StorageTek®

OS 2200 Client System Component (CSC)

5R1 Technical Bulletin

February 2005

CONTENTS

PREFACE

1. PRODUCT DESCRIPTION

2. TECHNICAL SPECIFICATIONS

3. COMPATIBILITY

4. CONSTRAINTS

5. SUPPORT INFORMATION

A. EQUIVALENT TERMS

TABLES

FIGURES

PREFACE

PURPOSE

This is the *OS 2200 Client System Component (CSC) Delivery 5R1 Technical Bulletin*. This bulletin describes the features and technical specifications of CSC 5R1. CSC is the software used by the Unisys 2200 Client System (the "client") to communicate with either the Solaris®-based Library Control System or the Nearline Control Solution (the "server") and an Automated Cartridge System (ACS).

AUDIENCE

This technical bulletin is intended for all data processing personnel involved with the operation of CSC. Site administrators will find it helpful for learning about new features and various operational constraints and considerations.

HOW TO USE THIS DOCUMENT

This guide is meant to be read in order by chapter. You should pay particular attention to Chapter 4, "Constraints." This chapter describes important restrictions and operational considerations associated with CSC and the server.

Chapter 1. Product Description

This chapter briefly describes the CSC product components and the new features available in CSC 5R1.

Chapter 2. Technical Specifications

This chapter provides technical information on CSC, CSCUI, and CDI including component memory size, software defaults, and operational assumptions.

Chapter 3. Compatibility

This chapter summarizes qualification and component compatibility issues.

Chapter 4. Constraints

This chapter describes important restrictions and operational considerations associated with CSC and server components.

Chapter 5. Support Information

This chapter summarizes CSC product support policy and history, and OS 2200 level support.

Back Matter

Included in this bulletin is an appendix defining terminology unique to ACS products.

HOW TO USE CSC DOCUMENTATION

The following information offers ways to take advantage of other CSC documentation for the CSC 5R1 release.

CSC System Administrator's Guide

A guide designed to assist site administrators with planning, configuring, and migrating to automated cartridge tape operations. It offers ideas and advice to help administrators make the transition with minimal difficulty.

CSC Installation Guide

A guide used by *experienced* systems support staff to install and configure CSC and CDI. Prerequisites include familiarity with the ACS, Unisys 2200 computers, Executive Control Language (ECL), SOLAR, and COMUS.

CSC Operations Guide

A reference guide for operations staff containing an overview of the relationship between CSC and the server, information on CSC and CDI command syntax and meaning, and instructions on how to start and stop CSC and CDI. Also included is information to assist systems support and operations staff with analyzing CSC errors and collecting appropriate diagnostic information for Unisys Customer Service Engineers (CSEs).

CSC User Reference Manual

A manual for end-users of the automated tape handling of the StorageTek tape library and CSC. Automated tape handling is affected by site-specific selections in configuring the library, CSC, and OS 2200. This manual provides information for those installing and administering the library, CSC, and OS 2200.

CDI Troubleshooting Guide

A guide describing the tools available to diagnose and solve CSC problems for the Client Direct Interconnect (CDI). It is intended as a troubleshooting reference guide for anyone responsible for establishing and supporting the CSC/CDI environment.

CSCUI Programmer's Reference Manual

A guide describing how to use the CSC User Interface (CSCUI) to take advantage of CSC functions.

RELATED DOCUMENTATION

The following related documents may be helpful to you.

Other Documents in This Release

The following documents are available as part of this CSC release. These documents are listed below by title. You can order these books from your StorageTek representative.

OS 2200 Client System Component (CSC) System Administrator's Guide, Storage Technology Corporation (312537501)

OS 2200 Client System Component (CSC) Operations Guide, Storage Technology Corporation (312537201)

OS 2200 Client System Component (CSC) Installation Guide, Storage Technology Corporation (312537301)

OS 2200 Client System Component User Interface (CSCUI) Programmer's Reference Manual, Storage Technology Corporation (312537401)

OS 2200 Client System Component (CSC) Client Direct Interconnect (CDI) Troubleshooting Guide, Storage Technology Corporation (312537601)

OS 2200 Client System Component (CSC) User Reference Manual, Storage Technology Corporation (312537801)

Additional Documents

The following document set is also available from your Storage Technology representative:

Automated Cartridge System Library Software Product Document Set for Solaris, Storage Technology Corporation.

