



Distributed Computing Environment for AIX, Version 2.2:

Release Notes



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DCE for AIX, Version 2.2 : Release Notes

Introduction

This document contains information about the DCE for AIX, Version 2.2 (DCE 2.2) release. It applies to the following Licensed Program Products (LPPs):

- DCE 2.2 for AIX, Version 2.2
- DCE Base Services for AIX, Version 2.2
- DCE Enhanced Distributed File System for AIX, Version 2.2
- DCE NFS to DFS Authentication Gateway for AIX, Version 2.2
- DCE User Data Masking Encryption Facility for AIX, Version 2.2
- DCE Data Encryption Standard Library for AIX, Version 2.2
- DFS Starter Kit for AIX, Version 2.2

Highlights of This Release

IBM DCE for AIX, Version 2.2 is based upon the Open Software Foundation's DCE Version 1.2.2 release. The following are significant items that have been added since the IBM DCE for AIX, Version 2.1 release.

Significant OSF Additions

Significant items added by OSF in the DCE 1.2.2 release that are supported by IBM DCE for AIX, Version 2.2 include:

Kerberos V5 interoperability

The DCE security service includes an implementation of the MIT Kerberos Version 5 (V5) authentication and key distribution service. Prior to DCE 1.2.2 there had been no formal OSF DCE interoperability commitments.

DCE 1.2.2 enhances the high degree of interoperability that existed in previous releases with the committed support for the IETF-RFC 1510 protocol. The protocol formally allows Kerberos V5 applications running on either DCE or non-DCE platforms to access the DCE security server as a full-function IETF-RFC 1510 Kerberos server. The DCE security server's interoperability has been tested against MIT Kerberos, Version 5 release beta 4 and beta 5.

Public Key support

DCE 1.2.2 allows public key technology to be used to support login. With this technology, the security server does not need to store the long term key (or password) for a principal so that it will remain undisclosed should any compromise of the security server occur. Administrators can specify that some principals may use the pre-DCE 1.2.2 mechanisms while others have access to the public key mechanism.

At login, public key users receive credentials that allow them to use the current (Kerberos-based) DCE authentication mechanism while retaining full interoperability with existing DCE releases. A new pre-authentication protocol is used. The login client does not have to determine whether a given user is public key-capable prior to requesting credentials.

User-to-user authentication

The user-to-user authentication facility provides an alternate Ticket Granting Service (TGS) protocol as defined in IETF-RFC 1510. In particular it is now possible to direct a protected RPC to a program that only has a login context, and no key table (file) or other access to a long-term key.

Global groups

DCE 1.2.2 allows principals from a foreign cell to be added to groups in the local cell. This makes enterprise-wide security administration easier.

Single-threaded RPC

With DCE 1.2.2, nonthreaded datagram RPCs can now be written, simplifying the task of application development.

Scalability improvements to security

Memory management in the security server has been enhanced to be more efficient when processing updates to the registry database. This will particularly benefit cells with large number of principals and updates to the registry.

The checkpoint interval for each security server replica is now configurable. This allows the cell administrator to set the times and intervals when a replica will checkpoint (save to disk) the registry database.

DFS server multi-home support

DFS has been enhanced to make better use of environments that have multiple network interfaces on DFS File Server machines.

DFS backup performance enhancements

A number of performance bottlenecks have been eliminated in the behavior of DFS backups, dumps, and restores:

- A "bulk update" operation has been added, allowing the master sync site to send sets of updates to each secondary server in a single RPC.
- The master sync site now updates secondary servers asynchronously, and works on the subsequent batch of changes in parallel with the RPC calls being performed.
- Database transactions are no longer committed asynchronously, so that all servers now do commit processing in parallel.

Data Communication Security in DFS

DFS now includes support to establish and modify the RPC protection level for communications between the DFS Clients and File Servers. By default, such communications use packet level protection for local cell access and packet integrity level for non-local cell access. The default can be changed at configuration time or by using the DFS **cm** command.

