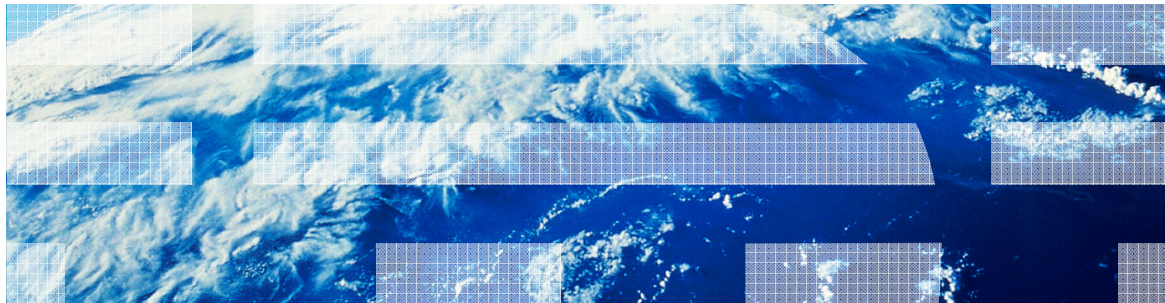IBM

Introduction to IBM FileNet Content Manager
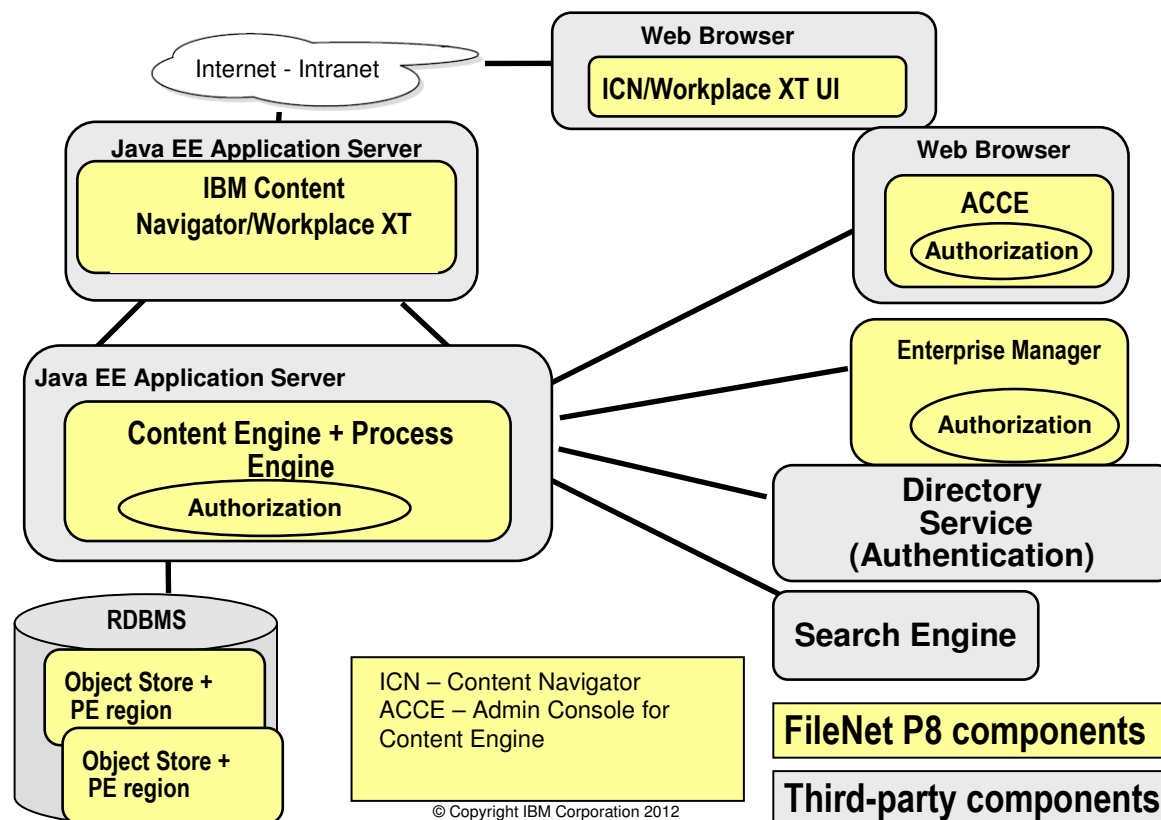
Core components of FileNet P8 platform
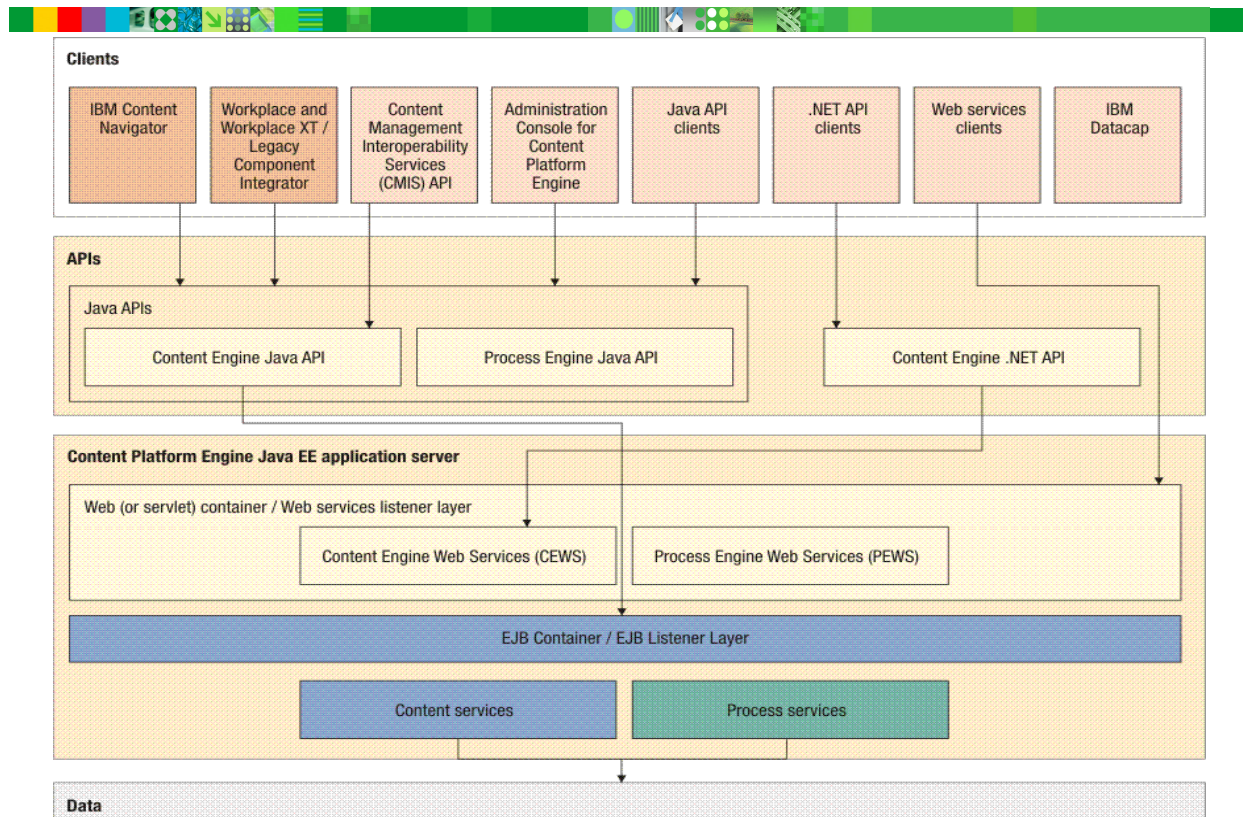
Component	What it does
Java EE Application Server	Hosts Content Engine, Process Engine, IBM Content Navigator, Workplace XT and related Java services.
Content Engine	Manages object stores that hold all information.
Process Engine	Manages business processes (workflows).
IBM Content Navigator (ICN)/Workplace XT application	Enables business users to access the following: - Object stores on the Content Engine - Workflow information on the Process Engine

IBM FileNet P8 system architecture

Web Browser

ICN/Workplace XT UI

Internet - Intranet

Java EE Application Server

IBM Content Navigator/Workplace XT

Web Browser

ACCE

Authorization

Java EE Application Server

Content Engine + Process Engine

Authorization

Enterprise Manager

Authorization

Directory Service (Authentication)

