

iChip Config Utility User Manual

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Preface

Target Audience

This document is intended for users of Connect One products who need to know how to configure the products' firmware and parameters with the iChipConfig Windows based GUI.

Related Documents

- AT+i Programmer's Manual

1 Introduction

- [iChip Config Utility Overview](#)
- [System Requirements](#)
- [iChipConfig Utility Menus](#)
- [iChip Config Utility Functionality](#)

1.1 iChip Config Utility Overview

The iChip™ Config Utility, combined with any of Connect One's products, enables quick and full configuration of the iChip, serial-based and web-based updating of firmware, and packaging of a website and parameters file.

Connect One's iChip Internet Controller™ is an Internet peripheral chip that offloads Internet connectivity tasks from a host processor. The host processor communicates with the iChip via Connect One's high-level AT+i™ command set.

The iChip Config utility enables you to configure and use the iChip without any need to know or use the AT+i commands – either for evaluation purposes or for updating your existing configuration. The AT+i commands are translated through the user-friendly GUI. All you need to do is define the parameters as described in each section of this manual.

1.2 System Requirements

To work with the iChip Config Utility, you need the following:

- A PC with a free RS232 COM port
- A device/board/module using the iChip you want to configure
- An RS232 cable
- Windows XP operating system

1.3 Quick Tour of the iChip Config Utility

1.3.1 iChipConfig Utility Menus

The iChipConfig utility uses the following menus (Figure 1):

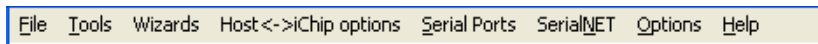


Figure 1: iChipConfig Utility Main Menu Bar

- **File:** Enables you to load an RPF file (a file including configuration parameters) or exit the program.
- **Tools:** The **Tools** menu lists the same options as the icons displayed in the iChip Configuration Tools (Main) window, and more.
- **Wizards:** Provides access to the [Communication Platform Wizard](#) and the [SerialNET Configuration Wizard](#).
- **Host <-> iChip Options:** Enables you to configure the connection mode between the host and iChip – either via COM port or socket.

- **Serial Ports:** Opens the **Serial Settings** window, where you can change the COM port on the PC and the PC's COM port baud rate.
- **SerialNET:** Enables you to enter and exit SerialNET mode.

1.3.2 iChip Config Utility Functionality

iChipConfig utility provides you with the following tools:

- [Quick Configuration](#)
- [Full Configuration](#)
- [Firmware Update](#)
- [Web Parameters Update \(iChip Uploader via Serial\)](#)
- [iChip Website Uploader via HTTP](#)
- [Dumb Terminal](#)
- Send email attachment
- Receive emails
- Get URL
- Change iChip communication platform



Every iChip has its own set of features and parameters. You only have access to the features applicable to your product. For example, when configuring an iChip with only LAN support, parameters relating to dial-up and wireless modem are grayed out.

2 Getting Started

- [Installing iChipConfig Utility](#)
- [Accessing iChipConfig Utility Tools](#)

2.1 Installing the iChipConfig Utility

This procedure describes how to install the iChipConfig utility on your local workstation, so you can configure the iChip firmware or upload Web pages or parameter files.



What you need:

- iChip Config installation ZIP file, downloaded from www.connectone.com.



How:

1. Extract the contents of the ZIP file to a temporary folder in your local directory (for example, **C:\Temp**).
2. Double-click **setup.exe**.
3. The **iChipConfig Setup** window appears (Figure 2)



Figure 2: iChipConfig Setup Window

4. Click **OK**.

The **iChipConfig Setup** window refreshes, displaying the default installation directory (Figure 3).

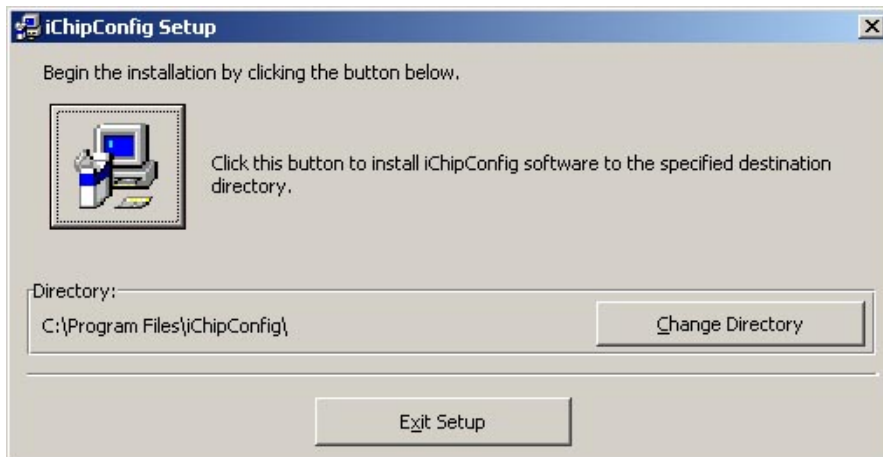


Figure 3: iChipConfig Setup Window with Installation Directory

- To change the installation directory:
- Click **Change Directory**.
The **Change Directory** window appears.

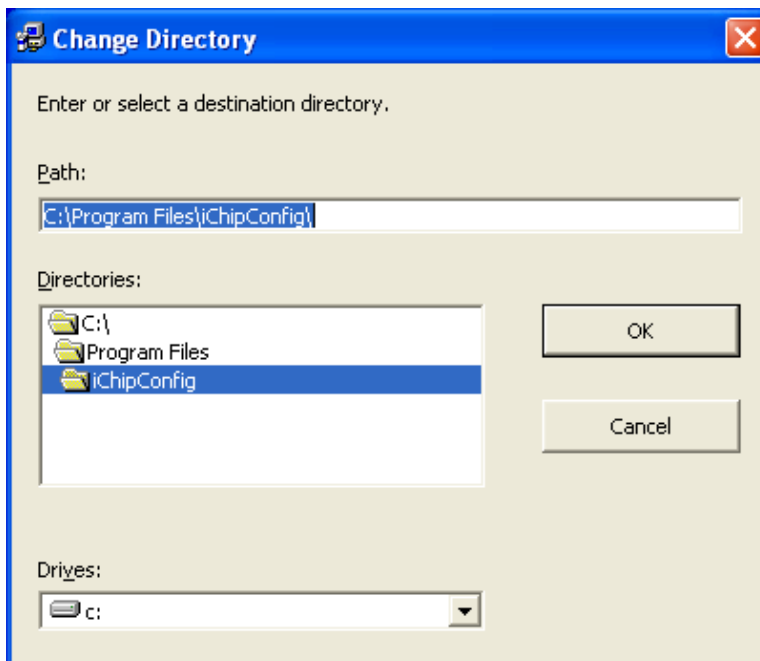



Figure 4: Change Directory Window

- In the **Path** field, type the destination directory in which to install the iChipConfig utility.
- OR -
In the **Directories** area, navigate to the destination directory.
- Click **OK**.
The **Change Directory** window closes, and the **iChipConfig Setup** window refreshes, displaying the new installation directory.
- Click the **Install**  icon.
The **iChipConfig – Choose Program Group** window appears.

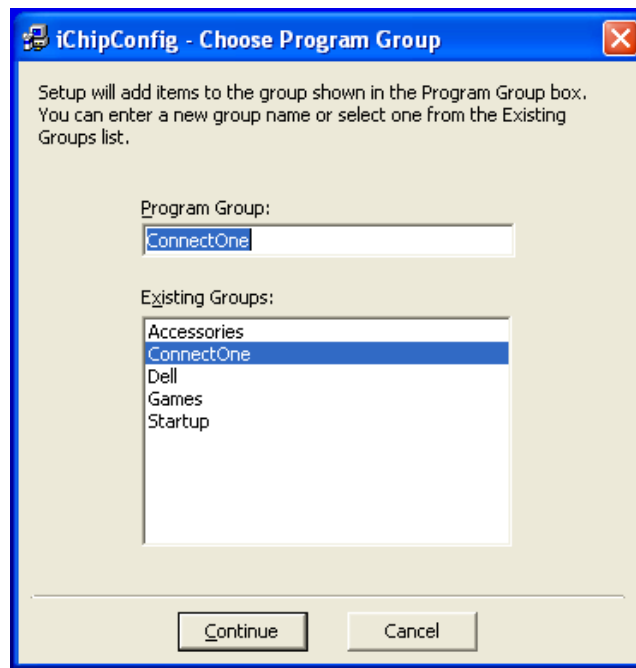


Figure 5: iChipConfig - Choose Program Group Window

- e. Click **Continue**.

The **iChipConfig Setup** window appears, displaying an installation progress bar.

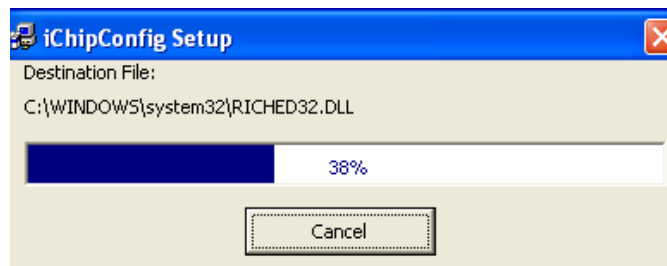


Figure 6: iChipConfig Setup Progress Bar

When the progress bar reaches 100%, a dialog box appears, indicating successful installation.



Figure 7: Successful iChipConfig Installation Message

- f. Click **OK**.

The iChipConfig utility is now installed on your workstation.

2.2 Accessing iChipConfig Utility Tools

This procedure describes how to open the iChipConfig Utility, set the correct baud rate, and use the utility to configure or send information to the iChip.



What you need:

- Device or module using Connect One iChip or Connect One II-EVB board, connected to an RS232 COM port or USB port on your workstation, with power on.



How:

1. From the **Start** menu, select **Programs > ConnectOne > iChipConfig**.

The **iChip Configuration Tools** window appears.

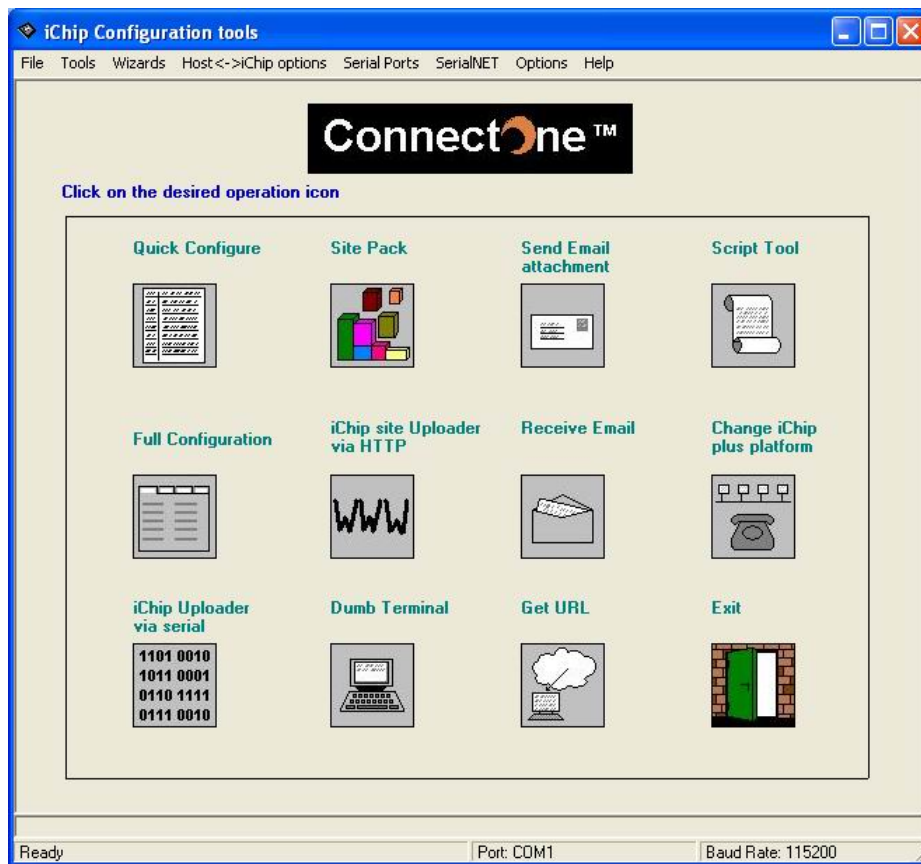


Figure 8: iChip Configuration Tools Window

2. Click the icon of the tool you want to use.

The first time iChipConfig is invoked, it attempts to locate the iChip connected to the PC's COM port at the default baud rate of 9600.

If the utility finds the chip, the tool window for the selected function appears. Continue with the relevant procedure for the tool (see Chapter 3, Working with iChipConfig).

If the utility cannot find the iChip, the **Serial Settings** window appears.

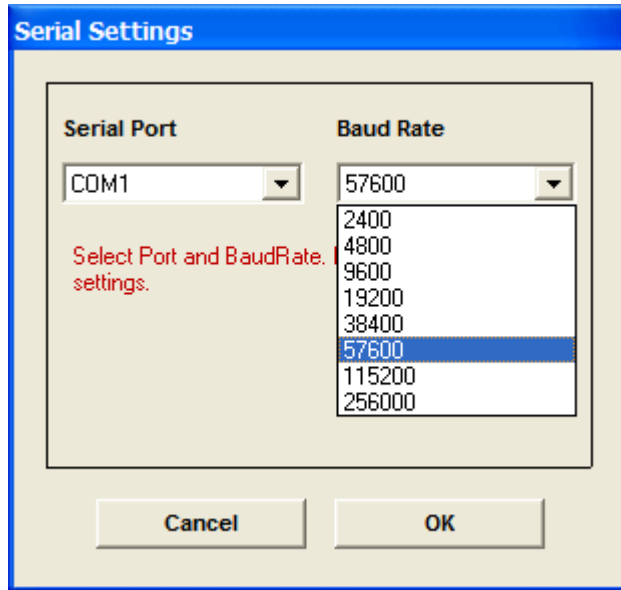


Figure 9: Serial Settings Window

3. From the **Serial Port** dropdown list, select the COM port on the PC to which the iChip is connected.
4. From the **Baud Rate** dropdown list, select the baud rate used by the iChip. If you do not know the baud rate, select **Scan**.

If **Scan** is selected, iChipConfig runs through the various baud rates until it finds the correct one.



If the iChipConfig utility still fails to find iChip, make sure that an open application like Palm HotSync is not holding the port, or switch to a different COM port on the PC and scan again. After iChipConfig finds the baud rate, you can easily change the baud rate by clicking Serial Ports on the main page menu bar and selecting the desired baud rate.

3 Working with iChipConfig

- [iChipConfig Tools Overview](#)
- [Quick Configuration](#)
- [Full Configuration Tool](#)
- [Working with the iChip Uploader \(via Serial\) Tool](#)
- [Working with the Site Packer Tool](#)
- [Working with the iChip Uploader \(via HTTP\) Tool](#)
- [Working with the Dumb Terminal](#)

3.1 iChipConfig Tools Overview

iChipConfig utility provides you with several tools that enable you to configure various parameters on your iChip. Depending on the iChip model you are connected to and the iChip firmware version you use, only the relevant parameters and sections are available. Others are grayed out, and cannot be configured.

3.2 Quick Configuration

3.2.1 Quick Configuration Tool Overview

The Quick Configuration tool enables you to configure only the essential AT+i parameters required to send and retrieve an email. This is a good way to make sure that the iChip is operational on the LAN side, or that it is configured correctly to work with your ISP.

Quick Configuration parameters, like all AT+i parameters, are stored in memory (either internal or external) and therefore need to be defined only once.

3.2.2 Working with the Quick Configuration Tool

This procedure describes how to use the Quick Configuration tool to configure only those AT+i parameters required to send and retrieve email.



Additional mail configuration and manipulation parameters are available using the Full Configuration tool, as described in Section 3.3.



How:

1. In the **iChip Configuration Tools** window, click the **Quick Configuration** icon.



If you are using iChip or II-EVB, the **<product> Quick Configuration** window appears (Figure 10).

The image shows the 'iChip plus Quick Configure' window. It has a menu bar with 'File' and a title bar with standard window controls. The main area is divided into three sections: 'iChip parameters', 'General parameters', and 'iChip LAN parameters'. The 'iChip parameters' section includes fields for 'ISP Telephone number', 'User name', 'Password', and a 'Blind dial' checkbox. The 'General parameters' section includes fields for 'SMTP Server', 'Destination email address', 'Return email address', 'POP3 Server', 'Mailbox', and 'Mailbox password'. The 'iChip LAN parameters' section includes fields for 'Default IP address', 'Assigned IP address', 'Sub Net', 'MAC address', and 'Gateway', along with checkboxes for 'Use DHCP' and 'Use IP Finder'. At the bottom, there are fields for 'iChip type', 'Serial num', 'Firmware ver', and 'Boot block'. 'Save' and 'Close' buttons are at the bottom center. A status bar at the very bottom shows 'Ready', 'Port: COM1', and 'Baud Rate: 115200'.

Figure 10: iChip Quick Configuration Window

2. Do the following:

- To configure iChip modem parameters:

a. In the **ISP Telephone Number** field, type your ISP telephone number.



Make sure you include any number required for access to an outside line. For example, if you must dial 9 to get an outside line, type 9,xxx-xxxx, where xxx-xxxx is your ISP number. If required, include the area code as well.

