

IBM FileNet P8
Version 4.5.1.2

*Best Practices for FileNet P8 3.5.2 to
P8 4.5.1.2 Upgrade with Replatforming
(Windows to UNIX)*



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Note

Before using this information and the product it supports, read the information in "Notices" on page 25.

This edition applies to version 4.5.1.2 of IBM FileNet Business Process Manager (product number 5724-R76), version 4.5.1.2 of IBM FileNet Content Manager (product number 5724-R81), and to all subsequent releases and modifications until otherwise indicated in new editions.

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Introduction

This document covers best practices for upgrading an IBM® FileNet P8® Content Engine (CE) and Process Engine (PE) from version 3.5.2 to version 4.5.1.2, with a focus on the case in which “replatforming,” or changing the underlying platform of one or more major system components, is being conducted as part of the upgrade. Procedures are presented which have shown to be optimal for the upgrade based on in-house tests and analysis, and the order for all key operations is specified. It is assumed that the reader has access to and is familiar with the P8 4.5.1.2 versions of the *Plan and Prepare Guide*, the *Installation and Upgrade Guide*, and the other documentation referenced in this document. This document presents only a high-level description of the steps to take when a replatforming upgrade is necessary; the individual details of each step will be found in the guides.

It is strongly recommended that you read this entire document before proceeding with the upgrade, in order to familiarize yourself with the overall procedure. Diagrams appear at the beginning of significant sections and show the logical state of the system after you make the changes described in that section. The procedures in this document are intended to avoid alterations to production data. A good understanding of the procedures is key to deciding if this process is appropriate for your environment.

Throughout this document, numerous references are made to additional documentation, in the form of both help topics in the P8 Information Center and separate guides. A list of these is included in Appendix A. Each document listed is preceded by a bracketed code, used throughout the body of this document as an exact identifier for that particular document. For example, “[PPG] *Planning and Preparing for IBM FileNet P8 Platform Upgrade → Planning the upgrade → Upgrade overview*” means that you should go to the IBM FileNet P8 4.5.1.2 Plan and Prepare Guide, abbreviated as “PPG”, and then follow the breadcrumbs until you find the topic “Upgrade overview”. Diagrams are given at the beginning of significant sections, to show the logical state of the system after the corresponding changes are made.

It is important you follow the version of documentation that corresponds to the software version you are upgrading to. In particular, this document applies to P8 versions 4.5.1.2 and later. It is highly recommended to upgrade to at least P8 4.5.1.2 since many improvements were made to the CE upgrade process including a new, web-based, upgrade tool that makes the upgrade process easier.

Audience

This document is for customers who need to know about upgrading the CE and PE from P8 3.5.2 to P8 4.5.1.2, with an accompanying change in platform (also known as “replatforming”) from Microsoft Windows to UNIX. If you intend to perform the upgrade, you should have significant experience with IBM FileNet P8 installation and system operation.

Problem overview

Upgrading large systems from IBM FileNet 3.5.2 to 4.5.1.2 involves significant work, and can be particularly challenging when the underlying platform of a major system component such as Content Engine is being changed. Indeed, such a change is often part of the initial motivation for making the upgrade, so it is important to have a well-understood process in place.

The best practice presented in this document is designed to keep production system outages to a minimum. With this goal in mind, the upgrade is done “out-of-place,” meaning that upgrade procedures are performed on a duplicate of the production data. This lets you revert to the original system if you encounter significant problems.

Because large system upgrades involve interacting with numerous system components, a common approach is to go through a “dry run” first. In such a scenario, the upgrade is completed on a test system, and then various validation testing is conducted using the production applications. Once the method of upgrade and the final system integrity are verified, the test system is discarded and the “real” upgrade is performed by repeating the process in this document or by following the FileNet P8 documentation explicitly.

The dry-run method is obviously more time-consuming than doing the upgrade immediately, but has the advantage of minimizing risk. The dry-run approach involves additional steps not present in this document to completely replicate the production data as would be needed to simulate production activities using a duplicated system. For a complete procedure on how to migrate all the production data to a test system in the same authentication domain to create a dry-run environment, refer to the technical notice “Migrating Production Data to Test in the Same Authentication Domain”.

<http://www-01.ibm.com/support/docview.wss?uid=swg21326721>

A central goal of the upgrade described in this document is to preserve the P8 3.5.2 production system in an intact state (so that it can be used in case of problems with the upgrade). All active upgrade tasks (tasks which might alter data in a P8 3.5.2 production system) are run on a second, duplicate system, also known as a “staging system”, rather than on the original production system. When all upgrade tasks have completed and all data has been transferred to the new locations, the original production system is deactivated and the upgraded system becomes the new production system. This process requires the production system to not be altered during the upgrade period.

This document is concerned with the real upgrade only. However, the process in this document does support the dry-run upgrades because both scenarios begin with replicating the system at a “quiet point”. Thus this document can be followed to create a system that can be used in a dry-run scenario. However, in a dry-run upgrade, the processing that happens on the duplicate system after the quiet point will be lost when the test system is deactivated. Similarly, if the production system was altered after the quiet point, any upgrade processing performed using a duplicate system will be lost.

The term quiet point refers to a point in time during which all system activity is halted, and all open processing is finished. In the current context, this concept can refer to any major system component, in particular, Content Engine and Process Engine. The idea is used to determine when a backup or data transfer can occur.

Upgrade process overview

Requirements

The procedures in this document are targeted to a system which is representative of a typical replatforming customer installation, that is, an upgrade from a P8 3.5.2 Windows installation to a P8 4.5.1.2 UNIX environment. Not all installations will be identical to that represented here, of course, so it is important to make sure that your system fits the basic requirements for a replatforming upgrade.

The following systems are needed to follow this process:

- A UNIX system for the P8 4.5.1.2 installation. The procedures in this document assume that the P8 4.5.1.2 system resides on UNIX and that the file stores are being relocated to the UNIX system. If you do not relocate your file stores, then you will have to take additional steps (described in the FileNet P8 documentation) to ensure the file stores can be accessed from the P8 4.5.1.2 system. Also the steps that direct the file stores be copied to UNIX can be omitted.
- A Windows system to run the P8 4.5.1.2 FileNet Enterprise Manager (EM).
- Another Windows system to be used as a staging server for the duplicate P8 3.5.2 CE. Typically, most upgrades require edits to the P8 3.5.2 object stores using the P8 3.5.2 EM or other tools prior to running the upgrade. A staging system is needed if you prefer those edits not to be made on the production system. The staging system should be sufficiently resourced to ensure that processing is efficient. However, the staging system will not have to sustain significant workload and does not need to be as large as the source system server.
 - If the Content Engine Upgrade tool is used, that tool can also reside on the staging server.

- If the Content Engine Web Upgrade tool is used, that tool can be launched in a browser using the staging server if version 8.0 of Microsoft Internet Explorer is available.

This process presumes the upgraded databases will become the P8 4.5.1.2 production system databases at the end of this upgrade; this requires the database level to be supported by both P8 3.5.2 and 4.5.1.2. Consult the Hardware/Software Requirements Guide to determine what the level should be. You must bring the database to that level before following this upgrade process.

These procedures assume the file stores are relocated to the UNIX system as a part of the upgrade. The CE Web Upgrade Tool works directly with the file stores copied to the UNIX system. However, the CE Upgrade tool accesses the file stores from both Windows and UNIX. Appropriate steps must be taken to configure Windows access by the CE Upgrade tool to the file stores on the UNIX system. These steps differ based on the type of storage. In some cases, an NFS gateway such as Microsoft Windows Services for UNIX might be used to enable communication between the Windows-based CE Upgrade tool and the relocated file storage areas. Alternatively, some storage devices allow simultaneous access using both CIFS and NFS. Consult the FileNet P8 documentation for further details.

If the file stores are not relocated and remain on Windows, the steps in this document to copy the file stores to UNIX can be omitted. However, as directed in the FileNet P8 documentation, steps must be taken to enable communication between the new UNIX Content Engine server and Windows file storage.

