

**StorageTek®**

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**Automated Cartridge  
System Library  
Software**

**Installation and  
Configuration Guide  
for AIX**

**Version 5.3**

**PN 311250401**

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### **ACSL 5.3, October 1998**

This edition applies to Version 5.3 of Automated Cartridge System Library Software. Information contained in this publication is subject to change. Comments concerning the contents of this manual should be directed to:

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## About this Book

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The ACSLS 5.3 installation software provides the following functions:

- Installing and configuring ACSLS 5.3 on your platform
- Upgrading to ACSLS 5.3 from previous versions of ACSLS
- Installing CSCI (optional)
- Installing a second disk

## Audience

This book is written for StorageTek or customer personnel who install and configure the Solaris operating system and ACSLS 5.3. As the ACSLS installer, you should already know the following:

- UNIX file and directory structure
- How to use UNIX commands and utilities for your platform.
- How to do typical UNIX tasks, such as logging on as root

## **Reader's Comments**

We'd like to know what you think about this book. For that purpose, we've included a reader's comment form in the back of this book. Please copy the form, fill it out, and mail it to us.

If you prefer, you can e-mail your comments to Software Information Development directly. Our Internet address is:

**sid@stortek.com**

Be sure to include the document title and number with your comments.

## **How this Guide is Organized**

This book contains the following information:

- Chapter 1. "Pre-Installation Preparation"
- Chapter 2. "Installing and Configuring AIX"
- Chapter 3. "Installing and Configuring ACSLS"
- Chapter 4. "Completing the ACSLS Installation"
- Appendix A. "Utilities"
- Appendix B. "CSCI Installation"
- Appendix C. "RS/6000 to AS/400 Connections"
- Appendix D. "CSCI Environment Variables"
- Appendix E. "De-Installing a Second Disk"
- Appendix F. "Installing AIX from a Backup"
- Glossary

## Conventions for Reader Usability

Conventions are used to shorten and clarify explanations and examples within this book.

**Typographic** The following typographical conventions are used in this book:

- **Bold** is used to introduce new or unfamiliar terminology.
- Letter Gothic is used to indicate command names, filenames, and literal output by the computer.
- **Letter Gothic Bold** is used to indicate literal input to the computer.
- *Letter Gothic Italic* is used to indicate that you must substitute the actual value for a command parameter. In the following example, you would substitute your name for the “username” parameter.

**Logon** *username*

- A bar ( | ) is used to separate alternative parameter values. In the example shown below either username or systemname must be entered.

**Logon** *username | systemname*

- Brackets [ ] are used to indicate that a command parameter is optional.
- Ellipses ( ... ) are used to indicate that a command may be repeated multiple times.
- The use of mixed face characters (bold and not bold) indicates that not bold letters may be omitted to form abbreviations. For example, you may simply enter **y** when executing the **query** command.

**Keys** Single keystrokes are represented by double brackets `[[ ]]` surrounding the key name. For example, press `[[ESC]]` indicates that you should press only the escape key.

Combined keystrokes use double brackets and the plus sign (+). The double brackets surround the key names and the plus sign is used to add the second keystroke. For example, press `[[ALT]] + [[C]]` indicates that you should press the alternate key and the C key simultaneously.

**Enter Command** The instruction to “press the `[[ENTER]]` key” is omitted from most examples, definitions, and explanations in this book.

For example, if the instructions asked you to “enter” **Logon pat**, you would type in **Logon pat** *and* press `[[ENTER]]`.

However, if the instructions asked you to “type” **Logon pat**, you would type in **Logon pat** and you would *not* press `[[ENTER]]`. The following symbols are used to highlight text in this book.

**Symbols**



**Warning:** Information necessary to keep you from damaging your hardware or software.



**Caution:** Information necessary to keep you from corrupting your data.



**Hint:** Information that can be used to shorten or simplify your task or they may simply be used as a reminder.



**Note:** Information that may be of special interest to you. Notes are also used to point out exceptions to rules or procedures.

## Technical Support

Refer to the *Requesting Help for Software Products* for information about contacting StorageTek for technical support and for requesting changes to software products.

## Related Documentation

### ACSL5 5.3 Documentation

The following publications provide more information about ACSLS 5.3:

- The *ACSL5 5.3 Information CD-ROM*, part number 311250301, which is automatically shipped with the 5.3 program package and provides HTML format of all the ACSLS 5.3 publications.
- *ACSL5 Product Information* that is provided in HTML format only on the ACSLS 5.3 Information CD-ROM and on the StorageTek Customer Resource Center (CRC). See “[ACSL5 Online Information on the StorageTek CRC](#)” on page ix for more information.
- *ACSL5 Installation and Configuration Guide* for your platform, part number 311250001 for the Solaris platform and part number 311250401 for the AIX platform. Hardcopy of the guide for your platform is also shipped with the program package.
- *ACSL5 System Administrator’s Guide*, which is provided in HTML format on the ACSLS 5.3 Information CD-ROM and on the CRC. Hardcopy can be ordered by contacting StorageTek at 1-800-436-5554. The hardcopy part number is 311250101.

- *ACSLs Quick Reference*, part number 311253501, which is automatically shipped with the 5.3 program package.
- *ACSLs Messages*, which is provided in HTML format on the ACSLS 5.3 Information CD-ROM and on the CRC. Hardcopy can be ordered by contacting StorageTek at 1-800-436-5554. The hardcopy part number is 311250201.

## ACSLs Online Information on the StorageTek CRC

In addition to the HTML collection on the *ACSLs 5.3 Information CD-ROM*, the StorageTek Customer Resource Center (CRC) on the World Wide Web provides HTML collections for ACSLS 5.1 and above. Use the following procedure to access these collections on the StorageTek CRC.



**Hint:** The latest service updates appear in red print throughout the online information.



### To access ACSLS HTML collections on the StorageTek CRC:

1. Using an Internet browser such as Netscape 3.0, go to the StorageTek CRC. The URL is:

<http://www.stortek.com/StorageTek/doc/indexf.html>

2. Select the Request a Login/Password link.
3. Fill in the information requested in the form.

You should receive your account ID and password within two days.

4. When you receive your account information, go to the storage software documentation on the CRC:

<http://www.stortek.com/StorageTek/doc/software.html>

5. In the Software table under User Guides, select the red square opposite ACSLS.
6. When prompted, fill in your User ID and password.  
The ACSLS: Online Documentation page appears.
7. On the ACSLS: Online Documentation page, select the link for the ACSLS version you want.  
The ACSLS information for the selected version appears.

## ACS Hardware Documentation

The StorageTek CRC on the World Wide Web provides .pdf file format of many of StorageTek's ACS hardware publications. Use the following procedure to access these publications on the StorageTek CRC.



### To access StorageTek ACS hardware documentation on the StorageTek CRC:

1. **Using an Internet browser such as Netscape 3.0, go to the StorageTek CRC. The URL is:**

<http://www.stortek.com/StorageTek/doc/indexf.html>

2. **Select the Request a Login/Password link.**

3. **Fill in the information requested in the form.**

You should receive your account ID and password within two days.

4. **When you receive your account information, go to the storage hardware documentation on the CRC:**

<http://www.stortek.com/StorageTek/doc/hardware.html>

5. **In the Hardware table under User Guides, select the red square opposite the product for which you want information.**

6. **When prompted, fill in your User ID and password.**

The online documentation page for the requested product appears.

7. **Download the .pdf file you want.**

Most download pages contain a link you can use to download Adobe Acrobat Reader to view the .pdf file.

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# Chapter 1. Pre-Installation Preparation

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**Caution:** You must complete the procedures in this chapter *before* installing and configuring AIX 4.2.1 or 4.3.1, or installing and configuring ACSLS 5.3.

If you plan to install ACSLS Manager 1.1, install ACSLS 5.3 *first* and then refer to *Getting Started* for ACSLS Manager 1.1 installation instructions.

## Overview

This chapter describes how to prepare for installation and configuration of the AIX 4.2.1 or 4.3.1 operating system, and for installation and configuration of ACSLS 5.3.

This chapter includes:

- Preparing for AIX Installation and Configuration
- Preparing for ACSLS Installation
- Planning for ACSLS Configuration Options
- Planning for Library Configuration Options
- Backing Up the Database
- Exporting the Database
- Hardware Disk Upgrade

## Preparing for AIX Installation and Configuration

The AIX operating system will be installed and configured in Chapter 2. Before installing and configuring AIX, complete the following steps:

1. **Satisfy all requirements specified in *Product Information* (see “ACSLS Online Information on the StorageTek CRC” in “About this Book”) prior to installation of AIX or ACSLS.**
2. **Install the library hardware according to the StorageTek installation instructions. See “Related Documentation” in “About this Book.”**



**Caution:** If you are installing a 97xx library, you *must* connect the server to the library before installing ACSLS. The `install.sh` script installs device drivers and kernel patches. If the SCSI cable is not connected, the device driver installation fails.

3. **Install the ACSLS server hardware according to the hardware manufacturer’s instructions.**
4. **Install the Standard Ethernet Network Interface. If it is not installed, you will receive CSI error messages at startup.**
5. **If you are installing ACSLS from tape using a tape drive other than the default drive, determine the device number of your tape drive.**

During the installation procedure, you must specify the rewind or norewind name for your tape device if you are using a tape drive other than the default drive. The AIX naming convention for non–default tape devices is as follows:

Device type	Device name	Parameter
rewind device	<code>/dev/rmtx</code>	<i>x</i> is the device name of your tape drive <b>Default:</b> <code>/dev/rmt0</code>
norewind device	<code>/dev/rmtx.1</code>	<i>x</i> , the device name of your tape drive, is followed by a period (.) and any odd number <b>Default:</b> <code>/dev/rmt0.1</code>

**6. Determine and record information about network communication settings in the *Your System Values* column in Table 1. Pre-Installation Worksheet.**



**Warning:** Consult your system administrator for assistance in obtaining this information. It is critical that this information is correct in order for ACSLS to run properly.

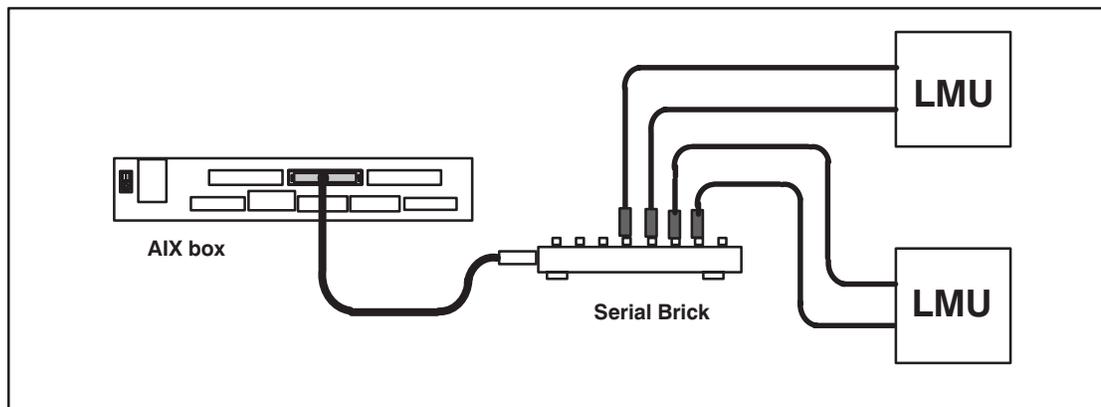
**Table 1. Pre-Installation Worksheet**

Installation Options	Valid Values	Your System Values
<input type="checkbox"/> Network Type	Standard Ethernet Network Interface (see note below)	
<input type="checkbox"/> Host Name		
<input type="checkbox"/> Internet Address		
<input type="checkbox"/> Network Mask		
<input type="checkbox"/> Gateway Address		
<input type="checkbox"/> Tape Drive Name: rewind device	<code>/dev/rmt0</code> (see Step 5)	
<input type="checkbox"/> Tape Drive Name: norewind device	<code>/dev/rmt0.1</code> (see Step 5)	

## Preparing for ACSLS Installation

Before you install ACSLS, complete the following steps:

1. **Verify that the server system hardware is properly configured, connected, powered on and ready.**
2. **If your installation includes a 9300 or 4400 library and a single LMU:**
  - a. Connect the LMU to serial port-1, reserving port-0 for a remote service modem.
  - b. If a modem is not used, connect both serial ports to the LMU for redundant communications.
3. **If your installation includes a 9300 or 4400 library and dual 9330 LMUs:**
  - a. Refer to *RS6000 Hardware documentation* for installation instructions of the card and attachment of the serial brick.
  - b. Attach the adapter to the microchannel or the PCI on the server.
  - c. From the brick, run 4 cables, 2 to each LMU (see [Figure 1](#))



**Figure 1. Dual LMU Connection Configuration**

#### 4. If your installation includes a 97xx SCSI library and:

<b>a single-ended SCSI interface</b>	<ul style="list-style-type: none"><li>• Verify proper SCSI cable and 97xx terminator attachment. Make sure that the cable does not exceed 2 meters between the server and the 97xx library. <b>Note:</b> The single-ended configuration allows the LSM to connect to the host system bus. Noises on the system bus can corrupt data bound for the system disk. Common sources of spurious noise should be avoided, including:<ul style="list-style-type: none"><li>Hot plugging devices on the SCSI bus.</li><li>Attaching cables that are not actively terminated.</li><li>Powering down an attached peripheral while UNIX is running.</li></ul></li><li>• Verify the proper SCSI target address. Consult the 97xx Hardware Operator's Guide for setting this address on the LSM.</li><li>• Set the 97xx library at SCSI target 0, target 2, or target 5 for a standard Solaris platform. Typically, target 1 is reserved for a second disk, target 3 is reserved for a boot disk, target 4 is reserved for an external tape device, target 6 is reserved for a CD-ROM, and target 7 is reserved for a SCSI controller. <b>Note:</b> If 1, 3, 4, 6, or 7 are already reserved on your system, use 0, 2, or 5 for your 97xx library.</li></ul>
<b>a differential SCSI interface</b>	<ul style="list-style-type: none"><li>• Verify proper SCSI cable and 97xx terminator attachment. Make sure the cable does not exceed 25 meters.</li></ul>

5. **Make sure that each attached LMU, LSM, and transport is fully configured, powered on, and ready. Otherwise, the configuration script, acsss\_config, will fail.**
6. **Obtain the ACSLS 5.3 installation media.**
7. **If you intend to use removable media for database backup, have a blank cartridge available for your backup device.**

## Planning ACSLS Configuration Options

Descriptions of the ACSLS configuration options are found in [Table 2](#). The **Valid Selections** column shows valid values for the option, with defaults shown in bold. Record the value you will use in the **Your Site's Selection** column for reference when you follow the configuration procedures.

**Table 2. ACSLS Configuration Options**

Configuration Choice Group	Option Prompt	Option Description	Type	Valid Selections	Your Site's Selection
1. Set CSI tuning variables	Maximum age in seconds of pending requests in CSI request queue [172800]	Maximum timeout interval for pending requests in CSI request queue	Dynamic	<b>172800 seconds</b> 600 to 315360000 seconds	
1. Set CSI tuning variables	Number of seconds between successive retries [4]	Minimum timeout interval between CSI attempts to establish a network connection	Dynamic	<b>4</b>	
1. Set CSI tuning variables	Number of retries for the CSI before a timeout condition occurs [5]	Maximum times the CSI will retransmit a message	Dynamic	<b>5</b>	

<b>Configuration Choice Group</b>	<b>Option Prompt</b>	<b>Option Description</b>	<b>Type</b>	<b>Valid Selections</b>	<b>Your Site's Selection</b>
1. Set CSI tuning variables	Changes to alter the use of the TCP protocol will not take effect until the product is restarted. CSI support for RPC using the TCP protocol is enabled [TRUE]:	CSI acts as a TCP RPC server (True) or not (False)	Static	<b>TRUE</b> <b>FALSE</b>	
1. Set CSI tuning variables	Changes to alter the use of the UDP protocol will not take effect until the product is restarted. CSI support for RPC using the UDP protocol is enabled [TRUE]:	CSI acts as a UDP RPC server (TRUE) or not (FALSE)	Static	<b>TRUE</b> <b>FALSE</b>	
2. Set event logging variables	Number of event log files to retain [9]:	Number of rollover event log files; see "Specifying Options for Event and Statistic Logs"	Dynamic	<b>9</b> 0-9	

Configuration Choice Group	Option Prompt	Option Description	Type	Valid Selections	Your Site's Selection
2. Set event logging variables	Changes to the logging directory will not take effect until the product is restarted. What directory should logging information be in [\$ACS_HOME/log]:	Pathname for directory containing the event log	Static	<b>\$ACS_HOME/log</b>	
2. Set event logging variables	Maximum library server event log size in Kbytes (=1000 bytes) [500]:	Maximum event log size (KB); see "Specifying Options for Event and Statistic Logs"	Dynamic	<b>500</b> 32 or more	
2. Set event logging variables	Date/time format for all logs [%Y-%m-%d %H:%M:%S]:	Date and time format for all ACSLS logs and command and utility output	Dynamic	The %Y variable can specify 4-digit year formats, which is the default	
2. Set event logging variables	Date/time format [%m-%d-%y %H:%M:%S]:	Event log date and time format	Dynamic		

Configuration Choice Group	Option Prompt	Option Description	Type	Valid Selections	Your Site's Selection
3. Set general product behavior variables	Enable Library Volume Statistics Gathering (ON/OFF) [OFF]:	Specifies if volume statistics are logged. Logging these statistics can take considerable disk space; see "Specifying Options for Event and Statistic Logs"	Dynamic	<b>OFF</b> ON	
3. Set general product behavior variables	Number of acsss_stats log files to retain [9]:	Number of rollover statistics log files; see "Specifying Options for Event and Statistic Logs"	Dynamic	<b>9</b> 0-9	
3. Set general product behavior variables	Maximum library server acsss_stats log size in Kbytes (=1000 bytes) [500]:	Maximum statistics log size (KB); see "Specifying Options for Event and Statistic Logs"	Dynamic	<b>500</b> 32K or more	

Configuration Choice Group	Option Prompt	Option Description	Type	Valid Selections	Your Site's Selection
3. Set general product behavior variables	Select cleaning cartridge ordering method [VOLID_SORT]	Cleaning cartridge ordering for selection and query <u>clean</u> display: VOLID_SORT order by <i>vol id</i> LEAST_USED order from least to most used MOST_ CAPACITY order from most to least available cleaning cycles	Dynamic	VOLID_SORT LEAST_USED MOST_ CAPACITY	

Configuration Choice Group	Option Prompt	Option Description	Type	Valid Selections	Your Site's Selection
3. Set general product behavior variables	Enable Transport Auto Clean Option (TRUE/FALSE) [TRUE]:	<p>When option is TRUE and transport indicates cleaning is required, ACSLS will automatically clean the transport before next mount (TRUE) or not (FALSE)</p> <p><b>Note:</b> You cannot use the <code>acsss_config</code> configuration program to enable auto-cleaning for drives attached to 97xx LSMs. Using ACSLS, you can only clean these drives by manually mounting a cleaning cartridge. The LSM hardware, however, lets you enable auto-cleaning via the LSM control panel. For more information, see your 97xx manuals.</p>	Dynamic	TRUE FALSE	

<b>Configuration Choice Group</b>	<b>Option Prompt</b>	<b>Option Description</b>	<b>Type</b>	<b>Valid Selections</b>	<b>Your Site's Selection</b>
3. Set general product behavior variables	Library Server startup state (RUN/IDLE) [RUN]:	Initialize ACSLS in RUN or IDLE state	Static	<b>RUN</b> <b>IDLE</b>	
3. Set general product behavior variables	Changes to the number of mount processes ACSLS supports will not take effect until the product is restarted. Number of mount processes [2]:	Number of ACSLS persistent mount processes; see "Specifying Options for ACSLS Processes"	Static	<b>2</b> 1-10	
3. Set general product behavior variables	Enable QUERY persistent processes (TRUE/FALSE) [TRUE]:	TRUE specifies that ACSLS executes queries as one or more persistent processes. Use the following option to specify the number of query persistent processes; see "Specifying Options for ACSLS Processes"	Static	<b>TRUE</b> <b>FALSE</b>	

<b>Configuration Choice Group</b>	<b>Option Prompt</b>	<b>Option Description</b>	<b>Type</b>	<b>Valid Selections</b>	<b>Your Site's Selection</b>
3. Set general product behavior variables	Changes to the number of query processes that ACSLS supports will not take effect until the product is restarted. Number of query persistent processes [2]:	Number of ACSLS query persistent processes; see "Specifying Options for ACSLS Processes"	Static	<b>2</b> 1-10	
3. Set general product behavior variables	Changes to the maximum number of transient ACSLS processes will not take effect until the product is restarted. Maximum number of transient ACSLS processes [40]:	Maximum ACSLS transient processes; see "Specifying Options for ACSLS Processes"	Static	<b>40</b> 32 and above	
3. Set general product behavior variables	Enable automatic enter tracing facility (TRUE/FALSE) [FALSE]:	Log automatically enters in the event log (TRUE) or not (FALSE)	Dynamic	<b>FALSE</b> <b>TRUE</b>	

<b>Configuration Choice Group</b>	<b>Option Prompt</b>	<b>Option Description</b>	<b>Type</b>	<b>Valid Selections</b>	<b>Your Site's Selection</b>
3. Set general product behavior variables	Enable volume tracing facility (TRUE/FALSE) [FALSE]:	Log database volume additions and deletions in the event log (TRUE) or not (FALSE)	Dynamic	<b>FALSE</b> <b>TRUE</b>	
4. Set access control variables	Changes to command access control will not take effect until the product is restarted. Access control is active for commands (TRUE/FALSE) [FALSE]:	Enable command access control (TRUE) or not (FALSE)	Static	<b>FALSE</b> <b>TRUE</b>	
4. Set access control variables	Default access for commands (ACCESS/NOACCESS) [ACCESS]:	If no access control files, enable default command access (ACCESS) or not (NOACCESS)	Dynamic	<b>ACCESS</b> <b>NOACCESS</b>	

<b>Configuration Choice Group</b>	<b>Option Prompt</b>	<b>Option Description</b>	<b>Type</b>	<b>Valid Selections</b>	<b>Your Site's Selection</b>
4. Set access control variables	Changes to volume access control will not take effect until the product is restarted. Access control is active for volumes (TRUE/FALSE) [FALSE]:	Enable volume access control (TRUE) or (FALSE)	Static	<b>FALSE</b> <b>TRUE</b>	
4. Set access control variables	Default access for volumes (ACCESS/NOACCESS) [NOACCESS]:	If no access control files, enable default volume access (ACCESS) or (NOACCESS)	Dynamic	<b>NOACCESS</b> <b>ACCESS</b>	
4. Set access control variables	Messages will be logged when access to commands or volumes is denied (TRUE/FALSE) [FALSE]:	Log command and volume Access Denied messages in event log (TRUE) or (FALSE)	Dynamic	<b>FALSE</b> <b>TRUE</b>	

## Specifying Options for Event and Statistics Logs

The `acsss_config` configuration program lets you specify options for file size and number of rollover files for the event log (`acsss_event.log`) and the volume statistics log (`acsss_stats.log`) as follows:

- You can specify the number of rollover log files to “journal” entries when the base log file reaches maximum size. If you specify 0, ACSLS creates only one base log file with no rollover files. You must manually manage this base log file, which has no maximum size. If you specify 0 rollover log files and also specify a maximum size for the volume statistics log, ACSLS logs warning messages in the event log if the log file exceeds the specified maximum size.

Alternatively, you can specify 1 to 9 rollover log files. Rollover log files provide a history to ensure that you capture all log entries and can more easily locate specific log entries. For example, if you specify 2 rollover files for volume statistics logging, when the `acsss_stats.log` (base) file reaches maximum size, ACSLS renames it to the first rollover file (`volstats0.log`), then starts a new `acsss_stats.log` file. When the `acsss_stats.log` file again reaches maximum size, ACSLS renames the `volstats0.log` file to `volstats1.log`, renames `acsss_stats.log` to `volstats0.log` and starts a new `acsss_stats.log` file. When all rollover files contain data and another rollover occurs, the highest numbered rollover file will be discarded.