Nearline Control Solution 4.0 Publication Kit, Storage Technology Corporation (313456301)

The following document can be ordered from Unisys Corporation:

Exec System Software Installation and Configuration Guide, Unisys Corporation (7830 7915)

1. PRODUCT DESCRIPTION

The Client System Component (CSC) is the interface between the Unisys 2200 Client System (the "client") and the Automated Cartridge System (ACS).

CSC 5R1 supports an OS 2200 attachment to either the Solaris-based Library Control System or the Nearline Control Solution (the "server").

PRODUCT COMPONENTS

The CSC 5R1 delivery consists of one product tape containing several component products, supporting ECL, and utility elements.

CSC Task Manager (CSCTM)

A real-time program that translates and forwards tape facility requests to the server. CSCTM also provides the operator interface to the CSC product.

CSC User Interface (CSCUI)

A CSC feature that facilitates the exchange of information between user programs, primarily a Tape Library Management System (TLMS), and the server.

Client Direct Interconnect (CDI)

A communication program for the control path between CSC and the server. CDI provides TCP/IP services and connections to the Control Path Adapters (CPAs).

Supporting CSC Elements

Absolute and relocatable elements that are collected in a product build at the customer site. Runstreams are generated by the product build based on input parameters.

PRODUCT TAPE DESCRIPTION

The CSC 5R1 Product Tape contains product components CSCTM, CDI, and CSCUI. The CSC Product Tape and CSC BUILD output Master tapes have the same format, as shown in Table 1-1.

Table 1-1. CSC Product Tape Contents

File	Name	Description
File 1	TPF$	Utility file with elements required for building the CSC product, including CDI.
File 2	PCF	Permanent correction file containing corrections to the SI file.
File 3	SI	Base symbolic file for CSC ECL and configuration elements.
File 4	RO	Relocatable file required to generate the CSC product, common banks, and utilities.
File 5	ABS	Absolutes file that contains the absolutes and common banks. This file also contains microcode elements.
File 6	RUN	This file contains CSC parameter elements that are generated as part of the build process.
File 7	CSCUI	Utilities and sample programs for the CSCUI common bank.
File 8	RELPRNT	File will contain the output from the site's CSC COMUS build, if breakpoint to master tape is selected during the build process.
File 9	CHANGE	Change file describing changes made to current CSC level.
File 10	PLE	Problem file reporting the problems solved by the current release of CSC.
File 11	SUR	Not used.
File 12	BUILDDOC	Contains quick start installation procedures.

CSC CORE FUNCTIONS

CSC 5R1 contains a collection of "core functions" that are used to automate tape handling operations. The following list summarizes these core functions. A description of each function follows.

- Initialization
- Termination
- Recovery
- Automated Operations (Control Path Support)
- Manual Operations
- Allocation and Assignment
- Tape Movement (Enter/Eject)
- Transport Activities (Mount/Dismount)
- Operator Interface
- Communication Interface
- TLMS Interface

Initialization

During initialization, CSC performs the following functions:

- opens relevant files
- coordinates the lock-id for the client
- establishes operating system interface for tape requests
- notifies the operator that CSC is initialized

Termination

During termination, CSC performs the following functions:

- stops accepting tape requests from OS 2200
- notifies the operator that CSC is terminating
- releases memory and system resources

Recovery

CSC is aware of the tape processing states maintained by the client and server. When external events disrupt the synchronization of these states, CSC initiates a recovery process to restore automated operations. CSC is designed to recover from a variety of failures that may occur in the:

- communication link
- client
- server
- ACS

Automated Operations (Control Path Support)

CSC facilitates tape automation by supporting an activity path commonly referred to as the "control path." The control path is a collection of hardware/software components and activities that automate tape operations. The control path is composed of the:

- OS 2200
- CSC
- communication program (CDI, CMS, or CPCOMM)
- communications controller (CPA, HLC, DCP, or ICA)
- Library server and its software
- ACS hardware

Manual Operations

When the control path is unavailable, automated operations are not possible. The components of the control path allow various forms of manual operation. If the server and ACS are functional, requests for ACS operations can be entered through a console attached to the server. If not, an operator can enter the ACS and manually mount and dismount volumes.

