DCE and DFS for HP® (Compaq®) Tru64® UNIX®

Distributed File Service (DFS) Configuration Guide

Gradient DCE Software Version 4.2

Notices

Distributed File Service (DFS) for Tru64 UNIX Configuration Guide - Revised March 2001

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Contents

Preface

Intended Audience

This guide is intended for experienced system and network administrators responsible for configuring network services. Administrators should have knowledge of Distributed Computing Environment (DCE) concepts as defined by the Open Software Foundation (OSF); this manual is neither a DCE nor a DFS tutorial.

This guide also assumes that the supported operating systems and the DFS subsets have been installed.

Overview of this Guide

The *Gradient® DFS for Tru64™ UNIX® Configuration Guide* describes how to configure the DCE Distributed File Service (DFS).

Gradient DFS consists of the basic DFS server and client. However, NetCrusader/DCE DFS servers and clients can operate in a cell with third-party enhanced DFS servers, basic DFS servers, and clients.

The guide provides users of the DCE and DFS with supplemental information necessary to use Gradient DFS and is intended to be used with the documents listed under Related Documentation .

NOTE: The products named Gradient DFS (formerly NetCrusader/DCE) v3.1 (and higher), Digital DCE v3.1, and Compaq DCE v3.1 provide essentially the same features. Although other company names may be referenced within this document (Digital, Compaq, or Gradient Technologies), this DCE product is now produced and supported by Entegrity Solutions® Corporation.

Conventions

The following conventions are used in this guide:

UPPERCASE and lowercase	The operating system differentiates between lowercase and uppercase characters. Literal strings that appear in text, examples, syntax descriptions, and function definitions must be typed exactly as shown.
bold	Boldface type in interactive examples indicates typed user input. In general text reference, bold indicates file names and commands.
italics	Italic type indicates variable values, placeholders, and function argument names.
`special type`	Indicates system output in interactive and code examples.

%	The default user prompt is your system name followed by a right angle bracket (>). In this manual, a percent sign (%) is used to represent this prompt.
#	A number sign (#) represents the superuser prompt.
Ctrl/*x*	This symbol indicates that you hold down the Ctrl key while pressing the key or mouse button that follows the slash.
<Return>	Refers to the key on your terminal or workstation that is labeled with Return or Enter.

Related Documentation

The following documents are available in HTML and Acrobat format on the Entegrity software CD:

- *Gradient DFS for Tru64 UNIX Configuration Guide* (this guide) — Describes how to configure the optional DCE Distributed File Service.
- *Gradient DCE for Tru64 UNIX Installation and Configuration Guide* — Describes how to install DCE and configure and manage your DCE cell.
- *Gradient DCE for Tru64 Product Guide* — Provides supplemental documentation for NetCrusader/DCE value-added features.
- *Gradient DCE for Tru64 Reference Guide* — Provides supplemental reference information for NetCrusader/DCE value-added features.
- *Gradient DCE for Tru64 Release Notes*— Lists new features, bug fixes, and known problems and restrictions.

The following OSF DCE Release 1.2.2 technical documentation is provided on the Entegrity software CD in PDF format:

- *Introduction to OSF DCE* — Contains a high-level overview of DCE technology including its architecture, components, and potential use.
- *OSF DCE Administration Guide - Introduction* — Describes the issues and conventions concerning DCE as a whole system and provides guidance for planning and configuring a DCE system.
- *OSF DCE Administration Guide - Core Components* — Provides specific instructions on how core components should be installed and configured.
- *OSF DCE Application Development Guide - Introduction and Style Guide* — Serves as a starting point for application developers to learn how to develop DCE applications.
- *OSF DCE Application Development Guide - Core Components* — Provides information on how to develop DCE applications using core DCE components such as RPC and security.
- *OSF DCE Application Development Guide - Directory Services* — Contains information for developers building applications that use DCE Directory Services.

- *OSF DCE Application Development Reference* — Provides reference information for DCE application programming interfaces.
- *OSF DCE Command Reference* — Describes commands available to system administrators.

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Obtaining Technical Support

If you purchased your Gradient DFS product directly from Entegrity Solutions Corporation or Gradient Technologies, Inc. you are entitled to 30 days of limited technical support beginning on the day the product is expected to arrive.

You may also purchase a support plan that entitles you to additional services. You *must* register prior to receiving this support. For details, refer to the customer support information package that accompanied your shipment or refer to the Technical Support area of **http://support.entegrity.com**. The web site also contains online forms for easy registration.

If you purchased Gradient DFS from a reseller, please contact the reseller for information on obtaining technical support.

Obtaining Additional Technical Information

Contact	Address	Phone/Fax/Email
The Open Group™ Developer of DCE (Distributed Computing Architecture) software and standards.	The Open Group™ 29B Montvale Ave Woburn MA 01801 U. S. A.	Tel: +1 781-376-8200 Fax: +1 781-376-9358 **http://www.opengroup.org**

Obtaining Additional Documentation

All documentation for your NetCrusader product is provided in electronic format on the same CD on which the product ships. See the product CD for information on accessing this documentation.

Documentation for all of Entegrity's products is available at **http://support.entegrity.com**. Enter the Support Web area and click the Documentation link.

We are always trying to improve our documentation. If you notice any inaccuracies or cannot find information, please send email to **docs@entegrity.com**. We welcome any comments or suggestions.

CHAPTER 1

Introduction to DFS Configuration

1.1 Overview

This chapter describes the preparations you must make before you configure the Gradient® DFS for Tru64™ UNIX® software.

Gradient DFS is fully functional on the Tru64 UNIX v5.0, 5.0a and 5.1 operating systems.

1.2 Verifying That the DCE and DFS Subsets Have Been Installed

In order to configure Gradient DFS on a system, the DCE layered product must be installed and configured on the system then the DCE DFS subsets should be installed. See *Gradient DCE for Tru64 UNIX Installation and Configuration Guide, Section 1.12* for information on installing and configuring DCE and installing the DCE DFS subsets.