Search Engine

RDBMS

Object Store + PE region

Object Store + PE region

ICN – Content Navigator
ACCE – Admin Console for Content Engine

FileNet P8 components

Third-party components

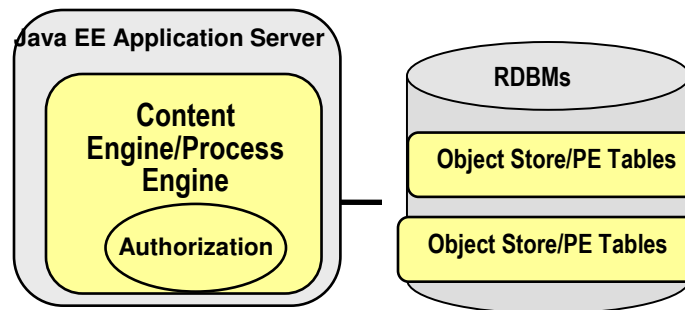# Content Platform Engine
Architecture

Content Engine

- Components
  - Content Engine application (FileNetEngine)
  - Global Configuration Data (GCD) database
  - Object stores

- Object store components
  - Each object store has a database that holds its metadata
  - Each object store has one or more storage areas
    - Database (used to store content as BLOBs)
    - Shared file storage system, and fixed-content devices

- Tools
  - Enterprise Manager, Configuration Manager, ACCE

Java EE Application Server

Content Engine

Authorization

RDBMS

Object Store

Object Store

Fixed Content Device

File Storage Area
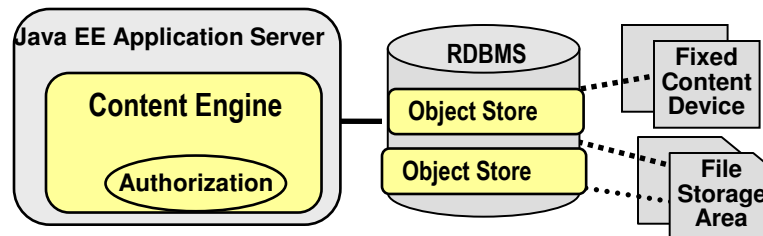
Process Engine

- Components
  - Unified with Content Engine in P8 5.2 (prior to 5.2, was a separate application) as Content Platform Engine.
  - Process region database (workflow database)
    - Regions, queues, logs, rosters, and work item information
- Maintained by workflow and system administration tasks
  - Business analyst performs the workflow administration tasks.
    - Knows business purpose of workflows in the business solutions
- Tools
  - Process Designer
  - Process Configuration Console

Java EE Application Server

Content Engine/Process Engine

Authorization

RDBMs

Object Store/PE Tables

Object Store/PE Tables

Unified Content and Process
Server - Content Platform Engine

- PE services migrated to run on Java Enterprise Edition (JEE) application server
  - Unified with CE and deployed as single CPE EAR running in common JEE application server JVM
  - PE Java API supports EJB-IIOP transport and JEE application server cluster/farm for load-balancing and high-availability
    - Existing PE applications run as-is after upgrade
- CPE services multiple databases and supports database sharing
  - PE (virtual) server previously limited to service a single database
  - Content object store and process store with isolated region(s) can be persisted in a single user-specified schema
    - Consider it as extended object store with PE tables in single database schema
  - Multiple CPE content-process stores ready for IBM Case Manager can share a single database each housed in a separate database schema

What is IBM Content Navigator?

- IBM Content Navigator is a web-based client for business users
  - Provides a fully customizable user interface (UI) built on dojo and HTML5
  - Access any IBM repository (P8, Content Manager, CMOD) or other CMIS compliant repositories
  - Increases the speed of deployment
  - Maximizes productivity and has Mobile application support
- It is accessed through your Internet browser.
  - Web address format: `http://appserver:9080/navigator`
- Navigator user accounts (P8)
  - Accounts are authenticated by the Directory Service.
  - Accounts are authorized by the Content Platform Engine.
    - Each engine checks user access to the information that it manages.

What is FileNet Workplace XT?

