

Cleo® V6.0.7.12 Quick Start Guide For SCO Open Server 5 Install from a CPIO Image

Read this section first!

This Quick Start Guide contains information about installing the 6.0.7.12 version of the Cleo SNA Gateway and Cleo TN3270 software.

Important!

Read this document before installing and using the Cleo software. Refer to your Cleo SNA documentation for additional usage information. If you have questions about installing and using this product, contact Cleo Communications Technical Support between the hours of 8:30 AM and 5:00 PM (EST/EDT) at: 866-444-CLEO (866-444-2536). Outside the U.S. please call 01.815.654.9887.



Copyright © 2006 Cleo Communications

March 2006

Cleo Communications reserves the right to, without notice, modify or revise all or part of this document and/or change product features or specifications, and shall not be responsible for any loss, cost or damage, including consequential damage, caused by reliance on these materials.

This document may not be reproduced, stored in a retrieval system or transmitted, in whole or in part, in any form or by any means (electronic, mechanical, photocopied or otherwise) without the prior written permission of Cleo Communications.

GOVERNMENT RESTRICTED RIGHTS

Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013.

Use, reproduction or disclosure is subject to 52.227-19 (a) through (d) and restrictions set forth in the accompanying end user agreement.

GOVERNMENT LIMITED RIGHTS

Limited rights shall be effective indefinitely and are not subject to expiration as set forth in paragraph (3) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013.

Copyright © 2002 Cleo Communications — All rights reserved.

Document No: 6512055

Version: 1.2

Trademark Acknowledgments

Cleo Communications, Inc. has made every effort to accurately acknowledge all trademarks that appear in this document. Cleo Communications, however, cannot attest to the accuracy of this information.

Cleo[®] is a registered trademark of Cleo Communications

IBM[®] is a registered trademark of International Business Machines Corporation

UNIX[®] is a registered trademark licensed through X/Open Company Limited.

Table of Contents

Table of Contents.....	3
Quick Start Guide Organization	5
CPIO IMAGE CONVENTIONS	6
TN3270 Connection Over TCP/IP	8
Installing Cleo TN3270.....	8
Instructions for Installing or Updating License.....	10
Instructions for Configuring the TN3270.....	11
Run TN3270.....	13
TN3270 Removal	14
SNA Connection Over SDLC	15
Installing the Cleo SNA Gateway Software.....	16
Instructions for Installing or Updating License.....	18
Installing the SDLC UNIX Network Driver	19
Configuring Cleo SNA Gateway.....	23
Starting Cleo SNA Server	24
Run SNA3270	25
Cleo SNA Gateway Removal.....	26
SNA Connection Over LAN (Ethernet).....	27
Installing the LAN UNIX Network Driver	27
Installing the Cleo SNA Gateway Software.....	28
Instructions for Installing or Updating License.....	30
Configuring Cleo SNA Gateway - Ethernet.....	31
Starting Cleo SNA Server	32
Run SNA3270	33
Cleo SNA Gateway Removal.....	34
Appendix A – Kernel Tuning	35
Appendix B – Host Configuration Information	36
Required Configuration Information:.....	36
TN3270 Connection	36

SNA Over LAN Connection (Ethernet) 37
System Information 37
APPENDIX C – *snaconfig* HOST CONFIGURATION PARAMETERS39
APPENDIX D - DEFAULT VALUES for SNA CONFIGURATION files.....41
APPENDIX E: Cleo Migration Guide.....43
 Converting From Cleo V4.x to Cleo V6.x 43

Quick Start Guide Organization

Instructions for installation of three basic types of connections for Cleo V6.0.7.10 are provided in this Quick Start Guide:

- ▶ TN3270 connection over TCP/IP
- ▶ SNA connection over SDLC
- ▶ SNA connection over LAN (Ethernet)
- ▶ Appendix A – Kernel Tuning
- ▶ Appendix B – Host Configuration Information
- ▶ Appendix C – ***snaconfig*** Host Configuration Parameters
- ▶ Appendix D – Default Values for SNA Configuration Files
- ▶ Appendix E – Cleo Migration Guide

Follow the Guide that describes your network configuration.

For more information, please refer to the Cleo Installation Guide and the Cleo Administration Guide included with your product.

Appendix B contains a questionnaire for obtaining necessary host information.

It is recommended that you obtain this information before you install because some of the this information is required during the install process.

CPIO IMAGE CONVENTIONS

Instructions in this document assume that the CPIO Images of the Cleo TN and/or Cleo SNA software has been downloaded and that the CPIO image(s) have been unzipped, resulting in the file(s) (CleoTNSCO5V60712cpio.Z and/or CleoSNASCO5V60712cpio.Z).

