Disk File Optimizer for OpenVMS

Installation Guide

This installation guide provides installation information for the Disk File Optimizer for OpenVMS layered software product.

Software Version: Version V2.9

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Preface

Purpose of This Guide

The installation guide contains the installation procedure for installing the Disk File Optimizer for OpenVMS.

Intended Audience

The intended audience is the system administrators who install the Disk File Optimizer software.

Related Documents

- *OpenVMS License Management Utility Manual*
- *OpenVMS Performance Management*
- *OpenVMS DCL Dictionary*
- *OpenVMS System Manager's Manual*
- *OpenVMS System Management Utilities Reference Manual*
- *Guide to OpenVMS File Applications*
- *OpenVMS Record Management Utilities Reference Manual*
- *VAX Performance Advisor (VPA) Documentation Kit*

Order numbers for these documents can be obtained from your HP Sales Representative.

Conventions

The following conventions are used in this manual:

Convention	Meaning
{*parameter*}	In command formats, braces indicate required parameters. Do not enter the braces when you enter the parameter in a command.
[*parameter*]	In command formats, square brackets indicate optional parameters. Do not enter the brackets when you enter the optional parameters.
[ ]	In interactive procedures, square brackets denote default responses.

Convention	Meaning
italic text	In examples and messages, italic text represents input that is unique for each system.
boldface text	Boldface text is used for emphasis.
Ctrl/*x*	Control key sequence indicates that you hold down the Ctrl key while you press another character key (for example, Ctrl/W or Ctrl/C).
. . .	In examples, a vertical ellipsis represents the omission of data that the system displays in response to a command or data that a user enters.
file-spec[, . . .]	In command formats, a horizontal ellipsis indicates that the preceding items can be repeated one or more times.

References to HP Products

The following HP products are mentioned in this manual:

Product	Formal Product Name
Disk File Optimizer	Disk File Optimizer refers to the Disk File Optimizer for OpenVMS software.
Defrag	Defrag refers to a variation of the Disk File Optimizer software that provides basic file and volume defragmentation capabilities.
Defrag PLUS	Defrag PLUS refers to the variation of the Disk File Optimizer software that supports all of the features of Defrag, plus scheduling and command storing capabilities.
VPA	VPA refers to the VAX Performance Advisor software.
DECps	DECps refers to the DEC Performance Solution software.
OpenVMS	OpenVMS refers to the OpenVMS VAX, OpenVMS Alpha and OpenVMS I64 operating systems.

1
Installing Disk File Optimizer Software

1.1 Introduction

This chapter describes how to install the Disk File Optimizer software. It includes the following sections:

- Preinstallation activities
- Installation procedure
- Postinstallation activities

1.2 Preparing to Install the Disk File Optimizer Software

Recommendation

Performing a backup of your system disk prior to installing Disk File Optimizer software is recommended. Refer to the *BACKUP Utility in OpenVMS System Management Utilities Reference Manual* for more details.

The following process describes preparations needed to install the Disk File Optimizer software.

Stage	Action	Section
1	Save scheduling database contents if up grading from V1.0	Section 1.2.1
2	Meet hardware and software requirements	Section 1.2.3
3	Verify system parameters and required quotas	Section 1.2.4, Section 1.2.5
4	Evaluate VMScluster system considerations	Section 1.2.6
5	SCSNODE or SYS$NODE considerations	Section 1.2.7
6	Stop DFO Scheduler on all nodes	Section 1.2.8
7	Execute the SYS$SYSTEM:SETFILENOMOVE.COM procedure against all OpenVMS operating system disks on your cluster	Section 1.2.9

Stage	Action	Section
8	Register the Disk File Optimizer license	Section 1.2.10

Your bill of materials and indented bills report specify the contents of your media. Be sure to verify the contents of your kit with this information. If your kit is damaged or if parts are missing, contact your HP representative.

The installation procedure for the Disk File Optimizer provides online release notes. HP strongly recommends that you read the release notes before proceeding with the installation. For information on accessing the online release notes, see Table 1–6.

The Disk File Optimizer software installation procedure converts existing scheduling database files to the new version. If you have Disk File Optimizer V1.1 to V2.0, the installation will convert your Rdb database to an RMS database. If you are installing Disk File Optimizer Version 1.0, see Section 1.2.1 before installing.

1.2.1 Upgrading From Disk File Optimizer V1.0

If you are upgrading from Disk File Optimizer V1.0 and want to save the data in your database, you must save the data in a command procedure. Perform the following command to save in a command procedure:

```
$ DEFRAGMENT SHOW */COMMAND/OUT=LOAD_DB.COM
```

This command saves the data from your Rdb database and allows you restore it after installation of Disk File Optimizer.

1.2.2 Installation Variants

The Disk File Optimizer kit allows for two installation variants:

- Defrag, which provides capabilities to defragment files and volumes
- Defrag PLUS, which provides all the capabilities of Defrag plus scheduling and command storage options

Table 1–1 identifies the major differences between Defrag and Defrag PLUS.

Defrag is recommended on any system where the additional features are not desired or where disk space is very limited.

Defrag PLUS is recommended on VMScluster systems and on any single-node system where the additional features of Defrag PLUS are desired.