Use of replicas

The overall process in this document involves the use of copies for the PE and object store databases; these copies are referred to as *replicas*. These replicas will be used for the upgrade steps that modify the P8 3.5.2 data, so that the production system remains untouched. To accomplish this, the source system must not incur any changes to its data after its backup is taken. If changes do occur in the source system, then the process must be repeated starting at the phase, “Create System Quiet Point.”

For the CE, the procedures to create a system quiet point in preparation for backing-up and replicating the object stores to a staging CE server as well as the procedures to create the CE staging server, generally follow the steps outlined in the P8 3.5.2 CE on-line help topic “Restore data on another server”:

http://P8_3.5.2_CE_online-help/ce_help/backuprestore/br_best_practices_for_restoring_data.htm

For the CE and PE, additional information on stopping all related services and applications can be found in the [IUG] *Installation and Upgrade Guide* as directed by this best practice document.

These documents can be consulted if further details on this portion of the process are needed.

Steps

In the process described in this document, the phases of “Plan and Prepare” and “Installing P8 4.5.1.2 Platform Software” are independent and can be performed in parallel or reverse order. However, both should be completed before entering the phase “Create System Quiet Points,” in order to minimize the time the P8 3.5.2 production system is in read-only mode.

Furthermore, it is not necessary to follow the precise order of steps as presented in this document; a number of the steps can be executed in parallel. However, in several cases it is important that certain steps be completed before others. The following diagram shows this relationship. The flow is from top to bottom, and any place where arrows converge on a point or on a step represents a stage in the process at which all previous steps must be completed. Steps that branch downwards represent stages at which several steps can be completed in any order or in parallel. Steps are numbered as they appear in the appropriate sections in this document.

The center section, in blue, indicates steps added to those documented in the FileNet P8 Documentation that allow the out-of-place upgrade processing.

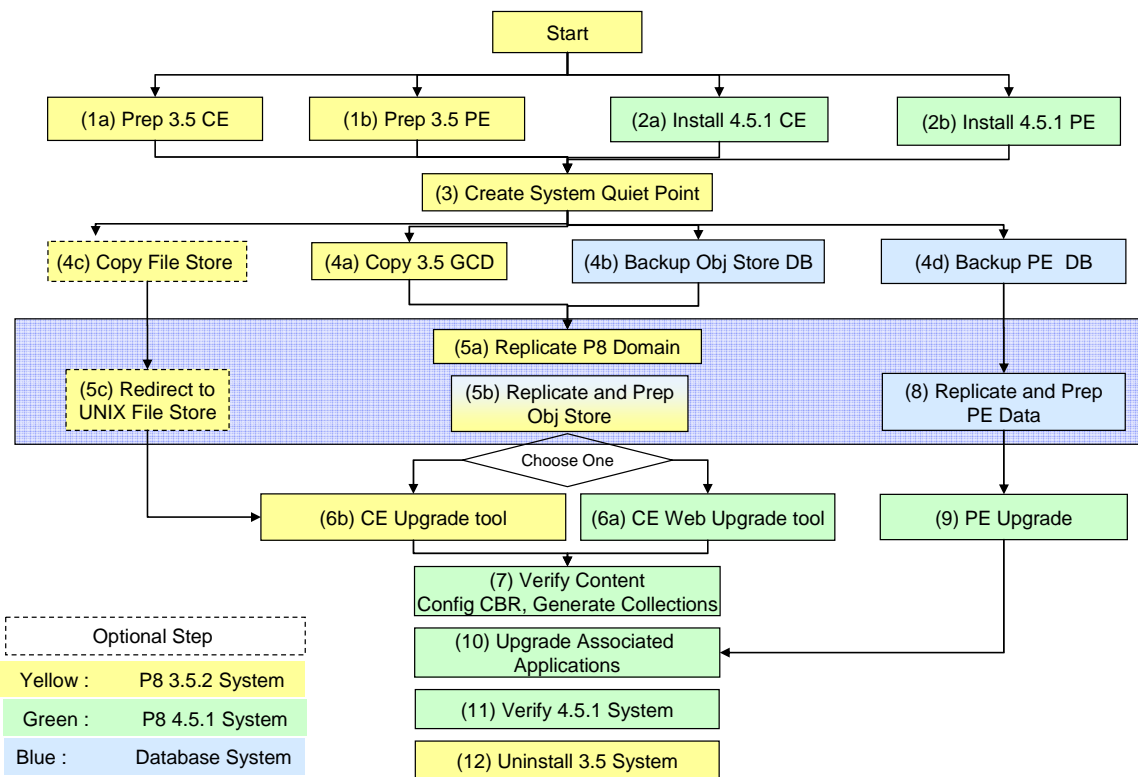


Figure 1 Out-of-Place upgrade with P8 3.5.2 staging CE server

Step 1: Plan and prepare

The following figure shows a logical summary of the starting state of the system. The existing P8 3.5.2 system includes Object Store and File Store Services (the CE) and PE all located on a single Windows server, with a separate database server. Of course, your system might be distributed differently. The UNIX system is available for 4.5.1.2 component installation using the instructions in the PPG, a Windows client is available for the P8 4.5.1.2 FileNet Enterprise Manager installation, and a temporary Windows system is available for the duplicate 3.5.2 elements.

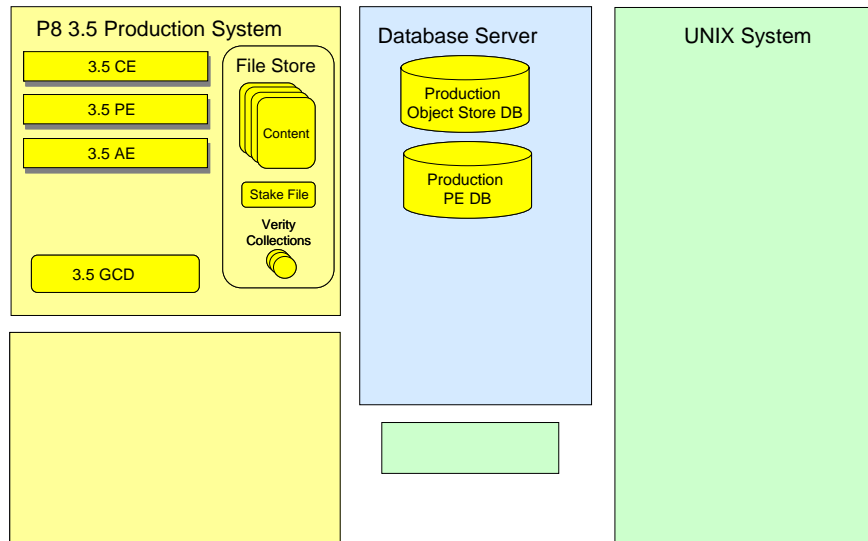


Figure 2 Plan and Prepare for Upgrade

Planning for the upgrade

Read and follow the steps in the general *Plan and Prepare Your Environment for IBM FileNet P8* or the customized guide appropriate for your environment (e.g., “Plan and Prepare Your Environment for IBM FileNet P8 for installation on AIX with IBM DB2 for Linux, UNIX, and Windows, IBM WebSphere Application Server, and Windows Active Directory”). In this document, these Plan and Prepare Guides will be referred to as “PPG.”

Start from the PPG section

[PPG] *Planning and Preparing for IBM FileNet P8 Platform Upgrade* → *Planning the upgrade* → *Upgrade overview*.

Return to this paper when you reach the topic

[PPG] *Performing the required upgrade preparation tasks* → *IT administrator upgrade tasks* → *Configuring UNIX* → *Configuring Content Engine Servers (all UNIX)*, at the section that begins “If you intend to move to UNIX for content engine when you upgrade from version 3.5.2 to 4.5 or later, consider the following.”

As stated in the *Configuring Content Engine Servers (all UNIX)* section, if you physically move the shared directories for the file storage areas to UNIX, and you must establish comparable security settings. For details on these settings, see the IBM FileNet P8 help topic

[INFO] *FileNet P8 Administration* → *Enterprise-wide Administration* → *FileNet P8 Security* → *Authorization* → *Storage Area Security*.

For this process, if the file stores are moved to the UNIX file system, an NFS gateway might be needed if the CE Upgrade tool is used. If the CE Web Upgrade Tool is used, that tool understands how to work with the UNIX-based file stores and an NFS gateway is not needed.

