



STAR Library Manager 2R2
Release Announcement

August 2021

Formula Consultants Inc.



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STAR Library Manager, LIBMGR, is a proprietary product of Formula Consultants Incorporated. Library Manager is licensed for use in computer centers using Unisys OS 2200 and it enables those systems to use the resources of a virtual tape library (VTL).

The System for Tape Administration and Reporting, STAR-1100, is a proprietary product of Formula Consultants Incorporated. STAR-1100 satisfies the magnetic tape library management requirements of, and is licensed for use on, computer centers using Unisys OS 2200.

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Software Version: 2R2

Contents

General	1
Product Overview	1
Deployment Options	2
Release Description	3
Stability and Enhancement Release	3
New Features	3
New Licensing Model	3
Operation with Unlicensed Libraries	3
New Commands	4
NOTE 4	
REFRESH	4
Product Enhancements	4
Core Functions	4
STAR Scratch Server Communication Mode	4
Scratch Server Mode is Dynamic	5
Communication Failures During Initialization	5
Console Handler During Initialization	5
Encrypted credentials in configuration element	5
Mount From Vault Change	5
POLL Timeout	5
Improved Diagnostic Instrumentation	6
Improved Error Messages	6
Mounting Replicated Volumes	6
VTL_AGENT OFF	6
Console Commands	7
DISPLAY LIBRARY DETAIL	7
DISPLAY CONNECTION	7
DISPLAY POOL	7
DISPLAY VTL DETAIL	7
HELP 7	
STATUS	7
Utility Functions	8
VTL Utility Performance	8
VTL Report Enhancements	8
PTL Report Enhancements	8
Output Files	8
Improved Diagnostic Capability	9
STAR Library Manager Notes Of Interest	9
Restrictions and Limitations	9
Compatibility	9
Migration	9
Previous Level Support	10
Documentation	10

FCI Website	10
FCI Support Center	10
OS 2200 EXEC Considerations	11
Corrections	11
Ordering Instructions	11
General Releases	1
Media for General Release	2
Media for Corrections	2

General

Formula Consultants Incorporated is pleased to announce that Level 2R2 of STAR Library Manager is now available for distribution. STAR Library Manager is FCI's library control software for the Dynamic Solutions International (DSI) virtual and physical tape libraries within the Unisys OS 2200 environment.

The STAR Library Manager level 2R2 product release can be obtained via the FCI Support Center.

