



StorageTek™ Nearline Control Solution (NCS) MSP software

SMC • HSC • HTTP Server

Installation Guide

Part Number: 316106501

Revision: B

Version: 6.2



Nearline Control Solution (NCS)

SMC • HSC • HTTP Server

MSP Software

Installation Guide

Version 6.2

Sun Microsystems, Inc.
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Revision History

EC	Date	Revision	Description
132886	September, 2007	A	<i>NCS 6.2 (MSP) Installation Guide</i>
	February, 2009	B	

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What's New?

NCS Release 6.2 installation includes the following enhancements:

Enhancement	Primary Location
Revision B:	
Support for the Sun StorageTek™ T9840D tape drive	“NCS Hardware Requirements” on page 5
Support for the Sun StorageTek™ T10000 and T10000B tape drives	“NCS Hardware Requirements” on page 5
Support for the Sun StorageTek™ SL3000 modular library	“NCS Hardware Requirements” on page 5
Revision A:	
The SMX FMID is no longer supported. SMC-specific functions for the Sun StorageTek™ HTTP Server are now provided by the SMC6200 FMID.	“Reviewing the NCS FMIDs” on page 16
Sun StorageTek LibraryStation™ for MSP is no longer supported.	

Preface

This guide describes how to install the following Sun StorageTek™ Nearline Control Solution (NCS) software products for the Fujitsu MSP operating system:

- **Sun StorageTek™ Storage Management Component (SMC)**

SMC is the interface between the MSP operating system and Sun StorageTek real and virtual tape hardware. SMC performs the allocation processing, message handling, and SMS processing for the NCS solution. It resides on the MSP host system with HSC, or on a remote system using the Sun StorageTek HTTP server to communicate with the HSC. SMC communicates with HSC to determine policies, volume locations, and drive ownership. SMC is a required NCS component.

- **Sun StorageTek™ Host Software Component (HSC)**

HSC controls the Automated Cartridge System (ACS). It runs as a subsystem on MSP. The library database records cell status, characteristics, and disposition of all cartridges stored in the library. For the purposes of this publication, HSC refers to the MSP implementation of the Sun StorageTek Host Software Component.

- **Sun StorageTek™ HTTP Server for MSP**

The Sun StorageTek HTTP Server for MSP optionally provides the middleware to allow communication between the SMC (client) and a remote HSC subsystem (server). It executes as a separate subsystem on the MSP host where the remote HSC subsystem resides.

Note – If you are using VSM in your NCS environment, refer to the *Installing and Configuring VTCS* guide for installation and configuration considerations.

Audience

This guide provides installation procedures for the Nearline Control Solution (NCS) software components. It is intended for storage administrators or system programmers responsible for installing and configuring the NCS software.

Organization of This Guide

This guide contains the following chapters and appendices:

- [Chapter 1, “Performing Pre-Installation Tasks”](#) describes the pre-installation tasks for the NCS product components.
- [Chapter 2, “Installing the NCS Functions”](#) describes the tasks used to install the SMC and HSC base functions in the same SMP PRJ.
- [Chapter 3, “Performing SMC Post-installation Tasks”](#) describes post-installation tasks for the SMC.
- [Chapter 4, “Performing HSC Post-installation Tasks”](#) describes post-installation tasks for the HSC.
- [Chapter 5, “Performing Post-installation Tasks for the Sun StorageTek HTTP Server”](#) describes post-installation tasks for the Sun StorageTek HTTP Server for MSP.
- [Appendix A, “NCS Samples, Source Code Modules, and Macros”](#) describes the samples, load modules, and macros included on the NCS base tape.
- [Appendix B, “Installing NCS Maintenance”](#) describes the tasks used to install NCS maintenance.
- [Appendix C, “Obtaining an NCS License Key”](#) describes how to obtain the license key required for NCS software initialization.

An index is also included.

Note – If you are using the Sun StorageTek™ Virtual Storage Manager (VSM) system in your NCS environment, refer to the *Installing and Configuring VTCS* guide for installation and configuration considerations.

Related Publications

The following publications may be included in your package, depending on which NCS products you ordered:

Sun StorageTek™ Nearline Control Solution (NCS)

- *NCS Installation Guide*
- *NCS User Exit Guide*
- *NCS/VTCS XML Guide*

Sun StorageTek™ Storage Management Component (SMC)

- *SMC Configuration and Administration Guide*
(This publication includes information for the Sun StorageTek™ HTTP Server)

Sun StorageTek™ Host Software Component (HSC)

- *HSC Configuration Guide*
- *HSC Operator's Guide*
- *HSC System Programmer's Guide*
- *HSC Messages and Codes Guide*

Sun StorageTek™ Virtual Tape Control System (VTCS)

- *Beyond the Basics - VTCS Leading Edge Techniques*
- *Installing and Configuring VTCS*
- *Introducing VTCS*
- *Managing VTCS*
- *VTCS Messages and Codes Guide*
- *VTCS Command and Utility Reference*

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Customer Support

Customer support is available 24 hours a day, seven days a week, to customers with Sun or StorageTek maintenance contracts and to Sun employees. The URL for Sun StorageTek™ support is:

<http://www.sun.com/storagetek/support>

Customer-initiated Maintenance

Customer-initiated maintenance begins with a telephone call from you to Sun StorageTek Software Support. You receive immediate attention from qualified Sun personnel, who record problem information and respond with the appropriate level of support.

To contact Sun StorageTek Software Support about a problem:

1. Use the telephone and call:

☎ 800.872.4786 (1.800.USA.4SUN) (inside the United States)

☎ 800.722.4786 (Canada)

For international locations, go to

<http://www.sun.com/service/contacting/solution.html>

for the appropriate telephone number

2. Describe the problem to the call taker. The call taker will ask several questions and will either route your call to or dispatch a support representative.

If you have the following information when you place a service call, the process will be much easier:

Account name	_____
Site location number	_____
Contact name	_____
Telephone number	_____
Equipment model number	_____
Device address	_____
Device serial number (if known)	_____
Urgency of problem	_____
Fault Symptom Code (FSC)	_____
Problem description	_____

Sun's Worldwide Offices

You may contact any of Sun's worldwide offices to discuss complete storage, service, and support solutions for your organization. You can find address and telephone number information on Sun's external Web site at:

<http://www.sun.com/worldwide/>

Conventions for Reader Usability

Product Names

- SMC refers to the Storage Management Component.
- HSC refers to the Host Software Component (MSP implementation).

Typographic

Some JCL examples in this guide include *italic* type. Italic type is used to indicate a variable. You must substitute an actual value for these variables.

The use of mixed upper and lower case characters for commands, control statements, and parameters indicates that lower case letters may be omitted to form abbreviations. For example, you may simply enter POL when executing the POLicy command.

Alert Messages

Alert messages call your attention to information that is especially important or that has a unique relationship to the main text or graphic.

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

Caution – Information necessary to keep you from corrupting your data.

Tip – 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.

Control Statements

The standard syntax conventions for control statements are as follows:

- The only valid control statement information area is from column 1 to column 72. Columns 73-80 are ignored.
- Parameters may be separated by one or more blanks or a comma.
- A value is associated with a parameter by an equal (=) sign or by enclosing the value in parentheses, and concatenating it immediately after the parameter.
- Case (upper or lower) is ignored in actual control statements.
- Continuations are supported by including a plus (+) sign at the end of the line to be continued.
- /* and */ can be used to enclose comments in the job stream. Comments can be continued over multiple lines, but cannot be nested.
- The maximum length for a control statement is 1024 characters.

Performing Pre-Installation Tasks

Overview

This chapter describes the tasks required in preparation for NCS installation. The following topics are included:

- Installation checklist
- Pre-installation considerations
- Hardware and software requirements
- Virtual storage requirements
- Installation materials
- Unloading the SMP JCL library
- Preparing the SMP CSI environment
- Allocating NCS target and distribution library data sets and required DDDEF entries
- Updating the SYSLIB concatenation

Installation Checklist

Use the following checklist to verify that you have completed all NCS installation tasks.

Note – Sample members beginning with “NCS” apply to all NCS products. Follow the instructions in the prologue of each sample member to specify only those functions you wish to install.