Table 1–1 Differences Between Installation Variants

Difference	Defrag PLUS	Defrag
Additional Software	**Optional:** • VAX Performance Advisor (VPA) Version 2.1 or later or DEC Performance Solution (DECps) Version 1.0 or later	**Optional:** • VAX Performance Advisor (VPA) Version 2.1 or later or DEC Performance Solution (DECps) Version 1.0 or later
Available Subcommands	• ABORT • ATTACH • CANCEL • DISABLE • ENABLE • EXIT • DEFRAGMENT FILE • HELP • MODIFY • MONITOR • DEFRAGMENT OFFLINE • REMOVE • SET • SHOW • SPAWN • START • DEFRAGMENT VOLUME	• ABORT • ATTACH • EXIT • DEFRAGMENT FILE • HELP • MONITOR • DEFRAGMENT OFFLINE • SHOW • SPAWN • DEFRAGMENT VOLUME
Logical Names	**Required:** • DFG$DATABASE • DFG$MAIL_ADDRESS **Optional (for callable interface):** • DFG$MESSAGE	None

1.2.3 Hardware and Software Requirements

The Disk File Optimizer free disk storage space requirements are different during installation and after installation. Table 1–2 summarizes the storage requirements.

Table 1–2 Disk Space Requirements

Variant	Blocks Required During Installation	Blocks Required After Installation
Defrag PLUS/VAX	26700	23700
Defrag PLUS/Alpha	31700	27800
Defrag PLUS/I64	34000	32000
Defrag/VAX	23900	22800
Defrag/Alpha	25500	23900
Defrag/I64	28000	26000

To determine the number of free disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

Disk File Optimizer is supported on OpenVMS VAX 7.3, OpenVMS Alpha 7.3-2 & 8.2 and OpenVMS I64 8.2.

To install the software, you must be logged in to an account that has SETPRV privileges.

Note

VMSINSTAL turns off BYPASS privilege at the start of the installation.

1.2.4 Minimum System Parameter Values

This section lists those system parameters whose default values may be insufficient for proper operation of the defragmentation software. Table 1–3 lists these parameters, recommended minimum settings, and whether the parameters apply to Defrag or Defrag PLUS.

Table 1–3 Minimum System Parameter Values

System Parameter	Minimum Value	Installation Variant	Explanation
GBLPAGES	2078 (available)	PLUS	Use the f$getsyi("free_gblpages") lexical function to obtain the number of available global pages.
GBLSECTIONS	80 (available)	PLUS	Use the f$getsyi("gblsections") lexical function to obtain the number of available global sections.
RESHASHTBL	512 entries	PLUS	Use SYSGEN to find this value.

1.2.5 Process Account Quotas

The account you use to install the Disk File Optimizer software must have sufficient quotas to enable you to perform the installation. Table 1–4 summarizes the process quotas required for the installing account, regardless of which installation variant you install.

Table 1–4 Process Account Quotas for the Installing Account

Account Quota	Value
ASTLM	24
BIOLM	18
BYTLM	20,480
DIOLM	18
ENQLM	2048
FILLM	50
PRCLM	10
PGFLQUO	20,000

User account quotas are stored in the SYSUAF.DAT file. Use the VMS Authorize utility (AUTHORIZE) to verify and change user account quotas. First set your directory to SYS$SYSTEM, and then run AUTHORIZE:

```
$  SET DEFAULT SYS$SYSTEM
$  RUN AUTHORIZE
UAF>
```

At the UAF> prompt, enter the SHOW command with an account name to check a particular account, for example:

```
UAF>  SHOW SMITH
```

To change a quota, enter the MODIFY command. The following example changes the FILLM quota for the SMITH account, and then exits from the utility:

```
UAF>   MODIFY SMITH /FILLM=50
UAF>   EXIT
```

After you exit from the utility, the system displays messages indicating whether or not changes were made. Once the changes have been made, you must log out and log in for the new quotas to take effect.

For more information on modifying account quotas, see the description of the Authorize utility in the *OpenVMS System Management Utilities Reference Manual*.

1.2.6 VMScluster System Considerations

Use the following list of guidelines when installing the Disk File Optimizer on a VMScluster system:

- For Defrag PLUS, the scheduling database should be accessible from all nodes in the cluster.

  Make sure to place the scheduling database on a cluster-accessible disk. Defragmentation can occur only from nodes that can access the database.

- For Defrag PLUS, defragmentation can occur only on those nodes running a scheduler process.

The scheduler creates defragmentation processes and runs them as detached processes. Because of this, defragmentation can occur only from nodes that have a running scheduler.

- After installation, install the latest version of DCLTABLES.EXE on all nodes of your system.

  To make the Disk File Optimizer available on all nodes of the cluster, you should ensure that all nodes have the latest version of DCLTABLES.EXE installed. Use SYSMAN or log in to each node in the cluster and enter the following command:

  ```
  $ INSTALL REPLACE SYS$COMMON:[SYSLIB]DCLTABLES.EXE
  ```

- Be sure to install Disk File Optimizer on both the VAX and Alpha system in your VMScluster if it is a mix of VAX and Alpha systems.
- During installation of DFO on a cluster with multiple system disks, you must shut down the scheduler before starting the installation on the next node. Use the following command:

  ```
  $ @SYS$MANAGER:DFG$STOP_SCHEDULER
  ```

  During the Installation Verification Procedure (IVP) the scheduler is started on the node that the installation was just completed on. After completion of installation on all nodes, restart the scheduler on all licensed nodes in the cluster. Use the following command:

  ```
  $ @SYS$STARTUP:DFG$STARTUP
  ```

1.2.7 Definition of SCSNODE or SYS$NODE Considerations

Defrag PLUS requires either SCSNODE (SYSGEN parameter) or SYS$NODE (DECnet logical) be defined on the node that Disk File Optimizer is installed on. If both SCSNODE and SYS$NODE are NOT defined, the Disk File Optimizer scheduler will not start.

If the node is part of a cluster then SCSNODE has to be defined in SYSGEN. You can check if SCSNODE is defined by using the following command:

```
$ WRITE SYS$OUTPUT F$GETSYI("NODENAME")
SPIELN
$
```

In this example, SPIELN is the SCSNODE name. If the SYSGEN parameter SCSNODE is not defined then no node name is returned.