NOTE: Ensure that the proper DFS subset, specific to the operating system, is installed before beginning DFS configuration.

1.3 Verifying That a New Kernel Has Been Built

After Gradient DFS has been installed on a system, you must rebuild the kernel, using the **doconfig** command, to include DFS support in the kernel. Then reboot the system using the new kernel.

1.4 Verifying Necessary Privileges

In order to configure Gradient DFS on a system, you need root privileges on that system.

1.5 Identifying Your System's Role in the DFS Environment

A system can have the following roles in a DCE DFS environment:

- Fileset Location Database Server — Maintains the Fileset Location Database (FLDB) for the DCE cell. The FLDB contains the locations of all DFS filesets for a DCE cell. Each cell must have at least one FLDB server.

By default, the FLDB Server is also the System Control Machine and a DFS File Server, exporting the DFS root fileset **root.dfs**, and can also be a DFS client.

- DFS Client — Runs the cache manager and associated processes that enable it to access and perform file operations on DFS files. This machine can also be a DFS File Server.
- System Control Machine — Updates other machines in the domain with common configuration files, such as administrative lists. Typically, the FLDB server is also the System Control Machine and is configured as such when you configure the FLDB Server. However, if you want to configure a separate system as a System Control Machine, configure the System Control Machine first, and then configure the FLDB Server.
- DFS File Server — Any system that exports DFS filesets and directories.

See *Understanding DCE, Introduction to OSF DCE*, and *OSF DCE DFS Administration Guide and Reference* for more information.

1.6 Preparing for the Configuration

After the DFS subset is installed, configure the DFS services by running **/usr/sbin/dfssetup**, a script that generates the initial configuration using default information and information you provide.

Appendix A contains the DFS Configuration Worksheet for you to copy and use as you prepare to configure DFS. Before you begin, write the cell name on the top line of each worksheet completed. This enables you to keep all worksheets for a particular cell together.

The following sections explain the additional information to record on the worksheet. Choose the sections that apply to your particular machine.

1.6.1 Information for FLDB Server Configuration

Each DCE cell using DFS requires at least one Fileset Location Database (FLDB) Server. This machine is also usually the System Control Machine. *Figure 1-1* shows the server section of the DFS Configuration Worksheet. *Table 1-1* explains how to use this form when configuring FLDB Servers.

If the FLDB Server is also going to be a DFS Client or a DFS Server, see *Section 1.6.2 on page 12* and *Section 1.6.3 on page 12*, respectively, after filling out this part of the worksheet.

Figure 1-1: Server Section of the DFS Configuration Worksheet

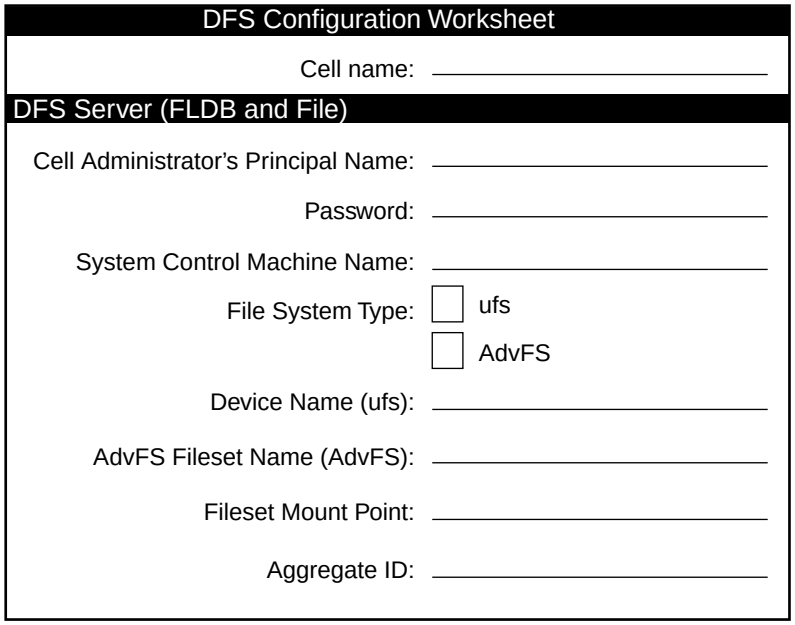


Table 1-1: Using the DFS Configuration Worksheet for FLDB Servers

Cell Administrator's Principal Name	The principal name for the DCE cell administrator. This is the same default principal name used in DCE installation and configuration, **cell_admin**.
Password	The password for **cell_admin**. This is the same password that is specified in the DCE cell configuration.
System Control Machine Name	The name of the machine that distributes common configuration files to other server machines in the cell or administrative domain. The default is the name of the FLDB Server or another machine, depending on how you chose to set up your DFS environment.
File System Type	The file system type for the DFS root fileset. This can be either the UFS file system or the POLYCENTER Advanced File System (AdvFS).
Device Name	The block device name of the DFS root fileset. For example, **/dev/rz3h** (for UFS file system only).
AdvFS Fileset Name	The AdvFS fileset specification of the DFS root fileset, in the form ***domain_name#fileset_name*** (for AdvFS file system only).
Fileset Mount Point	The local mount point for the DFS root fileset. Enter 1 to 31 alphanumeric characters. For example, **/dfs.root**. **Caution:** Do not specify the local system root directory (/\) as the mount point for the DFS root fileset. If you do, serious data corruption might occur.
Aggregate ID	A positive integer to identify the root aggregate. This ID is unique for each DFS server and cannot be used by any other entries in the **dfstab** file.

1.6.2 Information for DFS Client Configuration

DFS client machines are those machines that request DFS filesets from DFS File Servers, import the filesets, and keep track of operations on those filesets. *Figure 1-2* shows the Client part of the DFS Configuration Worksheet. *Table 1-2* describes how to use the worksheet.