- You can specify the maximum log file size; this maximum applies to both the base log and rollover log files. If you specify rollover log files, you can typically specify a smaller maximum file size (that applies to both base log and rollover files) than the maximum file size you would specify for a base log only, which must be large enough to contain enough meaningful entries.

## Specifying Options for ACSLS Processes

Note that the Solaris or AIX system limit on processes per user is the limit for the *total* number of the following processes:

- ACSLS system persistent
- CSI (1)
- ACSLS transient (specified via `acsss_config`)
- ACSLS query persistent (specified via `acsss_config`)
- ACSLS mount persistent (specified via `acsss_config`)

For the ACSLS transient, query persistent, and mount persistent process options, StorageTek recommends that you accept the default value at initial configuration, then change the value as required. Increasing this value may improve performance.



**Warning:** With a minimum server platform configuration, higher than 10 query persistent processes could use up system resources and not allow ACSLS to start up.

If the total number of all the processes listed above exceeds the Solaris or AIX system limit on processes per user, ACSLS may fail to start. If this happens, either increase the system limit on processes per user or lower one or more of the values for the ACSLS process options that you can specify via `acsss_config`.

## Planning Library Configuration Options

Descriptions of library configuration options are found in [Table 3](#). The **Valid Selections** column shows valid values for the option, with defaults shown in bold. Record the value you will use in the **Your Site's Selection** column for reference when you follow the configuration procedures.

<b>Option Prompt</b>	<b>Option Description</b>	<b>Valid Selections</b>	<b>Your Site's Selection</b>
Number of ACSs to be supported:	Specifies the number of ACSs in the library configuration.	A number between 1 and 127	
Number of connections to ACS # <i>nnn</i> :	Number of connections to each ACS. This prompt appears for each configured ACS. You must specify at least one connection per ACS.	A number between 1 and 16. Non dual LMU configurations: typically 1 or 2 (1 for SCSI devices) Dual LMU configurations: typically 2 or 4	
Device name - ACS # <i>nnn</i> device # <i>dd</i> :	Full path name of the device attached to a port. This option appears for each port in the library.	Recommended path names: AIX platform: /dev/tty0 /dev/tty1 /dev/mchanger0	

## Where To Go Next?

The remainder of this chapter contains procedures to complete pre-installation preparation. These procedures include:

- [Backing Up the Database](#)
- [Exporting the Database](#)
- [Hardware Disk Upgrade](#)

Follow these guidelines to determine which procedures you should refer to next, prior to proceeding to Chapter 2:

Type of Installation	Then...
New Installation	Complete the following section: <ul style="list-style-type: none"><li>• <a href="#">Hardware Disk Upgrade</a> (page 24)</li></ul>
Upgrade Installation	Complete all remaining sections in order: <ul style="list-style-type: none"><li>• <a href="#">Backing Up the Database</a> (page 21)</li><li>• <a href="#">Exporting the Database</a></li><li>• <a href="#">Hardware Disk Upgrade</a></li></ul>
Switching platforms	Complete all remaining sections in order. <ul style="list-style-type: none"><li>• <a href="#">Backing Up the Database</a> (page 21)</li><li>• <a href="#">Exporting the Database</a></li><li>• <a href="#">Hardware Disk Upgrade</a></li></ul>

## Backing Up the Database



**Hint:** Doing a backup prior to upgrading or switching platforms is for disaster recovery in the event that there is a need to return to the current state.

You will need two blank tapes, one for this backup procedure and one for the export procedure following it.

The following procedure describes how to shut down ACSLS and back up your existing database to tape.



### To back up the database:

1. **Open a command tool and log in as acssa.**
2. **From the cmd\_proc window, idle ACSLS.**  
**IDLE**  
Wait for the following message before you proceed.  
Server system idle.
3. **Open another command tool and log in as acsss.**
4. **Shut down ACSLS.**  
**kill.acsss**
5. **Load a blank cartridge into the drive.**
6. **To back up the database, enter**  
**bdb.acsss**
7. **Remove the cartridge from the drive after the program finishes.**



**Caution:** You will lose files if you remove the cartridge before the program finishes. Write protect the cartridge and clearly mark it to identify the contents as the backed up database.

## Exporting the Database

This section describes how to migrate the database table data of an existing version of ACSLS to ACSLS 5.3. The `db_export.sh` utility creates an ASCII representation of the database on tape. It is used with `db_import.sh` at the time of an upgrade to transfer existing data instead of auditing a library.

The procedures outlined below are for exporting the database to tape for default tape devices.



**Hint:** Refer to Appendix A “Utilities” for instructions on exporting the database to other tape devices or to disk.



**Warning:** Exporting the database to *disk* during an upgrade of any pre-5.2 version of ACSLS to ACSLS 5.3 *requires* an additional manual step. Follow the instructions for exporting the ACSLS database to a disk file on page 101 in Appendix A to prevent loss of the database when upgrading to ACSLS 5.3.



### To export the database:

1. Load a blank cartridge into the drive.

2. At a shell prompt enter

```
db_export.sh
```

The utility displays the following output as it executes.

```
Entering database export utility
Verifying database environment...
Checking for write_protected tape
cartridge.
Beginning database export phase.
```

```
.
.
.
.
```

3. Remove the cartridge from the drive only when the program completes with the following message:

Database Export Phase Complete.



**Caution:** You will lose files if you remove the cartridge before the program issues the complete message. Write protect the cartridge and clearly mark it to identify the contents as the exported database.

4. Are you upgrading from ACSLS 4.0 or ACSLS 5.x?

ACSLs 4.0	Follow Steps 5 through 8.
ACSLs 5.x	Skip Steps 5 through 8 and follow these steps instead: <b>1. Shut down Oracle by entering db_command stop</b> <b>2. Log out of the system by entering exit.</b>

5. Log in to Ingres by entering  
`su - ingres`
6. Shut down the database by entering  
`iishutdown`
7. Log out from Ingres by entering  
`exit`
8. Log out of acsss by entering  
`exit`

## Hardware Disk Upgrade

Beginning with ACSLS 5.2, StorageTek requires that your platform configuration consist of 2 hard drives: the primary boot drive should be a minimum of 2.1 GB and the second disk should be at least 1.05 GB.

The larger drive should be configured as the boot drive on which the operating system and ACSLS are installed.

The second drive will be used for Oracle backups and Oracle redo logs.

If your system configuration already consists of these two disk drives, skip this section and go directly to the next section, “Verifying the Hardware.”

The procedures in this section show you how to swap a 1.05 GB primary disk drive for a 2.1 GB disk drive.



**Warning:** For upgrade installations, the existing database *must* be backed up and exported *prior* to swapping hard disks. Follow the procedures in this chapter in order to ensure proper installation without loss or corruption of your database.

The upgrade process for swapping a 1.05 GB disk drive for a 2.1 GB disk drive is outlined below.



### Disk drive upgrade process.

- 1. Back up and export the existing ACSLS database.**

This must be done prior to upgrading the hardware. Refer to the previous two sections for backup and export instructions.

- 2. Power down the workstation.**

- 3. Remove the cover, exposing the internal disks and other components.**

- 4. Remove the existing disk drive located in the bottom position of the two-tier SCSI backplane of the computer.**
- 5. Press the plastic latch located at the rear of the drive to release the drive handle.**
- 6. Lift the drive handle to its vertical position.**

This action will move the drive out of its SCSI connection and its power connection.
- 7. Grasp the drive bracket handle and lift the drive straight up out of the chassis. Place it on an antistatic surface.**
- 8. Remove the new 2.1 GB drive from its antistatic shipping bag.**
- 9. Place the plastic bracket handle into the vertical position.**
- 10. Grasping the handle with one hand, lower the drive into the chassis.**
- 11. Slide the drive into position, using the slotted guides in the chassis frame to guide the anchor posts on the drive.**
- 12. Move the handle slowly down, away from the connector, once the disk is resting within the slotted frame.**

This action will seat the drive into its connector socket on the SCSI backplane.
- 13. Press the handle down until it latches into place.**
- 14. Lift the original 1.05 GB drive by its handle and lower the drive into the top position just above the 2.1 GB drive just installed.**

- 15. Secure the drive into position by lowering the plastic handle until it latches.**
- 16. Replace the platform cover.**

## Chapter 2. Installing and Configuring AIX

---



**Warning:** Before installing AIX 4.2.1 or 4.3.1, you *must* complete [Chapter 1](#) “Pre-Installation Preparation.”

### Overview

This chapter describes the procedures for installing and configuring the AIX 4.2.1 and 4.3.1 operating system for ACSLS 5.3.

This chapter includes:

- Installing the AIX operating system
- Configuring AIX using the SMIT fast path
- Configuring AIX using the SMIT main menu

## Installing the AIX operating system



**Hint:** While installing the AIX operating system, refer to [Table 1. Pre-Installation Worksheet](#) on page 3 for the network communication settings recorded during pre-installation preparation.



**Note:** StorageTek does not support downlevel versions of the operating system. Check with Customer Support or online at the Customer Resource Center before installing versions of the operating system other than AIX 4.2.1 or 4.3.1.



**Install the AIX operating system according to the manufacturer's instructions.**



**Note:** [Appendix F](#) contains a procedure for installing the operating system from a system backup tape.



**Caution:** You must be running AIX 4.2.1 or 4.3.1 with the `bos.rte.up` and `bos.rte.mp` filesets at least at the 4.2.0.0.0 level. To determine the level of these filesets, enter the command:

```
lslpp -h bos.rte
```

This command gives you a history of the filesets and allows you to see the level of each fileset. Make sure that level 4.2.0.0.0 appears somewhere in the output.



**Hint:** Installing AIX automatically installs the Common Desktop Environment (CDE).

## Configuring AIX

When you log in at the system prompt as **root**, you can configure AIX through the SMIT fast path or through the SMIT main menu. The SMIT fast path is recommended to configure AIX for ACSLS. The SMIT main menu can be used to enter special requirements or non-standard configurations.



**Hint:** When configuring your system, special characters appear in the SMIT screens. Items marked with an asterisk (\*) must have information entered into the corresponding field. Items marked with a plus sign (+) indicate that there is a list of options available. To display this list, select the option and press `[[F4]]`.

Enter your information while the left column item is highlighted. The information appears in the right column.

The remainder of this chapter is divided into the following sections:

- “[Using the SMIT fast path to Configure](#)” presents a detailed procedure for using the SMIT fast path.
- “[Using the SMIT main menu to Configure](#)” presents a brief overview procedure for using the SMIT main menu.

## Using the SMIT fast path to Configure

The SMIT fast path bypasses the main menu and takes you directly to the submenus required for configuring AIX. [Table 4.](#) provides a quick reference listing of fast path configuration changes and the commands that take you directly to the appropriate submenus.

**Table 4. Configuration Checklist for SMIT Fast Path**

<b>Required Configuration Changes</b>	<b>SMIT Command</b>
<input type="checkbox"/> Set date and time	smitty chtz
<input type="checkbox"/> Set up display devices	smitty chcons
<input type="checkbox"/> Configure TCP/IP	smitty mktcpip
<input type="checkbox"/> Set internet addresses for clients	smitty mkhostent
<input type="checkbox"/> Create file systems	smitty crjfs
<input type="checkbox"/> Mount file systems	smitty mountfs
<input type="checkbox"/> Change /var file system size	smitty chjfs
<input type="checkbox"/> Add ports	smitty tty
<input type="checkbox"/> Back up operating system	smitty mksysb

## Set Date and Time



### To set the date and time:

1. Log in at the console prompt as **root**.
2. At the prompt enter  
**smitty chtz**
3. At the Use DAYLIGHT SAVING TIME prompt, enter **yes** or **no**.

The CUT (Coordinated Universal Time) Time Zone screen appears.

4. Select your time zone from the list of time zones *and* press `[[ENTER]]`.
5. Make any needed corrections to the date and time in the Change / Show Date, Time & Time Zone screen (for AIX 4.3.1 the Change Time Zone screen) by moving the cursor to the desired field and typing in the information.
6. Press `[[ENTER]]` to run the command.  
The Command Status screen appears, and the system runs the command. The Command: OK message at the top of the screen should appear.
7. Did you change the date or time?

YES	<ol style="list-style-type: none"><li>1. Press <code>[[F10]]</code> to return to the prompt.</li><li>2. <b>Exit</b> from the desktop environment.</li><li>3. Log in as <b>root</b> to resume your configuration.</li></ol>
NO	Press <code>[[F10]]</code> to return to the prompt.

## Set Up Display Devices



### To set up display devices:

- 1. At the prompt, enter `smitty chcons`**  
The Assign the Console screen appears.
- 2. Keep the defaults for both `PATHNAME` of Console and Enable for LOGIN.**
- 3. Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
- 4. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Configure TCP/IP

This configuration administers the ACSLS server.



### To configure TCP/IP:

- 1. At the prompt, enter `smitty mktcpip`**  
The Available Network Interfaces box appears.
- 2. Enter the appropriate network interface.**  
The Minimum Configuration & Startup screen appears.
- 3. Enter all information for the items listed in this screen, referring to [Table 1](#).**  
HOSTNAME  
Internet ADDRESS  
Network INTERFACE  
.  
.  
.  
START Now (Change to **Yes**)
- 4. Press `[[ENTER]]` to run the command.**
- 5. When the Command: OK message appears in the Command Status screen, press `[[F10]]` to return to the prompt.**

## Set Internet Addresses for Clients

This configuration administers the clients, which are workstations that access the ACSLS server. The client Internet addresses must be determined by your system administrator.



### To enter client Internet addresses:

1. **At the prompt, enter**

**smitty mkhostent**

The Add a Host Name screen appears.

2. **Enter information into the following fields (refer to your information in [Table 1](#)):**

INTERNET ADDRESS

HOSTNAME

(The ALIAS and COMMENT fields are optional.)

3. **Press `[[ENTER]]` to run the command.**

4. **When the Command: OK message appears in the Command Status screen, press `[[F10]]` to return to the prompt.**

## Create /export/home File System

This procedure creates the /export/home directory. You *must* have this directory because the Oracle database installs all its files there.



### To create the /export/home file system:

**1. At the prompt, enter**

**smitty crjfs**

The Add Journalled File System screen appears.

**2. Select** Add a Standard Journalled File System.

**3. Press** [[ENTER]].

The Volume Group Name field appears.

**4. Select** rootvg.

**5. In the SIZE of file system (in 512-byte blocks) field, enter** 1200000.

**6. Enter the following information for the remaining fields:**

MOUNT POINT	<b>/export/home</b>
Mount AUTOMATICALLY at system restart?	<b>yes</b>
PERMISSIONS	<b>read/write</b>
Mount OPTIONS	<b>[]</b>
Start Disk Accounting?	<b>no</b>
Fragment Size (bytes)	<b>4096</b>
Number of bytes per inode	<b>4096</b>
Allocation group size (Mbytes)	<b>8</b>

7. Press `[[ENTER]]` to run the command.
8. When the Command: OK message appears in the Command Status screen, press `[[F10]]` to return to the prompt.

## Create /export/backup File System



To create the /export/backup file system:

1. **At the prompt, enter `smitty crjfs`**  
The Add Journalled File System screen appears.
2. **Select Add a Standard Journalled File System.**
3. **Press `[ENTER]`.**  
The Volume Group Name field appears.
4. **Select `rootvg`.**
5. **In the SIZE of file system (in 512-byte blocks) field, enter `504320`.**
6. **Enter the following information for the remaining fields:**

MOUNT POINT	<code>/export/backup</code>
Mount AUTOMATICALLY at system restart?	<code>yes</code>
PERMISSIONS	<code>read/write</code>
Mount OPTIONS	<code>[]</code>
Start Disk Accounting?	<code>no</code>
Fragment Size (bytes)	<code>4096</code>
Number of bytes per inode	<code>4096</code>
Allocation Group Size (Mb)	<code>8</code>

7. **Press `[ENTER]` to run the command.**
8. **When the Command: OK message appears in the Command Status screen, press `[F10]` to return to the prompt.**

## Mount /export/home File System



To mount the /export/home file system:

1. At the prompt, enter  
**smitty mountfs**  
The Mount a File System screen appears.
2. For the FILE SYSTEM name field, press **[[F4]]** and select the item on the same line as /export/home. Press **[[ENTER]]**.
3. The remaining fields should be filled in as follows:

DIRECTORY over which to mount	<b>/export/home</b>
TYPE of file system	<b>jfs</b>
FORCE the mount	<b>no</b>
REMOTE NODE containing the file system to mount	<b>[]</b>
Mount as a REMOVABLE file system?	<b>no</b>
Mount as a READ-ONLY system?	<b>no</b>
Disallow DEVICE access via this mount?	<b>no</b>
Disallow execution of SUID and sgid programs in this file system?	<b>no</b>

4. Press **[[ENTER]]** to run the command.
5. When the Command: OK message appears in the Command Status screen, press **[[F10]]** to return to the prompt.

## Mount /export/backup File System



To mount the /export/backup file system:

1. At the prompt, enter  
**smitty mountfs**  
The Mount a File System screen appears.
2. For the FILE SYSTEM name field, press **[[F4]]** and select the item on the same line as /export/backup. Press **[[ENTER]]**.
3. The remaining fields should be filled in as follows:

DIRECTORY over which to mount	<b>/export/backup</b>
TYPE of file system	<b>jfs</b>
FORCE the mount	<b>no</b>
REMOTE NODE containing the file system to mount	<b>[]</b>
Mount as a REMOVABLE file system?	<b>no</b>
Mount as a READ-ONLY system?	<b>no</b>
Disallow DEVICE access via this mount?	<b>no</b>
Disallow execution of SUID and sgid programs in this file system?	<b>no</b>

4. Press **[[ENTER]]** to run the command.
5. When the Command: OK message appears in the Command Status screen, press **[[F10]]** to return to the prompt.

## Change /var File System Size

The /var partition contains the SNA files and temporary files.



### To change the /var file system size:

**1. At the prompt, enter**

**smitty chjfs**

The File System Name screen appears.

**2. Select /var and press `[[ENTER]]`.**

The Change/Show Characteristics of a Journalized File System screen appears.

**3. The fields in this screen should be filled in as follows:**

File System name	<b>/var</b>
NEW mount point	<b>[/var]</b>
SIZE of file system (in 512-byte blocks)	<b>[40960]</b>
Mount GROUP	<b>[bootfs]</b>
Mount AUTOMATICALLY at system restart?	<b>yes</b>
PERMISSIONS	<b>read/write</b>
Mount OPTIONS	<b>[]</b>
Start Disk Accounting?	<b>no</b>
Fragment size (bytes)	<b>512</b>
Number of bytes per inode	<b>4096</b>
Compression algorithm	<b>no</b>
Large File Enabled?	<b>false</b>
Allocation Group Size (Mbytes)	<b>8</b>

4. Press `[[ENTER]]` to run the command.
5. When the Command: OK message appears in the Command Status screen, press `[[F10]]` to return to the prompt.

## Modify Paging Space

For ACSLS-dedicated servers, ACSLS 5.3 requires a minimum of 192 MB paging space for high library activity (more than 100 mounts per hour) and 100 MB for low library activity (fewer than 100 mounts per hour).



### To increase paging space hd6:

1. **At the prompt, enter**  
**smitty lvm**  
The Logical Volume Manager screen appears.
2. **Select** Paging Space.
3. **Select** Change/Show Characteristics of a Paging Space.
4. **Select** hd6.
5. **From this screen, select** NUMBER of additional logical partitions **to equal system requirements, as described above.**
6. **Press** `[[ENTER]]` **to run the command.**
7. **When the** Command: OK **message appears in the** Command Status **screen, press** `[[F10]]` **to return to the prompt.**
8. **Verify the amount of paging space by entering from the command line:**  
**l sps -a**

## Add Ports

You must add additional ports to your system. Ports must be RS232 ports.



### To add a port for a modem:

- 1. At the prompt, enter `smitty tty`**  
The TTY screen appears.
- 2. Select Add a TTY.**  
The TTY Type box appears.
- 3. Select `tty rs232 Asynchronous Terminal`.**  
The Parent Adapter box appears.
- 4. Select `sa0 Available 01-C0 Standard I/O Serial Port 1`.**  
The Add a TTY screen appears.
- 5. From this screen, select PORT number and enter `s1`.**
- 6. For the remaining fields on this screen, either accept the defaults or fill in according to the modem manufacturer's specifications.**
- 7. Press `[[ENTER]]` to run the command.**
- 8. When the Command: OK message appears in the Command Status screen, press `[[F10]]` to return to the prompt.**



## To add a serial library port (for serial-connected libraries):

- 1. At the prompt, enter `smitty tty`**  
The TTY screen appears.
- 2. Select Add a TTY.**  
The TTY Type box appears.
- 3. Select `tty rs232 Asynchronous Terminal`.**  
The Parent Adapter box appears.
- 4. Select `sa1 Available 01-D0 Standard I/O Serial Port 2`.**  
The Add a TTY screen appears.
- 5. From this screen, select PORT number and enter `s2`.**



**Note:** Keep the remaining fields as they are. Do not make changes to them.

- 6. Press `[[ENTER]]` to run the command.**
- 7. When the Command: OK message appears in the Command Status screen, press `[[F10]]` to return to the prompt.**
- 8. Record the information in [Table 5](#) for a serial port configuration.**  
This information is required when you install ACSLS.
- 9. Repeat the preceding procedure for all serial ports you are adding, setting the options individually until all ports are set.**

**Table 5. Serial Port Configuration Records (2)**

ACS # <u>0</u> Port Configuration	Device Name
Number of tty connections to ACS # <u>0</u> :	
Device name – ACS # <u>0</u> , tty device #0:	/dev/tty__
Device name – ACS # <u>0</u> , tty device #1:	/dev/tty__

ACS # <u>1</u> Port Configuration	Device Name
Number of tty connections to ACS # <u>1</u> :	
Device name – ACS # <u>1</u> , tty device #0:	/dev/tty__
Device name – ACS # <u>1</u> , tty device #1:	/dev/tty__

## Backing Up the Operating System

The following procedure shows how to back up the changes you've made to the operating system.



### To back up the operating system:

1. **At the prompt, enter `smitty mksysb`**  
The Backup the System screen appears.
2. **Insert a blank tape into the tape drive.**
3. **In the Backup DEVICE or FILE field, enter `/dev/rmt0`.**



**Note:** On some systems, the tape drive configuration has a different device designation.

4. **At the Backup the System screen, enter `yes` in the EXPAND /tmp field.**
5. **Press `[ENTER]` to run the command.**
6. **Insert additional blank tapes as required by the system.**
7. **When the Command: OK message appears in the Command Status screen, press `[F10]` to return to the prompt.**

## Using the SMIT Main Menu to Configure AIX

The following procedure, configuring AIX using the SMIT main menu, is intended for special system requirements or non-standard configurations. If you have already used the smitty fast path method to configure AIX, you do not need to use this procedure.



### To configure AIX using the SMIT main menu:

- 1. Log in as root.**
- 2. At the prompt, enter `smitty`**  
The main SMIT menu opens, shown in [Figure 2](#).
- 3. To enter your configuration information, select the desired item from the main menu and continue through the pertinent submenus.**
- 4. When you are finished filling in information for each main menu item, press `[[ENTER]]` for SMIT to run the command for you.**  
A Command Status screen appears indicating that SMIT is executing the command. At the end of the execution the Command: OK message appears, and the results show on the screen.
- 5. To return to the prompt and select another item from the main menu, press `[[F10]]` and repeat Steps 2-4 above.**

System Management

Move cursor to desired item and press Enter.

