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**StorageTek<sup>®</sup>**

PN 313471801

OS 2200 Client System Component  
(CSC)

**4R1 Technical Bulletin**

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July 2001

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# PREFACE

## PURPOSE

This is the *OS 2200 Client System Component (CSC) Delivery 4R1 Technical Bulletin*. This bulletin describes the features and technical specifications of CSC 4R1. CSC is the software used by the Unisys 1100/2200 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 4R1.

## **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 4R1 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 1100/2200 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).

## **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 Unisys representative.

*OS 2200 Client System Component (CSC) Installation Guide*, Unisys Corporation (7844 8669)

*OS 2200 Client System Component (CSC) Operations Guide*, Unisys Corporation (7844 8644)

*OS 2200 Client System Component User Interface (CSCUI), Programmer's Reference Manual*, Unisys Corporation (7844 8677)

*OS 2200 Client System Component (CSC), Client Direct Interconnect (CDI) Troubleshooting Guide*, Unisys Corporation (7844 8651)

*OS 2200 Client System Component (CSC) System Administrator's Guide*, Unisys Corporation (7844 8685)

## **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 1100/2200 Client System (the "client") and the Automated Cartridge System (ACS).

CSC 4R1 continues to support an OS 2200 attachment to the Solaris-based Library Control System (the "server"). CSC 4R1 adds support for the Nearline Control Solution server.

## **PRODUCT COMPONENTS**

The CSC 4R1 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 4R1 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**

<b>File</b>	<b>Name</b>	<b>Description</b>
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 4R1 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 intercepts
- notifies the operator that CSC is initialized

## Termination

During termination, CSC performs the following functions:

- stops accepting (intercepting) tape requests
- 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 a variety of failures 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:

- client operating system
- CSC
- communication program (CDI, CMS, or CPCOMM)
- communications controller (CPA, HLC, DCP, or ICA)
- ACS
- server operating system

## **Manual Operations**

When the control path is unavailable, automated operations cease and manual operations are required. Requests for ACS operations can be manually entered through a console attached to the server.

## **Allocation and Assignment**

When a volume is assigned, CSC determines if the volume exists within an ACS and assigns the volume to a transport. CSC allocation is implemented to have 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 LSM through a Cartridge Access Port (CAP). Tape movement can be initiated using CSC commands, server commands, or a programmatic user interface (CSCUI).

## **Transport Activities (Mount/Dismount)**

After CSC allocates and assigns a volume, a mount request is issued to the server. Once the volume is processed, CSC issues a dismount request to the server. The volume is then dismounted by the LSM robotic arm 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. CSC commands are prefaced with “\*CSC”. CDI commands are prefaced with “\*CDI”.

## Communication Interface

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

## TLMS Interface

The primary function of a TLMS is to control volume status changes that occur when the status of a non-scratch volume changes to scratch or vice-versa. CSC provides a programmatic user interface (CSCUI) to accommodate a user TLMS.

## FEATURES OF THIS RELEASE

### NCS Support

CSC can operate with the StorageTek Nearline Control Solution (NCS). NCS is an MVS software package that allows multiple systems to share an ACS complex. It consists of the Host Software Component for MVS (MVS/HSC), the Client System Component for MVS (MVS/CSC), and the Library Station feature. NCS software typically executes on an existing MVS platform within a computing facility. The Library Station feature allows non-MVS clients to share the ACS complex.

### TSAM Support

CSC can use TSAM calls for communication with ACSLS or NCS. This capability allows the use of CPCOMM in addition to CMS. Up to one CDI, four CPCOMMs, and two CMSs can be used in any combination. Path configuration and control in CSC supports one or more paths through each communication interface program.

## **UCF CORRECTIONS**

CSC 4R1 contains all of the User Communication Form (UCF) corrections from CSC 3R5 levels through internal level 3-5-11.



## 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**

<b>Size in Words</b>	<b>One bank per task?</b>	<b>Description</b>
<b>212,100</b>	N	Code for normal CSCTM execution
20,848	N	Code and data in CSCTM for environment and problem simulation
<b>90,600</b>	N	Program level data for normal CSCTM execution
<b>10,400</b>	Y	Task level data for normal CSCTM execution
<b>5,000+</b>	Y	Task level data that is always allocated by RTS.
<b>67,500</b>	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 1000 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 recorded in CSC-PRT-FILE. It is recorded 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 an ER 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**

<b>Option</b>	<b>Description</b>
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 always 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 log file.