Figure 1-2: Client Section of the DFS Configuration Worksheet

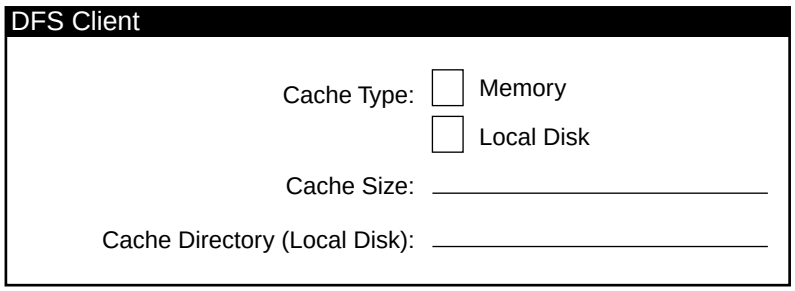


Table 1-2: Using the DFS Configuration Worksheet for FLDB Servers

Cache Type	The type of cache your system will use for DFS caching. The choices are disk or memory. If you choose a memory cache, the system will not perform disk caching even if there is disk space available. In addition, a memory cache is permanently allocated from system memory and is typically smaller than a disk cache.
Cache Size	The size of the DFS cache in kilobytes. For disk caching, the default is 10,000 kilobytes (10 MB). For memory caching, the default is 1000 kilobytes (1 MB).
Cache Directory	The name of the caching directory. The default is **/opt/dcelocal/var/adm/dfs/cache**. Entegrity recommends that you dedicate a disk partition for DFS caching and use that directory name as the cache directory (for disk caching only).

1.6.3 Information for DFS File Server Configuration

A DFS File Server receives requests from DFS clients and serves the requested DFS filesets to them. *Figure 1-3* shows the File Server part of the DFS Configuration Worksheet. *Table 1-3* explains how to use this form when configuring File Servers.

Figure 1-3: Server Section of the DFS Configuration Worksheet

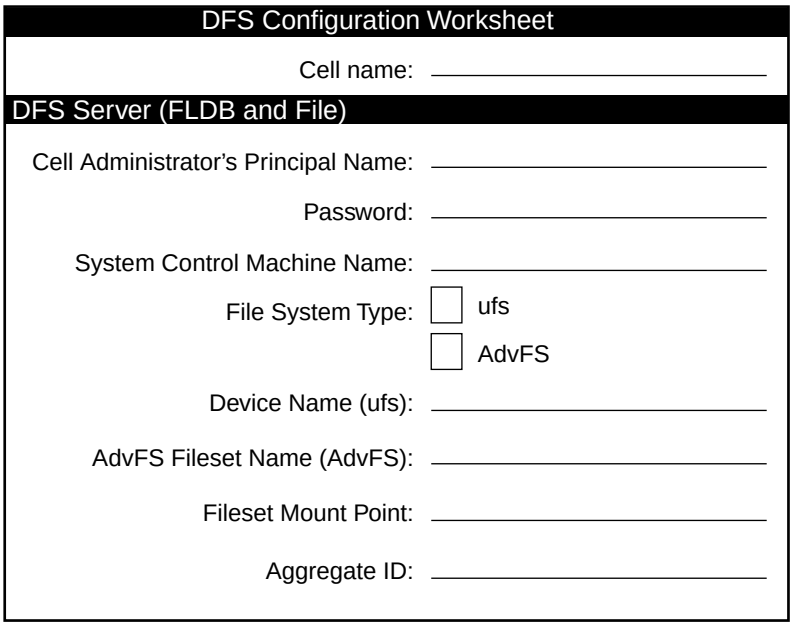


Table 1-3: Using the DFS Configuration Worksheet for File Servers

Cell Administrator's Principal Name	The principal name for the DCE cell administrator. This is the same default principal name used in DCE installation and configuration, **cell_admin**.
Password	The password for **cell_admin**. This is the same password that is specified in the DCE cell configuration.
System Control Machine Name	The name of the machine that distributes common configuration files to other server machines in the cell or administrative domain. The default is the name of the FLDB Server or another machine, depending on how you chose to set up your DFS environment.
File System Type	The file system type for the exported DFS fileset. This can be either the UFS file system or the POLYCENTER Advanced File System (AdvFS).
Device Name	The block device name of the exported DFS fileset. For example, **/dev/rz3h** (for UFS file system only).
AdvFS Fileset Name	The AdvFS fileset specification of the exported DFS fileset, in the form ***domain_name#fileset_name*** (for AdvFS file system only).
Fileset Mount Point	The local mount point for the exported DFS fileset.
Aggregate ID	A positive integer to identify the exported aggregate. This ID is unique and cannot be used by any other entries in the **dfstab** file.

1.6.4 Information for DFS System Control Machine Configuration

A DFS System Control Machine updates other machines in the cell domain with common Configuration files such as administrative lists. *Figure 1-4* shows the System Control Machine part of the DFS Configuration Worksheet. *Table 1-4* describes the worksheet.

Figure 1-4: System Control Machine Section of the DFS Configuration Worksheet

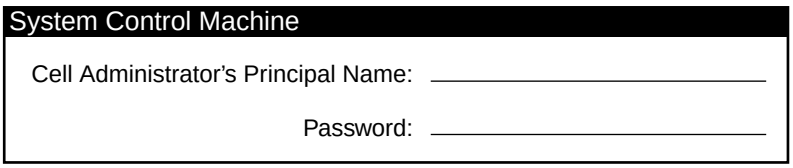


Table 1-4: Using the System Contol Section of the DFS Configuration Worksheet

Cell Administrator's Principal Name	The principal name for the DCE cell administrator. This is the same default principal name used in DCE installation and Configuration, **cell_admin**.
Password	The password for **cell_admin**. This is the same password that is specified in the DCE cell configuration.

1.6.5 Information for DFS Client Configuration

DFS client machines are those machines that request DFS filesets from DFS File Servers, import the filesets, and keep track of operations on those filesets. *Figure 1-5* shows the Client part of the DFS Configuration Worksheet. *Table 1-5* describes how to use the worksheet.