The CleoTNSCO5V60712cpio.Z and/or CleoSNASCO5V60712cpio.Z binary Unix Compressed file(s) then have to be moved to the SCO Open Server 5 system and placed in a directory called /tmp/cleo that was created in the SCO Open Server 5 system's /tmp directory, using the following commands.

```
Login as "root"  
# cd /tmp  
# mkdir cleo
```

Then, if the Cleo TN Software is to be installed, the Cleo TN Software needs to be uncompressed, by issuing the following commands:

```
# cd /tmp/cleo  
# uncompress CleoTNSCO5V60712cpio.Z
```

Then, if the Cleo TN Software is to be installed, the Cleo TN Software needs to be moved from the cpio file "CleoTNSCO5V60712cpio file, by issuing the following commands:

```
# cd /tmp/cleo  
# cpio -ivBcdum < CleoTNSCO5V60712cpio
```

Then, if the Cleo SNA Software is to be installed, the Cleo SNA Software needs to be uncompressed, by issuing the following commands:

```
# cd /tmp/cleo  
# uncompress CleoSNASCO5V60712cpio.Z
```

Then, if the Cleo SNA Software is to be installed, the Cleo SNA Software needs to be moved from the cpio file "CleoSNASCO5V60712cpio file, by issuing the following commands:

```
# cd /tmp/cleo  
# cpio -ivBcdum < CleoSNASCO5V60712cpio
```

There are also 2 optional CPIO Images that contains all the Cleo TN and SNA Documentation. The CPIO Images are very large, and it is NOT necessary to

download and move the CPIO Documentation Images to your SCO Open Server 5 system, in order to install, configure, and use the Cleo TN and/or SNA Software.

To place the Documentation Images on the SCO Open Server 5 system, unzip the CPIO images, which results in the file(s) (CleoTNSCO5DOCScpio.Z and/or CleoSNASCO5DOCScpio.Z).

The CleoTNSCO5DOCScpio.Z and/or CleoSNASCO5DOCScpio.Z binary Unix Compressed file(s) then can be moved to the SCO Open Server 5 system and placed in a directory of your choice, for example, /cleo. For example to create the /cleo directory on the SCO Open Server 5 system, use the following commands.

```
Login as "root"  
# cd /  
# mkdir cleo
```

The CleoTNSCO5DOCScpio.Z and/or CleoSNASCO5DOCScpio.Z binary Unix Compressed file(s) then have to be moved to the SCO Open Server 5 system and placed in the directory you have created, for example, called /cleo.

Then the CPIO Images have to be uncompressed, for example:

```
# cd /cleo  
# uncompress CleoTNSCO5DOCScpio.Z  
# uncompress CleoSNASCO5DOCScpio.Z
```

Then the Documentation files, need to be moved from the CPIO Image files, for example:

```
# cd /cleo  
# cpio -ivBcdum < CleoTNSCO5DOCScpio  
# cpio -ivBcdum < CleoSNASCO5DOCScpio
```

TN3270 Connection Over TCP/IP

Installation of a Cleo Enterprise Networking product requires that you obtain a License file (license.conf). The License file is available from Cleo Communications' Sales Department at 866-444-2536.

Software Prerequisites:

- ▶ SCO Open Server 5

Note: If you are adding or upgrading your SNA connection to a TN3270 connection, please enter the following command:

```
# sna stop
```

Installing Cleo TN3270

NOTE: These procedures assume you are installing from a CPIO Image, that has been placed in the /tmp/cleo directory.

1. Login as *root*.
2. Start the installation of the TN3270 Package

```
# cd /tmp/cleo
# pkgadd -d /tmp/cleo/cleotn
# pkgadd -d /cleo/cleotdoc      (optional installation of TN
                               Documentation package)
# ./cleoadd
```

```
You are about to run the cleoadd script, version 6.0.7.12,
which will install utilities for creating configuration files
and installing Cleo license files.
Do you wish to continue? (y/n): y
Installing files in /opt/tn3270/bin and /etc/opt/tn3270 ...
Would you like to install the cleotn license file now? (y/n): y
```

```
Enter the full path name of the license file to install:
/tmp/license.conf
Contents of your license file:
```

```
*****
License type:      Temporary
Expiry date:      Thu Jul 20 00:00:00 2000
Shelf life:       <none>
Box name:         <none>
Total sessions:   500
*****
```

```
Do you wish to continue? (y/n): y
Stopping the TN3270 License Daemon
Saving old license in license.bak.
The license is now installed in /etc/opt/tn3270.
Starting the TN3270 License Daemon
```

3. Set your path to include the new components with the following commands in your profile:

```
# PATH=$PATH:/opt/tn3270/bin:/opt/tn3270/bin/X11
# export PATH
```

4. Based on your needs, you may be required to increase your kernel resources by tuning some parameters. Please refer to **Appendix A** of this manual and the Cleo Installation Guide Chapter 4.

Instructions for Installing or Updating License

NOTE: Cleo Communications will supply the license.conf file to you.

Install the license file (this step can be included with the previous cleoad function)

```
# /opt/tn3270/bin/tnaddlic
```

Enter the full path name of the license file to install:

```
/tmp/license.conf
```

Contents of your license file:

```
*****
License type:      Temporary
Expiry date:      Thu Jul 20 00:00:00 2000
Shelf life:       <none>
Box name:         <none>
Total sessions:   500
*****
```

```
Do you wish to continue? (y/n): y
Stopping the TN3270 License Daemon
Saving old license in license.bak.
The license is now installed in /etc/opt/tn3270.
Starting the TN3270 License Daemon
```

Instructions for Configuring the TN3270

1. The program **tnconfig** can be executed to make the scripts for starting the TN3270 sessions. To use TN3270 sessions from a pool of lus on one host, execute **tnconfig** by entering the following command, and then **proceed to step 5**:

```
# tnconfig -h host_name[:port id] -n number of lus
```

Note: The default portid is 23.