Product Overview

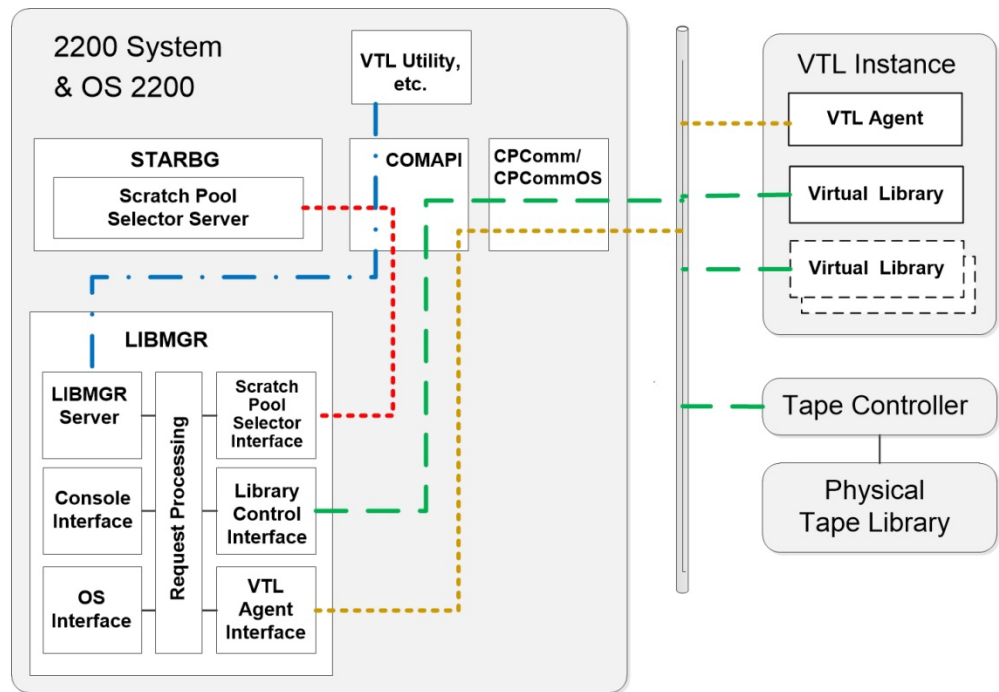


Figure 1. Overview of LIBMGR Components

STAR Library Manager (LIBMGR) is software that enables OS 2200 to use the tape automation services of DSI tape libraries, including the family of virtual tape libraries (VTLs) and the DSI Physical LTO Library (PTL).

The LIBMGR program executes in a batch background run.

LIBMGR registers with Unisys' CARTTAPELIB\$ service to be informed of tape requests which may be candidates for fulfillment in an external library. LIBMGR determines which of these should be fulfilled on DSI libraries and translates them into appropriate command sequences. LIBMGR passes tape

requests to the libraries via COMAPI, on a network controlled by CPcomm or CPCCommOS. The CARTTAPELIB\$ interface allows OS 2200 to communicate with up to four copies of LIBMGR, each using a different installation mode, from A through D. Each installation is independent and has its own background run.

Library Manager requires the prior installation of STAR-1100. LIBMGR is closely integrated with STAR, and uses the STAR Scratch Pool Selector Server to obtain volume ids for scratch mounts. Users can request scratch mounts from named scratch pools. Through its integration with LIBMGR, STAR-1100 extends protection to tape volumes in the DSI external libraries.

The Library Manager product includes library support programs. The VTL Report and PTL Report programs produce reports of the volumes in the VTL and PTL respectively. The VTL Utility program supports movement of virtual volumes between the VTL, the VTL vault, and a physical stack tape volume. The OS 2200 System Unstack program allows the restoration of a virtual volume from a stack tape volume without using the VTL. The ENCODECONFIG program creates configuration statements containing encrypted credentials.

The Library Manager is released in absolute (zoom) form only, along with standard runstreams.

Deployment Options

The DSI libraries are deployed in “instances,” where an instance can contain multiple libraries. A “VTL instance” here is either a VTL appliance or a PTL tape controller. FCI licenses Library Manager based on the number of VTL instances connected to an installation of Library Manager. An installation of LIBMGR can support up to four (4) VTL instances and up to a maximum of 16 libraries, configured in any combination among the VTL instances. See more below in the discussion on licensing.

OS 2200 partitions which are hosted on physical 2200 platforms typically connect with DSI virtual libraries in the DSI500 product line. These are hardware-based products. Or, LIBMGR on a physical 2200 partition can connect to a DSI Physical Tape Library (PTL).

Library Manager and STAR-1100 can also be accessed from the application stack within the ClearPath OS 2200 Software Series. In this setting, LIBMGR connects with the DSI Restore product, which can be deployed on the OS 2200 Software Series.

Contact FCI if you have any questions about how to deploy your Library Manager Software.

Release Description

Stability and Enhancement Release

STAR Library Manager 2R2 is a stability and enhancement release.

New Features

New Licensing Model

Formula Consultants continues to license Library Manager based on the capacity of the virtual tape resources which the installation of Library Manager is supporting.

In level 2R1, licensing was based on several factors, including the total number of virtual tape slots connected to the installation of Library Manager.

Now, in level 2R2, the licensing model is based on the number of VTL instances to which one or more installations of LIBMGR are connected. Note that multiple logical virtual tape libraries are supported within a VTL instance. An installation (instance) of LIBMGR can connect with up to 16 libraries, configured at the customer's option among up to a maximum of four (4) VTL instances.

When Library Manager and the DSI VTL instances are deployed on the ClearPath Os 2200 Software Series, the same licensing principles apply for Library Manager.

Operation with Unlicensed Libraries

Library Manager permits connection with instances up to the maximum capacity permitted by the license.

