FILENET

Image Services

CSAR

Procedures and Guidelines

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1
Getting Started

This document describes procedures and guidelines for installing, configuring, and administering the Centera Storage and Retrieval product (CSAR). It is intended to be read by people who are familiar with the UNIX and/or Windows Server Operating Systems, as well as the FileNet Image Services software.

Installation Process

Installation of CSAR software is a two step process.

- The FileNet TC, or other FileNet Certified Professional (FCP), is responsible for installing, or updating, Image Services release 4.0.0 with Service Pack 1.
- The FileNet Professional Services System Consultant is responsible for installing the NLS Archive software.

A FileNet Professional Services System Consultant will contact your site to schedule your implementation. If you have any questions regarding implementation, please direct them to your FileNet Sales Team or FileNet Install/Upgrade Team.

Running CSAR will require space variable calculations to be made as well as configuration setup requirements. The Professional Services System Consultant will verify prerequisites, review configuration options, and assist the System Administrator with the required space calculations before installing, configuring, and running the CSAR software.

Overview

The Centera Storage and Retrieval product (CSAR) provides a method to store documents from FileNet Image Services to a Centera repository, and then retrieve them using native FileNet Image Services software.

What is Centera

Centera is a storage repository device manufactured by EMC Corporation. It utilizes a new category of storage called Content Addressed Storage (CAS). Rather than address a data object by its file name at a physical location, a CAS device uses a content address that is based on attributes of the content itself. This results in a unique identifier (or Content Address) that is used to store and retrieve the object.

This new data access paradigm is known as Content Addressing. Instead of requiring an application to store and retrieve static content in the traditional address location-based approach, Centera presents a flat address scheme to the archive program.

When a reference data object is initially stored in the Certera repository, the application is given a “claim check” that is uniquely derived from the object’s content. Subsequent retrievals of that data object are made by simply giving the claim check, that uniquely identifies the object, back to the repository, and the data object is returned.

The “claim check” referred to above, is called a CLIP ID. The CLIP ID is a package containing the user’s data (BLOB) and associated C-CLIP Descriptor File (CDF), or Meta-data stored in a tag form.

The Centera Storage and Retrieval (CSAR) product is comprised of two main components:

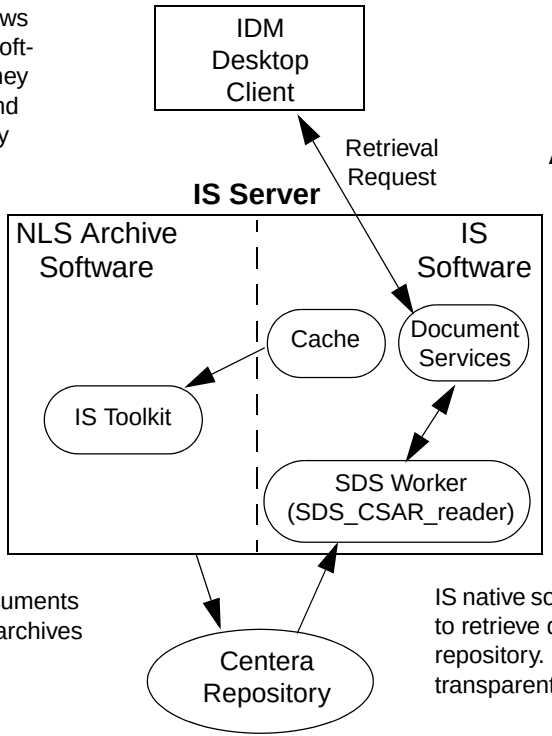
- **NLS Archive** - an existing FileNet Professional Services product for archiving/storing and retrieving IS documents to a Centera repository. (In this release, only the *archive* component is used.)
- **SDS Software**- The retrieval component of the Single Document Storage (SDS) program. This component of SDS has been integrated into IS 4.0.0 with *Service Pack 1*. (In this release, only the *retrieval* portion of the SDS product is used).

Note The SDS software includes SDS_CSAR_reader, the worker process used to retrieve documents from Centera repository. This process, SDS_CSAR_reader, is often referred to as the SDS Worker.

The CSAR system architecture overview is illustrated in the following diagram.

CSAR System Architecture

Note: Although this diagram shows the NLS Archive and IS Toolkit software installed on an IS Server, they do not need to coexist with IS and can, therefore, be located on any server.



NLS Archive software reads documents through IS Toolkit software and archives them to a Centera repository.

IS native software has been enhanced to retrieve documents from a Centera repository. Centera retrievals are transparent to the client.

NLS Archive

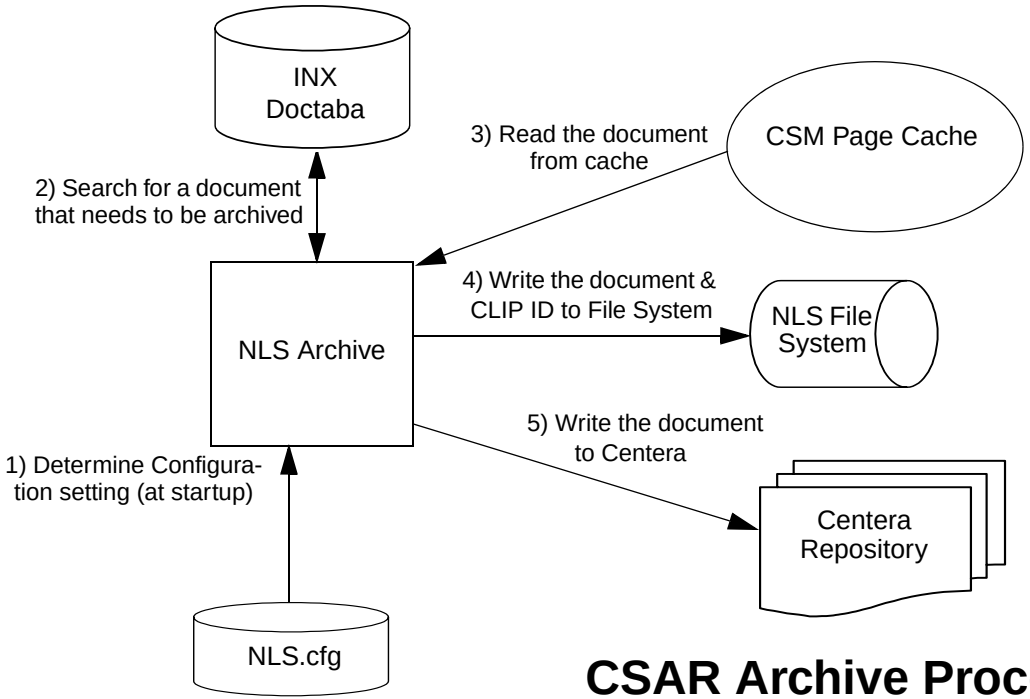
The NLS Archive storage function is the process that identifies documents to be archived, converts the documents into a FileNet BLOB (Binary Large Object) file, requests storage of the object, and updates the system to indicate that the documents have been archived. The BLOB file will be discussed further in the section, **"FileNet Specific Centera Object Format" on page 21**.

During this process, the NLS Archive program temporarily stores IS document images in an NLS File System, and then later moves them to a Centera object repository using Centera API calls.

Note Any type of file system may be used.

NLS Archive uses the FileNet IS Toolkit (a.k.a., WAL) software to extract documents from Image Services and store them in a Centera repository.

The following diagram illustrates the relationships between the major components of the CSAR NLS Archive process for storing documents.



CSAR Archive Process

Archive Process

Before archiving can begin two events must be in place.

- Images must be scanned into the system, indexed, and committed in the normal manner.
- NLS Archive software must be installed and configured with the NLS.cfg file. See **“NLS.cfg” on page 53** for more information.

Refer to the numeric order in the diagram above for component interaction that the NLS Archive process normally follows to archive a document.

1 NLS Archive reads configuration settings from the NLS.cfg file. This is done at startup.

2 NLS Archive searches for documents that are associated with document classes that have the FNP_ARCHIVE INX user index defined with a NULL value. (The Null value indicates that the document has not been archived yet.)

3 a If the document is not already in cache, the NLS Archive program submits a pre-fetch request for the document to be read into CSM page cache.

b If the document is already in cache, the NLS Archive program continues to Step 4 of the process.

4 The NLS Archive program reads the document from cache, forms a single document (object) file, and writes it to the NLS File System.

The single document (object) file includes a header portion and all pages in the document. After the document file has been written, the FNP_ARCHIVE index field is updated with the current date.

5 After the document file has been written, and the FNP_ARCHIVE index field has been updated with the current date, the NLS Archive program migrates the document from the NLS File System to the Centera repository.

CLIP ID

Once the document has been migrated to the Centera repository, a CLIP ID is returned from the repository. The NLS Archive program stores the CLIP ID in a CLIP ID file (<doc_id>.clipid), and/or in the FNP_CLIPID INX User Index.

Note The EmcDisposition settings in the NLS.cfg file determine whether the FileNet Object BLOB and CLIP ID file are retained in the NLS File System.

The system uses the CLIP ID to locate the document when a retrieval is requested.

FileNet Specific Centera Object Format

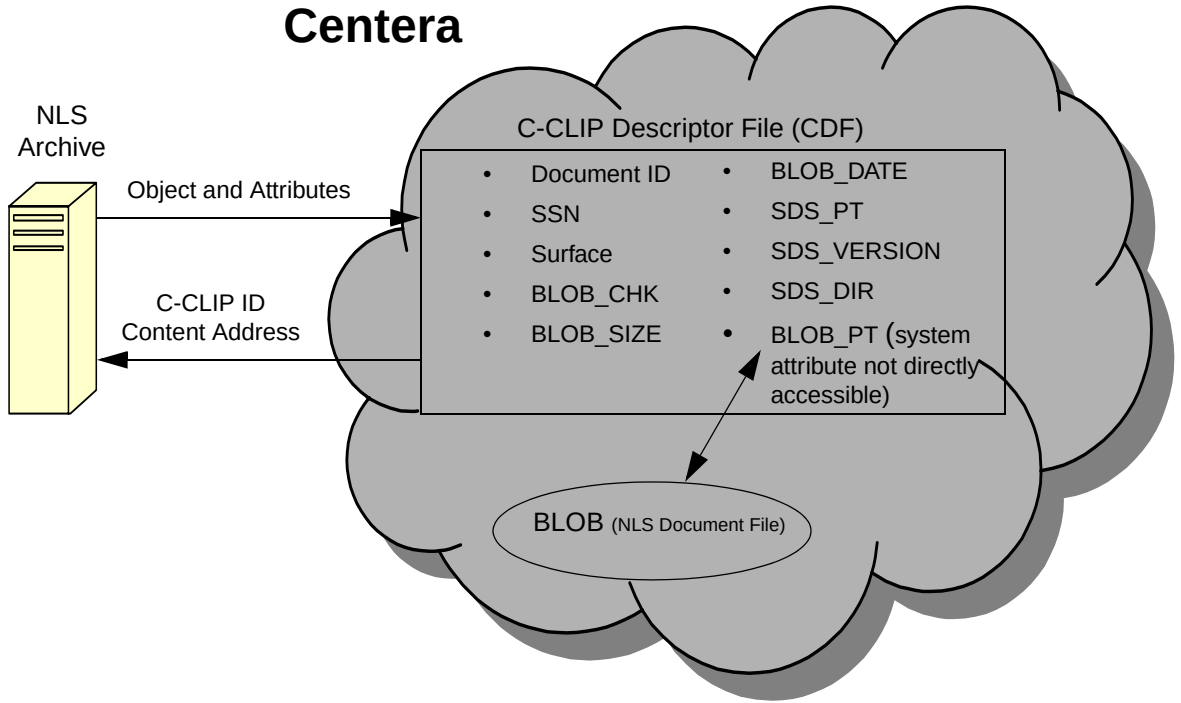
This section describes the FileNet specific meta-data stored with each document in the C-CLIP Descriptor File (CDF) and BLOB which contains the document. The BLOB includes header info and the TOC to each document image page.

When a data object is migrated to a Centera repository, it is stored there as a BLOB (Binary Large Object) file. A Centera top tag with the FileNet name is created for each document with the following tag attributes.

Attribute Name	Example	Description
F_DOCNUMBER	123456789	Original Doc Id
SSN	120000002	Original System Serial Number
SURFACE	5002	Original Primary Surface Number
BLOB_CHK	3245643	BLOB Checksum Generated by NLS
BLOB_SIZE	32768	BLOB Size
BLOB_DATE (Not Yet Implemented)		UTC (Coordinated Universal Time) of BLOB write

Attribute Name	Example	Description
SDS_PT (Not Yet Implemented)		• BLOB Page Table, fixed array of 1000 unsigned longs containing page offsets (this allows direct access to each page in the document) • First value is page count; first page offset is always 0. • Page count = 0 for Version 0, NLS format since the page table is in the BLOB already. • Max. 4K embedded BLOB
SDS_VERSION	0	• 0 = ISCC (NLS Format) • 1 = SDS (IMS Format)
SDS_DIR (Not Yet Implemented)		Document Index Record (DIR), embedded BLOB. This TAG attribute will store the DIR in a BLOB format.

When the top tab is created, a single BLOB object with the document file is written for each document as illustrated in the diagram below.


Centera
NLS Archive
Object and Attributes
C-CLIP ID Content Address
C-CLIP Descriptor File (CDF)
Document ID
SSN
Surface
BLOB_CHK
BLOB_SIZE
BLOB_DATE
SDS_PT
SDS_VERSION
SDS_DIR
BLOB_PT (system attribute not directly accessible)
BLOB (NLS Document File)

SDS Retrieval

Retrievals are done directly from a Centera object repository, using SDS Worker (SDS_CSAR_reader), the retrieval component of the SDS software.

Note Only one SDS unit is supported in this SDS release. The unit number in the sds_conf file will always be set to 1.

A document may also be retrieved from the NLS File System when disposition allows. The retrieval from Centera, or the NLS File System, will be transparent to the Image Services retrieval client software.

When a document is **not** resident in page cache, a retrieval of a document may be done from MSAR, optical, the NLS File System, or a Centera repository. If the requested document is located in more than one place, the SDS program retrieves the document based on the retrieval priority setting in the sds_conf file. For information on the sds_conf file, see **“Create SDS Configuration File” on page 85**.