A sample execution of tnconfig is as follows (for port 99):

```
# tnconfig -h tnsna:99 -n 2
```

Note: In this example, the symbolic host name “**tnsna**” must be listed in the “**/etc/hosts**” file. The **-n** value indicates the maximum number of concurrent 3270 host sessions per invocation of tn3270.

NOTE: Step 1 is the most common configuration method.

2. **ONLY if it is required**, to use TN3270 sessions with specific LU Names on one host, execute **tnconfig** by entering the following command, and then **proceed to step 5**:

```
# tnconfig -h host_name[:port id] -n number of lus -l luname  
1,luname 2,...,luname x
```

A sample execution of tnconfig is as follows:

```
# tnconfig -h tnsna -n 3 -l lu1,lu2,lu3
```

3. **ONLY, if it is required**, to use TN3270 sessions from pools of lus on multiple hosts, execute **tnconfig** by entering the following command, and then **proceed to step 5**:

```
# tnconfig -h host_name 1[:port id],host name 2[:port  
id],...,host_name x[:port id] -n number of lus for host_name 1,number  
of lus for host_name 2,...,number of lus for host_name x
```

A sample execution of tnconfig is as follows:

```
# tnconfig -h host1,host2,host3 -n 1,3,1
```

4. **ONLY if it is required** to use TN3270 sessions with specific LU Names on multiple hosts, execute **tnconfig** by entering the following command, and then **proceed to step 5**:

```
# tnconfig
  -h host_name 1[:port id],host_name 2[:port id],...,host_name
  x[:port id]

  -n number of lus for host_name 1,number of lus for host_name
  2,...,number of lus for host_name x

  -l luname 1 for host_name 1,...,luname 1 for host_name
  2,...,luname 1 for host_name x,...,luname for last lu for
  host_name x
```

A sample execution of tnconfig is as follows:

```
# tnconfig -h host1,host2,host3
  -n 2,4,2
  -l lu1h1,lu2h1,lu1h2,lu2h2,lu3h2,lu4h2,lu1h3,lu2h3
```

5. Convert the newly created tn3270-1a.txt file (created with tnconfig) to the required binary file (com.cfg) that the tn3270 emulator will use.

```
# cd /etc/opt/tn3270

# cp tn3270-1a.txt com.txt

# /opt/tn3270/bin/tncfgtcp com.txt
```

6. **NOTE: If there are specific requirements, not met in steps 1-4**, then configure the TN3270 software by editing the `/etc/opt/tn3270/tn3270-1a.txt` (created by tnconfig) or the com.txt file (see below). To configure specific requirements ... (see the *TN3270 Administration Guide* for assistance on configuration): to convert the com.txt file to the executable binary, perform the following:

```
# cd /etc/opt/tn3270
```

```
# cp /opt/tn3270/samples/tnsample.txt com.txt
# vi com.txt
# /opt/tn3270/bin/tncfgtcp com.txt
```

7. **NOTE:** ONLY required if you tuned the kernel. Reboot the UNIX operating system.

Run TN3270

Select the appropriate style file in the /etc/opt/tn3270 directory for the number of TN3270E sessions each user will have per each invocation of tn3270.

```
tn3270-1.stu    = 1  TN3270E session per invocation
tn3270-2.stu    = 2  TN3270E sessions per invocation
tn3270-3.stu    = 3  TN3270E sessions per invocation
tn3270-4.stu    = 4  TN3270E sessions per invocation
tn3270-5.stu    = 5  TN3270E sessions per invocation
tn3270-6.stu    = 6  TN3270E sessions per invocation
tn3270-7.stu    = 7  TN3270E sessions per invocation
tn3270-8.stu    = 8  TN3270E sessions per invocation
tn3270-9.stu    = 9  TN3270E sessions per invocation
tn3270-0.stu    = 10 TN3270E sessions per invocation
```

A sample execution of 1 TN3270E session per single user invocation:

```
# tn3270 -s /etc/opt/tn3270/tn3270-1.stu
```

A sample execution of 5 TN3270E sessions per single user invocation:

```
# tn3270 -s /etc/opt/tn3270/tn3270-5.stu
```

TN3270 Removal

1. Login in as *root*.
2. Terminate any running instances of the TN3270 product by entering the following command:

```
# /opt/tn3270/bin/tnstop3270
```

3. Remove the Cleo TN3270 by entering the following commands:

```
# cleormv  
# pkgrm cleotdoc  
# pkgrm cleotn
```

SNA Connection Over SDLC

Installation of a Cleo Enterprise Networking product requires that you obtain a License file (license.conf). The License file is available from Cleo Communications' Sales Department at 866-444-2536.

Software Prerequisites

- ▶ SCO Open Server 5

Hardware Prerequisites (one of the following):

- ▶ Cleo Communications FIFO SIB SDLC Adapter and the *cleofifo* driver

OR

- ▶ Digi 570i PCI SDLC Adapter and the *cleo570i* driver

Installing the Cleo SNA Gateway Software

NOTE: These procedures assume you are installing from a CPIO Image, that has been placed in the /tmp/cleo directory.