As an example, assume that the customer has deployed Library Manager on a partition and has installed license keys for connection with two (2) VTL instances. As Library Manager operates with these two (2) VTL instances, the resources accessed are within the licensed limit. If users attempt to connect with a third (3rd) VTL instance, Library Manager will continue to operate, but consider the 3rd VTL instance library to be inactive. Messages on the system console during LIBMGR initialization will inform the operator of this and of

any other unlicensed resources. Mounts and any other requests to the 3rd VTL instance library will be rejected

New Commands

NOTE

The NOTE console command places any text appearing on the command line into the LibManager trace file. This allows operators to provide additional information about problems or anomalies. These notes can help FCI correctly diagnose and resolve an issue more quickly.

REFRESH

Library Manager must maintain an accurate inventory of all virtual tapes and their statuses. When the VTL Utility executes, it triggers a refresh of the inventory. However, if the inventory has been changed by a process other than the VTL Utility, the operator can manually issue the REFRESH command to refresh the inventory of virtual tapes and their statuses.

Product Enhancements

Core Functions

STAR Scratch Server Communication Mode

The key and crucial function of Library Manager is to enable mounts and dismounts of virtual tapes. The LIBMGR configuration specifies the COMAPI installation modes to use to communicate its library control functions.

Library Manager also communicates with its internal server component and with the external STAR Scratch Server.


To afford the best performance and reliability for tape operations, each of these communication functions can be configured with an independent communications mode.

To ensure that the communication mode of the STAR Scratch Server is independent, you set an optional parameter in the SCRATCH_SERVER configuration statement, to explicitly identify the mode as different from that used for other communication paths.

Scratch Server Mode is Dynamic

The previous topic established that the communications mode of the STAR Scratch Server can be independent of other communications paths in Library Manager. Further, in level 2R2, the communications mode for the scratch server can be changed during LIBMGR operation

This capability can contribute to the support of redundant LANs.

 **Note** *Changing communication modes is currently dependent on manually upping a STAR Scratch Server on another system.*

Communication Failures During Initialization

prog_AGENT_INIT_FAIL configuration statements are supported to specify action to take for VTL Agent communication failures during initialization. The parameter fields are the same as prog_COMM_INIT_FAIL.

prog_COMM_INIT_FAIL WAIT configuration statements allow a maximum time to wait field and the action (TERMINATE or CONTINUE) to take after that time elapses. The default wait time is one hour and the default action is TERMINATE.

In these statements “prog” can apply to LIBMGR, PTLRPT, VTLRPT or VTLUTIL.

Communications Anomalies

Recovery from anomalous communication events is enhanced.

Console Handler During Initialization

The console handler is active during LIBMGR initialization, with reduced function. This can allow the operator to correct problems during initialization.

Encrypted credentials in configuration element

Configuration statement containing signon credentials (LM_SRVR_AUTH and REMOTE_VTL) use encrypted credentials. Credentials are encrypted using the new ENCODECONFIG program.

Mount From Vault Change

Volumes mounted from the vault are returned to the vault after dismount. However, if LIBMGR is restarted between the mount and dismount, any volumes mounted from vault will not be returned to the vault. In this case, the VTLUTILITY program can be used to return the volume(s) to the vault.

POLL Timeout

To complete mount from vault and mount from replica requests, LIBMGR must successfully receive specific acknowledgements from the VTL Agent. The POLL_TIMEOUT parameter is added to limit the length of time an assignment will be delayed if communication with the VTL Agent is not possible. If this is a mount that could be satisfied from the vault or a replica

and communication with the VTL Agent exceeds the configured timeout value, the assignment will fail.

Improved Diagnostic Instrumentation

Internal statuses and inter-module communications are enhanced to provide better instrumentation of anomalous and degraded states of operation. This improves the capability to recover from unexpected states. It also supports the ability to diagnose problems.

Tracing is simplified and better aligned to support the needs of systems programmers at the customer site and FCI developers.

Improved Error Messages

The improved internal status information (see above) provides greater clarity in certain error messages, providing better guidance to operators and administrators about the cause of the anomalous state and the recommended corrective action.

Certain error messages had overlapping or redundant information. These messages have been consolidated and integrated to provide greater consistency.

Mounting Replicated Volumes

Mounting of replica volumes can be controlled using the following configuration statements:

`AGENT_MOUNT_FROM_REPLICA` enables automated mounting of replica volumes

`REMOTE_VTL` identifies the source VTL of replica volumes and the library in which those replicas will be mounted.

