STORAGETEK

LibraryStation
Release 6.0

Cross Host Recovery for Open System Clients
Support Update

First Edition
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Contents

Preface

This document provides updates to the documentation for StorageTek's LibraryStation 6.0 software, to include cross host recovery support for open system clients.

Cross host recovery provides a standby server for open system clients, eliminating the need to manually start another LibraryStation when the active LibraryStation is terminated.

With cross host recovery enabled, at termination, the active LibraryStation notifies the standby LibraryStation(s). The first standby LibraryStation to receive the request becomes the active LibraryStation for open system clients.

Organization of this Document

This document contains the following information:

- LibraryStation LSINIT parameter updates (see page 1)
- LibraryStation command updates (see page 5)
- LibraryStation message updates (see page 9)

Conventions for Reader Usability

Instructions explaining changes are shown in *italics*. Actual modifications are denoted by revision bars (|) displayed in the left margin. As needed, surrounding text from the existing documentation is included for clarity.

Accessing Documentation on the World Wide Web

The StorageTek Customer Resource Center (CRC) provides online product documentation. Access the CRC at:

```
http://www.support.storagetek.com
```

You must obtain a login ID and password in order to access product documentation. You can request a login ID and password from the CRC homepage. If you require assistance, contact the CRC web support desk at 303-661-7547 or send an email to webmastercentral@louisville.stortek.com.

LSINIT Parameter Updates

This section provides LibraryStation LSINIT parameter updates in support of cross host recovery support for open systems clients.

These updates apply to the LibraryStation Configuration Guide, Chapter 9, "Configuring the LSINIT Control Statement."

LSINIT Control Statement Format

The LSINIT table is revised to include a new parameter, XHREC, and a change to the DEFER parameter description.

Keyword	Function
COMMONSP	Specifies the HSC common scratch subpool name to be used as the default scratch subpool for LibraryStation
NETHOST	Specifies the LibraryStation hostid to which network drives are assigned
NOPDF	Disables the Persistent Data File (PDF)
AUTHCLS	Specifies the SAF class that should be used with the RACROUTE mechanism if volume authorization checking is active
CMDACC	Specifies whether or not command authorization checks should be performed on a client level
COMMTYPE	Specifies which communication method(s) LibraryStation uses to communicate with clients
CREQLOG	Enables/disables logging of network client mount/dismount requests
DEFER	Allows LibraryStation initialization to be deferred
HOSTID	Specifies the hostid of the HSC system where LibraryStation is executed
LSDEF	Provides the name of a data set that contains various LibraryStation definition statements
PDF	Specifies the data set name to be dynamically allocated as the Persistent Data File

Keyword	Function
PDFX	Specifies the data set name to be dynamically allocated as the path to the Persistent Data File alternate index
POOLCHK	Specifies whether or not volumes can be scratched when the wrong scratch pool is put in the network scratch request
REQTIME	Defines the amount of time after which LibraryStation drops messages waiting to be sent to clients
RETCOUNT	Defines the number of times that LibraryStation attempts to transmit a message across the network
RETTIME	Defines the minimum amount of time that LibraryStation waits between attempts to establish a network connection
SYMDESTN	Specifies the symbolic destination name that contains the transaction program name and local logical unit name that LibraryStation uses to register with APPC/MVS for SNA LU6.2 communication.
TCPNAME	Specifies any StorageTek compatible TCP/IP communications product
TCPPORT	Specifies a TCP port used for TCP/IP communications.
VOLACC	Specifies whether or not volume authorization checks should be performed on a client level
VOLAUTH	Specifies whether or not volume authorization checks should be performed on a network level
VOLNOPRF	Specifies, for users of RACF and VOLAUTH, whether or not volumes undefined to RACF may be accessed by network clients
VSECLOG	Specifies whether or not message SLS3945I is issued to the system log when access to a volume is denied
XCFGROUP	Specifies the XCF group name representing the XCF group that LibraryStation uses to register with XCF
XCFMEMBR	Specifies the XCF member name representing the XCF member that LibraryStation uses to register with XCF
XHREC	Enables cross host recovery support

```
 ►►─LSINIT──NETHOST(LS_hostid)──COMMONSP(subpool_name)──────────────────────────────►
 ►──┤ Optional Parameters ├──────────────────────────────────────────────────────►◄
```