- b. In the **Username** field, type the username of the ISP account.
- c. In the **Password** field, type the password for the ISP account.
- d. Select the **Blind Dial** checkbox to instruct modem to dial out without waiting for a dialtone (for example, in a cellular modem environment)
- To configure iChip LAN parameters:
 - a. Determine whether you are working with a DHCP server, or in fixed IP address mode.
 - b. To work in DHCP mode:

Select the **Use DHCP** checkbox:

Sets the values of the **Default IP Address**, **Subnet**, and **Gateway** fields to **0.0.0.0** and disables these fields for input.
- To work in fixed IP address mode:

- a. Make sure the **Use DHCP** checkbox is clear.
- b. In the **Default IP Address** field, type the IP address for the iChip.
- c. In the **Subnet** field, type the subnet address for your network.
- d. In the **Gateway** field, type your gateway address.
- e. Select the **Use IP Finder** checkbox to use the Connect One utility that finds iChip IP addresses on the network and activates the iChip Web server, enabling remote configuration of iChip through a browser.



The **MAC Address** and **Assigned IP Address** fields are filled automatically, and cannot be modified.

3. To configure iChip General parameters:

- For sending email:
 - a. In the **SMTP Server** field, type the name (string) or IP address of the SMTP server you use to send emails.
 - b. In the **Destination Email Address** field, type the email address to which you want to send an email.
 - c. In the **Return Email Address** field, type the email account to which replies should be sent.
- For receiving email:
 - a. In the **POP3 Server** field, type the name (string) or IP address of the POP3 server you use to receive emails.
 - b. In the **Mailbox** field, type the email address at which you want to receive emails.
 - c. In the **Mailbox Password** field, type the password for the email address, if one is required.

4. Click **Save**.

A dialog box appears, indicating the parameters are saved (Figure 11).

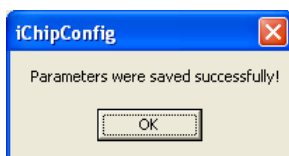


Figure 11: Parameters Saved Successfully Dialog Box

5. Click **OK**.

The **Quick Configuration** window closes, and the **iChip Configuration Tools** window appears.

3.3 Full Configuration Tool

3.3.1 Accessing the Full Configuration Tool

This procedure describes how to access configuration tabs for all the possible iChip parameters, using the Full Configuration tool.




What you need:

- Device or module using Connect One iChip or Connect One II-EVB board connected to your workstation, with power on



How:

1. In the **iChip Configuration Tools** window, click the **Full Configuration** icon. 

The **Configuration Tools** window appears (Figure 12).

Figure 12: Full Configuration Window

2. The **Configuration Tools** window displays the tabs that enable you to configure various aspects of iChip functionality.
3. Click the tab you want to configure.

3.3.2 Configuring the Email Format Tab

This procedure describes how to configure parameters for email format, properties, and sending and receiving emails.



What you need:

Access to **Configuration Tools** window, as described in Section 3.3.1.



How:

1. In the **Configuration Tools** window, click the **Email Format** tab.

The **Email Format** tab configuration fields are displayed (Figure 13).

The screenshot shows the 'iChip Configuration tools' window with the 'Email format' tab selected. The interface includes a menu bar with 'File' and 'Search Parameter'. A grid of tabs is at the top, with 'Email format' highlighted. The main area contains several sections of configuration fields:

- Transmit Email headers (XFH)**: A checked checkbox.
- Limit number of headers (HDL)**: A text field containing '0'.
- Filter String (FLS)**: An empty text field.
- Subject (SBJ)**: An empty text field.
- Email address (TOA)**: A text field with a '50 Addressee' button next to it.
- Address description (TO)**: An empty text field.
- Return Email address (REA)**: An empty text field.
- Sender description (FRM)**: An empty text field.
- Alternative addressee (CC1-CC4)**: Four empty text fields.
- Media type (MT)**: A dropdown menu set to 'Application'.
- Media subtype string (MST)**: An empty text field.
- Attachment file name (FN)**: An empty text field.
- Message body (BDY)**: A large empty text area on the right.

At the bottom, there is a status bar with 'Ready', 'Port: COM12', and 'Baud Rate: 115200'. Above the status bar are buttons for 'Save', 'Apply', and 'Close'. The bottom of the window also displays system information: 'iChip type : CO2144- D iChip plus (LAN platform)', 'Serial num : 14001C40', 'Firmware ver: ID809b15 5.4.2012', and 'Boot block: 0801 9.6.2009'.

Figure 13: Email Format Tab of Full Configuration Tool

2. To retrieve email headers together with the email body, select the **Transmit Email Headers (XFH)** checkbox.
3. In the **Limit Number of Headers (HDL)** field, type the maximum number of header lines for the host to retrieve (leaving the field blank, or typing **0**, configures the default value that enables retrieval of all sent headers).
4. In the **Filter String (FLS)** field, type a string (word or phrase, ASCII format) by which to filter emails retrieved from the server. iChip only retrieves emails containing the defined string in the header lines.
5. In the **Subject (SBJ)** field, type the word(s) you want to appear in the subject line of the email.
6. In the **Email Address (TOA)** field, type the email address to which you want to send an email.
7. To define a mailing list of up to 50 email addresses, click **50 Addressee**. The **50 Addressee** window appears (Figure 14).

TOA(n)	Address
01	name1@domain.com
02	name2@domain.com
03	
04	name@domain.com
05	
06	
07	
08	
09	
10	
11	
12	
13	
14	
15	
16	
17	

Figure 14: 50 Addressee Window

Type the email addresses in the **Address** column, and then click **OK**.

The mailing list is saved.

8. In the **Address Description** field, type the name of the person to whom you are sending an email.
9. In the **Return Email Address (REA)** field, type the email address to which the email recipient should reply.
10. In the **Sender Description (FRM)** field, type the name of the sender of the email.



Example email scenario:

If you want the iChip to send an email from the device to a person monitoring data collected by the device (say, Person1), you might type Person1's email in the Email Address field (Person1@email.com), and then type Person1 in the Address Description field.

If, in this scenario, you want replies to the email sent to you, you would type your email address in the Return Email Address field (you@email.com).

In the Sender Description field, you might type the name of the device collecting the data.

11. If you want to send copies of the emails sent from the iChip, in the **Alternate Addressee** fields (**CC1-CC4**), type the email addresses to CC.
12. In the **Message Body (BDY)** field, type a message to appear in the body of the email.
13. From the **Media Type (MT)** dropdown list, select the media type to use when sending an email (**audio**, **video**, **application**, or **text**).

14. In the **Media Subtype String (MST)** field, type the name of the media subtype of the email attachment.
15. In the **Attachment File Name (FN)** field, type the attachment filename, including the extension. For example, **filename.jpg**.
16. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.3 Configuring the Server Profiles Tab

This procedure describes how to configure parameters for incoming and outgoing mail servers and mailbox settings.



What you need:

Access to the **Configuration Tools** window, as described in Section 3.3.1.



How:

1. In the **Configuration Tools** window, click the **Server Profiles** tab.

The **Server Profiles** tab configuration fields are displayed (Figure 15).

Figure 15: Sever Profiles Tab of Full Configuration Tool

2. To keep a copy of retrieved emails on the server, select the **Leave copy on server** checkbox. If the checkbox is not selected, retrieved emails are deleted.
3. In the **Primary Domain Name Server (DNS1)** and the **Secondary Domain Name Server (DNS2)** fields, type the IP addresses of the DNS servers you want to use to resolve logical server names into IP addresses (for working in LAN mode, with a fixed IP address).

If you are working in DHCP mode, or using IP addresses and not logical names, leave these fields blank.



On iChip Plus, DNS1, DNS2, SMTP and POP3 have two sets of parameters: one for the current communication platform and one for the inactive communication platform. In Figure 15 iChip Plus is configured to use the dialup communication platform, so the inactive communication platform should be defined with the LAN values for DNS1 and DNS2.

4. In the **Outgoing Mail Server (SMTP)** field, type the name or IP address of the outgoing SMTP mail server.
5. In the **Incoming Mail Server (POP3)** field, type the name or IP address of the incoming POP3 mail server.
6. In the **Mailbox User Name (MBX)** and **Mailbox Password (MPWD)** fields, type the username and password you use to access the mailbox.
7. If you specify an SMTP server that requires user authentication in the **Outgoing Mail Server (SMTP)** field, you need to select the **SMTP Authentication (SMA)** checkbox, and enter appropriate strings in the **User Name (SMU)** and **Password (SMP)** fields.
8. In the **DHCP Server Pool Size (DPSZ)** field, enter an integer between 1 and 255 to activate iChip's internal DHCP server and set the number of IP addresses to be allocated in its IP pool. In addition, enter an integer between 0 and 65535 to define the lease time, in minutes, to be granted by iChip's DHCP server when assigning IP addresses to clients. A lease time value of '0' means indefinite lease.
9. In the **Ping Polling Frequency (PFR)** field, type a value defining the time interval (in seconds) at which iChip issues PING requests to one of the PING destination servers.
10. In the **Ping Destination 1** and **Ping Destination 2** fields (**PDS1** and **PDS2**), type the names or IP addresses of the primary and secondary PING destination servers.
11. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.4 Configuring the Operational Parameters Tab

This procedure describes how to configure parameters for general operations.



What you need:

Access to the **Configuration Tools** window, as described in Section 3.3.1.



How:

1. In the **Configuration Tools** window, click the **Operational Parameters** tab.
The **Operational Parameters** tab configuration fields are displayed (Figure 16).

The screenshot shows the 'iChip Configuration tools' window with the 'Operational' tab selected. The window is divided into several sections with various configuration fields:

- Extended return code (XRC):** A dropdown menu set to '4 - No Blind Dial'.
- Modem initialization string (MIS):** A text field containing 'AT&F0V1X4Q&D2M1L3'.
- Modem type designator (MTYP):** A dropdown menu set to 'Standard Modem'.
- Wait time constant (WTC):** A text field containing '45'.
- TCP timeout (TTO):** A text field containing '0'.
- Inactivity timeout (IATO):** A text field containing '0'.
- CDPD Password (CPWD):** A text field containing '1 - UART 0'.
- Max PPP Packet Size (MPS):** A dropdown menu set to '0 - Auto'.
- Host Interface (HIF):** A dropdown menu set to '1 - UART 0'.
- A2D detect period interval (ADCT):** A text field containing '0'.
- Host wakeup min interval (S100):** A text field containing '0'.
- Host wakeup delay time (S102):** A text field containing '0'.
- Bridge Mode (BRM):** A dropdown menu set to '2 - Device to AP'.
- Web Server Port (WEBP):** A text field containing '0'.
- Log Interface and Spec (LIF):** A text field containing '0'.
- Cellular PIN (CPIN):** A text field containing '0'.
- Baud rate (BDRM):** A dropdown menu set to 'a - Auto Baud Rate'.
- Fix baud rate (BDRF):** A dropdown menu set to '9 - 115200'.
- Flow control (FLW):** A dropdown menu set to 'No flow control'.
- Disable reflection:** A checkbox that is unchecked.
- Dial Mode (DMD):** A dropdown menu set to 'Tone'.
- Activate Web Server (AWS):** A dropdown menu set to 'Disabled'.
- Triggered UP (TUP):** A dropdown menu set to 'Disabled'.
- Modem Interface (MIF):** A dropdown menu set to '2 - UART 1'.
- A2D detect threshold level (ADCL):** A text field containing '0'.
- A2D detect GPIO Pin:** A text field containing '0'.
- A2D detect threshold delta (ADCD):** A text field containing '0'.
- SPI Control Signal (SPIP):** A text field containing '0'.
- MAC Filter (MACF):** A text field containing '0'.
- TCP Window Buffer (TWB):** A text field containing '0'.
- Log Group (LGRP):** A text field containing '0'.
- USB VBUS pin (VBUS):** A text field containing '0'.
- Network Time Of Day Active (NTOD):** A checkbox that is unchecked.
- Network Time Server (NTS1):** A text field containing '0'.
- Network Time Server 2 (NTS2):** A text field containing '0'.
- Greenwich Mean Time Offset (GMTO):** A text field containing '0'.
- Daylight Saving Time Definition (DSTD):** A text field containing '0'.
- IP Prot. Don't Fragment Bit (DF):** A checkbox that is unchecked.
- AT+ Socket Server (LATI):** A text field containing '0'.
- Host name (HSTN):** A text field containing '0'.
- Baud Rate Divider (BDRD):** A text field containing '0'.
- Framing Mode (FMOD):** A dropdown menu set to '0 - Framing Disabled'.
- PPP ACFC Negotiation (PPP):** A dropdown menu set to '0 - Agree to ACFC'.
- LAT1 Restriction (LAR):** A text field containing '0'.
- IO Configuration (IOC):** A text field containing '0'.
- Auto Router Start (ARS):** A checkbox that is unchecked.
- WAN Selector (WANS):** A text field containing '0'.
- Log Trigger Event (LTRG):** A text field containing '0'.
- USB Interface Number (USB1):** A text field containing '0'.
- Calculate Check Sum (CKSM):** A checkbox that is unchecked.
- Timeout to resend PING request (PGT):** A text field containing '0'.
- Timeout to resend unacked TCP packet (TTR):** A text field containing '3000'.
- Select PIN 44 function (PIN44):** A dropdown menu set to 'Clock out'.
- Watch Dog Activation Mode (WDM):** A dropdown menu set to '0'.
- Readiness Report HW (RRHW):** A text field containing '0'.
- Content Type (CTT):** A text field containing '0'.
- LAN Type (LTYT):** A dropdown menu set to '0 - Automatic'.
- Web Site Logo file (LOGO):** A text field containing 'iChipimages/ConnectOne.gif'.
- Power Save Mode Enable (PSE):** A text field containing '0'.
- Service Disable Mask (SDM):** A section with several checkboxes: 'Disable Ping Replies', 'Disable Remote Debug', 'Disable Unauth. Web Server', 'Disable SNET escape by +++', 'Disable Break Reset', 'Disable Internal Config Site', and 'Disable DHCP until DNS is resolved'. All are unchecked.
- Big FIFO Size (BFS):** A checkbox that is unchecked.
- Log Stop Event (LSTP):** A text field containing '0'.
- CMC Enable:** A checkbox that is unchecked.

Figure 16: Operational Parameters Tab of Full Configuration Tool

2. (For use with modem operation only) from the **Extended Return Code (XRC)** dropdown list, select a value to determine the message/response mode – in particular, to activate or deactivate blind dial mode. (If you select **0 – Blind Dial** from the dropdown list, make sure the **Blind Dial** checkbox is also selected).



XRC is identical to ATXn and is applicable only for modem operation or IL-EVB in iModem mode. For more detailed information on the ATXn modes, refer to an AT Command Set reference source.

3. In the **Modem Initialization String (MIS)** field, type the string that initializes the modem (refer to your modem's user manual for more information).
4. From the **Modem Type Designator (MTYP)** dropdown list, select the modem type to use with the iChip.



Sets iChip to support a specific modem type. Analog modems, SiLabs Si2400 ISModem, GSM, GPRS, CDMA, TDMA, CDPD, iDEN and AMPS wireless modems are supported.

5. Select the **Suppress ATZ** checkbox to prohibit iChip from issuing an ATZ command to the modem before dialing the ISP when an Internet session is activated (ATZ is a standard modem AT command, which resets the modem status. Suppressing ATZ might be useful if you need to manually initialize your modem).
6. In the **Wait Time Constant (WTC)** field, type a value (in seconds) that the iChip waits for an answer, as defined in the modem S7 register.

7. In the **TCP Timeout (TTO)** field, type a value (in seconds) that defines the time iChip waits for an Internet transaction to complete before returning a timeout error.
8. In the **Inactivity Timeout (IATO)** field, type a value (in seconds) that defines how long iChip waits from the last activity before ending the session (SerialNET for iChip LAN, disconnecting the line for iChip Dial-Up).
9. (For CDPD modems only): In the **CDPD Password (CPWD)** field, type the password for access to the modem.
10. From the **Max Packet Size (MPS)** dropdown list, select the limit for outgoing PPP packets in a dialup environment. The MPS upper limit is the iChip maximum transmission unit (MTU).
11. From the **Host Interface (HIF)** dropdown list, select the Interface over which the Host processor will send AT+i commands. (0 is Autodetect, meaning that iChip will determine the Host interface as the interface where the first AT+i command is received).
12. From the Bridge Mode (BRM) dropdown list, select the required LAN-to-WiFi Bridge mode. Specify 0 when this mode is disabled.
13. From the **Baud Rate (BDRM)** dropdown list, select a value to set the baud rate at which the iChip communicates with the modem.
14. From the **Fixed Baud Rate (BDRF)** dropdown list, select a value to set the baud rate at which the modem communicates with the host.
15. From the **Flow Control (FLW)** dropdown list, select a flow control value (**No Flow Control**, **iChip to Host Hardware Flow Control**, **iChip to Modem Hardware Flow Control**, or **iChip to Modem and Host Hardware Flow Control**).
16. Select the **Disable Reflection** checkbox to disable reflection of hardware flow control signals (CTS, RTS, DTR, and DSR signal are mirrored across the iChip/iChip plus by default).
17. From the **Dial Mode (DMD)** dropdown list, select either **Pulse** or **Tone** dialing.
18. From the **Activate Web Server (AWS)** dropdown list, select a value to set automatic iChip Web server activation. Choose from the following:
 - **Disabled:** Default value. Disables automatic Web server invocation.
 - **Enable Backlog n:** Web server is automatically activated when iChip goes online in SerialNET mode, or as a result of a triggered Internet session. **n** = the maximum number of concurrent browser connections.
19. From the **Triggered Up (TUP)** dropdown list, select a value for Internet session initiation mode (mostly applicable for work with a modem). Select from the following:
 - **Disabled:** Disables iChip from initiating a triggered Internet session.
 - **Enabled:** Sets iChip to initiate Internet sessions in response to a defined trigger (such as a RING signal detected on a modem).
 - **Always Online:** Sets iChip to remain online continually, without any trigger to initiate the session.
20. From the **Modem Interface (MIF)** dropdown list, select the Interface over which the iChip will connect to a dialup or cellular modem.