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



# 3. COMPATIBILITY

## SOFTWARE QUALIFICATION

CSC 4R1 was qualified at the following system component levels:

**Table 3-1. CSC - OS Component Level Qualifications**

<b>Component</b>	<b>Level</b>
OS 2200	5R4 and above
ACSLs	R5.1 and above
NCS	4.0

## COMPONENT COMPATIBILITY ISSUES

CSC 4R1 requires ACSLS R5.1 or above. CSC 4R1 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

The following section describes restrictions and operational considerations you should review before using CSC.

## RESTRICTIONS

This section describes functional limitations.

### CSC

SB5R4 places a restriction on the interface used by CSC to communicate with OS 2200. To overcome this, CSC must have a userid with the SSCARTLIB privilege or it must run under the Security Officer's userid. If this requirement is not satisfied, CSC produces the following message and terminates.

CSC RUN DOES NOT HAVE SSCARTLIB PRIVILEGE

The CSC default configuration is included on the CSC product tape. A site-specific configuration must be defined and updated in the CSC\$PARAM and the CSC\$DRIVE elements. The updated elements must be copied into the CSC product file after CSC installation. See the *CSC Installation Guide* for more information.

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.

### CDI

On rare occasions, CDI will abort with an error status 0307. If this occurs, terminate CSC and restart both CDI and CSC.

The CDI default configuration is included on the CSC product tape. A site-specific configuration must be defined. The updated CDI\$PARAM element must then be copied into the CSC product file after CSC installation. See the *CSC Installation Guide* for more information.

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

Some 1100 and 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 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.

CSCUI can be used to eject up to 42 cartridge tapes in a single packet via the INITIATE-EJECT user request. To take advantage of enhanced CAPS with 80 cells, issue two packets and specify 40 cartridge tapes per packet.

## 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 4R1 does not support console-initiated (manual) mounts of unlabeled 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.

### Equipment Types

Nine-track, round reel tape devices are *not* compatible with 18-track and 36-track cartridge tape devices. They should never be equated to the same assign mnemonic. If incompatible equipment types are equated to the same facilities mnemonic, tape assignments may allocate unusable devices.

### 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 configured ACS scratch preference 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.

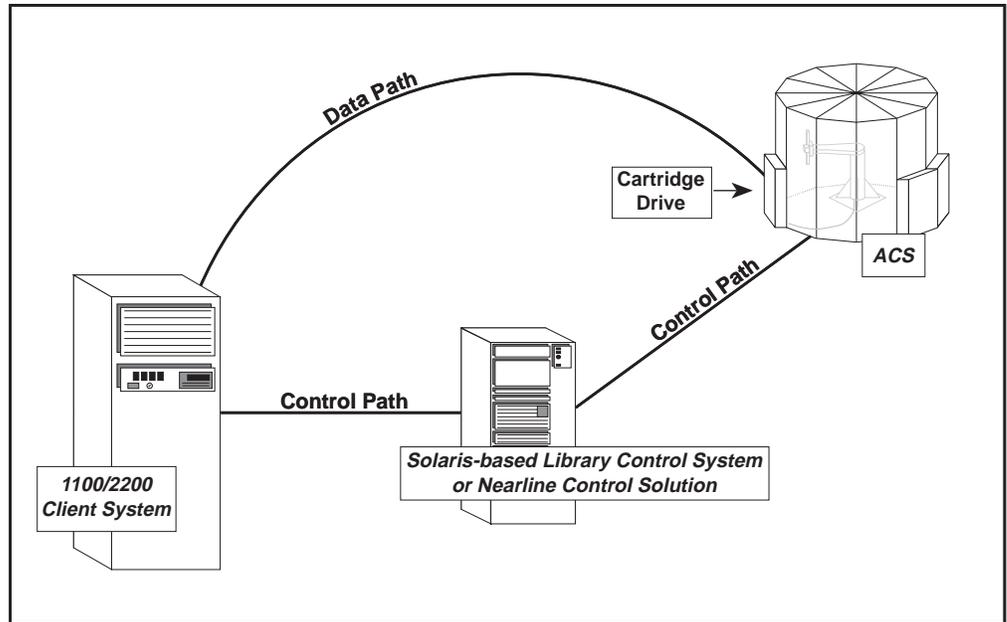
The @ASG statements for ROLBAK, ROLOUT and any other runs with similar two-stage assignments should be modified to specify allocation preference. The preference should be explicitly defined as ACS or non-ACS. For ACS assignments where there is more than one ACS, the ACS-name should be specified to make 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 ACS is up because 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, the server reports a mount failure to CSC. CSC, in turn, 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, the client reports SERVICE messages.