Figure 1-5: Client Section of the DFS Configuration Worksheet

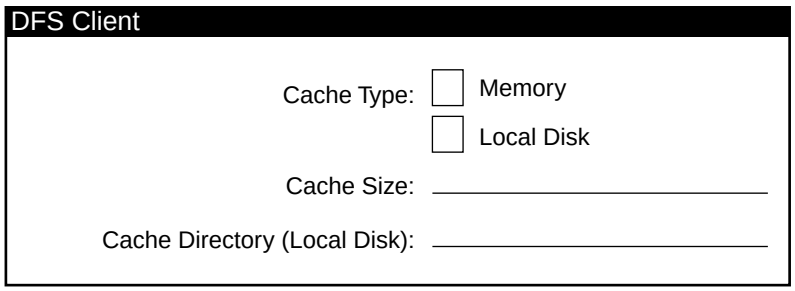


Table 1-5: Using the DFS Configuration Worksheet for DFS Clients

Cache Type	The type of cache your system will use for DFS caching. The choices are disk or memory. If you choose a memory cache, the system will not perform disk caching even if there is disk space available. In addition, a memory cache is permanently allocated from system memory and is typically smaller than a disk cache.
Cache Size	The size of the DFS cache in kilobytes. For disk caching, the default is 10,000 kilobytes (10 MB). For memory caching, the default is 1000 kilobytes (1 MB).
Cache Directory	The name of the caching directory. The default is **/opt/dcelocal/var/adm/dfs/cache**. Entegrity recommends that you dedicate a disk partition for DFS caching and use that directory name as the cache directory (for disk caching only). For cluster configurations, the **cache directory must be member specific**. The dfssetup script will make the cache directory member specific (CDSL) during cluster configuration.

1.7 Modifying the Configuration for Startup

Most DFS configurations use default settings when starting DFS processes on various machines. Thus, most users can skip the information in this section and proceed to the configuration instructions in *Chapter 2*.

Gradient DFS provides a configuration file called **opt/dcelocal/etc/setup_state**. This file lets advanced users specify non-default options for commands (**dfsd**, **dfsbind**, and **fxd**) that **dfssetup** executes to start DFS processes on the local server or client machine.

The **setld** process that installs the DCE software subsets checks whether the **setup_state** file is present, and installs it if it is not present. The unmodified **setup_state** file includes the following default settings:

```
DFSD_OPTS=""
DFSBIND_OPTS=""
DFSFXD_OPTS="-mainprocs 7"
```

Use any ASCII editor to modify the file. The following example shows a modified **setup_state** file.

```
DFSD_OPTS="-mainprocs 2 -tokenprocs 2 -files 300"

DFSBIND_OPTS="-expressprocs 1 -regularprocs 1 -junctionlife 86400
-prefixlife 86400 -notfoundlife 3600"

DFSFXD_OPTS="-mainprocs 4"
```

Use the **setup_state** file to set any options to the **dfsd**, **dfsbind**, and **fxd** commands as necessary. Refer to the appropriate reference pages in the *OSF DCE DFS Administration Guide and Reference*.

NOTE: The **setld** program does not overwrite the **setup_state** file if it exists. However, some operations like clobber delete this file. If you modify the file, be sure to keep a copy of the modified file in a safe place.

CHAPTER 2

Configuring the DCE DFS Services

2.1 Getting Started

This chapter explains how to configure the Gradient DFS for Tru64 UNIX software. Make sure you complete the DFS Configuration Worksheet (see *Chapter 1*) before you begin.

After you install the DCE DFS software on the system, rebuild the kernel, and reboot the system, configure the software by invoking the **/usr/sbin/dfssetup** script. Alternatively, you can choose option 9 from the DCE Configuration Choice Menu to the display the DFS Setup Main Menu.

You need superuser privileges in order to configure DCE DFS on the system.

/usr/sbin/dfssetup

```
***  DFS Setup Main Menu  ***
     Gradient DFS Version V4.1 for Tru64 5.1 (rev 1391)
```

Version x.x (rev xxx)

```
1)  Configure   Configure DFS services on this system
2)  Show        Show DFS configuration and active daemons
3)  Stop        Terminate all active DFS daemons
4)  Start       Start all DFS daemons
5)  Restart     Terminate and restart all DFS daemons
6)  Clobber     Terminate all active DFS daemons and remove
                all permanent local DFS databases
7)  Version     Show DCE DFS Version number
X)  Exit
Please enter your selection: 1 <Return>
```

Choose option 1, “Configure DFS services on this system,” to view the DFS Configuration Choice Menu. All DFS configuration options appear on this menu. Choose the options that apply to your system.

```
***  DFS Configuration Choice Menu  ***
1) Configure this system as a DFS Client
2) Configure a new cell: DFS Primary FLDB Server
3) Configure this system as a DFS File Server
4) Configure this system as a DFS System Control Machine
5) Configure DFS in TruCluster/Sierra Cluster
R) Return to previous menu
Please enter your selection (or '?' for help):
```

Use the information in *Table 2-1* with menu options 1 through 4.