21. In the **A2D detect threshold (ADCL)** field specify the A/D level [0..255], which is the center of the A/D hysteresis window.
22. In the **A2D detect period interval (ADCT)** field specify the time interval in milliseconds between A/D queries.
23. In the **A2D detect threshold delta (ADCD)** field specify the A/D hysteresis window size, defined as $ADCL \pm [ADCD]$.
24. In the **A2D detect GPIO pin** field specify the pin that will be toggled when the A/D level crosses the hysteresis window. Specify 0 to disable signaling. A value of [1..6] corresponds to pins PIOC[0..5]. The signal will be set HIGH when crossing over to $ADCL + ADCD$ and set LOW when crossing below $ADCL - ADCD$.
25. In the **SPI Control Signal (SPIP)** field specify the pin number that iChip will use to control the SPI flow direction. Specify 0 to disable. A value of [1..6] corresponds to pins PIOC[0..5].
26. In the **MAC Filter (MACF)** field, specify a MAC address to enforce filtering out of any packets that are not from this MAC address in LAN-to-WiFi Bridge modes BRM=1 or 3. Leave this field empty to disable MAC filtering.
27. Select the **Network Time-of-Day (NTOD)** checkbox to enable iChip to set the time according to a network time-of-day server.
28. In the **Network Time Server** fields (**NTS1** and **NTS2**), type the name or IP address of the primary and secondary (optional) network time server.
29. In the **Greenwich Mean Time Offset (GMTO)** field, type the difference in time (in hours) between the iChip location and GMT. For example, if the iChip location is one hour ahead of GMT, type 1. If the iChip location is one hour behind GMT, type -1.
30. In the **Daylight Saving Time Definition (DSTD)** field, enter a Daylight Savings Time transition rule. This rule must contain start and end dates for DST.
31. Select the **IP Prot. Don't Fragment Bit (DF)** checkbox to disable bit fragmenting in outgoing IP packets.
32. To enable sending remote AT+i commands to the iChip, in the **AT+i Socket Server (LATI)** field, type the name/number of the listening COM port. When the iChip is connected to the Internet, it opens a TCP/IP listen socket on the local IP address and specified port that can receive remote AT+i commands.
33. In the **Host Name (HSTN)** field, type the iChip network host name, or a unique identifying name for a LAN or dialup environment.
34. In the **Baud Rate Divider (BDRD)** field specify a value of [1..255]. This will be used to define the Host interface baud rate as $[3M / BDRD]$, when one of the COM ports is used as the Host interface.
35. From the **Framing Mode (FMOD)** dropdown list, select the Framing Disabled (0) or Enabled (1).
36. From the **PPP ACFC negotiation (PPP)** dropdown list, select the ACFC negotiation mode appropriate for the PPP protocol being used.
37. Select the **Auto Router Start (ARS)** checkbox, to specify that iChip should automatically Power-up into iRouter mode. This flag should not be specified when the BRM parameter specifies Bridge mode.
38. Select the **Calculate Checksum (CKSM)** checkbox to instruct iChip to calculate the checksum of Send and Receive (Write and Read) commands. If a checksum error is encountered, the data is retransmitted.

39. In the **Timeout to Resend PING Request (PGT)** field, type a value (in seconds) to set the time interval after which iChip reissues an unanswered PING request.
40. In the **Timeout to Resend Unacked TCP Packet (TTR)** field, type a value (in seconds) to set the time interval after which iChip retransmits an unacknowledged TCP packet over PPP connection.
41. From the **Select Pin 44 Function (PN44)** dropdown list, select one of the following:
- **Clock Out:** To set Pin 44 to provide a clock signal at the same frequency as iChip's clock input signal (X1 – Pin 42).
 - **Heartbeat:** iChip outputs a square wave (frequency ~80mSec with a 50% duty cycle).
42. From the **Watchdog Activation Mode (WDM)** dropdown list, select either **Disabled** (default) or **Enabled** (activates FW monitoring – if a problem is encountered, a hard reset takes place).
43. In the **Readiness Report HW (RRHW)** field, specify which of iChip's general-purpose I/O pins (GPIO) will be asserted Low to indicate iChip readiness to the host. Specify 0 to disable. A value of [1..6] corresponds to pins PIOC[0..5].
44. In the **Content Type (CTT)** field, specify the content of the "Content-type:" field that is sent in the POST request. This field specifies the type of the data/file being sent. When left empty a default value of "application/x-www-form-urlencoded" will be used, and the server will expect the data to be the data sent in a "Submit" of a form.
45. From the LAN Type (LTYP) dropdown list, select the preferred LAN when the iChip is connected both to an Ethernet and WiFi LAN. When set to its default (0), iChip shall automatically detect the LAN platform and if both exist, iChip will prefer the WiFi.
46. In the Web site Logo (LOGO) field, specify the filename of a *.GIF file the contains an alternate Logo image to be displayed in iChip's Configuration site. The default value specifies Connect One's Logo image.
47. Select the **Set Power Save Mode (PSE)** checkbox to enable the power save mode, in which iChip automatically shuts down most of its circuits after a period of *n* seconds without any activity on the host or modem serial ports. Renewed activity on the serial ports restores iChip to full operational mode.
48. In the **Service Disable Mask (SDM)** area:
- Select the **PING Reply** checkbox to prohibit iChip from responding to PING requests (this can protect against PING attacks).
 - Select **Remote Debug** checkbox to disable the remote debugging feature.
 - Select the **Unauth. Web Server** checkbox to prohibit unauthenticated viewing of the iChip internal website.
 - Select **Disable SNET Escape with '+++'** to prohibit exiting SerialNET mode when the '+++' Escape sequence is detected.
 - Select **Disable Break Reset** to support use of the Break signal for exiting SerialNET. Deselect this flag to use Break to reset iChip and reboot into SerialNET mode.
 - Select **Disable Internal Config Site** to prohibit browsing to iChip's internal Configuration Web site.

49. Do one of the following:

- To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
- To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.5 Configuring the LAN Tab

This procedure describes how to configure parameters for working in a LAN environment.



What you need:

Access to the **Configuration Tools** window, as described in Section 3.3.1.



How:

1. In the **Configuration Tools** window, click the **LAN** tab.

The **LAN** tab configuration fields are displayed (Figure 17).

The screenshot shows the 'iChip Configuration tools' window with the 'LAN' tab selected. The window contains several configuration fields and checkboxes:

- MAC address (MACA):** FF0000000000
- Assigned IP address (IPA):** 0.0.0.0
- Default IP address (DIP):** 0 . 0 . 0 . 0
- Use DHCP:** ☐
- Use IP Finder:** ☐
- Sub Net address (SNET):** 0 . 0 . 0 . 0
- Gateway IP address:** 0 . 0 . 0 . 0
- Additional LTYP 4 parameters:**
 - Ethernet Default IP address (EDIP):** 0 . 0 . 0 . 0
 - Ethernet Gateway IP (EIPG):** 0 . 0 . 0 . 0
 - Ethernet Subnet Mask (ESNT):** 0 . 0 . 0 . 0

At the bottom, there is a status bar showing 'Ready', 'Port: COM12', and 'Baud Rate: 115200'. Above the status bar, there are buttons for 'Save', 'Apply', and 'Close'.

Figure 17: LAN Tab of Full Configuration Tool

2. Determine whether you are working with a DHCP server, or in fixed IP address mode.

- a. To work in DHCP mode:

Select the **Use DHCP** checkbox.

Set the values of the **Default IP Address**, **Subnet**, and **Gateway** fields to **0**.

- b. To work in fixed IP address mode:

In the **Default IP Address** field, type the IP address for the iChip.
In the **Subnet** field, type the subnet address for your network.
In the **Gateway** field, type your gateway address.
Make sure the **Use DHCP** checkbox is clear.



The **MAC Address** and **Assigned IP Address** fields are filled automatically, and cannot be modified.

3. Select the **Use IP Finder** checkbox to use the Connect One utility that finds iChip IP addresses on the network, and activates the iChip Web server, enabling remote configuration of iChip through a browser.
4. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.6 Configuring the Remote FW Tab

This procedure describes how to configure parameters for remote firmware (FW) updates. Remote FW updates can be performed via FTP or HTTP. Update files are saved on a server, whose location is defined in the **Remote FW** tab.



What you need:

Access to the **Configuration Tools** window, as described in Section 3.3.1.



How:

1. In the **Configuration Tools** window, click the **Remote FW** tab.
The **Remote FW** tab configuration fields are displayed (Figure 18).

Figure 19: Remote FW Tab of Full Configuration Tool

2. Select the **Enable Fallback Update** checkbox to enable an update to an older version of the iChip firmware.
3. In the **Firmware Update Server (USRV)** field, type the name and directory of the update file location.
4. If the file is in an FTP directory, type the username and password in the **UUSR** and **UPWD** fields.
5. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.7 Configuring the ISP Connection Tab

This procedure describes how to configure parameters for working in a dialup environment.



What you need:

Access to the **Configuration Tools** window, as described in Section 3.3.1.



How:

1. In the **Configuration Tools** window, click the **ISP Connection** tab.
The **ISP Connection** tab configuration fields are displayed (Figure 20).

Figure 20: ISP Connection Tab of Full Configuration Tool

2. In the **First Phone Number** and **Second Phone Number** fields (**ISP1** and **ISP2**), type the main and alternate phone numbers you use to connect to your ISP.
Include any required area codes, and outside line access numbers. Use a comma to create a dialing delay. For example, if you need to dial a **9** for an outside line, type **9,nnnnnnnn**, where n = digits of the dialed phone number.
3. In the **User Name (USRN)** field, type your username as defined by your ISP.
4. In the **Password (PWD)** field, type your password as defined by your ISP.
5. From the **Authentication Method (ATH)** dropdown list, select the authentication method supported by your ISP (**Script**, **PAP**, or **CHAP**).
6. In the **Max Redial Trials (RDL)** field, type the number of redial attempts for each ISPn.
7. In the **Wait Time Before Redial (RTO)** field, type the value (in seconds) of the time interval between redial attempts.
8. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.8 Configuring the Remote Params Update Tab

This procedure describes how to set a password for remote parameter updating. The remote update password (RPG) functions as follows:

- If an RPG is not set (field is blank), remote firmware updates are disallowed, and Web parameters cannot be set via a Web browser.
- If the RPG is set to *, iChip allows remote updating without password authentication.
- If the RPG is defined to any other value, the user must submit that exact value to perform remote updates.



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click **Remote Params Update** tab.

The **Remote Params Update** tab configuration fields are displayed (Figure 21).

Figure 21: Remote Params Tab of Full Configuration Tool

2. In the **Remote Update Password (RPG)** field, type the desired password, or ensure the field is clear if you do not want a password defined.
3. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.

- To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.9 Configuring the HTTP Tab

This procedure describes how to configure parameters for Web updates.



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click **HTTP** tab.

The **HTTP** tab configuration fields are displayed (Figure 22).

The screenshot shows the 'iChip Configuration tools' window. The 'HTTP' tab is selected among several other tabs like 'Wireless LAN', 'SSL', 'Router', 'Dynamic DNS', 'Serial NET', 'IP registration', 'User fields', 'RAS', 'Email format', 'Server profiles', 'Operational', 'LAN', 'Remote F/W', 'ISP Connection', 'Remote params update', and 'HTTP'. Below the tabs, there are three text input fields labeled 'URL to retrieve (URL)', 'Web password (WPWD)', and 'Content-Transfer-Encoding (CTE)'. At the bottom of the window, a status bar displays system information: 'iChip type: C02144- D iChip plus (LAN platform)', 'Serial num: 14001C40', 'Firmware ver: ID809b15 5.4.2012', 'Boot block: 0901 9.6.2009', and three buttons: 'Save', 'Apply', and 'Close'. The status bar also shows 'Ready', 'Port: COM12', and 'Baud Rate: 115200'.

Figure 22: HTTP Tab of Full Configuration Tool

2. In the **URL to Retrieve (URL)** field, type the URL of the HTTP page or item (such as a picture) for iChip to retrieve.
3. In the **Web Password (WPWD)** field, type a password as follows:
 - If a password is not set (field is blank), Web parameters cannot be set via a Web browser.
 - If the password is set to *, iChip allows Web updating without password authentication.
 - If the password is defined to any other value, the user must submit that exact value to perform Web updates.

4. Do one of the following:

- To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
- To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.10 Configuring the SerialNET Tab

This procedure describes how to configure parameters for iChip to work in SerialNET mode.



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click the **SerialNET** tab.

The **SerialNET** tab configuration fields are displayed (Figure 23).

The screenshot shows the 'iChip Configuration tools' window with the 'SerialNET' tab selected. The window contains several configuration fields organized in a grid-like layout. At the top, there are tabs for 'Wireless LAN', 'SSL', 'Router', 'Dynamic DNS', 'Remote F/W', 'ISP Connection', 'Remote params update', 'HTTP', 'Email format', 'Server profiles', 'Operational', 'LAN', 'Serial NET', 'IP registration', 'User fields', and 'RAS'. The 'Serial NET' tab is active, displaying the following fields:

- Characters to enforce flush (FCHR)**: Text input field.
- Max characters before flush (MCBF)**: Text input field.
- Max timeout to flush (MTTF)**: Text input field.
- Disconnection string (DSTR)**: Text input field.
- Send DSTR**: Checkmark icon.
- Timeout before reestablishing connection (SNRD)**: Text input field.
- Port settings for serialNET (SNSI)**: Text input field.
- Max bytes to buffer (MBTB)**: Text input field.
- Socket type (STYP)**: Dropdown menu.
- Server serialNET port (LPRT)**: Text input field.
- IP address to connect to (HSRV)**: Text input field.
- Alt IP address to connect to (HSR1)**: Text input field.
- Alt IP address to connect to (HSR2)**: Text input field.
- Serial Phone Number (SPI)**: Text input field.
- Serial Dial Timeout (SDT)**: Text input field.
- Packets To Drop (PTD)**: Text input field.
- Serial Wakeup Timeout (SWT)**: Text input field.
- HSS**: Text input field.
- SerialNET Indicator Signal (SLED)**: Text input field.

At the bottom of the window, there is a status bar showing 'iChip type: C02144-D iChip plus (LAN platform)', 'Serial num: 14001C40', 'Firmware ver: ID009b15 5.4.2012', and 'Boot block: 0801 9.6.2009'. Below the status bar are three buttons: 'Save', 'Apply', and 'Close'. The bottom status bar also shows 'Ready', 'Port: COM12', and 'Baud Rate: 115200'.

Figure 23: SerialNET Tab of Full Configuration Tool

2. In the **Character to Enforce Flush (FCHR)** field, type the value you want to use to generate a TCP packet flush.
3. In the **Max Characters before Flush (MCBF)** field, type the number (integer) of characters for iChip to buffer before a TCP packet is flushed.
4. In the **Max Timeout to Flush (MTTF)** field, type the value (in seconds) of the time interval for iChip to wait before flushing a TCP packet.

5. In the **Disconnection String (DSTR)** field, type the string to trigger iChip to complete the SerialNET session (iChip closes the socket, but remains in SerialNET mode. iChip also goes offline in Dial-Up operation).
6. Select the **Send DSTR** checkbox to Send the DSTR string from iChip to the socket.
7. In the **Timeout Before Reestablishing Connection (SNRD)** field, type the value (in seconds) of the time interval for iChip to wait before attempting to reestablish a lost socket connection.
8. In the **Port Settings for SerialNET (SNSI)** field, type the values for the baud rate, number of data bits, parity, and stop bit for iChip in SerialNET mode. Use the format **<baud>,<data_bits>,<parity>,<stop_bits>,<flow>**.
9. In the **Max Bytes to Buffer (MBTB)** field, type the value of the maximum number of bytes for iChip to buffer while waiting to establish an Internet connection.
10. From the **Socket Type (STYP)** dropdown list, select either **UDP** or **TCP** as the destination socket type.
11. In the **Server SerialNET Port (LRPT)** field, type the number of the listening port for the SerialNET server.
12. In the **IP Address to Connect to (HSRV)** field, type the port server name or IP address for iChip to locate and connect to when serial data is transmitted from the device.
13. In the **Alternate IP Address to Connect to** fields (**HSR1** and **HSR2**), type alternate port server names or IP addresses for iChip to connect to if HSRV is nonresponsive.
14. In the **Serial Phone Number (SPN)** field, type the phone number to use to wake up a remote SerialNET server.
15. In the **SerialNET Dialup Timeout (SDT)** field, type the value (in seconds) of the time interval to elapse for iChip to cease attempting to wake up a remote SerialNET server (via dialup).
16. In the **Packets to Drop (PTD)** field, type the filtration ratio factor value to determine how many of the packets iChip generates are sent to the host. For example, if the value is set to **0**, every packet iChip generates is sent to the host. If the value is set to **2**, two packets are ignored, and then the next packet is sent, and so on.
17. In the **SerialNET Wakeup Timeout (SWT)** field, type the value (in seconds) of the time interval to elapse for iChip to cease attempting to wake up a remote SerialNET server.
18. In the **HSS** field, enter a string containing three control characters that determine switching among the three possible remote servers HSR*n*.
19. In the **SerialNET Indicator Signal (SLED)** field, specify the GPIO to use to drive a LED indicator when iChip is in SerialNET. Specify 0 to disable. A value of [1..6] corresponds to pins PIOC[0..5]. The specified GPIO shall be driven LOW when iChip is in SerialNET mode.
20. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.

