be triggered by any one of the four button keys or by the application software sending a "F11" key to the keyboard port.

Optional a CR character (Enter Key) can be added at the end of the scanned data as well as a preamble and/or postamble.

As with all other setup options the default setting for these optional settings can be controlled via registry settings as listed later in this manual.

## Loading Software

There are a number of ways to load software and files to the J2 Wave. Here is a quick list.

- 1: Using J2's Remote Application Loader utility, RAL. (Recommended)
- 2: Copying files from the optional SD memory card.
- 3: Using the optional USB interface cable.
- 4: Manually copying files via the 802.11g/b wireless network.
- 5: Using the Bluetooth interface with Active Sync or FTP program.

J2 highly recommends using the J2 written RAL program as it provides a very fast, easy and flexible way to load software and/or update it over the 802.11g/b wireless network.

# Remote Application Loader (RAL)

## Overview

The Remote Application Loader (RAL) provides a simple way to load application software on the J2 Wave handheld computer using the wireless network. RAL can also be configured to automatically update that software as needed.

RAL works on the concept of a computer somewhere on the local network acting as “Remote Application Loader” server. A copy of the application software to be loaded on the handheld will be kept on the server and downloaded to a handheld device as required. If an update to the application is needed it would be loaded on this server and automatically download to all handheld devices on their next reboot. Either a common copy of the handheld software or individual copies for each handheld can be stored on the application server.

With a correctly configured remote application loader server loading a POS or other application software on to a new J2 Wave handheld computer can be very simple to the point that no technical knowledge is needed.

## Prerequisites

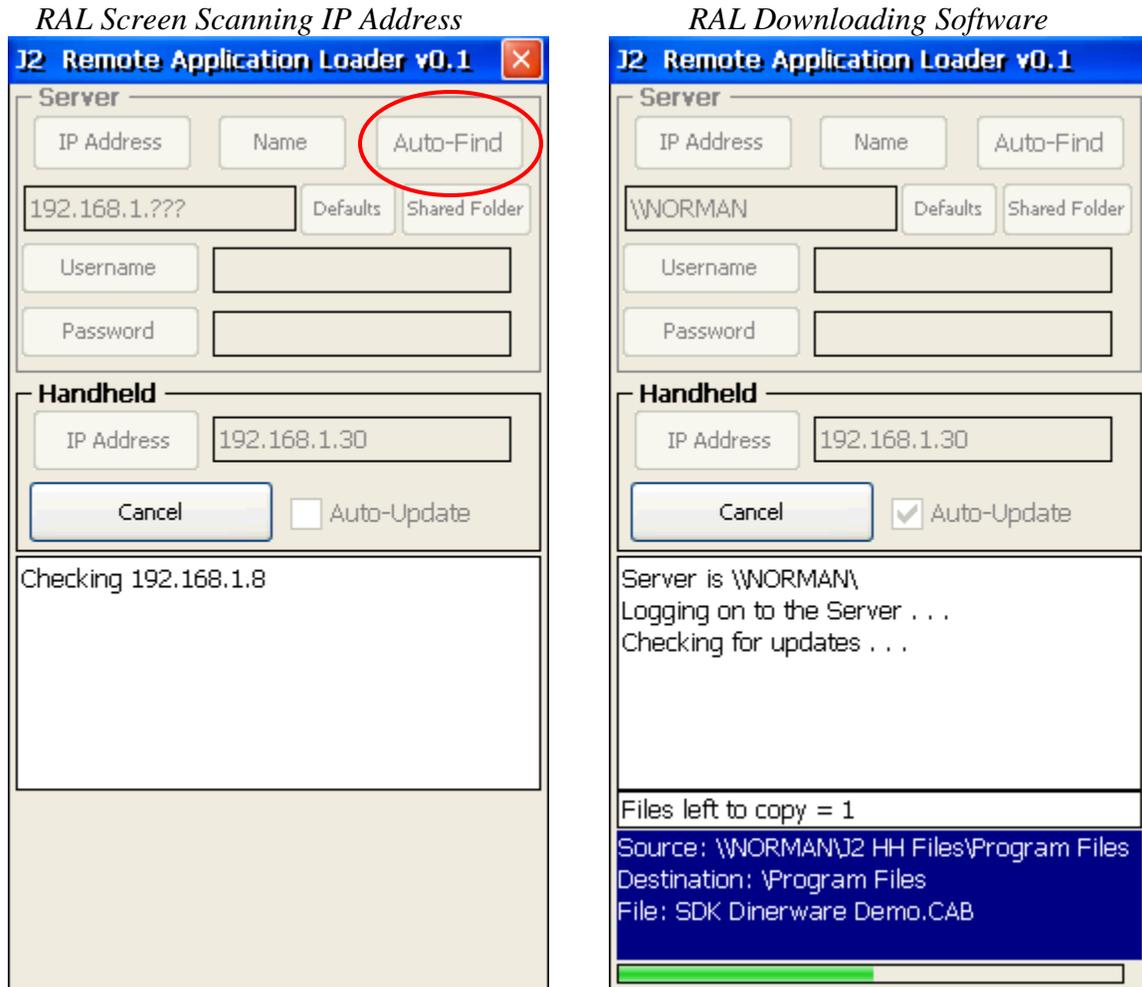
RAL assumes that a wireless network has already been configured using the J2 Setup utility or the Microsoft utility and that an operational application loader server is present and configured on the network. The key to having RAL work correctly is to have the remote application loader server configured correctly.

## Server Setup

In order for RAL to download the application software it needs to know the network name of the application loader server. There are three ways to configure this, manually by entering the server IP address or computer name or using the RAL Auto-Find option. The Auto-Find option will automatically scan the network and find the application server if it is present.

## Server Auto-Find (CE 5.0 only)

To run *Auto-Find* all that is needed is to click on the *Auto-Find* button and RAL will do the rest. RAL will scan through all valid IP addresses on the network checking each shared computer to see if it is configured as the application loader server. Once it finds the server it will automatically download the software to the correct locations on the handheld. This operation is shown below.

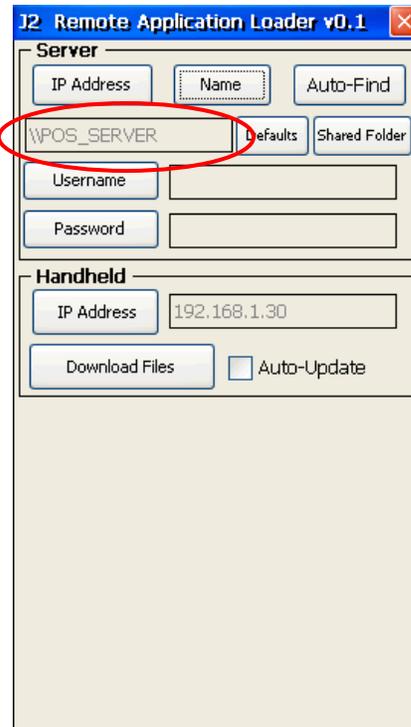
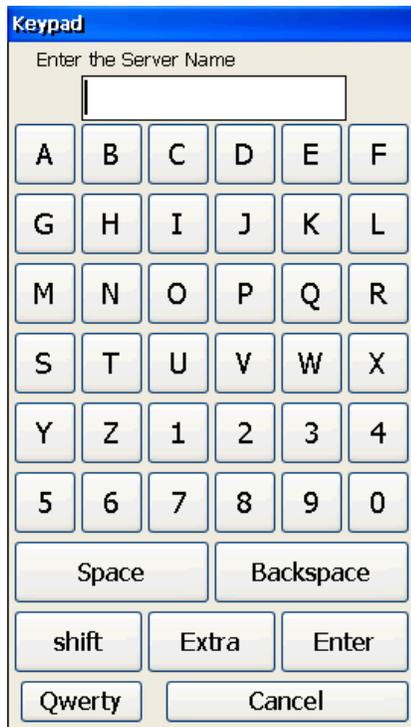


If the handheld's IP address was set using a DHCP assigned IP address the *Auto-Find* feature will now change this to a fixed IP address to insure roaming will work correctly. The *Auto-Find* feature will also set the *Auto-Update* feature to enabled so RAL will automatically check for software updates next time it is run.