TABLE 1-1 Installation Checklist

✓	Step	Description	Sample Member	Page
	1	Review pre-installation considerations.		3
	2	Verify NCS software and hardware requirements.		4
	3	Verify NCS virtual storage requirements.		6
	4	Review NCS Installation Materials.		7
	5	Unload the SMP JCL library from the NCS base tape.		9
	6	Define and initialize the SMP PRJ.	ALLOCCSI	10
	7	Allocate the NCS target and distribution library data sets and their required DDDEF entries.	NCSDDDEF	11
	8	Update the SYSLIB concatenation.	ALLSYSLB	13
	9	Review the NCS FMIDs.		16
	10	SMP RECEIVE the desired base functions and communication functions.	NCSRECV	17
	11	SMP RECEIVE maintenance for the NCS base functions. (See Note on page 17)	MAINTRCF MAINTRCS	47
	12	SMP APPLY the desired base functions and communication functions.	NCSAPPLY	17
	13	SMP ACCEPT the desired base functions and communication functions.	NCSACCPT	18
	14	SMP APPLY maintenance for the NCS base functions.	MAINTAPF MAINTAPS	47
	15	Optionally, SMP ACCEPT maintenance for the base functions.	MAINTACF MAINTACS	47
	16	Proceed with the post-installation tasks described in Chapters 3-6.		

Pre-Installation Considerations

- Contact Sun StorageTek Support for information about additional PTFs that might be required before installing the NCS product components.
- SMC is a required NCS component and **must** be installed.
- If you are using VSM in your NCS environment, refer to the *Installing and Configuring VTCS* guide for installation and configuration considerations.
- Use the MSP Linkage Editor when installing NCS products and maintenance. Failure to do so may result in link-editing errors.
- If you are migrating from a previous NCS software release, study the appropriate migration and coexistence guidelines in the following publications:
 - *SMC Configuration and Administration Guide*
 - *HSC Configuration Guide*
- Once installed, HSC requires a Sun license key to initialize. See [Appendix C](#) for more information about obtaining your NCS license key.

NCS Software and Hardware Requirements

Software Requirements

NCS software requirements include the following:

Category	Supported Software
Operating system	<ul style="list-style-type: none">■ Fujitsu MSP/EX at PTF level C02061 or higher.■ MAF (Multiple Addressing Facility) Please contact your Fujitsu SE for the MAF feature code applicable to your CPU.
Required software	<ul style="list-style-type: none">■ SMC 6.2■ HSC 6.2
Optional software	<ul style="list-style-type: none">■ HTTP Server■ VTCS 6.2
Client to server communications	<ul style="list-style-type: none">■ VTAM-G/TISP V10L10
HSC server system communications	<ul style="list-style-type: none">■ VTAM-G/TISP V10L10■ LMU Microcode Release 1.5.x or higher is required for multiple-level host-to-host communications.

NCS Hardware Requirements

NCS hardware requirements include the following:

Category	Supported Hardware
Processor	<ul style="list-style-type: none"> ■ Fujitsu or Fujitsu-compatible processor running MSP
Sun StorageTek™ Library Storage Modules (LSMs)	<ul style="list-style-type: none"> ■ StreamLine™ SL3000 ■ StreamLine™ SL8500 ■ PowderHorn™ 9310 ■ TimberWolf™ 9740 ■ WolfCreek™ 9360 ■ Standard 4410
Sun StorageTek™ transports and associated media	<ul style="list-style-type: none"> ■ T10000A/B ■ T9940A/B ■ T9840A/B/C/D ■ TimberLine™ 9490EE ■ TimberLine™ 9490 ■ 4490 ■ 4480 ■ SD3

Note –

- An ACS can contain mixed library transports and media.
- Refer to the appendix “HSC Support of the SL8500” in the *HSC Operator’s Guide* for more information about HSC support for the SL8500 library.
- Refer to the *HSC Configuration Guide* for SL8500 configuration information.

NCS Virtual Storage Requirements

MSP virtual storage requirements for the NCS software include the following:

NCS Software	Virtual Storage Requirements
SMC	<ul style="list-style-type: none"> ■ In JES, approximately 2.8 MB of ECSA above the 16M line for load modules and data structures. ■ There are no CSA requirements below the 16M line.
HSC	<ul style="list-style-type: none"> ■ Approximately 215K of ECSA above the 16M line for load modules and data structures. ■ Approximately 20K of CSA below the 16M line for some load modules and data structures. ■ An additional amount of ECSA above the line is dynamically acquired and released during operation of the HSC. The actual amount varies with the activity and size of the library, but would rarely, if ever, exceed an additional 10K. <p>Note:</p> <ul style="list-style-type: none"> ■ Approximately 400 bytes of the below-the-line CSA storage is located in subpool 228 (FIXED). ■ To relieve the below-the-line CSA constraint and save approximately 16K of below-the-line CSA, place the following modules in an LPALIB: <ul style="list-style-type: none"> ■ SLSPARS ■ SLSWMRT

Note –

- The actual amount of ECSA varies slightly based on the size of the library and number of transports defined to MSP.
- Additional CSA may be required when installing corrective service tapes, software enhancements, or new releases of the HSC.

NCS Installation Materials

The Nearline Control Solution (NCS) package includes the following materials:

- NCS Base tape, containing product FMIDs for SMC, HSC, and the Sun StorageTek HTTP Server
- NCS Corrective Service tape, containing NCS PTFs, HOLDDATA, cover letters, and summary information released since the base media was created

Note –

- Sun StorageTek™ Virtual Tape Control System (VTCS) and Concurrent Disaster Recovery Test (CDRT) software is distributed on separate media. If you are using this software in your NCS environment, refer to the *Installing and Configuring VTCS* guide for installation and configuration considerations.
- Contact Sun StorageTek Support for information about additional PTFs that might be required before installing the NCS product components.
- Use the MSP Linkage Editor when installing NCS software and service. Failure to do so may result in link-editing errors.

NCS Base Tape Contents

SMC, HSC, and the Sun StorageTek HTTP Server are distributed on a standard label 9840 or 9940 tape with a volume serial number of OS6200. This base tape includes the following files:

TABLE 1-2 NCS 6.2 Base Tape Contents

File	Data Set Name	Description
1	SMPMCS	SMP control statements
2	SOS@620.F1	HSC JCLIN
3	SOS@620.F2	HSC samples
4	SOS@620.F3	HSC source modules
5	SOS@620.F4	HSC object modules
6	SMC@620.F1	SMC JCLIN
7	SMC@620.F2	SMC samples
8	SMC@620.F3	SMC macros
9	SMC@620.F4	SMC source modules
10	SMC@620.F5	SMC object modules
11	SMZ@620.F1	SMC JES3 JCLIN
12	SMZ@620.F2	SMC JES3 samples
13	SMZ@620.F3	SMC JES3 macros
14	SMZ@620.F4	SMC JES3 source modules
15	SMZ@620.F5	SMC JES3 object modules
16	SSKY500.F1	HTTP server JCLIN
17	SSKY500.F2	HTTP samples
18	SSKY500.F3	HTTP object modules

Unloading the SMP JCL Library from the NCS Base Tape

The SMP JCL library includes the sample members used to install the NCS functions.

Use the JCL example below to unload the SMP JCL members from file 2 of the NCS installation base tape to your SMP JCL library. These sample JCL members contain installation and maintenance examples. See [“Sample Installation Members” on page 36](#) for a list of samples that are unloaded.

Note – In the JCL examples in this document and the sample JCL provided on the NCS base tape, some fields appear in lower case. These fields **must** be updated to match your installation requirements.

```
//jobname JOB your jobcard parameters
//UNLOAD EXEC PGM=IEBCOPY
//INDD DD DSN=SOS@620.F1,DISP=SHR,
// UNIT=tape-unit,VOL=SER=OS6200,LABEL=(2,SL)
//OUTDD DD DSN=your.smp.jcllib,DISP=(NEW,CATLG),
// UNIT=SYSALLDA,
// SPACE=(TRK,(5,1,4)),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
C I=INDD,O=OUTDD
E M=SOS@620
/*
```

FIGURE 1-1 JCL to Unload the NCS SMP JCL Library from Tape

Preparing the SMP Environment

This section describes how to prepare the SMP environment for installation of the NCS base functions. If you are installing service, see [Appendix B, “Installing NCS Maintenance”](#) for more information.