Another way of checking SCSNODE is to go into SYSGEN and execute the following command:

```
$ MCR SYSGEN
SYSGEN>  SHOW SCSNODE
Parameter Name   Current    Default    Min.     Max.    Unit  Dynamic
--------------   -------    -------   -------  -------  ----  -------
SCSNODE          "SPIELN  " "    "    "    "   "ZZZZ"   Ascii
SYSGEN> EXIT
$
```

In this example, SPIELN is the SCSNODE name.

If the node is a standalone node, it does not require that SCSNODE be defined. However, if you wish to, you can define it in SYS$SYSTEM:MODPARAMS.DAT as follows and then do an AUTOGEN:

```
SCSNODE="SPIELN"
SCSSYSTEMID=9112
```

If the node is running DECnet, it will have a logical SYS$NODE defined. You can check to see if the logical SYS$NODE is defined using the following command:

```
$ SHOW LOG SYS$NODE
   "SYS$NODE" = "SPIELN::" (LNM$SYSTEM_TABLE)
$
```

In this example, SPIELN is the SYS$NODE name.

1.2.8 Stop the Scheduler on Defrag Plus Installations

If you are running a previous version of the Disk File Optimizer, then shut down the Scheduler software on all nodes before installing the new version of Defrag or Defrag PLUS software.

Use SYSMAN to shut down the Scheduler software or execute the following command on all nodes:

```
$ @SYS$MANAGER:DFG$STOP_SCHEDULER.COM
```

1.2.9 Execute SYS$SYSTEM:SETFILENOMOVE.COM

Before you run the Disk File Optimizer, execute SYS$SYSTEM:SETFILENOMOVE.COM against all OpenVMS operating system disks on your cluster. SETFILENOMOVE.COM identifies all system files that must not be moved because they are accessed without the file system. When you run this command file, it sets the NOMOVE bit in the file header for the identified files. If you do not run this command procedure, system files could be moved that would be ‘‘lost’’ to the accessing processes.

This procedure marks certain critical system files with the NOMOVE attribute. This anchors these files to the disk; any attempt to relocate them using the XQP MOVEFILE function fails.

While attempting to execute SETFILENOMOVE.COM, you may receive several errors similar to the following:

```
%SET-E-READERR, error reading <file name>
-SYSTEM-W-ACCONFLICT, file access conflict
```

To set the NOMOVE attribute on these files you must boot from another system, such as the distribution CD, and then execute SETFILEMOVE.COM against the disk. However, these files may already have the NOMOVE attribute set. Use the DIRECTORY/FULL command to determine if the NOMOVE attribute was already set.

If the NOMOVE attribute is not set and you cannot boot from another system disk, you should be all right because the file is open when the system is booted. Disk File Optimizer does not defragment or move open files.

To use this SETFILENOMOVE.COM procedure, you must specify the file name as P1 on the command line. For example:

```
$ @SYS$SYSTEM:SETFILENOMOVE $1$DKB100:
```

1.2.10 Registering the Disk File Optimizer Software License

When you are installing Disk File Optimizer software for the first time, you must register the Disk File Optimizer software license.

The following sections describe:

- License and kit names
- How to register the software license

1.2.10.1 License and Kit Names

The license and kit name for the Disk File Optimizer software is the same for Defrag and Defrag PLUS. The license name is **DFG** or **PFO** and the kit names is: **DFG029**.

1.2.10.2 Registering Your Disk File Optimizer License

Follow the steps in Table 1–5 to register your new Disk File Optimizer license.

Where to find registration information:

The license registration information is contained in the Product Authorization Key (PAK). The PAK is a certificate shipped with the Disk File Optimizer package.

Table 1–5 How to Register Your Disk File Optimizer License

Step	Action	Enter the command:
1	Enter the LICENSE REGISTER command with the product name and a dash. Important: Enter a dash at the end of each command in Steps 1 through 9.	`$ LICENSE REGISTER DFG -`
2	Enter the /ISSUER qualifier information, assigning the value from the ISSUER entry of the PAK.	`_$ /ISSUER=DEC -`
3	Enter the /AUTHORIZATION qualifier information, assigning it the value from the AUTHORIZATION NUMBER entry of the PAK.	`_$ /AUTHORIZATION=xxxxxxx -`
4	Enter the /PRODUCER qualifier information, assigning the value from the PRODUCER entry of the PAK.	`_$ /PRODUCER=DEC -`
5	Enter the /UNITS qualifier information, assigning the value from the NUMBER OF UNITS entry of the PAK.	`_$ /UNITS=nn -`

(continued on next page)

Table 1–5 (Cont.) How to Register Your Disk File Optimizer License

Step	Action	Enter the command:
6	Enter the /RELEASE_DATE qualifiers information, assigning the product's release date value from the PRODUCT RELEASE DATE entry of the PAK.	`_$ /RELEASE_DATE=dd-mmm-yyyy -`
7	Enter the /TERMINATION_DATE qualifiers information, assigning the product's termination date value from the KEY TERMINATION DATE entry of the PAK.	`_$ /TERMINATION_DATE=dd-mmm-yyyy -`
8	Enter the /AVAILABILITY qualifier information, assigning the value from the AVAILABILITY TABLE CODE entry of the PAK.	`_$ /AVAILABILITY=x -`
9	Enter the /OPTIONS qualifier information, assigning the value from the KEY OPTIONS entry of the PAK.	`_$ /OPTIONS=xxxxxx -`
10	Enter the /CHECKSUM qualifier information, assigning the value from the CHECKSUM entry of the PAK. Important: Do NOT end this entry with a dash.	`_$ /CHECKSUM=x-xxxx-xxxx-xxxx-xxxx`
10	Invoke the LICENSE LOAD command with the product name.	`$ LICENSE LOAD DFG`

1.3 Installing the Disk File Optimizer Software

1.3.1 Before You Begin–Questions and Answers

Before beginning the installation procedure, you may want to read the following questions and answers:

Q: Is there anything special I should do before I install Disk File Optimizer for the first time?
A: Yes. Make sure you have run SETFILENOMOVE.COM on your OpenVMS operating system disks as described in Section 1.2.9.