Software Installation & Maintenance

Software License Management

Devices

System Storage Management (Physical & Logical Storage)

Security & Users

Communications Applications and Services

Print Spooling

Problem Determination

Performance & Resource Scheduling

System Environments

Processes & Subsystems

Applications

Using SMIT (information only)

F1=Help

F2=Refresh

F3=Cancel

F8=image

F9=Shell

F10=Exit

Enter=Do

**Figure 2. Main SMIT Menu**

## Chapter 3. Installing and Configuring ACSLS

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**Warning:** Before installing ACSLS 5.3, you *must*:

- Export the database, if this is an upgrade installation (see Chapter 1)
- Install and configure AIX 4.2.1 or 4.3.1 (see Chapter 2)

### Overview

This chapter describes how to install and configure ACSLS 5.3 on an AIX 4.2.1 or 4.3.1 platform. It includes:

- [Verifying Disk Space](#)
- [Verifying Library Communications](#)
- [Installing ACSLS](#)
- [Configuring ACSLS](#)
- [Testing LMU Communications](#)

## Verifying Disk Space

Before installing ACSLS, verify that the hard disk was partitioned appropriately when the operating system was installed and configured.



### Verify disk partitions

1. **At the system prompt enter `df -k` to verify the following:**
  - The total KB space available is larger than 500000 for the `/export/home` file system for the database. `/export/home` will contain the contents of the installation media.
  - The total KB space available for `/export/backup` is at least 230000 for the database backup.

## Verifying Library Communications

You must connect the server to the library before installing ACSLS. The `install.sh` script that installs ACSLS also installs device drivers and kernel patches. If the SCSI cable is not connected, the device driver installation fails.

The `diag` utility lets you test hardware connections between the server and a 97xx library. Use this utility *before* installing ACSLS.



**Warning:** If you do not have a 97xx library, go directly to “[Installing ACSLS](#)” on page 53.



### To verify library connectivity on the 97xx:

1. **Log in as root.**
2. **From the UNIX prompt, enter**  
**diag**  
You will see an introductory message about the `diag` utility.
3. **Press `[[ENTER]]`.**  
If a subsequent message indicates this command is not found, it means ACSLS was not installed.
4. **From the menu, highlight Task Selection and press `[[ENTER]]`.**
5. **From the TASK SELECTION LIST menu, scroll down using the cursor key, highlight SCSI BUS Analyzer, and press `[[ENTER]]`.**
6. **From the RESOURCE SELECTION LIST screen, highlight the `scsi0` line.**
7. **Press `[[ENTER]]` and then press `[[F7]]`.**

8. **From the SCSI BUS EXERCISER screen, press `[[ENTER]]` to continue.**
9. **Press `[[F4]]`, highlight the library's SCSI address.**
10. **Press `[[ENTER]]` and then press `[[F7]]`.**
11. **From the resulting SCSI BUS EXERCISER screen, press `[[ENTER]]` to invoke the test.**

If ...	It indicates ...
a valid response is returned	<ul style="list-style-type: none"> <li>• The hardware connection is good.</li> <li>• A successful SCSI transaction was exchanged between the RS/6000 and the SCSI library.</li> <li>• The SCSI library is online and available.</li> </ul>
a check condition response is returned	<ul style="list-style-type: none"> <li>• The hardware connection is good.</li> <li>• A successful SCSI transaction was exchanged between the RS/6000 and the SCSI library.</li> <li>• The SCSI library is powered on, it has completed mechanical initialization, but is not yet online and available.</li> </ul>
a communication failure occurs	<ul style="list-style-type: none"> <li>• Library unit is configured, powered on, and ready.</li> <li>• SCSI cable is connected at both ends.</li> </ul>

12. **To continue, press `[[ENTER]]`.**
13. **Press `[[F10]]` to exit the SCSI BUS EXERCISER menu, and then press `[[F10]]` again.**

## Installing ACSLS from a tape

 To install ACSLS from a tape:

1. Log in as root.
2. Insert the installation tape into the tape drive.
3. Change directories to /export/home.  
`cd /export/home`
4. Are you installing ACSLS from a default tape drive?

YES	<ol style="list-style-type: none"><li>1. At the system prompt, enter <b>tar xvp</b></li><li>2. Initiate the installation shell script by entering: <b>./install.sh</b></li><li>3. Go to Step 5.</li></ol>
NO	<ol style="list-style-type: none"><li>1. At the system prompt, enter <b>tar xvpf norewindtape device name</b></li><li>2. Initiate the installation shell script by entering: <b>./install.sh -f norewindtape device name</b></li><li>3. Go to Step 5.</li></ol> <p><b>Note:</b> Refer to <a href="#">Table 1</a> for the name of your non-default norewind tape device.</p>



**Note:** StorageTek does not support ACSLS 5.3 running on unsupported versions of the operating system. Check with Customer Support or online at the Customer Resource Center before installing ACSLS 5.3 on versions of the operating system other than AIX 4.2.1

**5. Respond to the following prompt:**

Do you want to install ACSLS in  
/export/home? (y or n):

YES	ACSLS is installed in the default directory /export/home.
NO	Enter the directory where you want ACSLS installed.



**Note:** If you install ACSLS in a directory other than  
/export/home, every command you enter that uses  
/export/home must be changed to that directory.

**6. Press [[ENTER]] to accept the default directory  
/export/backup for Oracle backups.**



**Caution:** During this time the tape drive may appear idle,  
without sound or flashing lights. **DO NOT** remove the  
tape from the drive until you see the following message:

You may now safely remove the ACSLS 5.3  
tape.

**7. Respond to the prompt for automatic startup on  
reboot.**

Do you want your system configured so that  
when it reboots, it automatically restarts  
the ACSLS? (y or n):

**8. Respond to the prompt for installing a scsi device  
driver for 97xx libraries?**

Do you want to install the scsi device  
driver for SCSI (97xx) libraries? (y or n):

YES	Continue with Step 9.
NO	Go to Step 15.

**9. Respond to the prompt for a SCSI adapter name.**

Enter the SCSI adapter name you want configured. The valid adapter names are:

The system displays SCSI adapter names.

**10. Enter one of the SCSI adapter names displayed.**

**11. Respond to the following prompt with a y or n as appropriate.**

Use SCSI adapter "scsi0"?  
Is this correct?

The following message displays:

Enter the SCSI device(s) that correspond to 97xx libraries connected to SCSI bus <your-scsi-bus>. Separate devices with a space (example: 4 5 6). Remember that SCSI devices are numbers between 0 and 7.

**12. Enter a device number for each 97xx library.**

1, 2, 3, 4, 5, or 6 are the suggested targets.

Targets 0 and 7 are usually used as follows:

0    Boot disk  
7    SCSI controller



**Caution:** If 0 or 7 are already reserved for the above devices, you should use 1, 2, 3, 4, 5, or 6 for the 97xx library.

All SCSI device numbers specified display. The system then asks

**13. Respond to the following prompt:**

Is this correct? (y or n):

The system displays:

mchanger0 Available

If you install more than one library, the device numbers are displayed consecutively, starting with 0.



**Note:** Record the device name mchanger0 in [Table 3](#). You can use this information later in configuring ACSLS.

**14. Respond to the prompt for adding a modem.**

Would you like to add a modem to serial port /dev/tty0? (y or n):

StorageTek recommends that you attach a modem. When prompted, enter the baud rate for the modem.

**15. Respond to the prompt for rebooting.**



**Warning:** You *must* reboot for Oracle kernel changes to take place and in order to configure and run ACSLS.



**Note:** Installation is not complete until ACSLS is configured using the “[Configuring ACSLS](#)” procedures on page 61. If you are installing a second disk, you should configure ACSLS first, then refer to [Chapter 4](#).

## Installing ACSLS from a CD-ROM

 To install ACSLS from a CD-ROM:

1. Log in as root.
2. Insert the ACSLS 5.3 CD-ROM into the drive.
3. Mount the CD-ROM onto the cdrom file system:  
`mount -rv cdrfs /dev/cd0/cdrom`
4. In a terminal window or at the system prompt, enter  
`cd /cdrom`
5. Initiate the installation shell script by entering:  
`./install.sh`

The shell script completes processing in ten to twenty minutes.



**Note:** StorageTek does not support ACSLS 5.3 running on unsupported versions of the operating system. Check with Customer Support or online at the Customer Resource Center before installing ACSLS 5.3 on versions of the operating system other than AIX 4.2.1.

6. Respond (y or n) to the prompt:

Do you want to install ACSLS in  
/export/home? (y or n):

YES	ACSLS is installed in the default directory /export/home.
NO	Enter the directory where you want ACSLS installed.



**Note:** If you install ACSLS in a directory other than /export/home, every command you enter that uses /export/home must be changed to that directory.

**7. Press `[[ENTER]]` to accept the default directory `/export/backup` when you are prompted for the directory to use for Oracle backups.**

**8. Respond (y or n) to the prompt for automatic startup on reboot.**

Do you want your system configured so that when it reboots, it automatically restarts the ACSLS? (y or n):

**9. Respond (y or n) to the prompt for installing a scsi device driver for 97xx libraries?**

Do you want to install the scsi device driver for SCSI (97xx) libraries? (y or n):

YES	Continue with Step 10.
NO	Go to Step 15.

**10. Respond (y or n) to the prompt for a SCSI adapter name.**

Enter the SCSI adapter name you want configured. The valid adapter names are:

The system displays SCSI adapter names.

**11. At the prompt, type one of the SCSI adapter names displayed.**

**12. Respond (y or n) to the following prompt.**

Use SCSI adapter "scsi0"?

**13. Respond (y or n) to the following prompt.**

Is this correct?

The following message displays:

```
Enter the SCSI device(s) that correspond to
97xx libraries connected to SCSI bus
<your-scsi-bus>. Separate devices with a
space (example: 4 5 6). Remember that SCSI
devices are numbers between 0 and 6.
```

**14. Enter a device number for each 97xx library.**

1, 2, 3, 4, 5, or 6 are the suggested targets.

Targets 0 and 7 are generally reserved as follows:

```
0    Boot disk
7    SCSI controller
```



**Caution:** If 0 or 7 are already reserved for the above devices, you should use 1, 2, 3, 4, 5, or 6 for the 97xx library.

All SCSI device numbers specified display. The system then asks

```
Is this correct? (y or n):
```

Respond with a **y** or **n** as appropriate. The system displays:

```
mchanger0 Available
```

If you install more than one library, the device numbers are displayed consecutively, starting with 0.

**15. Record the device name in [Table 3. Library Configuration Options](#).**

You can use this information later in configuring ACSLS.

**16. Respond (y or n) to the prompt to configure additional scsi libraries.**

Do you want to configure additional SCSI libraries? (y or n):

The system will repeat this process if you wish to configure additional libraries.

**17. Respond (y or n) to the prompt for adding a modem.**

Would you like to add a modem to serial port /dev/tty0? (y or n):

StorageTek recommends that you attach a modem. When prompted, enter the baud rate for the modem.

**18. Enter y at the prompt for rebooting.**



**Warning:** You *must* reboot for Oracle kernel changes to take place and in order to configure and run ACSLS.

**19. Log in as root.**

**20. Enter**

**umount cdrom**

**21. Eject the cdrom by pressing the eject button.**

**22. Remove and store the ACSLS 5.3 CD-ROM.**



**Note:** Installation is not complete until ACSLS is configured using the “[Configuring ACSLS](#)” procedures on page 61. If you are installing a second disk, you should configure ACSLS first, then refer to Chapter 4.

# Configuring ACSLS

 To configure ACSLS:

1. Log in as acsss.
2. At the password prompt, press `[[ENTER]]`.
3. Shutdown ACSLS  
`kill.acsss`



**Note:** If a subsequent system message indicates that the library server is not terminated, this means that ACSLS was not running.

4. To run the configuration script, enter  
`acsss_config`

The ACSLS feature configuration screen appears.



**Hint:** Make sure that all LMU's and LSM's are configured, powered on, and ready. The configuration script, `acsss_config`, will fail unless all LMU's, LSM's, and transports are configured, powered on, and ready.

5. Do you want to custom configure ACSLS?

YES	Go through each item of the menu, selecting options 1 through 5, and enter the variable information referring <a href="#">Table 2</a> .
NO	Go to Step 6.

6. Select 6 to exit the menu and continue the configuration process.

The script displays progress messages during database creation. This takes about five minutes.

7. Enter `y` at the following prompt:

Configure library communications? (y/n):

**8. Do you want to reconfigure the library?**

YES	Enter <b>y</b> at the following prompt: Library server database exists and will be overwritten, continue? (y or n): and continue with Step 9.
NO	Enter <b>n</b> at the following prompt: Library server database exists and will be overwritten, continue? (y or n): and continue with Step 12.

Steps 9 and 11 refer to [Table 3](#). “Library Configuration Options.”

**9. Enter the number of ACSs that will be supported at your site.**

Number of ACSs to be supported:

You must answer at least **1** to this prompt. Hardware must be installed to support one or more ACSs.

**10. Enter the number of connections to your ACS.**

Number of connections to ACS #*n*:

**11. Enter the device name for each connection.**

Device name – ACS#*n*, device #*n*:

**Example device names for 4400 or 9300 libraries**

Device Name – ACS #0, device #0: **/dev/tty0**  
Device Name – ACS #0, device #1: **/dev/tty1**

**Example device name for 97xx library**

Device Name – ACS #1, device #0: **/dev/mchanger2**



**Note:** The device name is assigned during ACSLS installation when the SCSI device number is entered.

In the following steps, refer to [Table 3](#). for library configuration options.

**12. Enter y at the following prompt to build/verify the library configuration.**

This step builds a database image of your complete library hardware configuration. Before proceeding, make sure that your library is completely configured, that all subsystems are functional and powered on. Build/Verify library configuration? (y or n):

**13. Enter y at the following prompt:**

Library server database exists and will be overwritten, continue? (y or n):

As the script builds the library configuration, it displays the following message for each panel in each LSM:

ACS # n, LSM # nn, PANEL # nn, created

The script also generates a library configuration report and appends it to the following file:

/export/home/ACSSS/log/acsss\_config.log

**14. Respond (y or n) when the system asks whether to configure client system interfaces.**

Configure client system interfaces?  
(y or n):

YES	The following message displays: CSI SELECTION TABLE 1) OSLAN CSI           Not Selected 2) ONC/RPC CSI        Always Selected  Do you want to change the CSI selection table (n):  If <b>y</b> , the following message appears: Select OSLAN CSI (n): ONC/RPC is always selected.
NO	Go to next step.

**15. Are you backing up the database to tape?**



**Hint:** It is recommended that the database be backed up at this point in order to create a checkpoint and initiate database redo logging.

YES	Insert a blank tape when the following message displays: Prepare for database backup... Insert database backup tape Press RETURN to continue.  The database backup procedure bdb.acsss automatically executes and captures the configuration data to enable database journaling.  When the database backup is completed, the following message displays: Database backup successfully completed.
NO	Press <code>[[CTRL]]+ C</code> and refer to bdb.acsss on page 95 in Appendix A to back up the database to disk file. Then continue with the next section, "Testing LMU Communications."



**Caution:** The tape drive may appear idle during the backup. It may not make any sounds or flash any lights during this time. **DO NOT** remove the tape from the drive until you see the following success message indicating the backup is complete:

```
Database backup successfully completed.
```



**Warning:** Interrupting the backup process before completion will cause a corrupted backup file or tape.

#### **16. Remove the tape and store it in a safe place.**



**Warning:** Installation is not complete at this point. Complete this chapter and Chapter 4 to ensure that all necessary procedures are done prior to running ACSLS.

## Testing LMU Communications

After configuring ACSLS, test the hardware and software connections between the ACSLS host server and the library using one of the following utilities:

- The `pinglmu` utility tests serial connections between the ACSLS host and 44xx or 93xx libraries.
- The `probe-scsi.sh` utility tests SCSI connections between the ACSLS host and 97xx libraries.

Note that these utilities test all ports if ACSLS is not running, and only those ports that are online if ACSLS is running.

## pinglmu.sh

This routine checks connectivity to any or all serially attached library devices. It reports whether or not a serial transaction occurred successfully between the host control hardware and the target device. If no argument is given, the routine will check all serial devices that were configured for ACSLS. If an argument is supplied, only that corresponding device will be checked.



### To run the pinglmu utility:

Before running this test, you must first configure library communications (see “[Configuring ACSLS](#)” on page 61).

1. **Log in as acsss.**

2. **Run the utility by entering:**

```
/export/home/ACSSS/diag/bin/pinglmu.sh
```

3. **Was the test successful?**

YES	If the test shows successful connections between the host and each LMU, you will see a message similar to the one shown in <a href="#">Table 6</a> . on page 68 for a good response. You are finished with this procedure.
NO	If a failure is encountered, the utility will respond with any one of the messages shown in <a href="#">Table 6</a> . on page 68. Try any or all of Steps 4 through 7 to correct the failed connections.

4. **Verify that the physical port connection matches the port that was defined in acsss\_config.**

5. **Verify that the LMU is powered up and is functional.**

It may be helpful to IPL the LMU.

6. **Make sure the cable is secured into the ports of both the server and the LMU.**

7. Verify continuity between the pins at each end of the cable using a continuity test.

Table 6. Responses to pinglmu.sh

Response type	Response to pinglmu.sh	Interpretations and Interventions
<b>A good response</b>	<pre> Checking port configuration current serial port configuration: 4 ports. /dev/tty0 /dev/tty1 /dev/tty2 /dev/tty3  Waiting for heartbeat... Heartbeat sent via /dev/tty0..... .... results: The LMU responded via /dev/tty0: (compat level 11) </pre>	<p>When you see that the LMU responded with its code compatibility level, you know that a valid message was sent and a valid response was received. You have verified good communications.</p>
<b>Response to invalid user</b>	<pre> Warning: You must be acsss to use this utility. </pre>	<p>This message implies that you invoked pinglmu.sh as a user other than acsss. You should switch user to acsss and try again.</p>
<b>Faulty database startup</b>	<pre> Could not successfully start oracle. </pre>	<p>The pinglmu.sh utility uses oracle to define which ports have been configured in order to know which ports to test. This message indicates that there are problems bringing up oracle software. Make sure that oracle has been successfully installed.</p>

Response type	Response to pinglmu.sh	Interpretations and Interventions
<b>Response to invalid device</b>	SCSI port has been configured.	Since pinglmu.sh can check only serial ports, it does not know how to deal with a scsi port configuration. You should temporarily un-configure the scsi port using acsss_config and then run pinglmu.sh to check the serial ports.
<b>Response to incomplete configuration</b>	Checking port configuration... No ports have been configured for library communication.	A successful database query revealed that no serial ports have yet been configured. You should run acsss_config to configure library communications, defining all of the ports you intend to use with ACSLS.
<b>Response to offline port(s)</b>	Checking port configuration... Current serial port configuration: 1 port. /dev/tty0 offline No ports tested.	The utility was asked to test ports which ACSLS software is holding offline. Since only "online" ports will be tested while ACSLS is running, you should either bring the desired ports online or bring the ACSLS server software down with kill.acsss before you run pinglmu.sh.
<b>Faulty handshake detected</b>	Checking port configuration... current serial port configuration: 1 port. /dev/tty0 online Problem detected: Cannot send packet to /dev/tty0	This is either a software problem or a problem with hardware flow control. In the latter case, a handshake signal (DTR) was sent from the Unix host, but a response (DSR) was not received back from the LMU.

## probe-scsi.sh

This routine checks connectivity to any or all scsi attached library devices. It reports whether or not a scsi transaction occurred successfully between the host control hardware and the target device. If no argument is given, the routine will check all scsi devices that were configured for ACSLS. If an argument is supplied, only that corresponding device will be checked.



### To run the probe-scsi.sh utility:

Before running this test, you must first configure library communications (see “[Configuring ACSLS](#)” on page 61).

1. **Log in as acsss.**
2. **Run the utility by entering:**  
`/export/home/ACSSS/diag/bin/probe-scsi.sh`
3. **Was the test successful?**

YES	If the test shows successful connections between the host and each LMU, you will see a message similar to the message shown in <a href="#">Table 7</a> . on page 71 for a good response. You are finished with this procedure.
NO	If a failure is encountered, the utility will respond with any one of the messages shown in <a href="#">Table 7</a> . on page 71. Try any or all of Steps 4 through 7 to correct the failed connections.

4. **Verify that the physical port connection matches the port that was defined in acsss\_config.**
5. **Verify that each LMU is powered up and is functional. It may be helpful to IPL each LMU.**
6. **Make sure the cable is secured into the ports of both the server and each LMU.**

**7. Verify continuity between the pins at each end of the cable using a continuity test.**

**Table 7. Responses to probe-scsi.sh**

<b>Response type</b>	<b>Response to pinglmu.sh</b>	<b>Interpretations and Interventions</b>
<b>A good response</b>	STK 9710 is attached and responding as /dev/mchanger5	When you see that the STK device has responded, you know that the hardware and software have been properly installed and configured.  You have verified good communications.
<b>Response to invalid user</b>	Warning: You must be acsss to use this utility.	This message implies that you invoked probe-scsi.sh as a user other than acsss. You should switch user to acsss and try again.
<b>Faulty database startup</b>	Could not query the database for port configuration.	This message will appear if the ACSLS database has not yet been configured or if there are problems with the oracle software. In the first case, run acsss_config to configure library communications.

Response type	Response to pinglmu.sh	Interpretations and Interventions
<b>Response to incomplete configuration</b>	No SCSI device configured for ACSLS.	This message implies that the scsi port has not yet been configured for the STK library device. You should run <code>acsstt_config</code> to configure library communications.
<b>Bad physical connection</b>	No response from SCSI device.	<p>This message implies that the server attempted to transfer a valid message to the scsi library, but did not receive the expected reply. There are several possible things check:</p> <ol style="list-style-type: none"> <li>1. Verify that the library is powered on and functional. The library will not respond to <code>probe-scsi.sh</code> until it has completed its IPL sequence.</li> <li>2. Verify a good cable connection.</li> <li>3. If you are using a single-ended bus on the server, make sure the scsi library is jumpered for single-ended operation and is properly terminated with a single-ended terminator.</li> <li>4. If you are using a differential bus on the server, make sure the scsi library is jumpered for differential operation and is properly terminated with a differential terminator.</li> </ol>

## Chapter 4. Completing the ACSLS Installation

---



**Warning:** Before completing the ACSLS installation, you must complete Chapter 1 “Pre-Installation Preparation,” Chapter 2 “Installing and Configuring AIX,” and Chapter 3 “Installing and Configuring ACSLS 5.3.”

### Overview

This chapter describes the steps necessary to complete the ACSLS installation. It includes:

- [Configuring the Second Disk](#)
- [Importing the Database](#)
- [Verifying the Importing Database](#)

## Configuring the Second Disk

After installing and configuring ACSLS on the primary disk, configure the second disk that you installed in Chapter 1 according to the following procedures.

### Partitioning the Second Disk

In this procedure, you create two partitions on the second disk.



#### To partition the second disk:

1. **Open a Terminal or a Command tool and log in as acssa.**
2. **From the cmd\_proc window, idle ACSLS.**  
**IDLE**
3. **Open another command tool and log in as acsss.**
4. **To shut down ACSLS, enter**  
**kill.acsss**
5. **Log in as root.**

6. **To determine the name of the new disk, enter**  
**lsdev -C -s scsi**

The system displays a list of all SCSI devices, which can include the tape drive, the internal disk drive(s), and the disk drive added for second disk support.

Typically, the name of the second disk is `hdisk1`. Verify that it displays as Available.

7. **At the console prompt, enter**  
**smitty mkvg**

The Add a Volume Group screen appears.

8. **Select VOLUME GROUP name and enter `second_disk`**
9. **Select PHYSICAL VOLUME names and**
  - a. Press `[[F4]]`.
  - b. Select `hdisk1`.
10. **Press `[[ENTER]]` to run the command.**

The COMMAND STATUS screen appears, and the system runs the command.
11. **When the Command: OK message appears at the top of the COMMAND STATUS screen, press `[[F10]]` to return to the prompt.**

## Creating Second Disk File Systems



To create second disk file systems:

1. **At the console prompt, enter**

**smitty crjfs**

The Add a Journaled File System screen appears.

2. **Select the Add a Standard Journaled File System option.**

The Volume Group Name screen appears identifying the volume group name.