- Workplace XT is a web-based, FileNet P8 application
  - Access Process Designer, Process Configuration Console and Site preferences
  - Can be customized as a business user interface but not future direction of IBM ECM user interface strategy
  - Older generation user interface

- It is accessed through your Internet browser.
  - Web address format:
    Example: **http://appserver:9080/WorkplaceXT**

- Workplace XT user accounts
  - Accounts are authenticated by the Directory Service.
  - Accounts are authorized by the Content Platform Engine.
    - Each engine checks user access to the information that it manages.
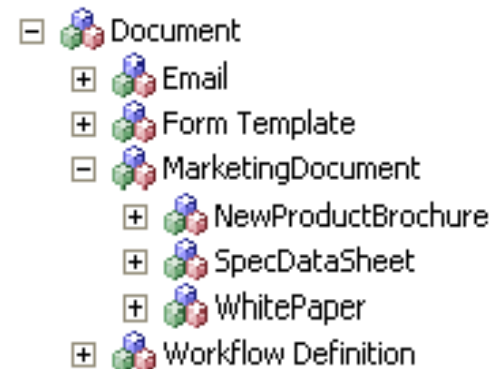
What is FileNet P8 content?

- FileNet P8 content
  - Structured and unstructured information that is used in a business context.
  - It is stored in a FileNet repository with associated attributes that describe the content and control how it is used.

- Examples of structured content:
  - Word processing document that is a marketing brochure
  - Spreadsheet
  - E-mail correspondence

- Examples of unstructured content:
  - Photos of assets that are to be insured
  - Fax documents
  - Video and audio files

FileNet P8 folders, documents, and properties

- What is a document?
  - An object that has content and descriptive information
  - Can be contained in folders
  - Can be secured
- What is a folder?
  - An object that contains documents and other folders
  - Can be arranged in a hierarchy
  - Can be secured
- What is a property?
  - Descriptive information associated with a folder or a document
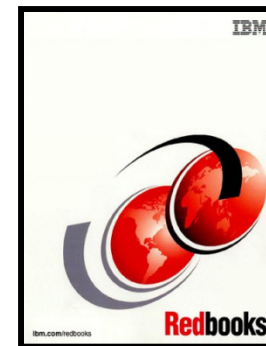 - Can be used to identify or locate a folder or document

What are FileNet P8 classes?

- What is a class?
  - A template used to create a document or folder
    - Determines the default characteristics of the object
  - All objects in a class are identical in form and behavior
    - Can contain different property values and content
- What is a class hierarchy?
  - An organization of classes in parent-child relationships
  - Allows a child class to inherit all the properties of its parent


```
☐ Document
   ☐ Email
   ☐ Form Template
   ☐ MarketingDocument
      ☐ NewProductBrochure
      ☐ SpecDataSheet
      ☐ WhitePaper
   ☐ Workflow Definition
```

Product documentation

- On-line help
  - IBM FileNet P8 Version 5.2 Information Center
  - Plan and Prepare Guide
  - Installation and Upgrade Guide
  - Installation and Upgrade Worksheet
  - Subsets available for specific environmental combinations
- Locally installed help
  - May be deployed as a web application to enable searching and context sensitive help.
  - Freely downloadable from www.ibm.com
- IBM FileNet Redbooks publications

What components are required to build a solution?

- Content metadata (How are the documents located?)
  - Classes, property templates, choice lists
- Storage management (Where do the documents go?)
  - Object stores, databases, file storage areas, fixed storage
- Access control (Who can do what to what?)
  - Security settings, directory services, users and groups
- Workflow (Who does what, and when?)
  - Document lifecycles, event subscriptions, workflow definitions
- User interface (How does the user access the solution?)
  - Content Navigator/Workplace XT, folders

Solution component: content metadata

- Document classes
  - Data structure containing multiple properties
    - Custom properties based on user defined property templates
    - Can have an associated choice list
    - Properties have an assigned data type (example: DateTime, Float)
  - Pointer to versionable soft copy document stored in system
  - Has lifecycle capabilities
  - Searchable (as are folders and custom objects)
- Folders
  - A type of object that has a folder containment attribute
- Custom objects
  - A content-less collection of properties

Solution component: storage management

- Databases
  - Container for content metadata and (optionally) content as a BLOB
  - Are accessed through configured Java database connections (JDBC)
- Object stores
  - Object metadata and storage location are stored in the database
  - Content (documents) can optionally be stored in the database or in a storage area
- File storage areas
  - Local or network accessible file system container for content
  - Controlled by assignment to a configured storage policy object
- Fixed storage areas
  - A storage area that has a fixed-content device connection to a third-party fixed-content system.