IDL C++ support

IDL C++ support allows client programs that are written in C++ to use DCE RPC in a transparent manner by using C++ constructs. In DCE 1.2.2, the IDL language has been extended to support C++ features such as inheritance and object references.

IBM Enhancements

Significant improvements added by IBM to the DCE for AIX, Version 2.2 release include:

Internationalization

DCE 2.2 now has naming extensions for internationalization. It is being translated into several language versions.

Global Directory Agent (GDA) over LDAP

Global Directory Agent (GDA) over LDAP is an extension to GDA that allows the resolution of non-DNS style foreign cell names. X.500 directories and any directories that support the LDAP protocol can be used to establish intercell communication.

Improved SMP Performance

The connection-oriented RPC has been improved to provide greater scalability on multiprocessor clients and servers.

Slim client configuration

A new client configuration option has been added. It reduces DCE memory consumption on client systems and simplifies client administration.

Password Strength Server

The Password Strength Server originally provided in OSF DCE 1.1 and as a PTF on IBM DCE 2.1 is now available on DCE 2.2. It provides the tools necessary to develop customized password management servers and to call them from client password change programs.

DCE Event Management Service (EMS)

Event Management Service (EMS) provides asynchronous event support for DCE based applications. DCE EMS manages event services in a DCE cell. EMS consists of two parts - the emsd (EMS daemon) server and APIs to access event services through an interface to the suppliers, consumers, and event service administration for use by EMS clients.

DCE Simple Network Management Protocol (SNMP) Agent

Simple Network Management Protocol (SNMP) provides network management support in the TCP/IP environment for monitoring DCE resources and services. System administrators and system management application programmers can use SNMP to easily monitor the DCE environment so that they can focus on making their resources and services more manageable.

New configuration utilities

The dcecp control program offers a common command line interface for managing DCE services. DCE 2.2 provides the following configuration utilities:

- **clean_up.dce**
- **config.dce**
- **config.dfs**
- **mkreg.dce**
- **rmreg.dce**
- **start.dce**
- **start.dfs**
- **stop.dce**
- **stop.dfs**
- **unconfig.dce**
- **unconfig.dfs**

CDS Update Propagation

CDS updates are now propagated immediately to all relevant clearinghouses.

DCE Web Administration Utilities

DCE Web Administration Utilities are made up of DCE Web Administration and DFS Web Secure. The DCE Web Administration interface allows you to administer DCE users, groups, organizations, and ACLs and DFS filesets, aggregates, and fileset servers from any web browser. The advantage of this is that you can administer the DCE cell from a machine that is not configured into the cell. The DFS Web Secure product provides DCE credentials to CGI programs and provides authenticated access to documents residing in the DFS file space through web browsers.

Audit support and new audit APIs

The DCE audit service is a feature of OSF DCE 1.1, was shipped as a PTF to IBM DCE 2.1 and is available in IBM DCE 2.2. It provides the capability to log critical events in a DCE application server.

Events can be logged in audit records based on specified criteria. APIs are provided which can be used in application server programs to record audit events. APIs are also provided to analyze audit records, and IBM provides enhancements to those provided by OSF. The DCE security server uses the audit service and has specific events which can be audited.

Scalability improvements for AIX/DCE Security Integration

The dceunixd daemon used for AIX/DCE security integration operations ("integrated-login") has been enhanced to allow several daemons to run simultaneously. This can improve the scalability of integrated security operations on large or heavily loaded systems.

DFS support for files larger than 2 GB

Note: This support is only available if you are running AIX DCE 2.2 on systems with AIX 4.2.1 or higher.

With this release, DFS supports file sizes of greater than 2GB. To use files greater than 2GB, both the DFS client and server have to support large files.

DFS support for files larger than 2 GB includes the following:

- DFS client support to access files larger than 2 GB
- DCE LFS support of files larger than 2 GB
- dfsexport of DCE LFS and JFS filesystems that support files larger than 2 GB

- interoperability with DFS servers or clients that do not support large files
- Fileset management operations for filesets containing larger than 2 GB files, including fileset movements, dump/restore, replication, and backup systems support.