Unusable Device

Devices may be determined to be unusable during initialization. Output from a console command, that references such a device, will list its status as "unusable." Previously a console command to an unusable device returned only the specific failure error code.

`AGENT_ASG_FROM_VAULT` is Deprecated

Instead, use the function `AGENT_MOUNT_FROM_VAULT`. It is functionally equivalent to the previous `AGENT_ASG_FROM_VAULT` command. The handling of the N-option assigns is unchanged.

`VTL_AGENT OFF`

`VTL_AGENT OFF` completely disables use of the VTL Agent. In level 2R1, LibManager still performed some VTL Agent operations while the `VTL_AGET` parameter was configured as OFF.

Console Commands

DISPLAY LIBRARY DETAIL

DISPLAY LIBRARY DETAIL includes the number of volumes in the library.

DISPLAY CONNECTION

DISPLAY CONNECTION includes the time when the reported status was determined. This is either the time of the last successful communication or the time when the failure was detected.

DISPLAY POOL

DISPLAY POOL for pools configured as CTLPOOL_NL or CTLPOOL_SL include the suffixes =NL and =SL respectively.

DISPLAY VTL DETAIL

The DISPLAY VTL DETAIL console command displays:

- the configured IP address(es) for the VTL(or PTL),
- the VTL Agent software levels and
- disk space available on the VTL.

HELP

Output from HELP console command is updated to present keywords from their longest to their shortest form. This improves the readability of the HELP output.

STATUS

The status command is enhanced to show the number of mounts performed in the last hour, day, and week, along with the total number of mounts performed.

The output of the status command now includes messages describing unusual conditions that affect the execution of LIBMGR. Each exceptional condition is also announced in periodic console messages.

The STATUS messages may report the number of issues detected. In the syntax template, the character # represents that number. For example:

```
LibMgr is causing # CTL holds since hh:mm:ss
```

See the Administrator Guide for more examples within the STATUS command.

Utility Functions

VTL Utility Performance

VTL Utility operation is faster because it only retrieves the VTL inventory following commands that could cause an inventory change. In version 2R1, Library Manager retrieves the inventory before each command. In case there is an inventory change by a process other than the VTL Utility, the operator can manually refresh the inventory. See REFRESH under new commands.

VTL Report Enhancements

The VTL Report has been enhanced to update the STAR-1100 Tape Inventory File (TIF) with the following additional information:

- the size of the volume,
- the identity of the VTL in which the tape volume resides.

The VTL Report program also updates the TIF with the installation mode of the report program.

The VTL report includes the installation mode, if known, of LIBMGR that serviced the mount to create a volume. The creating LIBMGR is not known for volumes created by LIBMGR levels less than 2R1 or from other VTLs.

VTL Reports with the T option produce a page of totals by library, VTL and optionally by user.

PTL Report Enhancements

The PTL Report has been enhanced to update the STAR-1100 Tape Inventory File (TIF) with the following additional information:

- the status of tapes in the PTL (physical tape library), and
- the identity of the PTL in which the tape volume resides.

The PTL Report program also updates the TIF with the installation mode of the report program.

The PTL report includes the installation mode, if known, of LIBMGR that serviced the mount to create a volume. The creating LIBMGR is not known for volumes created by LIBMGR levels less than 2R1 or from other VTLs.

Output Files

The PTLReport, VTLReport and VTLUtility produce symbiont files rather than PCIOS files.

Improved Diagnostic Capability

Several changes have been made which are not visible in normal operations, but support improved diagnostics.

Heartbeat messages to the STAR Scratch Server are enhanced.

Inter-module tracing is enhanced to troubleshoot tape mounting issues.

Other enhancements improve instrumentation in postmortem analysis.

STAR Library Manager Notes Of Interest

None.

Restrictions and Limitations

The EXEC supports a maximum number of four (4) concurrent library control programs interfacing with CARTTAPELIB\$. Both LIBMGR and CSC use the CARTTAPELIB\$ interface for requesting media services such as mounts and dismounts. If CSC is not present, up to four (4) instances of LIBMGR can be run concurrently. If CSC is present, the number of supported instances of LIBMGR depends on the number of CSC instances.