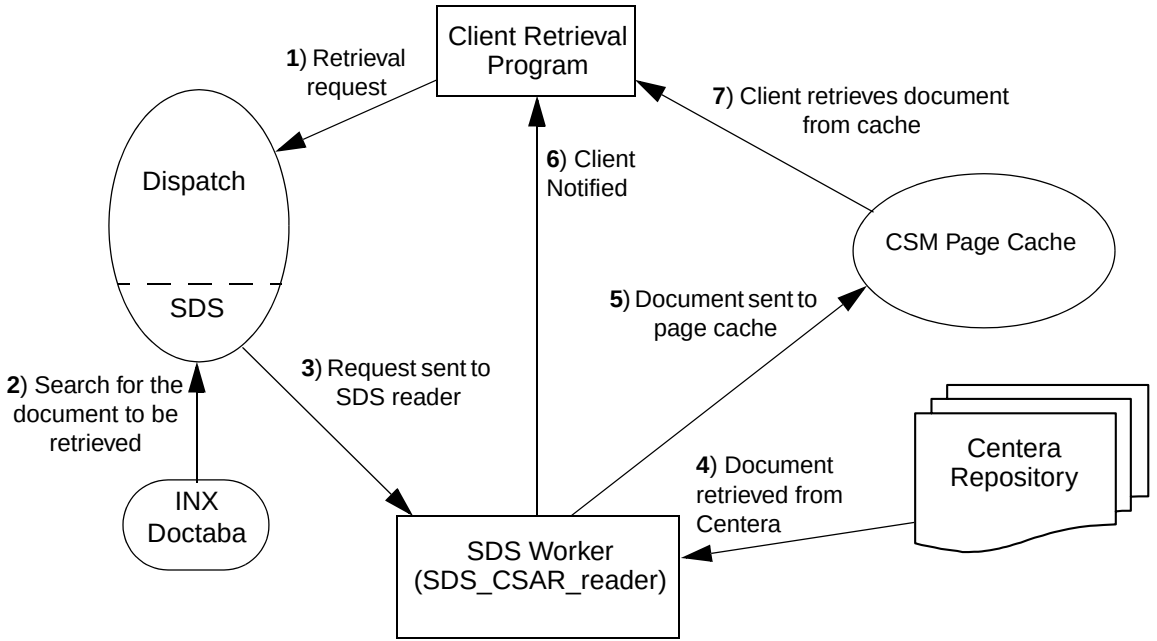
With CSAR, it is not necessary to integrate with a special client side library to access documents stored in a Centera repository. In addition, no changes to the client retrieval and display programs will be required to access documents stored in the Centera repository.

Retrieval Process

The dispatch software component of the IS software has been enhanced to know how to process retrieval requests for documents located in a Centera repository, as well as documents located in CSM page cache, or on an MSAR or optical surface. Retrieval requests are processed based on the retrieval priority setting in the sds_conf file. For more information, see **“Retrieval Priority (sds_priority)” on page 90**.

When processing a retrieval request from a Centera repository, the request is sent to the SDS Worker (SDS_CSAR_reader) process. Since the SDS Worker process is integrated into the IS 4.0.0 (Service Pack 1) software, the retrieval process is transparent to the user. Therefore, as long as the IS System server(s) are configured correctly, retrieval requests are made normally using the native Image Services software.

The following diagram illustrates the relationships between the major components of the CSAR Retrieval Process.



CSAR Retrieval Process

Refer to the numeric labels in the diagram above for the order of component interaction that the CSAR Retrieval process normally follows to retrieve a document from a Centera repository.

1 The retrieval request is sent to the Dispatch component. If the document is already in cache, there is no need to dispatch the request. The IS software indicates to the client that the document is in cache and retrieves the document from there.

2 If the document is not in cache, the dispatch process queries the INX Doctaba to determine if the document has been written to the Centera repository or the temporary NLS File System. Depending on the SDS priority setting, and the state of the SDS, the dispatch process may dispatch the request to an MSAR or optical surface.

Note The SDS must be enabled to dispatch a request to Centera. If SDS is not enabled, the request is sent to an MSAR or optical surface.

3 Once the document is located in the Centera repository, the retrieval request is sent to the SDS Worker.

4 SDS Worker retrieves the document from the Centera repository.

5 SDS Worker sends the document to CSM Page Cache.

6 SDS Worker notifies the client that the document is in Page Cache.

7 The client retrieves the document from Page Cache.

Prerequisites

The following prerequisites are required to be in place before you can install the NLS Archive software and configure your CSAR system.

Image Services Software

The retrieval component of the Single Document Storage (SDS) program, SDS Worker (SDS_CSAR_reader), is included in Service Pack 1 for IS 4.0.0. Therefore, IS 4.0.0 *and* Service Pack 1 must be installed to use the CSAR product.

- Verify IS 4.0.0 installed on server - If it is necessary to install, or update, Image Services release 4.0.0 software, refer to the IS 4.0.0 Documentation CD for instructions.
- Install IS 4.0.0 Service Pack 1 - For instructions on installing the service pack, refer to the Readme file, located on the IS 4.0.0 Service Pack 1 CD-ROM.

NLS Archive Requirements

NLS Archive and IS Toolkit software must be installed on the same server. However, while it may be common to install the NLS Archive and IS Toolkit software on the same server as Image Services, they do not need to coexist with IS and can, therefore, be located on a different server from Image Services.

Image Services Toolkit

Image Services Toolkit (formally known as WAL) must be installed prior to installing the NLS Archive software.

Note IS Toolkit versions 3.6 and 4.0.0 are supported.

To check your IS Toolkit version level, enter the following command for your platform:

UNIX Systems: stamp /fnsw/client/shobj/SysV

Windows Server: stamp <drive>:\fnsw\client\shobj*SysV*

The following is an example of a IS Toolkit 4.0.0 module stamp on a Windows Server:

```
\fnsw\client\shobj\wal_sysv.dll (NT bin):
    system 4.0.0.174(1) (lib, Tue Nov 28 06:59:51 2000)
    developer 4.0.0.0.0 (lib, Tue Nov 28 06:59:47 2000)
    SubSys: mv, Rel_type: wal_nt, SCR#: 118396, mode:
       100666, size: 363912
```

NLS Archive Disk Space

CSAR NLS Archive software requires a minimum of 10 MB of hard disk space. This space is required to temporarily store documents in the NLS File System before writing them to the Centera repository.

Directory space usage will be dependent upon the size of document files, volume of documents, and other factors such as file retention schedules.

2
Installing NLS Archive

This chapter describes how to install the NLS Archive software.

IMPORTANT! Prior to installing the NLS Archive software, ensure that Image Services 4.0.0 and Service Pack 1 have been installed on the IS server. Service Pack 1 contains the SDS retrieval software required for CSAR.

Install NLS Archive Software

NLS Archive software **must** be installed by a Professional Services Consultant.

To install the software on a UNIX platform, continue to the section **“Install NLS Archive Software on a UNIX Platform” on page 34**.

To install the software on a Windows platform, continue to the section **“Install NLS Archive Software on a Windows Server” on page 39**.

Install NLS Archive Software on a UNIX Platform

This section describes the installation of NLS Archive software for a UNIX platform.

The following procedure installs the NLS Archive modules into the directory: **/fnsw/local/bin**.

1. On the server where you will be installing the NLS Archive modules, logon as the **root** user.
2. Insert the NLS Archive software CD into the CD-ROM drive.
3. Execute the appropriate mount command for your UNIX Operating System.

Note HP operating systems require a special mount command to read an ISO9660 CD type. If you have an HP system, continue **Step 4**. For AIX or Sun systems, skip to **Step 5 on page 36**.

4 HP operating systems require a special mount command to read an ISO9660 CD type. Perform the following steps:

a To determine the CD-ROM device file name, enter the command:

ioscan -fnC disk

b Locate the CD-ROM device file name on the **ioscan** display. For example:

```
Class   I   H/W Path      Driver S/W State   H/W Type     Description
=============================================================================
  .
  .
disk    5   0/0/2/0.1.0   sdisk  CLAIMED     DEVICE      HP  DVD-ROM 305
                         /dev/dsk/c3t2d0    /dev/rdsk/c3t2d0
  .
```

c Mount the CD-ROM device on the /cdrom directory by entering a command similar to the following:

>mount –o cdcase /dev/dsk/c3t2d0 /cdrom

where **/dev/dsk/c3t2d0** is the CD-ROM device file name shown on the ioscan display.

5 Change directory to the CD-ROM mount point. This should place you at the root of the CD where the “ps_install” executable is located.

6 Run the installation program for the NLS Archive modules using the following command:

>csh ./ps_install

Regarding the above command, note the following:

- The “csh” shell specification in the command is needed if the user is not using the csh shell. If the user is already using the csh shell, including “csh” in the command will not cause any problems for the install.
- There can be more than one csh (c shell) available on a UNIX system. The use of the csh (c shell) when executing the ps_install

program can fail depending upon the default csh. Should there be a failure during installation it may become necessary to issue the ./ps_install command without specifying a shell. Another alternative would be to issue the command specifying the path to an alternate csh on the system.

7 When the installation program has completed, verify that the following files were written to the install directory, /fnsw/local/bin:

CheckSSN
NLS_Add2Q
NLS_Archive
NLS_Dispatch
NLS_DumpQ
NLS_Fetch
NLS_Monitor
NLS_cfg.sample
NLS_start
NLS_stop
NLSc (AIX)
NLSc.h

libNLSc.a (Solaris and HP/UX)
libNLSc.so (Solaris)
libNLSc.sl (HP/UX)
NLScexp.o (AIX)
PS_Password
PSs (AIX)
libPSs.so (Solaris)
libPSs.sl (HP/UX)
timer.awk

After the installation is complete, the NLS Archive modules can be moved to another directory, if desired, by simply moving all of the above files from the /fnsw/local/bin directory.

Downloading NLS software from the Web for UNIX

Instead of using CD's, the NLS software can be installed by downloading modules from the CSS Worldwide Customer Support Web site at: **http://www.css.filenet.com**. For detailed instructions, refer to the readmeUNIXinstall.txt file located in the "Documents" directory in the Professional Services Utilities area.

When executed, the Local Installer will install the modules found in the NLS_tar.Z file, and set the user and group ownership to fnsw:fnusr. The list of installed modules will be displayed on the screen.

The NLS Archive modules installation will also display information regarding its updating of the /fnsw/etc/permission_table. Check the date on the modules installed to ensure all modules were updated.

Install NLS Archive Software on a Windows Server

This section describes how to install NLS Archive Modules on a Windows platform.

1 On the server where you will be installing the NLS Archive modules, log on as a user with Administrator privileges.

2 Insert the NLS Archive software CD into the CD-ROM drive.

The Autorun program, in the root directory, should automatically begin the installation. If Autorun is turned off, do one of the following to start the installer.

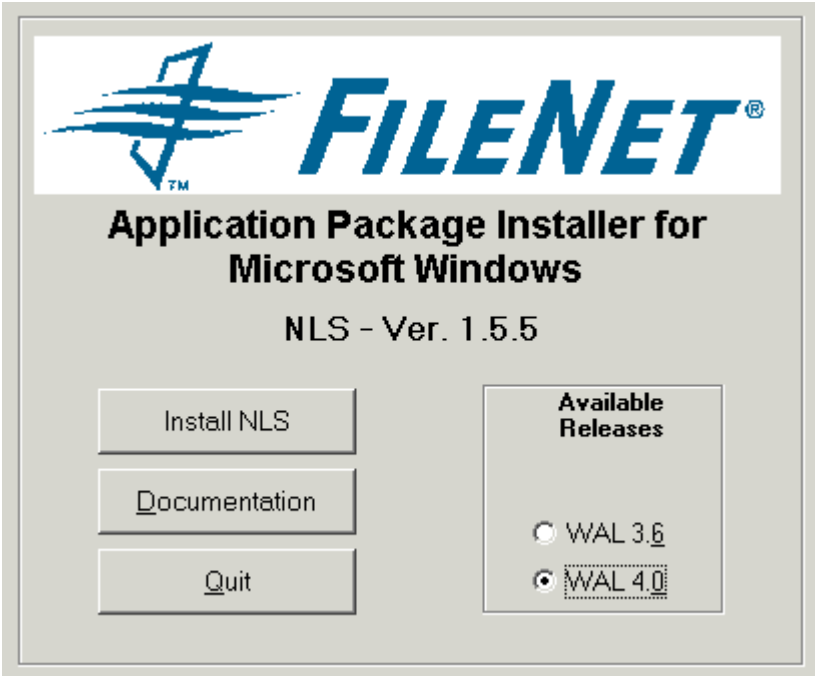
a Open Windows Explorer, locate the PS_Install.exe file in the root directory and double-click the file to start it manually.

b Select Start, Run on the Start Menu and enter the following command:

<CD ROM drive letter>: PS_Install.exe

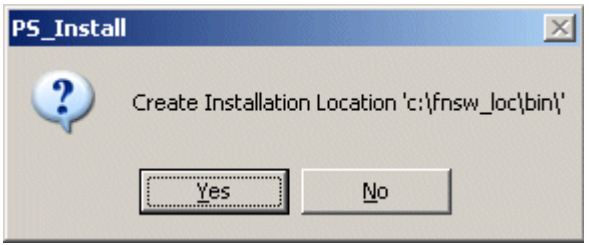
3 When the Application Package Installer dialog box appears, click the *Continue* button to proceed.

The Professional Services Windows Installation Utility screen appears.


FILENET®
Application Package Installer for Microsoft Windows
NLS - Ver. 1.5.5
Install NLS
Documentation
Quit
Available Releases
WAL 3.6
WAL 4.0

4 Select the WAL (IS Toolkit) version installed on your system from the Available Releases field, and click the *Install NLS* button.

The Create Installation Location dialog box appears.

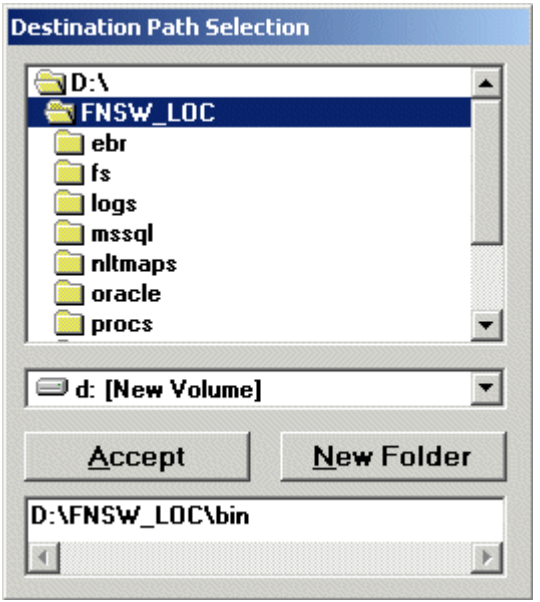


5 Verify the install directory.

a If you want to create the installation location in the directory shown is this dialog, click *Yes* and continue to **Step 7 on page 45** .

b To specify a different installation location, click *No* and continue to **Step 6** below.

6 If you clicked the *No* button in the above step, the Destination Path Selection dialog box will open.



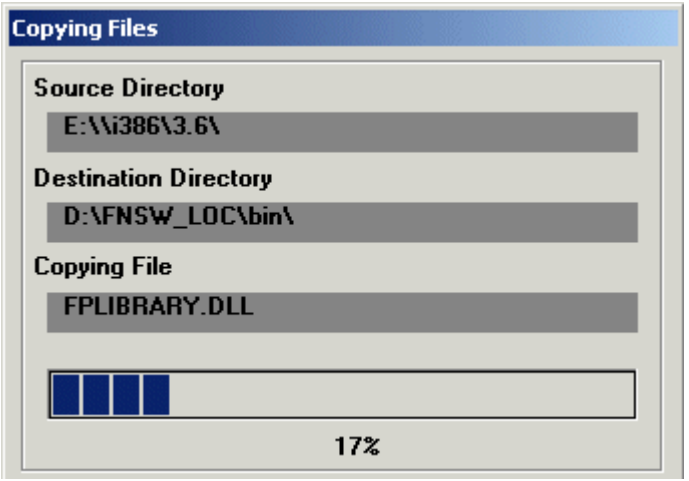
a Select or create the destination path to the new installation location and click *Accept*.