1. Log in as *root*.
2. Start the installation of the Cleo SNA Package

```
# cd /tmp/cleo
# pkgadd -d /tmp/cleo/cleosna
# pkgadd -d /cleo/cleodocs      (optional installation of SNA
                               Documentation package)
# ./cleoadd
```

```
You are about to run the cleoadd script, version 6.0.7.12,
which will install utilities for creating configuration files
and installing Cleo license files.
Do you wish to continue? (y/n): y
Installing files in /opt/sna/bin and /etc/opt/sna ...
Would you like to install the cleosna license file now? (y/n): y
Enter the full path name of the license file to install:
/tmp/license.conf
Contents of your license file:
*****
License type:      Temporary
Expiry date:      Thu Jul 20 00:00:00 2000
Shelf life:       <none>
Box name:         <none>
PU concentration: Not licensed
TN Server:        Not licensed
HPR:              Not licensed
LU 0-3 sessions: 32
APPC sessions:    32
Total sessions:   64
Users:            unlimited
*****

Do you wish to continue? (y/n): y
Saving old license in license.bak.
```

The license is now installed in /etc/opt/sna.
You must stop and restart the SNA software for
the new license to become active.

3. Set your path to include the new components with the following commands in your profile:

```
# PATH=$PATH:/opt/sna/bin:/opt/sna/bin/X11  
# export PATH
```

4. Based on your needs, you may be required to increase your kernel resources by tuning some parameters. Please refer to **Appendix A** of this manual and the Cleo Installation Guide Chapter 4.
5. You must reboot the system to allow the new kernel to take effect.

Instructions for Installing or Updating License

NOTE: Cleo Communications will supply the license.conf file to you.

Install the license file (this step can be included with the previous **cleoad** function)

```
# /opt/sna/bin/snaaddlic
```

Enter the full path name of the license file to install:

```
/tmp/license.conf
```

Contents of your license file:

```
*****  
License type:      Temporary  
Expiry date:      Thu Jul 20 00:00:00 2000  
Shelf life:       <none>  
Box name:         <none>  
PU concentration: Not licensed  
TN Server:        Not licensed  
HPR:              Not licensed  
LU 0-3 sessions: 32  
APPC sessions:    32  
Total sessions:   64  
Users:            unlimited  
*****
```

Do you wish to continue? (y/n): y

Saving old license in license.bak.

The license is now installed in /etc/opt/sna.

You must stop and restart the SNA software for the new license to become active.

Installing the SDLC UNIX Network Driver

Digi 570i pci

Use the Following instructions to install the Cleo **Digi 570i pci** driver. NOTE: Make sure that the Digi a570 card has been installed in the PC.

1. Log in as *root*.
2. Stop the SNA daemon by issuing the following command:

```
#sna stop
```

3. Start the installation of the Cleo Digi 570I pci driver

```
# pkgadd -d /tmp/cleo/cleo570i
```

4. You **MUST** reboot the system to allow the new kernel to take effect.

Cleo FIFO SIB:

Use the Following instructions to install the Cleo **FIFO/SIB** driver.

Note: The Cleo SNA Gateway software **MUST** be installed before installing the SDLC Driver. Also, the Hardware (FIFO SIB), **MUST NOT** installed **until after** the Cleo FIFO SIB SDLC Driver installation.

1. Log in as *root*.
2. Stop the SNA daemon by issuing the following command:

```
#sna stop
```

3. Start the installation of the **Cleo FIFO** driver

```
# pkgadd -d /tmp/cleo/cleofifo
```

After a period of time the console will display the following: Follow and answer the onscreen prompts.

```
Cleo Add Board Option  
Possible Board Selections  
1. Cleo FIFO SIB
```

Please enter selection or q to quit:

Type "1" <enter>

```
You have selected Cleo FIFO SIB
```

```
Is this correct (y/n)?
```

Type "y" <enter>

Next you will be asked to select the Boards IRQ value.

```
Cleo Add Board Option  
IRQ Selection  
5
```

9
10
11
12

Please enter selection q to quit
Enter the required IRQ value.

(This must be the same as that of the jumper setting (J3) on the FIFO SIB card)

Validating your selection... Please wait

You have selected "x" Is this correct (y/n)?

(where x is the IRQ setting you just selected).

Type "y" <enter>

Calculation Available I/O Addresses

I/O Address Selection

0x250

0x266

0x2B0

0x380

0x3A0

Please enter selection, <cr> for default of 0x380 or q to quit:

Press <enter>

You have selected 0x380. Is this correct (y/n)?

Type "y" <enter>

Cleo Add Board Option

Config for Board 1 is:

Board Description = Cleo FIFO SIB

IRQ =10

I/O = 0x380 - 0x38F

This board has 1 physical prt(s)

When configuring the LINK Service Record(s) of the Cleo SNA Server,
use the following mapping:

<u>Boards Physical #</u>	<u>LINK Service Port #</u>
--------------------------	----------------------------

1

1

Is this configuration acceptable (y/n)?

Type "y" <enter> if this is correct.

Do you wish to add another board (y/n)?