The *Cancel* button can be used anytime to cancel the file download. Depending what the RAL program is doing it may take some time to respond to the *Cancel* button. The program will restart in response to the *Cancel* button.

## Server Manual Setup, CE 6.0 and CE 5.0

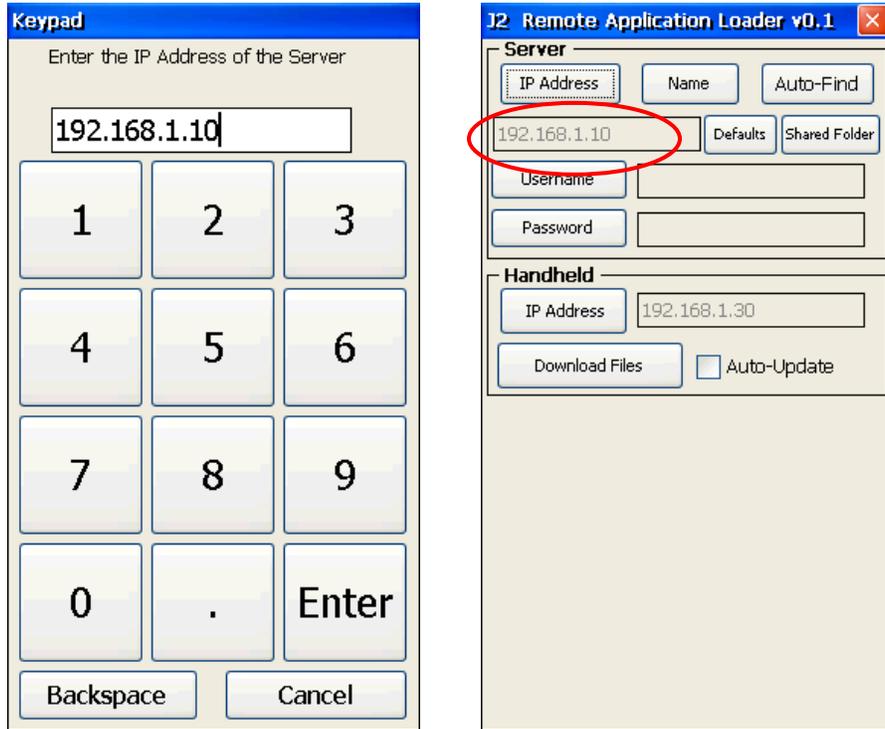
The application loader server can also be configured manually. This can be done by entering the known server IP address or the server network name. To set using the server name touch the **Name** button and enter the server's network name. No back slashes are needed.



The **shift** button and **Extra** button can be used to enter characters not displayed on the first keyboard page. Once the server name is typed in touch the **Enter** button, the server name is now set and will display on the main screen. The **Qwerty** button can be used if desired to use a Qwerty type Keypad to enter the server name.

To use the server IP address instead of the sever name touch the **IP Address** button and a Keypad will pop up to enter the IP address with. When entering the IP address separate the fields with a period as shown.

**Note:** Using the IP address instead of the server name is supported in CE 5.0 only.



Once the server IP address is entered it will display on the main screen server section.

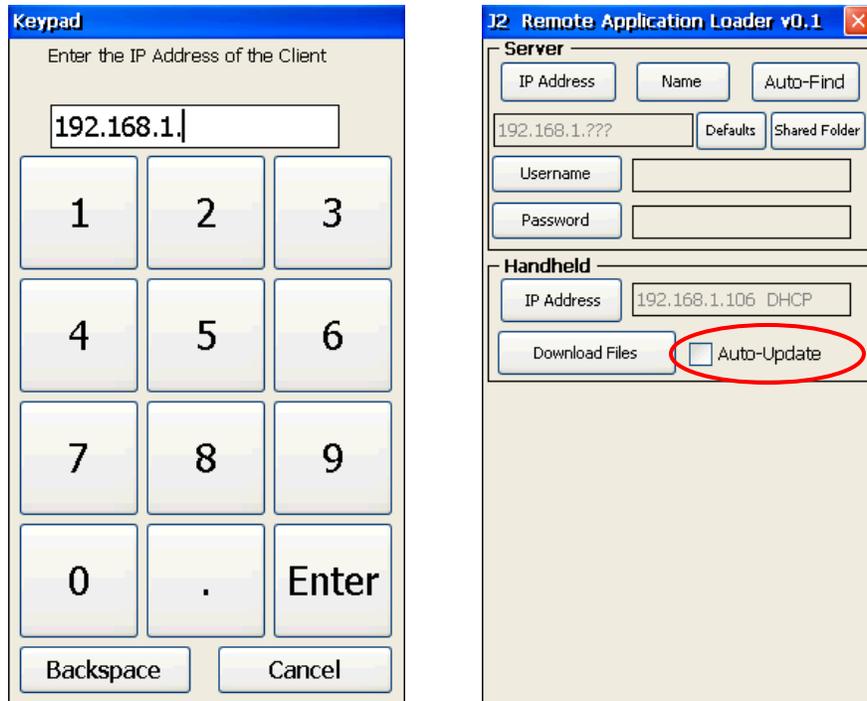
### Handheld IP Address Setup

The Handheld section of the main screen displays the current Handheld IP address and allows it to be changed if needed. If the current handheld IP address is a DHCP assigned IP address it will display **DHCP** after the IP address as shown below.



It is highly recommend that the IP address for the handheld use a fixed IP address. A fixed IP address is needed for quick reconnection to the network when the wireless signal is lost or when using auto-roaming. If *Auto-Find* is used it will automatic change the DHCP IP address of the handheld to a fixed IP address.

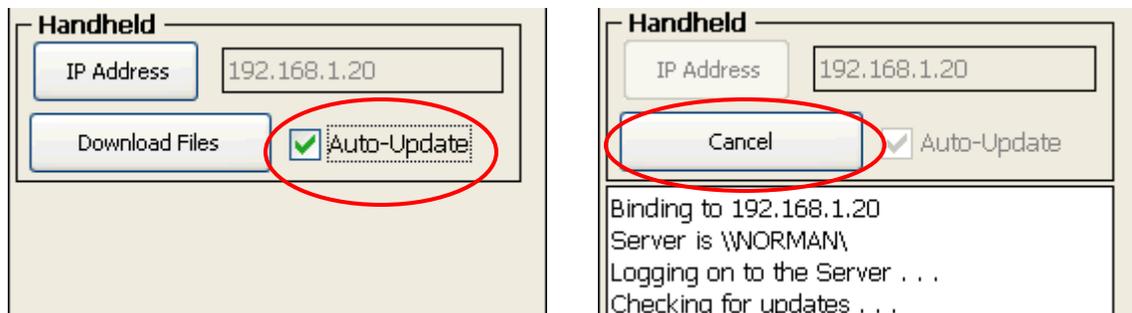
To change the handheld's IP address touch the *IP Address* button and a Keypad will pop up to enter the IP address with. The first three fields of the IP address will already be filled in and only the last three digits of the IP address need to be entered. If you wish to override the first three fields you can use the *Backspace* button.