Note A standard installation directory for the NLS Archive modules is: ***< drive letter>: \fnsw_loc\bin***

IMPORTANT! **DO NOT SELECT** a path with spaces in the path name, for example "\Program Files". Path names with spaces will not work with NLS Archive modules.

b Click *Yes* to confirm the new installation directory location for the NLS files.

The Copying Files dialog box appears.



7 The Copying Files dialog box will display the installation progress. When the installation has completed click *OK*.

8 Verify that the following files were written to the install directory, <drive>:\fnsw_loc\bin:

CheckSSN.exe
NLS_Add2Q.exe
NLS_Archive.exe
NLS_Dispatch.exe
NLS_DumpQ.exe
NLS_Fetch.exe
NLS_cfg.sample
NLS_start.exe
NLS_stop.exe
PS_Password
PSs.dll
timer.awk
PAI_module.dll
FPToolbox.dll
FPLibrary.dll

After the installation is complete, the NLS Archive modules can be moved to another directory, if desired, by simply moving all of the above files from the <drive>:\fnsw_loc\bin directory.

9 Click *Quit* to close the Professional Services Windows Installation Utility window.

Downloading NLS software from the Web for Windows

Instead of using CD's, the NLS software can be installed by downloading modules from the CSS Worldwide Customer Support Web site at: **http://www.css.filenet.com**. For detailed instructions, refer to the install readmeWINinstall.txt file located in the "Documents" directory in the Professional Services Utilities area.

3
Configuring CSAR

This chapter describes how to configure the NLS Archive and SDS retrieval software, as well as how to configure shared resources for CSAR.

Configuring NLS Archive

The NLS Archive component uses the IS Toolkit software and needs to know how to access the IS system it is archiving documents from. Although it may run on another server, for performance reasons, it typically runs on the IS server.

Complete the following sections to configure the NLS Archive software.

Update the System Hosts File

The hosts file can be found in the following locations on your server:

UNIX: /etc/hosts

Windows: <drive>:\WINNT\system32\drivers\etc\hosts

IS Toolkit applications require specific entries in the “hosts” file in order to correctly logon through the IS Toolkit. This entry is specific to IS Toolkit applications and must be added to the “hosts” file before running a FileNet utility.

The FileNet domain name entry is case-sensitive, and must appear exactly as it appears in the FileNet Application Executive.

The TCP/IP address is the first entry and is followed by a tab. The server name is entered next, followed by a space. The FileNet domain name is the third entry, followed by another space. Finally the 4-part FileNet nch server name is entered.

Here are two (2) examples:

192.48.11.12 servername domainname domainname-filenet-nch-server

183.52.10.11 SERVERNAME DOMAIN_NAME DOMAIN_NAME-filenet-nch-server

Environment Path

The PATH in the user environment (usually fnsw user) must be setup so that the IS Toolkit shared libraries are accessed by an IS Toolkit call, and not the IS shared libraries. This is explained in the IS Toolkit install readme file, and is also covered in this document in an effort to emphasize and include the utility PATH location.

The configuration of the PATH is different for UNIX and Windows Servers, and it is important not to confuse the two.

The examples below show the IS Toolkit vs. IS PATH hierarchy.

To configure the PATH in UNIX:

/fnsw/client/bin:/fnsw/local/bin:/fnsw/bin

To configure the PATH in Windows:

<drive>:\fnsw\client\bin;<drive>:\fnsw\client\shobj;
<drive>:\fnsw_loc\bin;<drive>:\fnsw\bin;<drive>:\fnsw\lib\shobj;

The PATH should not be limited to the examples above, as there are other software and OS requirements found in each environment PATH that must be retained. In addition, if the NLS software has been moved from /fnsw/local/bin, or \fnsw_loc\bin, to another directory, this directory must be included in the PATH.

IS Toolkit File Ownership and Permissions on UNIX

FileNet Image Services Toolkit provides an installation readme which outlines the UNIX environment permissions and ownership settings on the IS Toolkit modules. This **must** be followed to ensure correct access of IS Toolkit modules.

However, the IS Toolkit modules **must** be owned by fnsw:fnusr. There are two modules that are owned by root:fnusr. Refer to the IS Toolkit readme for complete instructions.

NLS.cfg

The NLS.cfg file is a text file used to configure the NLS Archive product. This file includes logon attributes such as the FileNet user name and password, and the Image Services domain name and organization.

Also included in the NLS.cfg file are program attributes such as the NLS working directory where documents are temporarily stored, and the Centera domain name(s)/IP address(es). In addition, there are tuning parameters and other specific Centera configuration parameters such as the EmcDisposition setting.

Creating the NLS.cfg file

1. Locate the sample NLS configuration file (NLS_cfg.sample) in the directory where the NLS software was installed.

2. Edit the NLS_cfg.sample file using any text editor, making configuration changes appropriate for your system. Definition and explanations for configuration parameters are found later in this chapter.

3 Rename, or save, the sample file as NLS.cfg. This file is normally saved in the directory where you will be running the NLS Archive program from.

NLS_cfg Sample File

Below is an example of the NLS_cfg.sample file. Since CSAR only uses NLS for archiving, some of the settings shown in the sample file are not used.

Note The example shows directory paths for a UNIX directory. For a Windows system, the directory path entry would follow the correct Windows directory convention.

Also, blank lines are not valid in the NLS.cfg file, and a line beginning with a semi-colon (;) is a comment line that is ignored by the program.

NLS_cfg.sample file

```
;*************************************************************************
;  This module contains the configuration information for the XXX.        *
;*************************************************************************
; $Author: giffj $
; $Date: 10/.0/.2 .1:.2:.4 $
; $Header: NLS_cfg.sample,v 1.4 10/.0/.2 .1:.2:.4 giffj Exp $
; $Locker:  $
; $Revision: 1.4 $
; $Source: /usr/ProfServ/ISR_200/NLS/src/RCS/NLS_cfg.sample,v $
; $State: Exp $
;*************************************************************************
; INSTALL HISTORY:
;       INSTALLED BY                DATE                DESCRIPTION
;------------------------------ -MM/DD/YYYY-    -------------------------
;
;*************************************************************************
;    Logon Information
;*************************************************************************
LogonAttribute {
     UserName="SysAdmin"
     PassWord="SysAdmin"
     Domain="profserv"
(conintued on next page)
```

```
(continued from previous page)
     Organization="FileNet"
}
;    General information
PgmAttribute {
;    WorkingDirectory=/NLS
;    LogDirectory={Defaults HOME}
;  Control for set size
;    MaxFetchDocs={Default=1000}
;    MaxQueryDocs={Default=1000}
;  MaxFetchChildren controls the maximum number of concurrent Add2Q processes
;    MaxFetchChildren={Default=3}
;
;    MinDocId=(Default=100000)
;    MaxDocID=(Default=3999999999)
;    Walkback=(Default=100000)
;    AppMaxDocID=(Default=3999999999)
;    MinDate=(Default=980101)
;
;    CleanCache=(Default=False)
;    Timing=(Default=False)
;
;  The following time based keywords all have a minimum of 1 seconds
;  and a maximum of 3600 seconds. If set to zero or a negative number
;  it will default to 5 seconds.
(continued on next page)
```

```
(conintued from previous page)
;    FetchSleep=(in sec, default=600)
;    ArchSleep=(in sec, default=600)
;    FetchTimeout=(in sec, default=3600)
;
;  Display format for the year %Y (default) is 'xxxx', %y is 'xx'.
;  This effects displaying of a date only and extends the length of
;  file names.
;    YearFmt="%Y"
;    Format is Year, month, day. Year can be 2(19xx) or 4 digits
;    NOTE: Values that are out of range take on max value for that item
;
; EMC-Centera Keywords
;  Provides the DNS and/or IP information for Centera.
;     EmcDomain="centera1, 212.3.248.36"
;  Sets the buffer size(k) for IO to Centera.
;     EmcBufSize={Default=16}
;  Sets the network timeout value to Centera, in seconds.
;     EmcTimeout={Default=120}
;  Sets the number of retries to Centera.
;     EmcRetry={Default=6}
;  Sets the length of sleep between retires, in seconds.
;     EmcSleep={Default=120}
(continued on next page)
```

```
(conintued from previous page)
;  Sets the Retention policy for FileNet objects where 0 or No Retention
;   is the Default.
;    0 = No Retention mode (actually set to 5 mins)
;   -1 = Infinite Retention mode
;   >0 = Look at FileNet Document Retention if not usable use this valu
;       EmcRetention={Default=0}
;  Sets the disposition of the FileNET object (a FileNET
;  document with index values) in the Working directory
;  as well as the location of the clip id information
;       EmcDisposition={Default="FS"}
;
; Network Applicance-Snap Lock Keywords
;  Sets the Retention policy for FileNet objects where 0 or No Retention
;  is the Default.
;    0 = No Retention mode (actually set to 5 mins)
;   -1 = Infinite Retention mode
;   >0 = Look at FileNet Document Retention if not usable use this valu
;       SnapLock={Default=0}
}
;END OF CONFIGURATION FILE
```

Logon Attributes

The logon attributes in the NLS.cfg file should match the desired IS FileNet user who will be running the NLS archive program. The FileNet user and password must match what has been configured on the IS server. For more information, see **“Logon Attributes”** in the “Configuring Shared Resources” section.

```
LogonAttribute {
  UserName="SysAdmin"
  PassWord="SysAdmin"
;ArchTerm="NLS_ARCHIVE" (This attribute will be provided by NLS.)
  Domain="serverA"
  Organization="FileNet"
  }
```

Configuring Encrypted Password (Optional)

The mechanism to provide values for an IS login is to set the values of the UserName and PassWord in the LogonAttributes of the NLS.cfg file. There are two ways to enter this information.

- The System Administrator can enter the values for the UserName and PassWord via ascii text form. If this method is used, the password for the user will be visible to anyone with read access to the NLS.cfg file.
- The login attributes can be configured using the Encrypted Password functionality. Follow the instructions below to use this functionality.

Using the Encrypted Password Functionality (PS_Password Program)

The PS_Password program can be used to create the ".ps_passwd" file which will contain the encrypted records. The first time the PS_ Password program is run you will need to provide a password for the creation of the ".ps_passwd" file. The .ps_passwd file password must be remembered or you will not be able to run the PS_Password pro-

gram a second time to make changes or additions to the .ps_passwd file.

Tip If the password is lost or forgotten, the .ps_passwd file will have to be deleted and recreated via the PS_Password program Initialization Mode.

1 Login as **fnsw** and run the **PS_Password** program:

a For UNIX systems enter:

cd /fnsw/local/bin

PS_Password

b For Windows 2000 Server enter the following at a Command Prompt:

cd <drive>:\fnsw_loc\bin

PS_Password

The first time the PS_Password program is run you will be notified that it is running in "*Initialization Mode".*

2 When prompted, Enter and ReEnter (validate) the password for the Password Application Key.

CAUTION The character limit for this password is 8 characters and **cannot** be changed once it has been set.

3 When you are prompted to enter an application name, enter NLS.

4 Enter a Password for the login being used, and the FileNet user name for that login.

Note You must provide a valid FileNet user name that has SysAdmin privileges within the IS domain. See the section, **"Configuring Shared Resources" on page 96** for more information.

Once the application name, password, and user name have been entered, the program will display the application and user name with validation that the password has been set.

5 When the “Enter PS Application Name” prompt appears again, select *Enter* to discontinue the PS_Password program. A list of all applications and user names entered will then be displayed.

The following is an example on a UNIX system:

```
/fnsw/local/bin> PS_Password
Creating PS Password File - Initialization Mode
  Enter Password Application Key      :
  ReEnter Password Application Key     :
       Enter PS Application Name      : NLS
       Application (39)'NLS'
       Enter New Password for Application NLS       :
        ReEnter Password for Application NLS        :
          Enter User Name       : SysAdmin
        PS Program 'NLS': User=SysAdmin, Password Set
       Enter PS Application Name      :
**** Current Applications Set ****
**  Application (39)'NLS' [User='SysAdmin']
**********************************
```

Configuring UserName and PassWord in NLS.cfg File

After the PS_Password program has been run and the .ps_passwd file has been created you can configure the UserName and PassWord values in the NLS.cfg file.

The UserName value in the configuration file should be set to the application name entered in the .ps_passwd file. In this case, UserName=”NLS”.

The PassWord value in the LoginAttribute section of the NLS.cfg file should be removed or commented out. If the application sees the PassWord parameter in the NLS.cfg file during start-up, it will **not** use the encrypted password that was entered when the PS_Password program was run, and the NLS Archive program will not run.

The following is an example of the NLS.cfg LogonAttribute section when using the encrypted password functionality:

```
;*************************************************
;                    LOGON INFORMATION
;*************************************************
;NLS.cfg.sample
LogonAttribute {
        UserName="NLS"
;       PassWord="" <this parameter has been commented out>
; For a source system the Domain should be the source domain
; For any other system (target or 3rd party) the Domain
; should be the target target domain
        Domain="serverA"
        Organization="FileNet"
}
```

Program Attributes

This section contains a list of program attributes that are specified through the NLS.cfg file.

Directories

WorkingDirectory

The NLS File System (WorkingDirectory) must be replaced with a directory structure that fits your environment. This is done by editing the WorkingDirectory field in the NLS.cfg file.

The WorkingDirectory is the directory that specifies the top-level path where documents will be stored in the NLS File System. A directory will be created under this path using the System Serial Number for the Domain. All files will be created under this SSN path.

IMPORTANT! The WorkingDirectory will be used even when IDX, DEL EmcDisposition is used. The WorkingDirectory must always be in place.

LogDirectory

The LogDirectory, specified in the NLS.cfg file, is where journal entries are made which contain all the log files created each time the NLS Archive modules are run.

Note If not specified in the NLS.cfg file, the LogDirectory will be created under the current directory (default /fnsw/local/bin/journals for UNIX, or <drive>:\fnsw_loc\bin\journals for Windows).

The file format is:

arc<date> for NLS_Archive logs

These are ordinary text files that may be read when the program is operating in a UNIX environment.

Windows 2000 may, or may not, allow access to the files depending upon whether the log is locked by the utility.

Other Attributes

AppMaxDocId

This configuration technique should only be attempted with the assistance of a Professional Services Consultant.

The AppMaxDocId is a setting used when the environment calls for two different instances of NLS Archive to be run against two different doc_id ranges. This environment can occur when peer or sister systems are running Multi-System Committal (MSC) with two different doc id ranges being saved to the same service. NLS Archive will loop in the low range per this setting looking for more work.

When running 2 instances of NLS Archive, the user would set this value to be the highest doc id in the low doc id set range.

ArchSleep

The minimum period between the start of a set and the start of the next set for archiving documents.

CleanCache

During archiving, if CleanCache is true and the document in cache is

ageable, the document will be deleted after the NLS Archive modules have archived it. The default is False.

IgnoreChksum
The ability to bypass checksumming should only be used under the direction of FileNet personnel. The omission of this keyword value could cause corrupted documents to be imported.

Default=False<OFF>

MaxDocId
This setting is used to tell NLS Archive to exit when it reaches this value. The use of this setting is just like AppMaxDocId, but instead of looping, the NLS Archive program will stop when it reaches the set value. If not set, NLS Archive will wait for more work.