The NCS products are installed using SMP. This installation process involves RECEIVING, APPLYING, and ACCEPTING NCS functions into the correct SMP target and distribution zones.

SMP Considerations

SMP requirements for installing the NCS product components include the following:

- NCS **must** be installed with SMP. All installation instructions in this guide are based on SMP.
- Install all NCS Release 6.2 product components (SMC 6.2 and HSC 6.2) together in a new SMP PRJ.
- Products from other vendors should **not** be installed in the same SMP PRJ as NCS.
- It is recommended that you SMP ACCEPT all of your NCS base products.
- In this release of NCS, load modules for the tape management scratch interface routines (SLUDRCA1, SLUDRTL, SLUDRRMM, and SLUDRZAR) are delivered to allow installation to a separate set of target and distribution libraries, SMCLINK and ASMCLINK. In NCS 6.2, these modules are shared among HSC and SMC.

Warning – If you install an NCS Release 6.2 product component in an SMP PRJ containing a previous release of that product, the previous release is deleted from the target and distribution zones. In addition, all SYSMODS for the previous release are deleted from the SMP PRJ.

Defining and Initializing the SMP PRJ

You **must** define and initialize the NCS 6.2 SMP PRJ. To accomplish this task, use the sample batch job provided in member ALLOCCSI of your SMP JCL library. Follow the instructions in the prologue of the sample member and submit the job.

Defining and initializing the SMP PRJ includes the following steps:

1. Define the required SMP data sets.
2. Define the PRJ that contains the SMP global, target, and distribution zones for this release.
3. Initialize the SMP PRJ.
4. Add zones, options, utilities, and DDDEF entries to the SMP PRJ.

Allocating NCS Target and Distribution Library Data Sets and Required DDDEF Entries

For each NCS product being installed, you **must** allocate NCS target and distribution data sets and define the appropriate DDDEF entries in the SMP PRJ.

[TABLE 1-3 on page 12](#) lists the NCS target and distribution library data sets.

Use the sample batch job provided in member NCSDDEF of your SMP JCL library to accomplish this task for SMC, HSC, and the Sun StorageTek HTTP Server. Follow the instructions in the prologue of this sample member and submit the job.

TABLE 1-3 and TABLE 1-4 list the NCS target and distribution library data sets.

Note –

- The tables include ncs_620 as the high-level qualifier for data sets. You can change this high-level qualifier to conform to the naming conventions defined for your installation.
- The numbers listed for directory blocks and blocks are the minimum required for the product.
- The DDnames required for each DDDEF entry match the last qualifier of the data set name. For example, for data set ncs_620.SMCLINK, the corresponding DDname is SMCLINK.
- The SMP DSSPACE parameter, which specifies the amount of space to be allocated to temporary RELFILE data sets, **must** be set to at least 150,100,150.

TABLE 1-3 NCS Target Library Data Sets

Data Set Name	Product(s)	DSORG	RECFM	LRECL	BLKSIZE	Blocks	Directory Blocks
ncs_620.SLSLINK	HSC	PO	U	-	32760	300/30	100
ncs_620.SLSMAC	HSC	PO	FB	80	23440	100/50	50
ncs_620.SLSSAMP	HSC	PO	FB	80	23440	100/50	20
ncs_620.SMCLINK	SMC	PO	U	-	32760	500/50	30
ncs_620.SMCMAC	SMC	PO	FB	80	23440	20/10	5
ncs_620.SMCSAMP	SMC	PO	FB	80	23440	20/10	5
ncs_620.SSAROMOD	HTTP Server	PO	U	-	32760	200/20	300
ncs_620.SSKYRTNS	HTTP Server	PO	U	-	32760	200/100	50
ncs_620.STKSAMP	HTTP Server	PO	FB	80	23440	1/1	1

TABLE 1-4 NCS Distribution Library Data Sets

Data Set Name	Product	DSORG	RECFM	LRECL	BLKSIZE	Blocks	Directory Blocks
ncs_620.ASKYRTNS	HTTP Server	PO	U	-	32760	200/100	50
ncs_620.ASKYSAMP	HTTP Server	PO	FB	80	23440	1/1	1
ncs_620.ASLSLINK	HSC	PO	U	-	32760	300/30	200
ncs_620.ASLSMAC	HSC	PO	FB	80	23440	100/50	20
ncs_620.ASLSSAMP	HSC	PO	FB	80	23440	100/50	20
ncs_620.ASMCLINK	SMC	PO	U	-	32760	500/50	30
ncs_620.ASMCMAC	SMC	PO	FB	80	23440	20/10	5
ncs_620.ASMCSAMP	SMC	PO	FB	80	23440	20/10	5

Updating the SYSLIB Concatenation

NCS supports multiple tape management systems (e.g. TLMS and CA-1). Therefore, you **must** add certain DDDEF entries to the SMP PRJ, and modify the SYSLIB concatenation to include the appropriate macro libraries. To accomplish this task, use the sample batch job provided in member ALLSYSLB of your SMP JCL library. Follow the instructions in the prologue of the sample member and submit the job.

The return code **must** be four (4) or less for all steps executed in this job. If you receive a different return code, contact Sun StorageTek Support.

Installing the NCS Functions

Overview

This chapter describes the tasks required to install the NCS base functions.

The following topics are included:

- Reviewing the NCS FMIDs
- Receiving the NCS functions (SMP RECEIVE)
- Applying the NCS functions (SMP APPLY)
- Accepting the NCS functions (SMP ACCEPT)

Before installing the NCS functions, verify that you have completed the pre-installation tasks described in [Chapter 1, “Performing Pre-Installation Tasks”](#).

Note – If you are using the Virtual Storage Manager (VSM) system in your NCS environment, refer to the *Installing and Configuring VTCS* guide for installation and configuration considerations.

Reviewing the NCS FMIDs

NCS 6.2 is packaged in standard SMP format, and is delivered as multiple function SYStem MODifications (SYSMODs) identified by following SMP FMIDs:

TABLE 2-1 NCS 6.2 FMIDs

FMID	Description
SMC@620	SMC load modules and samples Note: This function includes the SMC-specific functions for the Sun StorageTek HTTP server that were previously provided by the SMX FMID.
SMZ@620	SMC JES3 load modules and samples
SSKY500	HTTP server load modules, distributed macros, and samples
SOS@620	HSC load modules, distributed macros, and samples

Note –

- The SMX FMID is no longer supported. SMC-specific functions for the Sun StorageTek HTTP Server are now provided by the SMC@620 FMID.
- If you are using the Virtual Storage Manager (VSM) system in your NCS environment, refer to the *Installing and Configuring VTCS* guide for installation and configuration considerations.

Receiving the NCS Functions from the NCS Base Tape

You **must** issue the SMP RECEIVE command to receive the functions you want to install into the target and distribution zones.

Note – If you install an NCS 6.2 product component in an SMP PRJ containing a previous release of that product, the previous release is deleted from the target and distribution zones. In addition, all SYSMODS for the previous release are deleted from the SMP PRJ. If you choose to do this, it is recommended that you back up the NCS SMP PRJ prior to installing the NCS 6.2 product components.

Use the NCSRECV sample member provided in your SMP JCL library, or the SMP Sysmod Management panels to SMP RECEIVE the functions you wish to install. See [“Reviewing the NCS FMIDs” on page 16](#) for a list of NCS SMP FMIDs.

Follow the instructions in the prologue of the NCSRECV sample member and submit the batch job to receive the functions you wish to install.

The return code **must** be zero (0) for all steps executed in this job. If you receive a different return code, contact Sun StorageTek Support.

Applying the NCS Functions

Use the NCSAPPLY sample member provided in your SMP JCL library, or the SMP Sysmod Management panels to install the NCS functions into the appropriate target zone.

The NCSAPPLY member allows you to SMP APPLY the desired base functions. Follow the instructions in the prologue of the NCSAPPLY sample member and run the job.