See the section “Copy file store to UNIX File System” below to understand how this portion of the process works.

Resume reading at

[PPG] *Setting up Java™ SDK for Content Search Engine.*

Complete the remaining tasks in the PPG. When instructed to configure database client connections on the P8 4.5.1.2 system, create connections to replica databases and not the P8 3.5.2 production databases. See “Replicate the object stores to be Upgraded” and “Create and Prepare Process Engine Replica” below for further understanding how this portion of the process works.

After completing all tasks in the PPG, read the generalized *IBM FileNet P8 Platform Installation and Upgrade Guide* or the customized *IBM FileNet P8 Platform Upgrade Guide* appropriate for the platform targeted for the P8 4.5.1.2 installation (e.g., *Upgrade Guide for installation on AIX with IBM DB2 for Linux, UNIX, and Windows, IBM WebSphere Application Server, and Windows Active Directory*). In this document, these *Installation and Upgrade Guides* will be referred to as “IUG.”

Start at the beginning of the customized upgrade guide or at the

[IUG]: *Part 2: Upgrading and Configuring IBM FileNet P8 Platform* section in the generalized IUG.

Follow all instructions until you reach the topic

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2*

Then return to this document and perform the steps below.

Step (1a): Prepare for Content Engine upgrade

Implementing server-side scripts and COM objects

As with Content Engine version 3.5.2, in version 4.5.1.2 you can develop and plug in the following server-side components:

- event action handlers,
- lifecycle action handlers, and
- document classifiers.

Whereas in Content Engine version 3.5.2 it was necessary to implement these components as COM objects or scripts, in version 4.5.1.2 they must be implemented as Java classes. Therefore, for version 4.5.1.2, you must convert any event action handlers, lifecycle action handlers, and document classifiers that you developed for version 3.5.2. It is best to develop and test these components on a development environment before beginning the upgrade of the production environment to P8 4.5.1.2. For details on developing and deploying event action handlers, lifecycle action handlers, and document classifiers, see the FileNet P8 Content Manager Java and .NET Developer’s Guide and the Java API Reference.

CBR and full text indexing

Each object store that is configured to support CBR requires the creation of full-text indexes. In P8 4.5.1.2, the Content Engine creates and maintains these full-text indexes using the FileNet P8 Content Search Engine. Content Search Engine uses technology from Autonomy called K2 Enterprise. The full-text indexes are stored in index areas separate from an object store’s database. An index area contains the name of the file system directory that holds the full text indexing data. The implementation and configuration of the full-text indexes is changed in P8 4.5.1.2. Planning on how to best leverage the differences should be performed as a part of preparing to upgrade to P8 4.5.1.2.

See the IBM FileNet P8 help topic

[INFO]: *System Administration → Content Engine Administration → Content-based retrieval → Concepts*

for a description on how full text indexes are implemented and configured in P8 4.5.1.2.

Resolving Content Engine name conflicts

If you previously defined any classes or properties in a version 3.5.2 object store with symbolic names that are the same as any of the class or property symbolic names listed in Appendix C, *New Content Engine Classes and Properties*, in the PPG, the Upgrade Tool will detect the naming conflicts and require you to change the symbolic name on your class or property before the tool will upgrade the object stores to version 4.5.1.2. Therefore, you must resolve conflicts between your version 3.5.2 symbolic names and the version 4.0 and 4.5 symbolic names.

Conflicts are resolved by choosing a new symbolic name for the user-defined or add-on classes or properties that conflict. Any customer applications or customer-created artifacts such as search templates that reference the symbolic name must be altered to reference the new symbolic name.

Name conflict resolution can be performed and the altered applications verified prior to committing to performing the upgrade from P8 3.5.1 to P8 4.5.1.2 as long as either the name is not used in any application or the application is modified when the symbolic name is changed.

For your convenience, a tool is provided with this document to examine an object store and report any name conflicts.

The IBM FileNet Records Manager (RM), now known as the IBM InfoSphere® Enterprise Records (IER), application contains one such conflict. This conflict is the property *ErrorCode* found in the File Plan Object Stores (FPOS). Ensure all instructions found in this section were successfully completed in the P8 3.5.2 environment before upgrading the FPOS:

[PPG] *Planning and Preparing for IBM FileNet P8 Platform Upgrade → Planning the upgrade → Upgrade system requirements for FileNet P8 Platform expansion products → InfoSphere Enterprise Records.*

NOTE: You can choose to resolve naming conflicts later in the process using the replicated object stores on the CE staging server and not on the production system. If you do so choose, you must run tools such as the RM37PreContentEngineUpgrade tool on the CE staging server.

Step (1b): Prepare for Process Engine upgrade

Resume following the instructions in the IUG at

[IUG]: *Upgrading and Configuring Process Engine.*

Follow all instructions until you reach the topic

[IUG]: *Upgrading and configuring Process Engine → Completing pre-upgrade Process Engine configuration → Completing pre-upgrade steps for upgrades from Process Engine Version 3.5 → Updating all isolated regions.*

Then return to this document.

NOTE: One of the steps described in the PPG and IUG pre-upgrade steps overview directs you to reconcile the Process Engine user security information to fix any inconsistencies between the user records stored in the Process Engine database and the LDAP server. This reconciliation is accomplished through the use of the *vwtool* command environment which allows you to display or reconcile user and system environment records for all isolated regions. Corrections to look for include:

- Reassigned short names
- Updated distinguished name (dn) value
- Deleted users

NOTE: Another of the pre-upgrade steps includes pruning the entries in the PE event log tables to reduce their number. If the Process Analyzer is being used, care must be taken to ensure that all events are applied

before pruning. If this step is not performed, additional time to upgrade the PE database might be required due to the size of the PE event log table.

Step 2: Install P8 4.5.1.2 Platform software

Step (2a) : Install P8 4.5.1.2 Content Engine

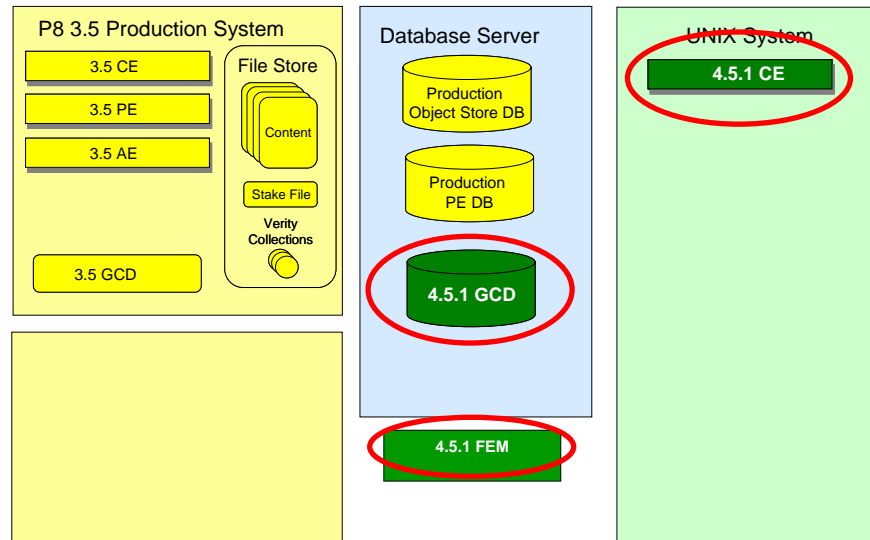


Figure 3 Install and Configure 4.5.1.2 CE

The UNIX system is prepared for 4.5.1.2 component installation using the instructions in the PPG. To install the P8 4.5.1.2 Content Engine on the UNIX system. Refer to

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2*

And perform the following tasks:

1. *Upgrading Content Engine and related client software*
2. *Configuring Content Engine*
3. *Deploying upgraded Content Engine instances*
4. *Installing storage device source files*
5. *Completing Content Engine post-deployment steps*
6. *Establishing the FileNet P8 domain and Global Configuration data*
7. *Configuring storage devices for upgrades*
8. *Upgrading Content Search Engine software from version 3.5.2*

Then return to this document and continue.