DFS client support for persistent requests

In the DFS network model, when the DFS client makes RPC calls to DFS File Servers or related services, it sometimes encounters conditions that cause errors to be returned to the applications accessing the DFS data. Most applications fail as a result of these errors. There are environments where this is undesirable. For examples long running tasks, batch processing systems, or unattended tasks. Conditions that cause a loss of access to DFS are: network outages, machine failures, and loss of access to DCE core services.

In some environments, it is desirable to have the task block or wait for the unreachable resources to become available and then continue processing. Client Persistent Requests enable DFS to do this type of request handling. It is configurable on a per-client basis at DFS configuration time or after configuration using the DFS **cm** command.

Stop and start dfpd and fxd without rebooting

Prior to DCE 2.2, the dfpd daemon on a DFS client machine and the fxd daemon on a DFS server machine could not be stopped until the machine was shut down. With DCE 2.2, both dfpd and fxd can be stopped and restarted without a shut down and reboot.

Note: It is still necessary to reboot if you have reconfigured your DCE cell, reconfigured DFS on this machine, or installed a new version of DFS with updates to the DFS kernel drivers.

Preferred Security Replica

This feature allows a cell administrator to prioritize a DCE client's use of security server replicas within a cell. This can improve the performance and efficiency when a client attempts to contact a security server to authenticate or to perform registry operations.

Read the following information before installing DCE Version 2.2 for AIX.

README File

The `/usr/lpp/dce.client/lpp.README` file contains information about the installation and configuration of DCE Version 2.2 for AIX as well as notes on known problems and limitations.. You can view the README file from the command line by using the **installp** command or by using the **SMIT** interface.

To view the file using the **installp** command, you must have the CD-ROM mounted to a directory on your file system. Type the following command:

```
installp -d directory/usr/sys/inst.images dce.client
```

where *directory* is the directory to which you have mounted the CD-ROM. For example, if you have the CD-ROM mounted to `/mnt`, the argument for the **-d** command would be `/mnt/usr/sys/inst.images`.

To view the README file from within the **SMIT** interface, do the following:

1. Select **Software Installation and Maintenance**.
2. Select **Install and Update Software**.
3. Select **List User Instructions for Update Media**.
4. At the **INPUT device/directory for software** field, press the **F4** key to display a list of devices. Move the cursor to `/dev/cd0` or the name of the device that specifies your CD-ROM drive, and then press Enter.
5. Type `dce.client` in the **SOFTWARE name** field and then press Enter.

Supported Versions of AIX

DCE for AIX, Version 2.2 supports the following releases of the AIX operating system:

- AIX Version 4.1.5
- AIX Version 4.2.1

Before You Install

In addition to the base operating system requirements, additional AIX software updates may be required. These AIX updates will be provided on the installation media and will automatically be installed when DCE/DFS is installed. The following describes the DCE/DFS filesets and the AIX software updates that they require. See Table 1 on page 8 for a listing of the prerequisite software.

Prerequisite Software

Table 1 lists the DCE 2.2 for AIX filesets in the order in which they are installed.

Note: Software names beginning with dce are at the same release level as the shipped DCE product.