Once the IP address is entered it will display on the main screen as show above.

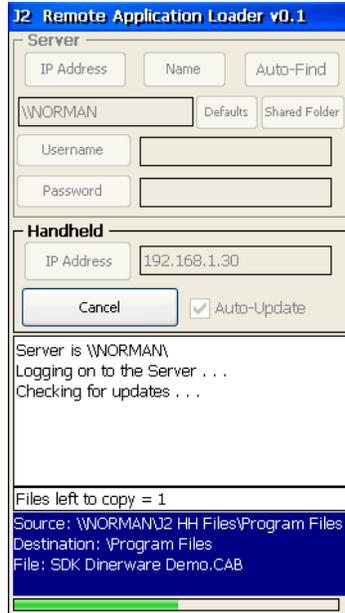
### Auto-Update

The *Auto-Update* box can be check so that every time RAL is run it will automatically check for software updates on the application loader server. RAL will use the previous configuration setting. This check can be stopped by touching the *Cancel* button when it is running.



## Download Files

The downloading of the application files may be started using the *Download Files* button. This will cause the RAL to logon to the application loader server and download all files required for the handheld application to run.



The program will first check to see how many files are needed to copied or updated\* then will start copying them from the application loader server to the handheld computer. The files will be copied to the correct folders. A progress bar will be displayed at the bottom of the screen.

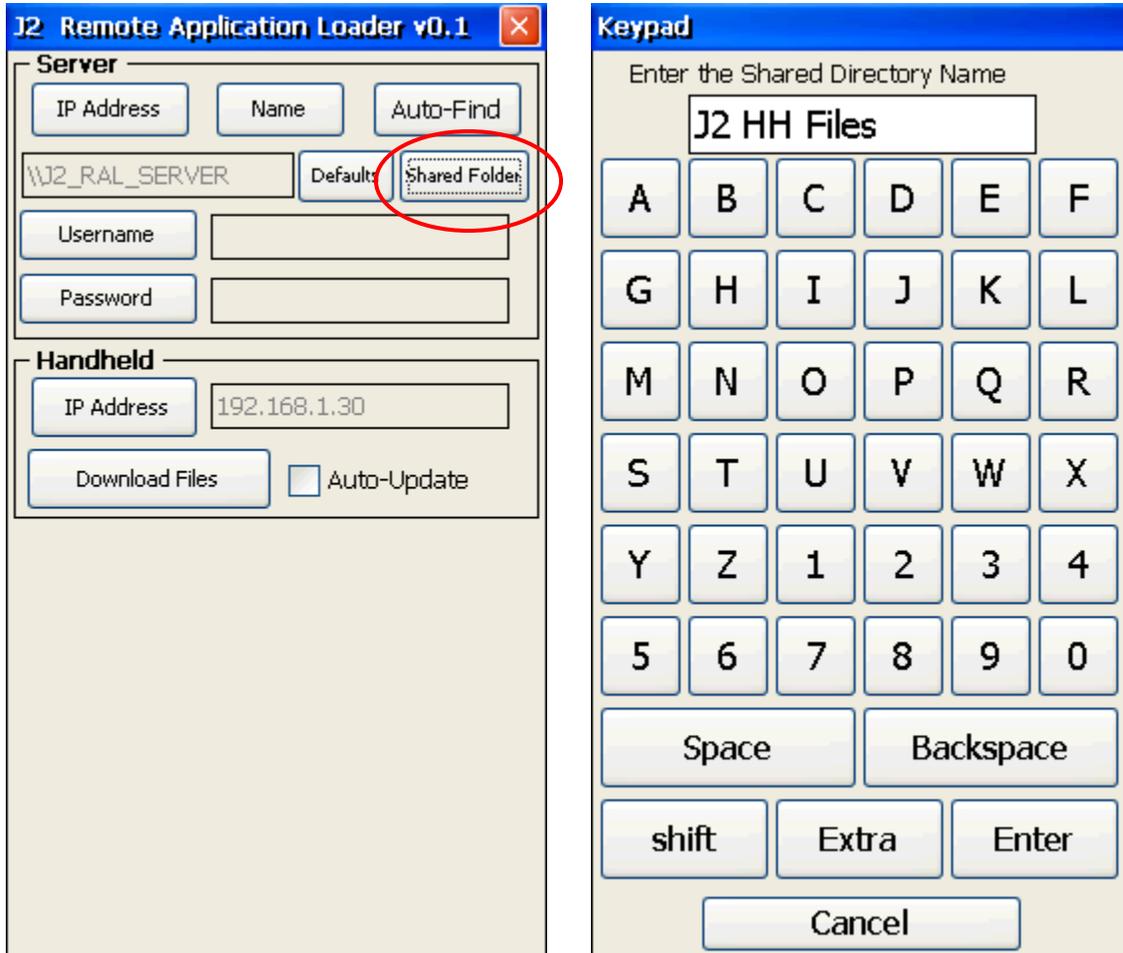
When the program has finished copying the files from the server it will display a screen showing how many files have been copied to the handheld, then the program will exit.



Note: If the *Download Files* has been run previously the RAL program will check to see if any files have been updated on the application loader server and only download them.

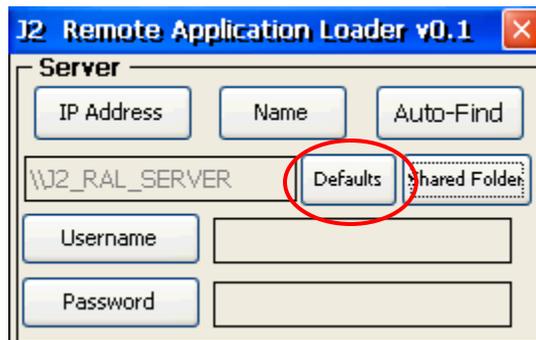
## Shared Folder

The RAL program looks for the unique folder name *J2 HH Files* on the local area network. This *Shared Folder* button allows the default name to be changed.



## Defaults

The *Defaults* button when touched will clear all entered settings and restart RAL.



# Remote Application Loader Server Configuration

## Overview

For RAL to work a Remote Application Loader (RAL) Server must exist on the network. The RAL server is nothing more than a networked shared folder that can be located on any networked computer on the local area network. No application software needs to be running on the RAL Server for RAL to work.

The RAL program looks for the unique folder name *J2 HH Files*. If using the Auto-Find option the RAL program will use the first instance of a shared folder with the name *J2 HH Files* and assumes that it is the correct one.