Optional Parameters:

```
 ├────────────────────────────────────────────────────────────────────────┤
                    ┌─TAPEVOL─────────────────┐
   ──AUTHCLS(───┼─FACILITY────────────────┼───)─
                    └─user_defined_security_class─┘

                ┌─NO──┐
   ──CMDACC(──┴─YES─┴──)─

   ──COMMTYPE(-RPC─LU6──XCF─TCPIP──,SOCK-)─

                ┌─NO──┐
   ──CREQLOG(──┴─YES─┴──)─

   ──DEFER─────────────────

                ┌─initializing_host─┐
   ──HOSTID(──┴─MVS_Hostid─────────┘──)─

   ──LSDEF(dataset_name)─

   ──NOPDF─────────

   ──PDF(PDF_cluster_name)─

   ──PDFX(PDF_alternate_index_path_name)─

                ┌─YES─┐
   ──POOLCHK(──┴─NO──┴──)─

                ┌─172800─────────┐
   ──REQTIME(──┴─CSI_connect_agetime─┘──)─

                ┌─5──────────┐
   ──RETCOUNT(──┴─CSI_retry_tries─┘──)─

                ┌─5────────────┐
   ──RETTIME(──┴─CSI_retry_timeout─┘──)─

   ──SYMDESTN(subsystem_name)─

                ┌─ACSS|TCPIP────────┐
   ──TCPNAME(──┼─subsystem_name──────┼──)─
                └─address_space_name─┘

                ┌─60001─────┐
   ──TCPPORT(──┴─TCP_port──┘──)─

                ┌─NO──┐
   ──VOLACC(──┴─YES─┴──)─

                ┌─YES─┐
   ──VOLAUTH(──┴─NO──┴──)─

                ┌─ALLOW─┐
   ──VOLNOPRF(──┴─DENY──┴──)─

                ┌─NO──┐
   ──VSECLOG(──┴─YES─┴──)─

   ──XCFGROUP(xcf_group_name)─

   ──XCFMEMBR(xcf_member_name)─

   └─XHREC─────────
```

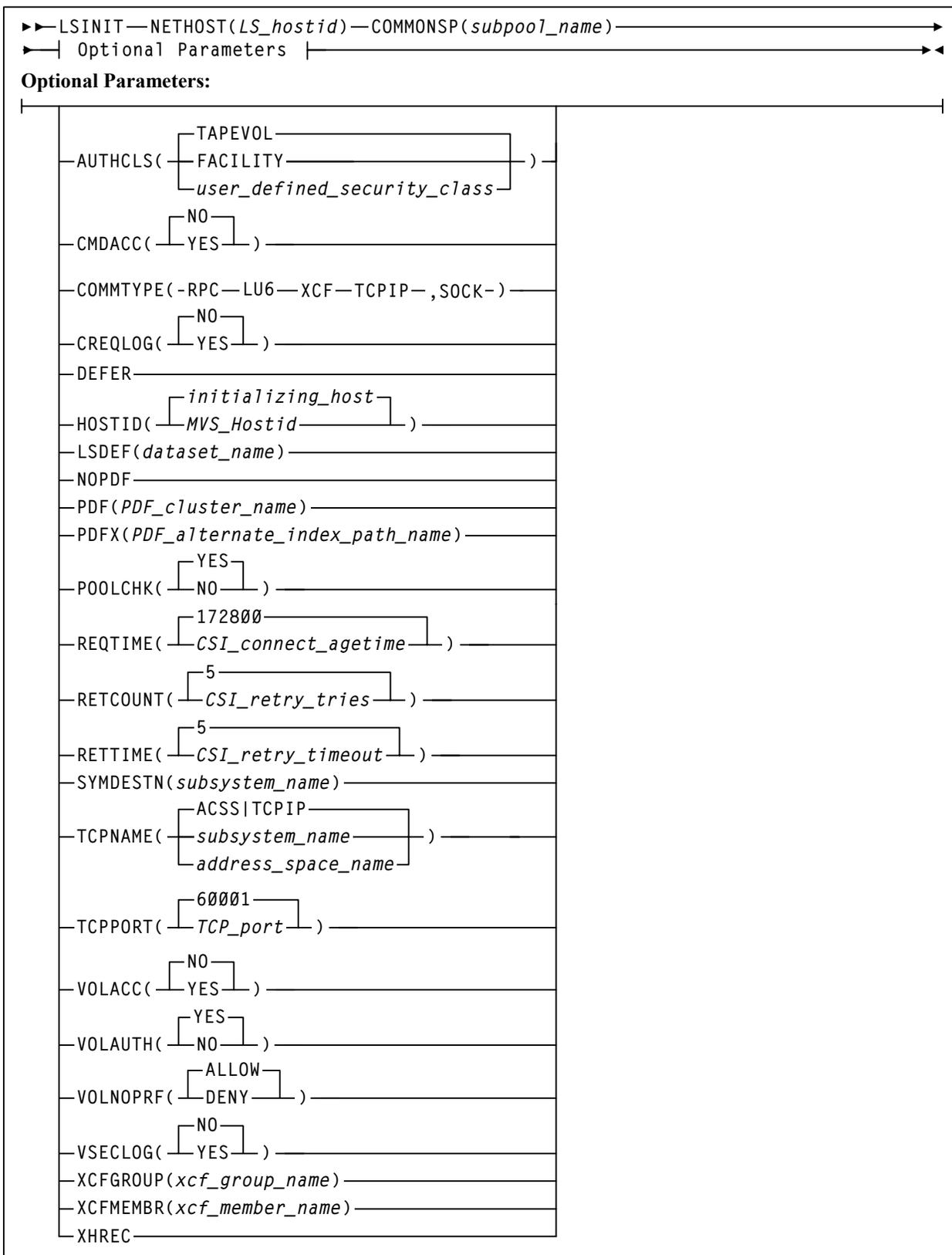**Figure 1. LSINIT Control Statement Syntax**