Allocation and Assignment

When a volume is assigned, CSC determines if the volume exists within an ACS and influences the unit allocation done by OS 2200. This is done in manner that has little or no impact on client operating system performance or functions, or the user.

Tape Movement (Enter/Eject)

Cartridge tapes are entered into and ejected from an ACS through a Cartridge Access Port (CAP) in an LSM. Tape movement can be initiated using CSC commands, server commands, or a programmatic user interface (CSCUI).

Transport Activities (Mount/Dismount)

After an ACS tape unit is allocated, a mount request is issued to the server for the requested volume. When the volume is no longer needed, CSC issues a dismount request to the server. The volume is then dismounted by the LSM robotics and returned to a storage cell within the ACS.

Operator Interface

CSC supports an operator interface through the system console. This interface is used to monitor and control the operational environment. The operator interface provides a way to issue CSC and CDI commands, and receive responses. By default, CSC commands are prefaced with "*CSC". CDI commands are prefaced with "*CDI".

Communication Interface

CSC supports communication through CDI, CMS, or CPCOMM. CSC and the server communicate using Transport Control Protocol/Internet Protocol (TCP/IP) over an IEEE 802.3 Local Area Network (LAN). CSC uses CDI, CMS, or CPCOMM and the appropriate interface adapters to accomplish this communication.

TLMS Interface

The primary function of a TLMS is to monitor and maintain the status of tape volumes to protect tapes with active content and release those that are no longer active. This is done by controlling the scratch status of each volume. CSC provides a programmatic user interface (CSCUI) to accommodate a user TLMS.

FEATURES OF THIS RELEASE

CARTTAPELIB$ Support

Prior levels of CSC communicated tape processing requests and responses to OS 2200 using an Executive Request. CSC 5R1 also supports the CARTTAPELIB$ extended mode call interface.

Multiple CSC/Server Support

Each CSC can communicate with a single library server. Prior levels of CSC with ER interface allowed only one CSC and, hence, one server.

The CARTTAPELIB$ interface allows OS 2200 to communicate with up to four (4) instances CSC simultaneously. A fifth CSC using the Executive Request interface can also be active.

This allows a site to use as many as five (5) library servers.

UCF CORRECTIONS

CSC 5R1 contains all of the User Communication Form (UCF) corrections from CSC 4R1 levels through internal level 4-1-19.

2. TECHNICAL SPECIFICATIONS

MEMORY REQUIREMENTS

CSCTM is a Zero Overhead Object Module (ZOOM) written in UCS C. It contains compiled code and data, as well as code and data provided by the Unisys Run Time System (RTS). CSCTM internal functions are modularized into multiple tasks with up to fifty active at any one time. During execution, these tasks use memory banks on an "as needed" basis. There are three basic memory bank types:

- Code banks containing the executable code of CSCTM and shared by all tasks. There is only one copy of each code bank.

- Program level data banks containing information that is shared by all CSCTM tasks. There is only one copy of each program level data bank.

- Task level data banks containing information that is known only to the executing task. Each task has its own copy of the task level data banks that it uses.

Table 2-1 shows the memory bank sizes used by CSCTM. They do not include RTS banks. The bold figures represent the memory bank sizes that are normally present when a task is executing.

Table 2-1. Memory Bank Sizes and Descriptions

Size in Words	One bank per task?	Description
238,500	N	Code for normal CSCTM execution
20,900	N	Code and data in CSCTM for environment and problem simulation
105,600	N	Program level data for normal CSCTM execution
11,100	Y	Task level data for normal CSCTM execution
5,000+	Y	Task level data that is always allocated by RTS.
67,500	N	Program level data for RTS.

DISK REQUIREMENTS

CSC uses two forms of disk space. First, there are product installation files. Second, there are execution files. The CSC installation files use approximately 1300 tracks of mass storage. During initiation, CSC breakpoints the PRINT$ to a cycled file named CSC-PRT-FILE. As each cycle is filled, a new cycle is automatically created. During execution, CSC writes internal trace information to a cycled file named CSC-LOG-FILE. Each cycle uses up to 5000 tracks of mass storage. Because the amount of generated trace information is directly related to the amount of CSC activity, the elapsed time required to fill a cycle of CSC-LOG-FILE will vary with the processing load. Typically, a combination of about 8000 mount/dismounts will fill a cycle. As each cycle is completely filled, a new cycle is automatically created.

