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SOCKETS™ Quick Start

WHITEPAPER SERIES

Obtaining SOCKETS

SOCKETS can be obtained in one of three methods depending upon the needs of the user or project. The SOCKETS demo is available for download at www.datalight.com within the “Resource” section. Registering with Datalight by providing a valid user name and email address is all that is necessary for obtaining the Datalight SOCKETS demo. The demo is a fully functioning copy of the product with a 30-day timeout.

The Single User Network Add-On (SUNA) is a subset of Datalight SOCKETS that does not contain any of the development tools necessary for creating an application that will use SOCKETS to connect with other systems. The SUNA is available for purchase and download from www.datalight.com or contact sales@datalight.com to purchase directly from a Datalight Sales Representative.

Process Overview

- Obtain SOCKETS
 - Download install
 - CD install
- Transfer to target system
- Configure SOCKETS and drivers
- Run XPING
- Configure ftp server
- Connect to ftp server



The ROM-DOS Software Development Kit (SDK) contains all of the files available from Datalight to use SOCKETS, including pre-designed applications, and development tools. The SDK may be purchased online and a development kit will be shipped from Datalight. Or contact sales@datalight.com to place an order directly with a Datalight Sales Representative.

Download Install Instructions

The SOCKETS demo is downloaded as a .zip file extractable by using WinZip or a similar program. Double click on the .zip file and extract into the directory of C:\DL\SOCKETS. After installation, the structure will look the same as the structure detailed in the “CD install” section below. Some notable differences are that the SOCKETS kernel files are SOCKETPD.EXE and SOCKETMD.EXE and there is a LICENSE.DAT file to mark the demo expiration date.

The Single User Network Add-On is downloaded as a .zip file. Extract the .zip file into a temporary directory and then run the file SETUP.EXE to extract the SOCKETS files. By default the files will be placed into a C:\DL\ROM-DOS SUNA directory. Within this directory are the \DOCS and \SOCKETS directories.

```

<root>
|
+----<DL>
|
+---<ROM-DOS SUNA>
|
+---<SOCKETS>
|   +---- CLIENTS
|   +---- CONFIGS
|   +---- SERVER
|   +---- UTILS
+---<DOCS>

```

CD Install Instructions

The Software Development Kit ships as a windows installer program that will automatically install all of the SOCKETS components along with the ROM-DOS files.

The install process will create, by default, a directory of C:\DL\SOCKETS.

```

<root>
|
+----<DL>
|
+---- <SOCKETS>
|   +---- BSDSOCK
|   +---- CAPI
|   +---- CLIENTS
|   +---- CONFIGS
|   +---- DOCS
|   +---- EXAMPLES
|   +---- INCLUDE
|   +---- LIB
|   +---- SERVER
|   +---- UTILS

```

The SDK does not include drivers for Network Interface cards. Please note that the ROM-DOS files are placed in a separate directory during installation.

File Selection

For the purposes of this paper we will select the files necessary to run SOCKETS on an NE2000 ethernet chip with an FTP server. To do this we will select the following files for transfer to the target hardware:

- SOCKETP.EXE
 - With the demo version the file will be SOCKETPD.EXE
- SCONFIG.EXE
- FTPD.EXE (located in \server directory)
- SOCKET.UPW (located in \server directory)
- XPING.EXE (located in \utils directory)

*For the demo it is necessary to add the file:

- LICENSE.DAT

It is also necessary to obtain the packet driver for the NE2000 ethernet controller. This can be accomplished in a variety of ways from driver databases to contacting Datalight. It is recommended that the first check for the appropriate driver be done with the manufacturer of the ethernet chip. In this case, a packet driver is supplied with the distribution disk. We add the following file to our list of files that will need to be transferred to the target hardware:

- Ne2000.com

Transfer to the target hardware

Transfer the selected files onto the target system into a \DL\SOCKETS\ directory. The exact method of transfer will depend upon the connection and hardware that is available. In this case we will assume that a floppy drive is available. The files listed above are copied to a floppy disk and then copied to the \DL\SOCKETS\ directory on the target device. Please note that it is assumed at this stage that the target hardware is already configured for and booting the ROM-DOS environment. If the \DL\SOCKETS\ directory is not present it will need to be created with the ROM-DOS command of “MD”.