LSINIT parameter descriptions are revised as follows:

DEFER

Specifies that LibraryStation initialization is to be deferred at HSC initialization. If XHREC is also specified on the LSINIT statement, LibraryStation initializes to standby status.

LibraryStation can be started by issuing the LS INIT command. LibraryStation in standby mode can also be started by issuing the LS ACTIVATE STANDBY command or by cross host recovery communication.

When DEFER is not specified, LibraryStation is initialized automatically during HSC initialization.

XHREC

Specifies that cross host recovery be enabled. If XHREC is specified, PDF must also be specified. Only one active LibraryStation can act as a server for open system clients. Cross host recovery allows other LibraryStations to be started as standby servers for the open system clients. The first standby LibraryStation to begin initialization becomes the active LibraryStation. Subsequent LibraryStations initialize to standby status.

If the active LibraryStation terminates, a cross host communication is sent to all HSCs sharing the CDS. The first standby LibraryStation to initialize becomes the active LibraryStation. All LibraryStations that wish to access the PDF and participate in cross host recovery must specify XHREC.

LSINIT Implications for Multiple MVS Host Installations

The HOSTID, XHREC, and DEFER parameters on the LSINIT control statement determine how LibraryStation is initialized:

- automatically to active status when the HSC is initialized on that host
- automatically to standby status
- deferred until the LSINIT command is issued

The HOSTID parameter in an LSINIT control statement for each host system determines whether LibraryStation can be initialized from that host.

The XHREC parameter enables cross host communication. The first LibraryStation to initialize becomes active. Subsequent LibraryStations initialize to standby status.

The DEFER parameter defers LibraryStation initialization to active status. When XHREC is also specified, LibraryStation initializes to standby status.

LibraryStation Command Updates

This section provides LibraryStation operator command updates in support of cross host recovery support for open systems clients.

These updates apply to the LibraryStation Operator and System Programmer's Guide, Chapter 2, "Operator Commands."

ACTIVATE STANDBY Command

The Activate Standby command notifies one or more LibraryStations in standby status to begin initialization. The first standby LibraryStation that starts initialization becomes active.

This command can be entered to any SLS subsystem with a LibraryStation in defer, standby, or active status.

Note: If cross host recovery is enabled using the XHREC parameter on the LibraryStation LSINIT control statement, standby LibraryStations are automatically notified to begin initialization.

Syntax

```
►►─LS─Activate─Standby──────────────────────────────────────►◄
```

Parameters

Activate
    initiates the Activate command.

Standby
    indicates a standby LibraryStation is to be activated.

Example

```
.LS A S
```

This example requests that a standby LibraryStation become active.

Output

A message is sent to the console where the Activate Standby command was issued. In a sysplex environment, the response is issued to all consoles. For example:

```
SLS3382I Standby LS notification sent
```
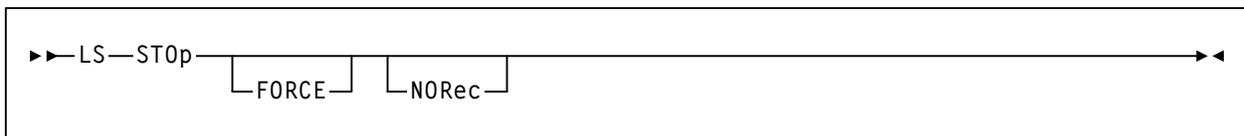
STOP Command

The Stop command terminates execution of LibraryStation within the HSC address space.