The return code **must** be zero (0) for all steps executed in this job. If you receive a different return code, contact Sun StorageTek Support.

Note –

- If you are installing HSC and VTCS, you **must** SMP receive **all** maintenance from the corrective service tape, and all maintenance and HOLDDATA available on the Customer Resource Center **before** SMP APPLYing and ACCEPTing the base functions. This is due to co-requisites between HSC and VTCS modules.
- The SMC6200 function includes the SMC-specific functions for the Sun StorageTek HTTP server that were previously provided by the SMX FMID.
- You can use the APPLY CHECK option as often as necessary to identify SMP processing problems before the actual APPLY process. All SMP detected problems **must** be resolved before the base functions can be successfully installed.

Accepting the NCS Functions

Use the NCSACCPT sample member provided in your SMP JCL library, or the SMP Sysmod Management panels to accept the NCS functions into the appropriate target zone.

The NCSACCPT member allows you to SMP ACCEPT the desired base functions. Follow the instructions in the prologue of the NCSACCPT sample member and run the job.

The return code **must** be four (4) or less for all steps executed in this job. If you receive a different return code, contact Sun StorageTek Support.

Note – You can use the ACCEPT CHECK option as often as necessary to identify SMP processing problems before the actual ACCEPT process. All SMP detected problems **must** be resolved before the base functions can be successfully installed.

Performing SMC Post-installation Tasks

Overview

This chapter describes post-installation tasks for the SMC. The following topics are included:

- Adding the SMC load library to the authorized program list
- Optionally, defining the SMC as an MSP subsystem
- Copying or moving the SMCBPRESI module to an MSP LNKLST library
- Modifying the MSP Program Properties Table for SMC
- SMC data space considerations

Note – Before proceeding, verify that you have completed the installation tasks described in Chapters 1 and 2.

Adding the SMC Load Library to the Authorized Program List

The SMC **must** run as an authorized program. You **must** add the SMC load library to the authorized program list on your system. You can authorize the SMC load library by adding the load library to the KAAAPFzz member of SYS1.PARMLIB. You can also authorize the SMC load library dynamically.

Using KAAAPFzz to authorize the SMC Load Library

If you use the KAAAPFzz member of SYS1.PARMLIB to authorize the SMC load library, you **must** add the following entry to that list:

```
your.SMCLINK volser
```

This sample is contained in member KAAAPFZZ of the SMC sample library. Before adding this sample to your authorized program list, edit the high level qualifier and volser with appropriate values for your system.

Defining the SMC as an MSP Subsystem

The SMC executes as an MSP dynamic subsystem. In many installations, the SMC does **not** need to be added to the MSP subsystem name table. However, if any of the following conditions are true, you **must** add the SMC to the MSP subsystem name table (SYS1.PARMLIB member SUBSYSzz) as required.

- If you are running SMC and a tape management system on the same host, and the tape management system is also executing as an MSP dynamic subsystem, add both the tape management system and the SMC to the subsystem name table to ensure the correct order of message processing. See [“Tape Management System Interaction and the Subsystem Name Table”](#) on page 22.
- If you are running SMC and the Unicenter CA-MIA product on the same host, add both Unicenter CA-MIA and the SMC to the subsystem name table to ensure the correct order of EDL processing. See [“Unicenter CA-MIA Interaction and the Subsystem Name Table”](#) on page 23.
- If you are running SMC, a tape management system, and the Unicenter CA-MIA product on the same host, add all three products to the subsystem name table. See [“SMC, TMS, and Unicenter CA-MIA Interaction and the Subsystem Name Table”](#) on page 23.
- If you wish to run the SMC under the master MSP subsystem (rather than under the primary Job Entry Subsystem), add the SMC to the subsystem name table. See [“Running SMC under MSTR and the Subsystem Name Table”](#) on page 24.

In addition, the PROCLIB containing the SMC START procedure **must** be present in the PROCLIB concatenation for the master address space. This concatenation is defined in SYS1.PARMLIB(MSTJCLzz), under DD KDJPDSI.

Copying or Moving the SMCBPREI Module to an MSP LNKLST Library

The SMC subsystem pre-initialization routine module (SMCBPREI), which resides in the SMCLINK library, **must** also reside in an MSP LNKLST library if you are running the SMC as a secondary MSP subsystem. You can copy or move the SMCBPREI module from SMCLINK to a LNKLST library.

The SMCBPREI pre-initialization routine module is functionally compatible between SMC releases. For future compatibility, however, use the most current release of the SMCBPREI pre-initialization module.

Tape Management System Interaction and the Subsystem Name Table

If you are running a Tape Management System (TMS), you **must** ensure that it processes MSP mount messages **before** the SMC. To do this, add both the tape management system and the SMC to the subsystem name table with the (TMS) entry preceding the SMC entry. The following example shows entries for CA-1 Release 5.1 and above, and SMC.

```
PRISUB SUBNAME=JES
SNDSUB SUBNAME=TMS
SNDSUB SUBNAME=SMC0 , PGM=SMCBPREI
```

In installations with tape management systems executing on the same host, it is recommended that you always add both the tape management system and the SMC to the subsystem name table.

The following table presents possible subsystem name definition scenarios for a tape management system and SMC when both are dynamic subsystems.

Is SMC defined in the subsystem name table?	Is TMS defined in the subsystem name table?	Possible Issues
YES	YES	Supported and recommended. The TMS must precede the SMC in the table.
YES	NO	Not supported. The TMS cannot process MSP mount messages before the SMC.
NO	YES	Supported but not recommended. You must ensure that the SMC is started after the TMS.
NO	NO	Supported but not recommended. You must ensure that the SMC is started after the TMS.

Note – See [“Notes on Subsystem Name Table Modifications for SMC”](#) on page 24.

Unicenter CA-MIA Interaction and the Subsystem Name Table

If you are running the Unicenter CA-MIA product, Computer Associates recommends that you add both SMC and Unicenter CA-MIA to the subsystem name table with the SMC entry preceding the entry for Unicenter CA-MIA. The following example shows entries for SMC and Unicenter CA-MIA.

```
PRISUB  SUBNAME=JES
SNDSUB  SUBNAME=SMC0 , PGM=SMCBPREI
SNDSUB  SUBNAME=MIA
```

Unicenter CA-MIA compatibility also requires that the ALLOCDEF MIACOMPAT(ON) option be specified in SMC. Refer to the *SMC Configuration and Administration Guide* for information about the ALLOCDEF command.

Note – See [“Notes on Subsystem Name Table Modifications for SMC”](#) on page 24.

SMC, TMS, and Unicenter CA-MIA Interaction and the Subsystem Name Table

If you are running SMC, a Tape Management System (TMS), and Unicenter CA-MIA all on the same host, add all three products to the subsystem name table in the order indicated in the following example:

```
PRISUB  SUBNAME=JES
SNDSUB  SUBNAME=TMS
SNDSUB  SUBNAME=SMC0 , PGM=SMCBPREI
SNDSUB  SUBNAME=MIA
```

Unicenter CA-MIA compatibility also requires that the ALLOCDEF MIACOMPAT(ON) option be specified in SMC. Refer to the *SMC Configuration and Administration Guide* for information about the ALLOCDEF command.

Note – See [“Notes on Subsystem Name Table Modifications for SMC”](#) on page 24.

Running SMC under MSTR and the Subsystem Name Table

If you wish to run the SMC under the MSTR subsystem rather than under the primary job entry subsystem, you **must** add the SMC to the subsystem name table to identify the subsystem name, as in the following example:

```
SNDSUB SUBNAME=SMC0
```

This sample is contained in member SUBSYSZZ of the SMC sample library.

If the SMC subsystem is to execute under MSTR, you **must** also include the MSTR option on the PARM parameter in the SMC START procedure. Refer to the *SMC Configuration and Administration Guide* for information about creating the SMC START procedure.

An alternative to adding the SMC to the subsystem name table in order to execute under MSTR is to start the SMC subsystem with the SUB=MSTR parameter on the MSP Start command. Refer to the *SMC Configuration and Administration Guide* for information about executing the SMC start procedure.