Step (2b) : Install P8 4.5.1.2 Process Engine

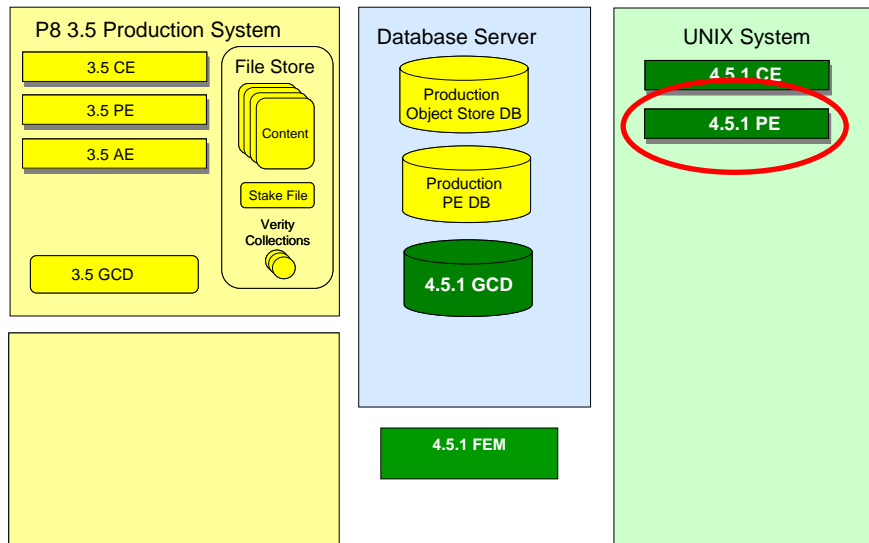


Figure 4 Install and Configure 4.5.1.2 PE

If you are upgrading an existing Process Engine that already resides on the P8 4.5.1.2 UNIX server, you cannot follow the remainder of this document for the Process Engine. Instead, follow the instructions in

[IUG]: *Part 2. Upgrading and configuring IBM FileNet P8 Platform,*

starting at

[IUG]: *Upgrading Process Engine.*

If you are installing the Process Engine on the UNIX server for the first time, read the IUG starting at

[IUG]: *Part 1. Installing and configuring IBM FileNet P8 Platform → Installing and configuring Process Engine,*

and complete the steps under the sections

1. *Installing Process Engine*
2. *Installing the latest Content Engine client files on Process Engine servers*

When these steps are complete, return to this document.

Step 3: Create system quiet point

Before performing any backups it is important to quell all activity on the P8 3.5.2 production system. Failure to properly shutdown the production system will cause problems if the various databases and file systems are backed up out-of-sync.

Content Engine quiet point

Stop all client activity including applications such as Workplace or RM (IER) against the object stores to be upgraded.

1. In the IUG, navigate to the topic *Upgrading and configuring Content Engine and Content Search Engine* → *Upgrading from version 3.5.2* → *Completing pre-upgrade Content Engine configuration*. Complete the

tasks in the following list. Do not complete the other steps not listed below, as you will complete them later in the process using the replica object store.

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Completing pre-upgrade Content Engine configuration.*

- a. *Verifying that all in-progress event actions have finished*
 - b. *Verifying that publishing requests have been completed*
 - c. *Verifying that all in-progress Content Engine transactions involving content files have finished*
 - d. [Optional] *Running the Content Consistency Checker.* The Content Consistency Checker should also be run after the upgrade to P8 4.5.1.2 using the new UNIX system saving P8 3.5.2 production resources.
2. Use the P8 3.5.2 EM to:
 - a. Determine the “SYSINIT Path” of the P8 3.5.2 production system. Right click the EM icon for domain root and go to *Properties → General* tab. Make a note of the location of the sysinit folder.
 - b. Make note of the locations of all file stores. This information can be found on the Properties tab for the file stores.
 - c. Mark all file stores as off-line by selecting the file store and executing the task to disable.
 3. Exit the P8 3.5.2 EM.
 4. Disable the Content Engine services and the Apache service as described in:

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Completing pre-upgrade Content Engine configuration → Stopping and disabling all services related to Content Engine*

Process Engine quiet point

Resume at the topic

[IUG]: *Upgrading and configuring Process Engine → Completing pre-upgrade Process Engine configuration → Completing pre-upgrade steps for upgrades from Process Engine Version 3.5*

Complete the remaining tasks:

1. *Updating all isolated regions*
2. *Completing pre-upgrade steps for Process Analyzer installations*
3. *Purging event logs and statistics records*
4. *Stopping all Process Engine-related services and applications*

Then return to this document.

Step 4: Create data backups and copy the file store

The system must stay off-line to updates (it must remain read-only) until all steps are complete. If you do not enforce this off-line or read-only condition, you run the risk of losing production data during the upgrade.

If this is not the final upgrade, for example in a dry run scenario, the efforts to back up the GCD and databases, copy the file stores from Windows to UNIX, and perform the data upgrades will have to be repeated if the production system is updated.

The following is an overview of backup steps:

1. Back up the P8 3.5.2 GCD.

2. Back up the object store database.
3. Copy the file store (except the full-text indexes) from the 3.5.2 system on Windows to 4.5.1.2 system on UNIX.
4. Back up the Process Engine database.

NOTE: If you are at the quiet point, you can conduct the backups in parallel.

Creating Content Engine data backups

Remember that you must ensure that the P8 3.5.2 production object stores will not be updated while they are being backed up.

Step (4a) : Copy P8 3.5.2 GCD

Back up the GCD sysinit folder located in the SYSINIT Path. The default location is `\Program Files\FileNet\Content Engine\sysconfig\sysinit`.

Step (4b) : Back up object store database

By backing up the object store database, you can create replica object stores later on. Using a replica allows the upgrade process to proceed outside of the production environment. This is fundamental to the best practices presented in this document, in particular so the P8 3.5.2 production system will remain entirely intact and functional.

Utilize the database or other tools as already in use in the environment to back up the object store database.

Step (4c) : Copy file store to UNIX file system

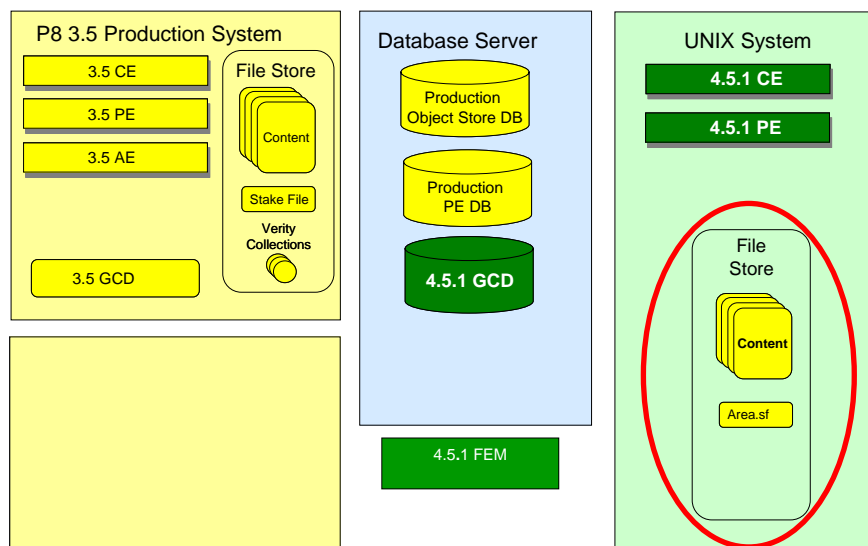


Figure 5 Copy file store to UNIX

Copy the file store files and directories to the UNIX (P8 4.5.1.2) server. Remember these steps must be repeated if updates are made to the content in the P8 3.5.2 production system.

Later in this process, you will provide the proper input to the CE Upgrade tool or the CE Web Upgrade Tool to indicate where the file store is located on UNIX. The upgrade tools will enter that information into the P8 4.5.1.2 system.