- To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.11 Configuring the IP Registration Tab

This procedure describes how to configure IP Registration parameters, which enable iChip to broadcast online status and information.



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click the **IP Registration** tab.

The **IP Registration** tab configuration fields are displayed (Figure 24).

The screenshot shows the 'iChip Configuration tools' window with the 'IP registration' tab selected. The window has a menu bar with 'File' and 'Search Parameter'. Below the menu is a grid of tabs: Wireless LAN, SSL, Router, Dynamic DNS, Remote F/W, ISP Connection, Remote params update, HTTP, Email format, Server profiles, Operational, LAN, Serial NET, IP registration (selected), User fields, and RAS. The main area contains four text input fields with labels: 'Server address to Register (RRSV)', 'Email address to Register (RRMA)', 'Web Server URL to Register (RRWS)', and 'Return Link to Register (RRRL)'. At the bottom, there is a status bar showing 'iChip type: C02144-D iChip plus (LAN platform)', 'Serial num: 14001C40', 'Firmware ver: ID809b15 5.4.2012', and 'Boot block: 0801 9.6.2009'. Below the status bar are three buttons: 'Save', 'Apply', and 'Close'. The bottom status bar also shows 'Ready', 'Port: COM12', and 'Baud Rate: 115200'.

Figure 24: IP Registration Tab of Full Configuration Tool

2. In the **Server Address to Register (RRSV)** field, type the name or IP address of the ring response server, and port number with which iChip establishes a connection in response to a RING detected on the modem.

The IP address dynamically assigned to iChip by the ISP and the LPRT listening port are sent to the server, and then the socket is closed.

3. In the **Email Address to Send IP (RRMA)** field, type the email address of the recipient of notification email messages sent after iChip establishes a connection to the ISP in response to a RING detected by the modem.

The email notification message includes the IP address dynamically assigned to iChip by the ISP, and the LPRT listening port.

4. In the **Ring Response Web Server URL (RRWS)** field, type the URL of the ring response Web server to use for dynamic registration.
5. In the **Ring Response Return Link (RRRL)** field, type the IP address of the ring response return link and the Web port.
6. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.12 Configuring the User Fields Tab

This procedure describes how to configure user fields, which can be used for the following purposes:

- **General storage:** You can type any string in each of the fields in order to save a list.
- **Macro replacement**



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click the **User Fields** tab.
The **User Fields** tab configuration fields are displayed (Figure 25).

Figure 25: User Fields Tab of Full Configuration Tool

2. In each **User Field (UF_n)** field, type the desired value.
3. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the iChip **Configuration Tools** window appears.

3.3.13 Configuring the RAS Tab

This procedure describes how to configure remote access server (RAS) fields, which enable you to dial into the iChip.



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click the **RAS** tab.
The **RAS** tab configuration fields are displayed (Figure 26).

Figure 26: RAS Tab of the Full Configuration Tool

2. In the **RAS Username (RAU)** field, type the username used to access the RAS.
3. In the **RAS Password (RAP)** field, type the password used to access the RAS.
4. In the **RAS Rings (RAR)** field, type the number of rings after which the RAS allows the connection.
5. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the iChip **Configuration Tools** window appears.

3.3.14 Configuring the Wireless LAN Tab

This procedure describes how to configure wireless LAN communication parameters.



What you need:

Access to the **Configuration Tools** window, as described in 3.3.1.



How:

1. In the **Configuration Tools** window, click the **Wireless LAN** tab.
The **Wireless LAN** tab configuration fields are displayed (Figure 27).

The screenshot displays the 'iChip Configuration tools' window with the 'Wireless LAN' tab selected. The interface is divided into several sections:

- General WLAN Parameters:** Includes fields for WLAN Channel (WLCH), Security Type (WSEC), Roaming Mode, Access Point BSSID (BSID), Enterprise User (EUSN), Enterprise Password (EPSW), Power Save (WLPS), WLAN Lo SNR TH (WSLR), WLAN Hi SNR TH (WSRH), Periodic Scan Interval (WPSI), and Ad Hoc scan (WLAS).
- WLAN SSID:** A grid of fields for SSID1 (WSI1) through SSID9 (WSI9).
- WEP Parameters:** Includes WEP Mode (WLWM), Key Index (WLK), and four key fields (Key 1 (WLK1) through Key 4 (WLK4)).
- WLAN Security type:** A list of security types (WST0) through (WST9) with dropdown menus.
- WLAN WPA Pass Phrase:** A list of WPA_PSK Pass Phrases (WPP1) through (WPP9).
- WEP Multi SSID Keys:** A list of WEP Keys (WKY1) through (WKY9).

At the bottom, the status bar shows 'Ready', 'Port: COM12', and 'Baud Rate: 115200'.

Figure 27: Wireless LAN Tab of Full Configuration Tool

2. In the **General WLAN Parameters** group:

- From the **Wireless LAN Channel (WLCH)** dropdown list, select the iChip communications channel to be used when creating an Ad-Hoc network.
- From the **Security Type (WSEC)** dropdown list, select the default WPA or WPA2 security to use.
- In the **Power Save (WLPS)** field, specify the number of beacon periods during which the WiFi chipset remains in Power Save mode before scanning for the next Beacon. Define a 0 value to disable WiFi Power Save mode.
- From the **Roaming Mode** dropdown list, Disable or Enable Wireless LAN Roaming. Roaming mode is used to transfer between AP's without obstructing an ongoing connection.
- In the **WLAN Lo SNR TH (WSLR)** field specify the threshold value (in percent) below which iChip will start searching for a new AP to roam to.
- In the **WLAN Hi SNR TH (WSRH)** field specify the threshold value (in percent) above which iChip will roam to a new AP.
- In the **Periodic Scan Interval (WPSI)** field specify the time interval in seconds, between consecutive scans that iChip will perform in search for APs in its vicinity.
- In the **Access Point BSSID (BSID)** field specify the BSSID of the specific AP to connect to. AP BSSID is the AP MAC address.

- i. In the **Enterprise Domain/User (EUSN)** field specify the Domain and User name to use when connecting to a WLAN in Enterprise mode via RADIUS server.
 - j. In the **Enterprise Password (EPSW)** field specify the Password to use when connecting to a WLAN in Enterprise mode.
 3. In the **WLAN SSID** group:
 - a. In the **Wireless LAN SSID (WLSI)** field, type the value (string) of the major AP system-set ID (SSID). When specifying an Ad-Hoc system, prefix the SSID string with an '!' mark.
 - b. In the **SSID_i (WSI_i)** fields specify additional (fall-back) SSID strings. If a connection to the AP according to WLSI is not successful, iChip will scan through the SSID list until a successful connection is made.
 4. In the **WEP Parameters** group:
 - a. From the **Wireless LAN WEP Mode (WLWM)** dropdown list, select the wired equivalent privacy (WEP) mode to work with in the wireless LAN environment.
 - b. From the **Wireless LAN Key Index (WLKI)** dropdown list, select the WEP key index value to use to transmit WiFi packets.
 - c. In the **Wireless LAN Key (WLK_n)** fields (1-4), type a key value (hexadecimal string) to define the WEP key array in a WEP-secured wireless LAN environment (as defined in the WLWM parameter, [step 4](#)). The WEP key array is used to encrypt outgoing packets using the key defined in the WLKI parameter, [step 5](#), and decrypt incoming packets.

The identical value must be configured in the same position in the AP router.
 5. In the **WLAN Security Type** group:
 - a. From the Security type *i* (WST_i) dropdown list select the type of security required for each AP whose SSID is specified in the corresponding WSI_i field.
 6. In the **WLAN WPA Pass Phrase** group:
 - a. In the **WPA-PSK Pass Phrase (WLPP)** field, enter an ASCII string containing 8-63 characters to be used in generating a WPA-PSK encryption key.
 - b. In the **WPA-PSK Pass Phrase *i* (WPP_i)** field, enter an ASCII string containing 8-63 characters to be used in generating a WPA-PSK encryption key for the AP whose SSID is specified in the corresponding WSI_i field.
 7. In the **WEP Multi SSID Keys** group:
 - a. In the **WEP Key *i* (WKY_i)** field, specify the WEP key to use to connect to a WEP secured AP whose SSID is specified in the corresponding WSI_i field.
 8. Do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.

- To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the iChip **Configuration Tools** window appears.

3.3.15 Configuring the SSL Tab

This procedure describes how to configure user fields related to Secure Socket Layer (SSL) encryption.



What you need:

- Access to the **Configuration Tools** window, as described in 3.3.1.
- Knowledge/proficiency in SSL encryption and certification.



How:

1. In the **Configuration Tools** window, click the **SSL** tab.

The **SSL** tab configuration fields are displayed (Figure 26).

The screenshot shows the 'iChip Configuration tools' window with the 'SSL' tab selected. The window contains several configuration fields and buttons:

- Cipher suite (CS):** A dropdown menu with '0 - Propose All' selected.
- Private key (PKEY):** A large text area for entering the private key.
- Trusted Certificate Authority (CA):** Four separate text areas labeled CA1, CA2, CA3, and CA4, each with 'Load Certificate' and 'Clear Certificate' buttons.
- iChip Certificate:** A large text area for entering the iChip certificate, with 'Load Certificate' and 'Clear Certificate' buttons.
- Status Bar:** Displays 'Ready', 'Port: COM12', and 'Baud Rate: 115200'.

Figure 26: SSL Tab of Full Configuration Tool

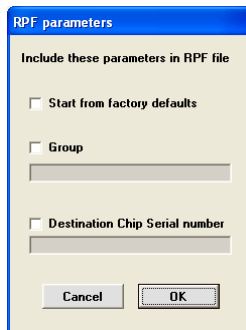
2. From the **Cipher Suite (CS)** dropdown list, select the cipher suite to be used in SSL3/TLS1 negotiations with a secure server.
3. In the **Trusted Certificate Authority (CA)** fields (1-4), you can load up to 4 different certificates obtained from trusted certificate authorities. iChip establishes an SSL3/TLS1 socket connection only to servers having a certificate authenticated by these authorities. Use the **Load Certificate** button to load a certificate, and the **Clear Certificate** button to remove it from the field.

4. In the **Private Key (PKEY)** field, you can load iChip's private key. The private key is required to perform an RSA encryption of its certificate (see CERT parameter, below) when performing client side authentication.
5. In the **iChip Certificate (CERT)** field, you can load iChip's SSL3/TLS1 certificate. Some SSL3/TLS1 servers require the client side to authenticate its identity by requesting the client to provide a certificate during the SSL socket negotiation phase. This is called 'client side authentication.' If the CERT parameter contains a certificate, iChip provides it to the server upon request. iChip also needs a private key (see PKEY parameter, above) in order to encrypt its certificate before sending it to the server. In addition, the certificate must be signed by a certificate authority accepted by the server for the client side authentication to succeed.
6. Fill in fields as required, and then do one of the following:
 - To apply the defined parameters and continue working in the **Configuration Tools** window, click **Apply**.
 - To save the defined parameters and exit the **Configuration Tools** window, click **Save**.
Your definitions are saved, the **Configuration Tools** window closes, and the **iChip Configuration Tools** window appears.

3.3.16 Using the Full Configuration Menu

- File Menu

Use the File Menu to save all iChip parameters to an RPF file. When selecting this option the following dialog will be displayed:



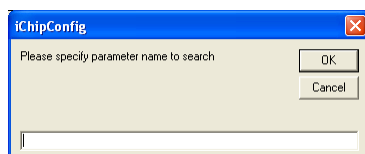
Select **Start from factory defaults** to save all parameters with value different from the factory defaults.

Check and define a **GROUP** password to restrict RPF update to iChips that have their RPG field set to the same GROUP password.

Check and define **Destination Chip Serial Number** to restrict RPF update only to a specific iChip with this serial number.

- Search for Parameter

Use this menu option to search for a parameter. The following dialog is displayed:



Type in the parameter name and click OK.

3.4 Working with the iChip Uploader (via Serial) Tool

This procedure describes how to upload iChip's firmware and perform other operations via the serial host interface using the Uploader tool.




What you need:

- Device or module using Connect One iChip or Connect One II-EVB board connected to your workstation, with power on



How:

1. In the iChip Configuration Tools window, click the iChip Uploader  icon.
2. Perform the desired upload actions to your iChip (step 1).
3. To exit the iChip Uploader tool, click either **Close** or **Exit**.

3.4.1 Updating Firmware for CO2128SEC Locally

The II-EVB-630W can be updated locally via the **Tools > CO2128/2064 Monitor Mode** command, or via the iChip Uploader feature of the iChipConfig Utility. First-time installation of the firmware must be done via Monitor Mode. Successive firmware updates can be performed using the iChip Uploader, which is a much faster procedure that does not require re-installation of the boot loader.

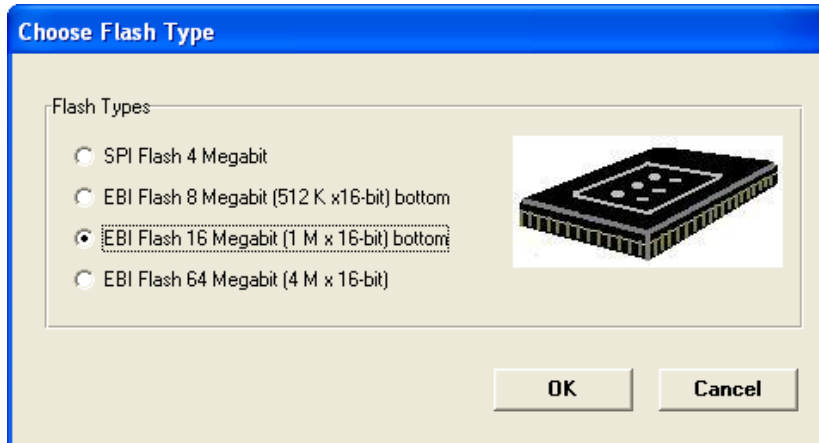
First-Time Firmware Installation Using Monitor Mode

1. Open the iChipConfig utility.

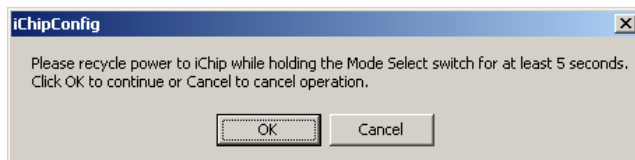


2. Click **Tools > CO2128/2064 Monitor Mode**.

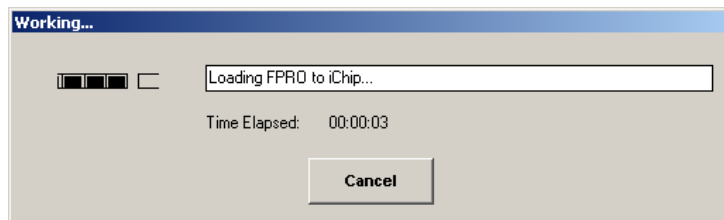
3. In the dialog box displayed, select **EBI Flash 16 Megabit** for (2Mbyte Flash) option and click **OK**.



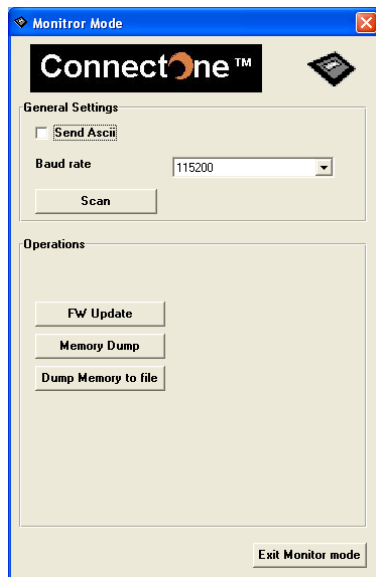
4. Recycle power to the II-EVB-630W while holding down the Mode Select (MSEL) switch for *at least* 5 seconds, and click **OK** to continue.



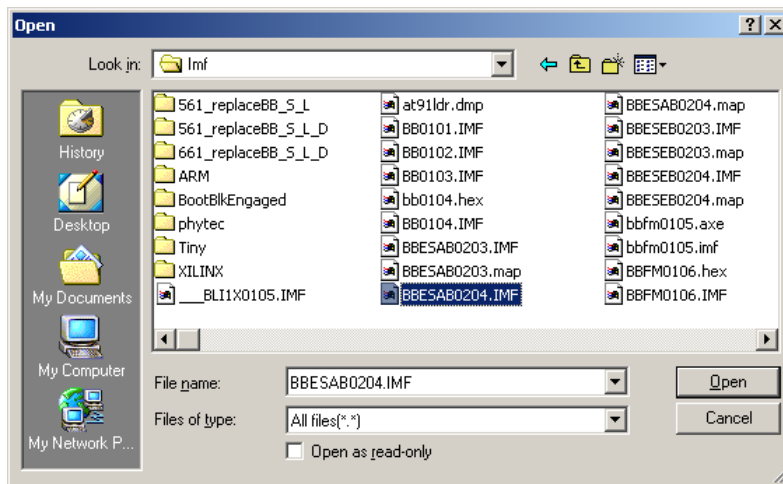
5. The following window appears while the FPRO application is installed.



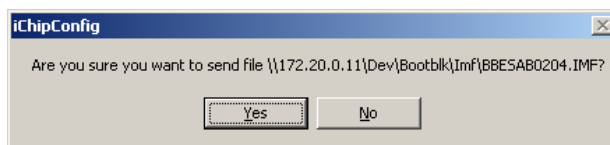
6. The Monitor Mode dialog box is displayed. Click the **FW Update** button.