Note – See [“Notes on Subsystem Name Table Modifications for SMC”](#) on page 24.

Notes on Subsystem Name Table Modifications for SMC

- The SUBNAME(name) parameter specifies a 1-4 character name that normally corresponds to the SMC START procedure name. If the SMC subsystem name you define via the SUBNAME(name) parameter does **not** match the SMC START procedure name, you **must** include the SYSS option on the PARM parameter in the START procedure. Refer to the *SMC Configuration and Administration Guide* for information about creating the SMC START procedure.
- You **must** perform an IPL of the MSP host system before changes to the subsystem name table take effect.
- If you have added the Unicenter CA-MIA subsystem name to the subsystem name table, one of the following **must** be done:
 - The started task that uses this subsystem **must** be present in the PROCLIB concatenation for the master address space. This concatenation is defined in SYS1.PARMLIB(MSTJCLzz), under DD KDJPSI.
 - The Start command for Unicenter CA-MIA **must** specify the SUB=JES2 parameter. For example, S CAMIA,SUB=JES2.

Modifying the MSP Program Properties Table for SMC

You **must** modify the MSP Program Properties Table (PPT) to include an entry for the SMC subsystem.

Note – The SMC **must** run in a low key (from 1-7). The examples in this section use key 3. Using keys 8-15 causes unpredictable results.

You **must** add the following entry to member PPTPRMzz of SYS1.PARMLIB. This sample entry is in member PPTPRMZZ of the SMC sample library included on the installation base tape. The PPT entry is defined as follows:

```
PPT PGM=SMCBINT,ATTR=(PRIV,NOSWAP),KEY=3
```

Note – After modifying the PPTPRMzz member, you **must** perform an IPL or dynamic update.

Performing HSC Post-installation Tasks

Overview

This chapter describes required post-installation tasks for the HSC. The following topics are included:

- Defining the HSC as an MSP subsystem
- Adding the HSC load library to the authorized program list
- Adding the HSC user exit library to the authorized program list
- Copying or moving the SLSBPREI module to an MSP LINKLIST library
- Modifying the MSP program properties table for HSC
- Adding SMF parameters for the HSC
- Re-assembling the SLUCONDB (Scratch Conversion) Modules

Note –

- Before proceeding, verify that you have completed the installation tasks described in Chapters 1 and 2.
- Once installed, The HSC **requires** a license key in order to initialize. See [Appendix C](#) for more information about obtaining your NCS license key.

Defining the HSC as an MSP Subsystem

HSC can either run under the master MSP subsystem, or as a secondary MSP subsystem.

- If you run HSC under the master MSP subsystem, you **must** add a line to your subsystem name table (SYS1.PARMLIB member IEFSSNzz) to identify the subsystem name. This is a one- to four-character name that corresponds to the procedure name for the HSC started task procedure.
- If you run HSC as a secondary MSP subsystem, you **must** add a line to your subsystem name table (SYS1.PARMLIB member IEFSSNzz) to identify the following:
 - The subsystem name. This is a one- to four-character name that corresponds to the procedure name for the HSC started task procedure.
 - The HSC subsystem initialization routine name, which **must** be SLSBPRES.

Assuming your HSC subsystem name is SLS0, the following lines correctly add HSC to your subsystem name table when running HSC under the master MSP subsystem, or as a secondary MSP subsystem. This sample entry is contained in member IEFSSNXX of the HSC sample library on the installation base tape.

```
SNDSUB SUBNAME=SLS0,PGM=SLSBPRES /* keyword format */
```

Note –

- If the HSC subsystem name you define in the subsystem name table does **not** match the HSC started task procedure name, you **must** include the SYSS option on the PARM parameter in the started task procedure. Refer to the *HSC Configuration Guide* for information about creating an HSC startup procedure.
- If you are **not** defining the HSC subsystem name dynamically, you **must** perform an IPL of the MSP host system before the HSC subsystem name entry takes effect.
- HSC no longer interacts with tape management systems in processing MSP messages. Therefore, the order of definition of the HSC subsystem and a tape management subsystem is irrelevant. However, the SMC subsystem definition, if specified, **must** follow the tape management system entry.
- Refer to the *OS IV/MSP System Parameter Reference Manual* for more information about defining subsystem names.

Adding the HSC Load Library to the Authorized Program List

The HSC **must** run as an authorized program. You **must** add the HSC load library to the authorized program list on your system. You can authorize the HSC load library by adding the load library to the KAAAPFzz member of SYS1.PARMLIB. You can also authorize the HSC load library dynamically.

The following sections describe each of these methods.

Using KAAAPFzz to authorize the HSC Load Library

If you use the KAAAPFzz member of SYS1.PARMLIB to authorize the HSC load library, you **must** add the following entry to that list:

```
your.SLSLINK volser
```

This sample is contained in member KAAAPFXX of the HSC sample library. Before adding this sample to your authorized program list, edit the high level qualifier and volser with appropriate values for your system.

Note – If the HSC load library resides on an SMS-managed volume, you do **not** need to specify a volume in the authorized library entry. In this case, specify nothing after the library name, to indicate that SMS is managing the library. If you specify the wrong volume, the library will **not** be authorized.

Adding the HSC User Exit Library to the Authorized Program List

The HSC user exit library can either be the same as the HSC load library, or a separate library. If the HSC user exit library is a separate library, you **must** add the library to the authorized program list. For example:

```
SLS.SLSLINK    volser,  
SLS.USEREXIT.LOAD  volser
```

Before adding the library to the authorized program list, edit the high level qualifier and volser with appropriate values for your system.

Copying or Moving the SLSBPRESI Module to an MSP LINKLIST Library

The HSC subsystem pre-initialization routine module (SLSBPRESI), which resides in the SLSLINK library, **must** also reside in an MSP LINKLIST library if you are running the HSC as a secondary MSP subsystem. You can copy or move the SLSBPRESI module from SLSLINK to a LINKLIST library.

The SLSBPRESI pre-initialization routine module is functionally compatible between HSC releases. For future compatibility, however, use the most current release of the SLSBPRESI pre-initialization module.

Modifying the MSP Program Properties Table for HSC

You **must** modify the MSP Program Properties Table (PPT) to include an entry for the HSC subsystem.

Note – The HSC **must** run in a low key (from 1-7). The examples in this section use key 3. Using keys 8-15 causes unpredictable results including SOC1 and SOC4 abends.

You **must** add the following entry to member PPTPRM xx of SYS1.PARMLIB. This sample entry is in member PPTPRMXX of the HSC sample library on the installation base tape. The PPT entry is defined as follows:

```
PPT PGMNAME=SLSBINIT,ATTR=(PRIV,NOSWAP),KEY=3
```

Adding SMF Parameters for the HSC

You **must** add two lines to your System Management Facility (SMF) parameters in SYS1.PARMLIB member SMFPRMzz to identify the following:

- HSC subsystem name
- HSC recording interval (the smaller the number, the more often data is recorded)
Specified as INTERVAL(*hhmmss*)
A minimum of 15 minutes (001500) is strongly recommended to avoid impacts to library performance. For HSC systems that do **not** support VSM, an interval of one hour (010000) is recommended.
- HSC SMF record type
- HSC SMF record subtypes to be recorded (See [“HSC SMF Record Subtypes”](#) below for a list of record subtypes that HSC can generate.)

Assuming your HSC subsystem name is SLS0, the following example shows the lines that add HSC to your SMF parameters.

```
SUBSYS (SLS0, INTERVAL(001500), TYPE(255))
OPTION SUBTYPE(1,2,3,4,5,6,7,8)
```

This sample is contained in member SMFPRMXX of the HSC sample library on the installation base tape.

HSC SMF Record Subtypes

The following table lists the SMF record subtypes that HSC can generate.

Subtype	Description
1	LSM operations statistics
2	Vary Station command
3	MODify LSM command
4	LMU read statistics
5	Cartridge eject
6	Cartridge enter
7	Cartridge move
8	View command

If you do **not** specify the SUBTYPE parameter in your SMF options, HSC generates subtypes 1 through 6. You **must** code a SUBPARM parameter and include subtypes 7 and 8 to generate cartridge move and view records.