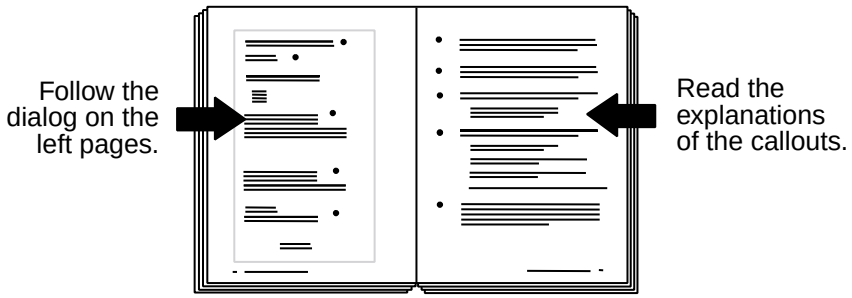
Table 2-1: Configuring DFS

To configure a:	Perform this action:
FLDB server	Enter **2** and press <**Return**>. Go to *Section 1.6.1 on page 10*. **Note:** Because this is a new cell, you need to create at least one primary Fileset Location Database (FLDB) server. See the OSF DCE documentation for information on configuring additional FLDB servers in an existing DFS cell.
DFS file server	Enter **3** and press <**Return**>. Go to *Section 1.6.3 on page 12*
DFS client	Enter **1** and press <**Return**>. Go to *Section 1.6.2 on page 12*
System Control Machine	Enter **4** and press <**Return**>. Go to *Section 1.6.4 on page 14* **Note:** If you want to create a separate System Control Machine and FLDB server, you must configure the System Control Machine before configuring the FLDB server.
Cluster	Enter **5** and press <**Return**>. Go to *Section 1.6.5 on page 14*

Enter **R** to display the DFS Setup Main Menu.

Figure 2-1 shows how to use the information in each section of this chapter.

Figure 2-1: Using Chapter 2



Throughout each section, default answers appear in brackets in the examples. Press <**Return**> to accept the default or supply the requested information.

2.2 Configuring the DFS Primary FLDB Server

See the facing page for instructions corresponding to the bold numbers on the right, below:

```
     Configuring DFS Fileset Location Database Server...

Cell Administrator's principal name [cell_admin]: <Return> 1
Password: <Return> 2
Removing temporary local DFS databases and configuration files
Shutting down DFS services
DFS services stopped
Removing permanent local DFS databases and configuration files

     Removing DFS Services database...

     Removing files in /opt/dcelocal/var/dfs/adm...

     Removing files in /opt/dcelocal/var/dfs/backup...

     Removing files in /opt/dcelocal/var/dfs/aggrs...

     Removing files in /opt/dcelocal/var/dfs...

     Removing startup/shutdown files...

     Removing cache files in /opt/dcelocal/var/adm/dfs...

     Modifying the registry database for DFS server operation...

     Starting bosserver...

>>> group member added

Current site is: registry server at /.../tub_cell/subsys/dce/sec/master

Domain changed to: group


Checking for a Ubik sync site in  hosts/tub

Host /.:/hosts/tub is now the sync site

     Enter the name of the system control machine [tub]: <Return> 3

          1) Unix File System (UFS)

          2) POLYCENTER Advanced File System (AdvFS)

     Enter the filesystem type for root.dfs: <Return> 4

     Enter the device name for the DFS root aggregate

     for example, /dev/rz3h) : 5

          Ensure this is a valid, mounted filesystem partition.
```

The host name for this script is **tub**.

1 If DCE is configured, the current cell administrator's principal name is displayed as the default. Press **<Return>** to accept the default.

2 Enter the cell administrator's password. This is identical to the password entered during DCE configuration.

3 Enter the name of the system control machine.

If a System Control Machine (SCM) has already been configured, the current SCM is the default. If no SCM is configured, the current system name is the default. Press **<Return>** to accept the default.

4 Enter the file system type for the DFS root fileset (**root.dfs**). Enter **1** for the Unix File System (UFS) or **2** for the POLYCENTER Advanced File System (AdvFS) and press **<Return>**.

5 This prompt is displayed if you select the UFS File System. Enter the device name for the DFS root fileset and press **<Return>**. There is no default.

```
     Enter the AdvFS fileset to be used for the DFS root
     (form: domain_name#fileset_name) : <Return> 6
     Ensure this is a valid, mounted AdvFS fileset.
     (use the '-t advfs' switch on the mount command)
     Press <RETURN> to continue, CTRL-C to exit:
     Fileset is mounted at [/export]: <Return> 7
     Enter numerical aggregate ID [1]: <Return> 8
          readWrite   ID 0,,1  valid
          readOnly    ID 0,,2  invalid
          backup      ID 0,,3  invalid
number of sites: 1
   server           flags     aggr   siteAge principal      owner
tub.zk3.dec.com     RW       1       0:00:00 hosts/tub      <nil>
FLDB entry created for fileset root.dfs (0,,1) on aggregate 1 of tub
Aggregate Id 1 is not exported from the server
          Starting dfsbind daemon (dfsbind)...
          Starting fxd...
fx: FX server starts listening...

     Modifying DFS system startup procedure...

DFS Client has not yet been configured.  Configure now? [y]: <Return> 9
          1) Memory
          2) Local Disk
     Enter cache type: <Return> 10
     Enter disk cache size (KB) [10000]: <Return> 11
     Enter disk cache directory [/opt/dcelocal/var/adm/dfs/cache]:
<Return> 12
     Enter RAM cache size (KB) [1000]: <Return> 13

Starting dfsd...

dfs: TKN server starts listening...
dfsd: start sweeping disk cache files ....
dfsd: All DFS daemons started.
     Modifying DFS system startup procedure...  14
```

6 This prompt is displayed if you select the AdvFS file system. Enter the AdvFS fileset name for the DFS root fileset and press **<Return>**. There is no default.

7 Enter the mount point for the DFS root fileset.

The default is the mount point for the device name (UFS) or AdvFS fileset. Press **<Return>** to accept the default. To change the default aggregate name, enter a new name.

8 Enter the aggregate ID associated with the DFS root fileset.

The default root aggregate ID is 1. Press **<Return>** to accept the default. To change the default root aggregate ID, enter a new ID.

9 If you answer **y**, the system prompts you for DFS client configuration information.

If you do not want to configure this system as a DFS client, enter **n** and press **<Return>**; the configuration is completed and the DFS Setup Main Menu is displayed.

The default answer is **y**.

10 Enter the type of cache your system will use for DFS caching: **1** for memory caching or **2** for local disk caching. Press **<Return>**.