3. **Select `second_disk` and press `[[ENTER]]`.**

4. **In the Size of file system (in 512-byte blocks) field, enter 921600.**

5. **In the MOUNT POINT field, enter `/second_disk`.**

6. **In the Mount AUTOMATICALLY at system restart? field, press `[[F4]]` select **yes**.**

7. **Press `[[ENTER]]` to run the command.**

The COMMAND STATUS screen appears, and the system runs the command.

8. **When the Command: OK message appears at the top of the COMMAND STATUS screen, press `[[F10]]` to return to the prompt.**

## Mounting Second Disk File Systems



### To mount second disk file systems:

**1. At the console prompt, enter smitty mountfs.**

The Mount a File System screen appears.

**2. In the FILE SYSTEM name field**

- a. Press `[[F4]]`.
- b. Select the item on the same line as `/second_disk`.
- c. Press `[[ENTER]]`.

**3. In the DIRECTORY over which to mount field**

- a. Press `[[F4]]`.
- b. Select `/second_disk`.
- c. Press `[[ENTER]]`.

**4. In the TYPE of file system field**

- a. Press `[[F4]]`.
- b. Select `jfs`.
- c. Press `[[ENTER]]`.

**5. Press `[[ENTER]]` to run the command.**

The COMMAND STATUS screen appears, and the system runs the command.

**6. When the Command: OK message appears at the top of the COMMAND STATUS screen, press `[[F10]]` to return to the prompt.**

## Creating Second Disk Backup File Systems



To create second disk backup file systems:

1. **At the console prompt, enter**

**smitty crjfs**

The Add a Journaled File System screen appears.

2. **Select the Add a Standard Journaled File System option.**

The Volume Group Name screen appears identifying the volume group name.

3. **Select second\_disk and press `[[ENTER]]`.**

4. **In the Size of file system (in 512-byte blocks) field, enter 504320.**

5. **In the MOUNT POINT field, enter `/second_disk/backup`.**

6. **In the Mount AUTOMATICALLY at system restart? field**

- a. Press `[[F4]]`.
- b. Select yes.
- c. Press `[[ENTER]]`.

7. **Press `[[ENTER]]` to run the command.**

The COMMAND STATUS screen appears, and the system runs the command.

8. **When the Command: OK message appears at the top of the COMMAND STATUS screen, press `[[F10]]` to return to the prompt.**

## Mounting Second Disk Backup File Systems

➡ To mount second disk backup file systems:

**1. At the console prompt, enter**

**smitty mountfs**

The Mount a File System screen appears.

**2. In the FILE SYSTEM name field**

- a. Press `[[F4]]`.
- b. Select the item on the same line as `/second_disk/backup`.
- c. Press `[[ENTER]]`.

**3. In the DIRECTORY over which to mount field**

- a. Press `[[F4]]`.
- b. Select the item on the same line as `/second_disk/backup`.
- c. Press `[[ENTER]]`.

**4. In the TYPE of file system field**

- a. Press `[[F4]]`.
- b. Select `jfs`.
- c. Press `[[ENTER]]`.

**5. Press `[[ENTER]]` to run the command.**

The COMMAND STATUS screen appears, and the system runs the command.

**6. When the Command: OK message appears at the top of the COMMAND STATUS screen, press `[[F10]]` to return to the prompt.**

## Installing Second Disk Support



To install the second disk:

1. **If you are not already logged in as acsss, select Log Out from the Workspace menu and then log in as acsss.**
2. **From the cmd\_proc window, idle ACSLS.**  
**IDLE**
3. **Shut down ACSLS by entering**  
**kill.acsss**



**Note:** Shutting down the Oracle database is not necessary to install a second disk.

4. **Log in as root.**
5. **Change directories by entering**  
**cd /export/home/ACSSS/install**
6. **Execute the second disk utility by entering**  
**./sd\_mgr.sh**

This command starts the second disk manager. With this function, you can install (or remove) second disk support.

7. **When you are prompted for a menu choice, enter 1 to install second disk support.**

(See “[Deinstalling a Second Disk](#)” on page 182 for information on de-installing second disk.)



**Caution:** If there is a hardware failure of the second disk, ACSLS will not start. If a failure occurs, you should run the second disk manager to de-install second disk support, then start ACSLS.

8. **When you are prompted for a directory to use for second disk support, enter /second\_disk, or the**

**directory you entered in “Creating Second Disk File Systems” on page 76.**

What directory do you want to use for second disk support?

- 9. When you are prompted for a second disk backup directory, accept the default `/second_disk/backup`, or the directory you entered in “Creating Second Disk Backup File Systems” on page 78.**

What second disk directory do you want to use for Oracle backups  
[`/second_disk/backup`]?

A number of messages display showing the progress of the command.

- 10. When the Second Disk Support menu displays, enter 3 to exit the system.**

Messages appear as follows:

```
Prepare for database backup...
Insert database backup tape.
[Hit RETURN to continue]
```



**Warning:** After second disk manager completion, it is *extremely important* to back up the database. You need to have a tape ready for database backup.

11. **When the prompt returns, insert the blank tape into the tape drive and press `[[ENTER]]`.**

During the backup, status messages are displayed.



**Caution:** The tape drive may appear idle. It may not make any sounds or flash any lights during this time. If you remove the tape from the drive at this point and try to re-install the system, you receive messages to remove directories. **DO NOT** remove the tape from the drive until you see this success message:

Completed second disk management utility.

12. **Remove the backup tape and store it in a safe place.**

## Restarting ACSLS



**To restart ACSLS:**

1. **Log in as root.**
2. **In a terminal window or at the shell prompt, enter `reboot`**



**Note:** If the automatic startup on reboot option was enabled during ACSLS installation, ACSLS is initiated automatically when the server system is rebooted. If this is the case, go to Step 6.

3. **Log in as `acsss`.**
4. **In a terminal window or at the shell prompt, enter `rc.acsss`**

It takes a few seconds to start the database and return to the shell prompt.

- 5. When the shell prompt returns, log out.**
- 6. Log back in as `acssa` to use the ACSLS software.**  
This completes second disk configuration.

## Importing the Database

If this is a new installation and an existing database was not exported, skip this section and go to “Verifying ACSLS Software” on page 89.

This section describes how to import and recreate the ACSLS database that you exported in [Chapter NO TAG](#).



**Hint:** The procedures outlined below are for importing the database from the default tape device. Refer to Appendix A “Utilities” for instructions on importing the database from other tape devices or from disk.



**Caution:** To complete the upgrade, use the `db_import.sh` utility to import the exported database. The `db_convert.sh` utility can no longer be used. Its functionality is now merged with the `db_import.sh` utility.



### To import the database from tape:

1. **Determine whether you are currently the acsss user by entering**

**whoami**

If the response is not `acsss`, log out by pressing `[[CTRL]] + [[D]]`, then log back in as `acsss`.

2. **Insert the exported database tape into the tape drive.**

3. **Run the database import utility by entering the following at a UNIX prompt.**

**db\_import.sh**

The `db_import.sh` utility displays several messages as it executes.

This utility can take up to 15 minutes to complete.

4. **Press `[[CTRL]]+C` when you see the following message. Do *not* insert a database backup tape.**

Prepare for database backup ...

Remove export tape.

Insert database backup tape.

[Hit RETURN to Continue or Ctrl-C to exit]

## Verifying the Imported Database

In this procedure you use the `acsss_config` program to verify the database and the library configuration.



**To verify that the database has been imported:**

- 1. To run the configuration program, enter `acsss_config`**

The ACSLS feature and configuration screen appears.

- 2. Enter 6 to skip library ACSLS feature configuration.**

At this point, the system generates a series of messages indicating that the database is being verified.

- 3. Enter n at the prompt to skip library communication software configuration.**

Configure library communications? (y or n):

- 4. Enter y at the prompt to build/verify the library configuration.**

This step builds a database image of your complete library hardware configuration. Before proceeding, make sure that your library is completely configured, that all subsystems are functional and powered on. Build/Verify library configuration? (y or n):

**5. Enter y when the following prompt displays:**

Library server database exists and will be overwritten, continue? (y or n):

As the script builds the library configuration, it displays the following message for *each* panel in *each* LSM.

ACS # *n*, LSM # *nn*, PANEL # *nn*, created

The script also generates a library configuration report and appends it to the /export/home/ACSSS/log/acsss\_config.log file.

**6. Enter n at the prompt to skip CSI configuration.**

Configure client system interfaces?  
(y or n):

## 7. Are you backing up the database to tape?

YES	Insert a blank tape when the following message displays: Prepare for database backup... Insert database backup tape Press RETURN to continue.  The database backup procedure <code>bdb.acsss</code> automatically executes and captures the configuration data to enable database journaling.  When the database backup is completed, the following message displays: Database backup successfully completed.
NO	Press <code>[[CTRL]]+ C</code> and then refer to <code>bdb.acsss</code> on page 95 to backup the database to disk file. Then continue with Step 9.



**Caution:** The tape drive may appear idle during the backup. It may not make any sounds or flash any lights during this time. **DO NOT** remove the tape from the drive until you see the following success message indicating the backup is complete:

Database backup successfully completed.



**Warning:** Interrupting the backup process before completion will result in a bad backup.

## 8. Remove the tape and store it in a safe place.

## 9. Run `rc.acsss` to start the server.

If the automatic startup on reboot option is enabled, ACSLS is initiated automatically when the server system is rebooted.

The ACSLS is now ready for library operations. You may log out and log back in as `acssa`.

## Verifying ACSLS Software

Verifying ACSLS is optional. To verify ACSLS, you mount and dismount a volume by either:

1. Entering mount and dismount commands from a cmd\_proc (See “[Verifying ACSLS](#)”).
2. Running the Initial Verification Program (IVP) (See “[Running ivp.sh to Verify ACSLS](#)” on page 91).

### Verifying ACSLS



#### Mount/dismount a volume to verify ACSLS:

1. **Log in as acssa.**
2. **Query the server from the cmd\_proc by entering**  
**query server**

If messages are displayed indicating that the server is in recovery mode, wait for a message indicating that the server is running.

3. **If ACSLS is not running, start it by entering**  
**rc.acsss**

4. **Do you have at least one volume in an LSM?**

YES	Continue with the procedure.
NO	Enter a volume into an LSM. For more information, see “Operator Tasks” in <i>ACSLs System Administrator’s Guide</i> and then continue with the procedure.

5. **Log in as acssa.**

**6. Mount a volume by entering:**

**mount** *vol\_id drive\_id*



**Hint:** Use the **query drive** command to get the ID of an available drive and the **query volume** command to get the ID of a library volume. See “Command Reference” in *ACSL System Administrator’s Guide* for more information.

**7. Dismount the volume by entering:**

**dismount** *vol\_id drive\_id force*

where *vol\_id* is the volume and *drive\_id* is the drive you specified in Step 6.

**8. Did you see a message indicating a successful mount?**

A successful mount message is:

Mount: *vol\_id* mounted on *drive\_id*

YES	Procedure is complete.
NO	If an error message appears, run this verification procedure again, ensuring that you specified a valid, available drive and a library volume. If the mount/dismount still fails, call StorageTek for assistance.

## Running `ivp.sh` to Verify ACSLS

Use this procedure to run the IVP program (`ivp.sh`) to mount and dismount a volume. You specify the volume and drive that `ivp.sh` uses in the `ivp.dat` file.



### Run `ivp.sh` to mount/dismount a volume to verify ACSLS:

1. **Open a Terminal or a Command tool.**
2. **Change to the directory that contains the `ivp.dat` file.**  
`cd /export/home/ACSSS/diag/data`
3. **Using any text editor (for example, `textedit`), open the `ivp.dat` file and enter a drive ID and volume ID in the following format at the bottom of the file:**

```
drive_id vol_id
```



**Hint:** Use the `query drive` command to get the ID of an available drive and the `query volume` command to get the ID of a library volume. See “Command Reference” in *ACSL System Administrator’s Guide* for more information.

4. **To start the IVP program, enter**  
`/export/home/ACSSS/diag/ivp/ivp.sh`  
`ivp.sh` mounts and dismounts the volume that you specified in the `ivp.dat` file in about 30 seconds.
5. **Did you see a message indicating a successful mount?**

YES	Procedure is complete.
NO	If an error message appears, run this verification procedure again, ensuring that you specified a valid, available drive and a library volume in the <code>ivp.dat</code> file. If the mount/dismount still fails, call StorageTek for assistance.

## ACSLs Setup for Client Communication

To set up ACSLS for client communication, you include the client host name and IP address in `etc/hosts` or in the NIS lookup table.

## Regressing to a Previous Version of ACSLS

If for whatever reason you need to regress to a previous version of ACSLS after you install ACSLS 5.3, contact Central Software Support (CSS). For more information, see *Requesting Help from Software Support*.

## Appendix A. Utilities

---

This appendix contains general guidelines for using specific ACSLS database utilities and descriptions of the library utilities mentioned in this book. These include the following:

- `bdb.acsss`
- `db_export.sh`
- `db_import.sh`
- `kill.acsss`
- `rc.acsss`
- `sd_mgr.sh`

## Using the ACSLS Database Utilities

Follow these general guidelines for using the ACSLS database utilities:

- You must log in as `acsss` to set up the correct paths and ownership to run ACSLS utilities; you cannot `su` to `acsss`.
- Backups created by `bdb.acsss` are for disaster recovery only. To restore the database in the event of a disaster, use `rdb.acsss` as described in the *System Administrator's Guide*.
- StorageTek recommends that you use `bdb.acsss` to manually back up the database for disaster recovery after:
  - A large number of enters or ejects.
  - A large number of scratch mounts.
  - Running `db_import.sh`.
  - Running `acsss_config`.
  - Any database recovery.
- To ensure that you recover an accurate and consistent database, always use the most current database backup.
- `db_export.sh` and `db_import.sh` database utilities are for capturing and recovering database table data for upgrades or o/s changes, to avoid having to run a lengthy audit.
- After you upgrade to a new version of ACSLS, make sure to create a new backup as soon as you have upgraded. *Do not* use database backups or exports created with previous versions.
- Retain all utility event logs. These logs will help StorageTek to resolve any problems.

## **bdb.acsss**

The `bdb.acsss` utility backs up the ACSLS database and miscellaneous library resource files for disaster recovery only. Use `rdb.acsss` to restore the database in the event of a disaster, as described in the *System Administrator's Guide*

### **Format**

```
bdb.acsss [-f db_file | tape_device] [-o]
```



**Hint:** If you enter `bdb.acsss` with no options, the backup utility defaults to the default tape device attached and configured to the ACSLS server.

### **Options**

- `-f tape_device`  
specifies any rewind tape device attached and configured to the ACSLS server.
- `-f db_file`  
specifies a UNIX file to contain a backup of the ACSLS database. You must have write permissions to the file.
- `-o` is ignored; provided for compatibility with previous ACSLS versions.

## Usage

Use the `bdb.acsss` utility to back up the ACSLS database.



**Hint:** StorageTek strongly recommends installing a second disk on the ACSLS server to optimize the database's ability to create checkpoint and redo log files and to recover from failures using these files. For more information, see [“Configuring a Second Disk”](#) in Chapter 4.



**Hint:** StorageTek does not recommend that you back up to a UNIX file unless the file is on a remote disk.



**Hint:** Unlike previous releases of ACSLS, for ACSLS 5.0 and above, there is no difference between creating a backup when ACSLS is running and creating a backup when ACSLS is idled or stopped.

## db\_export.sh

The `db_export.sh` utility exports the ACSLS database table data in preparation for an upgrade installation.

### Format

```
db_export.sh [-f db_file | norewind tape_device] [-o]
```



**Hint:** If you enter `db_export.sh` with no options, the export utility defaults to the default tape device attached and configured to the ACSLS server.

### Options

`-f norewind tape_device`  
specifies any `norewind` tape device attached and configured to the ACSLS server (e.g. `/dev/rmt1.1`).

`-f db_file`  
specifies a UNIX file to contain a backup of the ACSLS database. You must have write permissions to the file.



**Warning:** If you are exporting data to a file with versions of ACSLS *prior* to ACSLS 5.2, you must follow the procedures on page 101.

### Usage

Use the `db_export.sh` utility to prepare for an upgrade installation of ACSLS.

## Examples

The following examples:

- Describe how to export the database to the default tape device attached to the ACSLS server.
- Describe how to export the database to specified (non–default) norewind tape devices.
- Describe how to export the database to disk file.

 **To export the ACSLS database to the default tape device:**

1. **Open a command tool and log in as acssa.**
2. **From the cmd\_proc window, idle ACSLS.**  
**IDLE**
3. **Open another command tool and log in as acsss.**
4. **Shut down ACSLS.**  
**kill.acsss**
5. **Insert a blank tape into the default tape device.**
6. **Start the db\_export.sh utility.**

**db\_export.sh**

The utility displays the following output as it executes.

```
Entering database export utility
Verifying database environment...
Checking for write-protected tape
cartridge.
Beginning database export phase.
.
.
.
.
```

7. **Remove the cartridge from the drive only when the program completes with the following message:**

Database Export Phase Complete.



**Caution:** You will lose files if you remove the cartridge before the program completes. Write protect the cartridge and clearly mark it to identify the contents as the exported database.



To export the ACSLS database to the norewind tape device `/dev/rmt1.1`:

1. Open a command tool and log in as `acssa`.
2. From the `cmd_proc` window, idle ACSLS.  
`IDLE`
3. Open another command tool and log in as `acsss`.
4. Shut down ACSLS.  
`kill.acsss`
5. Insert a blank tape into the specified tape device.
6. Start the `db_export.sh` utility.  
`db_export.sh -f /dev/rmt1.1`

The utility displays the following output as it executes.

```
Entering database export utility
Verifying database environment...
Checking for write-protected tape
cartridge.
Beginning database export phase.
.
.
.
.
```

7. Remove the cartridge from the drive only when the program completes with the following message:

Database Export Phase Complete.



**Caution:** You will lose files if you remove the cartridge before the program completes. Write protect the cartridge and clearly mark it to identify the contents as the exported database.



## To export the ACSLS database to a disk file:



**Caution:** The files created during the export must be saved to some remote filesystem or other workstation (i.e., not on the primary disk) so that they are not destroyed by the upgrade.

1. **Open a command tool and log in as acssa.**
2. **From the cmd\_proc window, idle ACSLS.**

**IDLE**

3. **Open another command tool and log in as acsss.**
4. **Shut down ACSLS.**

**kill.acsss**

5. **Start the db\_export.sh utility.**

**db\_export.sh -f db\_file**

6. **When the program completes, the following message appears:**

Database Export Phase Complete

7. **Are you exporting from a pre-ACSL5.2 system?**

YES	Continue with Step 8.
NO	Go to Step 9.

8. **Enter**

**tar cvf db\_file.misc -C \$ACS\_HOME data**

Two files are created: db\_file and db\_file.misc

9. **Verify that the db\_file and db\_file.misc files are in a remote location that will not be destroyed by the upgrade (i.e., not on the primary disk).**

## db\_import.sh

The `db_import.sh` utility imports the ACSLS database table data from any export tape or file made from an ACSLS version 4.0 or 5.x system.

### Format

```
db_import.sh [-f norewind tape_device | db_file]
```

### Options

`-f norewind tape_device`  
specifies any norewind tape device attached and configured to the ACSLS server.

`-f db_file`  
specifies a UNIX file created by `db_export.sh`.

### Usage

Use the `db_import.sh` utility to import the ACSLS database data from any export tape made on an ACSLS version 4.0 or 5.x system.



**Caution:** To ensure that you import accurate and consistent data, terminate ACSLS before running `db_import.sh`.

### Examples

The following examples:

- Describe how to import the database from the default tape device attached to the ACSLS server.
- Describe how to import the database from a specified (non-default) norewind tape device attached to the ACSLS server.
- Describe how to import the database from disk files.



To import the ACSLS database from the default tape device:

1. Open a command tool and log in as `acssa`.
2. From the `cmd_proc` window, idle ACSLS.  
`IDLE`
3. Open another command tool and log in as `acsss`.
4. Shut down ACSLS.  
`kill.acsss`
5. Insert the export tape into the default tape device.
6. Start the `db_import.sh` utility.  
`db_import.sh`  
When the import completes, remove the tape.
7. Run `acsss_config` to verify the imported database and `bdb.acsss` to back up the database.  
For more information on `acsss_config`, see [“Verifying the Imported Database”](#) in Chapter 4.  
For more information on `bdb.acsss`, see [“Backing Up the Database”](#) in Chapter NO TAG.



To import the ACSLS database from the nondefault norewind tape device `/dev/rmt1.1`:

1. Open a command tool and log in as `acssa`.
2. From the `cmd_proc` window, idle ACSLS:  
`IDLE`
3. Open another command tool and log in as `acsss`.
4. Shut down ACSLS:  
`kill.acsss`
5. Insert the export tape into the specified tape device.
6. Start the `db_import.sh` utility:  
`db_import.sh -f /dev/rmt1.1`  
When the import completes, remove the tape.
7. Run `acsss_config` to verify the imported database and `bdb.acsss` to back up the database.  
For more information on `acsss_config`, see [“Verifying the Imported Database”](#) in Chapter 4.  
For more information on `bdb.acsss`, see [“Backing Up the Database”](#) in Chapter NO TAG.



### To import the ACSLS database from disk file:

1. **Open a command tool and log in as acssa.**
2. **From the cmd\_proc window, idle ACSLS.**  
**IDLE**
3. **Open another command tool and log in as acsss.**
4. **Shut down ACSLS.**  
**kill.acsss**
5. **Verify that the db\_file and db\_file.misc files created earlier by the db\_export.sh -f db\_file command are in an accessible location.**
6. **Start the db\_import.sh utility.**  
**db\_import.sh -f db\_file**
7. **Run acsss\_config to verify the imported database and bdb.acsss to back up the database.**  
For more information on acsss\_config, see [“Verifying the Imported Database”](#) in Chapter 4.  
For more information on bdb.acsss, see [“Backing Up the Database”](#) in Chapter NO TAG.

## kill.acsss

The `kill.acsss` utility terminates ACSLS.

### Format

`kill.acsss`

### Options

None.

### Usage

Use the `kill.acsss` utility to terminate ACSLS.

### See Also

`rc.acsss`

### Notes



**Caution:** *Do not* run `kill.acsss` while an ACSLS request is in progress! You must first idle ACSLS (with the **IDLE** command) before you run `kill.acsss`. This allows any outstanding jobs to finish before terminating ACSLS.

## **rc.acsss**

The `rc.acsss` utility starts ACSLS.

### **Format**

```
rc.acsss [IDLE]
```

### **Options**

IDLE  
puts the ACSLM in the idle state.

### **Usage**

Use the `rc.acsss` utility to start ACSLS. When you start ACSLS, it goes through recovery mode to online state. ACSLS initialization includes checking its database and “recovering” status of the library volumes and library hardware; thus, the term “recovery mode.”

### **See Also**

`kill.acsss`

### **Notes**

The utility will automatically log in as `acsss`, so you may be prompted to enter the `acsss` password. Only one copy of ACSLS can be running on the server. The utility will not proceed if ACSLS is already running.

## **sd\_mgr.sh**

The `sd_mgr.sh` utility installs or deinstalls an optional second disk for database support.

### **Format**

`sd_mgr.sh`

### **Options**

None.

### **Usage**

Use the `sd_mgr.sh` utility to install or deinstall an optional second disk. See Chapter 4 or [Appendix E](#)

You can deinstall a second disk to go back to a single-disk system. You may want to do this to take the second disk offline for service or replacement.

## Appendix B. CSCI Installation

---

This chapter describes the Client Server Communications Interface (CSCI) component and shows you how to install CSCI.

Installation of CSCI should follow installation of the operating system and installation and configuration of ACSLS.