DIAGNOSTICS

CSC diagnostics can be found in the following files:

- The log file, named CSC-LOG-FILE, is created by CSCTM and contains trace information.

- The PRINT$ file, named CSC-PRT-FILE, is created by CSCTM and contains printed information generated by CSCTM.

- A diagnostic file, named CSC-DIAG$, is created by the client operating system when CSCTM terminates. It contains post-mortem information.

CSC-LOG-FILE

CSCTM makes liberal use of calls to the internal tracing function TraceIt. TraceIt records trace information in CSC-LOG-FILE and/or CSC-PRT-FILE, depending on the @XQT options specified in the CSC runstream. For instance:

- The "L" option determines if trace information is displayed in CSC-PRT-FILE. It is displayed when the "L" option is present.

- The "T" option determines if CSC-LOG-FILE is created. If "T" is specified, the file is created when CSC is started.

The amount of trace information logged in a particular file is controlled by a combination of the following factors:

- CSCTM associates a tracing level with each TraceIt call. These levels are symbolically called ALWAYS, LOW, HIGH, and DEBUG. As the name implies, ALWAYS traces are always captured.

- A numeric debug level is specified as the second CSC execution parameter. CSC normally executes with a debug level of 2 (equivalent to TraceIt levels ALWAYS and LOW). Higher values produce increased amounts of trace information.

- The *CSC DEBUG console command allows you to dynamically switch between the debug level established at execution time and the TraceIt level of DEBUG.

PRINT$

The CSCTM print is breakpointed to CSC-PRT-FILE. This includes the timestamped console log seen by operators on the system console. It also contains trace information when the "L" execute option is specified.

CSC-DIAG$

This file is created when CSC terminates and contains an image, or "snapshot," of CSC at the time. If CSC terminates abnormally, this file provides information that is useful to determine why the failure occurred.

CSCTM

There are several run defaults, assumptions, and requirements when using CSC. Among them, CSCTM:

- Runs as a batch job, with runid CSC.

- Requires real-time account/userid priority.

- Is a multi-activity program.

- Uses @RUN card options to give it 17 extra PCT blocks.

- Activities run at the highest real-time priority allowed for the account/userid.

- Reads a run-time parameter file when initialized.

- Uses either an ER or an extended mode call to communicate with CSC operating system functions.

- Maintains diagnostic files.

- Has a default debugging level of 2.

Table 2-2 below lists the CSC XQT options. "R" and "T" are the default options. You should note that the "L" option may create large amounts of output into the CSC-PRT-FILE file.

Table 2-2. CSC XQT Options

Option	Description
W	Invokes the dynamic timer for variable speed LSM(s).
L	Print traces in CSC-PRT-FILE.
R	Execute in real-time.
T	Create the file CSC-LOG-FILE and capture trace entries.

CSCUI

The approximate memory size (in words) of CSCUI is 82K. Some CSCUI information follows:

- Use of CSCUI is optional.

- CSCUI transfers information between CSC and user program(s).

- CSCUI is contained in two common banks.

- CSCUICBA is a "guaranteed entry point" common bank.

- CSCUI has available space in its bank for code and data.

- The CSCUI addressing window is 01000 - 077777.

CDI

The CDI network control program absolute is named CDI. It is one of the programs that can control the TCP/IP and LAN hardware functions for CSC. The term "CDI," as used here, refers to the network control program. The approximate memory size (in words) of CDI executable code and common banks is 82K.

CDI run defaults, assumptions and requirements include:

- CDI runs as a batch job, with runid CDI.

- CDI requires an account/userid with real-time capability.

- CDI console commands begin with "*CDI".

- CDI performs an ER MCORE$ during initialization.

- CDI internal traces, when enabled, are printed into both the CDI PRINT$ file and the CSC print file.

The CDI run obtains the site-defined configuration from the CDI$PARAM element in the CSC parameter file.

3. COMPATIBILITY

SOFTWARE QUALIFICATION

CSC 5R1 was qualified at the following system component levels:

Table 3-1. CSC - OS Component Level Qualifications

Component	Level
OS 2200	ClearPath OS 2200 Release 8.0 and above
ACSLS	R5.1 and above
NCS	4.0

COMPONENT COMPATIBILITY ISSUES

CSC 5R1 requires ACSLS R5.1 or above. CSC 5R1 uses the API packet formats introduced in ACSLS R5. NCS 4.0 also supports these packet formats.

