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<b>vi</b>	text editor
<b>cat</b>	dump file context
<b>zcat</b>	compress or expand files
<b>grep</b>	search string on file
<b>cut</b>	get string on file
<b>find</b>	find file where are there
<b>more</b>	dump file by one page
<b>test</b>	test file exist or not
<b>sleep</b>	sleep(seconds)
<b>echo</b>	Echo string
<b>awk</b>	Pattern scanning and processing language.
<b>diff</b>	compare two files or directories
<b>sed</b>	perform text transformations on a file or input from a pipeline.
<b>xargs</b>	execute a specified command on every item from standard input.

Archival Utilities	
<b>bzip2/bunzip2</b>	Compress/Uncompress bzip FILE
<b>cpio</b>	Extract or list files from a cpio archive
<b>gzip/gunzip</b>	Compress/Uncompress FILE with maximum compression.
<b>tar</b>	Create, extract, or list files from a tar file
<b>unzip</b>	Extract files from ZIP archives

System logging	
<b>syslogd</b>	Utility used to record logs of all the significant events
<b>klogd</b>	Utility which intercepts and logs all messages from the Linux kernel and sends to the 'syslogd'
<b>logger</b>	Utility to send arbitrary text messages to the system log

Network	
<b>ping</b>	ping to test network
<b>arp</b>	Manipulate the system ARP cache
<b>arping</b>	Ping host by ARP packets
<b>ftpget</b>	Retrieve a remote file via FTP
<b>ftpput</b>	Store a remote file via FTP
<b>nslookup</b>	Tool to query Internet name servers
<b>pscan</b>	Simple network port scanner
<b>traceroute</b>	Utility to trace the route of IP packets
<b>wget</b>	Utility for non-interactive download of files from HTTP, HTTPS, and FTP servers.
<b>udhcpd</b>	DHCP client
<b>route</b>	routing table manager
<b>netstat</b>	display network status
<b>ifconfig</b>	set ip address and configure network interfaces
<b>traceroute</b>	trace route
<b>fttp</b>	Trivial File Transfer Protocol client
<b>telnet</b>	Telnet client
<b>ftp</b>	FTP client

Others	
<b>dmesg</b>	dump kernel log message
<b>stty</b>	stty is used to change and print terminal line settings
<b>zcat</b>	dump .gz file context
<b>mknod</b>	make device node
<b>free</b>	display system memory usage
<b>date</b>	print or set the system date and time
<b>env</b>	run a program in a modified environment
<b>clear</b>	clear the terminal screen
<b>reboot</b>	reboot / power off/on the server
<b>halt</b>	halt the server
<b>du</b>	estimate file space usage
<b>hostname</b>	show system's host name
<b>kill/killall</b>	Send specified signal to the specified process or process group

For complete command usage and explanation, please refer to following website:

<http://www.busybox.net/downloads/BusyBox.html>

## 7-7 Ser2net Manual

### Name

ser2net - Serial to network proxy

### Synopsis

**ser2net** [-c configfile] [-C configline] [-p controlport] [-n] [-d] [-b] [-v] [-P pidfile]

### Description

The **ser2net** daemon allows telnet and tcp sessions to be established with a unit's serial ports.

The program comes up normally as a daemon, opens the TCP ports specified in the configuration file, and waits for connections. Once a connection occurs, the program attempts to set up the connection and open the serial port. If another user is already using the connection or serial port, the connection is refused with an error message.

### Options

*-c config-file*

Set the configuration file to one other than the default of **/etc/ser2net.conf**

*-C config-line*

Handle a single configuration line. This may be specified multiple times for multiple lines. This is just like a line in the config file. This disables the default config file, you must specify a -c after the last -C to have it read a config file, too.

*-n*

Stops the daemon from forking and detaching from the controlling terminal. This is useful for running from init.

*-d*

Like -n, but also sends the system logs to standard output. This is most useful for debugging purposes.

*-P pidfile*

If specified, put the process id (pid) of ser2net in the pidfile, replacing whatever was in that file previously. A pidfile is not created by default, you must specify this to create one. Note also that this filename must be specific with the full path, as ser2net will change directory to "/" when it becomes a daemon. when it

*-u*

If UUCP locking is enabled, this will disable the use of UUCP locks.

*-b*

Cisco IOS uses a different mechanism for specifying the baud rates than the mechanism described in RFC2217. This option sets the IOS version of setting the baud rates. The default is RFC2217's.

*-v*

Prints the version of the program and exits.

*-p control/port*

Enables the control port and sets the TCP port to listen to for the control port. A port number may be of the form [host,]port, such as 127.0.0.1,2000 or localhost,2000. If this is specified, it will only bind to the IP address specified for the port. Otherwise, it will bind to all the addresses on the machine.

If the port number is zero, that means that standard in/out will be used for the only input/output, and only one port should be specified in the config. This way, it can be used from inetd.

## Control Port

The control port provides a simple interface for controlling the ports and viewing their status. To accomplish this, it has the following commands:

### **showport [<TCP port>]**

Show information about a port. If no port is given, all ports are displayed.

### **showshortport [<TCP port>]**

Show information about a port, each port on one line. If no port is given, all ports are displayed. This can produce very wide output.