Compatibility

Release 2R2 is generated under CP OS-2200 19.

Library Manager 2R2 requires STAR-1100 Level 8R1A or higher.

Migration

If you have previously generated STAR Library Manager 1R3 with a COMAPILIB Build parameter pointing to other than the Mode A ComAPI installation file of SY\$LIB\$*COMAPI\$LIB, then you will be required to update your configuration element to add the new parameter of COMAPI_MODE.

The rest of the STAR Library Manager release 2R2 will function correctly using a release 1R3 configuration. The configuration must be updated if you wish to access features introduced in release 2R2.



Warning: If you use an installation mode of ComAPI other than Mode A (the default), the Library Manager configuration must be updated with an explicit COMAPI_MODE statement. Otherwise, Library Manager will fail to connect with the VTL.

Previous Level Support

Prior levels of STAR Library Manager currently supported include 2R1.
FCI will support STAR Library Manager level 2R1 until August, 2022.

Documentation

Documents provided with release 2R2 include:

- *Library Manager 2R2 Release Announcement*
- *STAR Library Manager 2R2 Installation and Administrator Guide, FP-161-2R2*
- *Library Manager 2R2 Quick Start Notes*
- *OS 2200 Release Tape Recreation Instructions*

FCI Website

You may obtain general information about Formula Consultants, Inc. and its products at our website at www.formula.com. Once you register with the site and receive a userid and password, you can also download Notes of Interest. Product Software Release DVD and Software Object Module Updates and documentation in PDF format is also available (Adobe Acrobat Reader required).

FCI Support Center

FCI Support Center (FCISC) is available for use to support STAR Library Manager 2R2. The FCI Support Center is a 2200 host server software system accessible via the standard UNISYS Remote Site Support (RSS). It allows you to send and receive data electronically to and from FCI. Refer to the *STAR Library Manager Installation and Administrator Guide* for more information.

OS 2200 EXEC Considerations

Unisys maintains OS 2200 EXEC Problem List Entries (PLEs) for Unisys maintains Problem List Entries (PLEs) to report problems and corrections to its products. You should review the following PLEs to see if any are appropriate for your build.

PLE #	Needed for
18925532	Prevent COMAPI level 8R1 and lower from causing LibManager to abort.

Corrections

Updates and corrections to STAR Library Manager 2R2 are obtained from the FCI Support Web Site. These are object module updates that are included in the COMUS build.

Ordering Instructions

To order your site's copy of STAR Library Manager 2R2, contact a sales representative at Formula Consultants Inc., at 714-778-0123

or complete the attached Product Order Form and fax it to 714-778-6364, or mail your order to:

Formula Consultants Incorporated

P.O. Box 544
Anaheim, CA 92815
Attn: Product Sales

or Order STAR Library Manager 2R2 electronically by addressing your e-mail to:

sales@formula.com

or Order STAR Library Manager 2R2 through the Formula Consultants website at:

www.formula.com

Product Order Form

PRODUCT: STAR LIBRARY MANAGER Level 2R2

CUSTOMER: _____

DELIVERY ADDRESS: _____

CITY,, STATE: _____

ZIP CODE: _____

CONTACT: _____

TELEPHONE NUMBER: _____

LAST STAR LIBRARY MANAGER LEVEL RECEIVED: _____

General Releases

The OS 2200 Software for STAR Library Manager is available electronically on DVD and can be downloaded from the FCI support web site.

The software is formatted in a Unisys OS 2200 DVD tape image. You can access the DVD as a simulated tape, or use it to recreate the release tape. Those options are explained, in more detail, in the OS 2200 Release Tape Recreation Instructions.

Media for General Release

FCI offers the following options for receiving the general release of STAR Library Manager 2R2:

- ❑ Support Website Download
- ❑ DVD
- ❑ Electronic via RSS and the FCI Support Center
Use `SY$LIBPLIBMGR$.NEW-RELEASE/RSS-SCRIPT` to copy to local tape.

Media for Corrections

FCI offers the following options for receiving corrections to STAR Library Manager 2R2.

- ❑ Support Website download
- ❑ Email