Generally, the recommended migration path is to upgrade the server with the next release of ACSLS or NCS, then follow with a compatible version of CSC. Customers should attempt to move to the most current levels of CSC and ACSLS or NCS software to take advantage of product improvements and increased stability.

4. CONSTRAINTS

This chapter describes restrictions and operational considerations you should review before using CSC.

RESTRICTIONS

This section describes functional limitations.

CSC

The following subsections describe CSC restrictions for the current release.

SSCARTLIB Privilege

CSC must run under a userid with the SSCARTLIB privilege. If this requirement is not satisfied, CSC produces the following message and terminates.

```
CSC RUN DOES NOT HAVE SSCARTLIB PRIVILEGE
```

The *CSC Operations Guide* documents the proper way to initialize and terminate CSC and CDI. CDI should be brought up before CSC. When terminating the products, CSC should be terminated before CDI. Using other procedures *may* cause anomalies. These can be corrected by following the recommended procedures for properly terminating the software and reloading all common banks.

CSC Product Key

As of CSC level 5R1, each copy of CSC running in an OS 2200 partition requires a product key. Following is the general procedure for obtaining a product key:

- Execute the CSCINFO processor to obtain information to identify this instance of CSC.

- Request a product key using the above information via the StorageTek Customer Resource Center web site.

- Enter the response information from the StorageTek CRC to update the PRODUCT$KEY parameter element of CSC.

Multiple CSCs

Multiple instances of CSC may be run simultaneously to communicate with multiple library servers. Each instance of CSC must be installed independently. Each CSC installation requires a unique product key.

CDI

CDI has been certified only for use with a dedicated LAN.

Some 2200 machines can be partitioned. It is possible to down and up I/O processors (IOPs) while the machine is running. If a CPA device is attached to an IOP, it will be downed within the CDI software when the IOP is downed. Customers must be aware that when the IOP is brought back up, the CPA device must be manually upped within the CDI software as well.

CSCUI

When using console-initiated eject keyins or CSCUI eject requests that do not specify a CAP to eject cartridge tapes, the following ACSLS or NCS restrictions exist:

- If your configuration includes an ACS with multiple LSMs, there must be a non-zero priority CAP in LSM 0.

- If your configuration includes multiple ACSs, there must be a non-zero priority CAP in *every ACS.*

Multi-ACS

The ACS-name is not stored in the Master File Directory (MFD) when a cartridge tape is catalogued. If allocation to a specific ACS is desired, the ACS-name must be included in each @ASG statement.

The table for ACS-names accommodates 99 names, including aliases, plus the mandatory default name.

Unlabeled Cartridge Tapes

CSC 5R1 does not support console-initiated (manual) mounts of scratch cartridge tapes. These manual mounts must be performed on the ACSLS Command Processor or via the CSC CMD interface on NCS.

OPERATIONAL CONSIDERATIONS

The following operational considerations should be reviewed by operations managers and system support staff *before* installing and operating CSC.

NI_TIMEDOUT Messages

Certain operational events may occur that impose a large demand on server resources and hamper system performance. These events include mount and dismount activity, volume status changes, and volume query requests. When combined, these events tend to induce heavy demands on the server and may result in the following console messages:

▶ MOUNT *volser* ON *transport* FAILED WITH STATUS NI_TIMEDOUT

▶ DISMOUNT *volser* ON *transport* FAILED WITH STATUS NI_TIMEDOUT

It is important to note, that these messages do not necessarily indicate that a function has failed. Rather, they are indicative of some condition that prevents a function from completing within the allotted time frame. All of these functions will be retried and most, if not all, will complete normally.

Operators can use these messages to assess their workload against system performance and postpone certain non-critical events if necessary.

CPA Installation

When a CPA is physically installed, you must execute CPATST (CPA Test) to verify proper installation, and optionally set local configuration parameters. Refer to the *CSC Installation Guide* or the *CDI Troubleshooting Guide* for additional information on CPATST.

ROLBAK and ROLOUT

The ROLBAK and ROLOUT runs assign backup cartridge tapes through a two-step process. First, a cartridge drive is allocated using @ASG with the N option, with no cartridge tape specified. Later, a specific or scratch cartridge tape is requested for the allocated drive.