Refer to the *HSC System Programmer's Guide* for more information about the SMF records.

Re-assembling the SLUCONDB (Scratch Conversion) Modules

Depending on your tape management system and associated release level, you may need to re-assemble the SLUCONDB (Scratch Conversion) modules. This is also necessary if local modifications are made to certain modules.

Refer to the *HSC System Programmer's Guide* for more information about the Scratch Conversion (SLUCONDB) Utility and re-assembly requirements.

Performing Post-installation Tasks for the Sun StorageTek HTTP Server

Overview

The Sun StorageTek HTTP Server for MSP optionally provides the middleware to allow communication between the SMC (client) and a remote HSC subsystem (server). The HTTP server executes as a separate subsystem on the MSP host where the remote HSC subsystem resides.

This chapter describes how to add the HTTP Server libraries to the authorized program list. This is a required post-installation task for the Sun StorageTek HTTP Server.

Note –

- Before proceeding, verify that you have completed the installation tasks described in Chapters 1 and 2.
- The Sun StorageTek HTTP server is also packaged with the VTCS GUI product. However, for performance and security reasons, do **not** use the same HTTP server for both SMC server programs and VTCS GUI programs. Instead, execute one HTTP server for the SMC server, and a separate HTTP server for the VTCS GUI. To execute multiple HTTP server subsystems on a single host, they **must** connect to different PORT numbers.

Adding the HTTP Server Libraries to the Authorized Program List

The HTTP server, and supporting programs, **must** run as an authorized program. You **must** add the STK HTTP load library and SSKYRTNS load library to the authorized program list on your system. You can authorize these libraries by adding them to the KAAAPFzz member of SYS1.PARMLIB. You can also authorize these libraries dynamically.

Using KAAAPFzz to Authorize the HTTP Load Libraries

If you use the KAAAPFzz member of SYS1.PARMLIB to authorize the STK HTTP load library and SSKYRTNS load library, you **must** add the following entries to that list:

```
your.STKLOAD volser  
your.SSKYRTNS volser
```

This sample is included in member IEAAPFZZ of the SMC sample library. Before adding this sample to your authorized program list, edit the high level qualifier and volser with appropriate values for your system.

Note – If any of these libraries reside on an SMS-managed volume then you can omit the volser specification for that library. In such cases, specify nothing after the library name, to indicate that SMS is managing the library. If you specify the wrong volume, the library will **not** be authorized.

NCS Samples, Source Code Modules, and Macros

Overview

This appendix lists the sample installation members used to install the NCS product components. It also lists the samples, load modules, and macros included with SMC and HSC.

Note – If you are using the Virtual Storage Manager (VSM) system in your NCS environment, refer to the *Installing and Configuring VTCS* guide for information about VTCS samples.

Sample Installation Members

The following table lists the sample installation JCL members included on the NCS installation tape:

TABLE A-1 Sample Installation JCL Members

Member Name	Description
ALLOCCSI	Sample JCL for defining and initializing the SMP PRJ
ALLSYSLB	Sample JCL for adding required DDDEF entries and modifying the SYSLIB concatenation
MAINTACF	Sample JCL for SMP ACCEPT of maintenance in a mass mode for specific NCS FMIDs
MAINTACS	Sample JCL for SMP ACCEPT of maintenance for specific SYSMODs
MAINTAPF	Sample JCL for SMP APPLY of maintenance in mass mode for specific NCS FMIDs
MAINTAPS	Sample JCL for SMP APPLY of maintenance for specific SYSMODs
MAINTRCF	Sample JCL for SMP RECEIVE of maintenance for a specific NCS FMID
MAINTRCP	Sample JCL for SMP RECEIVE of maintenance for an NCS Product Update Tape (PUT)
MAINTRCS	Sample JCL for SMP RECEIVE of maintenance for specific SYSMODs
NCSACCPT	Sample JCL for SMP ACCEPT of the NCS functions
NCSAPPLY	Sample JCL for SMP APPLY of the NCS functions
NCSDDDEF	Sample JCL for adding required DDDEF entries for all base NCS product components
NCSRECV	Sample JCL for SMP RECEIVE of the NCS functions from the NCS base tape

SMC Base Samples and Macros

The following tables list the SMC samples and macros contained on the NCS base tape:

TABLE A-2 SMC Samples

Member Name	Description
GTFEXTR	Sample extract for SMC trace of a single job
GTFPARMS	Sample GTF parameters for SMC trace
GTFPROC	Sample GTF startup JCL
KAAAPFZZ	Sample SMC APF list entries
SUBSYSZZ	Sample SMC subsystem name table entry
INSTUXIT	Sample SMP for installing SMP managed user exits
MSGMPFUX	Sample MPF user exit
POLCVT01	Sample POLCVT member
POLCVT02	Sample POLCVT REXX data set program
PROGZZ	Sample SMC APF list entries
SCHEDZZ	Sample MSP Program Properties Table (PPT) entry for SMC
SMCCMDS	Sample command file for the SMCCMDS DD statement
SMCJARSLV	Sample JCL to reassemble/relink module SMCERSLV (JES3 only)
SMCJRSLA	Sample JCL for assembling SMCERSLV (JES3 only)
SMCJRSLV	Sample JCL for running UCLIN for SMCERSLV (JES3 only)
SMCJTYP1	Sample JCL to SMP install the SMC Type 1 modifications (JES3 only)
SMCJUX09	Sample JCL to SMP install the SMC IATUX09 user modification (JES3 only)
SMCJUX71	Sample JCL to SMP install the SMC IATUX71 user modification (JES3 only)
SMCPARMS	Sample parameter file for SMCPARMS DD statement
SMCPROC	Sample startup JCL
SMCUIICM	Sample IATIICM Type 1 modification (JES3 only)
SMCUIIP1	Sample IATIIP1 Type 1 modification (JES3 only)
SMCUMDAL	Sample IATMDAL Type 1 modification (JES3 only)
SMCUMDFE	Sample IATMDFE Type 1 modification (JES3 only)
SMCUUX09	Sample SMC JES3 IATUX09 user modification (JES3 only)
SMCUUX71	Sample SMC JES3 IATUX71 user modification (JES3 only)
SRVPARMS	Sample Sun StorageTek HTTP server parms
SRVPROC	Sample Sun StorageTek HTTP server PROC
UX01HSC1	Sample HSC format message intercept user exit

TABLE A-2 SMC Samples (Continued)

Member Name	Description
UX02HSC1	Sample HSC format JES scratch allocation user exit
UX08HSC1	Sample HSC format JES specific allocation esoteric subs user exit
UX09HSC1	Sample HSC format JES defer allocation user exit

TABLE A-3 SMC Source Code Modules

Member Name	Description
SMCERSLV	Source code for JES3 macro field resolution routine
SLUDRCA1	Source code for Scratch Conversion Utility CA-1 (TMS) database READ routine
SLUDRRMM	Source code for Scratch Conversion Utility DFSMSrmm database READ routine
SLUDRSMC	Source code for TMS database extract READ routine
SLUDRTLMS	Source code for Scratch Conversion Utility CA-TLMS (TLMS) database READ routine
SLUDRZAR	Source code for Zara database extract READ routine

TABLE A-4 SMC Macros

Member Name	Description
SMCEHOOK	SMC Type 1 modification macro (JES3 only)
SLSUX01P	HSC format User Exit 01 parameter list
SLSUX02P	HSC format User Exit 02 parameter list
SLSUX04P	HSC format User Exit 04 parameter list (JES3 only)
SLSUX08P	HSC format User Exit 08 parameter list
SLSUX09P	HSC format User Exit 09 parameter list
SLSUX10P	HSC format User Exit 10 parameter list
SLSUX11P	HSC format User Exit 11 parameter list (JES3 only)
SLSUX12P	HSC format User Exit 12 parameter list (JES3 only)
SLSUX13P	HSC format User Exit 13 parameter list (JES3 only)

HSC Samples and Macros

The following tables list the HSC samples and macros contained on the NCS base tape:

