OBJECTSTORE

INSTALLATION AND LICENSE FOR SOLARIS

RELEASE 5.1

March 1998

ObjectStore Installation and License for Solaris

Release 5.1 for Sun SPARC Solaris 2, March 1998

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ObjectStore Release 5.1 Product Modules

ObjectStore Release 5.1 for Solaris comprises the ObjectStore database engine and two interfaces — the C++ interface and the Java interface, and also the Component Server Framework. The ObjectStore database engine is bundled with the C++ interface. The Java interface is optional.

You must install ObjectStore C++ and the database engine first. Complete the C++ installation according to instructions in the remaining chapters in this book. Once this installation is complete, you can initiate installation of the Java interface using instructions at the end of the ObjectStore C++ installation.

Chapter 1
Overview of ObjectStore C++ Release 5.1 Installation

This module provides an overview of installing the C++ interface to ObjectStore Release 5.1. General Description of Installation Steps on page 1 provides a summary of the activities you need to complete.

Note: ObjectStore Release 5.1 does not support pre-Release 5.0 persistent relocation mapping (prm) format. If you have pre-release 5.0 databases, or if you used the earlier (standard prm) format in your release 5 databases, you must upgrade using the ObjectStore Release 5.0 utility **osupgprm** before you can use ObjectStore Release 5.1 with these databases.

General Description of Installation Steps

Here are generalized steps for installing ObjectStore C++ Release 5.1:

1 Familiarize yourself with information in the *ObjectStore C++ Interface Release Notes*. If you are upgrading ObjectStore C++ Release 5.1 from an earlier release, give special attention to the *ObjectStore C++ Interface Release Notes*.

2 Read this book, *ObjectStore Installation and License for Solaris*, completely before you perform any installation steps.

3 Ensure that you have the correct hardware and software prerequisites. See Chapter 2, Hardware and Software Prerequisites, on page 5.

4 If you are planning to use ObjectStore C++ Release 5.1 rawfs databases, make sure you have raw file space that is available *to be overwritten*. If you are at all unsure about whether to use file databases or rawfs database, discuss the decision with your system administrator or Object Design Technical Support. You can defer the creation of an ObjectStore C++ Release 5.1 rawfs partition until later.

5 If you are running an earlier release of ObjectStore C++ , back up your databases and ObjectStore software as described in Chapter 3, Preparing to Upgrade, on page 9.

6 The installation procedure explains how to load ObjectStore C++ Release 5.1 software using the **osinstal** utility. The instructions include unloading from CDROM media and assume a default configuration. You might want to look at the sample **osinstal** dialog with annotations to plan alternative prompt responses to a default installation. This file is web-browsable and can be found in **/ODI/ostore/doc/inst_sol/osinst.htm**.

7 Set the **OS_ROOTDIR** environment variable. This is described in the installation procedure.

8 Use the **osconfig** utility to configure ObjectStore C++ Release 5.1. Since you have several options for configuring ObjectStore, you might want to use the sample annotated **osconfig** dialog to help you determine your responses to the utility prompts. You can view the online sample with your browser by pointing at the file **/ODI/ostore/doc/inst_sol/config.htm**.

9 Install the searchable on-line documentation according to instructions in Installing the On-line Documentation on page 21 and in the *ObjectStore C++ Interface Release Notes*.

10 Optionally, install the Java interface to ObjectStore software according to the steps in the Java 1.3 Top-level **README** file.

11 Optionally install the Component Server Framework software found at **/cdrom/packages/compserv** by typing **install**.

Additional Steps When Upgrading

If you are upgrading ObjectStore C++ Release 5.1 from an earlier release, relink client applications. See Chapter 4, Compiling, Linking, and Debugging Programs, in *ObjectStore Building C++ Interface Applications*, for information about this process.

Installing the online Documentation

The distribution CD provides the online documentation at **/opt/ODI/ostore**. Additionally, there is a compressed tar file (**sol2c4doc.tar.Z**) that you might want to copy to your system, uncompress and extract for faster access to the online documentation. The instructions for doing this are included in the **README** file at the toplevel.