MaxQueryDocs
The maximum number of documents processed as a set during archive in Database Mode.

MaxQueryDocs affects the Archive set size and the NLS Archive sleep period in the following manner:

- If the Set Size in the MaxQueryDocs value is set to 30, or larger, the sleep value will be internally set at a maximum of 30 seconds.
- If the MaxQueryDocs value is set to be less than 30 seconds, this default internal parameter will be adjusted to the same value as the MaxQueryDocs value. Therefore, if the MaxQueryDocs value is set to 16, the internal sleep value will be adjusted to 16 seconds.

To illustrate this functionality, if the **ArchSleep** value is set to 10 seconds and the **MaxQueryDocs** value contains a set size set to 15, then the sleep time between sets will be a minimum of 25 seconds, depending upon when the previous work was completed. If the previous work time exceeds the sleep interval, then the overlap will be subtracted from the sleep value, and the next set could begin processing in less than the 25 seconds of default and configured sleep.

Note The NLS Archive modules contain an additional internal default sleep function that will run in addition to any other sleep value configured. This internal sleep provides for a 30 second or less sleep interval that is necessary for internal housekeeping. There are 3 different set size values that can be configured in the NLS.cfg file.

MinDate
The minimum date of an Image Services document that will be processed during archiving when in Database Mode.

MinDocId
The minimum Image Services document number processed during archiving when in Database Mode.

OSNice
This is the minimum period between sets. This causes the NLS Archive modules to *sleep* and allows other processes to get processing time. This parameter is useful when the NLS Archive modules are run during normal production time.

Primary
This setting only affects the directory/folder structure created in the WorkingDirectory.

When set to FALSE, it will allow for the backup structure to be changed from the Primary Surface ID (surface_id_1) to the Secondary Surface ID (surface_id_2) (tranlog) – Default=True

Primary=True will cause a WorkingDirectory structure to be created starting with the FileNet Domain ssn. The surface_id_1 number is changed into a hexadecimal and split up into a four folder structured path. The balance of the folder structure will consist of the actual document ID number being changed into a hexadecimal, and split up into a two folder structure.

Primary=False will cause a WorkingDirectory structure to be created starting with the FileNet Domain ssn. The surface_id_2 number is used in decimal format as the next folder under the ssn folder. The following folder structuring is created by splitting up the hexadecimal form of the actual document ID into 2 more folders.

If the Secondary Surface ID (surface_id_2) is zero (0), there is no tranlog configured on the system. In this situation, the folder structure of the backup will still be in hexadecimal just as the Primary=True (default), but the structure will not be as deep because the starting point is zero (0). The last two folders in the structure will still be a hexadecimal form of the document ID.

It is important to keep the Primary setting consistent, as the setting MUST be the same in the NLS.cfg file when retrieving from an Archive. Changing this configuration keyword after initial installation will cause retrievals to fail.

Timing
When set to true, the NLS Archive modules write timing information to the log files. Normally Timing will be set to false (the default) during production.

Timing logging output to the journal logs is used in conjunction with the timer.awk script for performance analysis. The command below is used with timer.awk and the journal file to display to the screen various timing figures.

- **For UNIX**: awk –f timer.awk journals/arc20010328
- **For Windows**: awk –f timer.awk journals\arc20010328 (must have awk for Windows)

Note For newer UNIX systems, awk -f timer.awk journals/arc20010328 can be used.

WalkBack

The NLS Archive modules use an automatic walk back algorithm of 100,000 to ensure that the starting point for the days document backup does not miss any documents. In specialized environments there can be a break in new document ID's that exceeds this default setting of 100,000. This can occur when there is more than one document entry device, and they each have their own unique document ID numbering scheme. It can also occur when throughput is very large, and there is a Storage Library migration delay that could present a situation where documents are not migrated in a timely manner.

The .nlsrc file contains information that assists the NLS Archive modules in restarting from a reasonable point. When restarted, an auto-

matic walk back of 100,000 document ID's will be done before beginning the daily backup. If there are known environment issues which would cause this walk back sequence to miss documents, the System Administrator can set the WalkBack keyword value to any number larger than 100,000 in order to assist the NLS Archive modules in identifying which document ID number to begin its backup.

Example:

Setting the **WalkBack** equal to 1 million will cause the NLS Archive modules to begin at the document ID that is 1 million back from the last entry in the **.nlsrc** file.

WalkBack=1,000,000

If the resulting Document ID returned is less than the valid minimum document ID on the system, the NLS Archive modules will function as if this was running for the first time.

YearFmt
This is the display format for the year portion of the date which is

appended to the NLS working files. This parameter can change the length of a file name. The default is ‘%Y’ which displays in the 4-digit format “yyyy”. A 2-digit “yy” format can be displayed by changing the default to ‘%y’.

EmcDomain
Provides a single or list of DNS and/or IP Address information to the EMC-Centera system.

Example:

```
EmcDomain="centera1, 212.3.248.36"
```

EmcBufSize
Sets the buffer size in K-Bytes (kb) for IO to Centera (Default=10240, Minimum=1, Maximum=10240)

Example:

```
EmcBufSize=10240
```

EmcTimeout
Sets the network timeout value to Centera in seconds (Default=120, Minimum=0, Maximum=600)

Example:

```
EmcTimeout=120
```

EmcRetry
Sets the number of retries to Centera (Default=3, Minimum=0, Maximum=99)

Example:

```
EmcRetry=3
```

EmcSleep
Sets the length of sleep between retries, in seconds (Default=1, Minimum=1, Maximum=100)

Example:

EmcSleep=1

EmcRetention
Sets the Document retention to adhere to a “Compliance” or “Non Compliance” model. The FileNet IS software will control this document setting. The **EmcRetention** keyword value, found in the NLS.cfg file, will override all other default values for retention on the Centera repository unless the FileNet IS **F_DELETEDATE** and/or **F_ARCHIVEDATE** values are set. (Specifics to this exception are defined below.)

Note If the FileNet IS software is not configured correctly for your site’s environment model on a Centera CE or CE+ model repository, the document objects could end up with non-compliance settings.

0 = set no retention
When setting this value to zero on a Centera repository, FileNet will set the document retention to 5 minutes before the “no retention” value will be set.

-1 = set to infinite retention (WORM)
All documents entered with **EmcRetention**=-1 will be WORM compliant for an infinite length of time.

number greater than 0 (zero)
Will set retention using input value in hours. This minimum setting will be used only when the IS **F_DELETEDATE** and/or **F_ARCHIVEDATE** are not present. If either **F_DELETEDATE** or **F_ARCHIVEDATE** are set, this date will take precedence over the **EmcRetention**=(number greater than 0) NLS.cfg keyword setting. If both dates are set, the **F_DELETEDATE** will take precedence over the **F_ARCHIVEDATE** and the **EmcRetention**=(number greater than 0) NLS.cfg keyword setting.

The calculation for the retention value to be set in the Centera library will be the date/time of NLS Archiving subtracted from either the **F_DELETEDATE** or **F_ARCHIVEDATE**.

EmcDisposition
Sets the disposition of the FileNet Object (a FileNet document with

index values) in the Working Directory as well as the location of the Clip ID information.

FS – (Default) This will cause the CLIP ID meta file to be written to the same file system location as the FileNet object within the Working Directory. Its name will be {docid}.clipid. It will contain the CLIPID returned from Centera for the object's Clip.

IDX – This will cause the CLIPID to be entered into the Index database, in the Index ***FNP_CLIPID*** if it exists for this document class.

DEL – This will cause the FileNet object file in the Working Directory to be deleted after the CLIPID has been saved where specified by the FS or IDX setting.

All three of these dispositions can be specified. Either **FS** or **IDX** must be specified to allow **DEL** to be used. If **IDX** and **DEL** are specified, the Index ***FNP_CLIPID*** must exist for the class and the index update must succeed before the delete of the FileNet object will take place. Likewise, a successful write and verify of the meta-file will be required if **FS** and **DEL** are specified. When all three are requested, both the Index

restrictions and the NLS File System restrictions will be enforced before the delete of the FileNet object will take place.

Table of combinations:

- ‘meta file’ refers to the {docid}.clipid file containing a 64 byte string which is the Centera CLIPID for this object.
- ‘object file’ refers to the {docid} FileNet object file in the WorkingDirectory path which is the BLOB stored on Centera.

- Updating the IndexDB causes the 64-byte string CLIPID to be entered into the FNP_CLIPID index field for this document id.

Combination	Explanation
FS	• Retain ‘meta file’ - CLIP ID file (<docid>.clipid) • Do not update IndexDB - No FNP_CLIPID Index value • Do not delete ‘object file’ - The FileNet Object document file on the NLS File System will not be deleted after it has been stored to Centera.
IDX	• Update IndexDB - FNP_CLIPID User Index • Do not retain ‘meta file’ - CLIP ID file • Do not delete ‘object file’ - The FileNet Object document file on the NLS File System will not be deleted after it has been stored to Centera.
IDX, FS	• Update IndexDB - FNP_CLIPID User Index • Retain ‘meta file’ - CLIP ID file • Do not delete ‘object file’ - The FileNet Object document file on the NLS File System will not be deleted after it has been stored to Centera.
IDX,DEL	• Update IndexDB - FNP_CLIPID User Index • Delete ‘object file’ - The FileNet Object document file on the NLS File System will be deleted after it has been stored to Centera. • Do not retain ‘meta file’ - CLIP ID file

Combination	Explanation
FS, DEL	• Retain ‘meta file’ - CLIP ID file • Delete ‘object file’ - The FileNet Object document file on the NLS File System will be deleted after it has been stored to Centera. • Do not update IndexDB - FNP_CLIPID User Index
FS, IDX, DEL	• Retain ‘meta file’ - CLIP ID file • Delete ‘object file’ - The FileNet Object document file on the NLS File System will be deleted after it has been stored to Centera. • Update IndexDB - FNP_CLIPID User Index

For example:

EmcDisposition="FS"

Index Database Settings

NLS Archive modules will update an index field called FNP_ARCHIVE. Therefore, any Document Class that is to be archived must have this index field included in its definition.

- FNP_ARCHIVE is a user defined Index of ‘date’ type. It must have default attributes.

When the NLS Archive modules are run using an EMC-Centera storage unit, you can store the CLIPIDs in the Index database, or in the NLS File System.

If the Index database is used, you must configure the Document Class to contain the Index field FNP_CLIPID to access this attribute.

- FNP_CLIPID is a 65 character ‘string’ type with default values.

Note To define and create document classes that use the above index fields, use the Database Maintenance application in the FileNet Application Executive. Refer to the *System Administrator's Handbook* for more information.

Configuring SDS Retrieval

This section contains information for configuring SDS Retrieval.

Create SDS Configuration File

The SDS_CSAR_reader (SDS Worker) can be configured to suit the specific needs of your system.

To configure SDS Worker, you need to manually create an sds_conf file. Using a text editor (such as vi) create the sds_conf file in the following directory.

For UNIX: Create the sds_conf file in the /fnsw/local/sd/1

For Windows: Create the sds_conf file in the <drive>:\fnsw_loc\sd\1

Note After creating, or editing, the sds_conf file, the **IS must be recycled** for changes in the sds_conf file to be implemented.

The sds_conf file definition format is as follows:

```
SDS <SDS Unit ID> {

 sds_name  "<SDS label name>"
 worker    <SDS worker executable> <# of worker processes>
 info      "<SDS storage specific information>"
 sds_priority [ low | medium | high ]
 debug [ off | min | max ]
}
```

Note In this release, only one SDS unit is supported so the SDS Unit ID should always be set to 1.

Below is an example of how the content of the sds_conf file may appear:

```
SDS 1 {
 sds_name "NLS_SDS"
 worker   SDS_CSAR_reader 20
 info    "workingdirectory=/nls_workspace emcdomain=EMC_centera,212.3.248.36”
 sds_priority medium
 debug max
}
```

sds_conf File Format

- sds_name - This field will not be used for this enhancement. The "sds_name" field may be used in the future to denote the SDS type in the SDS Control UI window.

- worker - This field indicates the worker program name. It must always be “SDS_CSAR_reader.” It also indicates the number of worker instances to be started by the ds_init process. One (1) to ninety nine (99) workers are supported.

- info - This field indicates the storage specific information. For the SDS_CSAR_reader, it includes the working directory, Centera domain name and IP address. See the **“SDS_CSAR_reader INFO Field”** section below for more information.

- sds_priority - The "sds_priority" field indicates retrieval precedence. Currently, the Image Service software always submits read requests to MSAR if it is available above optical surfaces. When the "sds_priority" field is set to "low", this would mean that read requests would first go to MSAR, then to optical, and finally to SDS. The "medium" SDS priority setting would mean that read requests would first go to MSAR, then to SDS, and finally to optical. The "high" SDS priority setting would mean that read requests would first go to SDS, then to MSAR, and finally to optical. See the **“Retrieval Priority (sds_priority)”** section below for more information.

- debug - There are three settings: “off” “min” and “max.” Activity is reported in the view log.

  - **debug set to "off"** - when debug is set to off, no SDS_CSAR_retrieval_worker activity is reported in the view log.

- **debug set to "min"** - the SDS_CSAR_retrieval_worker will log a sys_log message indicating that a document has been retrieved from the NLS File System or Centera repository.

- **debug set to "max"** - the SDS_CSAR_retrieval_worker will continue to log the same information as the "min" setting, but additional information (doc_id, request priority, target cache id, cache ssn, first_page, number of pages) will be logged by the SDS abstract (SDS_request_done) when the request is complete. For a production system, setting the "debug" flag to min or max may have a negative performance impact.

SDS_CSAR_reader INFO Field

The following information is contained in the SDS_CSAR_reader INFO field:

```
“WorkingDirectory=<root directory name> EmcDomain=[<domain name>,<IP>]”
```

WorkingDirectory is an absolute path to the NLS File System. EmcDomain is a comma-separated string containing one or more addresses of the available Access Nodes of the pool.

Note There are no spaces in the EmcDomain string.

The format is shown below.

```
<PoolAddress>::= <hint> ("," <hint>)*[?<PAI-module-specific-arguments>]
<hint>::= <ipreference> [":" <port>]
<port>::= tcpport number (defaults to 3218)
<ipreference> ::= <dnsname> | <ip-address>
<dnsname>::= DNS name is a DNS maintained name that resolves to one or
more IP addresses
<ip-address>::= 4-tuple address format
```

Retrieval Priority (sds_priority)

The SDS retrieval program supports a configurable retrieval priority setting relative to available MSAR or optical surfaces. SDS priority can be set to, Low, Medium, or High.

- Low - requests first go to MSAR, then optical, and finally SDS.
- Medium - requests first go to MSAR, then SDS, and finally optical.

- High - requests first go to SDS, then MSAR, and finally optical.

Note Retrieval priority only takes effect if the requested document is not in CSM page cache. If the document is already in cache, there is no need to migrate it from Centera, MSAR, or Optical.

Low Priority

If priority is set to low, the program will determine if the document is on an “in box” MSAR that is read enabled. If this is the case, the request will be directed to the “in box” MSAR surface.

If the associated MSAR surface is not read enabled or the surface is "out of box", the program will determine if there is an “in box” optical surface that can be used. If there is, the request will be directed to the optical surface.