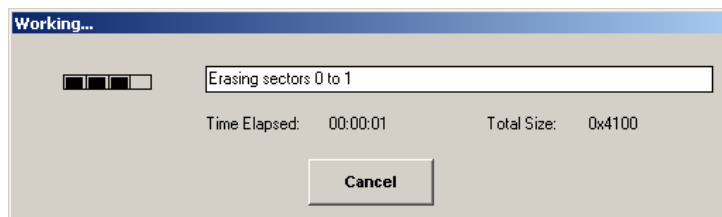
7. In the dialog box that appears, browse to the location of the Boot Block IMF file you obtained from Connect One, select the file and click **Open**.



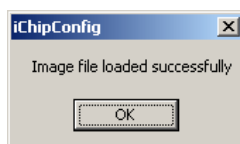
8. Click **Yes** when prompted.



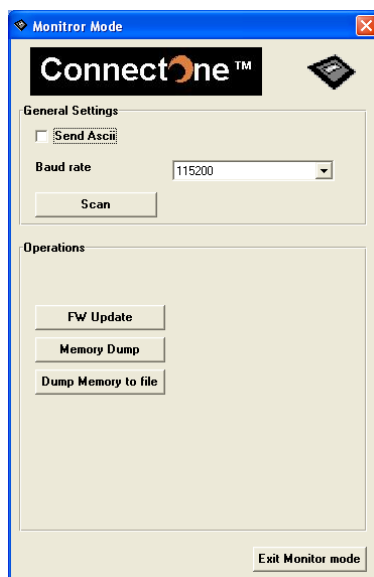
9. The following window appears while certain sectors of the flash are being erased and the boot block is being installed.



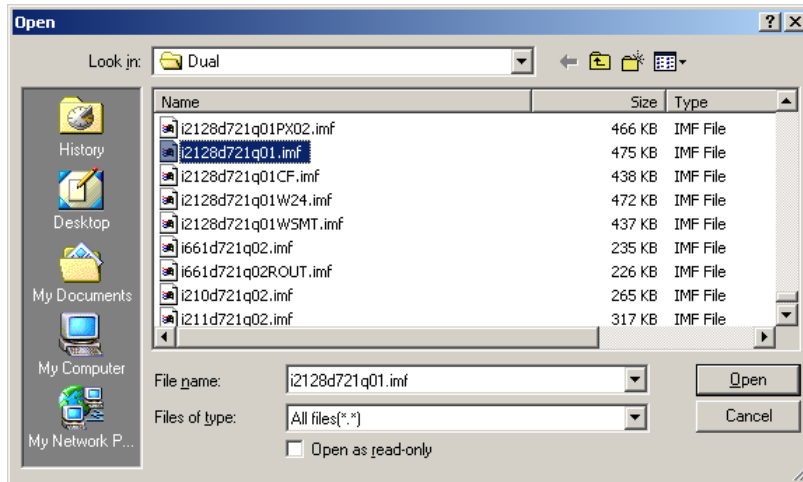
10. OK the dialog box that appears when the boot block has been installed successfully.



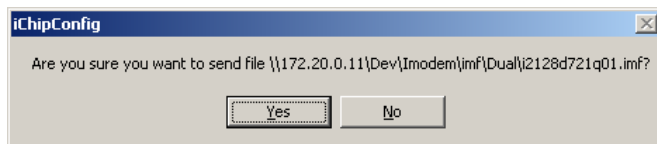
11. In the Monitor Mode dialog box, click the **FW Update** button again.



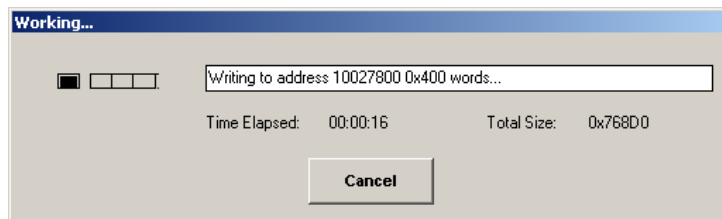
12. In the dialog box that appears, browse to the location of the firmware IMF file you obtained from Connect One, select the file and click **Open**.



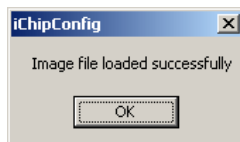
13. Click **Yes** when prompted.



14. The following window appears while the firmware is being installed on the flash.



15. OK the dialog box that appears when installation has completed successfully.



16. Click the **Exit Monitor Mode** button on the Monitor Mode window to return to command mode.

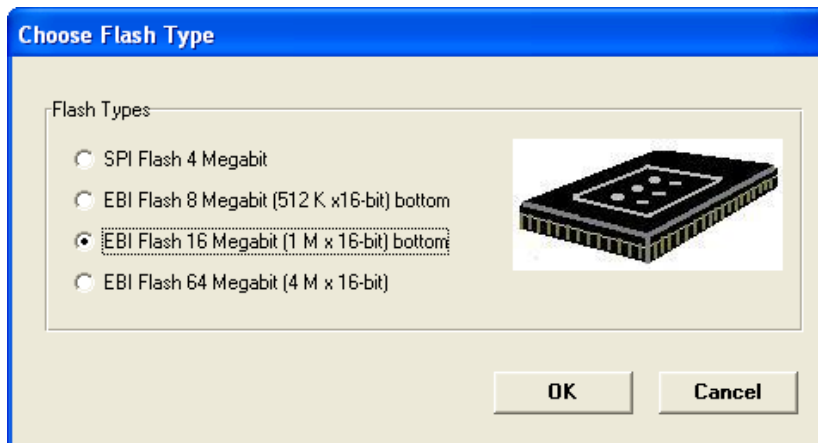
Updating Existing Firmware Using the iChip Uploader

Note: This procedure assumes that the SPI flash memory on the II-EVB-630W already contains a previous version of the iChip firmware.

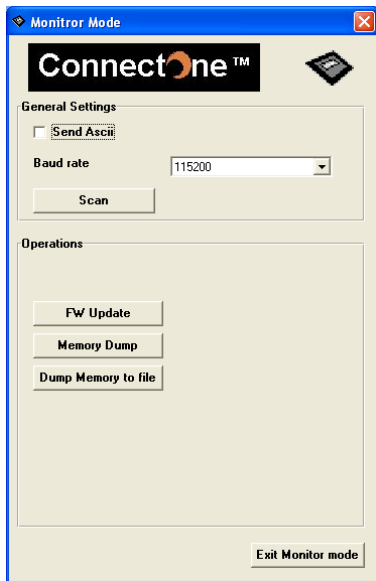
1. Open the iChipConfig utility.



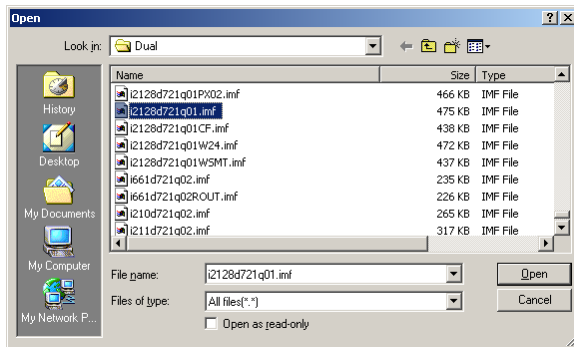
2. Click the **iChip Uploader via Serial** icon.
3. In the dialog box displayed, select the **EBI Flash 16 Megabit** for (2Mbyte Flash) option and click **OK**.



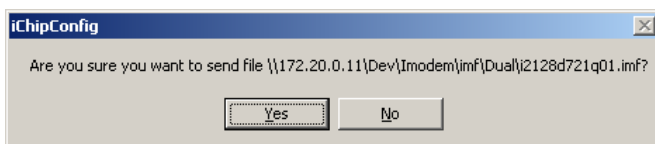
4. The Monitor Mode dialog box is displayed. Click the **FW Update** button.



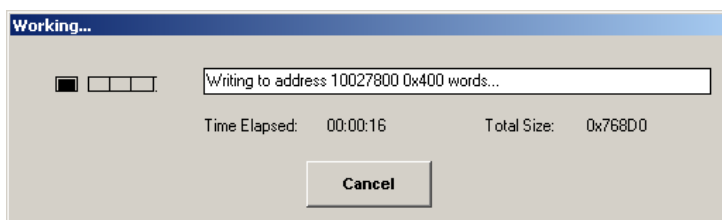
5. In the dialog box that appears, browse to the location of the firmware IMF file you obtained from Connect One, select the file and click **Open**.



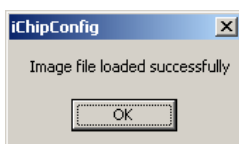
6. Click **Yes** when prompted.



7. The following window appears while the firmware is being installed on the flash.



8. OK the dialog box that appears when installation has completed successfully.



9. Click the **Exit Monitor Mode** button on the Monitor Mode window to return to command mode.

- To view iChip memory information on your monitor:
- Click **Memory Dump**.
The **Memory Dump** window appears (Figure **Error! Bookmark not defined.**).

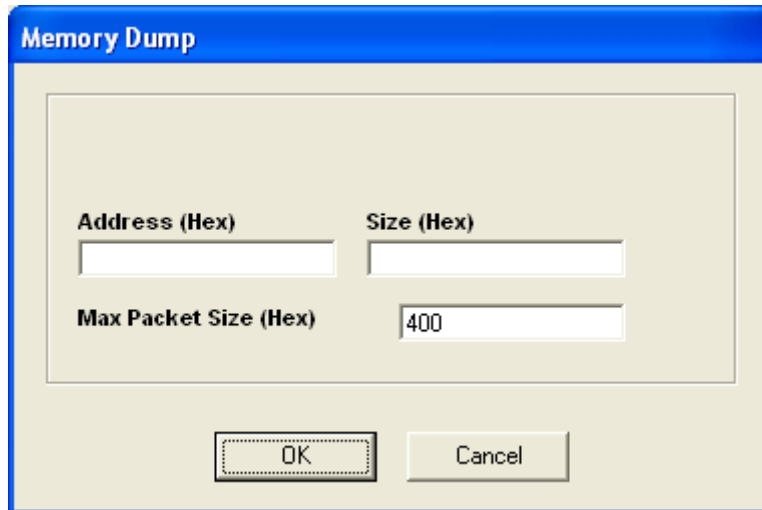


Figure 28: Memory Dump Window

- Type values in the fields, then click **OK**.
- To dump the iChip memory to a file:
- Click **Dump Memory to File**.
The **Dump Memory to File** window appears (Figure **Error! Bookmark not defined.**).

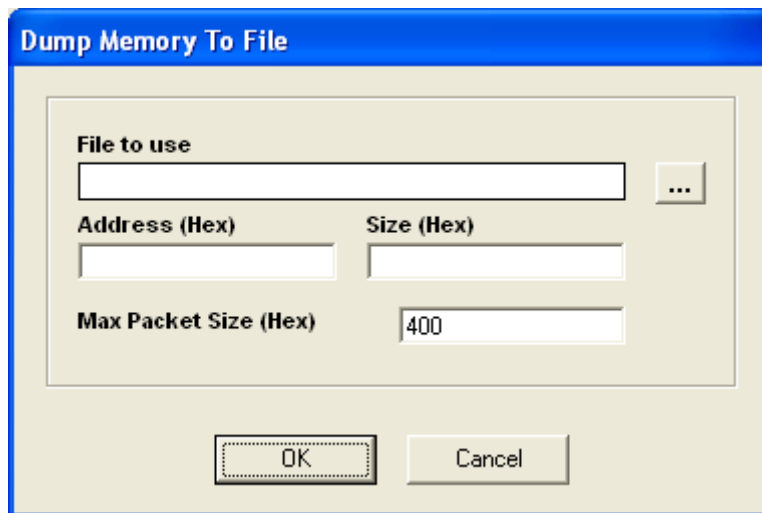


Figure 29: Dump Memory to File Window

- In the **File to Use** field, type the path and filename of the file to which you want to dump the iChip memory.
- OR -
Click ... to browse and select a file.
- Type values in the fields, then click **OK**.

3.5 Working with the Site Packer Tool

This procedure describes how to pack a website and upload it to iChip



Version 7.0x and onward support website serving, as opposed to single webpage serving supported by earlier versions.




What you need:

- Device or module using Connect One iChip or Connect One II-EVB board connected to your workstation, with power on



How:

1. In the **iChip Configuration Tools** window, click the **Site Pack**  icon. The **Website Packer** window appears (Figure 30).

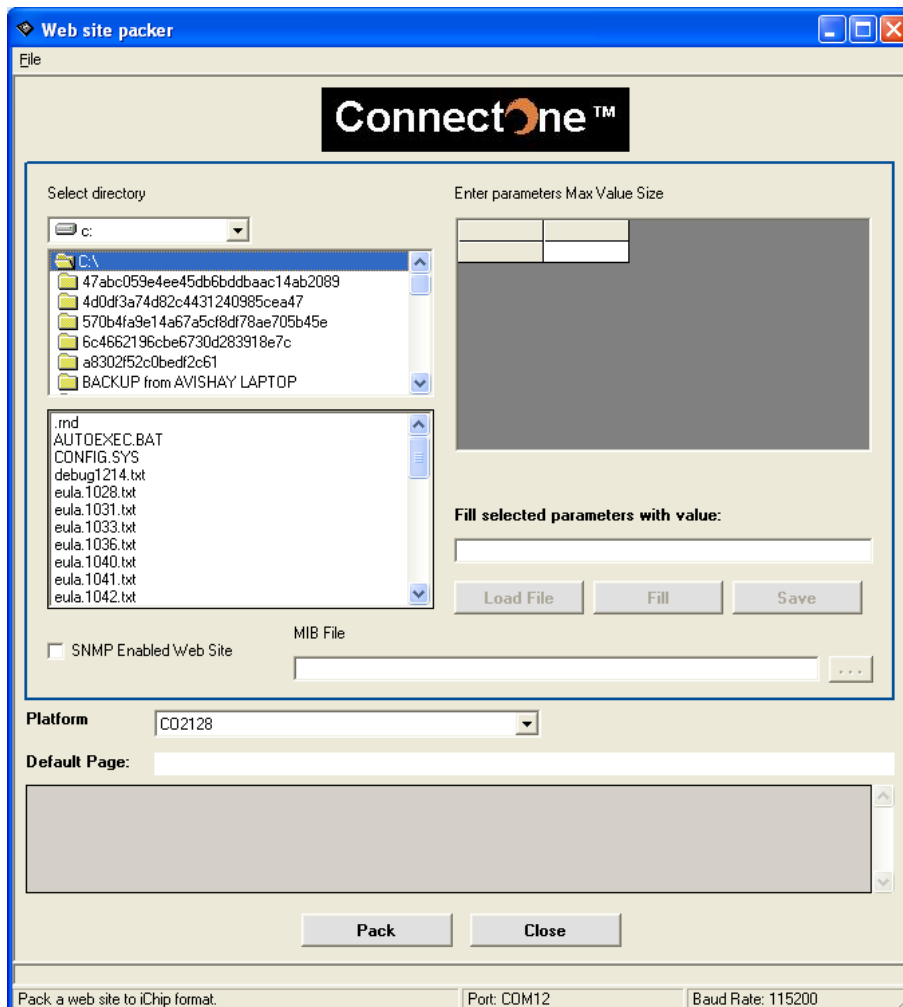


Figure 30: Website Packer Window

1. From the **Platform** dropdown list, select the iChip platform you are working with.
2. In the **Select Directory** area, locate the website root directory.
3. Select a file as the default Home Page of the site. By default, the Packing tool will select index.htm/index.html as the default home page, if such a file exists in the root directory

4. Click **Pack**.

The **Website Packer** window refreshes, displaying the website parameters in the **Max Parameter Value** area (Figure 31).

Param Name	Param max size
wst	10
Parameter1	10
Parameter2	10
Parameter3	10
Parameter4	10
Parameter5	10
Parameter6	10
Parameter7	10
Parameter8	10
wst	10

Figure 31: Website Parameters

5. Do one of the following:

- In the **Param Max Size** column, type the value for each parameter.
- Select the parameters to be filled and in the **Fill Selected Parameters with Value** field, type a value, and then click **Fill**.
All selected parameters are updated with the defined value.

6. Click **Save**. Define or select a filename. The default file extension is set to IMG.

7. Click **Close**.



Also, you can choose the **Load file** button to submit a file that holds individual parameter size per parameter. Only parameters that appear in the web site being packed will be affected. The file in a *.TXT file and the format is **Parameter=SizeCR/LF**.

Any line that starts with **** will be regarded as remark and ignored.

3.6 Working with the iChip Uploader (via HTTP) Tool

This procedure describes how to perform an update on the iChip from a webpage loaded on the iChip or load a website on the iChip.



What you need:

- Device or module using Connect One iChip or Connect One II-EVB board connected to your workstation, with power on
- Website loaded on iChip, with an update option available.



How:

8. In the **iChip Configuration Tools** window, click the **iChip Uploader (via HTTP)** icon.

The **Web Uploader** window appears (Figure 32).