Type "n" <enter>

The Unix kernel will now be rebuilt

This may take a few minutes, Please Wait

You must Reboot your system before Cleo SNA can be used.
Installation of Cleo isa FIFO drivers (cleofifo) was successful

4. You **MUST** reboot the system to allow the new kernel to take effect. Shutdown the PC
5. Install the FIFO SIB card, making sure the IRQ jumper (J3) is set correctly
6. Power up the PC

Configuring Cleo SNA Gateway

Installation of the Cleo SNA Gateway software and Unix Driver is now complete. Utilize the "**xnaadmin**" GUI utility for configuring the SNA Gateway. (see the Cleo Administration Guide...section *Administration Tools*)

OR

You can configure the Cleo SNA Gateway software for 3270 sessions, using the "**snaconfig**" command line program. To configure, Edit the **SNA SDLC CONFIGURATION TEXT** file (`/etc/opt/sna/snasdcl.txt`) and then running the "**snaconfig**" program to update the Cleo SNA Software's configuration.

Running "snaconfig" AFTER editing the SNA SDLC CONFIGURATION TEXT file

1. If the SNA Software is running, then Stop the SNA Software by entering the following command:

```
# /opt/sna/bin/sna stop
```

2. Edit the default SNA SDLC CONFIGURATION TEXT file (**`/etc/opt/sna/snasdcl.txt`**) supplying your Host system's specific parameters. Note: See **Appendix C.** for a definition of the Host Configuration Parameters in the **SNA SDLC CONFIGURATION TEXT** file. See **Appendix D.** for the file's default values.

3. Update the Cleo SNA Software's configuration using the following command:

```
# /opt/sna/bin/snaconfig -S          (where -S = SDLC)
```

4. If this is a new installation, then go to the "**Starting Cleo SNA Server**" section.
5. If you are modifying an existing System configuration and need to restart the SNA Software, then enter the following command:

```
# /opt/sna/bin/sna start
```

1. If this is a new installation, then go to the "**Starting Cleo SNA Server**" section.
2. If you are modifying an existing System's configuration, and need to restart the SNA Software, then enter the following command:

```
# /opt/sna/bin/sna start
```

Starting Cleo SNA Server

The quickest way of starting Cleo SNA is to issue the following commands (assumes correct PATH... PATH=\$PATH:/opt/sna/bin:/opt/sna/bin/X11):

```
# sna start
# xsnaadmin &
```

The xsnaadmin program is a Motif-based administrative program. It contains extensive on-line help which will guide you through setting up a configuration from scratch.

Or

Start Cleo SNA Server from the command line

```
# sna start
# snaadmin init_node
# snaadmin start_port,port_name=xxxx      (where xxxx is the name of the
                                           port... i.e.  SDLCP0)
# snaadmin start_ls,ls_name=xxxx         (where xxxx is the name of the
                                           Link Station... i.e.  SDLCLO)
```

Run SNA3270

select the appropriate style file in the /etc/opt/sna directory for the number of SNA3270 sessions each user will use per each invocation of sna3270.

```
s3270-1.stu    = 1  sna3270 session per invocation
s3270-2.stu    = 2  sna3270 sessions per invocation
s3270-3.stu    = 3  sna3270 sessions per invocation
s3270-4.stu    = 4  sna3270 sessions per invocation
s3270-5.stu    = 5  sna3270 sessions per invocation
s3270-6.stu    = 6  sna3270 sessions per invocation
s3270-7.stu    = 7  sna3270 sessions per invocation
s3270-8.stu    = 8  sna3270 sessions per invocation
s3270-9.stu    = 9  sna3270 sessions per invocation
s3270-0.stu    = 10 sna3270 sessions per invocation
```

A sample execution of 1 SNA3270 session per single user invocation:

```
# sna3270 -s /etc/opt/sna/s3270-1.stu
```

A sample execution of 5 SNA3270 sessions per single user invocation:

```
# sna3270 -s /etc/opt/sna/s3270-5.stu
```

Cleo SNA Gateway Removal

1. Login in as *root*.
2. Terminate any running instances of the product by entering the following command:

```
# /opt/sna/bin/sna stop
```
3. Remove the Cleo SNA Gateway by entering the following commands: *Note: if you need to remove the "cleofifo" or the "cleo570i" package, you MUST also remove the "cleosna" package.*

```
# cleormv  
# pkgrm cleofifo  
or  
# pkgrm cleo570i  
# re-boot the system  
# pkgrm cleodocs  
# pkgrm cleosna
```
4. Perform an orderly shutdown(eg. **/etc/shutdown**) and reboot the system.

SNA Connection Over LAN (Ethernet)

Installation of a Cleo Enterprise Networking product requires that you obtain a License file (license.conf). The License file is available from Cleo Communications' Sales Department at 866-444-2536.

Software Prerequisites

- ▶ SCO Open Server 5

Hardware Prerequisites

- ▶ Any Ethernet board supported by the Operating System

Installing the LAN UNIX Network Driver

For instructions to help install you LAN network driver refer to the operating system administration guide.

Note: It is important that you install your hardware components before you install the Cleo SNA Gateway software.

Installing the Cleo SNA Gateway Software

NOTE: These procedures assume you are installing from a CPIO Image, that has been placed in the /tmp/cleo directory.