Table 1. Installation filesets and prerequisite software

Fileset You Are Installing	Prerequisite ¹ , Corequisite ² , and Instreq ³ Software Names	Prerequisite Software Description
dce.pthreads.rte	bos.rte ¹	AIX Base Operating System (BOS) Runtime (4.1.5.0 or 4.2.1.0)
dce.pthreads.rte	bos.rte.libpthreads ¹	libpthreads Library (4.1.5.5 or 4.2.1.1)
dce.client.core.rte	bos.net.tcp.client ¹	TCP/IP Client Support (4.1.5.0 or 4.2.1.0)
dce.client.core.rte	xlC.rte ¹	C Set # for AIX Application Runtime (3.1.3.0)
dce.client.core.rte	bos.adt.lib ¹	Base Application Development Libraries (4.1.5.0 or 4.2.1.0)
dce.client.core.rte	dce.pthreads.rte ¹	DCE Threads Compatibility Library for AIX
dce.client.core.rte	dce.client.core.rte.config ²	DCE Client Configuration Tools
dce.client.core.rte	dce.client.core.rte.security ²	DCE Client Security Tools
dce.client.core.rte	dce.client.core.rte.cds ²	DCE Client CDS Tools
dce.client.core.rte	dce.client.core.rte.time ²	DCE Client Time Tools
dce.client.core.rte	dce.client.core.rte.zones ²	DCE Client Time Zones
dce.client.core.rte	dce.client.core.rte.admin ²	DCE Client Administrative Tools
dce.client.core.rte	dce.client.core.rte.rpc ²	DCE Client RPC Tools
dce.client.core.rte.admin	dce.client.core.rte ¹	DCE Client Services
dce.client.core.rte.cds	dce.client.core.rte ¹	DCE Client Services

Table 1. Installation filesets and prerequisite software (continued)

Fileset You Are Installing	Prerequisite ¹ , Corequisite ² , and Instreq ³ Software Names	Prerequisite Software Description
dce.client.core.rte.config	dce.client.core.rte ¹	DCE Client Services
dce.client.core.rte.rpc	dce.client.core.rte ¹	DCE Client Services
dce.client.core.rte.security	dce.client.core.rte ¹	DCE Client Services
dce.client.core.rte.time	dce.client.core.rte ¹	DCE Client Services
dce.client.core.rte.zones	dce.client.core.rte ¹	DCE Client Services
dce.client.dfs.rte	dce.client.core.rte ¹	DCE Client Services
dce.client.dfs.rte	bos.up.rte ³ or bos.mp ³	Base Operating System Uniprocessor Runtime (4.2.1.7) or Base Operating System Multiprocessor Runtime (4.2.1.7). Note that these are only installed on 4.2.X.X levels of AIX.
dce.cdmf.rte	dce.client.core.rte ¹	DCE Client Services
dce.priv.rte	dce.client.core.rte ¹	DCE Client Services
dce.security.rte	dce.client.core.rte ¹	DCE Client Services
dce.cds.rte	dce.client.core.rte ¹	DCE Client Services
dce.dfs_server.rte	dce.client.dfs.rte ¹	DCE DFS Client Services
dce.dfsnfs.rte	dce.client.dfs.rte ¹	DCE DFS Client Services
dce.dfsnfs.rte	bos.net.nfs.server ¹	Network File System Server (4.1.0.0)
dce.doc.rte.ascii	dce.pthreads.rte ¹	DCE Threads Compatibility Library for AIX
dce.doc.en_US.ascii	dce.doc.rte.ascii ¹	DCE ASCII Browser and dceman
dce.doc.en_US.html		Web Browser
dce.doc.en_US.ps		
dce.edfs.rte	dce.dfs_server.rte ¹	DCE DFS Servers
dce.tools_admin.rte	dce.client.core.rte ¹	DCE Client Service
dce.tools_appdev.adt	dce.client.core.rte ¹	DCE Client Service

Table 1. Installation filesets and prerequisite software (continued)