The directory structure of the target hardware should look as follows:

```

<root>
  |
  +---<DL>
      |
      +--- SOCKETS
          --- SOCKETP.EXE
          --- SOCKET.UPW
          --- SOCKET.CFG *
          --- FTPD.EXE
          --- SCONFIG.EXE
          --- NE2000.COM
          --- LICENSE.DAT (if demo)

```

* Note

The SOCKET.CFG file can be created on the development hardware or the target hardware. This file contains the SOCKETS configuration information. Creating this file is explained in the following section.

Configure SOCKETS

Run the program SCONFIG.EXE to generate the necessary sockets configuration file. For this example we will make the following selections:

- [1] Continue configuration
- [1] Network Card (Packet Driver)
- [1] Static Addressing (Manual)
- IP address with optional netmask of : 192.168.1.122/24
- Default gateway address of: 192.168.1.1
- Primary DNS address of: 0
- Secondary DNS address of: 0
- Interrupt vector of packet driver as: 0x60
- Network card's IRQ: 10
 - *Please make sure that the IRQ value matches your card. If unsure enter 0.
- Would you like SOCKETS to be a print server?: N

This process creates the file SOCKET.CFG within the current directory.

Make the following additions to the autoexec.bat file on the target hardware.

```

SET SOCKETS=C:\DL\SOCKETS
SET FTPDIR=C:\DL\SOCKETS
C:\DL\SOCKETS\NE2000.COM 0x60 10 0x300
C:\DL\SOCKETS\SOCKETP /M=40000
    *if demo C:\DL\SOCKETS\SOCKETPD.EXE /M=40000

```

This sequence in the autoexec.bat will set the appropriate environment variables, load the packet driver (the extra parameters must match the parameters for the card being used), and load SOCKETS with a memory stack of 40000 bytes.

Run XPING

XPING is the simplest application for verifying that the connections and configuration are all correct. XPING sends out a request to a specified location and if it receives a response everything is functioning properly. If no response is received then:

- Check cables
- Check network configuration
- Verify that the network adaptor settings match the packet driver settings
- Refer to the manuals for further information
- Contact Datalight support

For this example we will assume that the target hardware is connected to a desktop system through an ethernet hub. The hub is set to connect PC to PC. The development machine has an IP address of 192.168.1.100

With this environment we type the following:

- XPING 192.168.1.100

If a reply is received we can press any key to abort XPING and move on to the FTP server.

Configure ftp server

The SOCKET.UPW file supplied contains generic authentication information for the FTP server. Full explanations of the user rights and syntax are explained within the file. Please note that a blank line must be present before the line containing the username and password with the access rights and also after if only one line is in the file.

Launch the ftp server with the following syntax:

- FTPD.EXE

Connect to ftp server

From the development system run Internet Explorer. On the address line, type the following:

[Ftp://su:su@192.168.1.122](ftp://su:su@192.168.1.122)

Congratulations, you should now be connected to your target hardware and can transfer files and information via an ftp session. The above line makes use of the “su” username and “su” password supplied in the default sockets.upw password file described above. Substitute the appropriate username and password if you have customized this file.

Alternatively, you can run the program ftp.exe from the “DOS” command prompt on your windows system. For example:

C:\ftp 192.168.1.122

When prompted, enter the username and password.

WHERE TO GO NEXT

Now it is up to you to determine how you wish to use the connectivity and power offered by SOCKETS. There are many applications ready for a complete drop in solution. Among these are:

- ftp client
- http server
- remote console java applet
- terminal emulation client
- email applications

To develop your own custom solution you may select the API interface that best suites your development requirements:

- BSDSOCKAPI
- CAPI (compatible to the FTP API)

- API (compact for the least overhead)

For more information on any of these topics, please see the “ROM-DOS Developer’s Guide” available for download in the resource section at www.datalight.com.