TABLE A-5 HSC Samples

Member Name	Description
CVRLTR	Sample JCL to print the PUT cover letter from a PUT tape
GTFLMU	Sample MSP 2.X PARMLIB member to trace LMU requests
IEAAPFXX	Sample HSC APF list entries
IEFSSNXX	Sample HSC subsystem name table entry
JCLACTV	Sample JCL to report on library performance
JCLAUDT	Sample JCL to audit library hardware
JCLBKUP	Sample JCL to backup the control data set
JCLCRT	Sample JCL to create the control data set
JCLEJCT	Sample JCL to eject cartridges from an ACS
JCLEXRS	Sample JCL to exercise an installation
JCLINIT	Sample JCL to initialize cartridges via the ACS
JCLOFLD	Sample JCL to offload control data set journals
JCLPROC	Sample HSC startup JCL
JCLRSTR	Sample to restore the control data set
JCLSCRD	Sample JCL for Scratch Redistribution Utility
JCLSCUP	Sample JCL for Scratch Update Utility
JCLTINIT	Sample JCL to initialize ACS cartridges using TMSTPNIT
JCLVOLR	Sample JCL to report on the volumes in the library
JCLVRFY	Sample JCL to verify an installation's LIBGEN
LIBGENnn	Sample LIBGEN source for installation examples (1-8)
LIBGNJCL	Sample JCL to assemble and link a LIBGEN source file
MPFUSERX	Sample MPF user exit to retain TMS007 messages on MSP console
SASTYPEx	Sample SAS source for SMF subtypes 1, 4, and 7
SCHEDXX	Sample MSP Program Properties Table (PPT) entry for HSC
SENDEL	Sample SEN macro interface program
SENDISA	Sample SEN macro interface program
SENENA	Sample SEN macro interface program
SENEXIT	Sample SEN user exit
SENRQST	Sample SEN macro interface program
SLSSYS00	Sample HSC startup parameter file
SLSSYS12	Sample HSC PARMLIB member (release 1.2)

TABLE A-5 HSC Samples (Continued)

Member Name	Description
SLSSYS20	Sample HSC PARMLIB member (release 2.0)
SLSUX03	Default scratch subpool user exit
SLSUX05	Default programmatic interface (PGMI) user exit
SLSUX06	Default database insert/delete user exit
SLSUX14	Default volume access user exit
SLSUX15	Default command authority user exit
SLS0	Sample HSC startup procedure
SLUCONDB	Source code for Scratch Conversion Utility
SMFPRMxx	Sample PARMLIB definitions for HSC SMF record subtypes
SPGxxxx	Sample HSC JCL
STKINDEX	Index of HSC samples
STKTSTxx	Sample IVP programs
SWSJCRDB	Sample to configure VTCS information in a CDS (VTCS only)
SWSJMVCR	Sample to generate an MVC report (VTCS only)
SWSJTVR	Sample to generate a VTV report (VTCS only)
UX03SAM2	Sample HSC User Exit 03 to define scratch subpools with names
UX06SAM1	Sample HSC User Exit 06 interface to a tape management system
UX15SAM1	Sample HSC User Exit 15 to ensure command security

TABLE A-6 HSC Macros

Member Name	Description
ACSRQ	format a parameter list for an ACS request
SLIACS	LIBGEN SLIACS macro
SLIALIST	LIBGEN SLIALIST macro
SLICOV	Global configuration constants & variables
SLIDLIST	LIBGEN SLIDLIST macro
SLIDRIVS	LIBGEN SLIDRIVS macro
SLIENDGN	LIBGEN SLIENDGN macro
SLIERMSG	LIBGEN error message macro
SLILBACS	LIBGEN ACS area
SLILBALS	LIBGEN ACLIST area
SLILBDLS	LIBGEN DRIVELST area
SLILBDRV	LIBGEN DRIVES area
SLILBEND	LIBGEN ENDGEN area
SLILBLIB	LIBGEN LIBRARY area
SLILBLSM	LIBGEN LSM area
SLILBREC	LIBGEN RECOVERY area
SLILBSTA	LIBGEN STATION area
SLILCV	Installation LCT constants - variables
SLILIBRY	LIBGEN LIBRARY macro
SLILSM	LIBGEN LSM macro
SLIPTPCK	LIBGEN SLIPTPCK macro
SLIRCVRY	LIBGEN RECOVERY macro
SLISTATN	LIBGEN STATION macro
SLSDILLT	LIBGEN LOCATION type
SLSDVAR	Distributed volume attribute record length
SLSSBLOG	INIT/TERM LOGREC record
SLSSBLOS	LSM operations statistics data area
SLSSCAPJ	CAP SMF EJECT record
SLSSCAPN	CAP SMF ENTER record
SLSSDJLR	Database journalling LOGREC map
SLSSFHDR	SMF record header
SLSSHG1	Host communications LOGREC format 1
SLSSLHDR	LOGREC record header map
SLSSLG1	LMU driver LOGREC format ONE

TABLE A-6 HSC Macros (Continued)

Member Name	Description
SLSSLLG2	LMU driver LOGREC format two
SLSSLLG3	LMU driver LOGREC format three
SLSSLLG4	LMU driver LOGREC format four
SLSSLLG5	LMU driver LOGREC format five
SLSSLLG6	LMU driver LOGREC format six
SLSSLSB	LMU ATHS statistics buffer
SLSSMF07	HSC format 7 SMF record
SLSSMF08	HSC format 8 SMF record
SLSSMF09	HSC format 9 SMF record
SLSSMF10	HSC format 10 SMF record
SLSSMF11	HSC format 11 SMF record
SLSSMF12	HSC format 12 SMF record
SLSSMF13	HSC format 13 SMF record
SLSSMF14	HSC format 14 SMF record
SLSSMF15	HSC format 15 SMF record
SLSSMF16	HSC format 16 SMF record
SLSSMF17	HSC format 17 SMF record
SLSSMF18	HSC format 18 SMF record
SLSSMF19	HSC format 19 SMF record
SLSSMF20	HSC format 20 SMF record
SLSSMF21	HSC format 21 SMF record
SLSSMF22	HSC format 22 SMF record
SLSSMF23	HSC format 23 SMF record
SLSSMF24	HSC format 24 SMF record
SLSSMF25	HSC format 25 SMF record
SLSSMF26	HSC format 26 SMF record
SLSSMF27	HSC format 27 SMF record
SLSSMF28	HSC format 28 SMF record
SLSSMF29	HSC format 29 SMF record
SLSSMF30	HSC FORMAT 30 SMF record
SLSSMLSM	Modify LSM SMF record subtype map
SLSSPSWI	Primary/shadow switch LOGREC record
SLSSRL00	Recovery ERDS record 0
SLSSRL01	Recovery ERDS record 1
SLSSVLG1	VOL/CELL force unselect record
SLSSVSTA	VARY station SMF record subtype map

TABLE A-6 HSC Macros (Continued)

Member Name	Description
SLSUREQ	Batch API request processor
SLSSUREQM	Batch API interface mapping macro
SLSUX03P	HSC User Exit 03 parameter list
SLSUX05P	HSC User Exit 05 parameter list
SLSUX06P	HSC User Exit 06 parameter list
SLSUX14P	HSC User Exit 14 parameter list
SLSUX15P	HSC User Exit 15 parameter list
SLSXB2X	Translate 8 bits to a hex byte
SLSWMSG	Map logrec records written for WTO-type messages issued by HSC
SLSXREQ	Issue an ACS request
SLSXREQM	ACS user interface mapping macro
SLSXSEN	HSC Significant Event Notification (SEN) request
SLSXSENM	Significant Event Notification (SEN) request parm list map
SLUDRINF	TMS DB Read parameter list
SLUVADAT	Flat file ACS/LSM information DSECT
SLUVCDAT	Flat file static configuration data DSECT
SLUVDDAT	QCDS drive information DSECT
SLUVHDAT	Flat file host information DSECT
SLUVIDAT	Flat file CDS information DSECT
SLUVM DAT	Flat file MVC data DSECT
SLUVPDAT	QCDS CAP information DSECT
SLUVSDAT	Flat file ACS station address DSECT
SLUVTDAT	Flat file VTV data DSECT
SLUVVDAT	Flat file volume data DSECT
SLX	HSC external interface reply
SWSPGMIA	VTCS PGMI interface area (VTCS only)
SWSUIO	VTCS UIO I/O request (VTCS only)

Installing NCS Maintenance

Overview

This appendix contains instructions for installing NCS maintenance.