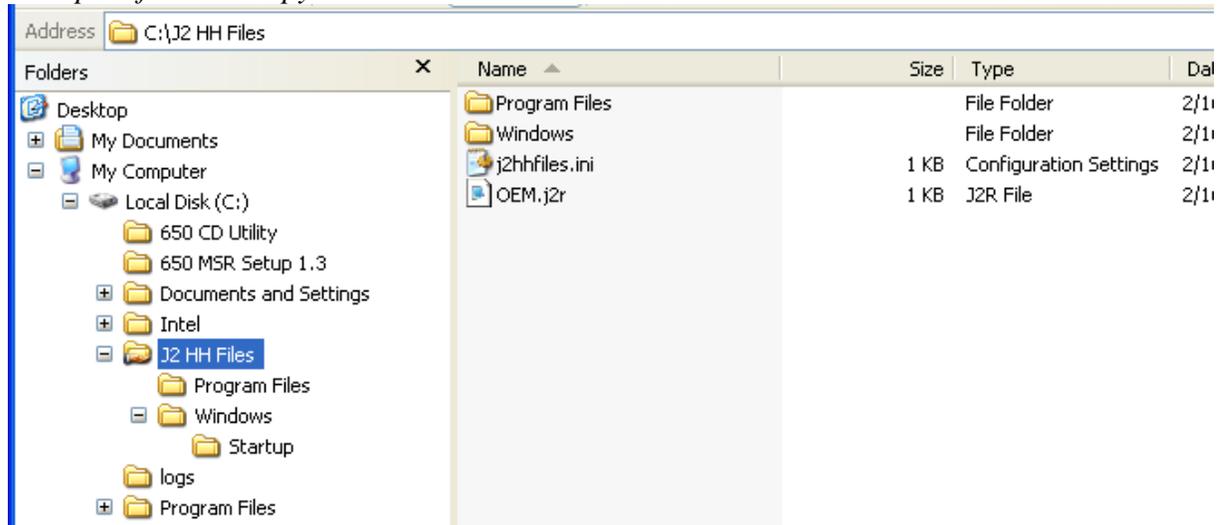
Once the server is found the RAL program will copy the files from the server to the handheld device in one of two ways. Either a direct copy of the folder to the root folder of the handheld device or specific files for a given Hand Held with a specific IP address.

## Direct Copy

In its simplest configuration of the Remote Application Loader server RAL will copy all contents of the *J2 HH Files* and subfolder to the root directory of the handheld. All subfolders will be copied to the folder of the same name on the handheld. If the folder name is not present on the handheld that folder name will be created.

This method is used if all handheld devices require the same software to be loaded. It's also is handy when just copying one or two file to the handheld device

### Example of Direct Copy Folder Structure

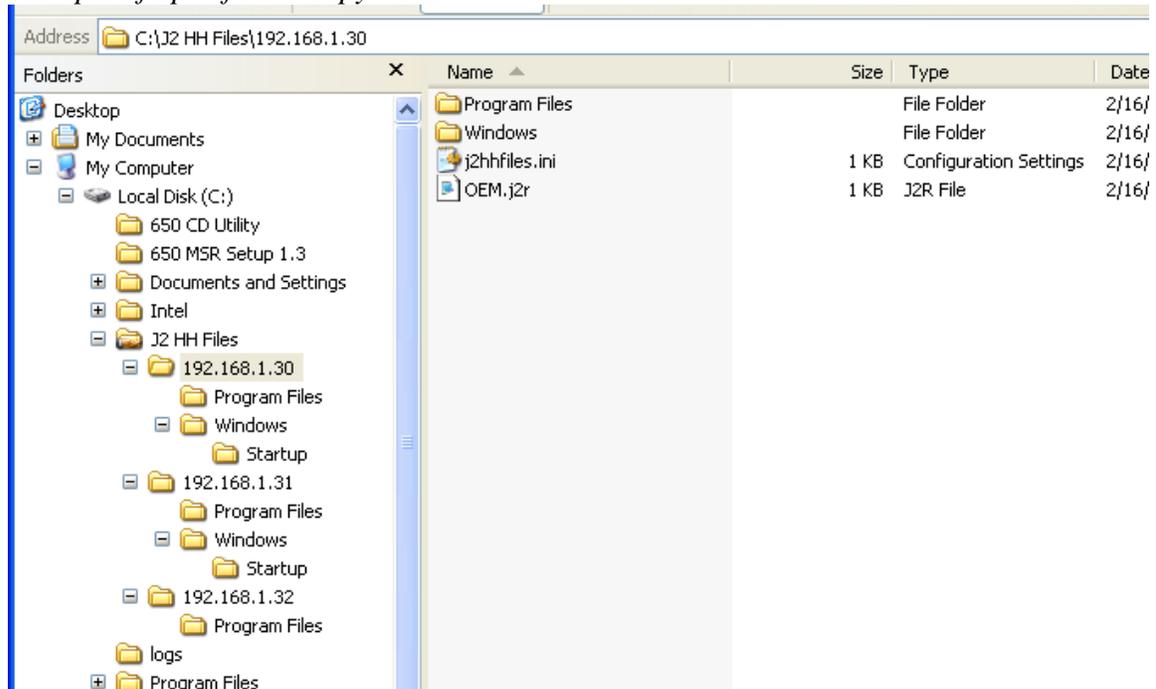


## Specific IP Copy

When it's desired to have some, or all, hand held units have different software loaded to each unit the specific IP copy method can be used. With this method a hand held unit can have one or two files or settings different or all files and setting can be unique.

Each hand held unit needs to have a unique folder the in shared *J2 HH Files* folder. The folder name will use the IP address of the hand held device the files are intended for. If the IP address of the hand held was 192.168.1.30 the folder name would be \J2 HH Files\192.168.1.30\.

### *Example of Specific IP Copy Folder Structure*



## Combined Mode

The combined mode is a mix of the Direct Copy mode and the Specific IP Copy mode. In this mode all files and subfolder in the *J2 HH Files* will be copied to the folders of the same name on the handheld. If the folder name is not present on the handheld that folder name will be created.

Any subfolder with the IP address name format will not be copied with the exception of a folder name that matches that of the hand held RAL is running on. This sub folder would contain any files needed specifically for that hand held device.

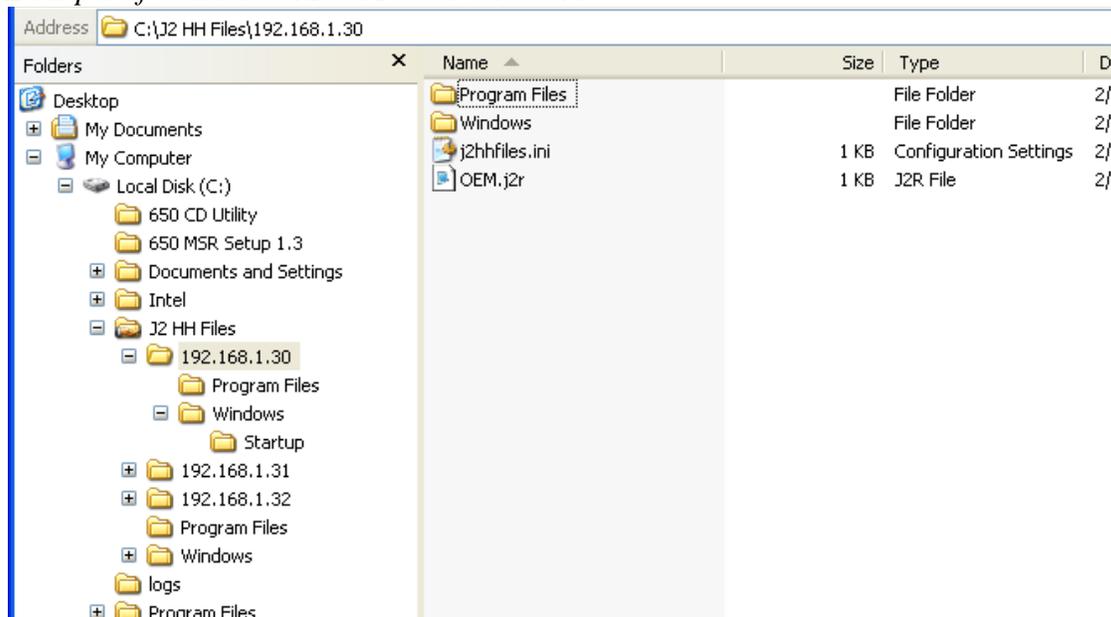
In Short:

1: All files and subfolder common to all hand held units are stored in the root of the J2 HH Files folder.