If the associated optical surface is not read enabled or the surface is "out of box", the program will determine if the document has been stored in an NLS File System or in a Centera repository. If SDS has not

been configured on the system, or the document has not been stored in an NLS File System or a Centera repository, the SDS_not_configured or SDS_document_not_archived error tuple will be returned.

If the document was not found in the Centera repository, or "in box" surfaces, an RSVP will be generated and Document Services will return a ASE_INTERVENTION_REQ or ASE_NOT_IN_OSAR status to the client retrieval program.

Medium Priority

If priority is set to medium, the program will determine if the document is on an “in box” **MSAR** surface that is read enabled. If this is the case, the request will be directed to the “in box” MSAR surface.

If the associated MSAR surface is not read enabled, or the surface is "out of box", the program will determine if the document is stored in an NLS File System or in a **Centera** object repository. If it is, the request will be directed to the NLS File System or Centera repository.

If the document is not found in the NLS File System or in a Centera object repository, the program will determine if there is an “in box” **optical** surface that can be used. If there is, the request will be directed to the optical surface.

If there is no MSAR, Centera, or optical surface available, an RSVP will be generated and Document Services will return a ASE_ INTERVENTION_REQ or ASE_NOT_IN_OSAR status to the client retrieval program.

High Priority

If priority is set to high, the program will determine if the document is stored in an NLS File System or in a **Centera** object repository. If it is, the request will be directed to the NLS File System or Centera repository.

If the document is not found, the program will determine if an “in box” MSAR or optical surface can be used. If this is the case, the request will be directed to the MSAR or optical surface.

Important! With priority set to high, if the document cannot be found because of an invalid index value (FNP_CLIPID) or a malfunctioning Centera device, you will get a message similar to “Retrieval to cache failed” and the retrieval will cease before attempting to retrieve documents from MSAR or optical as expected. In this scenario, the only way to get the retrieval to continue past the Centera device is to disable the SDS device through the DOC_tool command.

If there is no Centera, MSAR, or optical surface available, an RSVP will be generated and Document Services will return a ASE_ INTERVENTION_REQ or ASE_NOT_IN_OSAR status to the client retrieval program.

Multiple IS Storage Library Servers

If you have multiple Storage Library servers, you can use the same sds_conf file on each storage library server. Make sure the sds_conf file is copied to the following directory on each storage library server:

For UNIX: The sds_conf file in the /fnsw/local/sd/1

For Windows: The sds_conf file in the <drive>:\fnsw_loc\sd\1

In some cases, you may need to modify the **WorkingDirectory** field in the sds_conf file so that all these servers point to the same target NLS File System.

Note The shared NLS File System may be mapped to different local names on each server.

Configuring Shared Resources

This section describes configuration settings that must be consistent for both NLS Archive and Image Services SDS.

NLS.cfg and sds_conf Settings

The following settings must be consistent in both the NLS.cfg and sds_conf files.

- EmcDomain - The EMCDomain name must be the same in both NLS.cfg and sds_conf files.
- WorkingDirectory (NLS File System) - The WorkingDirectory name must be the same in both NLS.cfg and sds_conf files. The NLS Archive process also must have read and write access to this directory. In addition, the Image Services fnsw user must have, at a minimum, read access rights to the NLS file system.

Note When specifying the path for the shared WorkingDirectory, only use UNC format. **Do Not** use a drive letter in the path. Because this is a

remote shared drive, you **must** use the UNC path.
For example: \\<servername>\sharename

IS Domain and FileNet User Settings

The **Domain** and **Organization** fields used in the NLS.cfg file must be the same as the Image Services domain and organization used for the target Image Services system.

The UserName and PassWord logon attributes in the NLS.cfg file must be the same as the user name and password configured for a FileNet user. FileNet IS user accounts and passwords are created using the Security Administration application in the FileNet Application Executive. This IS user account must have SysAdmin privileges.

Logon Attributes

Below is an example of the UserName, PassWord, Domain, and Organization logon attributes that need to be set in the NLS.cfg file.

```
LogonAttribute {
  UserName="SysAdmin"
  PassWord="SysAdmin"
  Domain="serverA"
  Organization="FileNet"
  }
```

Index Database Settings

NLS Archive and SDS Retrieval components use the “FNP_ARCHIVE” and “FNP_CLIPID” user defined index values.

FNP_ARCHIVE

FNP_ARCHIVE is a ‘date’ type user defined index value that is hard-coded. Default attributes must be set for this index value.

Any Document Class that will be archived, must have this index field included in its definition.

FNP_CLIPID

The FNP_CLIPID is an optional index setting because CLIPIDs can be stored either in the Index Database, or the NLS File System. Where it is stored is dependent upon the EmcDisposition setting in the NLS.cfg file.

If the Index Database is used, you must configure the Document Class to contain the Index field FNP_CLIPID to access this attribute.

'FNP_CLIPID" is a 65 character ‘string’ type hardcoded name. Default attributes must be set for this index value.

Note To define user indexes (FNP_ARCHIVE and FNP_CLIPID) and create document classes that use these index fields, use the Database Maintenance application in the FileNet Application Executive. Refer to the *System Administrator’s Handbook* for more information.

4

Administering and Running CSAR NLS_Archive

This chapter describes procedures for administering and running the NLS_Archive program.

Running the NLS Archive Function

The NLS Archive program is initiated through the execution of **NLS_start -p,** and shut down through the execution of **NLS_stop.** The program is invoked manually from a command line or automatically when Image Services software starts, or stops.

Autostart/Autostop NLS

Use this procedure to allow the NLS Archive software to automatically start and stop, in database mode, when the Image Services software

starts and stops. If the NLS Archive software is not running directly on the Image Services Server, this autostart procedure cannot be used.

1 Create an ims_start and ims_stop file for UNIX, or ims_start.bat and ims_stop.bat for Windows, in the following directories:

For UNIX: **/fnsw/local/sd/**

For Windows: **\fnsw_loc\sd**

Note For UNIX, the ims_start and ims_stop file names must be created in “lower case” and have permissions set to execute.

2 To cause CSAR Archiving to automatically begin, in database mode, when Image Services is started, edit the ims_start, or ims_start.bat file, by adding the following to the file:

Note This will cause Image Services to look for a file named ims_start after the IS comes up. This file can be implemented to contain scripting to start other applications dependent upon Image Services.

For UNIX:

```
cd /fnsw/local/bin
NLS_start -p
```

For Windows:

```
cd <drive>:\fnsw_loc\bin
NLS_start -p
```

Note NLS_Archive will not start successfully if there are any problems logging on to the IS. This can happen if Image Services is slow to start. If this happens a "sleep" for a few seconds can be added to facilitate proper timing.

3 To cause CSAR Archiving to automatically stop when Image Services is stopped, edit the ims_stop, or ims_stop.bat file by adding the following to the file:

For UNIX:

```
cd /fnsw/local/bin
NLS_stop
```

For Windows:

```
cd <drive>:\fnsw_loc\bin
NLS_stop
```

Note NLS_Archive will not shutdown until it has completed processing its current set. A sleep should be entered into the ims_stop file to accommodate the longest time period it takes for NLS_Archive to process a set in your environment. If the IS software goes down during the processing of a set, NLS_Archive will shutdown with an error because it has lost its IS logon.

Command Line Startup

If you are running NLS Archive on a separate server from Image Services, or if you want to manually start NLS Archive, use the following commands to start the NLS Archive program.

There are two ways to start the archive function from a command line: **NLS_start** or **NLS_Archive**. In each case, you must first change directory to the location of the NLS install point.

When using either the NLS_start or NLS_Archive programs, the directory where the NLS.cfg file is located can be specified by using the "-h" option.

For example:

UNIX:
cd /fnsw/local/bin
NLS_start -p -h <path to NLS.cfg>
or
NLS_Archive -h <path to NLS.cfg>

Windows:
cd <drive>:\fnsw_loc\bin
NLS_start.exe -p -h <path to NLS.cfg>
or
NLS_Archive -h <path to NLS.cfg>

As an alternative, you can run these programs directly if you change directory to the install point, and have the NLS.cfg file located there.

Command Line Shutdown

Use the following commands to stop the NLS Archive software. Whenever the stop command is invoked, the NLS Archive modules will attempt to shut down gracefully by completing the processing of the current set in progress prior to shutdown.

To stop NLS Archive modules, use the following commands:

UNIX:	**cd /fnsw/local/bin** **NLS_stop**
Windows:	**cd <drive>:\fnsw_loc\bin** **NLS_stop.exe**

As an alternative, you can stop these programs directly if you change directory to the install point, and have the NLS.cfg file located there.

Note When NLS_start.exe has been issued on a Windows command line, the NLS Archive modules must be stopped via the command line option using the NLS_stop program.

NLS_FLAGS File

NLS_start creates an NLS_FLAGS file upon startup. NLS_stop enters a stop sequence into the NLS_FLAGS file. The NLS_FLAGS file is read by each of the above programs while running. When an NLS program receives the correct stop sequence through the NLS_FLAGS file, the program will stop upon completion of the current set it may be processing. If the program is not working on a set, or in a sleep cycle, it will stop immediately upon receiving the stop sequence. It is important to note that when a program is run on the command line without the use of NLS_start that the presence of the NLS_FLAGS file with the proper stop sequence in it will cause the program to stop immediately without completing any work.

If you elect to run an NLS program without the use of NLS_start, simply delete the NLS_FLAGS file.

Windows 2000 Service Setup

Starting and stopping the NLS Archive modules can be managed using Window's Services when running NLS Archive on a Windows

2000 Server platform. This feature can be implemented after the NLS Archive modules have been installed.

1 From a Command Prompt, change to the directory where the NLS Archive modules are installed. The default install directory is: <drive>:\fnsw_loc\bin

2 Enter the following command to create the Windows Service:

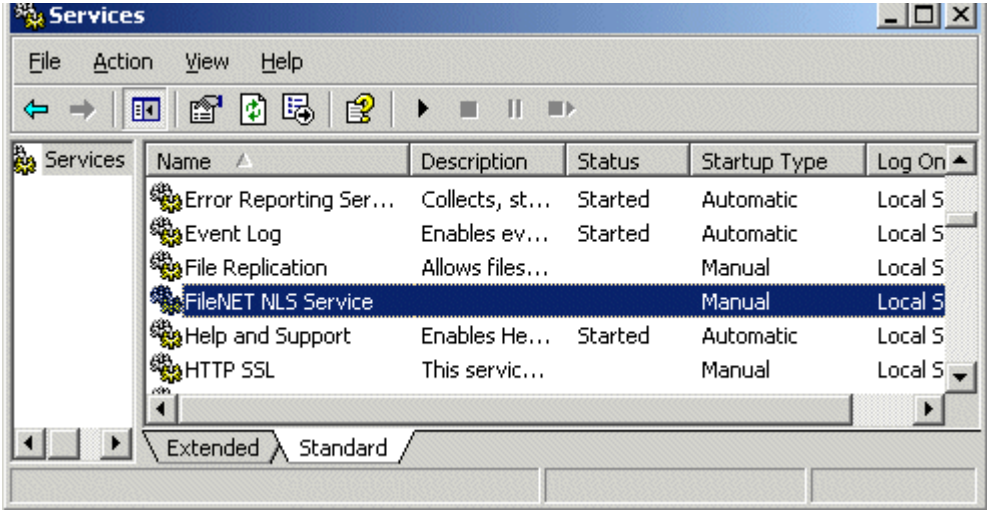
NLS_start -service

Note This command will NOT start the NLS Archive modules. It will only create the NLS Archive Service.

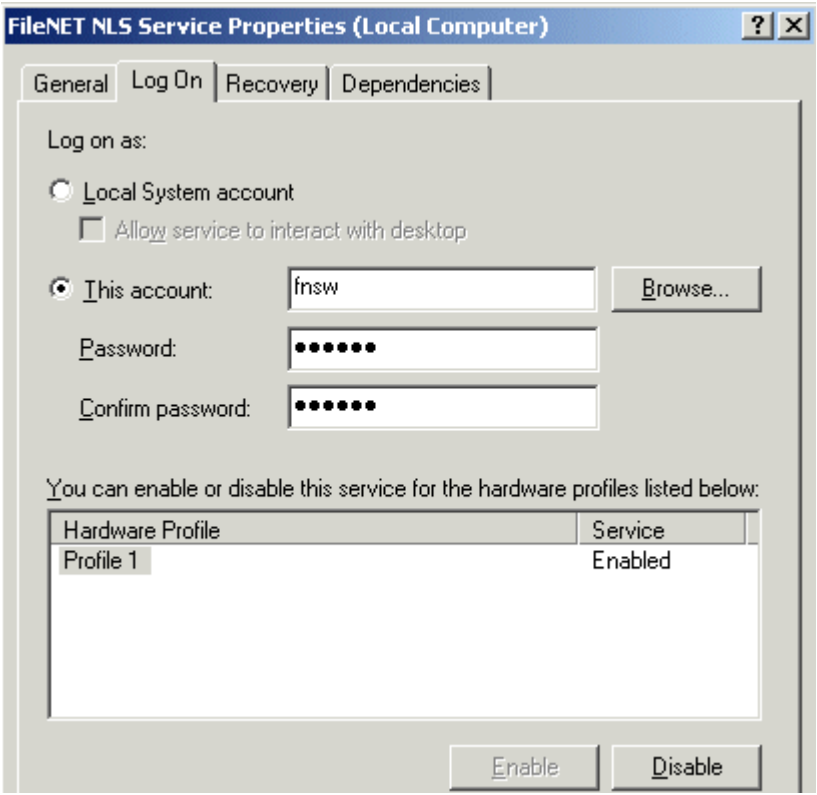
After the Service has been installed, the following message will display.

`"Successfully installed service NLS"`

3 On the Windows server, open Administrative Tools and double-click the *Services* icon. The Services dialog displays.



4 In the Services dialog box, right-click the FileNet NLS Service and select *Properties*. The Properties dialog box displays.


FileNET NLS Service Properties (Local Computer)
General
Log On
Recovery
Dependencies
Log on as:
Local System account
Allow service to interact with desktop
This account:
fnsw
Browse...
Password:
Confirm password:
You can enable or disable this service for the hardware profiles listed below:
Hardware Profile
Service
Profile 1
Enabled
Enable
Disable

5 Select the Log On tab, and select the “This account:” radio button”

6 In the “This Account” dialog box, enter the “fnsw” user or a user in the fnusr group specifically created for running the NLS Archive modules.

7 Enter and Confirm the password for the account, and then click OK.

8 After the login properties have been set and all configuration items have been completed, start the NLS Archive modules by selecting the “FileNet NLS Service” in the Windows server window and then clicking *Start*.

Note The Service Logon Account MUST be configured before the Service is used to start the NLS Archive modules or the startup will fail. The notification of a failure could take more than a minute to report back to the user.

IMPORTANT! When using the Service Applet to stop the NLS Archive modules, the applet may receive premature notice that the NLS Archive modules have stopped. However, some processes may still be shutting down and immediate restart through the applet can cause corrupted multiple processes to be run. Check the Windows Task Manager to ensure all NLS Archive processes have stopped.

Removing the FileNet NLS Archive Service

The following procedure will remove the FileNet NLS Archive Service.

Check the Service through the Service applet window and ensure the service has been stopped.