This chapter covers the following topics:

- Upgrading to ACSLS and Installing A New CSCI
- Upgrading to ACSLS with CSCI already installed
- An overview of CSCI
- GUI Tool for Base Configuration of CSCI
- ASCII Operations for Base Configuration of CSCI
- Custom CSCI Installation and Configuration
  - Installing SNA Server/6000
  - Installing a Token Ring adapter
  - Setting up SNA LU6.2 configuration options for RS/6000 and AS/400
  - Configuring SNA
- Error Messages
- Related CSCI Information

## Upgrading to ACSLS and Installing A New CSCI



**Note:** If you are upgrading from a previous version of ACSLS to the current version of ACSLS, and you are installing a new CSCI, follow the procedures in this chapter, starting with “Overview of CSCI” on page 111.

## Upgrading to ACSLS with CSCI Already Installed



**Note:** If you are upgrading from a previous version of ACSLS to the current version of ACSLS and you already have CSCI installed, you should follow just the procedures below in Steps 1 through 4 to save the SNA profile and change the script path. You do not need to reconfigure CSCI.



**To save the SNA profile and change the path of the script:**

1. **Export your SNA profile from the existing SNA environment.**
2. **Load the current SNA Server 6000 version.**
3. **Import the SNA profile exported in Step 1.**
4. **Change the absolute path of the CSCI Server.sh script in the TPN profile. The path should be changed from:**  
`/home/ACSSS/bin/csciServer.sh`  
**to:**  
`/export/home/ACSSS/bin/csciServer.sh`

## Overview of CSCI

The Client Server Communications Interface (CSCI) is a stand-alone component responsible for the passing of request and response packets between a client system and a server system. CSCI is an optional component that lets MVS or RMLS/CSC clients communicate with ACSLS. If you do not use CSCI, you use CSI by default to communicate with ACSLS.

### CSCI Connectivity

CSCI provides IPC and SNA connectivity to link the following:

ACSLS server      ⇔      MVS clients or  
RMLS/CSC clients

### Architecture and Subsystems

Figure 3 depicts an overall CSCI architecture and subsystems.

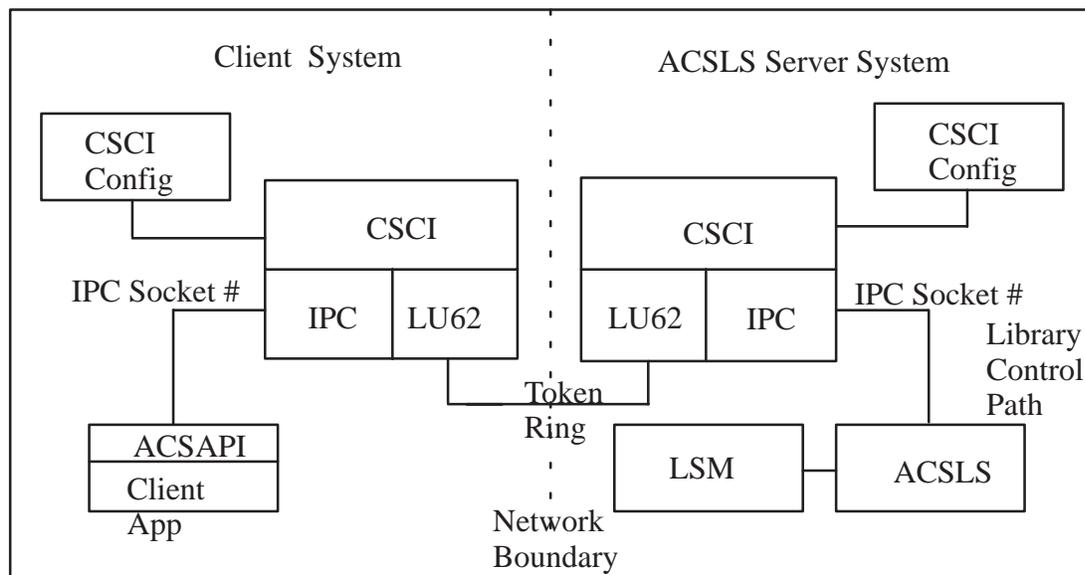


Figure 3. CSCI Architecture and Subsystems

Figure 4 shows how the CSCI system connects with the Token Ring interface. On the server side, the data flows from the Token Ring through the LU6.2 interface to the CSCI interface. From here the data flows through an IPC interface to the ACSLS software in both directions but in a half duplex mode, i.e., one direction at a time.

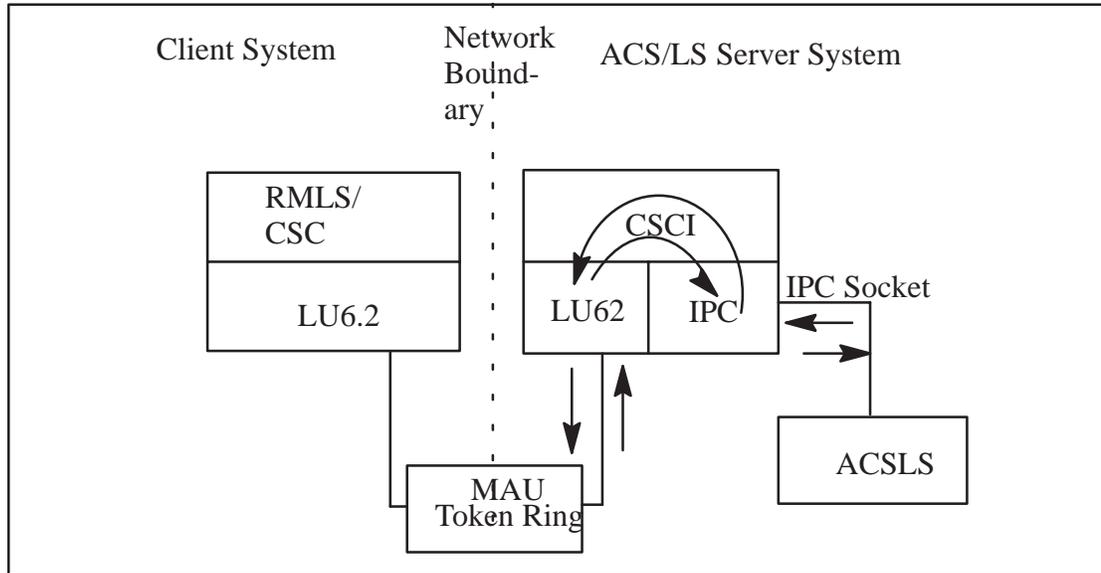


Figure 4. CSCI System with Token Ring Interface

## GUI Tool for Base Configuration of CSCI

A graphical SNA configuration tool is packaged with the ACSLS software that may be used to configure a RS6000 with ACSLS 5.2 for SNA LU 6.2 peer-to-peer communications with one or more AS400 RMLS/CSC partners.

The following guidelines must be met for use of the GUI configuration tool:

- RS6000 SNA profile configuration must be totally dedicated to RMLS/CSC AS400 clients.
- ACSLS must be installed
- You must be familiar with the AS400 partner configurations.
- The AS400 partners must be connected to the ring and set for autoconfiguration.
- You must have a windowing system operating on the RS6000.

If a windowing system is not available, the underlying perl scripts can be accessed via simple ASCII (see next section).



### To use the GUI configuration tool.

To use the GUI tool, the acsss X11 interface must be running and you must be at the RS6000 terminal using the acsss console window.

#### 1. Login as root or acsss.



**Note:** User root is allowed to reconfigure the RS6000 SNA profiles, run the tool and create profile scripts. User acsss can run the tool and create profile scripts but is not allowed to reconfigure the RS6000 SNA profiles.

**2. Change directories**

```
cd /export/home/ACSSS/diag/bin
```

If ACSLS is not installed in /export/home, change directories to

```
cd $ACS_HOME/diag/bin
```

**3. To expand and/or invoke the tool, enter**

```
./csci_config.sh
```

**4. Read the Help page by positioning the pointer over the Help button and clicking the left mouse button.**



**Hint:** It is highly recommended that you read the Help page when you first invoke the tool. This page contains a complete description of the operation and functions of the tool.

**5. Continue according to the Help page.**

## ASCII Operations for Base Configuration of CSCI

If a windowing system is not available to use the GUI tool, the underlying perl scripts can be accessed via simple ASCII.

1. **Login as root or acsss.**

2. **Change directories**

```
cd /export/home/ACSSS/diag/bin
```

If ACSLS is not installed in /export/home, change directories to

```
cd $ACS_HOME/diag/bin
```

**3. To expand and/or invoke the tool, enter**

**`./csci_config.sh -a`**

The main menu will appear.

ENTER

```
{c}reate - a profile set for a single partner configuration
{r}ead - a saved configuration profile set from the disk
{w}rite - a saved configuration profile set to a disk file
{p}rint - the current profile configuration set to stdout
{a}dd - a set of partner profiles to the current profile set
{h}elp - access to the Help page
{q}uit
```



**Hint:** It is highly recommended that you read the Help page when you first invoke the tool. This page contains a complete description of the operation and functions of the tool.

**4. To create a basic profile set, enter `c` for create *and* press enter.**

The following instructions will appear.

You will be prompted with a set of options, most will have default values in {braces}. To accept the default value, press [enter]. To change the value, key in the new value then press [enter]. Most of the changes you make will affect other values as well. These changes will NOT be saved to disk unless you do a save.

You must first choose a default name for the RS6000 server.

**5. Enter the control\_point\_name of the RS6000 and press enter.**

The control\_point\_name is the name that the local token ring administrator has assigned to the RS6000. This name is analogous to a hostname on a tcp based system.

The system returns the new value and then displays the following prompt:

```
WRKCFGSTS_LIN_1 {line_description},  
{LINE_DESC1} New Value?
```

**6. Enter the line description.**

Refer to the Help menu for more information on the line description.

**7. Respond to the following prompt.**

```
WRKCFGSTS_LIN_1 {line_speed}, {16M} New Value?
```

It is generally ok to use the default 16M for this value. To use the default value, press Enter.

The system returns the new value and then displays the following prompt:

```
WRKCFGSTS_LIN_1 {local_adapter_address},  
{xxxxxxxxxxxx} New Value?
```

**8. Enter the MAC address of the AS400 partner.**

Refer to the Help menu for more information on the `local_adapter_address`.

The system returns the value you entered and then displays the following prompt:

```
WRKCFGSTS_CTL_1{lan_remote_adapter_address}
, {lscfg} New Value?
```

**9. Enter the `lan_remote_adapter_address`.**

The `lan_remote_adapter_address` is the MAC address of the RS6000. It is reported as the Network Address.

The `lan_remote_adapter_address` can be obtained by entering the following command at an RS6000 prompt.

```
lscfg -l tok0 -v
```

The system returns the value you entered and then displays the following prompt:

```
DSPNETA_1 {current_system_name}, {CSYSNAME}
New Value?
```

**10. Enter the `current_system_name`.**

Refer to the paragraph in the Help menu starting with `source_service_access_point` for more information on the `current_system_name`.

The system returns the value you entered and then displays the following prompt:

```
DSPNETA_1 {local_control_point_name},
{CSYSNAME} New Value?
```

**11. Enter the `local_control_point_name`.**

Refer to the paragraph in the Help menu starting with `source_service_access_point` for more information on the `local_control_point_name`.

The system returns the value you entered and then displays the following prompt:

```
DSPNETA_1 {local_network_id}, {APPN} New
Value?
```

**12. Most sites use APPN but the local token ring administrator can specify a different value.**

The system returns the following prompt:

```
DSPNETA_1 {default_mode}, ( #BATCH ) New Value?
```

**13. Enter the default\_mode.**

Refer to the paragraph in the Help menu starting with source\_service\_access\_point for more information on the default\_mode.

The system returns the value you entered and then displays the following prompt:

```
DSPNETA_1 {APPN_node_type}, ( *NETNODE ) New Value?
```

**14. Enter the APPN\_node\_type.**

Refer to the paragraph in the Help menu starting with source\_service\_access\_point for more information on the APPN\_node\_type.

**15. The system returns to the main menu.**

At this time, you have entered all the data necessary for the first AS400 partner. If additional AS400 partners (RMLS/CSC clients) must be configured, enter a for add. If you choose add, you will be prompted for a subset of the questions entered for the first partner. Answer them all.

**16. When you are finished adding partners, do a save. Enter w for write.**

**17. Enter a valid filename.**

Example: /tmp/profiles.this\_date

**18. Once you have written the file, enter q to quit this part.**

**19. Is ACSLS installed in /export/home?**

YES	Enter <b>cd /export/home/ACSSS/diag/tcl_tools/bin</b> Go to Step 20.
NO	Enter <b>cd \$ACS_HOME/diag/tcl_tools/bin</b> Go to Step 20.

**20. Enter the command**

```
getscript -i /tmp/profiles.this_date -o  
/tmp/profiles.this_date.sh
```

The output file **/tmp/profiles.this\_date.sh** is an executable shell script that you can use to reconfigure the RS6000.

**21. Login as root.**

**22. Reconfigure the RS6000 by invoking the shell script.  
Enter**

```
sh /tmp/profiles.this_date.sh
```

This script will reconfigure the RS6000, check some system parameters, restart SNA, and display the status of the links to the partner(s) which you defined.

If the AS400(s) were set to autcreate controllers, then you should be able to get active links.

Once you get active links, you can issue an rmls command and get active sessions.

# Installing CSCI

## Installing the SNA Server/6000

If the SNA Server/6000 version 2.1.2 is being upgraded to the new level of SNA Server/6000 version 2.1.3, follow the procedures in the “[Upgrade Installation](#).” If you are loading a new SNA Server/6000 product, follow the procedures in the “[New Installation](#)” section on page 122.

### Upgrade Installation



#### To install an upgrade of SNA:

1. **Log in as root.**
2. **Save your current SNA profiles by entering**  
`exportsna -A -f/tmp/current_profiles`
3. **Load/install the latest version of SNA Server/6000.**
4. **Ensure that the AIX DLC Token Ring extension from the bosext2 (U491128) is loaded.**
5. **Change directories to the sna directory by entering**  
`cd/etc/objrepos/sna`
6. **Remove old profiles by entering**  
`rm -r`
7. **Re-create the SNA default profiles by entering**  
`/usr/lpp/sna/bin/mksnadb`
8. **Import the current SNA profiles by entering**  
`importsna -f/tmp/current_profiles`

## New Installation



### To install a new SNA Server/6000:

1. Load the SNA Server/6000 product. See the SNA product notes describing the installation procedure for SNA Server/6000.
2. Insure that the AIX DLC Token Ring extension from the bosex2 (U491128) is loaded.
3. Import the ACSLS SNA sample configuration provided from the ACSLS installation. This sample configuration is a good starting point for configuring your SNA environment. Enter

```
importsna -f \  
/export/home/ACSSS/config/cscisrvr.profiles
```



**Note:** If you already have a profile configuration file for your site configuration, you may use it here instead of the sample configuration file. This would alleviate the need for the following configuration steps. You should go to “Installing the Token Ring Adapter” on page 123 and follow procedures for installing the Token Ring, then go to “Verifying the SNA Configuration . . .” on page NO TAG and follow procedures for verifying the configuration.

Your site-dependent edits of the SNA profiles will be based on the inputs you provide in the [LU6.2 configuration options tables](#) on page 125.

## Installing the Token Ring Adapter



To install the Token Ring adapter:

1. **Log in at the console prompt as root.**
2. **Add Token Ring Data Link Control by entering `smitty cmdlrc_token`**  
The Data Link Controls screen appears.
3. **Select Add a Token Ring Data Link Control and press `[[ENTER]]`.**  
The Name of Device to Add pop-up box appears.
4. **Press `[[ENTER]]` to accept the dlc Token-Ring Data Link Control **default**.**  
This selection creates the Token Ring.
5. **Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
6. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**
7. **At the prompt, Change Token Ring line speed by entering `smitty chgtok`**  
The Token Ring Adapter screen appears.
8. **Press `[[ENTER]]` to accept the default tok0 Available 00-02 Token-Ring High-Performance Adapter.**
9. **At the Change/Show Characteristics of a Token-Ring Adapter screen, press `[[ENTER]]`.**  
The Ring speed displays.

- 10. Enter the Token Ring line speed desired or leave it as it is.**

The Token Ring line speed is usually set to 16.

- 11. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

- 12. When the Command: OK message appears at the top of the Command Status screen, Press `[[F10]]` to return to the prompt.**

## Setting Up SNA Configuration Options

To review the [RS/6000 SNA LU6.2 configuration options](#), read the RS/6000 section. To review the [AS/400 SNA LU6.2 configuration options](#), read the AS/400 section.

### RS/6000 SNA LU6.2 Configuration Options

The following SNA profiles in [Table 8](#). are required for every SNA Server/6000 configuration for LU6.2 types. These profiles are required for AIX CSCI servers to ensure SNA connectivity. [Table 8](#). is an overview of the profiles, containing descriptions of each profile. Following this table is a series of tables you should review and fill in before you configure SNA.

<b>Profiles</b>	<b>Descriptions</b>
Configure SNA log and trace files	Defines the SNA logging and trace files for diagnostic purposes.
Initial Node Setup	Defines the DLC to be employed for the SNA LU6.2 Logical Unit.
SNA DLC Profile	Defines the actual physical network interface to the SNA network that will be used.
Token Ring Linkstation Profile	Defines how the adapter will be used and controlled to support the link (Link and Session) control.
LU6.2 Local LU	Defines the characteristics of the local LU and its alias (optional). It carries the LU name and describes an independent LU6.2 node.
Partner LU6.2 Location	Specifies the location of a particular remote LU. You must define this profile in low-entry networking (LEN) connectivity for links not supporting CP-CP sessions.
LU6.2 Partner LU Profile	Specifies parameters for an LU-LU session with a particular remote LU.
LU6.2 Mode Profile	Defines the method of operation for the independent LU6.2.

Profiles	Descriptions
LU6.2 TPN Profile	Defines the transaction profile program to be employed for LU6.2 conversation and transaction processing.
SNA Node Profiles	The SNA network consists of network addressable units (NAU) boundary function components, and the path control network. The SNA Advanced Profiles provide the user ability to define these resources.
Control Point Profile	The component of PU 2.1 nodes that provides services to its local logical units. The Control Point handles the LU-LU session initiation request for independent type LU6.2 LENSs.
CPI Communications Side Information Profile	This profile is defined for CSCI clients <b>only</b> . This profile contains the "Symbolic Name" used to tie together the CSCI subsystem to the SNA Server Product. The Symbolic Destination Name is the name of the CPI Side Information profile. This profile contains the name of the remote LU name, the partner CSCI executable (on the CSCI Server), and the Mode table used for the session and conversation.

## Establishing SNA LU6.2 Configuration Options for RS/6000

The left-hand columns of the following tables contain the name of the fields associated with the installation of SNA LU6.2 on the RS/6000. The right-hand columns are either blank for you to enter your user-determined entries or contain the entry that must be used. The names between the tables are the names of the screens that contain the fields.

Choose a Default Name for the RS/6000	
---------------------------------------	--

This name will become the APPC controller description name on the AS/400.

### Initial Node Setup

Control Point Name (RS/6000 Name)	
Local Network Name (Local Net ID)	APPN (default) *

### Control Point Profile

Profile Name	node cp (default)
Network Name	APPN (default)*
Control Point Name	**
Control Point Name Alias	**

### Link Station Token Ring

New Profile Name	CSCISYS1 or CSCISYS2 (default)
SNA DLC Profile Name	CSCIDL (default)
Access Routing Type	link_address
Remote Link Address	Local Adapter Address (see page 130 for corresponding AS/400)
Activate Link During System Initialization	Yes

\*The Local Network Name must match the site-defined network name so that the new SNA nodes being added via this installation are known to that network of devices.

\*\*Usually the same as Control Point Name (RS/6000 name).

**Partner LU6.2**

Profile Name	CSCISYS1 or CSCISYS2 (default)
Fully Qualified Partner LU Name *	
Partner LU Alias	CSCISYS1 or CSCISYS2 (default)
Parallel Session Support	YES

**Partner LU6.2 Location**

New Profile Name	CSCISYS1 or CSCISYS2 (default)
Fully Qualified Partner LU Name *	
Partner Location Method	link _station
Local LU Name	<b>usually CSCILU1 (default)</b>
Link Station Profile Name	CSCISYS1 or CSCISYS2 (default)

**SNA DLC Token Ring**

Profile Name	CSCIDLC (default)
Data Link Device Name	tok0
Link Name	CSCISRVR

**Mode**

Profile Name	CSCIMODE
Mode Name	CSCIMODE

**Local LU LU6.2**

Profile Name	CSCILU1 (default)
Local LU Name **	CSCILU1 (default)
Local LU Alias	CSCILU1 (default)

\*Example: APPN. Default Local Location – LCLLOCNAME field on page 132

\*\*The Remote LU Name for RMLS/CSC installation and configuration on the AS/400.

### Local Transaction Program

Profile Name	CSCITPN
Transaction Program Name	csciServer.sh
Full Path T.P	/export/home/ACSSS/bin/csciServer.sh *

If ACSLS has been installed in a non-standard directory, you must use the path to the ACSLS installation directory here, i.e., *acsls install directory /CSCIserver.sh*. This path can be determined by logging onto the system as *acssa* and entering the command *echo \$ACS\_HOME*.

## AS/400 SNA LU6.2 Configuration Options

The left-hand columns of the following tables contain the name of the fields associated with the installation of SNA LU6.2 on the AS/400. The right-hand columns are either blank for you to enter your user-determined entries or contain the entry that must be used. The names between the tables are the names of the screens that contain the fields.

### Communication Side Information

Side Information	Coded and should not be changed
Remote Location	
Transaction Program	csciServer.sh
Device	*LOC – resolved by the system
Local Location	*LOC – resolved by the system
Mode	CSCIMODE
Remote Network Identifier	

### Line Description (WRKCFGSTS \*LIN)

AS/400 Token Ring Line Description – LIND	
<b>Line Speed – LINESPEED**</b>	
Local Adapter Address – ADAPTER	<b>AS/400 Adapter MAC Address</b>
Source Service Access Point – SSAP	must be a multiple of 04 (has to match SAP of Link Station Token Ring Profile)
Auto Create Controller – AUTOCRTCTL	YES



**Note:** The LINESPEED must be the same for every client and every server that are attached.

**Controller Description (WRKCFGSTS \*CTL)**

Controller Description – CTLD	
On–line at IPL – online	*YES
Remote Network Identifier – RMTNETID	
Switched Line LIst – SWTLINLST	
Remote Control Point Name – RMTCPNAME	(usually RS/6000 name)
Initial Connection – INLCNN	DIAL
LAN Remote Adapter Address – ADPTADR (RS/6000 Network Address)	lscfg -l tok0 -v *

\*This AIX command can be used on the RS/6000 to determine this entry.

**Device Description (WRKCFGSTS \*DEV)**

Device Description – DEV D	
Remote Location Name – RMTLOCNAME	(usually CSCILU1)
On–line at IPL – ONLINE	*YES
Local Location – LCLLOCNAME	
Remote Network Identifier – RMTNETID	
Attached Controller – CTL	
Single Session Capable – SNGSSN	*NO

**Mode Description (DSPMODD)**

<b>Mode Description</b>	CSCIMODE
Class of Service	<b>#Connect</b>
<b>Maximum Sessions</b>	64
Maximum Conversations	64
Locally Controlled Sessions	0
Pre Established Sessions	0
In Bound Pacing Value	7
Out Bound Pacing Value	7
Maximum Length of Request Unit	*CALC
Data Compression	*NETA
In Bound Data Compression	*RLE
Out Bound Data Compression	*RLE
Text	

**Network Attributes (DSPNETA)**

Current System Name – SYSNAME	
Local Network ID – LCLNETID	
Local Control Point Name – LCLCPNAME	
Default Local Location – LCLLOCNAME	
Default Mode – DFTMODE	<b>CSCIMODE</b>
APPN Node Type	

**Configuration List (WRKCFGL) QAPPNRMT**

Remote Location	<b>(usually CSCILU1)</b>
Remote Network ID	
Local Location	
Remote Control Point	
Control Point Network ID	
Secure Location	NO

Figure 5 shows a sample configuration of the CSCI system with a Token Ring interface, based on the `/export/home/ACSSS/config/cscisrvr.profiles`.

The figure shows how the control point, mode name, link name, and LU names are defined and related. The Token Ring MAC address and SAP addresses are listed as well.