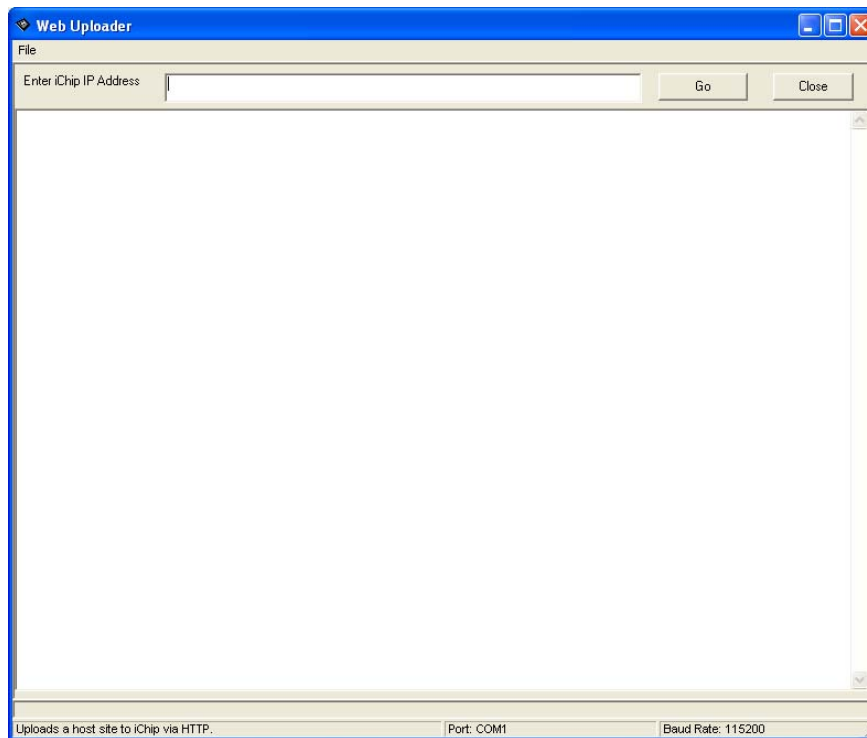



Figure 33: Web Uploader Window

9. In the **iChip IP Address** field, type the IP address of your iChip.

➤ To get the iChip's IP address:

- a. Close the **Web Uploader** window.
- b. In the **iChip Configuration Tools** window, click the **Dumb Terminal**  icon.
The **Dumb Terminal** window opens.
- c. In the **Dumb Terminal** window, type **AT+iipa?**, and press **Enter**.
The iChip IP address is displayed.

➤ Enable iChip's web server:

- a. In the **Dumb Terminal** window, type **AT+iAWS=3**, and press **Enter**.

10. Click **Go**.

The iChip webpage is displayed (Figure 34), and you can perform your firmware update.

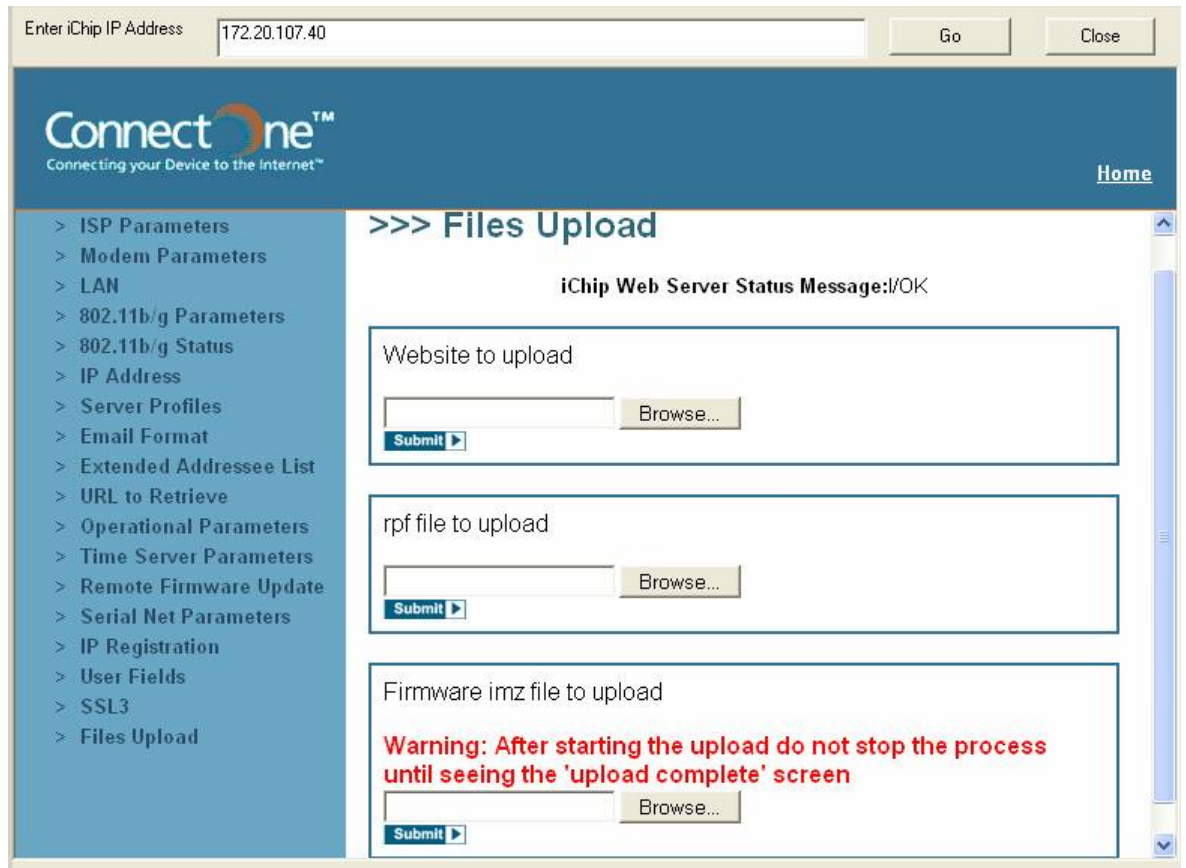


Figure 35: Website Uploader Window, Displaying the Webpage for the Update

3.7 Working with the Dumb Terminal

This procedure describes how to work with the dumb terminal of the iChipConfig utility. The dumb terminal enables you to input AT or AT+I commands, and to review the iChip or modem response. You can also configure your port and baud rate in the Dumb Terminal,




What you need:

- Device or module using Connect One iChip or Connect One II-EVB board connected to your workstation, with power on



How:

1. In the **iChip Configuration Tools** window, click the **Dumb Terminal**  icon. The **Dumb Terminal** window appears (Figure 36).

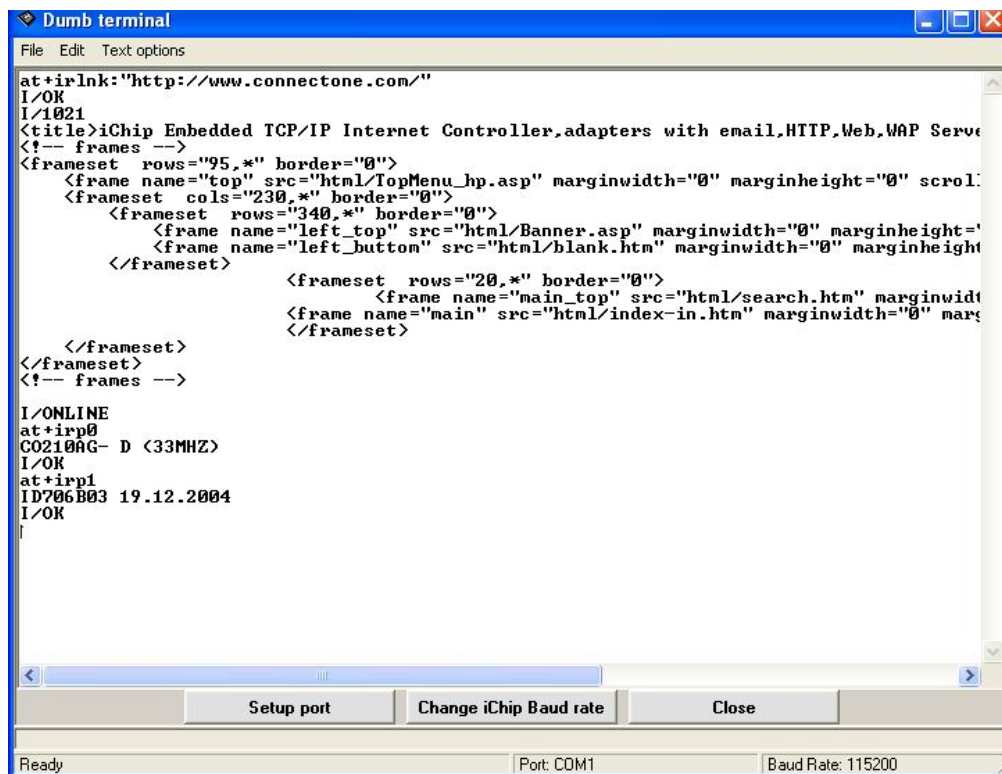


Figure 36: Dumb Terminal Window

2. To select a COM port and baud rate, click **Setup Port**.

The **Serial Settings** window appears (Figure 37), enabling you to select a port, and baud rate.

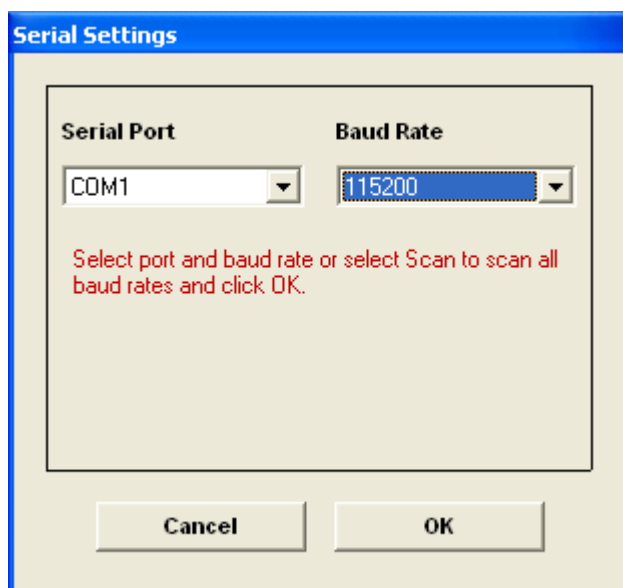


Figure 37: Serial Settings Window

3. To change the baud rate you are working with, click **Change iChip Baud Rate**.

The **Serial Settings** window appears (Figure 37), enabling you to select a port, and baud rate.

4 Wizards

- [Wizards Overview](#)
- [Communication Platform Wizard](#)
- [SerialNET Configuration Wizard](#)

4.1 Wizards Overview

The iChipConfig utility includes two wizard that take you through the configuration process:

- [Communication Platform Wizard](#): Takes you through configuration of parameters for the communication platform.
- [SerialNET Configuration Wizard](#): Takes you through configuration of SerialNET mode details.

4.2 Communication Platform Wizard

4.2.1 Starting the Communication Platform Wizard

This procedure describes how to access the Communication Platform Wizard, and begin to define iChip parameters.



How:

1. From the iChipConfig main menu bar, select **Wizards > Communication Platform**.

The **Communication Platform Wizard** window appears (Figure 38).

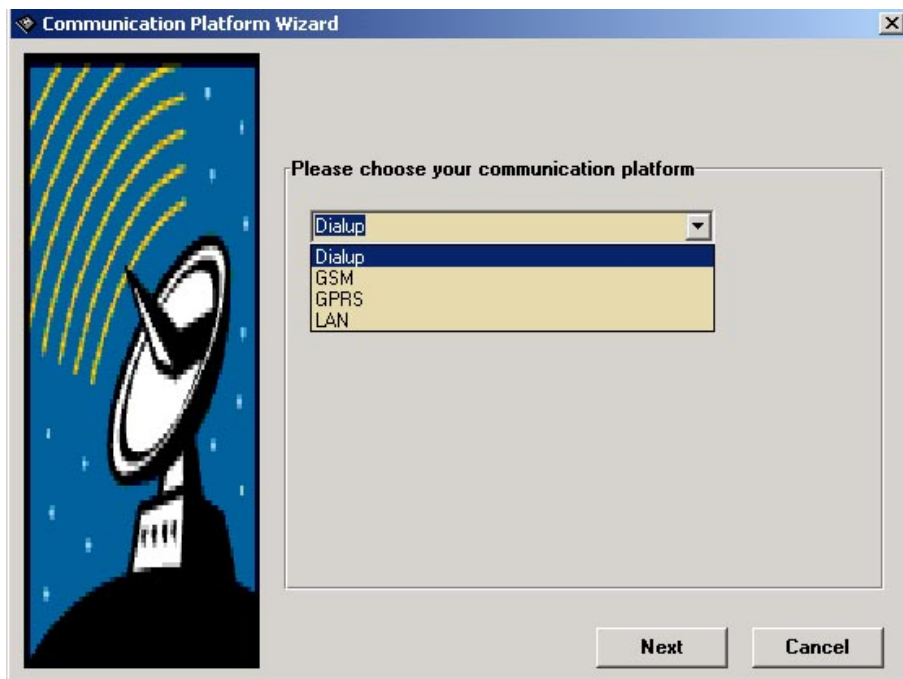


Figure 38: Communication Platform Wizard Window

2. From **the Communication Platform** dropdown list, select the communication platform you are using (**Dialup**, **GSM**, **GPRS**, or **LAN**), and then click **Next**.

The window for the selected communication platform opens, enabling you to configure applicable parameters.

Related Topics:

4.2.2 Configuring Dialup or GSM Parameters

This procedure describes how to configure dialup communication platform parameters, using the Communication Platform Wizard.



What you need:

- Completion of [Starting the Communication Platform Wizard](#), with the **Dialup** parameter selected.



How:

1. After you click **Next** in the first Communication Platform Wizard window, the **ISP Account Parameters** area for dialup/GSM appears (Figure 39).

Communication Platform Wizard

Enter ISP Account parameters

Phone number: 9,1234567

User name: username

Password: password

Back Next Cancel

Figure 39: Communication Platform Wizard: ISP Account Parameters

2. In the **Phone Number** field, type the number you use to connect to your ISP.
3. In the **Username** field, type the username you use to access your ISP account.
4. In the **Password** field, type the password you use to access your ISP account.
5. Click **Next**.

The **Finish/View Settings** area appears (Figure 42).

6. Continue with [Viewing and Completing Communication Platform Configuration](#).

iChipConfig Utility will also send the iChip additional parameters that set the authentication method and appropriate values for modem type and modem initialization string for dialup analog or GSM modem.

4.2.3 Configuring GPRS Parameters

This procedure describes how to configure GPRS communication platform parameters, using the Communication Platform Wizard.



What you need:

- Completion of [Starting the Communication Platform Wizard](#), with the **GPRS** parameter selected.



How:

1. After you click **Next** in the first Communication Platform Wizard window, the **ISP Account Parameters** area for GPRS appears (Figure 40).

Communication Platform Wizard

Enter ISP Account parameters

Phone number: x9gxxx1#

User name: Optional

Password: Optional

Modem init string: +CGDCONT=1,IP,Proxy

Back Next Cancel

Figure 40: Communication Platform Wizard: GPRS Parameters

2. In the **Phone Number** field, type the number you use to connect to your ISP.
3. In the **Username** field, type the username you use to access your ISP account.
4. In the **Password** field, type the password you use to access your ISP account.
5. In the **Modem init string** field, type the initialization string for your modem.
6. Click **Next**.

The **Finish/View Settings** area appears (Figure 42).

7. Continue with [Viewing and Completing Communication Platform Configuration](#).

4.2.4 Configuring LAN Settings

This procedure describes how to configure LAN communication platform parameters, using the Communication Platform Wizard.



What you need:

- Completion of [Starting the Communication Platform Wizard](#), with the **LAN** parameter selected.

**How:**

1. After you click **Next** in the first Communication Platform Wizard window, the **LAN Parameters** area appears (Figure 41).

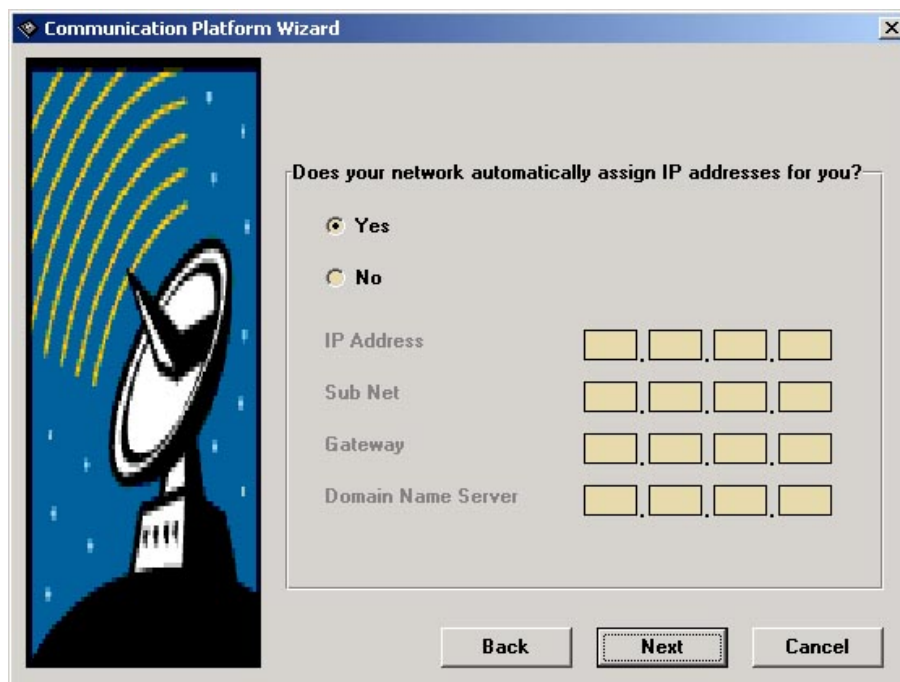


Figure 41: Communication Platform Wizard: LAN Parameters

2. To work with a DHCP server, select **Yes**.
3. To assign custom values to the iChip, do the following
 - a. Select **No**.
 - b. Type the desired values in the **IP Address**, **Subnet**, **Gateway**, and **Domain Name Server** fields.
4. Click **Next**.