Enter the following at a Command Prompt:

```
cd <drive>:\fnsw_loc\bin
NLS_start  -noservice
```

Archiving Documents

The document archive program, NLS_Archive, is designed to operate in a number of modes. These modes include:

- **Database Mode** - This mode automatically starts, and runs in background, when NLS is started. It archives all new documents or any document that has not been previously archived.
- **File List Mode** and **Surface Mode** - These modes are invoked from a command line and run in foreground. They will archive specific sets of documents and are useful for archiving entire platters of documents.
- **Family Mode** - This mode is invoked from a command line, runs in foreground, and archives documents associated with a media family.

Database Mode

When the NLS_Archive program is run without parameters, or invoked through the NLS_start program, it is run in Database Mode. In this mode the program performs these steps:

- Reads the file .nlsrc and the MinDocId attribute to determine a starting document id for the archive operation (uses the maximum of .nlsrc and MinDocId). If .nlsrc and MinDocId are not present in the NLS Archive modules home directory then the archive program begins at the lowest numbered document in the index database and works forward.
- At the starting point in the database, the NLS Archive modules will search for any documents that have FNP_ARCHIVE as an index field, where FNP_ARCHIVE is null.
- The NLS_Archive program reads the document from cache. if the document is not in cache already, a pre-fetch operation is executed to put it in cache.
- NLS_Archive performs a conversion operation to take the individual cache pages and pack them all into a single file. Note that

this file does not conform to any TIFF standard and is used only for purposes of archiving and retrieving FileNet documents.

- NLS_Archive writes the file (now a single file instead of a collection of pages) to the WorkingDirectory (NLS File System). From the perspective of the archive program, it sees only a UNIX file system and performs a standard UNIX write operation. The Image Services document number is used as the file name and it is placed in a subdirectory below the WorkingDirectory using a hashing algorithm based on the document id.

- After NLS_Archive successfully writes the file to the WorkingDirectory, the program updates the FNP_ARCHIVE index field with the current date. This signifies that the document has been archived to the Centera repository.

File List Mode

The NLS_Archive program can be started and run independently of the other server processes when using File List Mode. This allows the user to archive a pre-defined list of documents. In file list mode, NLS_Archive does not check to determine if the documents have already

been archived. It will copy any document in the list to the WorkingDirectory regardless of the value in FNP_ARCHIVE. However, the Document Class must have the FNP_ARCHIVE index assigned.

Perform these steps to archive a list of documents:

1. Create a text file containing a list of documents.
2. Change directory.

   cd /fnsw/local/bin

3. Enter one of the following commands to run the NLS_Archive program in background:

   NLS_Archive –f <filelist> &
   or
   NLS_start -p -f <filelist>

Surface Mode

Similar to File List Mode, the NLS_Archive program can run independently in Surface Mode. In Surface mode NLS_Archive will query the database and create a list of document IDs to Archive where the document ID list is of the specified surface. Like File List Mode the documents found in the list will be archived whether or not they have been previously archived. Should there be a copy of the document in the WorkingDirectory, it will be overwritten by the newly Archived version.

Perform these steps to archive a surface of documents:

1 Change directory.

cd /fnsw/local/bin

2 Enter the one of the following commands to run the NLS_Archive program in background:

NLS_Archive –surf <surface ID> &
or
NLS_start -p -surf <surface ID>

Using the –both flag will tell NLS_Archive to backup both sides of the surface. For example:

NLS_Archive –surf <surface ID> -both &
or
NLS_start -p -surf <surface ID> -both

Family Mode

Family Mode works nearly the same way as File List and Surface Mode. The NLS_Archive program is run independently. NLS_Archive will preform a query of the database producing a document ID list in memory that will be used by the program to archive a specific Family of document IDs. Like File List Mode, the documents found in the list will be archived whether or not they have been previously archived. Should there be a copy of the document in the WorkingDirectory, it will be overwritten by the newly archived version.

Perform these steps to archive a family of documents:

1 Change directory.

cd /fnsw/local/bin

2 Enter one of the following commands to run the NLS_Archive program:

NLS_Archive –t <familyname> &
or
NLS_start -p -t <familyname>

5

Administering and Running CSAR SDS Retrieval

This chapter contains information for administering and running the SDS software.

DOC_tool

The DOC_tool utility program is used to manage SDS. For CSAR, the DOC_tool utility program has been enhanced to support two general SDS functions.

- The "enable and disable" command has been enhanced to enable and disable the SDS unit.
- A new "SDSinfo" command has been added to allow you to gather information about the SDS unit and the SDS worker processes (SDS_CSAR_reader).

These commands are also available for cache-only servers. For more information on DOC_tool, see the *IS System Tools Reference Manual*.

Enable and Disable Command

The "ENable" and "DISable" DOC_tool commands have been enhanced to allow a user to enable and disable SDS units. These commands are only available in the "allowupdates" DOC_tool mode.

ENable Command

The SDS "ENable" command is only available if an SDS unit is in a "DISABLED" state. If there are no SDS units in a "DISABLED" state, the prompt displayed by the "ENable" command will appear as it did prior to supporting SDS.

Note It is not possible to change an SDS unit from a "DISCONNECTED" state to "ENABLED" state using the DOC_tool program.

Depending on the type of storage library selected, the ENable command will display the following screens.

MSAR Library

```
drive, Platter(surface), SDS? ('d', 'p', 'SDS')
```

Optical Library

```
Slot, drive, OpticalLibrary, Platter(surface), SDS?
('s', 'd', 'o', 'p', 'SDS')
```

Cache-only Servers

When a server is a Cache-only server, there can be no library selected. If the SDS unit is in a “DISABLED” state, the following prompt will display after the “ENable” command is entered:

```
SDS unit? <y=yes>
```

If the “ENable” command is entered on a Cache-only server that **does not** have an SDS configured, the following message will display:

```
Function only available on systems with storage
libraries configured.
```

If the “ENable” command is entered on a Cache-only server that **does** have an SDS configured, but not in a “DISABLED” or “DISCONNECTED” state, the following message will display:

```
No Storage libraries configured and no SDS units are DISABLED
Use the SDSinfo command to get more info on the SDS units.
```

DISable Command

The “DISable” command is the inverse of the “ENable” command. When the "DISable" command is used, the SDS option is only available if an SDS unit is in an "ENABLED" state. If there are no SDS units in an "ENABLED" state, the prompt displayed by the "DISable" command will appear as it did prior to supporting SDS.

SDS States

The state of an SDS is used by the dispatch software to determine if the SDS is available to process a request. The state of an SDS can be viewed using the new DOC_tool “SDSinfo” command. The following are valid SDS states:

- SDS not configured - This state indicates that the SDS unit has not been configured.
- SDS enabled - This state indicates that the SDS unit has been configured and is enabled. Read requests may only be submitted to an SDS that is in an enabled state.
- SDS disabled - This state indicates that the SDS unit has been disabled. The only way that an SDS unit may be disabled is through the DOC_tool "DISable" command. The SDS disabled state is persistent across re-cycles, because a disable SDS file is created. When the Image Service software is re-cycled and the disable SDS file exists, the SDS unit will be marked as disabled. To enable the SDS unit, the DOC_tool "ENable" command must be used.

When an SDS unit is disabled, the dispatch process will not dispatch any new requests to the SDS worker (SDS_CSAR_reader). No new requests will be added to the SDS worker queue until the SDS is re-enabled. The SDS worker process will continue to process any outstanding SDS requests, but outstanding requests will not re-directed to surface based storage.

- SDS disconnected - This state indicates that the SDS unit is not available because of a connection problem encountered by the SDS worker. The disconnected state is not persistent across Image Service re-cycles. The SDS worker will set an SDS to a disconnected state if the Centera Pool can not be opened.

  Once an SDS is set to a disconnected state, the dispatch software will not submit additional requests to the SDS unit. Therefore, if a document is available on MSAR or optical, a read request will be re-directed to the surface based storage even if the SDS high or SDS medium priority has been set.

  In addition, an insertion RSVP may also be generated if the SDS unit is in a disconnected state and associated surface(s) are "out of box". When the SDS is disconnected, the SDS_CSAR_reader will

re-try the Pool Open command indefinitely. Once it has successfully opened the Centera Repository, the SDS_CSAR_reader will set the SDS unit to an enabled state. At this point, any new requests may now be dispatched to the enabled SDS. The DOC_tool "ENable" command can not enable an SDS unit that is in a disconnected state.

SDSinfo Command

The DOC_tool SDSinfo command allows you to view the current state of the SDS unit and its associated SDS worker (SDS_CSAR_reader), as well as other performance information.

SDSinfo command prompt and options

The SDSinfo command allows you to select four display options as shown below. Options include: (**s**) a Summary report, (**q**) a Queue report, (**w**) a Detail worker report, or (**a**) an All information report.

```
<DOC_tool:lib a>sdsinfo
Summary info, Queued request info, Worker info, or All info?
('s','q','w','a')
```

If the SDSinfo command is invoked and there are no SDS units configured on the server, the following message is displayed:

```
<DOC_tool:lib a>sdsinfo
No SDS have been configured on this server
```

SDSinfo Basic Information

The following table describes basic information that is displayed for all reports, regardless of which SDSinfo option is selected.

Basic SDS Information

Field Name	Description
SDS unit number	The SDS unit will always be set to 1 in this release.
SDS state	The SDS unit may be set to a DISABLED state (via the **DISable Command** option of DOC_tool, to an ENABLED state (via the **ENable Command** option of the DOC_tool, and a DISCONNECTED state (via the SDS_worker [SDS_CSAR_reader] because the SDS_worker has encountered a problem making it impossible to process requests).
SDS Priority	This can be set to high, medium, or low and this setting is extracted from the sds_conf file. This setting is for when a document is not found in cache. High priority means the document will first be looked for on the SDS unit, then in “in box” MSAR, and finally on optical. Medium priority means the documents will first be looked for in “in box” MSAR, then on the SDS unit, and last on optical. Low priority means the document will first be looked for in “in box” MSAR, then on optical and finally on the SDS unit.
SDS Worker name	Only the SDS_CSAR_reader is supported.

Basic SDS Information, continued

Field Name	Description
Number SDS worker instances	This indicates how many SDS_CSAR_reader enhances are running, The number of worker instances is configurable through the sds_conf file and the valid number instances are 1 to 99.
SDS info	The SDS_CSAR_READER expects the following labels: workingdirectory = <directory name> emcdomain=<Centera domain name or IP address This is a maximum of 1024 characters.
SDS queue length	This displays the current number (0-*n*) of SDS queued requests. A high number here may be the indication of a problem.

SDSinfo Summary Option (s)

When the Summary option is selected, two summary reports are displayed; the **Counter Summary** and the **Accumulated Average Time Summary** reports. Each of these reports is displayed along with the basic SDS information.

Note Counters start counting when Image Services starts and cannot be reset unless the IS is recycled.

The following table describes this **Counter Summary Worker** report:

SDS Counter Summary Worker Information

Counter Name	Description
Requests Processed	Total number of requests that have been processed by all of the SDS_CSAR_ reader processes.
Successful requests processed	Total number of requests that have been successfully processed.
Requests satisfied via Centera	Total number of requests that have been processed using Centera. By subtracting the “Requests satisfied via Centera” from the “Requests Processed,” the number of requests processed using the NLS working directory may be determined.
Errors	Total number of errors encountered. These are only errors that were not corrected after retries and did not result in termination of SDS worker processes.
Last_error	Last error encountered by the last SDS worker process. If no errors were encountered by SDS workers, this field will not be displayed.
Images retrieved	Total number of images retrieved.

SDS Counter Summary Worker Information, continued

Counter Name	Description
Data retrieved	Total amount of data, in K-bytes, transferred to CSM cache from the Centera repository or the NLS working directory.
AVG request size	Average size of data transfer per requests. A standard deviation for this field is also displayed, and this may be used to gauge the other Standard Deviations to follow.
AVG image size	Average size of image pages transferred.
FPTag_BlobRead-Partial calls	Total number of calls to the FPTag_BlobReadPartial API entry point.
Requests where the whole BLOB fits into the internal image_ buffer	Requests where the whole document BLOB fits into the internal buffer. The size of configurable internal buffer is displayed. For more information, see **“Whole Document BLOB Fits into the Internal Buffer” on page 149**.
Requests where the requested images fit into the internal image_buffer	Requests where all of the images fit into the internal buffer. The total size of these images is displayed. For more information, see **“Requested images Fit into the Internal Buffer” on page 150**.

SDS Counter Summary Worker Information, continued

Counter Name	Description
Requests where the requested images do not fit into the internal image_buffer	Requests where all of the images do not fit into the internal buffer. For more information, see **“Requested Pages Do Not Fit into the Internal Buffer” on page 151**.
Cache hits	Cache hits encountered by the SDS_CSAR_reader process.

The following table describes the **Accumulated Average Time Summary Worker** Report information, which is also displayed using the Summary option.

SDS Accumulated Average Time Summary Worker Report

Average Accumulated Times	Description
Up time	Accumulated average up time of all the SDS workers in seconds/workers.
Idle time	Accumulated average up time of all the SDS workers in seconds/worker. This is the time that workers are idle waiting for requests to be processed.

SDS Accumulated Average Time Summary Worker Report

Average Accumulated Times	Description
Total processing time	Total elapsed processing time per worker. The average time elapsed per request is also displayed in seconds/workers with its standard deviation. The average time elapsed per image page (seconds/image page) and elapsed per K-byte (seconds/K-byte) is also displayed.
Time in get_doc_ from_file_system()	Accumulated average time in the get_doc_from_file_system() subroutine in seconds/workers. This is the accumulated time taken to execute the get_doc_ from_file_system subroutine which includes extracting the requested document pages from the file system and writing them to page cache.
Time in get_doc_ from_centera()	Accumulated average time in the get_doc_from_centera() subroutine in seconds/workers. This is the accumulated time taken to execute the get_doc_ from_centera subroutine which includes extracting the requested document pages from the Centera repository and writing them to page cache.

SDS Accumulated Average Time Summary Worker Report

Average Accumulated Times	Description
AVG time in Centera API calls	Accumulated average time doing Centera API calls (Seconds/workers). This includes operations such as Open Pool, Open Clip and BLOB reads. It is a subset of the operations performed by the get_doc_from_centera subroutine. The average time elapsed per request is also displayed (seconds/requests) with the Standard Deviation. A summed squared of each elapsed time to do the Centera API calls per requests is calculated and stored. This is done so the Standard Deviation for Centera API calls time per requests can be calculated. The average time elapsed per image page (seconds/image page) and elapsed per K-byte (seconds/K-byte) is also displayed.
AVG time in FPTag_ BlobReadPartial only	Accumulated average time doing FileNet BLOB reads. This is a subset of the accumulated time doing Centera API calls. The average time elapsed per request is also displayed (seconds/requests) with the Standard Deviation. The average time elapsed per image page (seconds/image page) and elapsed per K-byte (seconds/K-byte) is also displayed.