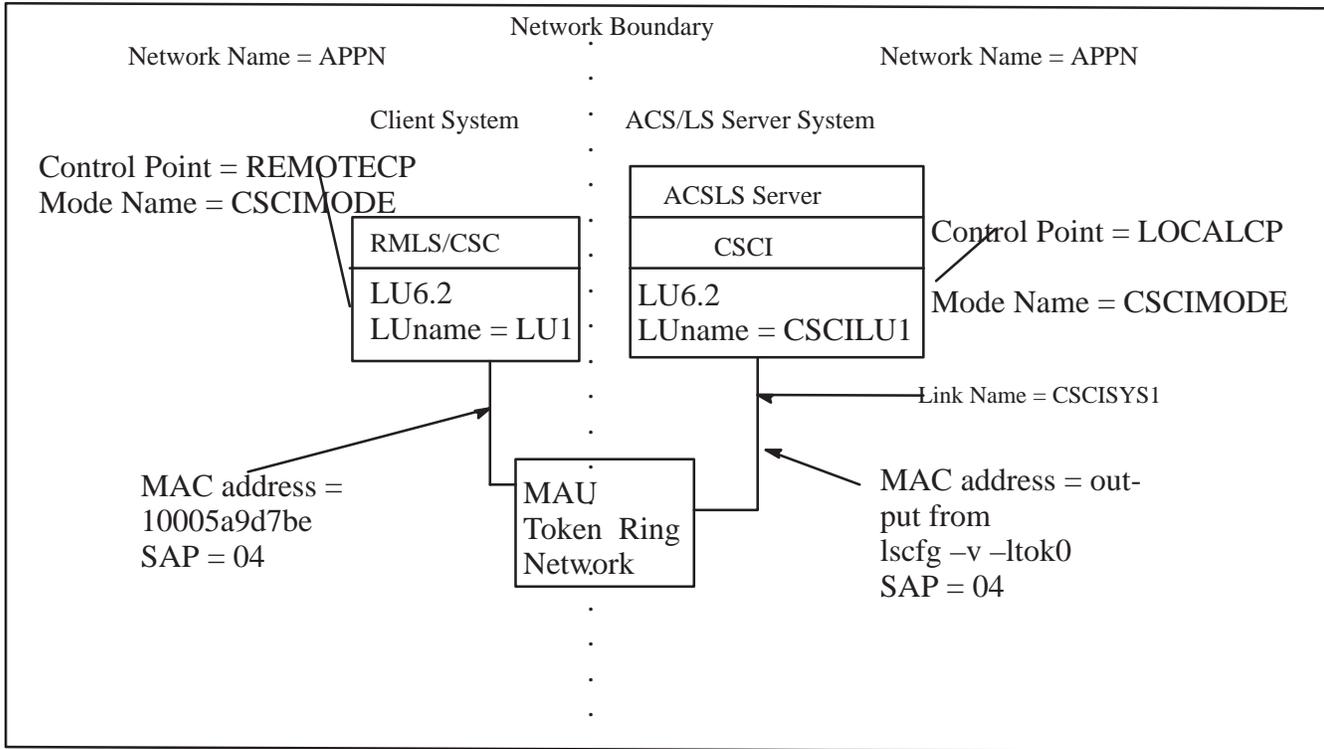


Figure 5. CSCI System with Token Ring Interface Configuration Example

## Configuring the SNA

To configure the SNA, follow all steps below. **Press `[[F1]]` Help on each line in the smitty screens as needed.**

### Change the Control Point Profile



#### To change the Control Point Profile:

1. **Log in at the console prompt as root.**
2. **At the prompt enter**  
`smitty _snacpch`  
The Change/Show Control Point Profile screen appears.
3. **Keep the default Profile Name, node cp. Do not change.**
4. **For the Network name field, enter your local network name. The default is APPN.**
5. **For the Control Point (CP) name field, enter the local CP name (the RS/6000 name from Initial Node Setup).**
6. **For the Control Point alias field, enter the local CP name (the RS/6000 name from Initial Node Setup).**
7. **Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
8. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Modify Link Station Token Ring Field Profile



### To modify the Link Station Token Ring Field profile:

1. **At the prompt enter**

**smitty \_snatokattcch**

The Token Ring Link Station Profile Name text screen appears.

2. **Press `[[F4]]` for a list of Profile names. Select CSCISYS1 from the list and press `[[ENTER]]`.**

The Change/Show Token Ring Link Station Profile screen appears.

3. **Verify that Access routing is Link Address.**

4. **In the If link\_address, Remote link address line, enter the MAC address of the AS/400 token ring card.**

5. **Change the Remote SAP address. Ensure the value entered is divisible by 4 and matches the Remote SAP address assigned (default is 04).**

6. **Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

7. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Modify Partner LU



### To modify Partner LU:

- 1. At the prompt enter `smitty _snapartch`**  
The LU6.2 Partner LU Profile Name screen appears.
- 2. Press `[[F4]]` to select CSCISYS1.**
- 3. On the Change/Show LU 6.2 Partner LU Profile screen, leave the New profile name line blank.**
- 4. In the Fully qualified partner LU name line, enter your logical partner LU name in the format of `Network Name.LU Name`**
- 5. In the Partner LU alias line, enter your partner LU alias. This should be the same as Profile Name.**
- 6. Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
- 7. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Modify Partner LU Location



### To modify Partner LU Location:

- 1. At the prompt enter**  
**smitty \_snalocatch**  
The LU 6.2 Partner LU Location Profile Name screen appears.
- 2. Select a profile name by pressing `[[F4]]` for a list.**
- 3. On the Change/Show Partner LU 6.2 LU Location Profile screen leave the New profile name line blank.**
- 4. In the Fully qualified partner LU name line, enter your fully qualified partner LU name. The format is**  
*Network Name.LU Name*
- 5. In the Partner LU Location method line, enter**  
**link\_Station**
- 6. In the Fully qualified owning Control Point (CP) name line, enter your fully qualified owning control point name. The format is**  
*Network Name.CP Name*
- 7. Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
- 8. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Configure SNA Log and Trace Files



### To configure SNA log and trace files:

1. **At the prompt enter**  
`smitty _snasetlogs`
2. **In the Configure SNA Log and Trace Files screen, verify that the items on your screen match the following:**

#### Configure SNA Log and Trace Files Screen

Use SNA or System File as Service Log	[sna]
Service Log File name	[/var/sna/snbservice]
Service Log File Size	[1000000]
SNA Event/Flow Trace Log File name	[/var/sna/snatrace]
SNA Event/Flow Trace Log File Size	[2000000]
SNA Failure Log File name	[/var/sna/snafailure]
SNA Failure Log File Size	[1500000]
File Wrap Limit	[2]

3. **Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

4. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show Initial Node Setup



### To change/show initial node setup:

1. At the prompt enter .  
`smitty _snaconfig`  
The Configure SNA Profiles screen appears.
2. Select Initial Node Setup and press `[[ENTER]]`.
3. Press `[[F4]]` for options and choose `token_ring`
4. Press `[[ENTER]]` again at the Initial Node Setup screen.
5. Check that the items in your screen that correspond to the bold items in the following Initial Node Setup screen contain entries from the [Initial Node Setup Table on page 127](#).

#### Initial Node Setup Screen

Control Point name	Your RS/6000 name
Control Point type	<code>appn_end_node</code>
Local network name	<b><code>[APPN]</code></b>
XID node ID	<b><code>[*]</code></b>

#### Optional Link Station Information:

Link station type	<code>token_ring</code>
Link station name	<code>[]</code>
* Calling link station?	<code>yes</code>
Link address	<code>[]</code>

6. Press `[[ENTER]]` to run the command.

The Command Status screen appears, and the system runs the command.

7. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show Token Ring SNA DLC Profile

### To change/show Token Ring SNA DLC profile:

1. **At the prompt enter**  
**smitty \_snaconfig**  
The Token Ring SNA DLC Profile Name screen appears.
2. **Select CSCI DLC.**
3. **Check that the items in your screen that correspond to the bold items in the following Change/Show Token Ring SNA DLC Profile screen contain entries from the [SNA DLC Token Ring Table](#) on page 128.**

#### Change/Show Token Ring SNA DLC Profile Screen

Current profile name	CSCIDLC
New profile name	[]
Data link device name	[tok0]
Force disconnect time-out (1-600 seconds)	[600]
User-defined maximum I-Field size? If yes, Max. I-Field size (265-30729)	yes [20480]
Max. num of active link stations (1-255)	[32]
Number reserved for inbound activation	[8]
Number reserved for outbound activation	[8]
Transmit window count (1-127)	[127]
Dynamic window increment (1-127)	[1]
Retransmit count (1-30)	[8]
Receive window count (1-127)	[127]
Ring access priority	0
Inactivity time-out	[120]
Response time-out (1-40, 500 msec intervals)	[4]

Acknowledge time-out (1–40, 500 msec intervals)	[1]
Local link name	[CSCISRVR]
Local SAP address (02–fa)	[04]
Trace base listening link station? If yes, Trace format	no long
Dynamic link stations supported?	yes
Link Recovery Parameters	
Retry interval (1–10000 seconds)	[60]
Retry limit (0–500 attempts)	[20]

#### **Change/Show Token Ring SNA DLC Profile Screen**

Dynamic Link Activation Parameters	
Solicit SSCP sessions?	no
CP–CP sessions supported?	no
Partner required to support CP–CP sessions?	no
Dynamic Link TG COS Characteristics	
Effective capacity	[4300800]
Cost per connect time	[0]
Cost per byte	[0]
Security	nonsecure
Propagation delay	lan
User-defined 1	[128]
User-defined 2	[128]
User-defined 3	[128]
Comments	[]

**4. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**5. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show Token Ring Link Station Profile

This step shows you how to configure CSCISYS1.



### To change/show the Token Ring link station profile for CSCISYS1:

- 1. At the prompt enter**  
**smitty \_snatokattcch**  
The Token Ring Link Station Profile Name screen appears.
- 2. Press `[[F4]]` and select CSCIsys1.**
- 3. Check that the items in your screen that correspond to the bold items in the following Change/Show Token Ring Link Station Profile screen contain entries from the [SNA DLC Token Ring Table](#) on page 127.**

#### Token Ring Link Station Profile Name Screen

Current profile name	CSCISYS1
New profile name	[]
Use Control Point's XID node ID?	no
If no, XID node ID	[07100000]
* SNA DLC Profile name	[CSCIDLCL]
Stop link station on inactivity?	no
If yes, Inactivity time-out(0-10 minutes)	[0]
LU address registration?	no
If yes, LU Address Registration Profile name	[]
Trace link?	no
If yes, Trace size	long
Adjacent Node Address Parameters	
Access routing	<b>link_address</b>
If link_name, Remote link name	[]
If link_address,	
Remote link address	<b>[0xnnnnnnnnnn</b>
Remote SAP address (04-ec)	<b>nnnn]</b>
	[04]

Adjacent Node Identification Parameters  
Verify adjacent node? no  
Network ID of adjacent node []  
CP name of adjacent node []  
XID node ID of adjacent node (LEN node only) [\*]  
Node type of adjacent node len\_node

–OR–

Adjacent Node Identification Parameters More Secure  
Verify adjacent node? Mode  
Network ID of adjacent node yes  
CP name of adjacent node [APPN]  
XID node ID of adjacent node (LEN node only) [REMOTEC]  
Node type of adjacent node [056a1954]  
len\_node

### Token Ring Link Station Profile Name Screen

#### Link Activation Parameters

Solicit SSCP sessions?	no
Initiate call when link station is activated?	yes
Activate link station at SNA start up?	<b>yes</b>
Activate on demand?	no
CP-CP sessions supported?	no
If yes,	
Adjacent network node preferred server?	no
Partner required to support CP-CP sessions?	no
Initial TG number (0-20)	[0]

#### Restart Parameters

Restart on activation?	no
Restart on normal deactivation?	yes
Restart on abnormal deactivation?	no

#### Transmission Group COS

Effective capacity	[4300800]
Cost per connect time	[0]
Cost per byte	[0]
Security	nonsecure
Propagation delay	lan
User-defined 1	[128]
User-defined 2	[128]
User-defined 3	[128]

Comments	[]
----------	----

#### 4. Press **[ENTER]** to run the command.

The Command Status screen appears, and the system runs the command.

#### 5. When the Command: OK message appears at the top of the Command Status screen, press **[F10]** to return to the prompt.

## Change/Show Token Ring Link Station Profile

This step shows you how to configure CSCISYS2.



**To change/show the Token Ring link station profile for CSCISYS2:**

1. **At the prompt enter**

```
smitty _snatokattcch
```

The Token Ring Link Station Profile Name screen appears.

2. **Press `[[F4]]` and select CSCIsys2.**
3. **Check that the fields on your screen that correspond to the bold items in the following Change/Show Token Ring Link Station Profile screen contain entries from the [SNA DLC Token Ring Table](#) on page 127.**

### Token Ring Link Station Profile Name Screen

Current profile name	CSCISYS2
New profile name	[]
Use Control Point's XID node ID?	no
If no, XID node ID	[07100000]
* SNA DLC Profile name	[CSCIDLCL]
Stop link station on inactivity?	no
If yes, Inactivity time-out (0-10 minutes)	[0]
LU address registration?	no
If yes, LU Address Registration Profile name	[]
Trace link?	no
If yes, Trace size	long
Adjacent Node Address Parameters	
Access routing	<b>link_address</b>
If link_name, Remote link name	[]
If link_address,	
Remote link address	
Remote SAP address (04-ec)	<b>[0xxxxxxxxx xxxx]</b>
	[04]
Adjacent Node Identification Parameters	
Verify adjacent node?	no
Network ID of adjacent node	[]
CP name of adjacent node	[]
XID node ID of adjacent node (LEN node only)	[*]
Node type of adjacent node	len_node
-OR-	
Adjacent Node Identification Parameters	
Verify adjacent node?	yes
Network ID of adjacent node	[APPN]
CP name of adjacent node	[REMOTTECP
XID node ID of adjacent node (LEN node only)	]
Node type of adjacent node	[056a1954]
	len_node

### Token Ring Link Station Profile Name Screen

Link Activation Parameters	
Solicit SSCP sessions?	no
Initiate call when link station is activated?	yes
Activate link station at SNA start up?	<b>yes</b>
Activate on demand?	no
CP-CP sessions supported?	no
If yes,	
Adjacent network node preferred server?	no
Partner required to support CP-CP sessions?	no
Initial TG number (0-20)	[0]
Restart Parameters	
Restart on activation?	no
Restart on normal deactivation?	yes
Restart on abnormal deactivation?	no
Transmission Group COS	
Effective capacity	[4300800]
Cost per connect time	[0]
Cost per byte	[0]
Security	nonsecure
Propagation delay	lan
User-defined 1	[128]
User-defined 2	[128]
User-defined 3	[128]
Comments	[]

**4. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**5. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show LU6.2 Local LU Profile



### To change/show LU6.2 Local LU profile:

1. **At the prompt enter**  
`smitty _snalocalu6ch`  
The LU 6.2 Local LU Profile Name screen appears.
2. **Press `[[F4]]` and select CSCILU1.**
3. **Check that the items in your screen that correspond to the bold items in the following Change/Show LU6.2 Local LU Profile screen contain entries from the [Local LU LU6.2 Table](#) on page 128.**

#### Change/Show LU6.2 Local LU Profile Screen

Current profile name	CSCILU1
New profile name	<code>[]</code>
Local LU name	<code>[CSCILU1]</code>
Local LU alias	<code>[CSCILU1]</code>
Local LU is dependent?	no
If yes,	
Local LU address (1–255)	<code>[1]</code>
System services control point (SSCP) ID (*, 0–65535)	<code>[*]</code>
Link station profile name	<code>[]</code>
Conversation Security Access List Profile name	<code>[]</code>
Comments	<code>[]</code>

4. **Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
5. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show LU6.2 Partner LU Profile

This step configures CSCISYS1.



### To change/show LU6.2 Partner LU profile:

1. **At the prompt enter**  
**smitty \_snapartch**  
The LU 6.2 partner LU Profile Name screen appears.
2. **Press `[[F4]]` and select CSCISYS1.**
3. **Check that the fields in your screen that correspond to the bold items in the Change/Show LU6.2 Partner LU Profile screen below contain the entries from the [Partner LU6.2 Table on page 128](#).**

#### Change/Show LU6.2 Partner LU Profile Screen

Current profile name	CSCISYS1
New profile name	<input type="text"/>
Fully qualified partner LU name	<b>[APPN.LU1]</b>
Partner LU alias	<b>[CSCISYS1]</b>
Parallel sessions supported?	yes
Session security supported?	no
Conversation security level	none
Comments	<input type="text"/>

4. **Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
5. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show LU6.2 Partner LU Profile

This step configures CSCISYS2.



### To change/show the LU6.2 Partner LU profile:

1. **At the prompt enter**  
**smitty \_snapartch**  
The LU 6.2 Partner LU Profile Name screen appears.
2. **Press `[[F4]]` and select CSCISYS2.**
3. **Check that the fields in your screen that correspond to the bold fields in the Change/Show LU6.2 Partner LU Profile screen below contain the items from the [Partner LU6.2 Table on page 128](#).**

#### Change/Show LU6.2 Partner LU Profile Screen

Current profile name	CSCISYS2
New profile name	[]
Fully qualified partner LU name	[APPN.LU2]
Partner LU alias	[CSCISYS2]
Parallel sessions supported?	yes
Session security supported?	no
Conversation security level	none
Comments	[]

4. **Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
5. **When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show LU6.2 Mode Profile



To change/show the LU6.2 Mode profile:

1. At the prompt enter  
`smitty _snamodec`  
The LU 6.2 Mode Profile Name screen appears.
2. Press `[[F4]]` and select CSCI Mode.
3. Check that the fields in your screen that correspond to the bold fields in the Change/Show LU6.2 Mode Profile screen below contain the items from the [Mode Table](#) on page 128.

### Change/Show LU6.2 Mode Profile Screen

Current profile name	CSCIMODE
New profile name	[]
Mode name	[CSCIMODE]
Maximum number of sessions (1–5000)	[64]
Minimum contention winners (0–5000)	[50]
Minimum contention losers (0–5000)	[14]
Auto activate limit (0–500)	[10]
Upper bound for adaptive receive pacing window	[16]
Receive pacing window (0–63)	[7]
Maximum RU size (128, ..., 32768: multiples of 32)	[3840]
Minimum RU size (128, ..., 32768: multiples of 32)	[256]
Class of Service (COS) name	[#CONNECT]
Comments	[]

**4. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**5. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show Partner LU6.2 Location Profile

This step configures CSCISYS1.



To change/show the Partner LU6.2 location profile:

1. At the prompt enter  
**smitty \_snalocatch**  
The Partner LU6.2 Location screen appears.
2. Press **[F4]** and select CSCISYS1.
3. Check that the fields in your screen that correspond to the bold fields in the Change/Show Partner LU6.2 Location Profile screen below contain the items from the **Partner LU6.2 Location Table** on page 128.

### Change/Show Partner LU6.2 Location Profile Screen

Current profile name	[CSCISYS1]
New Profile Name	[]
Fully qualified partner LU name	[APPN.LU1]
Partner LU location method	[link_station]
If owning CP	
Fully qualified owning Control Point (CP) name	[]
Local node is network server for LEN node?	no
Fully qualified network node server name	[]
If link_station	
Local LU name	[CSCILU1]
Link station profile name	[CSCISYS1]
Comments	[]

**4. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**5. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show Partner LU6.2 Location Profile

This step configures CSCISYS2.



**To change/show the Partner LU6.2 location profile:**

- 1. At the prompt enter**  
**smitty \_snalocatch**  
The Show Partner LU 6.2 Location screen appears.
- 2. Press `[[F4]]` and select CSCISYS2.**
- 3. Check that the fields on your screen that correspond to the bold fields in the Change/Show Partner LU6.2 Location Profile screen below contain the data from the [Partner LU6.2 Location Table](#) on page 128.**

### Change/Show Partner LU6.2 Location Profile Screen

Current profile name	[CSCISYS2]
Fully qualified partner LU name	[APPN.LU2]
Partner LU location method	[link_station]
Fully qualified owning Control Point (CP) name	[]
Local node is network server for LEN node?	no
Fully qualified network node server name	[]
If Link_station is entered, enter	
Local LU name	[CSCILU1]
Link station profile name	[CSCISYS2]
Comments	[]

- 4. Press `[[ENTER]]` to run the command.**  
The Command Status screen appears, and the system runs the command.
- 5. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show SNA LU6.2 TPN Profile



### To change/show SNA LU6.2 TPN profile:

1. **At the prompt enter**  
**smitty \_snatpnh**  
The TPN Profile Name screen appears.
2. **Press `[[F4]]` and select CSCITPN.**
3. **Check that the fields in your screen that correspond to the bold fields in the Change/Show LU6.2 TPN Profile screen below contain data that match the following:**

#### Change/Show LU6.2 TPN Profile Screen

Current profile name	[CSCITPN]
New profile name	[]
Transaction program name (TPN)	[csciServer.sh]
Transaction program name (TPN) is hexadecimal?	no
PIP data? If yes, Subfields (0–99)	no [0]
Conversation type	mapped
Sync level	none/confirm
Resource security level If access, Resource Security Access List Prof.	none []
Full path to TP executable *	[/export/home/ACSSS/bin/csciServer.sh]
Multiple instances supported?	yes
User ID	[200]
Server synonym name	[csciServer.sh]
Restart action	once
communication type If IPC, Communication IPC queue key	signals [0]

Standard input file/device	[/dev/console]
Standard output file/device	[/dev/console]
Standard error file/device	[/dev/console]
Comments	[]

\* If ACSLS has been installed in a non-standard directory, you must use the path to the ACSLS installation directory here, i.e., *acsls install directory*/bin/csciServer.sh. This path can be determined by logging onto the system as acssa and entering the command `echo $ACS_HOME`.

**4. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**5. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Change/Show SNA Node Profile



### To change/show the SNA Node profile:

**1. At the prompt enter**

**smitty \_snach**

The Change/Show SNA Node Profile screen appears.

**2. Check that the Change/Show SNA Node Profile screen matches the following:**

#### Change/Show SNA Node Profile Screen

Profile name	sna
Maximum number of sessions (1–5000)	[200]
Maximum number of conversations	[200]
Restart action	once
Recovery resource manager (RRM) enabled?	no
Dynamic inbound partner LU definitions allowed?	yes
NMVT action when no NMVT process	reject
Standard output file/device	[/dev/console]
Standard error file/device	[/dev/console]
Comments	[]

**3. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**4. When the Command: OK message appears at the top of the Command Status screen, Press `[[F10]]` to return to the prompt.**

## Change/Show Control Point Profile



### To change/show the Control Point profile:

**1. At the prompt enter**

**smitty \_snacpch**

The Change/Show Control Point Profile screen appears.

**2. Check that the fields in your screen that correspond to the bold fields in the Show Control Point Profile screen below contain data from the [Control Point Profile Table](#) on page 127.**

#### Change/Show Control Point Profile Screen

Profile name	node_cp
XID node ID	[*]
Network name	[APPN]
Control Point (CP) name	[]
Control Point alias	[]
Control Point type	appn_end_node
Maximum number of cached routing trees	[500]
Maximum number of nodes in the TRS database	[32]
Route addition resistance	[128]
Comments	[]

**3. Press `[[ENTER]]` to run the command.**

The Command Status screen appears, and the system runs the command.

**4. When the Command: OK message appears at the top of the Command Status screen, press `[[F10]]` to return to the prompt.**

## Verify the Configured SNA Profile Just Completed

 To verify the SNA configuration:

1. At the prompt enter  
`verifysna -U`
2. Watch for the message that indicates profiles were updated.

## Enabling Auto Startup at Reboot

 To start SNA Server/6000 automatically when you reboot:

1. Log in as UID=0 (root user authority).
2. Open the `/etc/rc.sna` file with a text editor.
3. **Uncomment the line** `sna -start sna`.  
A line is commented if the first character on the line is a # (pound sign). Remove the # to uncomment the line.
4. **Save the changes that you just made.**

At the next system reboot, SNA Server/6000 starts automatically.