Fileset You Are Installing	Prerequisite¹, Corequisite², and Instreq³ Software Names	Prerequisite Software Description
dce.xdsxom.rte	dce.threads.rte ¹	DCE Threads Compatibility Library for AIX
dce.compat.cds.smit	dce.cds.rte ¹	DCE Cell Directory Server
dce.compat.cds.smit	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.compat.client.core.smit	dce.client.core.rte ¹	DCE Client Service
dce.compat.client.dfs.smit	dce.client.dfs.rte ¹	DCE DFS Client Services
dce.compat.client.dfs.smit	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.sysmgmt	dce.client.core.rte ¹	DCE Client Service
dce.sysmgmt	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.compat.security.smit	dce.security.rte ¹	DCE Security Server
dce.compat.security.smit	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.compat.dfs_server.smit	dce.dfs_server.rte ¹	DCE DFS Servers
dce.compat.dfs_server.smit	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.compat.edfs.smit	dce.edfs.rte ¹	DCE Enhanced DFS Services
dce.compat.edfs.smit	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.compat.dfsnfs.smit	dce.dfsnfs.rte ¹	DCE NFS to DFS Authenticating Gateway
dce.compat.dfsnfs.smit	dce.compat.client.core.smit ¹	DCE SMIT Client Tools
dce.web.admin.rte	dce.web.secure.rte ¹	DCE Web Secure
dce.web.admin.rte	dce.web.admin.dat ²	DCE Web Secure Administration GUI Default Data
dce.web.admin.dat	dce.web.secure.dat ¹	DCE Web Secure Default Data
dce.web.admin.dat	dce.web.admin.rte ²	DCE Web Secure Administration GUI
dce.web.secure.rte	dce.client.core.rte ¹	DCE Client Services
dce.web.secure.rte	dce.web.secure.dat ²	DCE Web Secure Default Data
dce.web.secure.dat	dce.web.secure.rte ¹	DCE Web Secure

Table 1. Installation filesets and prerequisite software (continued)

Fileset You Are Installing	Prerequisite¹, Corequisite², and Instreq³ Software Names	Prerequisite Software Description
dce.sysmgmt.ems.rte	dce.client.core.rte ¹	DCE Client Services
dce.sysmgmt.snmpagt.rte	dce.client.core.rte ¹	DCE Client Services
dce.msg.en_US.pthreads.rte	dce.pthreads.rte ³	DCE Threads Compatibility Library for AIX
dce.msg.en_US.client.core.rte	dce.client.core.rte ³	DCE Client Service
dce.msg.en_US.client.dfs.rte	dce.client.dfs.rte ³	DCE DFS Client Service
dce.msg.en_US.compat.cds.smit	dce.compat.cds.smit ³	DCE SMIT Cell Directory Server
dce.msg.en_US.compat.client.core.smit	dce.compat.client.core.smit ³	DCE SMIT Client Tools
dce.msg.en_US.compat.dfsnfs.smit	dce.compat.dfsnfs.smit ³	DCE SMIT NFS to DFS Authenticating Gateway
dce.msg.en_US.compat.edfs.smit	dce.compat.edfs.smit ³	DCE SMIT Enhanced DFS Services
dce.msg.en_US.compat.security.smit	dce.compat.security.smit ³	DCE SMIT Security Server
dce.msg.en_US.compat.sysmgmt.ems.smit	dce.compat.sysmgmt.ems.smit ³	DCE SMIT Event Management Messages
dce.msg.en_US.compat.sysmgmt. \snmpagt.smit	dce.compat.sysmgmt. \snmpagt.smit ³	DCE SMIT SNMP Subagent Messages
dce.msg.en_US.dfs_server.rte	dce.dfs_server.rte ³	DCE DFS Servers
dce.msg.en_US.edfs.rte	dce.edfs.rte ³	DCE Enhanced DFS Services
dce.msg.en_US.web.admin.rte	dce.web.admin.rte ³	DCE Web Secure Administration GUI
dce.msg.en_US.web.secure.rte	dce.web.secure.rte	DFS Web Secure Messages
dce.msg.en_US.sysmgmt.ems.rte	dce.sysmgmt.ems.rte ³	DCE Event Management Services
dce.msg.en_US.sysmgmt.snmpagt.rte	dce.sysmgmt.snmpagt.rte ³	DCE SNMP SubAgent

Table 1. Installation filesets and prerequisite software (continued)