Before attempting to install maintenance, contact Sun StorageTek Support for information about the latest corrective service available for your NCS products.

See [“Customer Support” on page xvii](#) and [“Customer-initiated Maintenance” on page xviii](#) for information about contacting Sun Microsystems for assistance.

Note – Use the MSP Linkage Editor when installing NCS products and maintenance. Failure to do so may result in link-editing errors.

Maintenance Installation Data Sets

NCS maintenance is installed with SMP. Thus, the SMP target and distribution libraries used for installation of the NCS base products are required. See [“Allocating NCS Target and Distribution Library Data Sets and Required DDDEF Entries” on page 11](#) for more information about these libraries.

NCS Corrective Service Media

NCS maintenance (including SMC, HSC, and the Sun StorageTek HTTP Server) is distributed on a corrective service tape. This tape includes the following files:

TABLE B-1 NCS Release 6.2 Corrective Service Tape Contents (Non Labeled Tape)

File	Data Set Name	Description
1	PTFS	Service PTFs
2	CVR	PTF cover letters and JCL samples
3	SMM	Summary data
4	HOLDDATA	SMP HOLDDATA

Unloading the NCS Maintenance SMP JCL Samples

Sample JCL members for installing NCS maintenance were unloaded from the NCS base tape during the NCS installation process. See [“Unloading the SMP JCL Library from the NCS Base Tape” on page 9](#) for more information.

These JCL samples can be used to process maintenance in mass mode, or by individual SYSMOD.

SMP RECEIVE Maintenance

Sample members MAINTRCF and MAINTRCS provide sample JCL to perform an SMP RECEIVE for maintenance:

- Use MAINTRCF to SMP RECEIVE maintenance by specific FMID.
- Use MAINTRCS to SMP RECEIVE maintenance by specific SYSMOD.

Follow the instructions in the prologue of the sample members and submit the job to receive maintenance.

The return code **must** be zero (0) for all steps executed in this job. If you receive a different return code, contact Sun StorageTek Support.

Note – When installing NCS, you **must** SMP RECEIVE all maintenance from the corrective service tape before performing an SMP APPLY and ACCEPT for the NCS base functions.

SMP APPLY Maintenance

Sample members MAINTAPF and MAINTAPS provide sample JCL used to perform an SMP APPLY for maintenance:

- Use MAINTAPF to SMP APPLY maintenance by specific FMID.
- Use MAINTAPS to SMP APPLY maintenance by specific SYSMOD.

Follow the instructions in the prologue of the sample members for necessary modifications and procedures for performing an SMP APPLY CHECK followed by an actual SMP APPLY. Submit the job to apply maintenance.

SMP ACCEPT Maintenance

Note – Performing an SMP ACCEPT for maintenance is **optional**.

Sample members MAINTACF and MAINTACS provide sample JCL to perform an SMP ACCEPT for maintenance:

- Use MAINTACF to SMP ACCEPT maintenance by specific FMID.
- Use MAINTACS to SMP ACCEPT maintenance by specific SYSMOD.

Follow the instructions in the prologue of the sample members for necessary modifications and procedures for performing an SMP ACCEPT CHECK followed by an actual SMP ACCEPT. Submit the job to apply maintenance.

Separate HELD NCS PTFs

Examine the output from the APPLY in the previous section to identify those PTFs that failed to be applied due to HOLDSYSTEM exception data. Examine the cover letters for those PTFs to determine if the PTFs are applicable to your environment. Generally, NCS SYSMODS with HOLDSYSTEM fall into two categories:

- SYSMODS that update the tape management system scratch conversion modules (SLUDRCA1, SLUDRTLML, and SLUDRRMM).
- Those SYSMODS that have dependencies beyond control of the NCS SMP environment. For example, certain NCS PTFs may require a particular MSP PTF to be applied or you may need to update an automated operations package.

From the examination of the SYSMODS that were **not** applied due to HOLDSYSTEM exception data, create four lists of PTFs as follows:

list 1

Tape management system PTFs for a tape management system that is **not** installed at your site.

list 2

Tape management system PTFs where the tape management system is installed at your site and modification of the source is necessary.

list 3

Non-tape management system PTFs that **cannot** be applied because your site does **not** comply with the conditions defined in the PTF cover letters.

list 4

All other PTFs held for HOLDSYSTEM exception data. These are held PTFs that are applicable to your installation. Included are tape management system PTFs where the tape management system is installed at your site and you don't need to modify the source code.

APPLY Applicable NCS HOLDSYSTEM SYSMODS

Use the following JCL to SMP APPLY applicable HOLDSYSTEM SYSMODS:

```
//jobname JOB .....
//S1      EXEC smpe-proc
//SMPCNTL DD *
    SET BDY(target-zone) .
    APPLY PTFs
        EXCLUDE(ptf1,ptf2,.....ptfn)
        FORFMID(
            /* FMID-id */
        )
        BYPASS(HOLDSYSTEM)
        ASSEM
        .
/*
```

Note –

- The EXCLUDEd PTFs should consist of all PTFs in List 1, List 2, and List 3 (see [“Separate HELD NCS PTFs”](#) on page 48).
- See [“Reviewing the NCS FMIDs”](#) on page 16 for a list of FMIDs.

APPLY Tape Management SYSMODS Without an ASSEMBLE

```

/jobname JOB .....
//S1      EXEC smpe-proc
//SMPCNTL DD *
  SET BDY(target-zone) .
  ACCEPT PTFs
    EXCLUDE (ptf1,ptf2,.....,ptfn)
    FORFMID (
      /* fmid-id */
    )
    BYPASS (HOLDSYSTEM) .
/*

```

The EXCLUDE list should specify only the PTFs in List 3 (see [“Separate HELD NCS PTFs” on page 48](#)). This APPLY installs all NCS SYSMODS held for HOLDSYSTEM exception data where the PTFs are for:

- A tape management system installed at your site where you have determined that the tape management components require modification.
- A tape management system that is **not** installed at your site.

Note – APPLYing the PTFs for Tape Management Systems (TMS) that are **not** installed at your site is desirable because:

- APPLYing these PTFs ensures that all TMS maintenance is current. This is important if you decide to change tape management systems. APPLYing these PTFs may also satisfy IFREQs.
- There is a separate module for each tape management system. Maintenance for one TMS will **not** affect other tape management systems.
- You should have no problem APPLYing these PTFs because the ASSEM option is **not** specified.

This APPLY does **not** generate an assembly for the NCS tape management system source modules because the ASSEM option is **not** specified. The SAMPLIB data set is updated with new source versions. If required, you can now modify the source and reassemble the relevant module(s).

After running the APPLY steps for HOLDSYSTEM SYSMODS and tape management SYSMODS without an ASSEMBLE, the only held PTFs that are **not** applied should be those you determined **cannot** be applied because you do **not** comply with their specific requirements (see [“Separate HELD NCS PTFs” on page 48](#)).

Obtaining an NCS License Key

HSC and MVS/CSC software requires a Sun license key for initialization. This license key is validated during initialization and immediately after midnight each day.

A **single license key** is required for initialization of HSC and MVS/CSC software.

Obtaining a License Key

To request your license key(s), visit the Sun StorageTek License Key Center at:

<http://www.sun.com/software/licensingcenter/storage.xml>

License keys are generally issued within 48 hours of receipt of the request.

Activating a License Key

Once you receive your license key(s), use the HSC LKEYDEF operator command and LKEYINFO control statement to make it available to the license key validation service in HSC. The LKEYDEF command loads the LKEYINFO control statement, which contains your license key information.

Refer to the *HSC Configuration Guide* for more information about the HSC LKEYDEF command and LKEYINFO control statement.

Note – If you are using MVS/CSC, you must use the **MVS/CSC** LKEYDEF command and LKEYINFO control statement to activate the license key for this product. Refer to the *MVS/CSC Configuration Guide* for information about the MVS/CSC LKEYDEF command and LKEYINFO control statement.

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