## Display SNA Links and Sessions



### To display SNA links and sessions:

1. **Display SNA links and sessions (Table 9. and Table 10. provide examples). Enter**  
`sna -d l` to display link status  
`sna -d s` to display sessions status
2. **Export your SNA profiles and back them up on tape or diskette.**  
`exportsna -A -f /tmp/sna.profiles4customer`
3. **You may use xsna, a new utility that provides a MOTIF based XWindows interface to manage the SNA Server subsystem resources xsna &. Enter**  
`xsna &`



**Note:** Ensure the number of processes per ID to at least 200 through the use of the Smit system. You might want to back up your disk after completing this installation.

**Table 9. sna -d 1 Display Link Status Example**

Link station	Adjacent CP name	Node type	Device name	State	Number of sessions
@tok0			tok0	Starting	0
CSCISYS2	APPN.LU2	EN	tok0	Active	8
CSCISYS1	APPN.LU1	EN	tok0	Active	1

**Table 10. sna -d s Display Sessions Status Example**

CGID	Local LU name	Partner LU name	Mode name	Link station	State
27	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Allocated
19	APPN.CSCI LU1	APPN.LU1	CSCIMODE	CSCISYS1	Available
17	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Allocated
15	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Allocated
12	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Available
11	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Available
10	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Allocated
7	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Available
9	APPN.CSCI LU1	APPN.LU2	CSCIMODE	CSCISYS2	Available

## Error Messages

CSCI installation and configuration error messages relate to the following conditions:

- Improper ownership
- Improper access permission
- Undefined environment variables
- A variety of miscellaneous conditions
- Improper CSCI and LU6.2 configuration

### Common Error Messages

Communication failure, verb = *cmroutine*, rc = *xx*, errno = *yyy* IPC failure on Socket CSCI*zzzzz*.

**Explanation:** The read failed on the named connection.

**Variable:**

- *xx* is IBM CPI return code
- *yyy* is the UNIX errno value in /usr/include/sys/errno.h
- CSCI*zzzzz* is the socket number that was in use
- *cmroutine* is the IBM CPI routine name that failed

Read failed for connection: *connection\_name*

**Explanation:** The read failed on the named connection.

**Variable:** *connection\_name* is the name of the connection on which the read failed.

Write failed for connection: *connection\_name*

**Explanation:** The write failed on the named connection.

**Variable:** *connection\_name* is the name of the connection on which the write failed.

## Related CSCI Information

For a visual representation of the Token Ring connections between the RS/6000 and the AS/400, see [Appendix C](#).

For a discussion of CSCI environment variables and the `csciServer.sh` script, see [Appendix D](#).

## Appendix C. RS/6000 to AS/400 Connections

---

### Introduction

The following table contains a cross-reference between the connection definitions of the Token Ring installation options of the RS/6000 and those of the AS/400. For successful installation and configuration, the corresponding field names should have the same information supplied .

In the following table, the letters after the RS/6000 field names (**A**, **B**, etc.) and the letters before the AS/400 field names (**A**, **B**, etc.) represent the information that should be specified for that field name. When the same information is specified for a RS/6000 field name and a AS/400 field name, the letters are the same. For example, the name specified for the Control Point Name for the RS/6000 is the same name specified for the Remote Control Point in the AS/400.

**Table 11. RS/6000 to AS/400 Cross Reference List for Field Names**

<b>RS/6000 Field Names</b>	<b>AS/400 Field Names</b>
<b>Initial Node Setup</b>	<b>Line Description</b>
Control Point Name <b>B</b>	<b>L</b> Line Description (LIND)
Local Network Name <b>A</b>	Line Speed (LINESPEED)
<b>Control Point Profile</b>	<b>I</b> Local Adapter Address (ADAPTER)
Profile Name	Source Service Access Point (SSAP)
Network Name <b>A</b>	Autocreate Controller
Control Point Name <b>B</b>	<b>Controller Description</b>
Control Point Name Alias <b>B</b>	<b>B</b> Controller Description (CTLD)
<b>Local LU LU6.2</b>	Online at IPL (ONLINE) *YES
Profile Name <b>C</b>	<b>L</b> Switched Line List
Local LU Name <b>C</b>	<b>A</b> Remote Network Identifier (RMTNETID)
Local LU Alias <b>C</b>	<b>B</b> Remote Control Point Name (RMTCPNAME)
<b>Partner LU6.2</b>	Initial Connection (INLCNN) *DIAL
Profile Name <b>D</b>	LAN Remote Adapter Address (ADPTADR)
Fully Qualified Partner LU Name <b>A.O</b>	<b>Device Description</b>
Partner LU Alias <b>D</b>	<b>C</b> Device Description (DEV D)
Parallel Session Support <b>E</b> (Yes)	<b>C</b> Remote Location Name
<b>Partner LU6.2 Location</b>	On line at IPL (ONLINE) (Yes)
Profile Name <b>D</b>	<b>O</b> Local Location (LCLLOCNAME)
Fully Qualified Partner LU Name <b>A.O</b>	<b>A</b> Remote Network Identifier (RMTNETID)

<b>RS/6000 Field Names</b>	<b>AS/400 Field Names</b>
Partner Location Method = Link Station	<b>B</b> Attached Controller (CTL)
Fully Qualified Partner Owing CP <b>A.P</b>	<b>E</b> Single Session Capable (No)
Local LU Name <b>C</b>	<b>MODE</b>
Link Station Profile Name <b>D</b>	<b>K</b> Mode (Mode)
<b>Local Transaction Program</b>	<b>Communication Slide Information</b>
Profile Name	Side Information
Transaction Program Name <b>G</b>	<b>C</b> Remote Location
<b>Link Station Token Ring</b>	<b>G</b> Transaction Program
Profile Name <b>D</b>	<b>C</b> Device
SNA DLC Profile Name <b>H</b>	<b>O</b> Local Location
Access Routing Type	<b>K</b> Mode
Remote Link Address <b>I</b>	<b>A</b> Remote Network Identifier
Activate Link During System Initialization <b>J</b>	<b>RMLS Configuration</b>
<b>SNA DLC Token Ring</b>	* Server
Profile Name <b>H</b>	<b>C</b> Remote LU Name
Data Link Device Name (tok0)	<b>Network Attributes</b>
Link Name	<b>A</b> Local Network ID
<b>Mode</b>	<b>P</b> Local Control Point Name
Profile Name (CSCIMODE)	<b>O</b> Default Local Location
Mode Name (CSCIMODE) <b>K</b>	<b>K</b> Default Mode
	<b>Configuration List</b>
	<b>C</b> Remote Location

<b>RS/6000 Field Names</b>	<b>AS/400 Field Names</b>
	<b>A</b> Remote Network ID
	<b>O</b> Local Location
	<b>B</b> Remote Control Point
	<b>A</b> Control Point Net ID

## AS/400 Token Ring Connection Field Definitions

The following table contains the fields on the AS/400 that are used for Token Ring connections. The contents of the fields are given and the relationship of the fields to RS/6000 equivalent fields.

**Table 12. AS/400 Token Ring Field Definitions**

<b>AS/400 Field Names</b>	<b>Content Information</b>
<b>Communication Side Information</b>	
Side Information	Hard Coded and should not be changed
Remote Location	Local LU Name from the Local LU LU6.2 on the RS/6000.
Transaction Program	"csciServer.sh"
Device	*LOC – resolved by the system
Local Location	*LOC – resolved by the system
Mode	"CSCIMODE"
Remote Network Identifier	Local Network Name from the Initial Node Setup on the RS/6000.
<b>Configuration List</b>	
Remote Location	RS/6000 Local LU Name
Remote Network ID	RS/6000 Local Network ID
Local Location	AS/400 Default Local Location Name from the AS/400 Network Attributes.
Remote Control Point	RS/6000 Control Point Name from Initial Node Setup.
Control Point Network ID	RS/6000 Initial Node Setup Local Network Name.
Secure Location	"NO"
<b>Controller Description</b>	
Controller Description –CTLD	Name of the Controller. Should be named the same as the Control Point Name in the Initial Node Description on the RS/6000.
Online at IPL –ONLINE	"YES"
Switched Line List –SWTLINLST	The name of the Token–Ring from the AS/400 Line Description – LIND field.

<b>AS/400 Field Names</b>	<b>Content Information</b>
Remote Network Identifier – RMTNETID	The same name as the AS/400 Network Attributes Local Network ID, which is the same as the RS/6000 Initial Node Setup Local Network Name.
Remote Control Point Name – RMTCPNAME	Control Point Name from the RS/6000 Control Point.
Initial Connection – INLCNN	”Dial”
Lan Remote Adapter Address – ADPTADR	”lscfg –l tok0 –v” is the RS/6000 SNA DLC Token Ring Data Link Device Name
<b>Device Description</b>	
Device Description – DEVD	Name of the Device. Should be named the same as the Local LU Name from the Local Lu LU6.2 on the RS/6000.
Remote Location Name – RMTLOCNAME	Local LU Name from the Local LU LU6.2 on the RS/6000.
Online at IPL – ONLINE	”YES”
Local Location – LCLLOCNAME	Local Location Name is the same as AS/400 Network Attributes Default Local Location.
Remote Network Identifier – RMTNETID	The same as Local Network Name from the RS/6000 Initial Node Setup Local Network Name.
Attached Controller – CTL	The same as the AS/400 Controller Description that is attached to the Token–Ring.
Single Session – SNGSSN	”NO”
Mode – MODE	*NETATR – The same as the AS/400 Network Attributes Default Mode.
<b>Line Description</b>	
Line Description – LIND	Name of the Token–Ring. The same as the AS/400 Controller Description Switched Line List.
Line Speed – LINESPEED	Must be the same as the Adapter Speed of the RS/6000.
Local Adapter Address – ADAPTER	Address of the AS/400 Token Ring Adapter. Should be the same as the RS/6000 Link Station Token Ring Remote Link Address.
Source Service Access Point – SSAP	Must be divisible by 4.
Autocreate Controller – AUTOCRTCTL	”YES” allows the creation of the controller when it is polled from the RS/6000.
<b>Network Attributes</b>	

<b>AS/400 Field Names</b>	<b>Content Information</b>
Current System Name – SYSNAME	AS/400 Name
Local Network ID – LCLNETID	Local Network Name is the same as the RS/6000 Initial Node Setup Local Network Name.
Local Control Point Name – LCLCPNAME	Control Point Name used for APPN communication,
Default Local Location – LCLLOCNAME	This is the same as the AS/400 Local Location.
Default Mode – DFTMODE	Same as AS/400 Communication Side Information Mode. This is the mode description used when the system creates a communication device.
<b>RMLS Configuration</b>	
* Server	
Remote LU Name	Same as the RS/6000 Local LU LU6.2 Profile Name.



## Appendix D. CSCI Environment Variables

---

CSCI is invoked by `csciServer.sh`, a Transaction Program Name (TPN) in the directory where ACSLS executables reside. This shell script defines CSCI environment variables.

[Table 13](#) shows descriptions of CSCI environment variables for the server subsystem. Following this table is a shell script like the one provided in the distribution of ACSLS/CSCI software. This shell script is started by SNA on the server.

<b>Table 13. CSCI Server Subsystem Environment Variables</b>	
<b>Name</b>	<b>Description</b>
CSCI_TRACE	This variable is used to indicate whether CSCI tracing is <b>ON</b> or <b>OFF</b> .
CSCI_SLEEP_TIME	This variable is used to indicate the PER sleep time at the end of each round-robin loop through the connection table (polling timeout). Default is <b>100 msec</b> .
CSCI_INITIAL_CONNECTION	This variable is used to indicate the CSCI's initial connect name to open first. This is the connection service name requiring i/o on initial startup of the CSCI. Clients usually open IPC first; Servers open LU6.2 first.
CSCI_SERVER_NAME	This variable is used to indicate the name of the CSCI Server. It must be set the same for all CSCI's Clients defined to a single CSCI server. <b>The server name must match its CSCI Clients CSCI_SERVER_NAME.</b> The matching of the Server and Client CSCI_SERVER_NAME provides an end-to-end logical link between machines. Finally, this name is used later for the "connectionname" in other environment variables.. The value assigned to the CSCI_SERVER_NAME must be replicated in the connectionname part of the subsequent variables.
CSCI_connectionname_NET_TYPE	This variable is used to indicate what Network type this CSCI is configured for from the CIF subsystem. The NETTYPE defines the transport layer used by this CSCI. Valid assignments are <b>LU62</b> or <b>IPC</b> .
CSCI_connectionname_INPUT_SOCKET	This variable is used to indicate the input socket number to use as input to this CSCI. This number would match the Server or Client application output socket number.
CSCI_connectionname_CONNECTION_TYPE	This variable is used to indicate this CSCI type. This CON_TYPE defines the CSCI to be either a <b>SERVER</b> or a <b>CLIENT</b> .
CSCI_connectionname_TRANSLATE_TYPE	This variable is used to indicate this CSCI XDR type to be employed during execution. This can be assigned to either <b>XDR</b> or <b>NONE</b> .

**Table 13. CSCI Server Subsystem Environment Variables**

Name	Description
CSCI_connectionname_LU62_ADDRESS	This variable is used to indicate the SNA Symbolic Destination Name. This name is used by the client CSCI to connect to the Server CSCI. The CSCI Server will always have a NULL string assigned. The Client CSCI will always assign a SNA "Symbolic Name" into this variable. The Symbolic name is required for the SNA Network to connect two SNA networked connected CSCI's together. For further information regarding the SNA Symbolic Name, see <i>Side Information Table</i> in your SNA product manuals.
CSCI_connectionname_DESTINATION_SOCKET	This variable is used to indicate destination or output socket number to be used by the CSCI Server. This socket number would be the matching input socket number to the CSCI Server Application.

**Shell Script Provided in ACSLS/CSCI Software:**

```

#Server 1
#!/bin/ksh
#
# Start up the CSCI
#
# Setup environment variables
#
# trace
CSCI_TRACE=OFF
#CSCI_TRACE=ON
export CSCI_TRACE

# csci sleep time in milliseconds, default if omitted is 100
CSCI_SLEEP_TIME=100
export CSCI_SLEEP_TIME

# Initial connection
CSCI_INITIAL_CONNECTION=LU6CALL
export CSCI_INITIAL_CONNECTION

# Server name
CSCI_SERVER_NAME=SERVICE2
export CSCI_SERVER_NAME

```

```

#####
# Connection information for LU6CALL
#####
CSCI_LU6CALL_NET_TYPE=LU62
export CSCI_LU6CALL_NET_TYPE

CSCI_LU6CALL_TRANSLATE_TYPE=XDR
export CSCI_LU6CALL_TRANSLATE_TYPE
#
# the CSCI SERVER always has a null string for this variable.
#CSCI_LU6CALL_LU62_ADDRESS=""
export CSCI_LU6CALL_LU62_ADDRESS
#
#####
# Connection information for SERVICE2
#####
#
CSCI_SERVICE2_NET_TYPE=IPC
export CSCI_SERVICE2_NET_TYPE

#CSCI_SERVICE2_INPUT_SOCKET=#####
CSCI_SERVICE2_INPUT_SOCKET=0
export CSCI_SERVICE2_INPUT_SOCKET

CSCI_SERVICE2_CON_TYPE=SERVER
export CSCI_SERVICE2_CON_TYPE

#CSCI_SERVICE2_DESTINATION_SOCKET=#####
CSCI_SERVICE2_DESTINATION_SOCKET=50003
export CSCI_SERVICE2_DESTINATION_SOCKET

#
# Start up the dummy parent and get its process id
#
/home/csci/bull/bin/csciParent &
curpid=$!
#
# Start the CSCI executable with the following args:
#
# arg1: process id of the dummy parent

```

```
# arg2: input socket name (0 = ANY_PORT)
# arg3: requestor type (23 = TYPE_SA)
#
sleep 2
/export/home/csci/bull/bin/csci $curpid 0 23a
```



## Appendix E. De-installing a Second Disk

---

### Overview

De-installing a second disk is usually done when the second disk needs to be serviced or replaced.



**Caution:** De-installation of the second disk should be used if there is a hardware failure of the second disk. ACSLS will not start if a hardware failure occurs.



**Note:** You need at least 70 MB of free space in `/export/home` to remove second disk support. Use the `df -k` command to view free space.



**Note:** You may reclaim the space used for second disk support by removing the files suggested in the messages shown at the end of second disk removal in Step 7.

## De-installing a Second Disk



### To de-install the second disk:

1. **If you are not already logged in as acsss, select Log Out from the Workspace menu and then log in as acsss.**
2. **From the cmd\_proc window, idle ACSLS.**  
**idle**
3. **Shut down ACSLS by entering**  
**kill.acsss**



**Note:** Shutting down the Oracle database is not necessary to de-install a second disk.

4. **To execute the second disk utility, enter**  
**./sd\_mgr.sh**  
This command starts the second disk manager. With this function, you can remove second disk support.
5. **Enter 2 to de-install second disk support when you are prompted for a menu choice.**

The following message appears:

```
What directory do you want to use for  
Oracle backups[/export/backup]?
```

6. **Press `[[ENTER]]` to accept the /export/backup directory or enter a name of a directory you will use.**

Various status messages display showing the progress of the command.

**7. Follow the directions in the display output to remove superfluous files and directories from /second\_disk.**

Messages appear as follows:

```
Prepare for database backup...
Insert database backup tape.
[Hit RETURN to continue]
```

**8. Select 3 to exit the menu.**

**9. Is a backup tape device configured with your system?**

YES	Put a blank tape into the tape drive and press <code>[[ENTER]]</code> to back up the database to tape. <b>Caution:</b> The tape drive may appear idle. It may not make any sounds or flash any lights during this time. If you remove the tape from the drive at this point and try to re-install the system, you receive messages to remove directories. <b>DO NOT</b> remove the tape from the drive until you see this success message:  Completed second disk management utility. Remove the backup tape and store it in a safe place.
NO	Enter <code>CTRL + C</code> and then refer to <code>bdb.acsss</code> on page 95 to backup the database to disk file.

The backup takes several minutes to complete.

**10. Remove the backup tape and store it in a safe place.**

**11. Log out by selecting Log Out from the Workspace menu.**



# Appendix F. Installing AIX from a Backup

---

## Introduction

The AIX Operating System can be installed from a system backup tape created using `smitty mkysb`.

### Installing AIX from a System Backup

To install AIX from a system backup:

1. **Make sure that the tape drive is turned ON.**
2. **Make sure that the server is turned ON.**
3. **Open the tape drive door.**
4. **Turn the key to Service.**
5. **Insert the AIX Operating System backup tape into the tape drive. Close the tape drive door.**
6. **On the server, press the Reset button twice.**
7. **If the TESTING COMPLETED screen displays, press `[[Enter]]` to continue.**



**Note:** For a few minutes the system might appear idle. Do not open the tape drive door. Wait for the next screen to display.

**8. The following message displays:**

Please define the System Console.

Press **[[F1]]** to define the system console and then press **[[Enter]]**.

The INSTALLATION AND MAINTENANCE screen appears.

**9. Select** Install a system that was created with SMIT "Backup The System" function or the "mksysb" command. **Press **[[Enter]]** to install the operating system from the backup tape.**

The CURRENT SYSTEM SETTINGS screen displays.

**10. Verify that the system settings are correct. If the correct settings are displayed, select** Install a SMIT "Backup The System" image with the current settings. **Press **[[Enter]]**.**

The FINAL WARNING screen displays.

**11. Select** Continue with installation. **Press **[[Enter]]**.**

**12. Press **[[Enter]]** to start the tape.**

The installation takes 45 minutes to 1.5 hours.

**13. Turn the key to Normal *before* the installation completes.**

When the installation is complete, a screen displays indicating that the AIX Base Operating System installation is complete.

**14. Remove the AIX Operating System backup tape from the tape drive.**

**15. Press **[[Enter]]** to reboot the server.**

**16. During rebooting ignore the following error messages:**

The System Resource Controller daemon is not active.  
Machine not identical to previous configuration.  
Shutdown, rebooting.



**Note:** If the system used to create the backup tape is not the same as the system on which it is now being installed, the server might reboot two or three times.

Each time the server reboots, the system reconfigures. When the server reboots successfully, a login prompt displays.



## Glossary

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**AC**—Alternating current.

**ACS**—*See* Automated Cartridge System.

**ACSEL**—*See* ACS Event Logger.

**ACS Event Logger (ACSEL)**—The software component that receives messages from other ACSLS components and writes them to an Event Log.

**ACS ID**—A unique identifier for an ACS.

**ACSLH**—*See* ACS Library Handler.

**ACS library**—A library is composed of one or more ACSs, attached 4480 tape cartridge drives, and cartridges residing in the ACSs.

**ACS Library Handler (ACSLH)**—The part of the ACSLM that communicates directly with the LMU.

**ACSLM**—*See* ACS Library Manager.

**ACS Library Manager (ACSLM)**—The software component that validates and routes library requests and responses.

**ACSLs**—*See* ACS Library Software.

**ACS Library Software (ACSLs)**—Manages ACS library contents and controls ACS library hardware to mount and dismount cartridges on ACS cartridge drives.

**ACSLs database**—A database used by ACSLS to track the library configuration and the locations and IDs of all tape cartridges in the library.

**ACSSA**— *See* ACS System Administrator.

**ACS System Administrator (ACSSA)**—The interface between the Command Processor and the rest of the system.

**ADI**—Application Data Interchange.

**audit**—A physical inventory of the contents of all or part of a library.

**Automated Cartridge System (ACS)**—The library subsystem consisting of one LMU, and one to 24 LSMs connected to that LMU.

**automated library**—*See* library.

**beginning of tape (BOT)**—The location on a tape where written data begins.

**BIST**—Built-in Self Test.

**BOT**— *See* Beginning of Tape.

**BSD**—Berkeley Software Distribution. A variation of the UNIX operating system.

**CAP**—*See* Cartridge Access Port.

**CAP ID**— A unique identifier for the location of a CAP. A CAP ID consists of the ACS ID, the LSM number, and the CAP number.

**cartridge**—A plastic housing containing a length of data recording tape. It is approximately 4 inches (100 mm) by 5 inches (125 mm) by 1 inch (25 mm). The tape is threaded automatically when loaded in a transport. A plastic leader block is attached to the tape for automatic threading. The spine of the cartridge contains an OCR/Bar Code label listing the volume ID.

**Cartridge Access Port (CAP)**— A bidirectional port built into the door panel of an LSM, which provides for the manual entry or automatic ejection of tape cartridges.

**cartridge drive (CD)**— A device containing two or four cartridge transports and their associated power and pneumatic supplies.

**cartridge tape I/O driver**—Operating system software which issues commands (e.g., read, write, and rewind) to cartridge subsystems.

**cartridge transport**— An electromechanical device that moves tape from a cartridge over a head that writes and reads data from the tape. A transport is distinct from the power and pneumatic sources that supply the electricity and air it needs to function. See cartridge drive.

**CCI**—*See* client computing system.

**CD**—*See* cartridge drive.

**cell**— A receptacle in the LSM in which a cartridge is stored.

**Central Support Remote Center (CSRC)**— An installation whose operators can access and test StorageTek products over telephone lines.

**channel**— A device that connects the host and main storage with the input and output control units.

**checkpoint**—A backup copy of the ACSLS database.

**CIM**—Customer initiated maintenance.

**client applications**— Software applications that manage tape cartridge contents. They access tape cartridges by interacting with ACSLS. Any number of client applications can be resident on a client system.

**client computing system**—A computer and an executable image of the operating system.

**client software**— This software manages tape cartridge contents, generates requests for cartridges, and transfers data to and from cartridges. The client software is *not* part of ACSLS.

**Client System Component**—Software which provides an interface between the client computing system's operating system and the StorageTek Library Control Software.

**Client System Interface (CSI)**— The software component that translates and routes messages between the ACS Library Manager and the Client System Component.