Chapter 2
Hardware and Software Prerequisites

This module describes the minimum hardware and software requirements for installing ObjectStore C++ Release 5.1. It discusses the following topics:

System Requirements

ObjectStore C++ Release 5.1 supports Sun SPARC Solaris 2 computers running Solaris 2.5.1 and using the SPARCompiler C++ 4.2.

Disk Space

This section specifies disk space required for ObjectStore C++ Release 5.1.

ObjectStore C++ Release 5.1 software

To install ObjectStore C++ Release 5.1 successfully, you must have the following amount of disk space on your system in which to store the ObjectStore distribution. This space can be NFS-mounted.

- 40 MB of free disk space
- 225 MB of space for the on-line ObjectStore documentation

Active clients

To run ObjectStore C++ Release 5.1 successfully, your system must have the following amount of disk space:

- 8 MB of swap space for each client process on each computer that will run ObjectStore C++ Release 5.1 clients, in addition to existing swap space requirements.
- 16 MB of free disk space in **/tmp/ostore**, which is used to store ObjectStore C++ Release 5.1 client caches. These files can optionally be located in another directory; see **OS_CACHE_DIR** in *ObjectStore Management*.

Databases

In addition, you need sufficient disk space to store your ObjectStore databases. These databases must be stored on disk drives connected directly to the computers running ObjectStore Servers. Required.

.Required Permissions

You can install as **root** (requiring the password for the **root** user) or use the non-**root** installation option. See Configuring ObjectStore to Start

Automatically on page 19 for further implications of using the non-**root** installation option.

Installation on a mounted file system

To install ObjectStore C++ Release 5.1 on a mounted file system, the mount must be a *trusted* mount. There are two ways to achieve this:

- Mount the file system with the **-anon=0** option.
- Enter the name of the mounted file system's host in the **hosts.equiv** file.

Accessing a mounted file system

If your computer will access the ObjectStore C++ Release 5.1 distribution using NFS, the file system containing the distribution must not be mounted with the **nosuid** attribute (because the Cache Manager is **suid root**, and cannot be on a file system mounted **nosuid**). You can confirm this by examining the **/etc/vfstab** file.

ObjectStore C++ Release 5.1 Distribution Media

The Solaris 2 distribution of ObjectStore C++ Release 5.1 is on CDROM and the default installation directory is **/opt/ODI/ostore**.

When you install as described in this book, the installation places as much as 40 MB of ObjectStore software in the default directory or the directory you specify.

Chapter 3
Preparing to Upgrade

This module describes information and instructions for systems already running ObjectStore. If you are installing the C++ interface to ObjectStore for the first time, go to the next module, Chapter 4, Installing ObjectStore C++ Release 5.1, on page 11.

Before you upgrade ObjectStore, read the *ObjectStore C++ Interface Release Notes.* In particular, you must be familiar with the contents of Chapter 1, New in Release 5.1.

This chapter covers the following topics:

Backing Up Your Data

Before you install ObjectStore C++ Release 5.1, be sure to back up your ObjectStore databases, using **osbackup** or **oscp**.

It is crucial to back up your data in case a database is inadvertently corrupted during the upgrade procedure.

Backing up to disk

For example, if you want to back up databases on the host **kellen** to the file **/home/mydbs.bak** with **osbackup**, use a command similar to

osbackup -r -f /home/mydbs.bak kellen::/

Backing up to tape

When you back up to tape, you need to know the size of your tape, so you can specify that the backup be in increments that fit on the tape. Use the tape size number with the **-s** argument. For example:

osbackup -r -f /dev/rmt/0 -s 150M kellen::/

You can determine the size of your databases to calculate how many tapes the backup requires. To obtain the size of the databases, run **osdf hostname**. The number displayed in the **Used** column (expressed in units of 1 KB) specifies the rawfs database size.

Upgrading Rawfs Installations

Checking for rawfs partitions

If you are unsure whether you have rawfs partitions, look in each **$OS_ROOTDIR/etc/***hostname*_**server_parameters** file for which you have a Server installed for lines similar to the following:

PartitionN:/*pathname*

Such a line indicates that you have a rawfs on that Server. If you are unsure if a Server is installed on a particular host, or you are unsure which host names should be used, look in **$OS_ROOTDIR/etc/***hostname*_**server_parameters** for lines containing **PartitionN**.