SDS Accumulated Average Time Summary Worker Report

Average Accumulated Times	Description
AVG time in Writing to page cache (CSM)	Accumulated average time doing CSM cache calls. The accumulated time includes time spent writing to cache whether the document is read from the file system or Centera. The average time elapsed per request is also displayed (seconds/requests) with the Standard Deviation. The average time elapsed per image page (seconds/image page) and elapsed per K-byte (seconds/K-byte) is also displayed.
AVG requests queue wait time	The average wait time in seconds per request. The wait time is the elapsed time of when a request is enqueued by the dispatch process, and the time the SDS_CSAR_reader dequeues the request. The wait time is accumulated and an average is displayed here. In addition, a Standard Deviation of wait time in seconds per request is also calculated and displayed.

Sample output - Summary Option

```
<DOC_tool:lib a>sdsinfo
Summary info, Queued request info, Worker info, or All info?
('s','q','w','a')
<DOC_tool>s

SDS info: SUMMARY option

****** SDS unit = 1 state = ENABLED   SDS priority = high ********
       DEBUG Setting = MAX
       Worker = 'SDS_CSAR_reader' Number Instances = 4
       info = 'workingdirectory=/surf/HSM_DISK emcdomain=10.10.16.1'
       Current number of outstanding requests in the SDS queue: 0
 Total Accumulated counters from all workers(4):
   TOTAL WORKER COUNTERS:
     Requests processed = 73
     Successful requests processed = 73
     Requests satisfied via Centera: 73
     Errors = 0
     Images retrieved = 73
     Data retrieved = 13.565308MB
AVG request size = 190.285959K (STDEV=306.184007)
     AVG Image Size = 190.285959K
     FPTag_BlobReadPartial calls = 146
(continued on next page)
```

Sample output - Summary Option, continued

```
     Requests where the whole BLOB fits into the internal image_buffer (1024K): 0
     Requests where the requested images fits into the internal
     image_buffer (1024K): 73
     Requests where the requested images do not fit into the internal
     image_buffer (1024K): 0
     Cache hits: 0
< AVERAGE ACCUMULATED ELAPSE TIMES:
   Up time:    216.431102 secs/workers  (3.607185 mins)
   Idle time:  204.640056 secs/workers  (3.410668 mins) (94.55%)
   Total processing time: 11.757163 secs/workers
                         (0.161057 secs/reqs)
                         (0.530685 STDEV secs/reqs)
                         (0.161057 secs/image page)
                         (0.000846 secs/KB)
   Time in get_doc_from_file_system(): 0.005152 secs/workers
   Time in get_doc_from_centera():     11.581691 secs/workers
AVG time in Centera API calls(Pool, Clip, Read): 10.393007 secs/workers
                                                  (0.569480 secs/reqs)
                                                  (0.519810 STDEV secs/reqs)
                                                  (0.569480 secs/image page)
                                                  (0.002993 secs/KB)
AVG time in FPTag_BlobReadPartial only: 8.705989 secs/worker
(continued on next page)
```

Sample output - Summary Option, continued

```
                                          (0.477041 secs/reqs)
                                          (0.477041 secs/image page)
AVG time in Writing to page cache (CSM): 0.750002 secs/workers
                                           (0.041096 secs/reqs)
                                           (0.021357 STDEV secs/reqs)
                                           (0.041096 secs/image page)
                                           (0.000216 secs/KB)
  AVG requests queue wait time: 0.000955 secs/reqs
                              (0.000253 STDEV secs/reqs)
```

SDSinfo Queue Option (q)

When the Queue option is selected, outstanding SDS queued request information is displayed along with the basic SDS information. For each outstanding request the following information is displayed:

Queue Option information

Queue Option	Description
Doc_id	source doc_id
Doc_index	target document ID

Queue Option information

Queue Option	Description
Request type	For this enhancement the request type will always be read request type.
Ssn	SSN of the source
Cache_id	Target cache_id
Cache_ssn	Cache or target SSN
Firstpage	First page to retrieve
Numpages	Number of pages to retrieve
Prim_surf_id	Primary surface ID
Tran_surf_id	Tranlog surface ID
Notify_ptr	Notification pointer
Has_clipid	Indicates the CLIP ID was retrieved from doctaba when the request was dispatched

If there are requests in the queue when the queue option is selected, the screen will look similar to the Sample output screen below:

Sample output - Queue Option

```
<DOC_tool:lib a>sdsinfo
Summary info, Queued request info, Worker info, or All info?
('s','q','w','a')
<DOC_tool>q

SDS info: QUEUED option

****** SDS unit = 1 state = ENABLED SDS priority = high ********
   DEBUG Setting = MIN
   Worker = 'SDS_CSAR_reader' Number Instances = 1
   info = 'workingdirectory=/fnsw/rci_2944/NLS/ibm28 emcdomain=10.10.16.1'
   Current number of outstanding requests in the SDS queue: 1
Request Type: READ_REQUEST
   doc_id = 1004259, doc_index = 1004259, ssn = 10347,
   cache_id = 1, cache_ssn = 10347, firstpage = 1, numpages = 1,
   prim_surf_id = 33002, tran_surf_id = 0
   notify_ptr =b0691b88, has_clipid = TRUE
<DOC_tool:lib a>SDS
```

If there are no requests in the SDS queue, a message similar to the following will be displayed indicating that the queue is empty:

Sample output - Empty Queue Option

```
<DOC_tool:lib a>sdsinfo
Summary info, Queued request info, Worker info, or All info?
('s','q','w','a')
<DOC_tool>q

SDS info: QUEUED option

****** SDS unit = 1 state = ENABLED   SDS priority = high ********
       DEBUG Setting = MAX
       Worker = 'SDS_CSAR_reader' Number Instances = 4
       info = 'workingdirectory=/surf/HSM_DISK emcdomain=10.10.16.1'
       Current number of outstanding requests in the SDS queue: 0

 SDS (unit=1) queue is currently empty
```

SDSinfo Worker Option (w)

When the Worker option is selected, basic SDS information is displayed, along with information about each active worker and a summary worker report. The information displayed is similar to worker summary reports, but the counters and time accumulated are specific to each worker. The fields displayed in the Summary report and Worker report are the same except there is an additional field, the “Last request done” field which is a time stamp of the last request done.

Sample output - Worker Option

```
<DOC_tool>sdsinfo
Summary info, Queued request info, Worker info, or All info?
('s','q','w','a')
<DOC_tool>w

SDS info: WORKER option

****** SDS unit = 1 state = ENABLED   SDS priority = high ********
       DEBUG Setting = MAX
       Worker = 'SDS_CSAR_reader' Number Instances = 4
       info = 'workingdirectory=/surf/HSM_DISK emcdomain=10.10.16.1'
       Current number of outstanding requests in the SDS queue: 0

 Worker instance 1:
   WORKER COUNTERS:
     Requests processed: 18
     Requests satisfied via Centera: 18
     Successful requests processed: 18
     Errors: 0
      Retrieved image pages count: 18
     Retrieved data: 2.437140MB
(continued on next page)
```

Sample output - Worker Option, continued

```
     AVG Image Size = 138.646159K
     AVG request size = 138.646159K
     FPTag_BlobReadPartial calls: 36
     Requests where the whole BLOB fits
      into the internal image_buffer (1024K): 0
     Requests where the requested images fits
      into the internal image_buffer (1024K): 18
     Requests where the requested images do not
      fit into the internal image_buffer (1024K): 0
     Cache hits: 0
   WORKER ACCUMULATED TIMES:
     Up time =           231.859300 secs (3.864322 mins)
     Total Idle time =   220.574305 secs (3.676238 mins) (95.13%)
     Last request done = 73.897224 secs (1.231620 mins)
     Total processing time: 11.252709 secs
                           (0.625150 secs/reqs)
                           (0.625150 secs/image page)
                           (0.004509 secs/KB)
     Time in get_doc_from_file_system():  0.005164 secs
     Time in get_doc_from_centera():      10.878501 secs
     Time in Centera API calls(Pool, Clip, Read):   9.735745 secs
                                                   (0.540875 secs/reqs)
(continued on next page)
```

Sample output - Worker Option, continued

```
                                                    (0.003901 secs/KB)
    Time in FPTag_BlobReadPartial only: 7.209035 secs
                                       (0.400502 secs/reqs)
                                       (0.400502 secs/image page)
                                       (0.002889 secs/KB)
    Time in Writing to page cache(CSM): 0.842177 secs
                                       (0.046788 secs/reqs)
                                       (0.046788 secs/page)
                                       (0.000337 secs/KB)
    Total SDS requests queue wait: 0.017979 secs
                                  (0.000999 secs/reqs)
                                  (0.000999 secs/page)
                                  (0.000007 secs/KB)
Worker instance 2:
  WORKER COUNTERS:
    .
    .
    .
```

SDSinfo All Option (a)

When the all option is selected, all the information above is displayed.

Sample output - All Option

```
<DOC_tool>sdsinfo
Summary info, Queued request info, Worker info, or All info?
('s','q','w','a')
<DOC_tool>a

SDS info: ALL option

***** SDS unit = 1 state = ENABLED   SDS priority = high ********
       DEBUG Setting = MAX
       Worker = 'SDS_CSAR_reader' Number Instances = 4
       info = 'workingdirectory=/surf/HSM_DISK emcdomain=10.10.16.1'
       Current number of outstanding requests in the SDS queue: 0

 SDS (unit=1) queue is currently empty

Worker instance 1:
   WORKER COUNTERS:
     Requests processed: 18
(continued on next page)
```

Sample output - All Option, continued

```
     Requests satisfied via Centera: 18
     Successful requests processed: 18
     Errors: 0
     Retrieved image pages count: 18
     Retrieved data: 2.437140MB
     AVG Image Size = 138.646159K
     AVG request size = 138.646159K
     FPTag_BlobReadPartial calls: 36
     Requests where the whole BLOB fits into the internal image_buffer (1024K):0
     Requests where the requested images fit into the internal image_buffer
     (1024K): 18
     Requests where the requested images do not fit into the internal image_buffer
     (1024K): 0
     Cache hits: 0

.
.
.
Total Accumulated counters from all workers(4):
   TOTAL WORKER COUNTERS:
     Requests processed = 73
     Successful requests processed = 73
     Requests satisfied via Centera: 73
(continued on next page)
```

Sample output - All Option, continued

```
     Errors = 0
     Images retrieved = 73
     Data retrieved = 13.565308MB
     AVG request size = 190.285959K (STDEV=306.184007)
     AVG Image Size = 190.285959K
     FPTag_BlobReadPartial calls = 146
     Requests where the whole BLOB fits
      into the internal image_buffer (1024K): 0
     Requests where the requested images fits
      into the internal image_buffer (1024K): 73
     Requests where the requested images do not
      fit into the internal image_buffer (1024K): 0
     Cache hits: 0
   AVERAGE ACCUMULATED ELAPSE TIMES:
     Up time:    235.182064 secs/workers  (3.919701 mins)
     Idle time:  223.391018 secs/workers  (3.723184 mins) (94.99%)
     Total processing time: 11.757163 secs/workers
                           (0.161057 secs/reqs)
                           (0.530685 STDEV secs/reqs)
                           (0.161057 secs/image page)
                           (0.000846 secs/KB)
.
.
.
```

Additional Internal Buffer Counter Information

This section describes the following three Internal Buffer counters.

Whole Document BLOB Fits into the Internal Buffer

The BLOB size is part of the CLIP meta-data. If the BLOB size is less than or equal to the internal buffer size, the whole BLOB will be read into the internal buffer with single BLOB Read call. Using a single BLOB read will maximize system performance, so it is important to have DBP buffer size equal to the BLOB size whenever possible. A counter is maintained for the number of requests where the whole BLOB fits into the internal buffer. This counter is displayed through the DOC_tool program.

When the whole BLOB fits into the internal buffer, all the pages of the document starting with the first requested page will be written to page cache. For example, if we have a 100 page document and the entire document fits into the internal buffer, and page 5 (starting page = 5 and requested pages = 1) is requested, page 5 to 100 will automatically be

written to cache. This is different from how the IS software retrieves documents from MSAR or optical.

This scenario was created for the following three reasons:

- The internal buffer may not exceed 1MB, so reading the whole document into page cache should not create a cache fullness problem. If this is an issue, then the cache is probably too small or the DBP size needs to be reduced.
- A retrieval of a multiple page document that is relatively small almost always results in retrieving more than one page. The IS software automatically does mid-priority retrievals.
- The overhead of doing BLOB reads is high, so if multiple BLOB reads can be combined it will improve performance.

Requested images Fit into the Internal Buffer

If the whole document can not fit into the internal buffer, the header and Table Of Contents (TOC) information will be read into the internal

buffer with one BLOB Read. The TOC includes the offset and size of each page of the document.

The SDS_CSAR_reader process will determine if the requested pages will fit in the internal buffer. If the requested pages fit into the buffer, one BLOB read will be done to read all the requested pages. Only the requested pages will be written to page cache. For example, if pages 2 to 9 have been requested from a 100 page document and the whole document does not fix into the internal buffer, pages 2 to 9 will be read in a single BLOB read and pages 2 to 9 will be written to page cache. This results in two BLOB reads. The first BLOB read gets the header and TOC information to find out if the requested pages fit into the internal buffer, and the second BLOB read determines the offset of the first requested page.

Requested Pages Do Not Fit into the Internal Buffer

If the requested pages do not fit in the internal buffer, the header and TOC information will be read into the internal buffer with one BLOB read, and each requested pages will require at least one BLOB read.

In the case where the individual page exceeds the internal buffer, multiple BLOB reads will be required per page. Only requested pages are read to the internal buffer and written to cache.

Retrieving Documents

The dispatch process component of the CSAR software knows how to process all retrieval requests for documents whether they are located in CSM page cache, in a Centera repository, or on an MSAR or optical surface.

Note Where a retrieval request is directed is determined by the priority setting in the sds_conf file.

When processing a Centera retrieval request, the request is sent to the SDS Worker (SDS_CSAR_reader). Since the SDS Worker is integrated into IS 4.0.0 (Service Pack 1) software, the retrieval process is transparent to the user. Therefore, as long as the IS system server(s) are configured correctly, retrieval requests are made normally using regular Image Services utilities.

Appendix A – Troubleshooting NLS Archive

This appendix describes how to troubleshoot problems you may encounter when using NLS Archive. These include:

- **“Reporting Problems”**
- **“Utility/Operating System and IS Toolkit Version Relationship”**
- **“Error Logging Files”**
- **“When to Use wal_purge (UNIX Only)”**
- **“Sun OS Path Issue”**
- **“Shell Problems Causing NLS Archive Failures (UNIX Only)”**
- **“HP CD-ROM Mounting for ISO9660 CD Type”**
- **“Error Codes Known to Need Specific Actions”**
- **“Error Codes”**

Reporting Problems

When a problem with NLS Archive is perceived, a sample run with the minimum amount of data needs to be executed. Adding the debug option '-D' and the spy option '-S' may be used to assist you in identifying a problem, or when requested by FileNet personnel.

Note **Do Not** use -M unless specifically requested by FileNet.

Debugging messages will be added to the journal log file. This file, along with a description of the event that presented itself should be sent to the appropriate support individuals. Failure to provide all output files will delay the ability to diagnose the problem.

When reporting a problem, send the following information as applicable for your system.