1. Using tools appropriate to your environment, copy the file stores from the Windows system to the UNIX system. If you created full-text indexes for the file store, you can save resources by not copying them with the file store directory and files. You will recreate the indexes using P8 4.5.1.2 CSE after the file store is in its new location. By copying all other files and directories, the file store stakefile, called *area.sf* in P8 3.5.2, will be copied.
2. Ensure the utility that copies or restores the file store onto the UNIX system can preserve the folder structure of the original file store.
3. Ensure the logical structure of the security settings are translated to the UNIX system (e.g., whether there is CE user only or CE user plus group access). In particular, the UNIX user ID that will be running the CE application server must have read/write access to all files under this copied file store directory structure and read/write/execute access for all directories on the UNIX file store directory structure. The owner of the copied files and directories should be the same as the UNIX user ID that will be used to run the CE application server.
4. If the CE Upgrade tool will be used to perform the upgrade, appropriate steps must be taken to configure Windows access to the file stores on the UNIX system by the CE Upgrade tool. The steps to configure Windows access differ based on the type of storage. Some storage devices allow simultaneous access using both CIFS and NFS. Or an NFS gateway (for example, Microsoft Windows Services for UNIX) might be used to enable communication between the Windows-based P8 3.5.2 EM and the Windows-based CE Upgrade tool, as the NFS clients on the staging server, and the relocated file storage areas, with UNIX as the NFS server. Consult the FileNet P8 documentation for further details.

Creating Process Engine data backups

Remember that you must ensure that the P8 3.5.2 production Process Engine will not be updated while being backed up. If you are at the quiet point, you can conduct the backups in parallel.

Step (4d) : Create Process Engine data backups

At this point, you can now backup the Process Engine database so that later you can create a replica. Use of a replica allows the upgrade process to proceed outside of the production environment.

Utilize the database or other tools as already in use in the environment to back up the Process Engine database.

Step 5: Create and prepare Content Engine replica

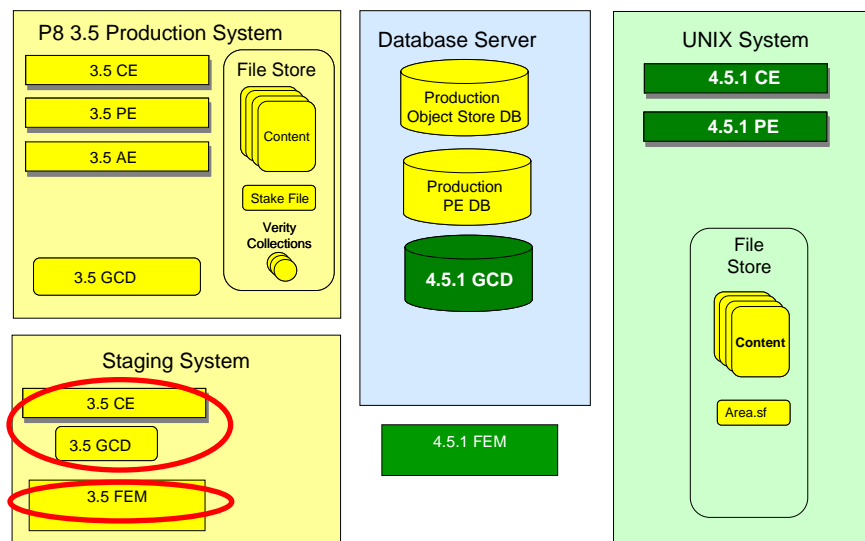


Figure 6 Replicate P8 Domain, CE Services, GCD

Step (5a) : Replicate P8 domain

As stated in the system requirements above, another Windows server that belongs to the same Windows domain as the P8 3.5.2 production system is used to create a replica P8 3.5.2 CE installation. In other words, the staging server.

NOTE: To reuse a machine as a staging server, it is a best practice to restore the machine to a clean image and remove the FNCE user created in the Windows domain during the staging CE server installation. Simply uninstalling the FileNet software will not return the system to a clean state and subsequent attempts to use as a staging server could fail. You might want to create an image of the staging server before proceeding.

1. Perform any required preparation steps as directed in the P8 3.5.2 installation documentation such as installing and configuring a database client on the Windows machine that will act as a staging CE server.
2. Using the P8 3.5.2 release Content Engine installation package, install the Content Engine and the FileNet Enterprise Manager.

When you get to the Content Engine Global Configuration Data dialog to create or join an existing domain, click **Cancel**.

The remaining instructions assume the default installation location (`\Program Files\FileNet\Content Engine`).

3. Create a `\sysconfig\sysinit` directory under `\Program Files\FileNet\Content Engine` on the new staging server.
4. Copy the backup contents of the `\sysinit` directory from the production CE server to the corresponding directory on the staging CE server.
5. Set permissions on the new `\sysinit` directory to match security on the source `\sysinit` folder. At a minimum, make sure the local Administrators group and the *Content Engine Servers* group have Full Control.
6. Create a share for the new `\sysinit` folder. Set the share name to `FNCE_stagingServerName$` and set permissions to Full Control for Everyone.
7. Run `\Program Files\FileNet\Content Engine\ConfigGCD.EXE` on the new server to launch the GCD wizard.
8. You will receive a prompt stating that the wizard has detected a copy of domain configuration data (GCD) on this server. Click **OK**.

9. Select “Join Existing Domain” and enter the new server name. Click **Next**.
10. To join the domain, provide the following values:

Property	Value
SYSINIT Path	\\stagingServerName\FNCE_stagingServerName\$\sysinit.dat
P8 Domain Service Group	<i>Content Engine Servers</i>

11. Check the “Use Default accounts” option. Use the FNCE_ *newServerName* account and enter a password to be assigned.
12. Click **Finish**.
13. Install any P8 3.5.2 fix packs following all readme instructions. (These procedures were verified using P8CE-3.5.2-020).
14. Using a command-line window, for each production system object store service server name, enter:

```
\Program Files\FileNet\Content Engine\Sysinitadd.exe /DELETE=ServerName [ production_server_name ]
```
15. Reboot the staging Content Engine server.
16. Start the P8 3.5 FileNet Enterprise Manager associated with the staging system and log in as an object store administrator.
17. Verify the production object store service server names do not appear under the *Servers* node. If they do, stop and verify the Sysinitadd.exe tool ran properly for all production server names.

NOTE: If the production servers appear in the staging server’s P8 domain, and the staging server is unreachable for any reason, the system will attempt to locate other registered P8 3.5.2 object store services in production. This could result in unintended modifications to production data by P8 3.5 clients running in the staging server environment. To avoid this scenario, take steps to ensure the staging system and its clients are unable to view the production system. For example, the CE services on the production system can be disabled. (Stopping the production services and changing them to manual is not sufficient).

Step (5b) : Replicate and prepare object stores

This step represents the core of the out-of-place upgrade method. The object stores are replicated so that the upgrade processes will not touch the original 3.5.2 production data.

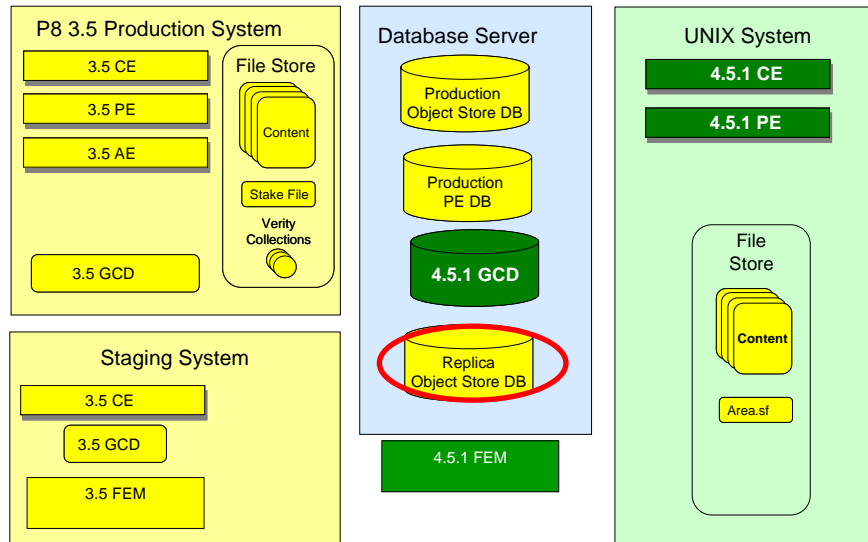


Figure 7 Replicate object store

1. Use your database tools to create a database/tablespace to hold the replica object stores. Ensure that the database user which is utilized to access the P8 3.5.2 production object store database/tablespace has the same rights and privileges to access the replica.
2. Restore the P8 3.5.2 production database/tablespace backup into the replica database/tablespace using the procedures appropriate for your database type. Care should be taken to ensure that the replica database/tablespace is the one being recreated, so that the production database is left unchanged.
3. Create an appropriate connection in the database client to the replica database from the P8 3.5.2 staging server. Do not create any connections from the staging server to the production databases.
4. Redirect the secondary CE to use the replica object store database
 - a. Start the P8 3.5.2 FileNet Enterprise Manager associated with the staging server and log in as an object store administrator.
 - b. Right-click **Properties** for each object store. An error might occur because the source object store database cannot be accessed by the staging system. Ignore this error.
 - c. Modify the information on the “Database” tab to indicate the replica database/tablespace.