Solution component: access control

- Access control
  - Authentication: who you are
    - Requires credentials (user name and password)
    - Uses an authentication provider (LDAP directory service)
  - Authorization: what you can do
- Access rights
  - Granular permissions tied to specific operations
  - Access Control Entry (ACE)
    - A set of access rights for a given object that is associated with a security principal (user or group)
  - Access Control List (ACL)
    - The set of ACEs associated with an independently securable object

Solution component: workflow

- Workflow
  - An automated process for the routing and processing of work in an enterprise.
  - Is a running, unique instance of a workflow definition managed by the Process Engine
  - Contains steps, properties, and routing information maintained in an executable form.
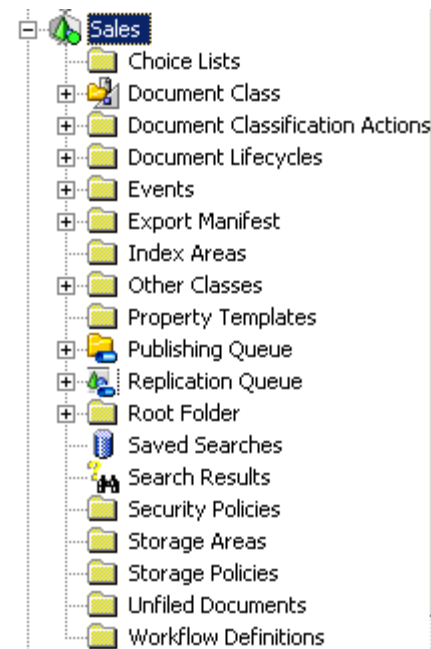 - Is implemented using the Process Designer tool
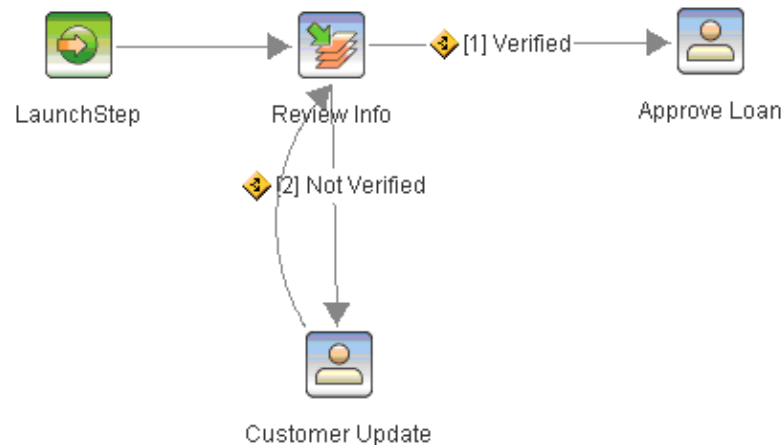
Solution component: user interface

- IBM Content Navigator
  - User interface for end users
  - Microsoft Office application integration support
  - Developer toolkits for Java API
- Custom applications
- Multiple business solutions
  - Multiple instances of these applications are typically run to support multiple business solutions.
  - Each application instance is modified to support the business solution
- FileNet Workplace XT application
  - User interface for administrators, and developers

Enterprise Manager

- A Content Engine tool
  - Windows-based tool used by both solution builders and system administrators
  - Used to create and manage IBM FileNet P8 domains, sites, and object stores.

- Major features
  - The object store tree view lists the default nodes for all object store properties.
    - Folder hierarchy facilitates access.
  - Key nodes include the following
    - Root folder and its subfolders
    - Document Class and Lifecycles
    - Events, Index Areas, Saved Searches

Sales
- Choice Lists
- Document Class
- Document Classification Actions
- Document Lifecycles
- Events
- Export Manifest
- Index Areas
- Other Classes
- Property Templates
- Publishing Queue
- Replication Queue
- Root Folder
- Saved Searches
- Search Results
- Security Policies
- Storage Areas
- Storage Policies
- Unfiled Documents
- Workflow Definitions