The installation dialog prompts you about upgrading at the appropriate time. Continue with Installing ObjectStore C++ Release 5.1 on page 11.

Chapter 4
Installing ObjectStore C++ Release 5.1

This module provides instructions for loading and configuring ObjectStore C++ Release 5.1 on your system.

Caution

Before you follow the steps in this chapter,

- You must have read the previous chapters in this book.
- You should back up existing ObjectStore software and databases.

OS_ROOTDIR

In this chapter, **OS_ROOTDIR** is the top-level directory in the part of the distribution hierarchy containing ObjectStore files.

This installation consists of the following phases:

Accessing ObjectStore from the CDROM

This section provides instructions for accessing local and remote CDROMs. There are several commands that you can execute directly from the ObjectStore CDROM. The procedure is the same regardless of the command you want to execute. Be sure to follow the correct procedure according to whether you are mounting a local or remote CDROM.

Using a Local CDROM to Access the ObjectStore CDROM

Follow these steps to access the ObjectStore CDROM from a local CDROM:

1 On the host where you want to execute a particular ObjectStore command, mount the CDROM.

If you are running the volume daemon (**vold**), insert the CDROM in its carrier into the drive. The system should mount it automatically as

/cdrom

If you are not running the volume daemon, you must mount the CDROM using the command line

mount -F hsfs -r /dev/*disk-device /mount-point*

2 If **OS_ROOTDIR** is set, disable the **OS_ROOTDIR** environment variable before installing ObjectStore C++ Release 5.1. For example:

unsetenv OS_ROOTDIR

Or, for **sh** and **ksh, OS_ROOTDIR =**

3 While logged in as **root**, change your current directory to the CDROM directory.

cd /cdrom/packages/ostore

Or, if the CDROM was mounted automatically by the volume daemon,

cd /cdrom/packages/ostore

4 Go to Installing ObjectStore on page 15 and follow the instructions to complete your installation.

Using a Remote CDROM to Access the ObjectStore CDROM

Follow these steps to access the ObjectStore CDROM from a remote CDROM:

1 Export the **cdrom** directory by means of NFS.

If you are running the volume daemon on the machine that you mounted the CDROM on, follow these steps:

a Insert the CDROM into the drive. The volume daemon automatically mounts it.

b Determine where the volume daemon mounted the CDROM:

df -k | grep /cdrom

c Check whether or not the NFS daemons are running using a command such as the following:

ps -elf | grep mountd
ps -elf | grep nfsd

d If either one is not running then restart it (as **root**) with a command such as the following:

/usr/lib/nfs/nfsd -a 16
/usr/lib/nfs/mountd

e Export the directory as follows:

share -F nfs -o ro *path-returned-in-step-b*
mount -F nfs -o ro *remote-host:path-returned-in-step-b* **/cdrom**

If you are not running the volume daemon, export **/cdrom**.

2 Mount the exported directory on the local machine. For example:

mount -F nfs -o ro *remote-host*:**/cdrom /cdrom**

where *remote-host* is the name of the remote host.

3 If **OS_ROOTDIR** is set, disable the **OS_ROOTDIR** environment variable before installing ObjectStore C++ Release 5.1 initially. For example:

unsetenv OS_ROOTDIR

Or, for **sh** and **ksh**,

OS_ROOTDIR =

4 While logged in as **root**, change your current directory to the CDROM directory.

cd /cdrom/packages/ostore

5 Go to Installing ObjectStore on page 15 and follow the instructions to complete your installation.

Installing ObjectStore

The preparatory procedure for installing ObjectStore is the same regardless of whether you are upgrading ObjectStore or installing ObjectStore for the first time. The procedure is different for local and remote CDROMs, however, so be sure to follow the correct instructions.

osinstal -nonroot Parameter

The **osinstal** utility accepts the command-line parameter **-nonroot**. This allows non-**root** users to install an ObjectStore release. A consideration with this type of installation is that directory permissions for **OS_ROOTDIR/lib** cannot be set properly and as a result Cache Manager automatic launching fails. If youinstall using the -nonroot parameter, you must start the Cache Manager manually in this configuration using the command

oscmgr4 0 0 &

Also refer to the Server parameter description Restricted File DB Access, in *ObjectStore Management*'s Chapter 2, Server Parameters if you must run the ObjectStore Server in non-**root** mode.