The replica object store can now be used to gather information and correct any issues such as naming conflicts that might interfere with the upgrade process.

Complete these steps as needed:

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Completing pre-upgrade Content Engine configuration.*

- a. *Renaming storage policies*
- b. *Removing accented characters from file store paths*
- c. *Deleting custom subclasses of the PublishRequest object*

- d. Preventing name conflicts with reserved words
- e. Determining the CBR-enabled properties in an object store
- f. Upgrading IBM InfoSphere Enterprise Records object stores

Step (5c) : Redirect to UNIX file store

NOTE: This step is only required if the CE Upgrade tool is used to perform the upgrade. The CE Web Upgrade Tool works directly with the file store copied to the UNIX system.

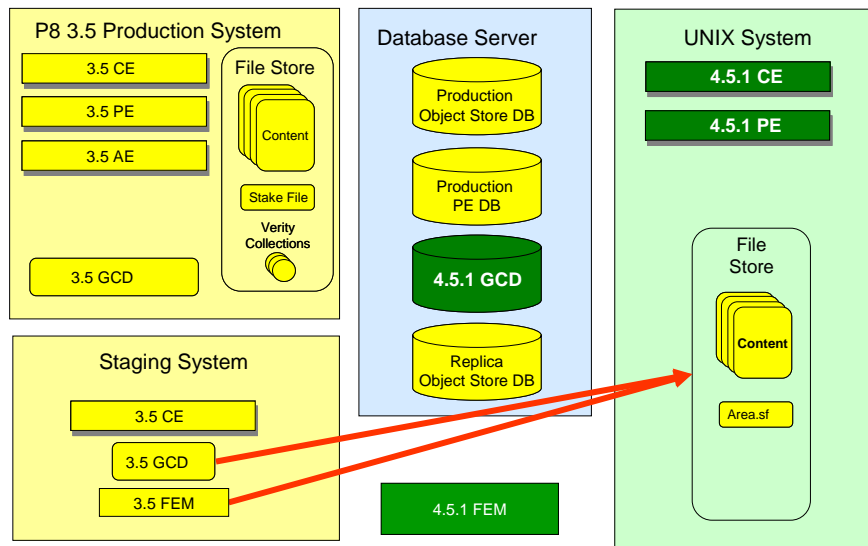


Figure 8 Redirect to the file store on UNIX

Redirect the CE staging server and CE Upgrade tool to access the file store copied to UNIX.

1. Start the P8 3.5 FileNet Enterprise Manager associated with the staging system and log in as an object store administrator.
2. For each file store, run the Move File Store wizard to alter the root path to point to the location of the file store file directory on the UNIX-based CE system

NOTE:

- o The file store should already be marked as off-line since the GCD was copied along with the file store backup. Best practices for a file store backup direct that the file store be off-line during the backup.
 - o The file store has already been copied to UNIX due to previous steps in this process.
 - o The Move File Store wizard will alter the file store service to be the one present on the staging server.
 - o The Move File Store wizard will mark the file store as on-line at the completion of the wizard.
- a. Navigate to the *Servers* > staging server > *File Stores* and right click on the desired file store to choose the *Move...* task.
 - b. Complete the Move File Store Wizard. Do not choose to run the Content Consistency Checker tool. Do not Backup/Restore the File Store.
 - c. Enter the replica file store location referencing the Windows-compatible UNC file path.
 - d. Choose the staging server for the File Store Service.

- e. You might see a warning about the UNIX server having no File Store Service installed. Ignore this warning and click **OK**.
3. Ensure the Windows file permissions will allow the CE Upgrade tool to run. See
- [IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Completing pre-upgrade Content Engine configuration → Granting directory permissions on the file stores*

Step 6: Upgrade Content Engine data replica

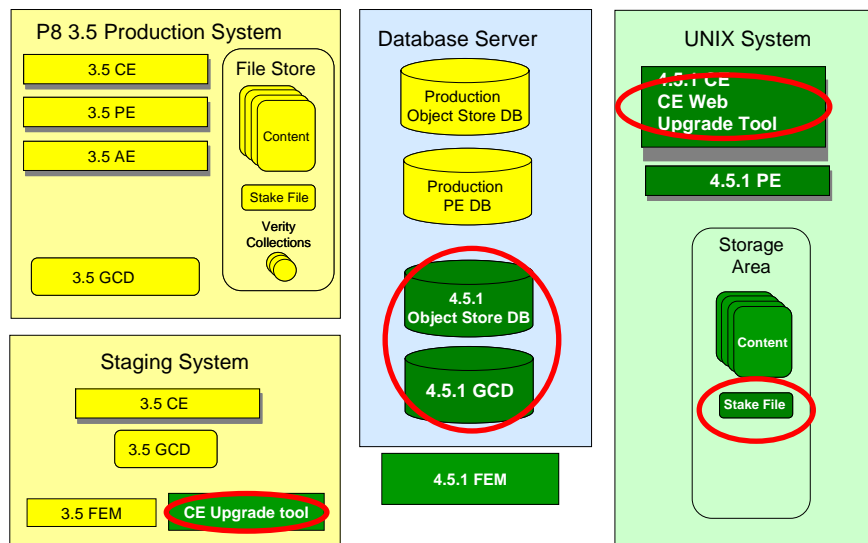


Figure 9 Install and Run CE Upgrade

Two tools are available for upgrading Content Engine data: the IBM FileNet Content Engine Upgrade tool and IBM FileNet Content Engine Web Upgrade Tool. The CE Upgrade tool has both a graphical user interface (GUI) and a command-line interface (CLI). The CE Web Upgrade Tool has only a graphical user interface. See the 4.5.1.2 IUG for more information on choosing which tool is appropriate to utilize. Note that once you choose a tool, you must use that tool for all upgrades within a single P8 domain.

Both tools use the JNDI information from the P8 4.5.1.2 Content Engine installation. Later, steps in this process will direct you to utilize the P8 4.5.1.2 Configuration Manager to create a JDBC data source. This data source will point to the replica database.

Step (6a) : CE Web Upgrade Tool

1. Use the P8 4.5.1.2 Configuration Manager to create a JDBC data source to the replica database from the P8 4.5.1.2 CE server following instructions in this section:
[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Creating the data sources for an object store*
2. Deploy and launch the Content Engine Web Upgrade Tool. The Content Engine Web Upgrade Tool is available as of version 4.5.1.2 FP2 of Content Engine.

Complete all tasks in this section with the following tips:

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Upgrading Content Engine Data → Upgrading Content Engine data using Content Engine Web Upgrade Tool*

- Launch the CE Web Upgrade Tool from any machine where version 8.0 of Microsoft Internet Explorer is installed. However running from a browser on the staging server allows easy access to the replicated data.
- Direct the CE Web Upgrade Tool to the replica GCD and object store databases:

Start New Upgrade page, browse to the `sysinint.dat` file on staging server.

Object store information page, use the pull-downs and select the *Data Source Information* for the replica object store database. The data source entries were previously created using the P8 4.5.1.2 Configuration Manager.

NOTE: If no entries appear in the pull-downs, the tool might have had difficulty connecting to the Application Server to perform a JNDI lookup. Review the section in documentation to ensure no edits to the CE Web Upgrade Tool configuration were required for your environment.