IBM Administrator Console for Content Engine

- ACCE
  - Web based administration tool
  - Will eventually replace Enterprise Manager
- Features
  - Tree-based navigation for top-level objects
  - Organizational folders (Data Design, Administration, Search)
  - Containers and Objects
    - Add-on, Marking Set,
    - Object Store
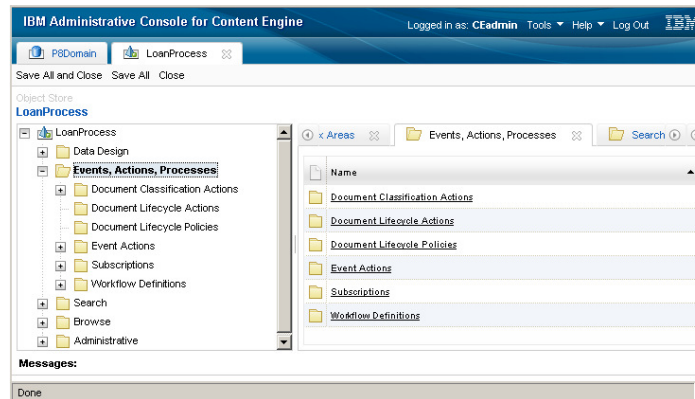
Non-FileNet components started first

- The following non-FileNet P8 components must be running before FileNet P8 components are started:
  - Directory service
  - RDBMS
  - Windows, UNIX, or Linux servers for the web application server
  - Web application servers for Content Platform Engine and mid-tier applications (Application Engine, WorkplaceXT, Content Navigator)
  - Storage servers

FileNet components started next

- FileNet applications deployed on a web application server
  - Content Platform Engine (FileNetEngine)
  - Workplace XT or Workplace or Content Navigator
  - Other deployed FileNet applications

- Web application server used to start and stop applications
  - Manually start and stop FileNet applications.
  - Can configure for automatic startup

- Process components
  - Case Analyzer, Process Simulator
  - Rules Listener
  - Component Managers
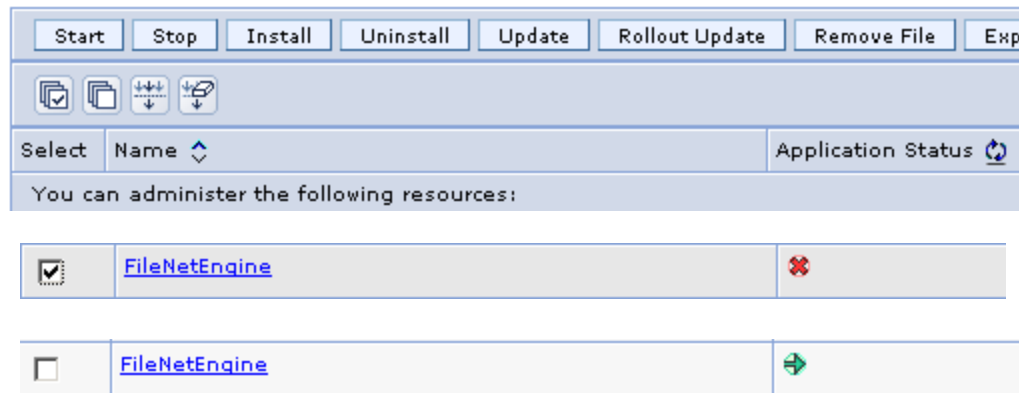
Determine Content Platform Engine status

- Ping page
  - **`http://<server_IP>:<port_number>/FileNet/Engine`**

  - If Content Platform Engine is running, the Startup Context page is displayed.

- Java EE application server

  - Example: WAS administrative console (IBM)
    - Navigate to Applications > Application Types > WebSphere enterprise applications
    - The status of the application FileNetEngine is indicated as running or stopped.

- Indications that the Content Platform Engine is not running
  - You cannot log into Enterprise Manager, ACCE, Content Navigator, or Workplace XT

Start and stop the Content Engine

- Java EE application server
  - Example: Use WAS administrative console (IBM)
  - Navigate to Applications > Application Types > WebSphere enterprise applications
    - To start, select FileNetEngine checkbox and click **Start**
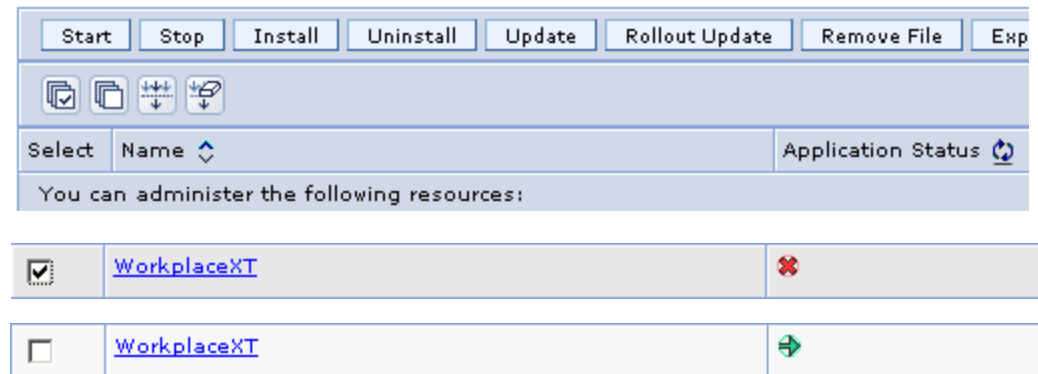   - To stop, select FileNetEngine checkbox and click **Stop**