CSC considers a tape assignment without a volume serial number (volser) to be a scratch cartridge tape request. In the absence of a specified @ASG preference, the ACS scratch preference setting in OS 2200 determines where such a cartridge tape is assigned. When there is more than one ACS, the default ACS also plays a role in this determination.

The @ASG statements for ROLBAK, ROLOUT and any other runs with similar two-stage assignments should be modified to specify allocation preference. The preference should be explicitly defined as ACS or non-ACS. For ACS assignments where there is more than one ACS, the ACS-name should be specified to make the request unambiguous.

Activity Path Considerations for an ACS Environment

Figure 4-1 depicts a single-client/single-ACS environment. The ACS consists of only one Library Storage Module (LSM) controlled by one server. For simplicity, certain server components are not shown in the figure.

In Figure 4-1, two activity paths are shown: the *control path* and the *data path*. Actual tape data is transferred directly between the client and an ACS cartridge drive along a data path. Mount, dismount, and other requests requiring robotic movement are transferred between the client and an ACS along the control path.

ACSs are entities that can be up or down in relation to the server. Further, the individual cartridge drives in an ACS can be up or down in relation to OS 2200 on an attached client.
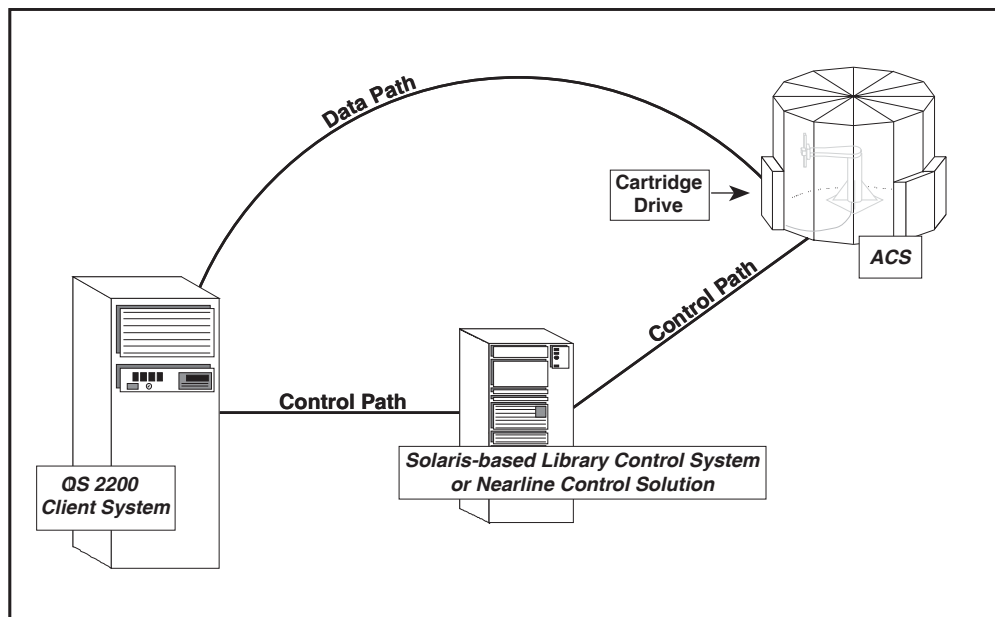

Figure 4-1. Activity Paths in an ACS Environment

Consider a cartridge tape mount request sent along the control path to an ACS:

- If the entire control path between the client and the ACS is up, but all cartridge drives within the ACS are down in OS 2200, CSC reports "NO UNITS AVAILABLE."

- If the control path between the server and the ACS is down, but cartridge drives within the ACS are up in OS 2200, CSC reports the MOUNT failure on the system console, and the operator must manually mount the cartridge tape on the assigned cartridge drive.

- If the control path between the client and the server is down, but cartridge drives within the ACS are up, OS 2200 will produce SERVICE messages until the requested volume is mounted.

Common Banks

CSCUI and CDI introduce common banks into the CSC product. These banks are used for inter-program communications. Consistent with OS 2200 operating philosophies, there are some fundamental restrictions on reloading the common banks.

- CSC common banks should not be reloaded while CSC or an associated run is active.

- The COMUS installation of CSC does not automatically reload common banks associated with CSC features. The user must manually reload these common banks before initializing the new software.