[4.5.1.2 IUG] *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Deploying Content Engine Web Upgrade Tool*

- Direct the CE Web Upgrade Tool to the target file stores on the UNIX system.
On the *Object Store* information page, enter the *File Store Root Directory* indicating where the file store was placed on the UNIX system.

Step (6b) : CE Upgrade Tool

1. Use the P8 4.5.1.2 Configuration Manager to create a JDBC data source to the replica database from the P8 4.5.1.2 CE server following instructions in this section:

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Creating the data sources for an object store*

2. Install the Content Engine Upgrade Tool on the Windows machine with the P8 3.5.2 staging CE server. This tool is installed when “Tools” are selected in the P8 4.5.1.2 CE server installer.

NOTE: Install the tools only. These tools include the Content Engine Upgrade tool. Do not install the P8 4.5.1.2 Enterprise Manager on any machine in the staging system.

3. Install fix pack 4.5.1.2 and any additional fix packs.

NOTE: As instructed in the P8 4.5.1.2 fix pack readme relating to the CE Upgrade tool, remove this file after installation of the fix pack:

`ce_install_path/tools/upgrade/jaas.conf.wsi`

4. Complete all tasks in this section with the following tips to direct the CE Upgrade Tool to the replica data:

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Upgrading Content Engine Data → Upgrading Content Engine data using Content Engine Upgrade tool*

- a. On the Upgrade Tool dialog “Database Settings” for the *Database* node, indicate the replica database/tablespace.
- b. On the Upgrade Tool dialog box “JDBC Data Source Configuration” for the *GCDObjectStore* node, enter the data source name you previously created using the P8 4.5.1.2 Configuration Manager to point to the replica object store database. Note that the name is case sensitive and must match exactly with the data source definition in the application server.
- c. On the Upgrade Tool dialog “File Store Path” for the root directory, enter the UNIX path to the location on the UNIX-based CE where the file store was copied.

- d. Initiate the upgrade process in the Upgrade Tool for the desired object stores.

Step 7: Verify content, configure CBR, and generate collections

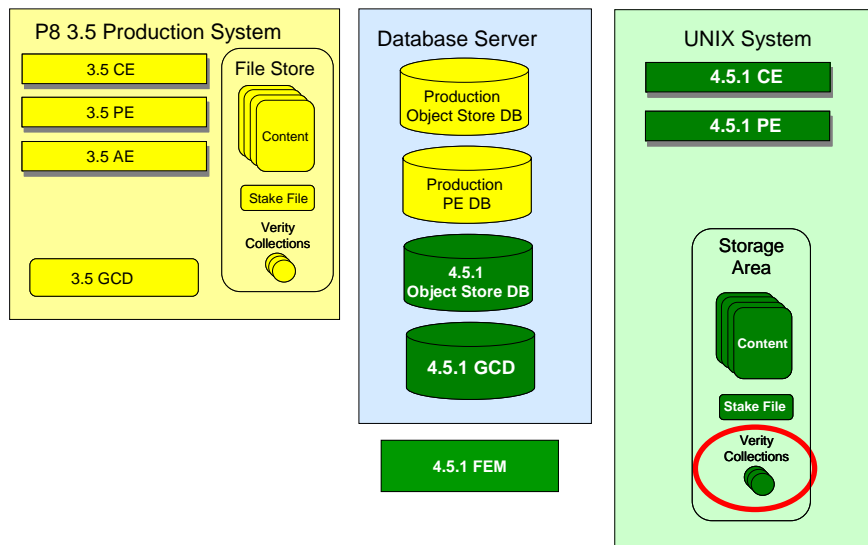


Figure 10 Verify Content, Configure CBR, and Generate Collections

Run CE Content Consistency Checker tool to ensure that all file store files were copied to the UNIX system and upgraded to Storage Areas. The CE Content Consistency Checker tool is also required to update values in the database storage areas.

For information on updating database storage area parameters in P8 4.5.1.2, refer to the FileNet P8 Documentation section

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Updating the database storage area parameters.*

Before users can perform content-based searches, you must configure the individual object store components for content-based retrieval (CBR). The object store components that you can configure are class definitions and string-valued property definitions for documents and annotations. Each object store component is enabled independently of the others. For example, you can support CBR searches for one property definition in a class and not others. However, note that the class definition which contains the property definition must be enabled for the property definition to be indexed.

For information on configuring and utilizing full text indexing in P8 4.5.1.2, reference the FileNet P8 Documentation section

[P8]: *FileNet P8 Documentation → System Administration → Content Engine Administration → Content-based retrieval.*

Overview of steps to configure full text indexing:

1. Import Verity style files using the Verity Dashboard and documentation.
2. Create Verity servers using the Verity Dashboard and documentation.
3. Create Verity brokers using the Verity Dashboard and documentation.
4. In FileNet Enterprise Manager, create a Verity domain configuration object.
5. In FileNet Enterprise Manager, set the CBR Locale for the object stores you wish to configure for CBR. Right-click on the object store node, select **Properties**, then select the **Locale** tab.
6. In FileNet Enterprise Manager, create an index area.

You can now enable CBR for individual class definitions and their string-valued properties. Complete all tasks in the section:

[IUG]: *Upgrading and configuring Content Engine and Content Search Engine → Upgrading from version 3.5.2 → Completing Content Search Engine upgrade from 3.5.2.*

Step 8: Create and prepare Process Engine replica

Replicate the Process Engine database

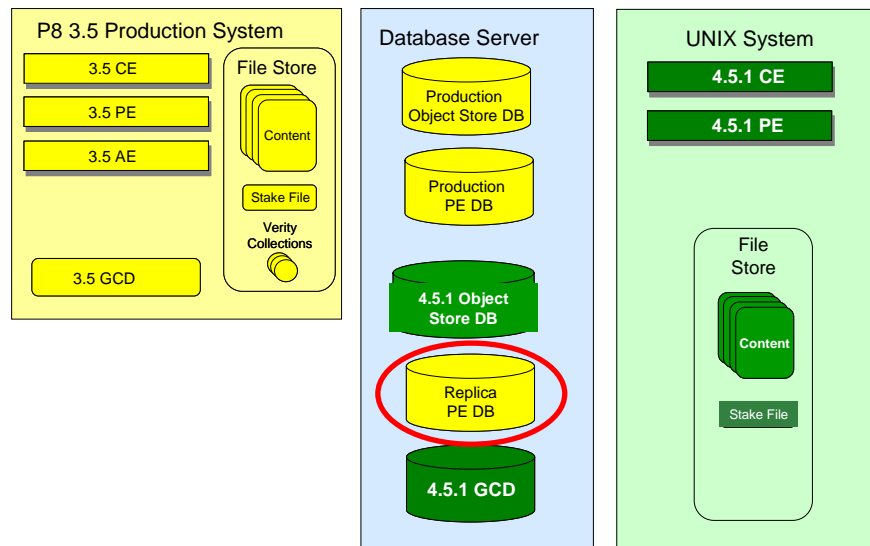


Figure 11 Replicate Process Engine Database

1. Use your database tools to create a database/tablespace to hold the replica data. Ensure that the user which is utilized to access the P8 3.5.2 production database/tablespace has the same rights and privileges to access the replica.
2. Restore the P8 3.5.2 production database/tablespace backup into the replica database/tablespace using the procedures appropriate for your database type. Care should be taken to ensure that the replica database/tablespace is the one being recreated, so that the production database is left unchanged. Ensure that the user which is used to access the P8 3.5.2 production database/tablespace has the same rights and privileges to access the replica.
3. Redirect the P8 4.5.1.2 PE to utilize the replica database
In the database client software on the machine hosting the P8 4.5.1.2 PE, configure the connection information for the original P8 3.5.2 production database/tablespace to instead access the replica database/tablespace.
4. Ensure that there is no access to the replica data during the upgrade.