## 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

Unisys Corporation distributes and supports CSC 2R6 through CSC 4R1. Contact your Unisys CSE or the Customer Support Center for additional information about Unisys support policies regarding CSC and/or OS 2200 levels.

# PRODUCT SUPPORT HISTORY

**Table 5-1. CSC Product Availability and Server Compatibility**

<b>Release Level</b>	<b>Compatible with VM Server</b>	<b>Compatible with Solaris Server</b>	<b>Compatible with NCS Server</b>	<b>Supported by Unisys</b>
CSC 2R6	Y	N	N	Y
CSC 3R4, 3R5	N	Y	N	Y
CSC 4R1	N	Y	Y	Y

# 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**

<b>StorageTek Term</b>	<b>Unisys Term</b>	<b>Notes</b>
4490E cartridge subsystem	CTS5136	The 4490E is StorageTek's product name for the 1/2", 36-track (serpentine) cartridge subsystem. Unisys markets the same drive by the name CTS5136.
4780 cartridge subsystem	U40 tape subsystem	Subsystems for 1/2", 18-track cartridge tape devices. In noncompressed mode, these distinct hardware subsystems are compatible with the IBM 3480 subsystem.
ACS	CTL	Automated Cartridge System (ACS) is the general term for a cluster of automated tape facilities installed at a site. The Unisys term is Cartridge Tape Library (CTL). More precisely, an ACS is the aggregate of the Library Storage Modules (LSMs), all connected to the same server.
ACSSA/Command Processor		The ACS System Administrator/Command Processor is a physical and logical device attached to the server. It displays informational messages from ACSLS and accepts command input intended for ACSLS.
CARTLIB™	CTS5136-SWD	I/O drivers for cartridge tape.
CDI	see CMS	Client Direct Interconnect (CDI) is a communications product used in the Client System Component (CSC) to communicate with a server using TCP/IP protocol. It is not a full-featured commercial implementation of TCP/IP. CDI is a self-contained product that uses the CPA for physical LAN attachment.
see CDI	CMS	Communication software products that support TCP/IP communication via HLC, DCP, and Internal Channel Adapter.

<b>StorageTek Term</b>	<b>Unisys Term</b>	<b>Notes</b>
	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.
CPA	see HLC and DCP	The Control Path Adapter (CPA) is a hardware adapter which attaches a FIPS-60 I/O channel to an IEEE 802.3 LAN.
CSCIM	ACS Operating System Functions	CSCIM was integrated into OS 2200 in CSC 2R5C. The functions supported by CSCIM are now referred to as "ACS operating system functions."
CSL	Auto-Loader (ACL)	The Cartridge Scratch-Loader (CSL) is StorageTek's term for the attachment to ½" cartridge drives for automatically loading cartridge tapes.
CU4780	CU5073	The internal designator for the ½" cartridge tape control unit.
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.
see CPA	DCP	The Distributed Communications Processor can be used to connect an OS 2200 processor with a LAN.
EC Release		Engineering Change (EC) Release is a formal release mechanism for StorageTek hardware and software. After a product has completed this phase, it can be ordered. The EC phase is a prerequisite to General Availability (GA).
General Availability, also GA	First Customer Ship, also FCS	A time when a product becomes officially orderable via normal sales channels.
see CPA	HLC	The HLC is a hardware adapter that connects an OS 2200 host with a LAN using a BMC.

<b>StorageTek Term</b>	<b>Unisys Term</b>	<b>Notes</b>
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.
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).

<b>StorageTek Term</b>	<b>Unisys Term</b>	<b>Notes</b>
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 1100/2200 system console.