Dynamic Date Keyin Changes

It is not recommended that the system time or date be changed dynamically while CSC is executing. All internal timing in CSC is based on elapsed system time since CSC began execution. The end of a timing interval is always computed by adding the interval length to the current millisecond time. From the perspective of CSC, adjusting the time forward by one hour is the same as one hour of time elapsing. Events that would occur within that hour will be scheduled immediately. In general, the internal retry logic of CSC will recover from any timeout conditions that this causes. Adjusting the time back by one hour will delay the occurrence of scheduled events for one hour. Also, changing the date backwards prior to the CSC start date, will cause events that would occur in the next time interval to be scheduled immediately. Since this also affects the internal scheduling and retry logic, CSC operation may be adversely affected.

If a time/date change is necessary, it is recommended that CSC and CDI be terminated, and restarted once the change has been made. If this procedure is followed, CSC operation will not be affected by the change.

5. SUPPORT INFORMATION

SUPPORT POLICY

Storage Technology Corporation distributes the CSC 5R1 software and documentation. Problem reporting is based on the type of server with which CSC is operating.

- When CSC is used with a server running the Nearline Control Solution software, problems are reported to Storage Technology Corporation.

- When CSC is used with a server running the ACSLS software, problems are reported to Unisys Corporation.

When reporting CSC problems with either type of server, please use the following procedure to collect diagnostic information and submit the indicated files.

- Submit the CSC print file (SYSLIB*CSC-PRT-FILE) cycle when the problem occurred.

- Start the CSCLOG run (ST CSCLOG) to format the CSC log file. Submit the output file SYSLIB*CSCLOG-PRT for analysis.

- Start the CSCDMP run (ST CSCDMP) to format the CSC diagnostic file. Submit the output file SYSLIB*CSCDMP-PRT for analysis.

A. EQUIVALENT TERMS

Changes to the distribution and support policy for CSC has emphasized the need to include the following list of equivalent terms or hardware for StorageTek and Unisys cartridge tape products.

Table A-1. Equivalent Terms

StorageTek Term	Unisys Term	Notes
	CMPEON	The designator customers use in ECL to activate IBM-compatible compression. Note that in early releases of CARTLIB, CARTLIB accepted "CMPON" and "CMPEON" as valid designators. Now "CMPEON" is the only designator valid for ICRC or EDRC compression.
CULP	Electronic Partitioning	Control Unit Level Partitioning (CULP) is equivalent to Electronic Partitioning in CARTIS. Both capabilities follow the specifications for data path control documented by IBM for 3480-compatible devices.
ICRC	EDRC	Improved Cartridge Recording Capability (ICRC) or Enhanced Data Recording Capability (EDRC). Implemented to be compatible at the data exchange level with IBM's IDRC (Improved Data Recording Capability).
Incident, also Issue	UCF	StorageTek maintains a repository of problem "incidents" that customers report. Unisys customers report problems via the User Change Form (UCF).
LCU		The Library Control Unit (LCU) is a hardware component providing physical control of the LSM. An LCU exists either internally or externally for each LSM.
LMU		The Library Management Unit (LMU) is a hardware component providing command control of a cluster of LSMs.
LSM		The Library Storage Module (LSM) is a physical unit of robotic storage within StorageTek's product line. LSMs can be physically clustered for scaling. The LSM is sometimes referred to as a "silo."
Multi-ACS		Both the capability and configuration where a client has access to more than one ACS through a server.
Multi-client		The capability and configuration where more than one client is attached to the ACS via the server.

StorageTek Term	Unisys Term	Notes
PCR, also SER	UCF, also NFS	StorageTek customers request new functions in StorageTek products via the Product Change Request (PCR). Each PCR is given a unique incident number. Unisys customers submit requests for change via the User Change Form (UCF). An alternate format is the New Feature Suggestion (NFS).
PTF, also HIPER PTF	PCR, also EMU	StorageTek distributes software corrections as Program Temporary Fixes (PTFs). These can be source, relocatable, or absolute elements. Unisys distributes source corrections as Product Change Reports (PCRs). When StorageTek determines that a correction has a "high impact," it is termed a HIPER incident and is sent to all customers with the product. When Unisys has a high priority correction, or, if the correction is not in source form, they use the Emergency Maintenance Update (EMU).
System Console	Console	When CSC and CARTLIB documentation mention the system console, it refers to the 2200 system console.