Q: How long does the installation procedure take?
A: The installation procedure takes from 15 to 45 minutes, depending on your media type, system configuration, software variant, and whether or not you execute the IVP.

Q: How can I get help?
A: VMSINSTAL provides additional information about the decisions required to respond to the installation prompts. To get help at any installation press ? Return

Q: Where can I find an example of the installation procedure?

A: Appendix B contains an example of an installation procedure for the Disk File Optimizer software.

Q: How can I abort the installation procedure?
A: Enter Ctrl/Y

.

Q: Do I need to do anything special to upgrade from the existing Disk File Optimizer software?
A: No, unless you are upgrading from Disk File Optimizer Version 1.0. Refer to Section 1.2.1.

1.3.2 Installation Procedure

The Disk File Optimizer installation procedure consists of a series of questions and informational messages. See Appendix B for a sample installation. Follow the steps in Table 1–6 to install Disk File Optimizer software.

Table 1–6 How to Install the Disk File Optimizer Software

Step	Action
1	Load and mount the media that contains the software kit.
2	Invoke the VMSINSTAL procedure. By entering the following command: `@SYS$UPDATE:VMSINSTAL saveset-name device-name OPTIONS N` Where: *saveset-name* is the installation name for the component. For the Disk File Optimizer, use the following: **DFG029** *device-name* is the name of the device on which you plan to mount the media, for example, MUA0:. It is not necessary to use the console drive for this installation. However, if you use the console drive, replace any media you remove when the installation is complete. *OPTIONS N* indicates you want to see the release notes. If you do not include this parameter, VMSINSTAL does not ask you about the release notes. Review the release notes before proceeding with the installation as they could contain additional installation information.

3	If you see the following message:
	`%VMSINSTAL-W-ACTIVE, The following processes are still active`
	`* Do you want to continue anyway [NO]?`
	Enter **Y** and press Return, else go to Step 4.

4	Confirm the state of the system backup. `* Are you satisfied with the backup of your system disk [Yes]?` Press Return.

(continued on next page)

Table 1–6 (Cont.) How to Install the Disk File Optimizer Software

Step	Action

5	Respond to the Release Notes option.
	`Release notes included with this kit are always copied to SYS$HELP.`
	`Additional Release Notes Options:`
	`1. Display release notes`
	`2. Print release notes`
	`3. Both 1 and 2`
	`4. None of the above`
	`* Select option [2]:`
	Enter the number of the desired option and press Return.

6	Continue the installation. `* Do you want to continue the installation [NO]?` Enter **Y** and press Return.
7	Purge old Disk File Optimizer software files if you want to recover storage space on your disk. `* Do you want to purge files replaced by this installation [YES]?` Press Return to purge old files, else enter **N** and press Return.
8	Confirm the PAK registration. `* Does this product have an authorization key registered and loaded?` Enter **Y** and press Return.
9	Select to run the Installation Verification Procedure (IVP). `* Do you want to run the IVP after the installation [YES]?` Recommendation: Running the IVP procedure is recommended. Press Return to run the IVP, else enter **N** and press Return.
10	Confirm OpenVMS operating system disk files are set to not be moved. `* Has SETFILENOMOVE.COM been executed against all system disks [NO]?` If you have run SETFILENOMOVE.COM against all your OpenVMS operating system disks, enter **Y** and press Return. Otherwise, the installation procedure exits at this point. If you do not run SETFILENOMOVE.COM against all OpenVMS operating system disks before you install the Disk File Optimizer software, files on your system disks could be moved. This would cause access problems for utilities that access files directly rather than through the file system. Refer to Section 1.2.9 for more information.

(continued on next page)

Table 1–6 (Cont.) How to Install the Disk File Optimizer Software

Step	Action
11	Select an installation variant. `* Do you want to install Defrag or Defrag PLUS [PLUS]?` To install the Defrag PLUS software, enter PLUS (or press Return). To install the Defrag software, enter Defrag. See Table 1–1 for more information. **Note** If you select Defrag, Steps 13 through 17 do not occur.
12	Choose to install the DECwindows interface. `* Do you want to install the Defrag DECwindows interface [YES]?` If you want to install the DECwindows interface, press Return. If you do not want to install the DECwindows interface, enter No and press Return.
13	Choose whether or not to install the callable interface. `* Do you wish to install the DFO callable interface [NO]?` If you need to install the callable interface, enter **Y** and press Return. The installation procedure will install the appropriate files. Otherwise, press Return and the installation procedure continues to the next step.

14	Choose the location of the scheduling database.
	`* Device and directory to contain the scheduling database files [SYS$COMMON:[DFG$DATABASE]]:`
	`You have chosen the following as a location for the defragmentation scheduling and parameter database:`
	`SYS$COMMON:[DFG$DATABASE]`
	`* Is this device and directory correct [YES]?`
	If you want to use the default directory, press Return. Otherwise, enter the directory name and press Return.

(continued on next page)

Table 1–6 (Cont.) How to Install the Disk File Optimizer Software

Step	Action

15	Decide about using existing database if present.
	`The following scheduling/parameter database already exists:`
	`DISK$USER1:[DFG$DATABASE]DFG$DB.DAT;`
	`DISK$USER1:[DFG$DATABASE]DFG$FILE.DAT;`
	`DISK$USER1:[DFG$DATABASE]DFG$GENERAL.DAT;`
	`DISK$USER1:[DFG$DATABASE]DFG$NODE.DAT;`
	`DISK$USER1:[DFG$DATABASE]DFG$QUEUE.DAT;`
	`DISK$USER1:[DFG$DATABASE]DFG$SCRIPT.DAT;`
	`DISK$USER1:[DFG$DATABASE]DFG$VOLUME.DAT;`
	`* Do you wish to use it [YES]?`
	This message appears only if a database already exists in the chosen database directory. Press return to use the existing database.