2: All files and subfolder that are specific to a particular hand held device would be stored in the IP name subfolder under the J2 HH Files folder.

Example: \J2 HH Files\192.168.1.30

### *Example of Combined Mode Folder Structure*

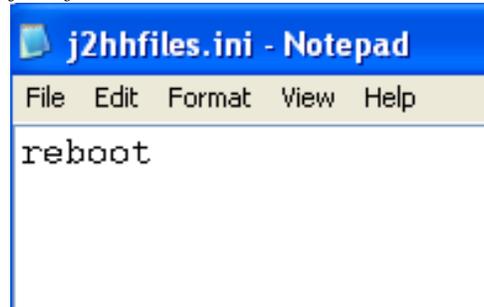


## RAL Control File J2hhfiles.ini

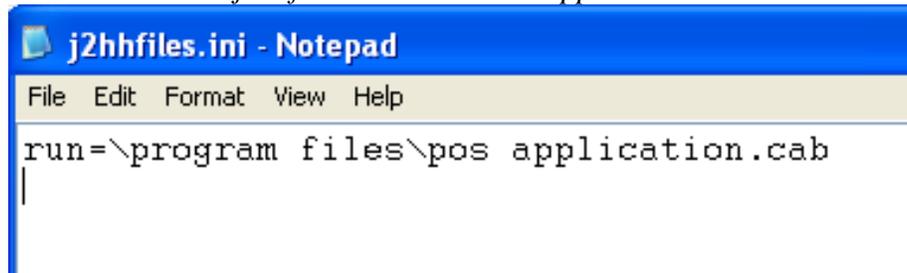
A file can be added to the *J2 HH Files* folder to control the action of the hand held computer after RAL has run and downloaded the files stored on the RAL server.

This control file can cause one of two actions to occur. One is to run a specific program after RAL has down loaded the files and the other is to make the system reboot. The file format for the j2hhfiles.ini is just a simple text file with the .ini extension.

### *j2hhfiles.ini to Reboot the Hand Held*



### *j2hhfiles.ini to Run and Application*



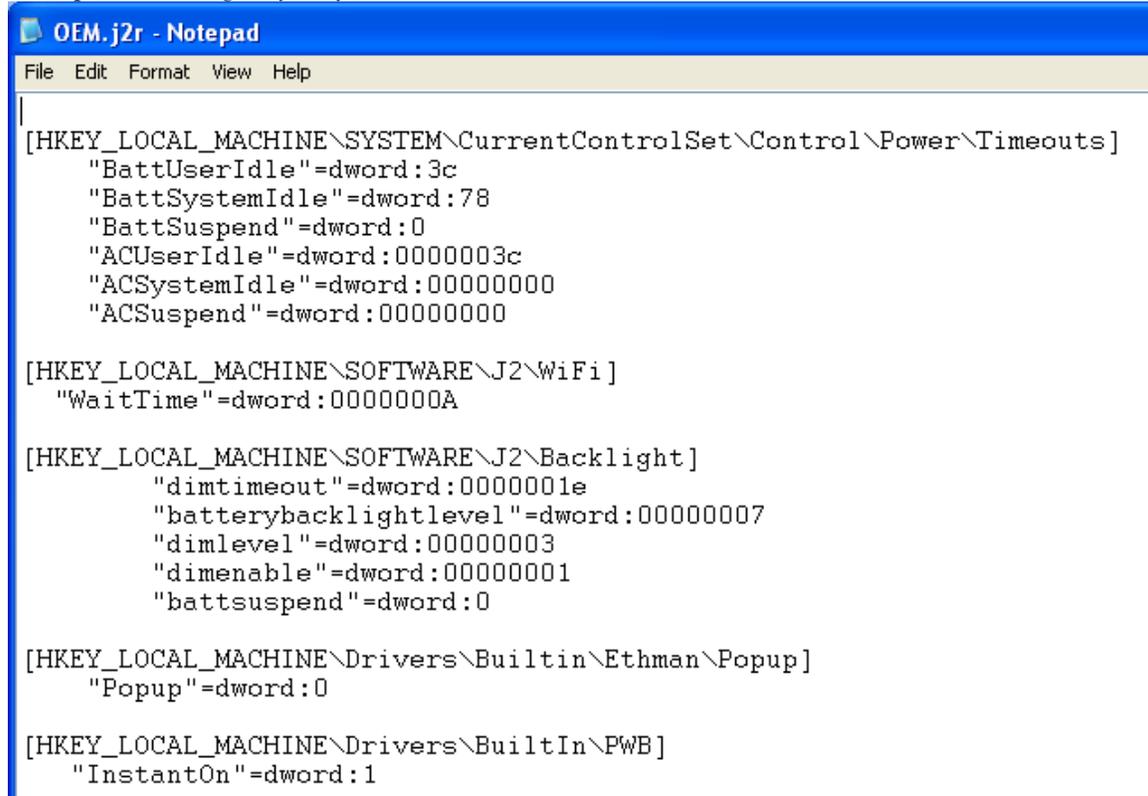
The **run=** command can run as many programs as require. The programs are run in the order listed in the file.

The *j2hhfiles.ini* should be located in the *J2 HH Files* root or in the *J2 HH Files* IP address subfolder. A *j2hhfiles.ini* file in the IP Specific folder will override a *j2hhfiles.ini* in the *J2 HH Files* root for that IP address.

## RAL Registry Update File

A file can be added to the *J2 HH Files* folder to update any registry settings on the hand held computer. The format for this file is Microsoft's standard format for registry keys. Some custom register keys for the hand held are documented at the end of this manual.

### Example RAL Registry Key File



```
OEM.j2r - Notepad
File Edit Format View Help

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Power\Timeouts]
    "BattUserIdle"=dword:3c
    "BattSystemIdle"=dword:78
    "BattSuspend"=dword:0
    "ACUserIdle"=dword:0000003c
    "ACSystemIdle"=dword:00000000
    "ACSuspend"=dword:00000000

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\WiFi]
    "WaitTime"=dword:0000000A

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\Backlight]
    "dimtimeout"=dword:0000001e
    "batterybacklightlevel"=dword:00000007
    "dimlevel"=dword:00000003
    "dimenable"=dword:00000001
    "battsuspend"=dword:0

[HKEY_LOCAL_MACHINE\Drivers\Builtin\Ethman\Popup]
    "Popup"=dword:0

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\PWB]
    "InstantOn"=dword:1
```