11 This prompt is displayed if you select local disk caching. Enter the disk cache size.

The default is 10000 kilobytes (10MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

12 This prompt is displayed if you select local disk caching. Enter the name of the cache directory.

The default is **/opt/dcelocal/var/adm/dfs/cache**. Press **<Return>** to accept the default. To change the default value, enter a new value. Entegrity recommends that you dedicate a disk partition for DFS caching and use that directory name as the cache directory (for disk caching only).

13 This prompt is displayed if you select RAM caching. Enter the RAM cache size.

The default is 1000 kilobytes (1MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

NOTE: The memory value you use for the DFS cache is unavailable to your operating system and applications.

---

14 DFS FLDB server configuration is complete. The DFS Setup Main Menu is then displayed.

2.3 Configuring a DFS File Server

See the facing page for instructions corresponding to the bold numbers on the right, below:

```
    Configuring DFS File Server...
Cell Administrator's principal name [cell_admin]: <Return> 1
Password: <Return> 2
     Modifying the registry database for DFS server operation...
     Starting bosserver...
     Starting ftserver...
Enter the name of the system control machine:  splash  <Return> 3
     Starting upclient...
     1) Unix File System (UFS)
     2) POLYCENTER Advanced File System (AdvFS)
Enter the filesystem type for the aggregate to be exported: 1 <Return> 4
Enter the device name for the aggregate to be exported
(for example, /dev/rz3h) : <Return> 5
     Ensure this is a valid, mounted UFS filesystem partition.
Enter the AdvFS fileset to be exported.
(form: domain_name#fileset_name) : <Return> 6
Ensure this is a valid, mounted AdvFS fileset.
(use the '-t advfs' switch on the mount command)
Press <RETURN> to continue, CTRL-C to exit: <Return> 7
```

The host name for this script is **tub**.

1 If DCE is configured, the current cell administrator's principal name is displayed as the default. Press **<Return>** to accept the default.

2 Enter the cell administrator's password. This is identical to the password entered during DCE configuration.

3 Enter the name of the system control machine and press **<Return>**. There is no default.

4 Enter the file system type for the exported DFS aggregate. Enter **1** for the Unix file system (UFS) or **2** for the POLYCENTER Advanced File System (AdvFS). Press **<Return>**.

5 This prompt is displayed if you select the Unix file system. Enter the device name for the exported DFS aggregate and press **<Return>**. There is no default.

6 This prompt is displayed if you select the AdvFS file system. Enter the AdvFS fileset name to be exported and press **<Return>**. There is no default.

7 Press **<Return>** to continue with the configuration. Press **<Ctrl-C>** to exit the configuration.

NOTE: In order to make the newly exported fileset accessible to DFS clients, a mount point has to be created at some point in the DFS tree. The command to do so (using the fileset name in the example above) is:

fts crmount -fileset tub.rz3h -directory */:/some/path*

There should not exist any entity by the name you choose for the mount point (/:/*some/path* in the example) and you should have DCE credentials as somebody who has **w** permission to the parent directory of the mount point (/:/*some* in the example).

```
Fileset is mounted at [/user/users]:  <Return> 8

Enter a unique fileset name (for example, host.rz3h): tub.rz3h <Return> 9

Enter a unique numerical aggregate ID:  700 <Return> 10

     Exporting /dev/rz3h through DFS...

     If you wish to export additional aggregates, do so after
     completing this script by using the appropriate DFS
     administration commands described in the DFS Admin Guide.

Press <RETURN> to continue:   <Return> 11

    Starting dfsbind daemon (dfsbind)...

    Starting fxd...

fx: FX server starts listening...


Modifying DFS system startup procedure...


DFS Client has not yet been configured.  Configure now? [y]:  <Return> 12

     1) Memory

     2) Local Disk

Enter cache type: <Return> 13

Enter disk cache size (KB) (10000): <Return> 14

Enter disk cache directory (/opt/dcelocal/var/adm/dfs/cache): <Return> 15


Enter RAM cache size (KB) [1000]: <Return> 16

     Starting dfsd...

dfs: TKN server starts listening...

dfsd: start sweeping disk cache files ....

dfsd: All DFS daemons started.


Modifying DFS system startup procedure...   17
```

8 Enter the mount point for the exported file system. The default is the local mount point for the device name (UFS) or the local mount point for the AdvFS fileset. Press **<Return>** to accept the default. To specify a different mount point, enter a new mount point and press **<Return>**.

9 Enter the fileset name associated with the exported DFS fileset and press **<Return>**. There is no default.

10 Enter the aggregate ID associated with the exported DFS fileset and press **<Return>**. There is no default.

11 Press **<Return>** to continue with the configuration.

12 If you answer **y**, the system prompts you for DFS client configuration information.

If you have already configured this system as a DFS client, enter **n** and press **<Return>**; the configuration is completed and the DFS Setup Main Menu is displayed.

The default answer is **y**.

13 Enter the type of cache your system will use for DFS caching: **1** for memory caching or **2** for local disk caching. Press **<Return>**.

14 This prompt is displayed if you select local disk caching. Enter the cache size.

The default is 10000 kilobytes (10MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

15 This prompt is displayed if you select local disk caching. Enter the name of the cache directory.

The default is **/opt/dcelocal/var/adm/dfs/cache**. Press **<Return>** to accept the default. To change the default value, enter a new value. Entegrity recommends that you dedicate a disk partition for DFS caching and use that directory name as the cache directory (for disk caching only).

16 This prompt is displayed if you select RAM caching. Enter the RAM cache size.

The default is 1000 kilobytes (1MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

NOTE: The memory value you use for the DFS cache is unavailable to your operating system and applications.

---

17 DFS file server configuration is complete. The DFS Setup Main Menu is then displayed.

2.4 Configuring a DFS Client

NOTE: Before configuring a DFS client on Sierra Cluster 2.0, be sure to refer to section 9.4 of the Compaq *Alpha Server SC™ 2.0 Installation Guide*. Follow that guide to make sure the local /tmp directory is available before you start configuration.