16	Choose the name of the mail distribution file.
	`* Mail distribution file name [SYS$COMMON:[DFG$DATABASE]DFG$MAIL.DIS]:`
	`The mail distribution file for notification messages is`
	`SYS$COMMON:[DFG$DATABASE]DFG$MAIL.DIS;`
	`* Is this the correct file specification [YES]?`
	The mail distribution file is created during installation. You may specify a list of user names for this distribution list or take the default, which is the user name of the installing account.

17	Specify whether or not to change the contents of the mail distribution file.
	`By default, the mail distribution file contains only the user name of the installing account.`
	`* Do you want to override the default contents of {mail.DIS} [NO]?`
	Press Return if you wish the notification list to contain only the user name of the installing account. Enter **Y** if you want to specify a different mailing list. If you enter **Y**, the installation procedure prompts you for a list of user names. Separate the user names with commas, for example: USER1, USER2, USER3[,...].

(continued on next page)

Table 1–6 (Cont.) How to Install the Disk File Optimizer Software

Step	Action

18	Read informational messages.
	At this point, the installation procedure displays a number of informational messages that report on the progress of the installation. There are no further questions. If the installation procedure has been successful up to this point, VMSINSTAL moves the new or modified files to their target directories, updates Help files, and updates DCL tables, if necessary. If you chose to have files purged, that work is done now. The following message is displayed:
	`No more input is required to complete this installation. From this point it proceeds automatically.`
	The following messages are displayed when the installation procedure converts the RMS database to do away with index key compression:
	`Attempting to convert your RMS database so there is no index key compression. This requires converting the database. The old database files will be renamed to:`
	`DFG$DATABASE:DFG$DB_OLD.DAT`
	`DFG$DATABASE:DFG$FILE_OLD.DAT`
	`DFG$DATABASE:DFG$GENERAL_OLD.DAT`
	`DFG$DATABASE:DFG$NODE_OLD.DAT`
	`DFG$DATABASE:DFG$QUEUE_OLD.DAT`
	`DFG$DATABASE:DFG$SCRIPT_OLD.DAT`
	`DFG$DATABASE:DFG$VOLUME_OLD.DAT`
	`After you are satisfied with the installation, you may wish to delete these files.`
	After the files have been moved, the installation procedure starts a scheduling process on the installing node. The name, ID, and log file for this process are displayed:
	`%RUN-S-PROC_ID, identification of created process is 0000012B`
	`Defragmentation scheduler, DFG$XXXX started on XXXX`
	`Scheduler log file: DFG$DATABASE:DFG$XXXX.LOG`
	The name of the scheduler process is DFG$_XXXX, where XXXX is the node name where the scheduler is executing.
	Note
	The name of the node comes from either the SYSGEN parameter, SCSNODE, or if SCSNODE is undefined, from the system logical name, SYS$NODE. At least one of these must indicate a valid node name or the defragmentation software will not work correctly.

(continued on next page)

Table 1–6 (Cont.) How to Install the Disk File Optimizer Software

Step	Action

19	Observe the IVP.
	If you chose to run the IVP, VMSINSTAL runs it now. When the IVP begins, the following message is displayed:
	`Beginning the V2.9 installation verification proced`
	When the IVP completes successfully, the following message is displayed:
	`Installation verification for V2.9 has successfully`

1.3.3 Error Recovery

If errors occur during the installation or when the IVP is running, VMSINSTAL displays failure messages. If the installation fails, the following message is displayed:

```
%VMSINSTAL-E-INSFAIL, The installation of DFG Version
V2.9
has failed.
```

If the IVP fails, the following messages are displayed:

```
The DFG Version V2.9 Installation Verification Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for DFG Version
V2.9 has failed.
```

Errors can occur during the installation if any of the following conditions exist:

- Incorrect operating system version
- Incorrect prerequisite software version
- Insufficient quotas
- Insufficient system parameter values
- VMS Help library is currently in use
- Product license has not been registered and loaded

For descriptions of the error messages generated by these conditions, see the VMS documentation about system messages, recovery procedures, and VMS software installation. If you are notified that any of these conditions exist, take the appropriate action as described in the message.

1.4 After Installing the Disk File Optimizer

Perform the following tasks after installing the Disk File Optimizer:

- Run the IVP separately to verify the installation
- Edit the system startup and shutdown files
- Make the Disk File Optimizer software usable on a VMScluster system
- Resolve database errors
- Delete old copies of the database files
- Verify account requirements
- Report any problems

1.4.1 Running the IVP Separately

You usually run the Installation Verification Procedure (IVP) during the installation by responding YES to the question:

```
* Do you want to run the IVP after the installation [YES]?
```

If you did not run the IVP during the installation, or if you want to run the IVP separately to confirm the integrity of installed files, execute the IVP by entering this command:

```
$ @SYS$TEST:DFG$IVP.COM
```

Requirements:

The Disk File Optimizer software must be running on the system where the IVP is executed.