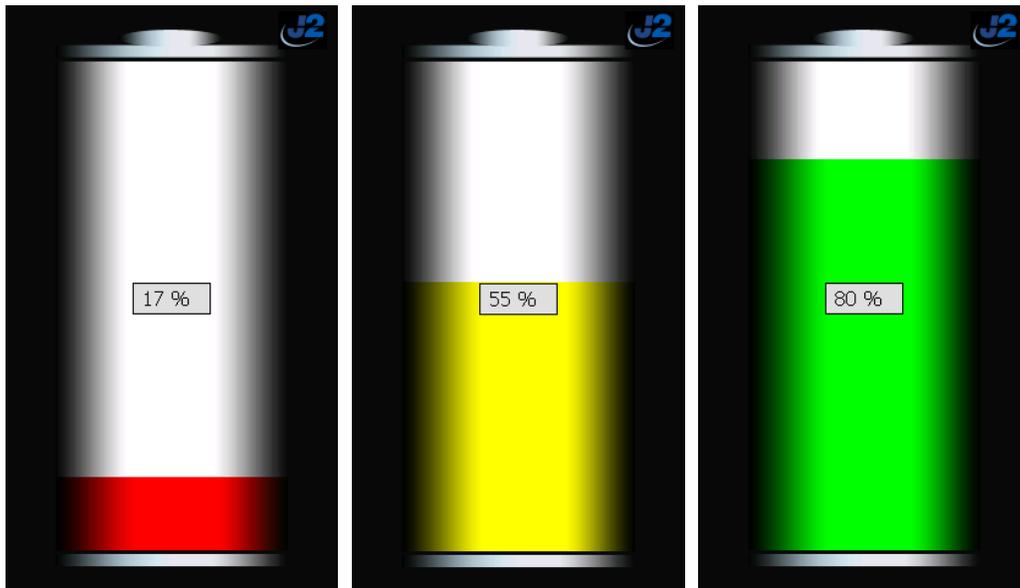
The file name for the RAL registry key files can be anything but must have the extension “*.j2r*”. Some examples of valid file names are *OEM.j2r* , *regkeys.j2r*, *HH KEYS.J2R*.

The file RAL registry key file should be located in the *J2 HH Files* root or in the *J2 HH Files* IP address subfolder. A RAL registry key file in the IP Specific folder will add any registry settings to the RAL registry key file in the *J2 HH Files* root for that IP address.

## Battery Charge Indicator

A battery charge indicator will pop up when the J2 Wave is placed on a charger base. This will indicate the current charge level by displaying a graphical representation of a battery. This extremely simple and user friendly feature makes it very easy for anyone to understand the current battery charge of the J2 Wave. At a glance from across a room the charge level of any unit can be seen, allowing the user to select the one with the most charge.

When the battery charge is less than 30% the battery graphical representation will show as red, with 30~75% it will show as yellow and 75~100% show as green as shown below. Once removed from the charger base the system will return to its previous state.



*Screen Shot Battery Charge Indicator*

This software extension will reduce the system's power to a minimum so the battery can charge as fast as possible with the system still on and ready to be used instantaneously. After a preset time the screen will dim but still be easily visible. A fully discharged battery will take about 3.5 hours to charge to 100%.

The battery charge indicator feature can be disabled in the configuration file. The indicator can also be disabled by touching the % symbol in the middle of the graphical display. This can be useful during software development.

## HH Survey Utility

J2 includes a simple utility to detect 802.11b/g access points within range of the hand held unit. This can be useful in determining wireless channel conflicts. Just double touch the *HH Survey* icon to run the program. It will take 6~10 seconds to scan for wireless networks then the screen shown below will appear. The list will be updated every 5 seconds. Signals with lower strength will take long to find.

SSID	Encryption	Signal Strength	Channel
norman 2	WEP	Excellent -37db	1
noname	WPA2	Low -72db	4
myLGNet6914	WEP	Low -77db	2
chee	WEP	Low -78db	6
norman	WEP	Low -79db	9
EPG0221	WPA2	Low -80db	2
▶ TP-LINK_BC4ACE	Disabled	Low -81db	6
2WIRE057	WEP	Very Low -82db	6
MedinaLink	WPA	Very Low -82db	11

When already connected to a local area network the *Network Computers* tab can be selected to scan for computers and other IP devices currently attached to the local area network. **Note:** This function is only supported in CE 5.0

IP Address	Computer Name
▶ 192.168.1.1	192.168.1.1
192.168.1.60	Handheld_POS
192.168.1.103	NORMS-NOTEBOOK
192.168.1.106	NORMAN-PC

Items can be sort by touch the column name.

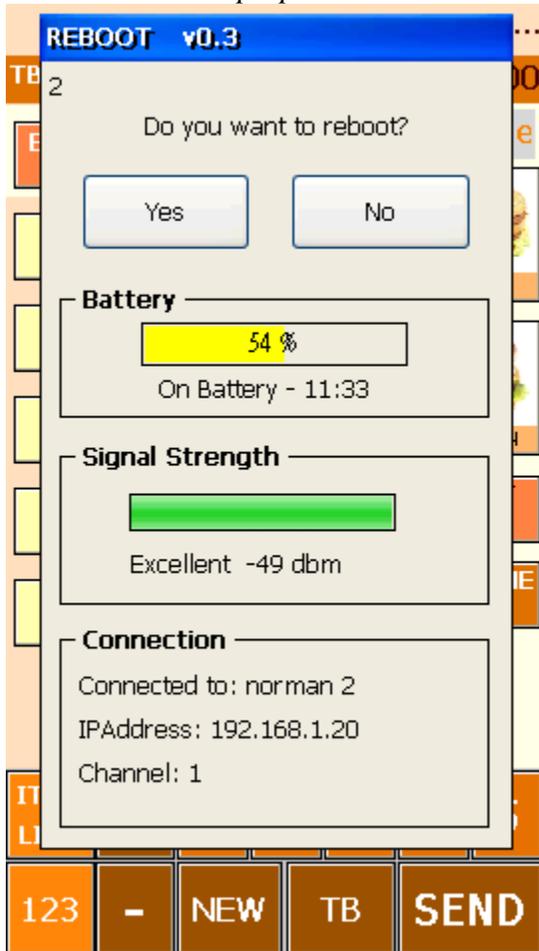
## Reboot/Status Screen

By pressing either one of the two side buttons (or other selected button, see below) on the J2 Wave a Reboot/Status screen will pop up. These buttons can be pressed at any time including while running an application.

The screen will display the Battery Charge Level, time running on battery, Wireless Access Point Signal Level, Access Point SSID, Channel number and the handheld's IP address. If the IP address is assigned via DHCP the letters DHCP will be displayed after the IP address.

The screen will appear for 5 seconds during which time the user can reboot the unit if desired by touching the *Yes* button. If the *No* button is touched or the five second time out is reached the Reboot/Status screen will close and the user can continue for where they were before the side button was pushed.