**command area**—The bottom area of the Command Processor interface where you enter requests and receive responses.

**command processor**— The screen interface of the ACSSA. The Command Processor performs basic syntax validations on user input.

**control path adapter**—A hardware device which converts from a Client Computing System's control protocol to the control protocol of the StorageTek Library Control System.

**control unit (CU)**—A microprocessor-based unit logically situated between a channel and up to sixteen cartridge transports. The CU translates channel commands into transport commands and sends transport status to the channel.

**CSC**—Client System Component.

**CSE**—Customer Services Engineer.

**CSI**—See Client System Interface.

**CSI variables**—Used to define various options to fine tune communications between a CSC and the CSI.

**CSRC**—*See* Central Support Remote Center.

**CU**—*See* control unit.

**cycle error messages**—Messages that indicate a library or ACSLS failure.

**database**—A collection of interrelated data records. See also Library Database.

**data path**—The network path that allows client applications read/write access to tape cartridges.

**data path adapter**—A hardware device which translates from a Client Computing System's data protocol to the data protocol of the StorageTek Control Unit.

**DC**—Direct current.

**display area**—The top area of the Command Processor interface that collects messages regarding the status of the library.

**end of tape (EOT)**— The location on a tape where written data ends.

**environment variable**— Used to customize features and functions of ACSLS.

**EOT**— *See* end of tape.

**EPO**—Emergency Power Off.

**EPROM**—*See* erasable programmable read only memory.

**erasable programmable read-only memory (EPROM)**— A special memory chip that can be erased and reprogrammed.

**ESC**—European Support Center.

**ESD**—Electrostatic discharge.

**Event Log**—A file, maintained by the ACSEL, that contains messages describing library and ACSLS events.

**Event Logger**—*See* ACS Event Logger.

**external label identifiers**— A six-character alphanumeric label on the outside edge of a cartridge used to identify a physical tape volume. It may consist of uppercase letters A through Z, numerals 0 through 9, and blanks.

**FRU**—Field-replaceable unit.

**full installation**—A complete software installation required for new customer sites or for existing sites where a new library has been installed.

**home location**—The cell associated with a given cartridge.

**Host Software Component**—Software which provides the functionality contained within the Client System Component and the Library Control Software.

**ID**—Identifier or identification.

**Initial Program Load (IPL)**—A process that activates a machine reset, initiates wake up diagnostics (from EPROMs) and loads functional code.

**inline diagnostics**—Routines that test components of a subsystem while operating on a time-sharing basis with the functional microcode in the subsystem component.

**internal error messages**—Messages that indicate problems that may not be directly related to the library.

**in-transit cartridges**—Cartridges between their source and destination locations. Cartridges are considered in-transit if they are in the pass-thru ports, robot hands, or playground.

**installation variables**—Used to locate and identify ACSLS software components.

**I/O**—Input/Output.

**IPA**—Information Processing Architecture.

**IPC**—Interprocess Communication.

**IPL**—*See* Initial Program Load.

**journal**—A sequential log of changes made to the database since the last checkpoint.

**LAD**—Lock Access Door.

**LAN**—*See* local area network.

**large CAP (LCAP)**—A 40-cartridge CAP with the storage cells arranged in four removable magazines of ten cells each. The magazines appear as a single column of 40 cells to the host software.

**LCAP**—*See* large CAP.

**LCU**—*See* Library Control Unit.

**LED**—*See* Light Emitting Diode.

**library**—A library is composed of one or more ACSs, attached 4480 cartridge drives, volumes in the ACSs, and the ACSLS software that controls and manages the ACSs.

**library configuration options**—Allows the customer to specify the number of ACSs in the library and the connections between each ACS and the server system.

**library control component**—Software which controls the mounting and dismounting of cartridges in the ACS.

**library control platform**—The hardware and software which provide the proper environment for the Library Control software.

**library control processor**—Properly configured computer hardware that, with the addition of appropriate software, supports the operation of the Library Control Software.

**library control system**—The library control platform loaded with library control software (ACSLs).

**library control software**—The software components of ACSLS including the library control component, the Client System Interface and Library Utilities.

**Library Control Unit**—The portion of the LSM that controls the picking, mounting, dismounting, and replacing of tape cartridges.

**library database**—A file or dataset containing information about the location and status of the tape cartridges. The information includes cell location, scratch status, etc.

**library drive**—A cartridge transport attached to an LSM that is connected to, and controlled by, a client system. Library drives interact with the LCU during automated tape cartridge mount and dismount operations. Library drives interact with a client application during tape data transfer operations. Library drives are individually addressable by the ACSLM and are individually accessible by client applications. *See* Cartridge Transport.

**library errors**—Errors that occur because the library is offline, has suffered hardware failure, is unavailable, etc.

**Library Management Unit (LMU)**—The portion of an ACS that manages LSMs, allocates their resources, and communicates with ACSLS.

**Library Storage Module (LSM)**—An ACS structure that provides the storage area for cartridges, cartridge drives, CAPs, and the robot necessary for moving them.

**light emitting diode (LED)**—A light emitting device that uses little energy and is used mainly to indicate on/off conditions.

**LMU**—*See* Library Management Unit.

**local area network (LAN)**—A computer network in which any component in the network can access any other component. This is the type of interface between an LMU and attached LSMs.

**LSM**—*See* Library Storage Module.

**LSM ID**—A unique identifier for an LSM. The LSM ID consists of the ACS ID and the LSM number.

**machine initiated maintenance (MIM)**—A unique feature of the 4400 ACS in which an expert system monitors conditions and performance of the subsystem, and requests attention before a problem becomes serious enough to impact operations.

**MAP**—*See* maintenance analysis procedure.

**MIM**—*See* machine initiated maintenance.

**network adapter**—Equipment that provides an electrical and logical interface between a network and specific attached equipment.

**Network Interface (NI)**—An interface between the server system and the client systems that maintains network connections and controls the exchange of messages. The NI is resident on the server system and each client system.

**NI**—*See* Network Interface.

**OCR**—Optical character recognition.

**ONC**—Open network computing.

**Open Systems Interconnection (OSI)**—A software architecture model of the International Organization for Standardization. The OSI model provides standards for the interconnection of data processing systems.

**Oracle**—A relational database used by ACSLS.

**OSI**—*See* Open Systems Interconnection.

**OSLAN**—Open Systems Local Area Network.

**Pass-Thru Port (PTP)**—Mechanism that allows a cartridge to be passed from one LSM to another in a multiple LSM ACS.

**PCAP**—*See* priority CAP.

**PCR**—Product Change Request.

**playground**—A reserved area of special cells (within an LSM) used for storing diagnostic cartridges and cartridges found in-transit upon power-on and before initialization of the LSM is completed.

**pool**—A collection of tape cartridges having one or more similar features or attributes, such as a pool of scratch tapes.

**POST**—Power-on self-test.

**priority CAP (PCAP)**—A single-cartridge CAP used for priority entry and ejection of cartridges.

**Problem Summary form**—A form for recording information, including the SRN, for a service request.

**processing errors**—Errors that result from processing or network communication failures.

**PROM**—Programmable read-only memory.

**PTP**—*See* Pass-Thru Port.

**RDBMS**—Relational database management system.

**relational database**—A database that is organized and accessed according to relationships between the data items; relationships are represented by tables.

**ROM**—Read-only memory.

**RPC**—Remote Procedure Call.

**SCAP**—*See* standard CAP.

**scratch**—An attribute of a tape cartridge, indicating that it is blank or contains no useful data.

**SCSI**—Small computer serial interface.

**second disk journaling**—Allows for the database's journal records to be written to a second disk device, instead of writing records to the primary disk. This improves the chances of recovery from a disk failure.

**server system**—The part of the library that is the residence for ACSLS, now referred to as the Library Control System. The Library Control System acts as an interface between a library and client systems.

**server system user**—A person who invokes ACSLS commands, utilities, or procedures on the server system. Server system users are generally site and maintenance personnel (for example, library operators, tape librarians, system administrators, CSEs, and systems personnel).

**servo**—A system that uses feedback to control a process.

**silos**—A commonly used term for an LSM. *See* Library Storage Module.

**SIMM**—Single inline memory module.

**SQL**—*See* structured query language.

**SRN**—*See* service request number.

**SSI**—*See* Storage Server Interface.

**SSR**—Software Support Representative.

**Standard CAP (SCAP)**—A 21-cartridge CAP with the storage cells arranged in three rows of seven fixed cells.

**Storage Server Interface (SSI)**—A software component, resident on a client system, that translates and routes messages between client applications and the CSI.

**structured query language (SQL)**—A language used to define, access, and update data in a database.

**SVID**—System V Interface Definition.

**system resource variable**—Used to control the amount of system resources used by ACSLS.

**system unit**—The Library Control Platform.

**tape library management system (TLMS)**—A type of client application.

**Theta arm**—The robot's main arm.

**TCP**—Transmission Control Protocol.

**TLMS**—*See* tape library management system.

**TOD**—Time of day.

**UDP**—User Datagram Protocol.

**UNIX**—An operating system originally developed by Bell Laboratories (now UNIX Systems Laboratories, Inc.) and used by a variety of computer systems.

**unsolicited messages**—Messages that indicate an error or notify you when a particular routine action can be taken.

**UOC**—Usable on codes.

**upgrade installation**—Performed when installing a new version of ACSLS at an existing customer site.

**user-selectable features and options variables**—Used to define various user-selectable features and options.

**validation errors**—Errors that result from format and syntax validation performed by the Command Processor.

**virtual label**—A logical label that can be assigned to a cartridge when its physical label is missing or unreadable.

**volser**—Volume Serial Number.

**volume**—A tape cartridge.

**volume access control**—Limits access to volumes, usually by the client.

**volume identifier**—A six-character string that uniquely identifies a tape cartridge to the database.

**volume serial number (volser)**—A synonym for external label identifier.

**WolfCreek**—A library with a capacity of approximately 1000 data cartridges. ACSLS supports stand-alone and PTP-connected WolfCreek configurations.

**WSC**—Worldwide Support Center.

**WTM**—write tape mark.

**XDR**— External data representation.

The *AIX SNA Server/6000 User's Guide* is the source of definitions for terms marked with an asterisk (\*).

**\*address**—(1) A name, label, or number identifying a location in storage, a device in a system or network, or any other data source. (2) The telephone number that remote systems use to call the system. (3) A value that identifies a register, a particular part of storage, a data source, or a data sink. The value is represented by one or more characters. (4) To refer to a device or an item of data by its address. (5) In word processing, the location, identified by an address code, of a specific section of the recording medium or storage. (6) In data communication, the unique code assigned to each device or workstation connected to a network. *See* network user address. (7) A numbering system used in network communications to identify a specific network or host with which to communicate. Addresses are often denoted in dotted decimal form.

**\*adjacent**—In a network, pertaining to devices, nodes, programs, or domains that are directly connected by a data link or that share common control.

**\*Advanced Configuration**—In SNA Server/6000, a set of commands that enable manipulation of individual configuration profiles. These commands are available through SMIT and the AIX command line. Contrast with Quick Configuration.

**\*advanced peer-to-peer networking (APPN)**—Data communications support that routes data in a network between two or more independent LU6.2s that do not need to be adjacent.

**\*advanced program-to-program communications (APPC)**—An implementation of the SNA/SDLC LU 6.2 protocol that allows interconnected systems to communicate and share the processing of programs.

**\*allocate**—In the Network Computing System, to create a remote procedure call (RPC) handle that identifies an object.

**\*BIND request**—In SNA products, a request to activate a session between two logical units.

**\*brackets**—(1) In SNA, one or more chains of request units and their responses, which are exchanged between two LU-LU half-sessions and represent a transaction between them. A bracket must be completed before another bracket can be started. Examples of brackets are data base inquiries and replies, update transactions, and remote job entry output sequences to workstations. (2) The ASCII characters [(left bracket) and ] (right bracket), also known as “square brackets.” (This usage does not follow the British usage of “brackets” to mean parentheses, the characters that enclose this sentence.)

- \***BTU**—Basic transmission unit.
- \***cable**—The physical media for transmitting signals; includes copper conductors and optical fibers.
- \***calling link station**—A station designated to call a remote station when activated.
- \***cancel**—(1) To end a task before it is completed. (2) In SNA Server/6000, a parameter indicating that the stopping action (stopping a link station or stopping SNA) should be executed immediately, regardless of what other operations may be in progress. (3) In SNA, CANCEL is a request that can be sent by a half session to terminate a partially sent chain of FMD (function management data) requests.
- \***Common Programming Interface for Communications (CPI Communications)**—Provides languages, commands, and calls that allow the development of communications applications that are more easily integrated and moved across diverse environments.
- \***configuration**—(1) The manner in which the hardware and software of an information processing system are organized and interconnected. (T) (2) The physical and logical arrangement of devices and programs that make up a data processing system. (3) The devices and programs that make up a system, subsystem, or network.
- \***control point (CP)**—The component of PU type 2.1 nodes that provides services to its local logical units. The control point handles LU-LU session initiation requests for independent type 6.2 LUs or CPs.
- \***CP-CP session**—In SNA, the parallel sessions between two control points, using LU 6.2 protocols and a mode name of CPSVCMG, on which network services requests and replies are exchanged. Each control point of a given pair has one contention-winner session and one contention-loser session with the other.
- \***data communication**—(1) Transfer of data among functional units by means of data transmission according to a protocol. (T) (2) The transmission and reception of data. (A) (3) The transmission, reception, and validation of data. (A)
- \***data link**—(1) The assembly of parts for two data workstations that are controlled by a link protocol and the interconnecting data circuit, which enables data to be transferred from a data source to a data sink. (2) The interconnecting data circuit and the link protocol between two or more workstations, not including the data source or data sink. (3) The physical connection and the connection protocols between units that exchange data over a telecommunications line.
- \***data link control (DLC)**—A set of rules used by nodes on a data link (such as an SDLC link or a token ring) to accomplish an orderly exchange of information.

- \***data link control (DLC) layer**—In SNA, the layer that consists of the link stations that schedule data transfer over a link between two nodes and perform error control for the link. Examples of data link control are SDLC for serial-by-bit link connection and data link control for the System/370 channel. The DLC layer is usually independent of the physical transport mechanism and ensures the integrity of data that reaches the higher layers.
- \***data stream**—(1) All information (data and control information) transmitted over a data channel in a single read or write operation. (2) A continuous stream of data elements being transmitted, or intended for transmission, in character or binary-digit form using a defined format.
- \***destination address field (DAF)**—In SNA, a field in a format identification 0 or format identification 1 transmission header that contains the network address of the destination. In a format identification 2 header, the field is called destination address field prime (DAF’).
- \***dynamic listening link station**—In SNA Server/6000, a listening link station instance that is dynamically created to receive an incoming call. The function is enabled for LAN links through a setting in the SNA DLC profile.
- \***end node (EN)**—In SNA, a node in an APPN network that can be a source or target node, but does not provide any routing or session services to any other node.
- \***exchange identification (XID) frame**—In a logical link control (LLC) header, the frame that conveys the characteristics of the sending host.
- \***export**—(1) To provide the operations defined by an interface. A server exports an interface to a client. (2) To copy data onto removable media (for example, in SNA Server/6000, to export ASCII files from the SNA Server/6000 configuration profile database). Contrast with *import*.
- \***fully qualified name**—A qualified name that includes all names in the hierarchical sequence above the structure member to which the name refers, as well as the name of the member itself. See full path name.
- \***gateway**—(1) An entity that operates above the link layer and translates, when required, the interface and protocol used by one network into those used by another distinct network. (2) In SNA Server/6000, the optional feature that supports the establishment and use of dependent LU sessions between hosts and RISC System/6000 workstations that use the feature.
- \***general data stream (GDS)**—A structured-field data stream or a user-defined data stream. See data stream.
- \***host ID**—An identifier for a host. A host iD uniquely identifies a host within an address family on a network but does not identify the network. A host ID is not necessarily sufficient to establish communications with a host.

- \***independent logical unit (ILU)**—A logical unit (LU) that does not require a command from the host system over a data link to be made active. Such logical units can be used as primary logical units (PLUs) or as secondary logical units (SLUs), and can have one or more active LU-LU sessions at a time. Contrast with *dependent logical unit*.
- \***Initial Node Setup**—In SNA Server/6000, the function that allows the user to configure the local node with the minimum set of information necessary for operation.
- \***LEN node.**—Low-entry networking node.
- \***line speed.**—(1) The rate at which data is transmitted from one point to another over a telecommunication line. (2) The number of binary digits that can be sent over a telecommunication line in one second, expressed in bits per second (BPS).
- \***link**—In data communications, a transmission medium and data link control component that together transmit data between adjacent nodes.
- \***link station**—The part of data link control that is responsible for the transfer of data on a single logical link.
- \***link trace**—A sequential log of events that occur on the link. This log can help determine the source of a recurring error.
- \***listening link station**—A link station that activates at the incoming request of a calling link station.
- \***local LU**—The logical unit that manages a session on a local node. See also *logical unit, session* and *local node*.
- \***local program**—The program being discussed within a particular context. Contrast with *remote program*.
- \***logical link control (LLC)**—In a local area network, the protocol that governs the assembling of transmission frames and their exchange between data stations, independently of the medium access protocol.
- \***logical unit (LU)**—(1) A type of network accessible unit that enables end users to communicate with each other and gain access to network resources. (2) In SNA, a port through which an end user accesses the SNA network in order to communicate with another user. An LU may be capable of supporting many sessions with other LUs.
- \***Logical Unit Type 6.2 (LU 6.2)**—A type of LU that supports sessions between two applications in a distributed data processing environment using the SNA general data stream, or a user-define data stream. A dependent LU 6.2 talks to a host; an independent LU 6.2 talks to a directly connected peer. See *APPN*.

- \***low-entry networking (LEN)**—In SNA, a capability in type 2.1 nodes allowing them to be directly attached to one another using peer-to-peer protocols and allowing them to support multiple and parallel session between logical units (LUs).
- \***low-entry networking node (LEN node)**—A type 2.1 node that supports independent LU protocols but does not support CP-CP sessions. It may be a peripheral node attached to a boundary node in a subarea network, an end node attached to an APPN network, or a peer-connected node directly attached to another LEN node or APPN end node.
- \***LU 6.2**—Logical Unit Type 6.2
- \***LU, independent**—A logical unit that can start a conversation with another logical unit.
- \***LU-LU session**—In SNA, a session between two logical units (LUs) of the same type that supports communication between two end users, or between an end user and an LU services component.
- \***MAC**—Medium access control.
- \***mapped conversation**—A temporary connection between application programs in an advanced program-to-program communication (APPC0 session in which the system provides all the protocol information. It allows the two programs to exchange data records of any length and in any format specified by the transmission programs. Only LU 6.2 session allow mapped conversation. Contrast with *basic conversation*.
- \***Medium access control (MAC)**—For local area networks, the method of determining which device has access to the transmission medium at any time.
- \***node name**—In SNA, the name used by the initiator of a session to designate the characteristics desired for that session, such as traffic pacing values, message length limits, and the class of service within the transport network.
- \***multiple sessions.**—More than one connection between two LU pairs over the same link.
- \***network accessible unit (NAU).**—A class of SNA objects that includes logical units (LUs), physical units (PUs), control points (CPs), and system services control points (SSCPs). It is the origin or the destination of information transmitted by the path control network. Each NAU has a network address that represents it to the path control network.

- \***network address.**—The part of an address indicating a specific network. A complete address for a machine on a network consists of the network address and the host address.
- \***network node (NN).**—In APPN, an intermediate node in the network that provides intermediate session routing, resource registration, and topology discovery.
- \***node.**—An end point of a link, or a junction common to two or more links in a network. Nodes can be processors, controllers, or other workstations, and they can vary in routing and other functional capabilities.
- \***node verification.**—An additional level of security beyond that provided by the network addressing scheme. Node verification helps to ensure that a connection reaches the correct remote station. It is available on LU 6.2 connections only. See also *BIND password*.
- \***padding.**—A technique used by a receiving component to control the rate of transmission by sending a component to prevent overrun.
- \***partner.**—In data communications, the remote application program or the remote computer.
- \***partner LU.**—In SNA, the remote participant in a session. See also *logical unit* and *session*.
- \***path information unit (PIU).**—In SNA, a message unit consisting of a transmission header (TH) alone, or a TH followed by a basic information unit (BIU) or a BIU segment.
- \***peer network.**—A network made up of connections between type 6.2 LUs.
- \***peer system.**—In SNA, a system containing a type 2.1 physical unit supporting type 6.2 independent LUs. Peer systems cooperatively establish LU-LU sessions without the services of an SNA host.
- \***physical layer.**—The lowest layer of network design as specified by the ISO Open System Interconnection (OSI) reference model. This layer is responsible for interfacing with the medium, detecting and generating signals on the medium, and converting and processing signals received from the medium and from the data link layer.
- \***primary logical unit (PLU).**—In SNA, the logical unit (LU) that contains the primary half-session for a particular LU-LU session. A single logical unit may contain a primary half-session for one LU-LU session (thus serving as the primary logical unit for that session) and a secondary half-session at the same time for another LU-LU session (thus serving as the secondary logical unit for that session). Contrast with *secondary logical unit*.

- \***profile.**—In SNA Server/6000, a record containing configuration information for a specific SNA entity, such as a local LU.
- \***qualified name.**—(1) A name made unique by the addition of one or more qualifiers. (2) A data name explicitly accompanied by a specification of the class to which it belongs in a specified classification system.
- \***remote node.**—A node other than the local node to which physical and logical connections can be established.
- \***remote program.**—The program at the other end of a conversation with respect to the program being discussed. Contrast with *local program*.
- \***remote system.**—A system that is connected to your system through a communication line.
- \***remote transaction program name (RTPN).**—The name of a transaction program at the other (remote) end of a conversation.
- \***ring network.**—(1) A network in which every node has two branches connected to it. (2) A network configuration in which devices are connected by unidirectional transmission links to form a closed path.
- \***RTPN.**—Remote transaction program name.
- \***SAA.**—Systems Application Architecture.
- \***secondary logical unit (SLU).**—In SNA, the logical unit (LU) that contains the secondary half-session for a particular LU-LU session. Contrast with *primary logical unit*. See also *logical unit*.
- \***service access point (SAP).**—The address for an application on the local system. This address is a hexadecimal value.
- \***side information.**—In AIX CPI communications, predefined information about a conversation, stored in a side information profile. Side information provides initial values for the partner LU name, mode name, and TP name conversation characteristics. The use of side information is optional.
- \***source TP.**—The transaction program that initiates the conversation with a remote TP.
- \***System Management Interface Tool (SMIT).**—Common AIX programmable interface.

**\*Systems Application Architecture (SAA)**—(1) A set of software interfaces, conventions, and protocols that provide a framework for designing and developing applications with cross-system consistency. (2) An IBM architecture for controlling the transfer of information in a data communications network. (3) The description of the logical structure, formats, protocols, and operating sequences for transmitting information units through, and controlling the configuration and operation of, networks.

**\*Systems Network Architecture (SNA)**— A description of the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks.

**\*token.**—(1) The smallest independent unit of meaning of a program as defined by either the parser or the lexical analyzer. A token can contain data, a language keyword, an identifier, or other parts of a language syntax. (2) In the m4 command, any string of letters and digits that the m4 command recognizes. (3) A type of macro that the typesetting preprocessor replaces with an assigned string value. (4) In a local area network, the symbol of authority passed among data stations to indicate the station temporarily in control of the transmission medium.

**\*transaction program (TPN).**—A program that processes transactions in an SNA network. The two kinds of transaction programs are application transaction programs and service transaction programs. See also *conversation*.

**\*transaction program name (TPN).**—The name of an application program that uses data communications to send or receive data to or from another application program.

**\*type 2.1 node.**—A node that can attach to an SNA network as a peripheral node using the same protocols a type 2.0 node uses. Type 2.1 nodes can be directly attached to one another using peer-to-peer protocols.



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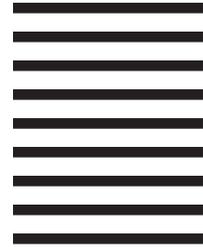
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