ObjectStore Installation Procedure

Follow the instructions below to install ObjectStore.

1 On the system on which you plan to run the ObjectStore Server, log in as **root** unless you intend to install using the **-nonroot** option.

2 If it is not already mounted, mount the CDROM.

To access the ObjectStore CDROM from a local CDROM, follow the instructions in Using a Local CDROM to Access the ObjectStore CDROM on page 12. Then return here.

To access the ObjectStore CDROM from a remote CDROM, follow the instructions in Using a Remote CDROM to Access the ObjectStore CDROM on page 13. (The instructions tell you to change directories to the correct directory on the CDROM.) Then return here.

3 Enter the following to run the installation utility:

./osinstal

The installation utility is interactive and you are prompted for the information you must select. You can view a sample dialog at **/TDB/osinst.htm**.

osinstal Dialog

The **osinstal** utility prompts you to accept the default installation location, or enter your choice. It also prompts you to specify which components of ObjectStore you want to install.

Run-time and development

You can install either the run-time or development environment. When you choose to install the development environment, the run-time environment is automatically installed.

The **osinstal** dialog varies according to your input.

Defaults and user input

Where a single value appears in brackets in the dialog, it is a default that you can accept by pressing Enter.

For instructions on running **osconfig**, see Running the Configuration Utility on page 18.

Setting the Top-Level ObjectStore Directory

Before you can configure ObjectStore, you must set the **OS_ROOTDIR** and **LD_LIBRARY_PATH** environment variables to point to the newly installed ObjectStore product. The **OS_ROOTDIR** variable must be set to point to the directory where you installed the product. The default setting is **/opt/ODI/ostore**. The shared library path environment variable **LD_LIBRARY_PATH** must include **$OS_ROOTDIR/lib** in its path.

Setting OS_ROOTDIR

For **csh**:

setenv OS_ROOTDIR R5.0-install-directory

For **sh** and **ksh**:

OS_ROOTDIR=R5.0-install-directory ; export OS_ROOTDIR

Setting LD_LIBRARY_PATH

For **csh**:

setenv LD_LIBRARY_PATH $OS_ROOTDIR/lib:$LD_LIBRARY_PATH

For **sh** and **ksh**:

```
LD_LIBRARY_PATH=$OS_ROOTDIR/lib:$LD_LIBRARY_PATH ; export LD_
LIBRARY_PATH
```

Running the Configuration Utility

Before you run Release 5.1, you must configure the installation on each machine that will run this release.

The ObjectStore configuration utility is **$OS_ROOTDIR/bin/osconfig**. You must run **osconfig** as **root.**

Configuring Servers

On each machine you intend to use as an ObjectStore Server, invoke **osconfig** in one of the following ways:

- For file databases:

  ```
  $OS_ROOTDIR/bin/osconfig server
  ```

- For file databases and rawfs databases:

  ```
  $OS_ROOTDIR/bin/osconfig rawfs
  ```

The **osconfig rawfs** utility does everything that the **osconfig server** utility does and also configures the rawfs.

Configuring Clients

On each machine you intend to use only as an ObjectStore client, you invoke **osconfig** as follows:

```
$OS_ROOTDIR/bin/osconfig client
```

osconfig client establishes symbolic links to shared libraries in **/usr/local/lib**. If an ObjectStore client machine shares this directory with a machine that has already been configured, or if you want to ensure the use of **LD_LIBRARY_PATH**, you need not run **osconfig** on it.

The configuration dialog for clients is similar to the dialog for Servers.

Configuring a Host to Be Both a Server and a Client

If you plan to use a host as both a Server and a client, run **osconfig server** or **osconfig rawfs** on that host. This configures the host to be both an ObjectStore Server and an ObjectStore client.

Checking the Configuration

After you configure ObjectStore on a host, you can run the **osconfig check** utility to verify a successful configuration. This utility checks that

- The Server is running.
- The Cache Manager is available as **setuid root**. Note restrictions on a non-**root** installation in Configuring ObjectStore to Start Automatically on page 19.
- The library schemas are available.