The **Finish/View Settings** area appears (Figure 42).
5. Continue with [Viewing and Completing Communication Platform Configuration](#).

4.2.5 Viewing and Completing Communication Platform Configuration

This procedure describes how to view the communication platform configuration defined in the Communication Platform Wizard, and how to complete the platform configuration and close the wizard.

**How:**

1. After you click **Next** in the platform parameters window of the wizard, the **Finish/View Settings** area appears (Figure 42).



Figure 42: Communication Platform Wizard: Finish/View Settings

2. To view the settings defined in the wizard, click **View Settings**.

The **General Viewer** window appears, displaying communication platform settings information (Figure 43).

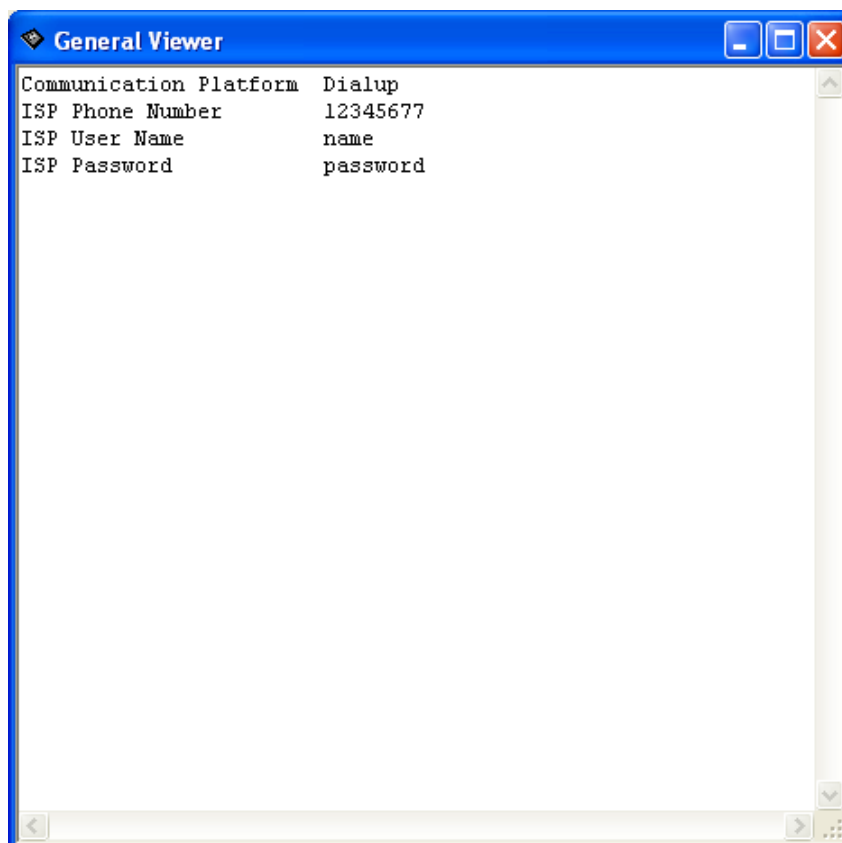


Figure 43: General Viewer Window

3. To save the settings and exit the wizard, click **Finish**.

The settings are saved, and the Communication Platform Wizard closes.

4.3 SerialNET Configuration Wizard

The SerialNET Configuration Wizard enables you to establish connection between your device and a remote server, without doing extensive research or needing to understand every SerialNET parameter.

Once the connection is enabled, fine-tuning of the SerialNET setting is required for best performance.

4.3.1 Starting the SerialNET Configuration Wizard

This procedure describes how to access the SerialNET Configuration Wizard, and begin defining SerialNET parameters.



How:

- From the iChipConfig main menu bar, select **Wizards > SerialNET Wizard**.

The **SerialNET Configuration Wizard** window appears (Figure 44).

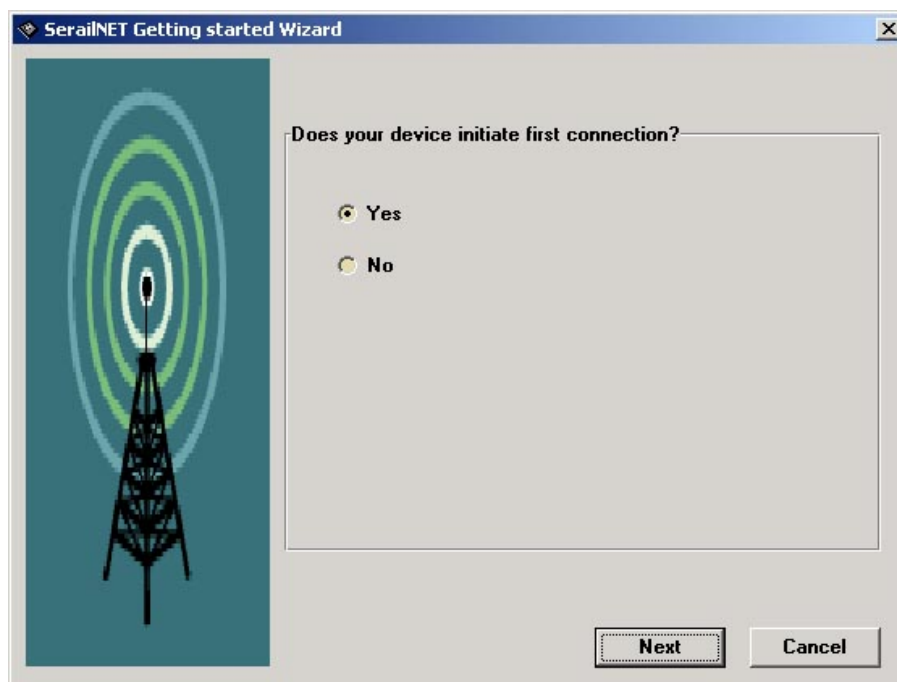


Figure 45: SerialNET Getting Started Wizard

4.3.2 Configuring Connection Initiation

This procedure describes how to configure connection initiation parameters, which are different depending on whether your device initiates the connection or is polled from the remote location to create a connection.



These setting apply **ONLY** to the **FIRST** connection. After a connection is established, both the device and the remote server have full duplex TCP connection available until one of the devices is disconnected or ends the session.



How:

1. In the **First Connection** area, do one of the following:

■ If your device transmits data without a specific request:

a. Select **Yes**.

The **Remote Side Parameters** area appears (Figure 46).

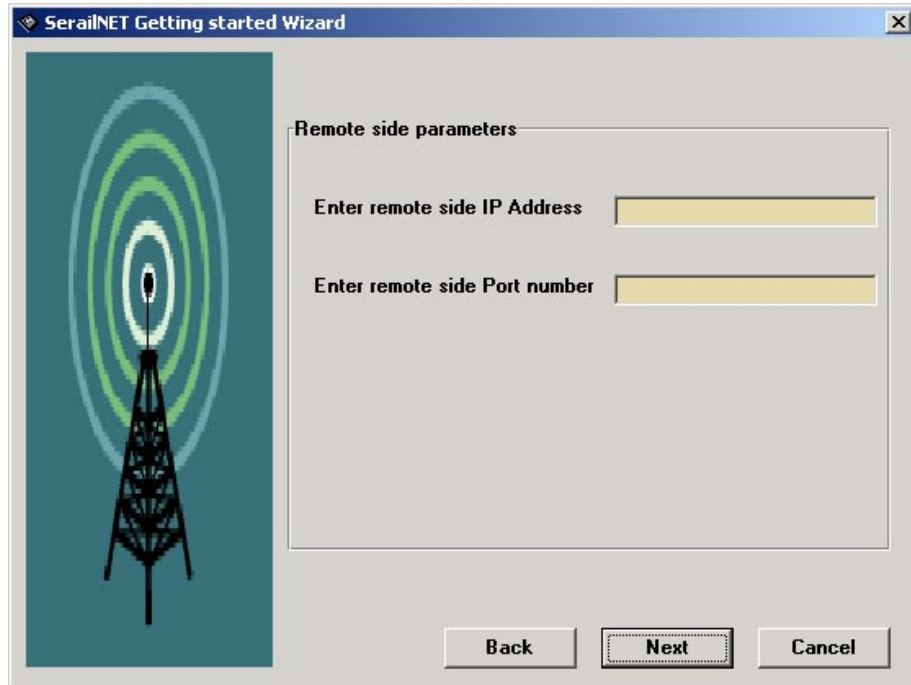


Figure 46: SerialNET Getting Started Wizard: Remote Parameters

b. In the **Remote Side IP Address** field, type the IP address of the remote server for iChip to contact.

c. In the **Remote Side Port Number** field, type the port number on the remote server for iChip to contact.

■ If your device waits for a remote request to connect:

a. Select **No**.

The **Local Side Parameters** area appears (Figure 47).

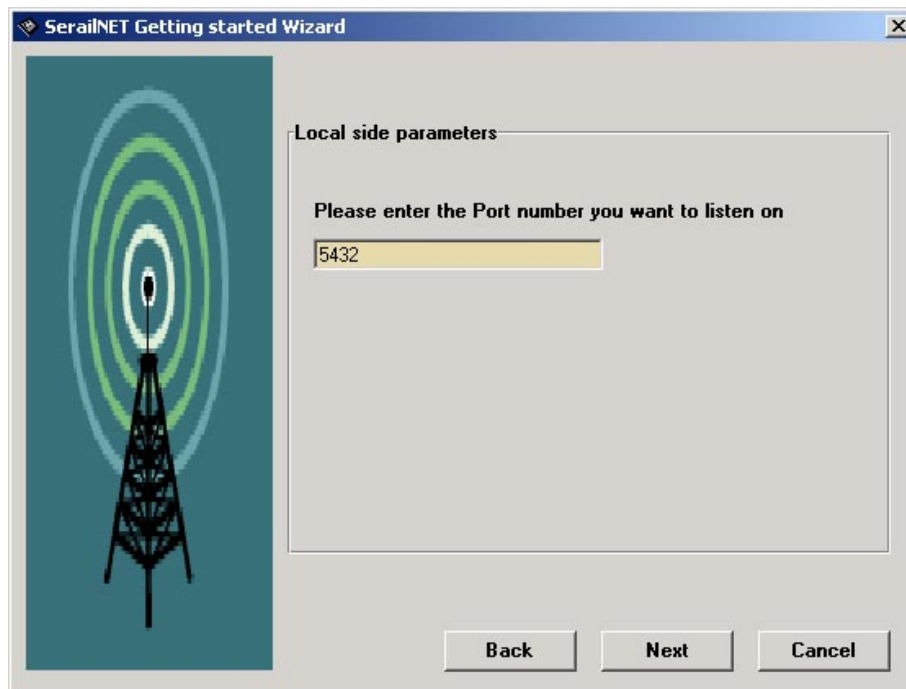


Figure 47: SerialNET Getting Started Wizard: Local Side Parameters

- b. In the **Listening Port Number** field, type the number of the port on which iChip listens for a remote connection request.

You can use any number between 1 and 65535. However, it is recommended that you choose a number higher than 1024.

2. Click **Next**.

The **Flush Conditions** area appears (see section 4.3.3, Setting Flush Conditions), and your device is configured to either initiate a TCP session or wait for one (as applicable).



You can also configure the iChip with both parameters using the Full Configuration tool (see section 3.3.10) or using AT+i commands (see the AT+i Programmer's Manual).

4.3.3 Setting Flush Conditions

This procedure describes how to set the flush conditions for working in SerialNET mode.

By default, every packet that comes from the Internet is immediately stripped of TCP or UDP headers, and the raw ASCII data is forwarded to the device.

However, every character that iChip receives from the device side is buffered, until a flush condition is achieved. Then, the buffered content is sent as a TCP or UDP packet to the remote side.

The flush conditions iChip supports include the following parameters:

- **Content** – Applicable if your device terminates each transmission with a fixed character. iChip scans the character stream until the specified character is detected, and then sends the buffered content (including the termination character) as a packet.

- **Quantity** – If your device has a fixed number of bytes per transmission, iChip counts the specified amount of bytes in the stream. When the buffer reaches this exact number of bytes, the buffered content is sent as a packet.
- **Timeout** – iChip waits the defined time interval (in milliseconds), then sends the buffered content as a packet.



How:

1. After you complete the connection initiation configuration (Section 4.3.2) and click **Next**, the **Flush Condition Parameters** area appears (Figure 48).

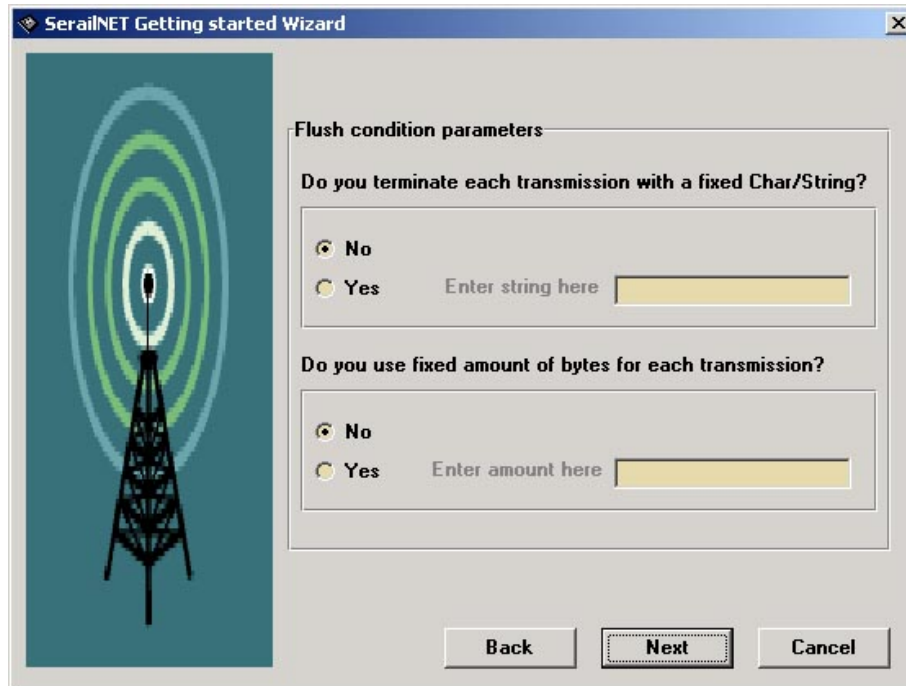


Figure 48: SerialNET Getting Started Wizard: Flush Condition Parameters

2. In the **Transmission Termination** area, do one of the following:
 - If you do not use a termination character in your transmissions, select **No**.
 - If you use a fixed termination char, select **Yes**, and then type the ASCII value character in the indicated field.



If you chose **No**, iChip is configured with a default timeout interval of 100 milliseconds.

3. In the **Fixed Bytes per Transmission** area, do one of the following:
 - If you do not fix the number of bytes per transmission, select **No**.
 - If you use a fixed number of bytes for every transmission, select **Yes**, and then type the number of bytes in the indicated field.



To configure multiple parameters for flush conditions, use the **Full Configuration tool** (Section 3.3).

4.3.4 Configuring the Host Interface

When iChip is in SerialNET it cannot determine the local serial port automatically, since the Network may be the originating side. Therefore, you need to specify the Host interface to be used.



How:

- After you complete the flush conditions configuration (Section 4.3.3) and click **Next**, the **Host Interface dialog** appears (Figure 59).

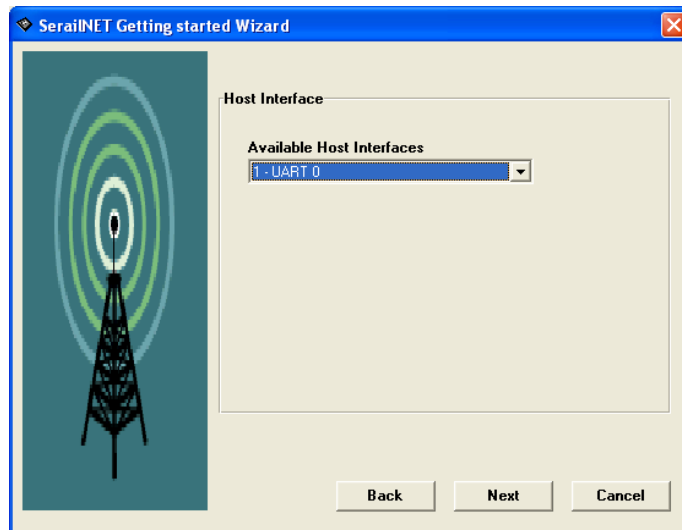


Figure 49: Host Interface

From the Dropdown list, select the Host interface that will be used as the local serial port the SerialNET mode.

4.3.5 Configuring Serial Settings

This procedure describes how to configure the serial settings parameters for working in SerialNET mode.



How:

- After you complete the Host Interface configuration (Section 4.3.3) and click **Next**, the **Serial Settings** area appears (Figure 50).