See the facing page for instructions corresponding to the bold numbers on the right, below:

```
          1) Memory
          2) Local Disk
     Enter cache type: <Return> 1
     Enter disk cache size (KB) [10000]: <Return> 2
     Enter disk cache directory
[/opt/dcelocal/var/adm/dfs/cache]: <Return> 3
     Enter RAM cache size (KB) [1000]: <Return> 4

          Starting dfsd...
dfs: TKN server starts listening...
dfsd: start sweeping disk cache files ....
dfsd: All DFS daemons started.

     Modifying DFS system startup procedure...  5
```

NOTE: Before configuring a DFS client on Sierra Cluster 2.0, be sure to refer to section 9.4 of the Compaq *Alpha Server SC™ 2.0 Installation Guide*. Follow that guide to make sure the local /tmp directory is available before you start configuration.

---

1 Enter the type of cache your system will use for DFS caching: **1** for memory caching or **2** for local disk caching. Press **<Return>**.

2 This prompt is displayed if you select local disk caching. Enter the cache size.

The default is 10000 kilobytes (10MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

3 This prompt is displayed if you select local disk caching. Enter the name of the cache directory.

The default is **/opt/dcelocal/var/adm/dfs/cache**. Press **<Return>** to accept the default. To change the default value, enter a new value. Entegrity recommends that you dedicate a disk partition for DFS caching and use that directory name as the cache directory (for disk caching only).

4 This prompt is displayed if you select RAM caching. Enter the RAM cache size.

The default is 1000 kilobytes (1MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

NOTE: The memory value you use for the DFS cache is unavailable to your operating system and applications.

---

5 DFS client configuration is complete. The DFS Setup Main Menu is then displayed.

2.5 Configuring a DFS System Control Machine

See the facing page for instructions corresponding to the bold numbers on the right, below:

```
 Cell Administrator's principal name [cell_admin]:
<Return> 1
     Password: <Return> 2
          Modifying the registry database for DFS server operation...
          Starting bosserver...
          Creating BOS admin lists...
          Starting upserver...
     Modifying DFS system startup procedure...
```

1. If DCE is configured, the current cell administrator's principal name is displayed as the default. Press **<Return>** to accept the default.
2. Enter the cell administrator's password. This is identical to the password entered during DCE cell configuration.

   DFS System Control Machine configuration is complete. The DFS Setup Main Menu is then displayed.

2.6 Configuring All Cluster Members as DFS Clients

Navigate to the Cluster Configuration Choice Menu.

From the DFS Setup Main Menu, select option 1:

```
Configure DFS services
```

From the DFS Configuration Choice Menu, select option 5

```
Configure DFS in TruCluster/Sierra Cluster
```

You'll obtain the Cluster Configuration Choice Menu:

```
  ***  Cluster Configuration Choice Menu  ***
1) Configure this member as a DFS Client
2) Configure all cluster members as DFS clients
R) Return to previous menu

Please enter your selection (or '?' for help):2
Configuring DFS Clients in cluster...
```

Select option 2.

```
Beginning of remote DFS client configuration
```

Complete the following prompts according to the steps on the facing page. Bold numbers on the right correspond to those steps.

```
Select the type of DFS cache desired
  1) Memory
  2) Local Disk
Enter cache type: 2 <Return>                    1
Enter disk cache size (KB) [10000]: <Return>    2
Enter disk cache directory [/opt/dcelocal/var/adm/dfs/cache]: <Return> 3
Do you wish to overwrite existing DFS configurations on ALL cluster members?
(y/n) [y]:   <return>                           4

Remote configuration requires that you be authenticated as a member
of the sec-admin group. Please supply the principal and password.

Enter Principal Name: cell_admin  <return>      5
Password:   <return>        (NOTE: PASSWORD is not echoed)
```

1 Enter the type of cache your system will use for DFS caching: **1** for memory caching or **2** for local disk caching. Press **<Return>**

(Example chose 2, so displayed the prompt to enter cache size.)

2 Enter the cache size.

The default is 10000 kilobytes (10MB). Press **<Return>** to accept the default. To change the default value, enter a new value.

3 This prompt is displayed if you select local disk caching. Enter the name of the cache directory.

The default is **/opt/dcelocal/var/adm/dfs/cache**. Press **<Return>** to accept the default. To change the default value, enter a new value. Entegrity recommends that you dedicate a disk partition for DFS caching and use that directory name as the cache directory (for disk caching only). For cluster configurations, the **cache directory must be member specific**. The dfssetup script will make the cache directory member specific (CDSL) during cluster configuration.

4 Choose the default to overwrite the existing DFS configurations.

NOTE: If you have esisting DFS configurations on some cluster members, and wish to preserve them, then answer “N“. Otherwise all cluster members will be configured.

---

5 Enter the principal cell name and press <return>

Enter your password and press <return>.

```
Configuration Options

DFS Client:                      YES
Cache type:                      Disk
Cache size:                      10000
Cache directory:                 /opt/dcelocal/var/adm/dfs/cache
Remote configuration overwrite:  YES
Cell admin account:              cell_admin
Cell admin password:             *****

Confirm the configuration choices (y/n) [y] :  <return>  6
Configuring Cluster Member: clu1
clu1:
clu1:               Remote configuring DFS client
clu1:
clu1:       DFS Client:                      YES
clu1:       Cache type:                      Disk
clu1:       Cache size:                      10000
clu1:       Cache directory:                 /opt/dcelocal/var/adm/dfs/cache
clu1:       Remote configuration overwrite:  YES
clu1:       Cell admin account:              cell_admin
clu1:       Cell admin password:             *****
clu1:
clu1:               Starting dfsbind daemon (dfsbind)...
clu1:               Starting dfsd...
clu1:       dfsd: start sweeping disk cache files ....
clu1:       dfsd: All DFS daemons started.
clu1:
clu1:               Modifying DFS system startup procedure...
clu1:
clu1:               Remote DFS client configuration completed.
clu1:
clu1:
Press <RETURN> to continue:                          7
```

6 Confirm the configuration choices presented on the screen by pressing <return>. The screen then indicates steps until completion.