Fileset You Are Installing	Prerequisite ¹ , Corequisite ² , and Instreq ³ Software Names	Prerequisite Software Description
<p>Notes:</p> <p>The following language file sets can be substituted for the en_US file set: Ja_JP, Zh_TW, es_ES, Es_ES, ja_JP, ko_KR, or zh_TW.</p> <p>¹Prerequisite fileset(s) must be installed prior to the the fileset that you want to install. (The fileset can not be installed before the prerequisite fileset.)</p> <p>²Corequisite (Coreq) fileset(s) must be available to be installed when the fileset that you want to install is installed. (The order in which the filesets are installed is not important.) You can not deinstall one fileset with deinstalling others that it coreqs, or that coreq it.</p> <p>³Filesets that instreq other filesets will only be installed if the instreq'ed fileset is installed or available for installation. The fileset that is instreq'ed has no dependency upon the fileset instreq's it. (The order in which the filesets are installed is not important.) The fileset that instreq'ed another can be removed. The fileset that was instreq'ed can not be removed without removing the one that instreq'ed it.</p>		

To use the **dce.tools.appdev.adt** fileset for building DCE applications, the following filesets or equivalent options must be installed:

- bos.adt.syscalls**
System Calls Application Development Toolkit
- bos.adt.includes**
Base Application Development Include Files
- bos.adt.lib**
Base Application Development Libraries
- xlC.rte**
C Set ++ AIX Application Runtime

You must reboot your system in order for the updates to take effect.

DCE Hardcopy Documentation for Installation and Configuration

IBM DCE for AIX, Version 2.2 comes with a hardcopy version of *IBM DCE for AIX, Version 2.2: Quick Beginnings*. This book describes the IBM DCE 2.2 product and explains how to plan for, install, and configure DCE 2.2. It also contains information on how to print PostScript versions of the DCE on-line documentation for those customers who prefer hardcopy documentation.

DCE On-line Documentation

All DCE Version 2.2 for AIX on-line information is provided with the product along with the tools necessary for viewing it.

Packages and Filesets to Install

The **dce.doc** package contains documentation files for both ASCII and graphics terminals. You can install either or both sets, depending on your preference.

If you need support for an ASCII terminal, install the following filesets of **dce.doc**:

- **dce.doc.rte.ascii** — DCE ASCII Browser and **dceman**
- **dce.doc.en_US.ascii**— DCE ASCII Browser Files

Note: **en_US** can be substituted with the appropriate locale name.

If you need support for a graphics terminal, install the following filesets:

- **dce.doc.en_US.html**— HTML Documentation Files

Viewing the DCE On-line Documentation

The DCE Version 2.2 for AIX on-line documentation is provided in two file formats:

- HTML files that are viewable from any frame-enabled web browser, such as Netscape Navigator.
- ASCII files that are viewable with **asciiview**, the IBM ASCII browser.

The **start_dcedoc** program defaults to the appropriate viewer for your interface based on your **\$DISPLAY** environment variable. You also can use flags to specify which viewer you want **start_dcedoc** to start (**-g** for a graphical interface and **-a** for an ASCII interface).

Viewing the DCE On-line Documentation Using a Web Browser

Users with graphic interfaces can use a web browser such as the **Netscape Navigator** browser, which is included with the AIX operating system, to read the DCE documentation HTML files. The **Netscape Navigator** browser provides hypertext linking, navigation utilities, a hypertext index, graphical display of artwork, search and print facilities, a bookmark function, and an NLS-enabled On-line help utility. See the AIX documentation for information on installing the **Netscape Navigator** browser.

If you have installed the documentation files locally, use your web browser to view the DCE HTML documentation by opening the file:

```
/usr/lpp/dcedoc/html/en_US/index.html
```

Note: `en_US` can be substituted with the appropriate locale name.

If you have **DFS Web Secure** installed and configured into a **Netscape** web server, go to the URL:

```
http://servername/dceweb
```

From that web page select **DCE Documentation**.

Viewing the DCE On-line Documentation Using ASCIIVIEW

Users with ASCII interfaces can use **asciiview** to read the ASCII documentation files. The browser allows structured access to all the books in the DCE library from a central menu. You can select a book by title and then choose the entries you want from a table of contents. You also can retrieve chapters in books other than the one you're viewing without having to exit and restart the browser.

To start the **asciiview** viewer, type

```
asciiview
```

on the command line.



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