1. Log in as *root*.
2. Start the installation of the Cleo SNA Package

```
# cd /tmp/cleo
# pkgadd -d /tmp/cleo/cleosna
# pkgadd -d /cleo/cleodocs      (optional installation of SNA
                               Documentation package)
# ./cleoadd
```

```
You are about to run the cleoadd script, version 6.0.7.12,
which will install utilities for creating configuration files
and installing Cleo license files.
Do you wish to continue? (y/n): y
Installing files in /opt/sna/bin and /etc/opt/sna ...
Would you like to install the cleosna license file now? (y/n): y
Enter the full path name of the license file to install:
/tmp/license.conf
Contents of your license file:
*****
License type:      Temporary
Expiry date:      Thu Jul 20 00:00:00 2000
Shelf life:       <none>
Box name:         <none>
PU concentration: Not licensed
TN Server:        Not licensed
HPR:              Not licensed
LU 0-3 sessions: 32
APPC sessions:    32
Total sessions:   64
Users:            unlimited
*****

Do you wish to continue? (y/n): y
Saving old license in license.bak.
```

The license is now installed in /etc/opt/sna.
You must stop and restart the SNA software for
the new license to become active.

3. Set your path to include the new components with the following commands in your profile:

```
# PATH=$PATH:/opt/sna/bin:/opt/sna/bin/X11  
# export PATH
```

4. Based on your needs, you may be required to increase your kernel resources by tuning some parameters. Please refer to **Appendix A** of this manual and the Cleo Installation Guide Chapter 4.
5. You must reboot the system to allow the new kernel to take effect.

Instructions for Installing or Updating License

NOTE: Cleo Communications will supply the license.conf file to you.

Install the license file (this step can be included with the previous cleoad function)

```
# /opt/sna/bin/snaaddlic
```

Enter the full path name of the license file to install:

```
/tmp/license.conf
```

Contents of your license file:

```
*****  
License type:      Temporary  
Expiry date:      Thu Jul 20 00:00:00 2000  
Shelf life:       <none>  
Box name:         <none>  
PU concentration: Not licensed  
TN Server:        Not licensed  
HPR:              Not licensed  
LU 0-3 sessions: 32  
APPC sessions:   32  
Total sessions:  64  
Users:           unlimited  
*****
```

Do you wish to continue? (y/n): y

Saving old license in license.bak.

The license is now installed in /etc/opt/sna.

You must stop and restart the SNA software for
the new license to become active.

Configuring Cleo SNA Gateway - Ethernet

Installation of the Cleo SNA Gateway software and Unix Driver is now complete. You can utilize the ***x snaadmin*** GUI utility for configuring the SNA Gateway. (see the Cleo Administration Guide...section *Administration Tools*)

OR

You can configure the Cleo SNA Gateway software for 3270 sessions, using the "***snaconfig***" command line program. To configure, Edit the **SNA Ethernet CONFIGURATION TEXT** file (`/etc/opt/sna/snaeth.txt`) and then running the "***snaconfig***" program to update the Cleo SNA Software's configuration.

Running "*snaconfig*" after editing the SNA ETHERNET CONFIGURATION TEXT file

1. If the SNA Software is running, then Stop the SNA Software by entering the following command:

```
# /opt/sna/bin/sna stop
```

2. Edit the default SNA ETHERNET CONFIGURATION TEXT file (`/etc/opt/sna/snaeth.txt`) supplying your Host system's specific parameters. Note: See **Appendix C.** for a definition of the `snaconfig` Host Configuration Parameters in the **SNA ETHERNET CONFIGURATION TEXT** file. See **Appendix D.** for the file's default values.

3. Update the Cleo SNA Software's configuration using the following command:

```
# /opt/sna/bin/snaconfig -E          (where -E = ETHERNET)
```

4. If this is a new installation, then go to the "**Starting Cleo SNA Server**" section.
5. If you are modifying an existing System configuration and need to restart the SNA Software, then enter the following command:

```
# /opt/sna/bin/sna start
```

6. If this is a new installation, then go to the "**Starting Cleo SNA Server**" section.
7. If you are modifying an existing System's configuration, and need to restart the SNA Software, then enter the following command:

```
# /opt/sna/bin/sna start
```

Starting Cleo SNA Server

The quickest way of starting Cleo SNA is to issue the following commands (assumes correct PATH... PATH=\$PATH:/opt/sna/bin:/opt/sna/bin/X11):

```
# sna start
# xsnaadmin &
```

The *xsnaadmin* program is a Motif-based administrative program. It contains extensive on-line help which will guide you through setting up a configuration from scratch. (see the Cleo Administration Guide...section *Administration Tools*)

Or

Start Cleo SNA Server from the command line

```
# sna start
# snaadmin init_node
# snaadmin start_port,port_name=xxxx      (where xxxx is the name of
                                           the port... i.e.  ETSAP0)
# snaadmin start_ls,ls_name=xxxx         (where xxxx is the name of
                                           the Link Station... i.e.
                                           ETHL0)
```

Run SNA3270

select the appropriate style file in the /etc/opt/sna directory for the number of SNA3270 sessions each user will use per each invocation of sna3270.

```
s3270-1.stu    = 1  sna3270 session per invocation
s3270-2.stu    = 2  sna3270 sessions per invocation
s3270-3.stu    = 3  sna3270 sessions per invocation
s3270-4.stu    = 4  sna3270 sessions per invocation
s3270-5.stu    = 5  sna3270 sessions per invocation
s3270-6.stu    = 6  sna3270 sessions per invocation
s3270-7.stu    = 7  sna3270 sessions per invocation
s3270-8.stu    = 8  sna3270 sessions per invocation
s3270-9.stu    = 9  sna3270 sessions per invocation
s3270-0.stu    = 10 sna3270 sessions per invocation
```