Start	Stop	Install	Uninstall	Update	Rollout Update	Remove File	Exp

Select	Name ⬍	Application Status ↻
You can administer the following resources:		
☑	FileNetEngine	✖
☐	FileNetEngine	➡

Determine Workplace XT status

- Use the server address in a web browser window.
  - http://<server_IP>:<port_number>/<application_name>
    - Example: http://192.168.1.116:9080/WorkplaceXT
  - If running:
    - A log in page opens.
  - If not running:
    - Browser displays a message indicating that the page cannot be displayed.
- WAS administrative console
  - Navigate to Applications > Application Types > WebSphere enterprise applications
  - The status of Workplace XT is indicated as running or stopped.

Start and stop Workplace XT

- Java EE application server
  - Example: Use WAS administrative console (IBM)
  - Navigate to Applications > Application Types > WebSphere enterprise applications
    - To start, select WorkplaceXT checkbox and click **Start**
    - To stop, select WorkplaceXT checkbox and click **Stop**

Determine Process Engine status

- Ping page

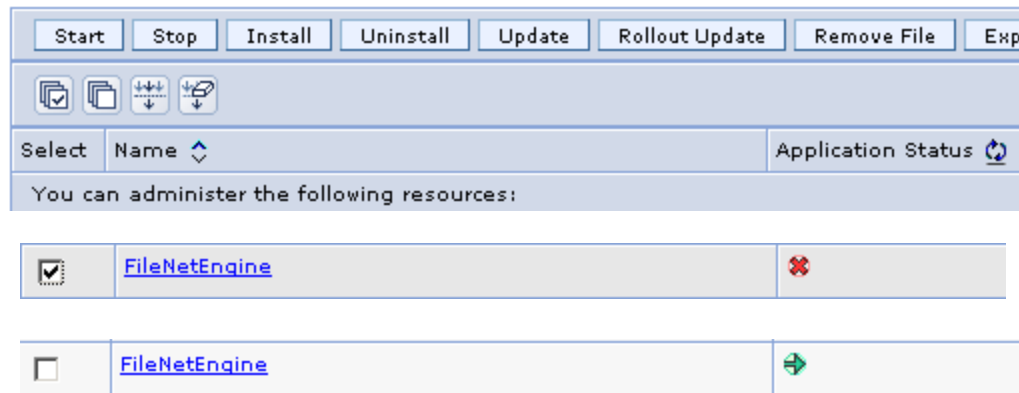 `http://server:port/peengine/IOR/ping`

  – With P8 5.2,the Process Engine is part of the FileNetEngine ear file.

  – If Content Engine is running the Process Engine is running.

  – This page requires an administrator's id and password (you will be prompted).

  – The page contains useful information about the Process Engine and related activity.
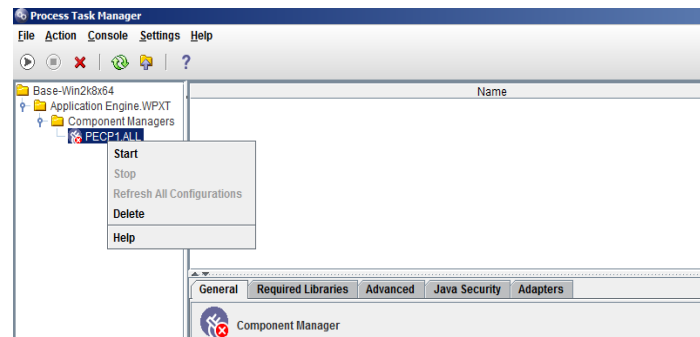
Start and stop the Process Engine

- Process engine now part of FileNetEngine

- Java EE application server
  - Example: Use WAS administrative console (IBM)
  - Navigate to Applications > Application Types > WebSphere enterprise applications
    - To start, select FileNetEngine checkbox and click **Start**
    - To stop, select FileNetEngine checkbox and click **Stop**