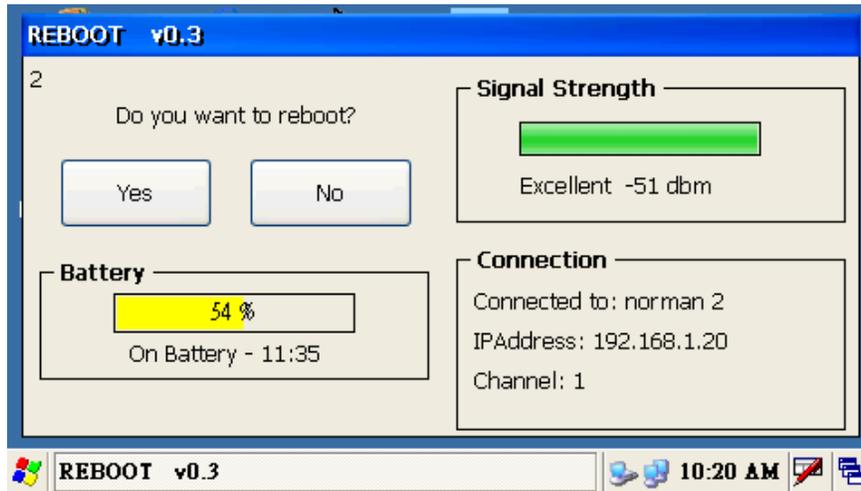
*Reboot/Status Pop-up Screen*



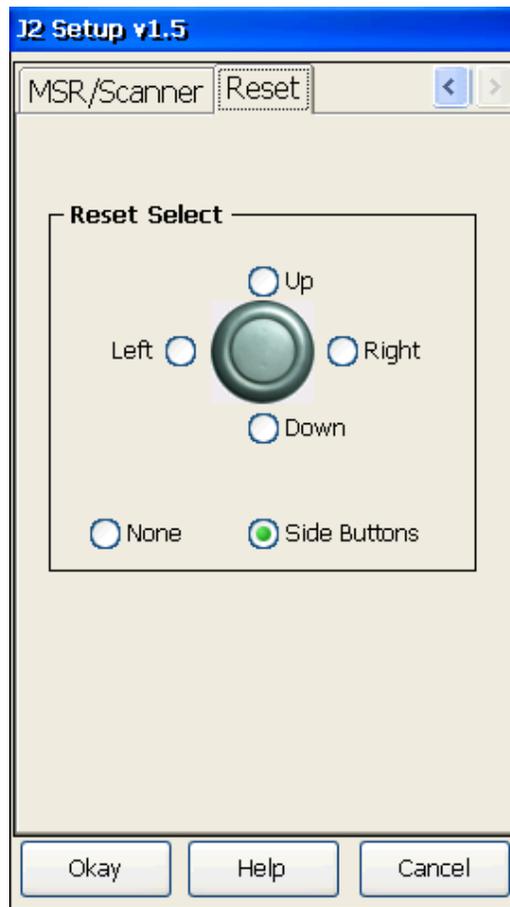
*Side Button(s) Location*



*Reboot/Status screen in Landscape mode.*

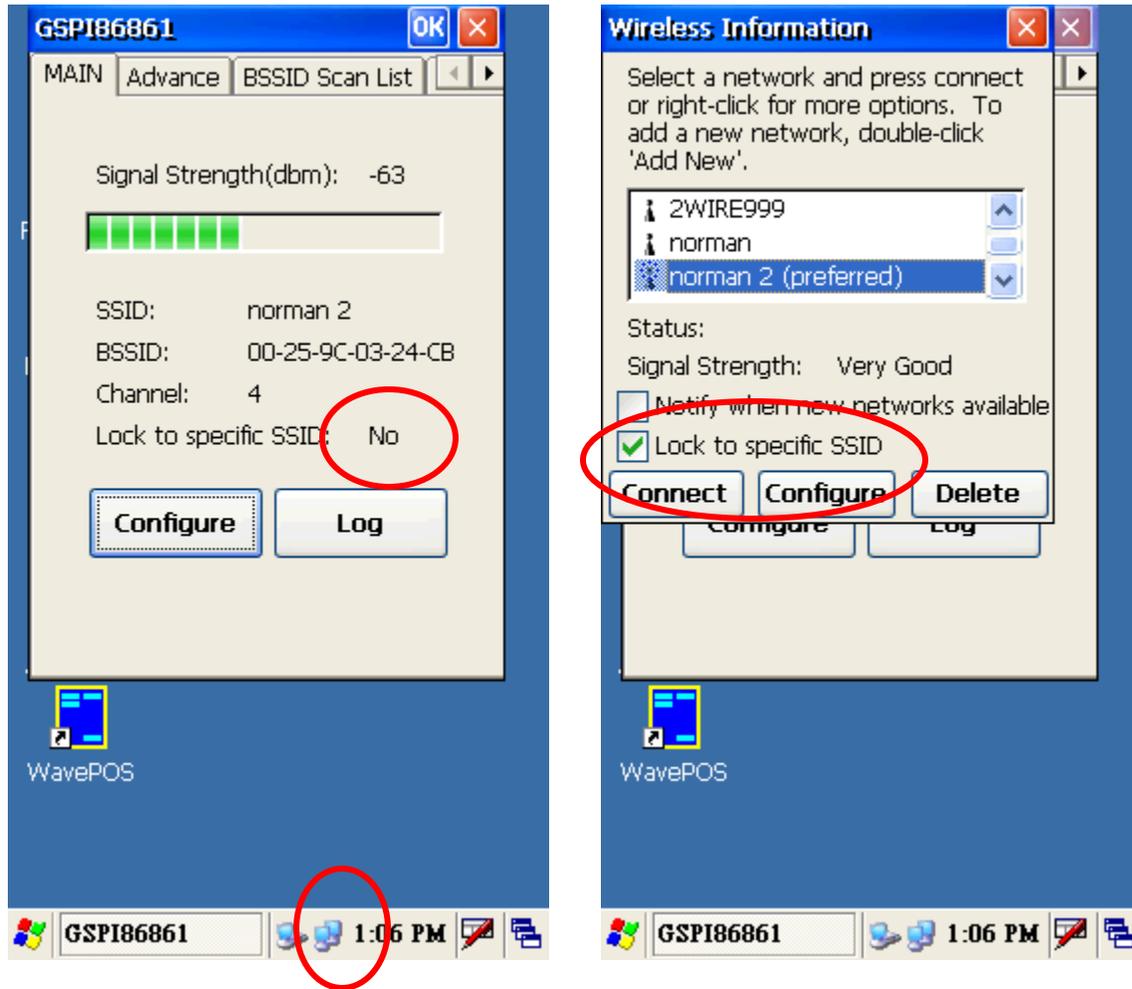


The button used to bring up the reset/status screen can be changed in setup as show below.