Step 9: Upgrade Process Engine data replica

PE upgrade

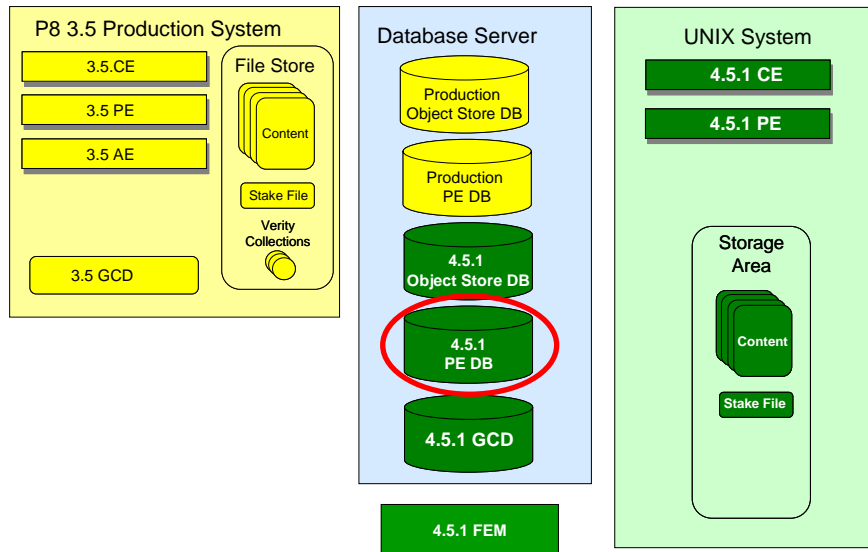


Figure 12 Upgrade Process Engine Database

Complete all remaining tasks under

[IUG]: *Part 2: Upgrading and Configuring Process Engine → Upgrading Process Engine interactively.*

Continue these tasks by starting at

[IUG]: *Setting the `f_maint` and `f_sw` passwords.*

NOTE: Specify the replica database/tablespace when entering database information in the steps under [IUG]: *Completing the upgrade from Process Engine 3.5 by database type.*

Update the VWServer table

To ensure that existing workflows associated with an eForm, an event subscription, or a web service continue to function correctly after the Process Engine is moved to a new host, the VWServer table must contain an entry for the P8 3.5.2 Process Engine service name. The Process Engine service name has the syntax `VWService0:NCH_name`. Perform these steps on the replica Process Engine database to add the P8 3.5.2 Process Engine service name to the VWServer table:

1. Use the appropriate database tool to create a new row in the VWServer table in the upgraded replica database.
2. Edit the new row and update the values for the following columns:
 - `F_ServerName` to be the hostname of the P8 3.5.2 Process Engine server.
 - `F_DefaultService` to match the P8 4.5.1.2 Process Engine service. This value can be copied from the existing row in the VWServer table created when the P8 4.5.1.2 Process Engine registered itself.
 - `F_State` = 3 to indicate that the P8 3.5.2 server is not part of the P8 4.5.1.2 system.
 - `F_Type` = 1 to indicate that the server is a PE server.

For example, if the P8 3.5.2 production Process Engine name is `hqruby` and its service name is `hqruby:IBM`, then add the following row to `VWServer` table in the target database:

```
F_Servername: hqruby
F_DefaultService: VWService0:hqruby:IBM
F_State: 3
F_Type: 1
```

3. Restart the P8 4.5.1.2 Process Engine.

Step 10: Upgrade associated applications

Follow appropriate documentation to upgrade any associated applications. Be sure to locate and correct any explicit references to the CE or PE that might need to be altered because these servers are now on UNIX.

Step 11: Verify the P8 4.5.1.2 system

Execute verification tests against P8 4.5.1.2 system with the upgraded replica (now production) object store database, storage areas, and PE database.

Step 12: Uninstall 3.5 system

Once the upgrade is complete and your new 4.5.1.2 system is completely debugged and in full production, you can at some point decide to remove your 3.5.2 system software and data. To do this, complete all remaining tasks in the generalized

[IUG]: *IBM FileNet P8 Platform Installation and Upgrade Guide, Part 3: Removing Software*
or the customized

IBM FileNet P8 Platform Upgrade Guide, Part 3. Removing software.

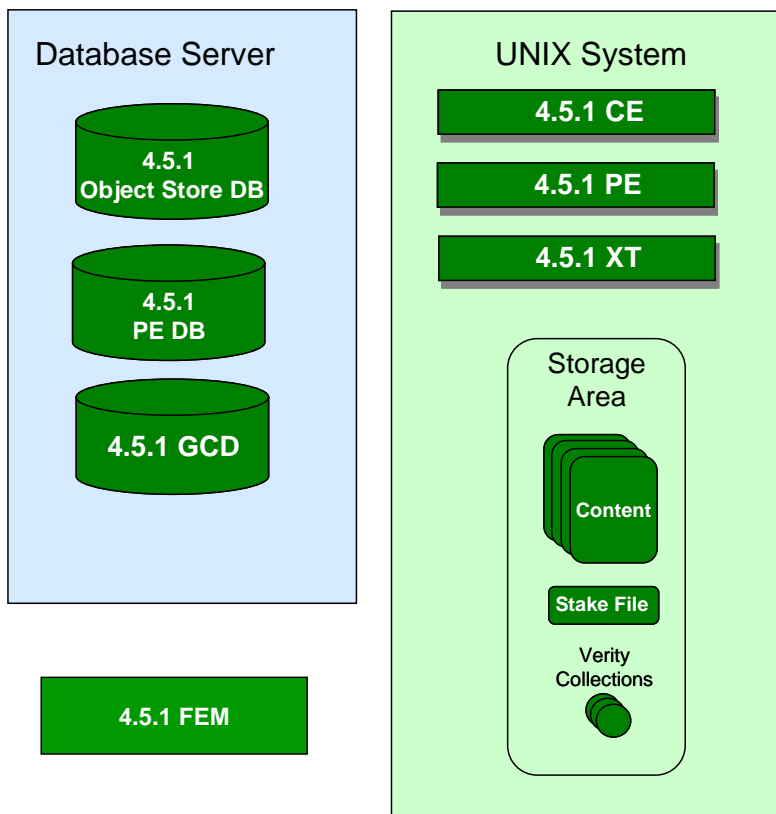


Figure 13 Uninstall P8 3.5.2 System

Appendix A: References

The following list specifies the documents referenced in this guide. Each listed document is preceded by a reference code which is used in the body of this document as an exact identifier.

[INFO] *IBM FileNet P8 Information Center*

<http://publib.boulder.ibm.com/infocenter/p8docs/v4r5m1/index.jsp>

[P8] *IBM FileNet P8 Documentation*

[http://www-](http://www-01.ibm.com/support/docview.wss?rs=3247&context=SSTHRT&context=SSS236&context=SSNW2F&context=SSNVUD&context=SSNVNV&uid=swg27010422&loc=en_US&cs=UTF-8&lang=en)

[01.ibm.com/support/docview.wss?rs=3247&context=SSTHRT&context=SSS236&context=SSNW2F&context=SSNVUD&context=SSNVNV&uid=swg27010422&loc=en_US&cs=UTF-8&lang=en](http://www-01.ibm.com/support/docview.wss?rs=3247&context=SSTHRT&context=SSS236&context=SSNW2F&context=SSNVUD&context=SSNVNV&uid=swg27010422&loc=en_US&cs=UTF-8&lang=en)

[PPG] *Plan and Prepare Guide*

ftp://ftp.software.ibm.com/software/data/cm/filenet/docs/p8doc/451/plan_and_prepare.pdf

[IUG] *Install Upgrade Guide*

ftp://ftp.software.ibm.com/software/data/cm/filenet/docs/p8doc/451/_install_guide.pdf

[HWSW] *Hardware/Software Requirements Guide*

<http://www-01.ibm.com/support/docview.wss?uid=swg27013654&aid=5>

[PERF] *P8 Performance Tuning Guide*

ftp://ftp.software.ibm.com/software/data/cm/filenet/docs/p8doc/40x/p8_v4_performance_tuning.pdf

[FIX] *FileNet P8 Fix Pack Compatibility Matrices*

<http://www-01.ibm.com/support/docview.wss?rs=3278&uid=swg27014734>

Technical Notices

Migrating Production Data to Test in the Same Authentication Domain

<http://www-01.ibm.com/support/docview.wss?uid=swg21326721>

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Program Number: 5724-R76, 5724-R81

Printed in USA

SC19-2967-00