1.4.2 Editing the System wide Command Files

System startup:

You must edit the system startup procedure to ensure automatic startup of the Disk File Optimizer software each time the system boots. Add the following line to

```
SYS$MANAGER:SYSTARTUP.COM:
$ @SYS$MANAGER:DFG$STARTUP.COM
```

System shutdown:

You can modify the system shutdown file to provide for an orderly shutdown of the Disk File Optimizer. To do this, add the following line to SYS$MANAGER:SYSHUTDWN.COM:

```
$ @SYS$MANAGER:DFG$SHUTDOWN.COM
```

1.4.3 Making the Disk File Optimizer Work on a VMScluster System

To make the Disk File Optimizer available on all nodes of the cluster, you should ensure that all nodes have the latest version of DCLTABLES.EXE installed. You can do this by using SYSMAN or by logging in to each node in the cluster and entering the following command:

```
$ INSTALL REPLACE SYS$COMMON:[SYSLIB]DCLTABLES.EXE
```

1.4.4 Deleting Old Copies of the RMS Database Files

If you upgraded the Defrag PLUS variant of Disk File Optimizer, there are seven old files on your disk:

- DFG$DATABASE:DFG$DB_OLD.DAT
- DFG$DATABASE:DFG$FILE_OLD.DAT
- DFG$DATABASE:DFG$GENERAL_OLD.DAT
- DFG$DATABASE:DFG$NODE_OLD.DAT
- DFG$DATABASE:DFG$QUEUE_OLD.DAT
- DFG$DATABASE:DFG$SCRIPT_OLD.DAT
- DFG$DATABASE:DFG$VOLUME_OLD.DAT

You can delete these files.

1.4.5 Loading The New Database After Upgrading from Disk File Optimizer V1.0

If you are upgrading from Disk File Optimizer V1.0 and have saved the data in your database, you must restore it. If you saved your database data as described in Section 1.2.1, you can load it into your new RMS database using the following command:

```
$ @LOAD_DB
```

1.4.6 Verifying Account Requirements

The following privileges are required to run the Disk File Optimizer software:

- BYPASS
- CMKRNL
- DETACH
- NETMBX
- SHARE
- SYSGBL
- SYSLCK
- SYSPRV
- TMPMBX
- WORLD

1.4.7 Reporting Problems

If you encounter a problem while using the Disk File Optimizer, report it to HP Customer Services. Depending upon the nature of the problem and the type of support you have purchased, you can take one of the following actions:

- Call HP Customer Services if your software contract or warranty agreement entitles you to telephone support.
- Submit a Software Performance Report (SPR).

Review the Software Product Description (SPD) and Warranty Addendum for an explanation of warranty. If you encounter a problem during the warranty period, report the problem as indicated above or follow alternate instructions provided by HP for reporting SPD nonconformance problems.

A

Disk File Optimizer Logicals and Files

A.1 Files Added to System by the Disk File Optimizer

The following files are permanently added to the system when you install the Defrag PLUS variant. Files marked with an asterisk (*) are not added if you install the Defrag variant:

- DFG$DATABASE (directory, typically SYS$COMMON:[000000]DFG$DATABASE.DIR) *
- DFG$DATABASE:DFG$DB.DAT *
- DFG$DATABASE:DFG$FILE.DAT *
- DFG$DATABASE:DFG$GENERAL.DAT *
- DFG$DATABASE:DFG$MAIL.DIS *
- DFG$DATABASE:DFG$NODE.DAT *
- DFG$DATABASE:DFG$QUEUE.DAT *
- DFG$DATABASE:DFG$SCRIPT.DAT *
- DFG$DATABASE:DFG$VOLUME.DAT *
- SYS$COMMON:[SYS$STARTUP]DFG$STARTUP.COM
- SYS$COMMON:[SYS$STARTUP]DFG$START_SCHEDULER.COM *
- SYS$COMMON:[SYSEXE]DFG$CREATE_DATABASE.EXE *
- SYS$COMMON:[SYSEXE]DFG$DCL.EXE
- SYS$COMMON:[SYSEXE]DFG$ENGINE_MAIN.EXE
- SYS$COMMON:[SYSEXE]DFG$INIT_DATABASE.EXE *
- SYS$COMMON:[SYSEXE]DFG$SCHEDULER.EXE *
- SYS$COMMON:[SYSEXE]DFG$STOP_SCHEDULER.EXE *
- SYS$COMMON:[SYSEXE]DFG$REFORMAT_DB_RMS.EXE *
- SYS$COMMON:[SYSEXE]DFG$REFORMAT_DB.EXE *
- SYS$COMMON:[SYSHLP]DEFRAGMENT.HLB
- SYS$COMMON:[SYSHLP]DFGxxx.RELEASE_NOTES
- SYS$COMMON:[SYSHLP]DFGxxx_OPR_GUIDE
- SYS$COMMON:[SYSHLP]DFGxxx_INSTALL_GUIDE
- SYS$COMMON:[SYSHLP]DFGxxx_SPD
- SYS$COMMON:[SYSHLP]DFGxxx_COVER_LETTER

- SYS$COMMON:[SYSLIB]DFG$DEFRAGMENTSHR.EXE *
- SYS$COMMON:[SYSLIB]DFG$RMSSHR.EXE *
- SYS$COMMON:[SYSLIB]DFG$UTILITYSHR.EXE
- SYS$COMMON:[SYSMGR]DFG$DEINSTAL.COM
- SYS$COMMON:[SYSMGR]DFG$SHUTDOWN.COM
- SYS$COMMON:[SYSMGR]DFG$STOP_SCHEDULER.COM *
- SYS$COMMON:[SYSMSG]DFG$MESSAGE.EXE
- SYS$COMMON:[SYSTEST]DFG$IVP.COM

If you install the GUI interface, the following additional files are created:

- SYS$COMMON:[DECW$DEFAULTS.USER]DFG$DW.DAT
- SYS$COMMON:[DECW$DEFAULTS.USER]DFG$DW.UID
- SYS$COMMON:[SYSEXE]DFG$DW.EXE
- SYS$COMMON:[SYSHLP]DFG$DW.HLB

If you install the callable interface, the following additional files are created:

- SYS$COMMON:[SYSLIB]DFG$DEF.FOR
- SYS$COMMON:[SYSLIB]DFG$DEF.H
- SYS$COMMON:[SYSLIB]DFG$DEF.MAR
- SYS$COMMON:[SYSLIB]DFG$DEF.PAS

A.2 Logical Names

Logical names for the Disk File Optimizer begin with the prefix **DFG$**. Table A–1 describes each logical name.