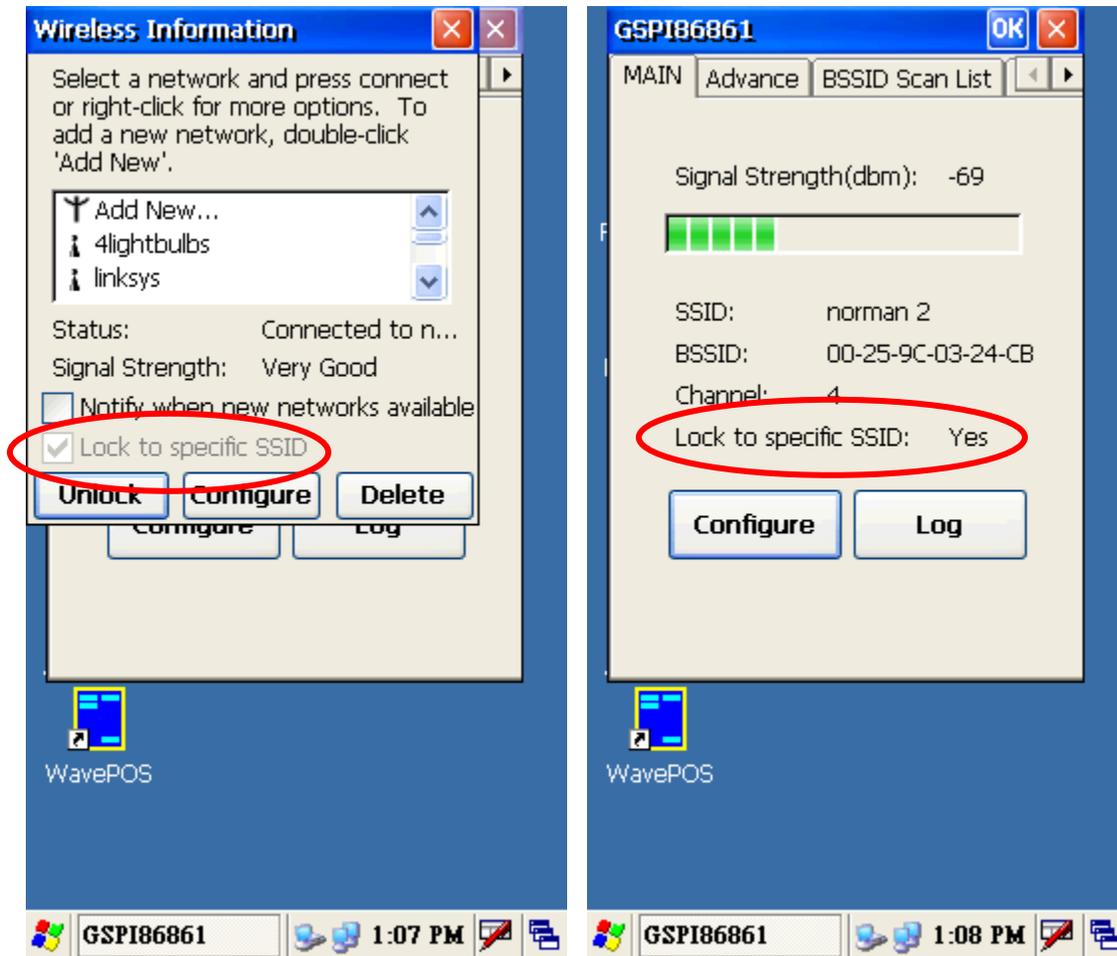
## SSID LOCK

When using Auto roaming the SSID LOCK must be enabled. To insure the SSID LOCK is enable double click the network icon in the task bar. The network status screen will display.



Select the *Configure* button and check the *Lock to specific SSID* box. From the list of wireless networks select the one to lock too. Then select the *Connect* button. The system will not lock to the selected SSID.

Once the SSID is locked the check box will be showed. Now exit the configuration screen by closing the windows. If LOCK was successful the *Lock to specific SSID* will now say *Yes*. If it saw No please repeat until the status is *Yes*.



## Built-in J2 Extensions

J2 has added a number of propriety enhancements to Windows CE 5.0 and CE 6.0 for the J2 Wave Hand Held Touchscreen Computer. This allows for simple wireless network configuration, effortless loading of application software, automatic software and OS updates and maximum battery life without sacrificing performance. This document details these features and there use and function.

These enhancements are broken down to five sections in the manual. Built-in Software Extensions are covered in the first section. These are features that are run in the background all the time. J2 Wave Functions, are covered in the second section. These are API or programs that are called by the user application to add additional features to CE. Section three covers the special J registry entries the user's application can use. These allow a very simple way for the user's application to control high level functions on the system or find the state of certain parameter like battery charge and WiFi signal level without having to write complex code. Section four covers useful Microsoft defined registry keys. Section 5 covers the WiFi setup and J2 application loader modules.

## Dynamic Power Management

J2 has enhanced the standard Windows CE power management and now controls the system resources in a dynamic way depending what type of application is running. Because the J2 power management software can be aware of what type of application is running on the system it controls the hardware resources accordingly.

This feature allows for maximum battery life without reducing the performance of the system. With this feature enabled normal battery life is extended in most cases by double. In testing a POS application, running without the J2 enhancement, ran for about 3.5~5 hours. This same application ran 8~11 hours with the J2 enhancement turned on. This feature requires no change to the application software but it is possible to extend battery life even further if some control is performed by the application itself.

## J2 Wave Support Functions

### Set WiFi Power to Maximum

This program allows the user to set the WiFi power level to maximum. This would be run when the application needs to send data as fast as possible.

**\windows>wifi.exe 0 0**

*Note: No commas only spaces*

### Set WiFi Power to Low Power Setting

This program used to set the WiFi to the lowest power level.

**\windows>wifi.exe 1 4**

*Note: No commas only spaces*

To use this function disable the J2 built in WiFi power management by setting the time out value to zero via Setup or the registry setting.

### Reset System

This program causes a soft reset to occur. When run the system will reboot and the registry will remain unchanged. This is equivalent to pushing the reset button on the back of the unit.

**\windows>reboot.exe**

## J2 Wave Unique Registry Keys

### Battery Charge Level

By reading this registry key a user's application can determine the current battery charge level. This value is updated every 250ms. The value is a *dword* with a range of 0~100 and represents the percentage of battery to full charge. This is a read only key.

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\Battery]	"ChargeLevel"	dword	Current battery charge level 0-100 percent
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### Battery on Charge

By reading this key the user can tell if the J2 Wave is currently being charged. A zero indicates the J2 Wave is running on battery and a one that it is being charged. This is a read only key.

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\Battery]	"OnCharge"	dword	Battery is charging
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### WiFi Signal Level

By reading this registry key a user's application can determine the current IEEE 802.11 WiFi signal level being received from the access point. This value is updated every 250ms. The value is a *dword* with a range of 0~100 and represent the signal strength with 100 being full signal strength. This is a read only key.

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\WiFi]	"WiFiSignalLevel"	dword	Current WiFi signal level in percent, 0-100 with 100 being full signal strength
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## Dim Level

This key can be used to set the backlight brightness level when dimmed. The value is read/write and has a valid range of 0~10 with 0 being minimum brightness and 10 being the maximum.

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\Backlight]	"DimLevel"	dword	Dim level, range is 0-10 with 0 being the dimmest and 10 being the brightest.
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## Dim Time Out

Time is seconds before the backlight dims if no activity. This key is read/write.

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\Backlight]	"DimTimeOut"	dword	Time in seconds to black light dims to the value set the "DimLevel" Key
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## Dim Enable

If this value is set to one then the J2 dim feature is enabled, if zero the feature is disabled. This key is read/write.

[HKEY_LOCAL_MACHINE\SOFTWARE\J2\Backlight]	"DimEnable"	dword	Dim feature is enabled if set to one
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## Rotation Angle

Setting this key will change the display rotation mode of the screen. This key can be changed on the fly to force the screen rotation mode. The “AutoRotate” function must be set to “disabled” for this key to have an effect (see next entry).

This function could be used to force a screen orientation on the fly. If an application normally runs in portrait mode but a particular screen is better display in landscape mode this key could be used to force the screen to change to that orientation just for that screen. There may be other ways to accomplish this function but this method has the advantage of being is very simple.

[HKEY_LOCAL_MACHINE\System\GDI\Rotation]	"Angle"	dword	0,90,180,270 are valid values, can be changed on the fly
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## Auto Rotate

This key controls the auto rotate function feature of the J2 Wave. All four rotation modes can be enabling, or just two or three. It would be quite common to enable both 0 and 180 degrees for a landscape mode application so the unit could be held comfortably by both right and left handed users. For portrait mode you may wish to enable 90 and 270 degrees so the unit could be flip so the customer could verify their own order.

[HKEY_LOCAL_MACHINE\System\GDI\Rotation]	"AutoRotate"	dword	Screen rotation, Bit 31 set to one enable autorotate. Enable bit 0 for 180, bit 1 for 90, bit 2 for 0 and bit 3 for 270 degree for auto enable. Can be changed on the fly.
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## Conclusion

J2 is always looking to improve our products. If there are any other features you would like to see added to the J2 Wave or other products please contact J2 and we will see what can be done.