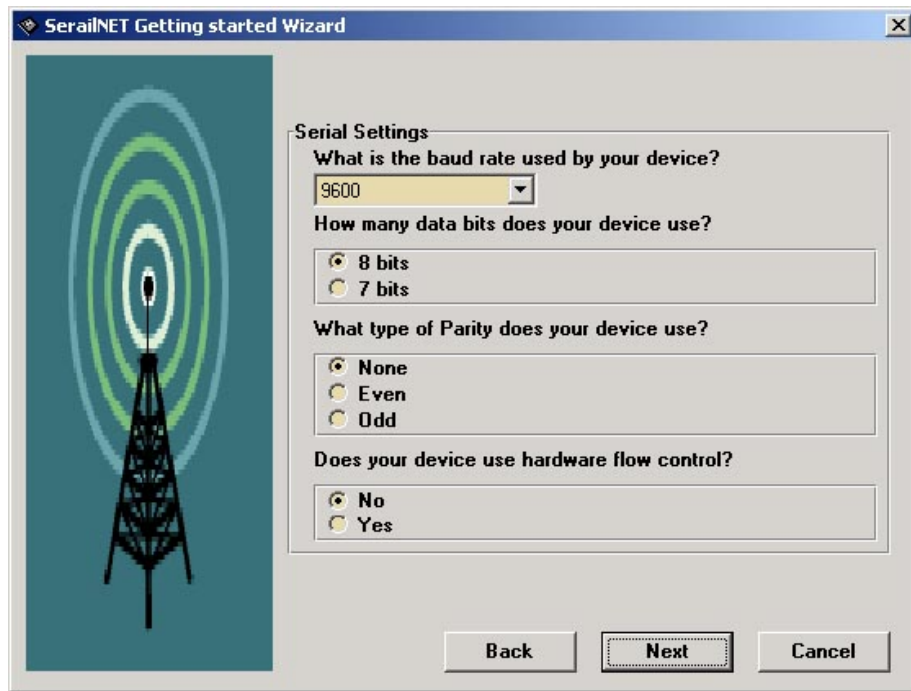


Figure 50: SerialNET Getting Started Wizard: Serial Settings

In this screen you can enter the baud rate, number of data bits, type of parity, number of stop bits and flow control type.

4.3.6 IP Registration

iChip might be connected to a device that is assigned a dynamic IP address. To help the remote server know which devices are online and the IP address of each device, iChip can publish its unique host name, currently assigned IP address, and port through email or socket registration.

After you finish setting the serial parameters (as described in section 4.3.4) and click **Next**, the **IP Registration** window of the SerialNET Wizard appears (Figure 51).

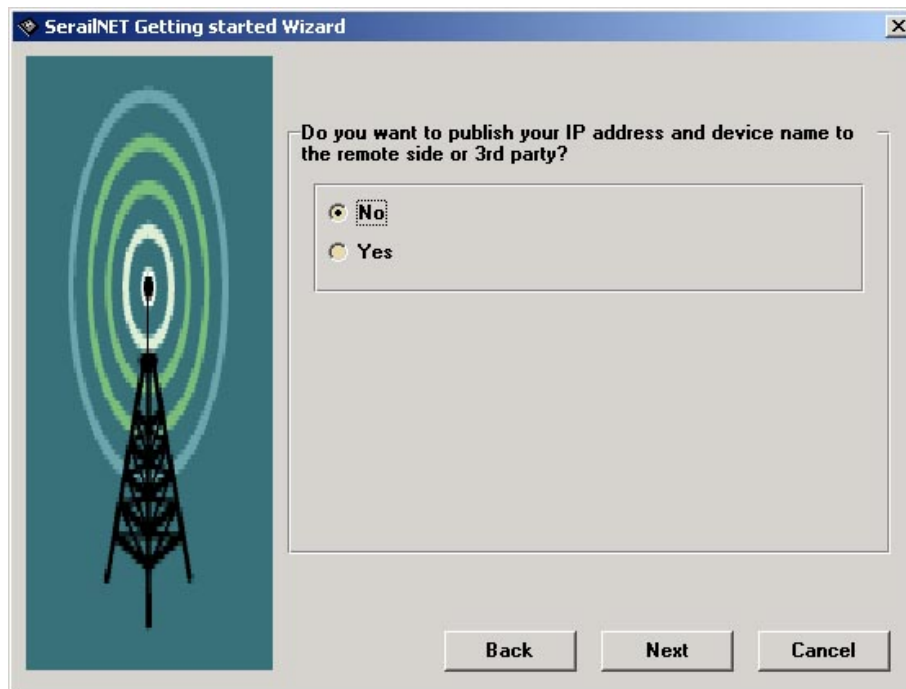


Figure 51: SerialNET Getting Started Wizard: IP Registration

1. If you want to publish your IP address to the remote server or to a 3rd party, select **Yes**. The following options appear (Figure 52):

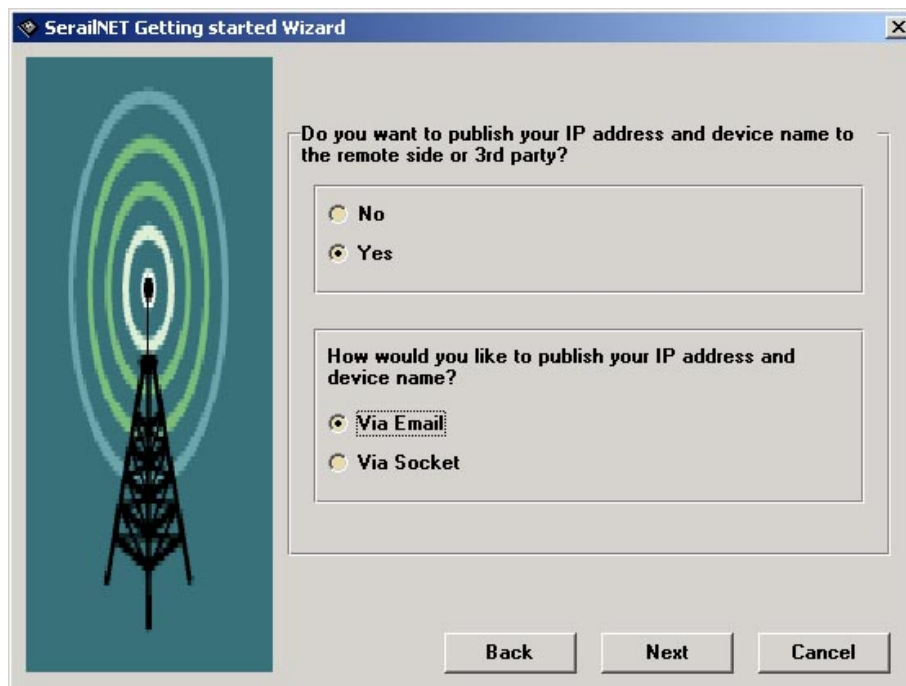
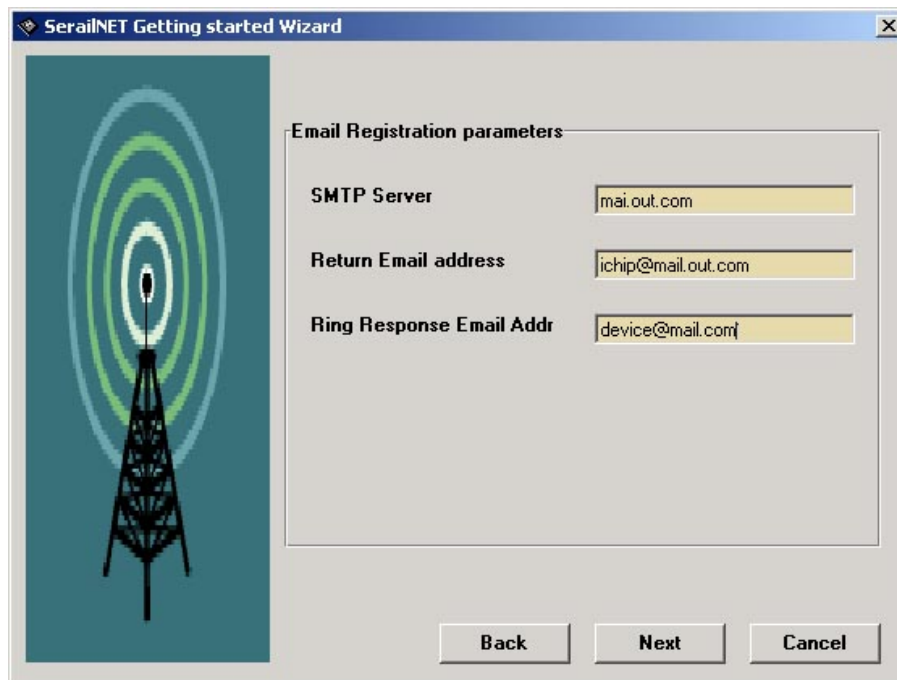


Figure 52: SerialNET Getting Started Wizard: IP Registration Options

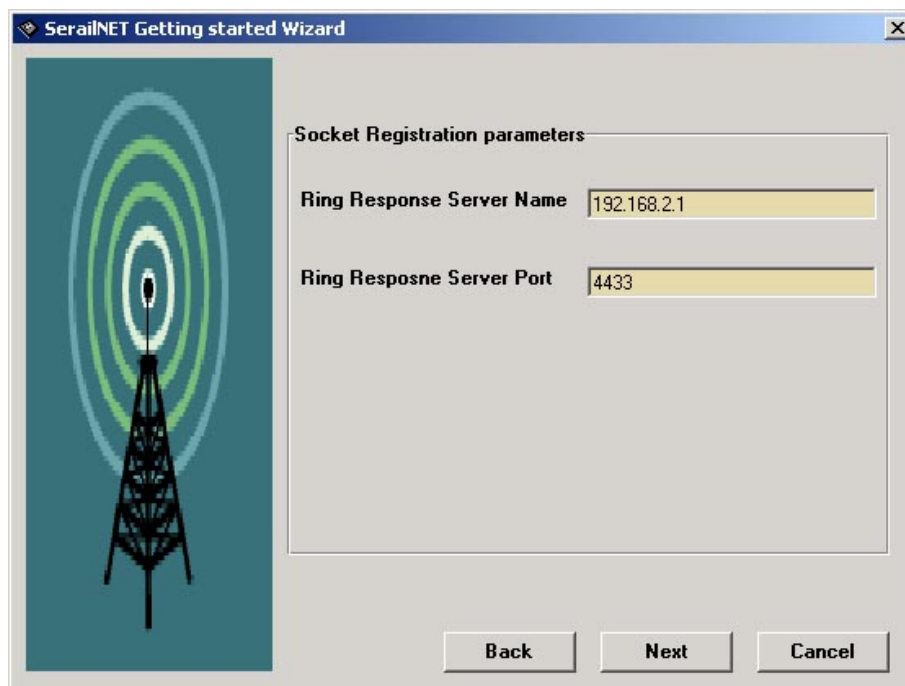
2. Select either **Via Email** or **Via Socket**.
3. If you select **Via Email**, the **Email Registration Parameters** window appears (Figure 53).
4. Complete fields.



The image shows a window titled "SerialNET Getting started Wizard". On the left is a graphic of a radio tower with concentric green and blue circles representing signal waves. On the right, under the heading "Email Registration parameters", there are three text input fields: "SMTP Server" with the value "mai.out.com", "Return Email address" with the value "ichip@mail.out.com", and "Ring Response Email Addr" with the value "device@mail.com". At the bottom right are three buttons: "Back", "Next", and "Cancel".

Figure 53: SerialNET Getting Started Wizard: IP Registration by Email

5. If you select **Via Socket**, the **Socket Registration Parameters** window appears (Figure 54):



The image shows a window titled "SerialNET Getting started Wizard". On the left is the same radio tower graphic as in Figure 53. On the right, under the heading "Socket Registration parameters", there are two text input fields: "Ring Response Server Name" with the value "192.168.2.1" and "Ring Resposne Server Port" with the value "4433". At the bottom right are three buttons: "Back", "Next", and "Cancel".

Figure 54: SerialNET Getting Started Wizard: IP Registration via Socket

6. Complete fields.
7. Click **Next**.
The **Finish/View Settings** area appears (Figure 55).
8. Continue with [Viewing and Completing SerialNET Configuration](#).

4.3.7 Viewing and Completing SerialNET Configuration

After the SerialNET parameters are defined, you can instruct iChip to go into SerialNET mode either immediately or at a later time.

You can also instruct iChip to always remain online. This is especially useful with GPRS communication, which may intermittently disconnect.



How:

1. After you click **Next** in the registration window of the wizard, the **Finish/View Settings** area appears (Figure 55)

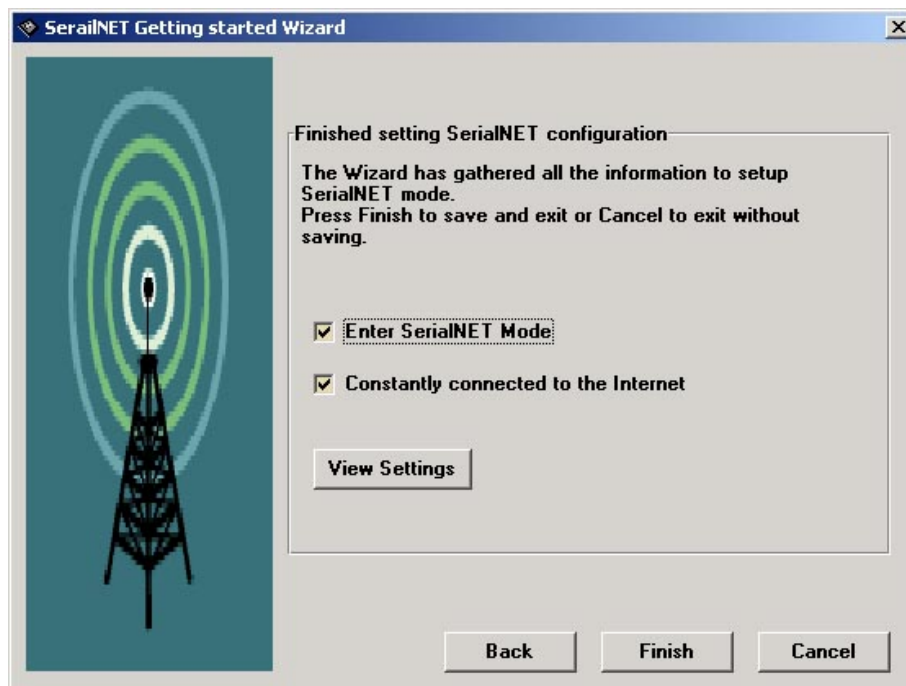


Figure 55: SerialNET Getting Started Wizard: Completing Configuration

2. To view the settings defined in the wizard, click **View Settings**.
The **General Viewer** window appears, displaying communication platform settings information
3. To save the settings and exit the wizard, click **Finish**.
The settings are saved, and the SerialNET Wizard closes.

6 Working with iChip Config over a USB Connection

You can work with the iChip CO2128SEC/CO2064SEC using the iChip Config Utility over a USB connection. To enable this feature, you need to install a USB driver, supplied by Connect One, on a PC running Windows XP OS.

This driver installs a USB device that appears as a modem to the Windows XP operating system. Although the device is connected via a USB interface, it appears as if connected via a virtual COM interface, and a new COM port number is assigned to this connection.

The USB driver is supplied as two separate files: sabalo.inf and usbser.sys.

To install the USB driver:

1. Copy sabalo.inf to C:\WINDOWS\inf. To view the \inf directory, you must allow viewing of hidden folders in Folder Options.
2. Copy usbser4.sys to C:\WINDOWS\system32\drivers.
3. Connect one end of a USB cable to your PC. Connect the other end to the USB connector of the board on which the iChip CO2128SEC/CO2064SEC is mounted. For example, to Connect One's II-EVB-600 evaluation board.
4. Switch on the power to the board.
5. The Found New Hardware Wizard of Windows XP pops up and prompts you to install a new device driver. When prompted with the message "Can Windows connect to Windows Update to search for software?", select **No, not this time**.
6. When prompted with the message "What do you want the wizard to do?", select **Install the software automatically (Recommended)**.
7. When a pop-up window reports that the software for the new hardware — Connect One Saballo USB Device — has not passed Windows Logo testing, select **Continue Anyway**.

The USB driver is now installed and ready for use.

To view the properties of the new driver:

1. From the Windows task, click **Start > Settings > Control Panel**.
2. Double-click the **System** icon.
3. In the dialog box displayed, select the **Hardware** tab.
4. Click the **Device Manager** button.
5. Open the **Modems** list to find the Connect One Saballo USB Device.

7 Glossary

Term	Definition
APN	Access Point Name
ASCII	American Standard Code for Information Interchange
CDPD	Cellular Digital Packet Data
CHAP	Challenge-Handshake Authentication Protocol
CTS	Clear to Send. Indicates modem is ready to send information.
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Server
DSR	Data Set Ready: Indicates the modem is ready to use
DTR	Data Terminal Ready. Computer issues DTR to the attached modem to indicate it is ready to receive data.
FTP	File Transfer Protocol
FW	Firmware
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
GUI	Graphical User Interface
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
IMF	Image File (extension)
IP	Internet Protocol
ISP	Internet Service Provider
LAN	Local Area Network
MTU	Maximum Transfer Unit
NAT	Network Address Translator
PAP	Password Authentication Protocol
PING	Packet Internet Groper
POP3	Post Office Protocol 3
PSK	Phase Shift Keying
RAS	Remote Access Service
RS232	Interface for single-ended serial communications (as in between a computer input/output port and a peripheral device)
RTS	Request to Send. This command puts the modem in originate mode so it can start transmitting.
SMTP	Simple Mail Transfer Protocol

SSL	Secure Socket Layer. Protocol that manages the security of message transmissions in a network.
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
URL	Uniform Resource Locator
WEP	Wired Equivalent Privacy. A security protocol that uses a series of keys on both sides of a wireless transmission to encrypt data for secure transmission.
WPA	WiFi Protected Access