Start and stop the Component Manager
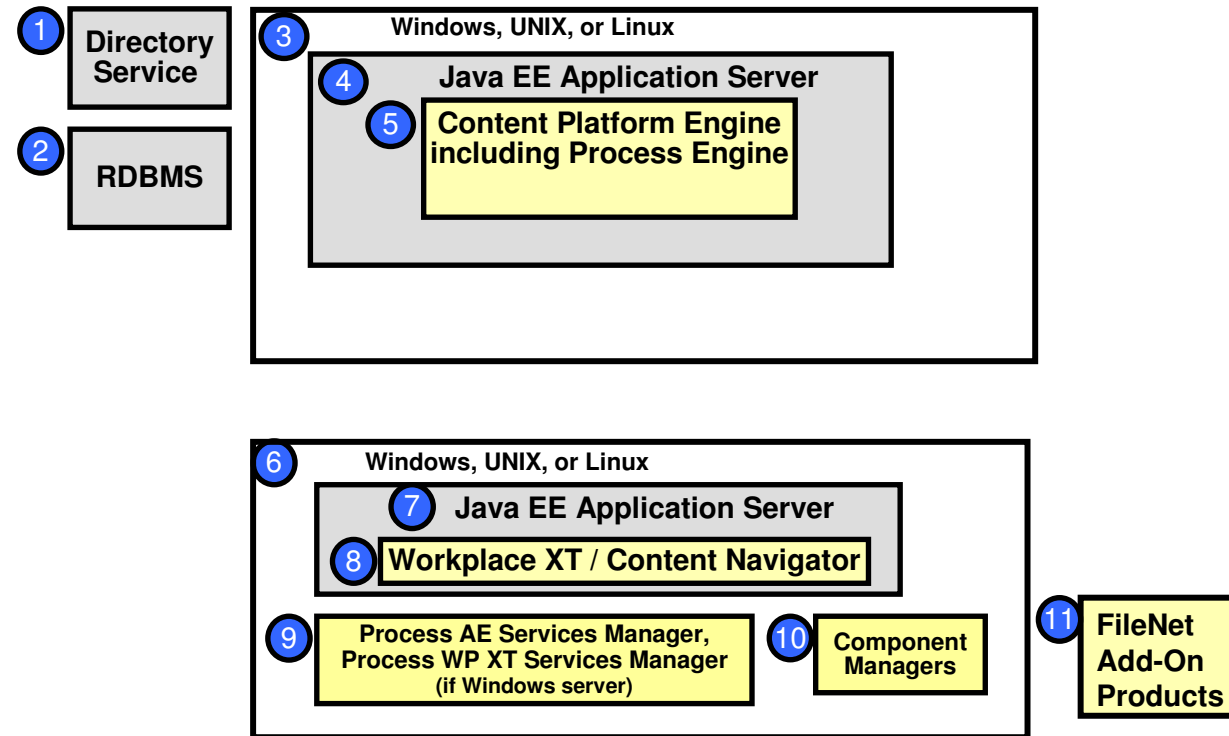
- Run the Process Task Manager with P8 5.2

  ```
  # C:\Program Files\IBM\FileNet\WebClient\Router
  # routercmd.bat
  ```

- To start the Component Manager
  - Select the Component Manager name and click Action > Start
- To stop the Component Manager
  - Select the Component Manager instance name and click Action > Stop

Stop and start system components

Recommended start sequence

① **Directory Service**

② **RDBMS**

③ Windows, UNIX, or Linux

④ **Java EE Application Server**

⑤ **Content Platform Engine including Process Engine**

⑥ Windows, UNIX, or Linux

⑦ **Java EE Application Server**

⑧ **Workplace XT / Content Navigator**

⑨ **Process AE Services Manager, Process WP XT Services Manager (if Windows server)**

⑩ **Component Managers**

⑪ **FileNet Add-On Products**

Shutting down an IBM FileNet P8 System

Use the following shutdown sequence

1. Stop any FileNet add-on products first, such as Records Manager.

2. Stop the Component Manager on the host server.

3. Use WAS to stop the application *WorkplaceXT / Navigator*.

4. Use WAS to stop the application *FileNetEngine* (Content Engine and Process Engine).

5. The directory service and RDBMS are stopped by their respective administrators if necessary.