### **help**

Display a short list and summary of commands.

### **exit**

Disconnect from the control port.

### **version**

Display the version of this program.

### **monitor <type> <tcp port>**

Display all the input for a given port on the calling control port. Only one direction may be monitored at a time. The type field may be *tcp* or *term* and specifies whether to monitor data from the TCP port or from the serial port. Note that data monitoring is best effort, if the controller port cannot keep up the data will be silently dropped. A controller may only monitor one thing and a port may only be monitored by one controller.

### **monitor stop**

Stop the current monitor.

**disconnect <tcp port>**

Disconnect the tcp connection on the port.

**setporttimeout <tcp port> <timeout>**

Set the amount of time in seconds before the port connection will be shut down if no activity has been seen on the port.

**setportconfig <tcp port> <config>**

Set the port configuration as in the device configuration in the **/etc/ser2net.conf** file. If conflicting options are specified, the last option will be the one used. Note that these will not change until the port is disconnected and connected again.

Options *300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200* set the various baud rates. *EVEN, ODD, NONE* set the parity. *1STOPBIT, 2STOPBITS* set the number of stop bits. *7DATABITS, 8DATABITS* set the number of data bits. *[-]XONXOFF* turns on (off) XON/XOFF support. *[-]RTSCTS* turns on (- off) hardware flow control. *[-]LOCAL* ignores (- checks) the modem control lines (DCD, DTR, etc.)

**setportcontrol <tcp port> <controls>**

Modify dynamic port controls. These do not stay between connections. Controls are: *DTRHI, DTRLO* Turns on and off the DTR line. *RTSHI, RTSLO* Turns on and off the RTS line.

**setportenable <tcp port> <enable state>** Sets the port operation state. Valid states are: *off* to shut the TCP port down, *raw* to enable the TCP port transfer all I/O as-is, *rawlp* to enable the TCP port input and device output without termios setting, and *telnet* to enable the TCP port is up run the telnet negotiation protocol on the port.

## Configuration

Configuration is accomplished through the file **/etc/ser2net.conf**. A file with another name or path may be specified using the *-c* option, or individual config lines may be specified with the *-C* option. This file consists of one or more entries with the following format:

```
<TCP port>:<state>:<timeout>:<device>:<options>
```

or

```
BANNER:<banner name>:<banner text>
```

**FIELDS**

*TCP port*

Name or number of the TCP/IP port to accept connections from for this device. A port number may be of the form *[host,]port*, such as *127.0.0.1,2000* or *localhost,2000*. If this is specified, it will only bind to the IP address specified for the port. Otherwise, it will bind to all the ports on the machine.

*state* Either **raw** or **rawlp** or **telnet** or **off**. *off* disables the port from accepting

connections. It can be turned on later from the control port. *raw* enables the port and transfers all data as-is between the port and the long. *rawlp* enables the port and transfers all input data to device, device is open without any termios setting. It allow to use /dev/lpX devices and printers connected to them. *telnet* enables the port and runs the telnet protocol on the port to set up telnet parameters. This is most useful for using telnet.

#### *timeout*

The time (in seconds) before the port will be disconnected if there is no activity on it. A zero value disables this funciton.

*device* The name of the device to connect to. This must be in the form of **/dev/<device>**.

#### *device configuration options*

Sets operational parameters for the serial port. Values may be separated by spaces or commas. Options *300,1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200* set the various baud rates. *EVEN, ODD, NONE* set the parity. *1STOPBIT, 2STOPBITS* set the number of stop bits. *7DATABITS, 8DATABITS* set the number of data bits. *[-]XONXOFF* turns on (- off) XON/XOFF support. *[-]RTSCTS* turns on (- off) hardware flow control. *[-]LOCAL* ignores (- checks) the modem control lines (DCD, DTR, etc.) *[-]HANGUP\_WHEN\_DONE* lowers (- does not lower) the modem control lines (DCD, DTR, etc.) when the connection closes. *NOBREAK* Disables automatic clearing of the break setting of the port. *rem\_ctl* allows remote control of the serial port parameters via RFC 2217. See the README for more info. *<banner name>* displays the given banner when a user connects to the port.

#### *banner name*

A name for the banner; this may be used in the options of a port.

#### *banner text*

The text to display as the banner. This may contain normal "C" escape strings, and it may also contain, \d for the device name, \p for the TCP port number, and \s for the serial port parameters (eg 9600N81) of the given connection.

Blank lines and lines starting with '#' are ignored.

## Security

ser2net uses the tcp wrappers interface to implement host-based security.

See [hosts access\(5\)](#) for a description of the file setup. Two daemons are used by ser2net, "ser2net" is for the data ports and "ser2net-control" is for the control ports.

## Signals

### **SIGHUP**

If ser2net receives a SIGHUP, it will reread it configuration file and make the appropriate changes. If an inuse port is changed or deleted, the actual change will not occur until the port

is disconnected.

## Error

Almost all error output goes to syslog, not standard output.

## Files

/etc/ser2net.conf

## See Also

[telnet\(1\)](#) , [hosts\\_access\(5\)](#)

## Known Problems

None.

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## 7-8 Revision history

V0.0.9 by 2011/3/8 update for JetOS93 v1.3 release

## 7-9 Customer Service

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