Restarting LibraryStation After Stop

A LibraryStation Init command can be used to reinitialize LibraryStation after a Stop command has been issued.

If LibraryStation is active and supports cross host recovery, standby LibraryStations are notified to begin initialization. If the notification fails for any reason, the Activate Standby command can also be used to reinitialize a LibraryStation after the Stop command has been issued.

Syntax

```
►►─LS─STOp─────────────────────────────────────────────►◄
            └─FORCE─┘  └─NORec─┘
```

Parameters

STOp
initiates the STOp command but allows current client requests to complete before LibraryStation stops.

☞ **Note:** In a parallel sysplex environment, STOP FORCE must be used instead of STOP if you wish to stop a server and redirect its work to a standby server.

FORCE
terminates LibraryStation immediately without allowing current requests to complete. Except for the sysplex scenario described above, FORCE should only be used if a STOP command without this option fails to terminate LibraryStation.

NORec
terminates LibraryStation without notifying LS systems in standby mode that termination is in progress. This prevents automatic initialization of a standby LibraryStation.

Examples

```
.LS STO
.LS STO FORCE
```

These examples terminate LibraryStation. The second example terminates LibraryStation immediately.

DISPLAY STATUS Command

The Display Status command displays the status of LibraryStation processing, including standby status and LibraryStation state (RUN, IDLE, or IDLE PENDING) and the number of current and pending requests for mounts, dismounts, enters, and ejects.

LibraryStation Message Updates

This section provides LibraryStation message updates in support of cross host recovery support for open systems clients. These updates apply to the LibraryStation Messages and Codes Guide, Chapter 2, "LibraryStation Messages."

SLS3381I   `LS is in standby status`

Explanation: Cross host recovery support for open systems clients (XHREC) was requested for this LibraryStation. Either DEFER was specified on the LSINIT statement or LibraryStation initialization determined that a LibraryStation is active on another host and has allocated the persistent data file.

System Action: None.

User Response: None.

SLS3382I   `Standby LS notification sent`

Explanation: Cross host recovery support was requested for this LibraryStation. When this LibraryStation terminated, a host communication was sent to all active HSCs. LibraryStations in standby status that receive this communication will attempt to become active.

System Action: None.

User Response: None.

SLS3383I   `LS not active on this host`

Explanation: The LS STOP command was issued but LibraryStation was not active on this host.

System Action: None.

User Response: None.

SLS3384I   `Activate Standby not supported for this configuration`

Explanation: The LS ACTIVATE STANDBY command was issued but LibraryStation on this host has allocated the PDF and has not been initialized with cross host recovery support.

System Action: None.

User Response: None.

SLS3385I   `Standby LS notification received`

Explanation: A cross host communication has been received requesting LibraryStation initialization.

System Action: If LibraryStation is in standby status on this host, initialization begins. The first LibraryStation to receive the request and begin initialization becomes active.

User Response: None.

SLS3406I   `Command CCCCCCCC not executed; LS not available`

Explanation: An attempt was made to enter a command when LibraryStation was not active or was in standby status.

System Action: The command is not executed.

User Response: Once LibraryStation has been initialized and is active, re-enter the command.

SLS3416I   `Server is {idle|idle pending|running|initializing|standby}`

Explanation: A Display Status command was issued. The current state of LibraryStation is displayed.

   Idle - LibraryStation has quiesced and is not accepting requests.

   Idle pending - LibraryStation is quiescing and is not accepting requests.

   Running - LibraryStation is active.

   Initializing - LibraryStation is initializing.

   Standby - LibraryStation is in standby status and is not accepting requests.

System Action: LibraryStation processing continues.

User Response: None.

SLS3468I   Server status

```
Server is {IDLE|IDLE PENDING|RUN|INITIALIZING|STANDBY}
Mount(DDDDD1/DDDDD2) Dismount(DDDDD1/DDDDD2) Enter(DDDDD1/DDDDD2)
Eject(DDDDD1/DDDDD2)
```

Explanation: A Display Status command was issued. The current state of LibraryStation is displayed.

> **IDLE** - LibraryStation has quiesced and is not accepting requests.

> **IDLE PENDING** - LibraryStation is quiescing and is not accepting requests.

> **RUN** - LibraryStation is active.

> **INITIALIZING** - LibraryStation is initializing.

> **STANDBY** - LibraryStation is in standby status and is not accepting requests.

For each request type, *DDDDD1* indicates the number of current requests and *DDDDD2* indicates the number of pending requests.

System Action: LibraryStation processing continues.

User Response: None.