Configuring ObjectStore to Start Automatically

Object Design recommends that you configure your ObjectStore installation to start the Release 5 Server automatically on reboot. The

osconfig script asks whether you want the Server to be started automatically. Accepting the default (yes) ensures that the Server starts automatically.

However, when you set the **Restricted File DB Access** Server parameter to **yes** and the account that starts the Server does not have **root** permission, then

- ObjectStore does not allow access to rawfs databases.
- ObjectStore allows access to file databases but only by clients that belong to the same group as the account from which the Server was started. All access is under the account from which the Server was started.

The default is that the **Restricted File DB Access** parameter is set to **no**. This means that if an account with non-**root** permission starts the Server, ObjectStore allows access to rawfs databases but does not allow access to file databases.

Configuring User Environments

After you configure ObjectStore, there are a few steps you must perform to allow user access to ObjectStore.

Telling users to set OS_ROOTDIR

Tell all users of ObjectStore to set the environment variable **OS_ROOTDIR**.

Tell users to set **OS_ROOTDIR** to the directory in which you installed it. Then tell them to add **$OS_ROOTDIR/bin** to their paths.

Setting Up Links to Shared Libraries

C shell users

If you did not make symbolic links in **/usr/local/lib** to the ObjectStore shared libraries, and you use the C shell, put this in your **.cshrc**, and have users at your site add it to theirs:

```
setenv LD_LIBRARY_PATH $OS_ROOTDIR/lib:$LD_LIBRARY_PATH
```

Bourne and Korn shell users

If you did not make symbolic links in **/usr/local/lib** to the ObjectStore shared libraries, and you use the Bourne or Korn shell, put this in your **.profile**:

```
LD_LIBRARY_PATH=$OS_ROOTDIR/lib:$LD_LIBRARY_PATH
export LD_LIBRARY_PATH
```

Installing the On-line Documentation

To install the ObjectStore full-text-searchable documentation. Unpack the documentation distribution by doing one of the following:

For **root** installation

If ObjectStore has been installed as **root**, **$OS_ROOTDIR** is write-protected. Therefore, you must complete the following steps.

```
# chmod +w $OS_ROOTDIR
# cd $OS_ROOTDIR
# uncompress -c /cdrom/packages/ostore/doc_sol2.tar.Z | tar xvf -
# chmod -w $OS_ROOTDIR
```

For non-**root** installation

If ObjectStore has been installed using the non**root** option, the owner/installer has write permission in **$OS_ROOTDIR** (and all subdirectories) so the **chmod** command is unnecessary. In this case, do the following steps.

```
# cd $OS_ROOTDIR
uncompress < /cdrom/packages/ostore/doc_sol2.tar.Z | tar xf -
```

When you run the **ossearch** command the first time, you will be asked whether to install it. After it installs, and on future invocations of **ossearch**, it will launch the configured browser on the root of the documentation tree.

Browser warnings

When you invoke the search application, you might see a stream of warnings before the browser actually appears. These complaints are associated to the release of X11 the application expects. If you are running X11 R6, no such warnings appear.

Viewing the On-line Documentation

The documentation for ObjectStore Release 5.1 is distributed in machine-readable HTML format and PDF. The HTML format uses HTML frames, so JavaScript must be enabled. To view the documentation from a browser, in the **$OS_ROOTDIR/ODI** directory, run the **ossearch** utility. This displays the catalog of ObjectStore documentation components.

You can search the entire ObjectStore Release 5.1 documentation set from the top level bookshelf search button for each interface (for example, 5.1.0.0.0/ostore/doc/index.htm). Once you have selected a book, you can search the rest of its documentation set by selecting the search button in the navigation bar above the book text frame.

Search by entering a word or series of words separated by commas in the query box and pressing return key. If you are uncertain about how to enter

a query, you can refer to an online search query guide by clicking on the string **to learn additional query methods** that appears in the search form.

Installing the Java Interface to ObjectStore

To install the Java interface to ObjectStore from the CD, change to the **osji** subdirectory and execute the **osjinst** program as shown:

```
cd osji
./osjinst
```