A sample execution of 1 SNA3270 session per single user invocation:

```
# sna3270 -s /etc/opt/sna/s3270-1.stu
```

A sample execution of 5 SNA3270 sessions per single user invocation:

```
# sna3270 -s /etc/opt/sna/s3270-5.stu
```

Cleo SNA Gateway Removal

1. Login in as *root*.
2. Terminate any running instances of the product by entering the following command:

```
# /opt/sna/bin/sna stop
```
3. Remove the Cleo SNA Gateway by entering the following commands:

```
# cleormv  
  
# pkgrm cleodocs  
  
# pkgrm cleosna
```
4. Perform an orderly shutdown(eg. **/etc/shutdown**) and reboot the system.

Appendix A – Kernel Tuning

Kernel tuning parameters for running 254 LUs on a SCO 5 system. The formula for determining each tuning value is included below the Value.

SHMMNI - 509

-- 1+ (the number of concurrent copies of the 3270 emulation program) + (the number of sessions configured for HLLAPI)

SEMMNI - 762

-- (2 X the number of concurrent copies of the 3270 emulation program) +(the number of sessions configured for HLLAPI)

SEMMNS - 1016

-- (2 X the number of concurrent copies of the 3270 emulation program) + (2 X the number of sessions configured for HLLAPI)

SEMMAP - 508

-- (1/2 the value of SEMMNS)

SEMMNU - 762

-- (2 X the number of concurrent copies of the 3270 emulation program) + (the number of sessions configured for HLLLAPI) + (the number of concurrent CPI-C applications)

SHMSEG - 256

-- 2 + (the number of sessions configured for HLLAPI per the number of concurrent copies of the 3270 emulation program)

These are the values for 254 sessions if you require different numbers refer to the Cleo Installation Guide Chapter 4 for more information.

Appendix B – Host Configuration Information

Required Configuration Information:

Before you begin the installation and configuration process, contact your host personnel and get the following critical information about your connection.

Much of this information can be found in the NCP Gen on your mainframe host.

Line Type: (leased / dial up) _____

XID Type: (Format 0 / Format 3) _____

NRZ or NRZI _____

PU Address = _____

LOCADDR(s) or LU Number(s) = _____

MAXDATA = (265 – 4105) _____

IDBLK = _____

IDNUM = _____

TN3270 Connection

If you are Planning to establish a TN3270(E) (TCP/IP) connection to your mainframe host please provide the following information:

IP address of the Mainframe host or TNSERVER
_____-_____-_____-_____ and Port Number _____

Does the TNSERVER support TN3270 or TN3270E? _____

SNA Over LAN Connection (Ethernet)

If you are planning to access your host over an Ethernet connection please get the following information from your Network Administrator.

Remote MAC Address _____

System Information

What Operating System will you be running your Cleo software on?

AIX SCO SOLARIS UnixWare

What is the version of the operating system? _____

What hardware platform will the Cleo software be running on? _____

What version of Cleo Software will you be loading? _____

Is this a new install or an Upgrade? _____

What type of connection will you be using for communicating with the remote system?
(Ethernet / SDLC) _____

What Communication adapter card will you be using? _____

What is the model and manufacturer of the modem, modem eliminator or modem sharing
device that will be used for this connection?

Please provide diagram of the connection from the mainframe host to your network. Include as much detail as possible.

APPENDIX C – *snaconfig* HOST CONFIGURATION PARAMETERS

The PARAMETERS defined in the "/etc/opt/sna/snasdsc.txt and /etc/opt/sna/snaeth.txt" file are:

SNA_TYPE = S | E

Where **S** = SNA over SDLC
E = SNA over ETHERNET

PORT_NUM = 1 | 2 | 3 | 4

Where **1** corresponds to

SDLCP0 for SDLC (note the Link Station will be **SDLCL0**)
ETSAP0 for Ethernet (note the Link Station will be **ETHL0**)

2 corresponds to

SDLCP1 for SDLC (note the Link Station will be **SDLCL1**)
ETSAP1 for Ethernet (note the Link Station will be **ETHL1**)

3 corresponds to

SDLCP2 for SDLC (note the Link Station will be **SDLCL2**)
ETSAP2 for Ethernet (note the Link Station will be **ETHL2**)

4 corresponds to

SDLCP3 for SDLC (note the Link Station will be **SDLCL3**)
ETSAP3 for Ethernet (note the Link Station will be **ETHL3**)

MAXDATA = dddd

Where **dddd** is the decimal value for MAXDATA

XIDS = 0xnxxxxxxxx

Where **xxxxxxxx** is the 3 digit Hexadecimal **IDBLK** and 5 digit Hexadecimal **IDNUM** to send to the Host

XIDR = 0xnnnnnnnn

Where **nnnnnnnn** is the 3 digit Hexadecimal **IDBLK** and 5 digit Hexadecimal **IDNUM** to send to receive from the Host

LINE_TYPE = LEASED | SWITCHED (SDLC ONLY)

DUPLEX = HALF | FULL (SDLC ONLY)

ENCODING = NRZ | NRZI (SDLC ONLY)

CONSTANT_RTS = Y | N (SDLC ONLY)

POLL_ADDR = hh (SDLC ONLY)

Where **hh** is the 2 digit Hexadecimal Polling Address(eg. C1)

LOCAL_SAP = 0xhh (Ethernet ONLY)

REMOTE_SAP = 0xhh (Ethernet ONLY)

Where **hh** is the 2 digit Hexadecimal Remote **SAP**(Service Access Pt.)