Table A–1 Logical Names

Logical Name	Installation Variant	Purpose
DFG$DATABASE	Defrag PLUS	Equates to the device:[dir] specification where the database resides. Also located in this directory are the scheduler log files, which have a name of DFG$_*xxxx*.LOG, where *xxxx* is the name of the node on which the scheduler is running.
DFG$DISK	All	Provided to the EPILOGUE and PROLOGUE command files. It translates to the name of the disk on which DFO currently operates.
DFG$MAIL_ADDRESS	Defrag PLUS	Equates to a file name containing a mail distribution list of those who should receive notification when defragmentation processes complete.
DFG$MESSAGE	All	Equates to SYS$MESSAGE:DFG$MESSAGE.EXE, which is the shareable image containing all the defragmentation-specific messages. This logical is used only if you install the callable interface.

(continued on next page)

Table A–1 (Cont.) Logical Names

Logical Name	Installation Variant	Purpose
DFG$SCRIPT	All	Provided to the EPILOGUE and PROLOGUE command files. It translates to the name of the script associated with the DFO process.
DFG$STATE	All	Provided to the EPILOGUE and PROLOGUE command files. As appropriate to indicate the state of DFO to the command procedure, it translates to either of these strings PROLOGUE EPILOGUE
DFG$STATUS	All	Provided to the EPILOGUE and PROLOGUE command files. It translates to the current status of the DFO process. For the EPILOGUE command file, this status is the final status of the DFO process.
DFG$ASTLM DFG$BIOLM DFG$BYTLM DFG$DIOLM DFG$ENQLM DFG$FILLM DFG$JTQUOTA DFG$PGFLQUOTA DFG$PRCLM DFG$TQELM DFG$WSDEFAULT DFG$WSEXTENT DFG$WSQUOTA	All	These logicals affect the associated process quota of any DFO process running on the associated node. Refer to the guide to operations for more information.
DFG$TRANSFERSIZE	All	The logical, DFG$TRANSFERSIZE, helps you tune the Disk File Optimizer. The definition of this logical allows you to change the amount of data that is transferred at one time. On a volume that has files with large extents, you could wait up to 20 minutes while the system transfers these large extents before you could access the file. By defining this logical, you could access this file in less than a minute. This logical changes the impact that the Disk File Optimizer has on applications that are simultaneously accessing the same files. This logical is set to 10,000 blocks by default. You can change it by editing SYS$STARTUP:DFG$STARTUP.COM and then executing the command procedure.

B

Example Disk File Optimizer Installation

B.1 Example Installation

This appendix contains an example installations for the Disk File Optimizer software. Example B–1 shows an example installation log for installing Defrag PLUS. As you look through this example, note the following things:

- The first line in the example shows the command used to generate the installation.
- If you do not have existing Defrag PLUS database files on the volume, the following lines do not appear:

```
    The following scheduling/parameter database already exists:

DISK$USER1:[DFG$DATABASE]DFG$DB.DAT;
DISK$USER1:[DFG$DATABASE]DFG$FILE.DAT;
DISK$USER1:[DFG$DATABASE]DFG$GENERAL.DAT;
DISK$USER1:[DFG$DATABASE]DFG$NODE.DAT;
DISK$USER1:[DFG$DATABASE]DFG$QUEUE.DAT;
DISK$USER1:[DFG$DATABASE]DFG$SCRIPT.DAT;
DISK$USER1:[DFG$DATABASE]DFG$VOLUME.DAT;

* Do you wish to use it [YES]?

        Attempting to convert your RMS database so there is no index key
        compression.  This requires converting the database.  The old
        database files will be renamed to:

            DFG$DATABASE:DFG$DB_OLD.DAT
            DFG$DATABASE:DFG$FILE_OLD.DAT
            DFG$DATABASE:DFG$GENERAL_OLD.DAT
            DFG$DATABASE:DFG$NODE_OLD.DAT
            DFG$DATABASE:DFG$QUEUE_OLD.DAT
            DFG$DATABASE:DFG$SCRIPT_OLD.DAT
            DFG$DATABASE:DFG$VOLUME_OLD.DAT

        After you are satisfied with the installation, you may wish to delete
        these files.
```

- During the IVP, this installation runs the DEFRAGMENT SHOW {volume_ name} command for the volume on which it is installing. The information shown indicates how badly the volume is fragmented.