- Site name or CSS Case Number.
- System Configuration
  - Operating System platform and version

- Database platform and version
- Run – fn_util whichfn – supply output to Professional Services
- Image Services version and stamp /fnsw/lib/shobj/SysV
- IS Toolkit version
- IS Toolkit stamp /fnsw/client/shobj/SysV
- Directory listing of IS Toolkit installation point to verify permissions when in a UNIX environment
- (ls –alR /fnsw/client > *filename*)
- Is IS Toolkit/Utility installed directly on IS or on a remote system? If remote, supply the Operating System for remote environment.
- PS Utility version (i.e. NLS_start –v)
- PS Utility stamp on UNIX systems only (i.e. stamp NLS_Archive) (Stamp not available in a Windows environment)

- Directory listing of PS Utility installation point to verify permissions when in a UNIX environment
  (ls –al /fnsw/local/bin > *filename*)

- CheckSSN output from display in DOS prompt or Command window
- State problem
- Outline steps on how to reproduce problem
- Please give exact command used to start/stop the PS Utility
- Output from display in DOS prompt or Command window of Utility runtime
- Nohup files - i.e. /tmp/*Utility_Name.datetime*
- Utility Journal logs (/fnsw/local/bin/journals/*)
- Utility Configuration file NLS.cfg

- Input files used (DocID list files, eob files, transact.dat files, images, etc.)
- IS Toolkit Error logs (/fnsw/client/tmp/*walyyyymmdd*)
- IS Error Logs (elog########)
- Stack trace of core (if a core file is produced)
  DO NOT send the core file.

Note See the Error logging section below for an explanation of the log file and default paths.

Utility/Operating System and IS Toolkit Version Relationship

The utility build version selected will be dependent upon the IS Toolkit version in use on the IS Server. The utilities have been compiled to run with IS Toolkit 3.6 and 4.0.0. The installation CD will detect the version of IS Toolkit and install the correct compile of the selected Utility when installing on a UNIX system. When installing on a Windows Server, the

user will be responsible for knowing the IS Toolkit version and selecting the correct Utility compile when asked during the setup procedure. Should the user need to download a version of a Utility off the CSS download site, it will be necessary to verify the IS Toolkit version by running a stamp command on a IS Toolkit module in the IS Toolkit install directory.

To verify the OS version level, enter:

UNIX system:
>fn_util whichfn
>stamp /fnsw/lib/shobj/*SysV*

Windows system:
fn_util whichfn
stamp <drive>:\fnsw_loc\lib\shobj\SysV.dll

To stamp an IS Toolkit module, enter:

UNIX system:
stamp /fnsw/client/shobj/*SysV*

Windows system:
stamp <drive>:\fnsw\client\bin\SysV.dll

The “system” number and “rel_type” are both important informational items to take into account when selecting the correct utility version.

Error Logging Files

Errors that occur during the operation of a Professional Services Utility can be reported in several places, depending on the error type. When an Image Services related error is encountered, the FileNet error tuple and error text, if available, will be reported. If a utility or File System error is encountered, a utility error code will be reported. The utility error codes are generally related to an incorrect configuration, bad input file format, or a problem with the NLS File System. File system errors (Code 1024) will almost always be the responsibility of the System Administrator to rectify.

The following are examples of error types and locations related to all utilities.

NLS Archive Logs

Viewing Logs in a Windows Environment

On Windows systems, log files are located in the default directory: **<drive>:\fnsw_loc\bin\journals** or in the directory set in the NLS.cfg file.

Viewing log files when the NLS Archive modules are running in a Windows environment can be limited because of file access conflicts. It will be necessary to stop the NLS Archive modules or use the Windows "more" command in a Command prompt.

To view a log file while NLS_Archive is running:

1. Open a Command prompt.
2. Change to the following directory:

   cd <drive>:\fnsw_loc\bin\journals

3. Enter the command:

more < arc*YYYYMMDD*

Viewing Logs in a UNIX Environment

Journal log files are found in the default journals directory, **/fnsw/local/bin/journals** or in the directory set in the NLS.cfg file.

Any batch progress and general error messages are reported in the journal files.

Journal files are entitled as follows:

- arc*YYYYMMDD*
- ret*YYYYMMDD*
- dmp*YYYYMMDD*
- add*YYYYMMDD*
- dis*YYYYMMDD*

Other Logs

IS error logs – all IS related messages and errors (Storage Library, SDS_CSAR_reader, database, security, etc.) Applicable to ALL utilities. Use the vl command to view error logs.

Default UNIX - /fnsw/local/logs/elogs
Default Windows - \fnsw_loc\logs\elogs

IS Toolkit error logs – all IS Toolkit messages and errors (an IS error log specifically for the IS Toolkit environment) Applicable to ALL utilities.

Default UNIX - /fnsw/client/logs/wal*YYYYMMDD*
Default Windows - \fnsw\client\logs\wal*YYYYMMDD*

When to Use wal_purge (UNIX Only)

The IS Toolkit program /fnsw/client/bin/wal_purge can clean up numerous problems but it can also be used incorrectly when IS Toolkit programs are running and cause application/program failures. Only run wal_purge when ALL IS Toolkit applications are stopped. This can be

done via a script that will run immediately after bringing up the FileNet software but before starting any IS Toolkit applications/programs.

The following cases are times when wal_purge can be used to clean up an application problem.

- If the FileNet software is shut down before the utility is stopped.
- If any changes are made to the NLS.cfg file.
- If a newly created doc class or index is not recognized by the utility.
- Various security problems with the utility.

Sun OS Path Issue

The Sun Operating System contains an environment file that can load paths where origins can be difficult to detect. The file is /etc/profile.

Shell Problems Causing NLS Archive Failures (UNIX Only)

UNIX Operating System environments differ greatly between shells and environment variables configured within a shell. Some UNIX Operating System shells can cause the NLS Archive modules to fail during various execution and communication areas. If this occurs, it is recommended that you configure the environment, for the User that will be running the NLS Archive modules, to use the C shell (csh).

HP CD-ROM Mounting for ISO9660 CD Type

The utilities are released on a CD type that is created for all supported operating systems. HP operating systems require a special mount command to read an ISO9660 CD type.

To determine the mount point, perform the following steps:

1 To determine the CD-ROM device file name, enter the command:

ioscan -fnC disk

2 Locate the CD-ROM device file name on the **ioscan** display. For example:

```
Class   I   H/W Path      Driver S/W State   H/W Type     Description
=============================================================================
  .
  .
disk    5   0/0/2/0.1.0   sdisk  CLAIMED     DEVICE      HP  DVD-ROM 305
                         /dev/dsk/c3t2d0    /dev/rdsk/c3t2d0
  .
```

3 Mount the CD-ROM device on the /cdrom directory by entering a command similar to the following:

>mount –o cdcase /dev/dsk/c3t2d0 /cdrom

where **/dev/dsk/c3t2d0** is the CD-ROM device file name shown on the ioscan display.

Error Codes Known to Need Specific Actions

,#### – folder/file path does not exist

0,13,#### – folder/file permissions are incorrect

15,16,17 – This is an IS network error and will need to be resolved by the System Administrator, or by contacting the CSS Worldwide Customer Support Web site at: **http://www.css.filenet.com**.

156,0,24 - <NCH,0,24> “A network related error was encountered.” The most common reasons for this error are:

- They do not have the correct “nch-server” entry in the /etc/hosts file.
- They provided an incorrect Domain or Organization name in the NLS.cfg file.
- The FileNet IS software is stopped.
- There is a network problem.

202,6,3 - ./CheckSSN (10662) WARNING: Current process is not registered

This error usually means that the IS Toolkit libraries are not installed properly and the PS Utility is accessing the IS libraries instead of the IS Toolkit libraries.

202,0,9 – SysV segmentation violation: Problem between IS and IS Toolkit memory management modules. Any error of this type is difficult to detect. The following is a list of know problems that can receive this error:

- 202,0,9 – IS Toolkit install incomplete (Modules not copied down entirely or configuration incomplete.)
- 202,0,9 – IS Toolkit and Utility compile mismatch (Utility is compiled for each IS Toolkit version. See section on Hardware and Software requirements.)
- 202,0,9 – Utility installation incomplete (Not all modules were copied down or permissions on NLS Archive modules are incorrect on UNIX.)

- 202,0,9 – SysV module from IS is being accessed instead of the SysV module in the IS Toolkit installed directory. Check your PATH to see that the IS Toolkit path is listed before the IS path. Test has found problems where the IS shobj path has been input into another PATH value that causes the IS SysV to load when a IS Toolkit call is made thus causing a segmentation violation.

Error output that can be found in the nohup log (/tmp/NLS_importyyyymmdd) file when there is an incorrect path present in the environment:

```
sys_log: fnc_get_process_name error: program is not
registered. pid = 15701
Process aborting due to segmentation violation...
```

Error Codes

The following table is a general list of errors that may be encountered. Included is a description of their meaning where appropriate.These

error code numbers can change in subsequent builds that may not be reflected in this document.

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
999	lowest error – empty	
1000	Incorrect number of cfg argu-ment	
1001	cfg bad key word	
1002	cfg exceed max	
1003	cfg expect brace	
1004	Cfg file is empty	
1005	cfg get failed	
1006	cfg invalid index type	
1007	cfg invalid keyword	
1008	cfg invalid number	
1009	cfg too many token	

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
1010	cfg no 2nd quote	
1011	cfg Required Directory missing from Configuration File	
1012	cfg not digit	
1013	Value for Keyword is not valid	
1014	cfg open fail	
1015	cfg too many index	
1016	cfg unexpected eof	
1017	end of file	
1018	EOB file contains bad information	
1019	cannot convert	
1020	Data Error. Checksum of file is bad	
1021	DocClass info not in configuration file	

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
1022	Number of Documents in EOB and transact.dat mismatch	
1023	Document ID List File is required (-f option)	
1024	Can't exec command	
1025	Index is not defined in document class	
1026	Invalid document number	
1027	Invalid object id	
1028	Invalid object name	
1029	Invalid ISR type	
1030	IO error	Could not create open, read or directory. Usually a permissions problem or the NLS File System ran out of space or an NFS mount was lost
1031	Critical IO error – Program Abort	
1032	Can't kill a child process	

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
1033	Line too long	
1034	malloc failed	Unable to get an allocation of memory from operating system.
1035	Miscellaneous error	
1036	Source domain must be supplied for this application	
1037	Missing required index in configure	
1038	Required command-line option missing	
1039	No annotations were found for this document	ISR error on attempt to complete Activity Logging Event on an annotation.
1040	Document does not contain any page	
1041	Multiple Classes are not supported by this application	ONLY NLS Archive will receive this error. NLS Archive does not support multi doc classes.

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
1042	One or more critical resources are not available	
1043	Not a valid FileNet format. See SC_convert.out for details	
1044	Not enough space	For NLS Archive Page Cache is full and for NLS Archive BES Cache is full. Check cache.
1045	open file fail	
1046	Number of Pages in EOB and transact.dat mismatch	
1047	Value for required index is missing	
1048	Can't spawn the external report program	
1049	System Error, see Errno	
1050	Program Terminal ID is Required	

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
1051	Image file did not validate	
1052	Too many docs in subbatch. MaxDocPerSubBatch too small	
1053	Too many docs returned by query. Must query on unique index	
1054	Batch contains more than one family	Multiple Families NOT supported.
1055	too many pages in doc	Document exceeds the max page limit of %d. Ln='%s'
1056	Too many sub batches. MaxBatchSize too small	NLS Archive ONLY: Maximum number of sub batches has been reached. MaxBatchSize in the configuration file may be too small. This must be big enough to hold 1000 documents or 2000 pages.
1057	Transact file contains incorrect format	

ERROR NUMBER	ERROR TEXT	ERROR INFORMATION
1058	Required input file was not provided	
1059	PS Shared Library Mismatch-Contact FileNet Support	
1060	EMC-Centera Support not yet available-No ClipId Produced	
1061	EMC-Centera device IO error	
1062	ISR Validation Failure	
1063	Unsupported SSN	MSS error can occur if all system SSNs in the MSS NET are not in the license key (PSLSF).
1064	Preliminaries Complete	

Glossary

Cache-only

Some FileNet customers do not choose to use optical or MSAR storage libraries for their systems. All of their committed documents stay locked in page cache. This type of configuration is called a Cache-only system.

Content Addressed Storage (CAS)

A new category of storage used by a Centera storage repository device. Rather than address a data object by its file name at a physical location, a CAS device uses a content address that is based on attributes of the content itself. This results in a unique identifier (or Content Address) that is used to store and retrieve the object.

CSM Page cache

CSM Page cache, also known as retrieval cache, is a cache containing all documents being committed to or retrieved from storage media. Page cache is a ageable cached, meaning that documents not locked can be deleted if needed to make room for newer documents.committal

Doctaba table
The relational database table where Index information about documents are stored.

Document Class
A logical grouping of similar documents. A document's scanning, indexing and security characteristics are defined by the document class. All documents assigned to that class share the same characteristics. A document class is associated with a media family.

document ID
A number the Image Services software assigns to a document. It is unique throughout an Image Services system and is used in the tables and databases to identify documents.

domain name
The domain name is the second part of the NCH resource name. The domain name is the system name, which is determined by you and set up by your FileNet support representative during FileNet system configuration.

EMC Centera domain name
Used to connect to the appropriate Centera object repository.

EMC Centera Object Repository

EMC Centera Object Repository stores data based on the actual content value. This is a content based addressing system.

Image Services

Image Services is a set of servers and services providing a single document image database. The database includes a single index database, a single document locator database, and the collection of document images on storage media.

In box surface

A surface that is physically available in a library.

index

An index contains the information used for retrieving documents. All index information is stored in the index database and also on storage media in page zero of the document. The Image Services software looks in this database for index information to satisfy a retrieval query.

index database

The index database contains document and folder information. It is implemented as using a relational database management system (either Oracle, DB2, or Microsoft SQL Server).

MSAR

Magnetic Storage and Retrieval library. This is a FileNet term for utilizing available magnetic storage for Image Services documents and treating this space as a storage library.

OSAR

OSAR is an acronym for FileNet's proprietary Optical Storage and Retrieval unit. An OSAR is a type of storage library.

out of box surface

A surface that is not physically available in a library. An RSVP issued so that an operator can load the surface back into the library.

server

A server is a single computer system that provides a service in the FileNet system. Types of servers include root server, index server, batch entry server, storage library server, and application server.

SSN (System Serial Number)

The system serial number is a unique number provided to you by FileNet. For UNIX systems, this number is based on the unique processor ID of the server. For Windows systems, this number is based on the network adapter address.

storage library - MSAR

A storage library that usually uses magnetic disk media instead of using optical media or large magnetic disk caches (cache-only systems) to store data. The MSAR storage library uses virtual slots and drives that function similarly to FileNet optical storage libraries.

storage library - optical

A storage library that uses optical media to store data. It often uses a storage media jukebox, a unit that has a number of slots for containing storage media and a robotic arm that moves the media between slots, drives, and the input/output slot.

storage library server

In a system with two Image Services servers, the second server manages the storage libraries and includes cache storage as well as the related databases.

A system can have multiple storage library servers, each of which can manage up to 8 storage libraries. Up to 64 storage library servers can be configured on one IS domain/system. In a system with multiple storage library servers, one serves as the document locator server that keeps track of the contents of all storage libraries.

surface

For an optical system, this is one side of an optical disk. For an MSAR system it is a single file on magnetic storage.

system - Image Services

A FileNet Image Services server, or multiple servers, in its own domain is often referred to as a system.