MAC_ADDR = xxxxxxxxxxxx (Ethernet ONLY)

Where **xxxxxxxxxxxx** is the 12 digit Hexadecimal Remote Mac Address

SESS = d

Where **d** is the total number of LUs to use.

APPENDIX D - DEFAULT VALUES for SNA CONFIGURATION files

There is a Cleo CONFIGURATION text file supplied for each type of SNA connectivity.

The file `/etc/opt/sna/snasdlc.txt` contains the following default entries for **SNA over SDLC**:

```
SNA_TYPE = S
PORT_NUM = 1
MAXDATA = 265
XIDS = 0x05DFFFFFF
XIDR =
LINE_TYPE = LEASED
ENCODING = NRZ
CONSTANT_RTS = N
POLL_ADDR = C1
N = 128
```

The file `/etc/opt/sna/snaeth.txt` contains the following default entries for **SNA over ETHERNET**:

```
SNA_TYPE = E
PORT_NUM = 1
MAXDATA = 1929
XIDS = 0x05DFFFFFF
XIDR =
LOCAL_SAP = 04
REMOTE_SAP = 04
MAC_ADDR = 400000000000
FLIP = TRUE
SESS = 128
```


APPENDIX E: Cleo Migration Guide

Converting From Cleo V4.x to Cleo V6.x

Copy the following V4.x files to /tmp
com.cfg
com.stu (or any and all .stu files)
com.sec

- Run the **snamigration** utility

Syntax:

```
#snamigrate <old 4.1.3 config file, i.e. com.cfg> <new config file name i.e. (file1)>
```

The utility will prompt you with the following response:

“Please enter a UNIX machine name for node NODE”

“Default: machine name of box that you are currently running this utility on” (*i.e. unixsys*).
“**enter a name or press return**”

“Node *NODE* is being migrated to node name” (*what ever value you plugged for UNIX machine name above i.e. file1.unixsys*)

“The node configuration will be migrated to the file” (*config file name.machine name*)

“Please enter the network name for node NODE”

“Default” (*taken from machine name i.e. unixsys*): (type: **APPN**)

- This will create two files Or a 3rd file if using RJE:
New config file "*name.dom*" i.e. file1.domn
New config file "*name.machine name*" i.e. file1.unixsys
New config file "WORK.RJE" (if you were converting from RJE)
- You will need to "*cp name.dom (file1.domn) sna_domn.cfg*"
- You will need to "*cp name.machine name (file1.unixsys) sna_node.cfg*"
- You will need to "*cp WORK.RJE WORK.sty*" (RJE only)
- Copy the **sna_domn.cfg** file to **/etc/opt/sna**
- Copy the **sna_node.cfg** file to **/etc/opt/sna**
- Copy the **com.stu** file to **/etc/opt/sna**
- Copy the **WORK.sty** file to **/etc/opt/sna** (RJE only)
- Check the permissions on these files:
-rw-rw---- 1 root sna sna_domn.cfg
-rw-rw---- 1 root sna sna_node.cfg
-rw-rw---- 1 root sys com.stu
-rw-rw-r-- 1 root sna WORK.sty (NOTE: for RJE only)
- you will now have to edit the sna_node.cfg file to make some necessary changes:

```
vi sna_node.cfg
```

*** in the **[define_node]** section

pu_conc_support = YES *change to NO*

*** in the **[define_sdlic_dlc]** section

card_type = IBM_SDLC

A) if running a Cleo Fifo Sib Card, change this too: **ISI_SDLC_FIFO**

B) if running a Digi A570i 2 port Card, change this too: **ISI_SDLC_A570I_PCI2**

C) if running a Digi A570i 4 port Card, change this too: **ISI_SDLC_A570I_PCI4**

Also, in this section, check the following to make sure that it matches the card you are installing:

adapter_number = 1 change to 0
num_ports = 2 or 4 (depending on card type)

*** in the **[define_sdlic_port]** section
adapter_number = 1 change to 0

- **if you are running HALF DUPLEX:**

(check your v4.1x code... if it is set to ½ duplex, the "snamigrate" utility will set it to Full duplex)

*** in the **[define_sdlic_port]** section:

pri_fdplx = YES change to NO
sec_fdplx = YES change to NO
opt1 = FULL_DUPLEX + Four_WIRE change to NONE
opt2 = STREAM + DSRS change to NONE

in the **[define_sdlic_ls]** section
opt1 = FOUR_WIRE change to NONE

- **change where the log files are kept:**

*** in the **[set_log_file]** section

log_file_type = ERROR
file_name = /usr/lib/cleo/com.err change to /var/opt/sna/sna.err

*** in the **[set_log_file]** section

log_file_type = AUDIT
file_name = /usr/lib/cleo/com.aud change to /var/opt/sna/sna.aud