Example Disk File Optimizer Installation
B.1 Example Installation

Example B–1 Example Installation for Defrag PLUS

```
xxx -> @sys$update:vmsinstal DFG V2.9 DISK$KIT:[DFO]

OpenVMS AXP Software Product Installation Procedure V7.3-2
It is 05-JAN-2005 at 14:55.
Enter a question mark (?) at any time for help.
%VMSINSTAL-W-NOTSYSTEM, You are not logged in to the SYSTEM account.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
       DECW$SERVER_0
       DECW$MWM
       DECW$TE_0068
       _FTA5:
* Do you want to continue anyway [NO]? y
* Are you satisfied with the backup of your system disk [YES]? y

The following products will be processed:
  DFG V2.9
       Beginning installation of DFG V2.9 at 14:55

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]?

       Product:      DFG
       Producer:     DEC
       Version:      V2.9
       Release Date: 05-JAN-2005
* Does this product have an authorization key registered and loaded? y

    This kit contains an Installation Verification Procedure (IVP) to verify
    the correct installation of the Defragmentation software.  It can be
    run prior to the conclusion of this procedure by answering "YES" to the
    IVP prompt or it can be invoked after the installation as follows:

@SYS$TEST:DFG$IVP.COM

* Do you want to run the IVP after the installation [YES]?

    You must run the @SYS$SYSTEM:SETFILENOMOVE.COM command procedure against
    ALL system disks in your cluster.  You must do this before running the
    defragmentation software on a system disk.  Failure to run this command
    procedure and to later run the defragmentation software on the system
    disk could result in corruption of the system disk.

* Has SETFILENOMOVE.COM been executed against all system disks? y
* Do you want to install Defrag or Defrag PLUS [PLUS]:
* Do you want to install the Graphical User Interface [YES]?
* Do you wish to install the callable interface [NO]?
%DFGT1-I-LOGDEFINED, The logical name DFG$DATABASE was defined

    You have selected the following as a location for the
    defragmentation scheduling and parameter database:

        DISK$USER1:[DFG$DATABASE]

* Is this device and directory correct [YES]?

    The following scheduling/parameter database already exists:

DISK$USER1:[DFG$DATABASE]DFG$DB.DAT;
DISK$USER1:[DFG$DATABASE]DFG$FILE.DAT;
DISK$USER1:[DFG$DATABASE]DFG$GENERAL.DAT;
DISK$USER1:[DFG$DATABASE]DFG$NODE.DAT;
DISK$USER1:[DFG$DATABASE]DFG$QUEUE.DAT;
DISK$USER1:[DFG$DATABASE]DFG$SCRIPT.DAT;
DISK$USER1:[DFG$DATABASE]DFG$VOLUME.DAT;

* Do you wish to use it [YES]?
%DFGT1-I-LOGDEFINED, The logical name DFG$MAIL_ADDRESS was defined
```

(continued on next page)

Example B–1 (Cont.) Example Installation for Defrag PLUS

```
    The DFG$MAIL_ADDRESS logical is defined as follows:
        DISK$USER1:[DFG$DATABASE]DFG$MAIL.DIS;
* Do you wish to use this file [YES]?

The mail distribution file for notification messages is

DISK$USER1:[DFG$DATABASE]DFG$MAIL.DIS;

* Is this the correct file specification [YES]?

By default, the mail distribution file contains only the username
of the installing account.

* Do you want to override the default contents [NO]?

    +-------------------------------------------------------------------+
    |  No more input required.                                          |
    |                                                                   |
    |  Please perform the following after the installation completes:   |
    |                                                                   |
    |  1. Place @SYS$STARTUP:DFG$STARTUP in SYS$MANAGER:SYSTARTUP_VMS.COM  |
    |                                                                   |
    |  2. Place @SYS$MANAGER:DFG$SHUTDOWN in SYS$MANAGER:SYSHUTDWN.COM  |
    |                                                                   |
    +-------------------------------------------------------------------+

%VMSINSTAL-I-RESTORE, Restoring product save set H ...

        Attempting to convert your RMS database so there is no index key
        compression.  This requires converting the database.  The old
        database files will be renamed to:

            DFG$DATABASE:DFG$DB_OLD.DAT
            DFG$DATABASE:DFG$FILE_OLD.DAT
            DFG$DATABASE:DFG$GENERAL_OLD.DAT
            DFG$DATABASE:DFG$NODE_OLD.DAT
            DFG$DATABASE:DFG$QUEUE_OLD.DAT
            DFG$DATABASE:DFG$SCRIPT_OLD.DAT
            DFG$DATABASE:DFG$VOLUME_OLD.DAT

        After you are satisfied with the installation, you may wish to delete
        these files.
%DFGT1-I-COPYING, Copying database to working directory...
%DFGT1-I-COPYING, Renaming database files...
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%RUN-S-PROC_ID, identification of created process is 27E00386
Defragmentation scheduler, DFG$SPIELN started on SPIELN
Scheduler log file: DFG$DATABASE:DFG$SPIELN.LOG
Beginning the V2.9 installation verification procedure

         Testing SHOW of database parameters.
Disk File Optimizer for OpenVMS DFG V2.9
Copyright © Hewlett-Packard Development Company, L.P. 2005
CPU limit: 0    I/O limit: 0    process limit: 0  ILDUCE
CPU limit: 0    I/O limit: 0    process limit: 0

         Testing SHOW of volume fragmentation.

Disk File Optimizer for OpenVMS DFG V2.9
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F r a g m e n t a t i o n   R e p o r t

DISK$ALPHA0732DSK                              05-JAN-2005 14:57:24.05
```

(continued on next page)

Example B–1 (Cont.) Example Installation for Defrag PLUS

```
The fragmentation index is 12.9
      1 - 20.9 is excellent
     21 - 40.9 is good
     41 - 60.9 is fair
     61 - 80.9 is poor
     81 - 100 indicates a badly fragmented disk
Approximately 3.3 (out of 80.0 possible) is due to file fragmentation
Approximately 9.6 (out of 20.0 possible) is due to freespace fragmentation

Freespace Summary:
        Total free space:        226348 blocks
        Percentage free:             11 (rounded)
        Total free extents:          48
        Maximum free extent:     114276 blocks, LBN: 610892
        Minimum free extent:          4 blocks, LBN: 173508
        Average free extent:       4715 blocks
        Median free extent:          80 blocks

File Fragmentation Summary:
        Number of files (with some allocation):  5894
        Total file extents on the disk:          6039
        Average number of file extents per file: 1.024601
        Median number of file extents per file:  1

Most Fragmented File:
        [VMS$COMMON.SYSEXE]SYS$QUEUE_MANAGER.QMAN$JOURNAL;1 (55 extents)
Installation verification for V2.9 has successfully comp
        Installation of DFG V2.9 completed at 14:57

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file:VMI$ROOT:[SYSUPD]DFG029.

        VMSINSTAL procedure done at 14:57
```

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