7 Press <return> to continue to other operations.

The following message appears on the output when DFS is configured on a TruCluster System. This is due to a limitation of the CFS file system and should be corrected in a future version of the TruCluster software. The message indicates that the DFS file cannot be mounted on the machine in the cluster and therefore DFS will not function. This message does not appear on Sierra Cluster 2.0 machines.

```
clu1:       dfsd: can’t mount DFS on /... (code 0)
```

CHAPTER 3

Using Other DCE DFS Commands

3.1 DCE DFS Setup Configuration Commands

This chapter describes the DFS setup configuration commands and what to do in case an error occurs during the DCE DFS configuration process.

Table 3-1 describes the DCE DFS configuration setup commands. This information is available by running **/usr/sbin/dfssetup**

Table 3-1: DFS Setup Configuration Commands

Command	Description
config	Displays the DFS Configuration Choice Menu.
show	Displays the current DCE DFS configuration in read-only mode. You do not need special privileges to execute this command.
stop	Terminates all active DCE DFS daemons, except for **fxd** and **dfsd**. To terminate those daemons, reboot the system.
start	Starts all DCE DFS daemons based on the current DCE DFS configuration. You must have superuser privileges to use this command.
restart	Terminates all active DCE DFS daemons (except for **fxd** and **dfsd** and restarts the daemons based on the current DCE DFS configuration. You must have superuser privileges to use this command.
clobber	Terminates all active DCE DFS daemons (except for **fxd** and **dfsd** and deletes all permanent local databases associated with DCE services on this system. You must have superuser privileges to use this command. After you execute this command, you must reconfigure the DCE DFS Services on this system because **clobber** returns the system to the state it was in during the installation before the initial DCE DFS configuration was performed. To restart the daemons after executing the **clobber** command, reboot the system, then use **dfssetup config**.
exit	Allows you to exit from the DCE DFS Setup Main Menu.

3.2 Recovering From Configuration Errors

If you receive an error message at any time while running the DCE DFS configuration utility, you can get more detailed information about the cause of the error by examining the **/opt/dcelocal/dfssetup.log** file. This log file contains a record of the operations invoked by the DCE DFS configuration utility the last time it was executed, and might help you diagnose the cause of the problem.

NOTE: Because the log file is created whenever **dfssetup** is invoked, Entegrity recommends that you copy the log file before running **dfssetup** again. That way information about any error condition will not be lost.

Sometimes the cause of an error is transitory and may not recur if you repeat the operation. Use the **/usr/sbin/dfssetup restart** command to retry if errors are encountered during the startup of the DFS daemons.

APPENDIX A

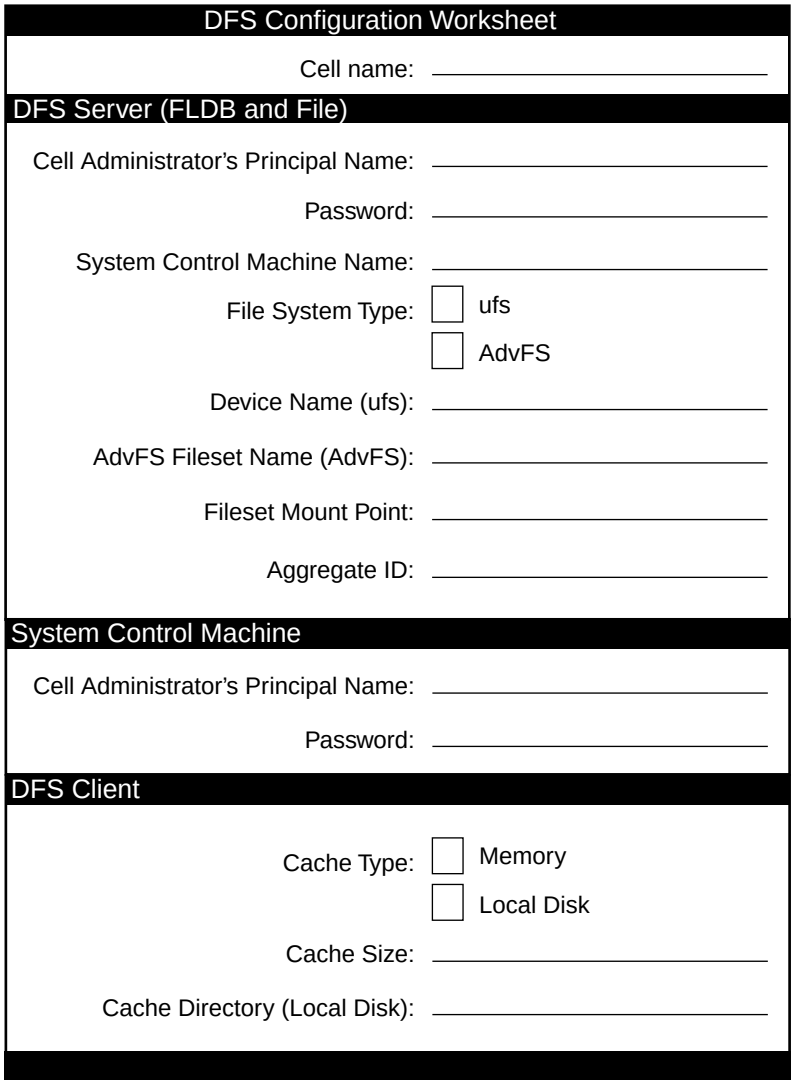
DFS Configuration Worksheet

A.1 Blank Worksheet

This appendix contains a blank DFS Configuration Worksheet, *Figure A-1*, for you to copy and use when you prepare to configure the DCE DFS service.

Chapter 1 explains, section by section, all the information you need to complete the worksheet.

Figure A-1: DFS Configuration Worksheet



Index

T

V