Configuring a system to install and run the FileNet Content Manager and IBM Content Foundation software and tools that require a JRE.

Installers, tools, and custom applications that require a JRE

Various components require a JRE. The location and type of JRE based on the type of component. The components can be classified as follows:

- Installers

  If an installer is run on a remote server, ensure both the server on which the installer is run and the server on which the software is to be installed use the same type and level of Java.

- Eclipse-based tools

  - Configuration Manager for Content Platform Engine (CMUI)
  - Configuration Manager for Content Services GraphQL

- FileNet Deployment Manager (FDM)
- Non-Eclipse-based tools
    - Content Engine Bulk Import Tool (CEBIT)
    - Process Designer
    - Process Administrator
    - Process Configuration Console
    - vwtool
    - pelog
- Backend services
    - Content Platform Engine
- Content Search Services
    - There are special considerations for installing and running Content Search Services, as well as for using the Content Search Services tools.

Client applications that use the Content Engine or Process Engine Java APIs, require a Java environment. The client applications do not need to use the same type and level of JRE as the Content Platform Engine server. How a client application locates a JRE is based on the environment in which the application runs and is not discussed in this technote.

Find the JRE location

The following information addresses all the installers and tools, except for those related to Content Search Services. For Content Search Services, refer to the following section: Content Search Services Installation & Run Time Requirements

Installers and non-Eclipse-based tools

The installers and non-Eclipse-based tools locate a JRE by searching the following PATH environment variable in order:

1. Session
2. User
3. System-wide

Use the following information to determine whether a suitable JRE is available in a PATH environment variable:

- If an application server is present on the system, use the JRE that the application server uses. Depending on the component being installed, more rules might apply:
    - If the Content Platform Engine server is deployed into a WebSphere® Application Server instance, you must use the IBM Java version 8 that was installed as part of the application server.

The default file name and location for the Java executable are provided in the following table.

File name (Environment)	File Location
java.exe (Windows)	C:\Program Files\IBM\WebSphere\AppServer\java\8.0\jre\bin
Java™ (Unix)	/opt/IBM/WebSphere/AppServer/java/8.0/jre/bin

WebSphere Java executable files

- If the Content Platform Engine server is deployed into an Oracle WebLogic Server instance, WebLogic typically runs with Oracle Java. The Oracle Java location might already be in the PATH environment variable.

  If the information is not in the PATH environment variable, examine the WebLogic startup script to determine the location of the Java runtime.

- If an application server is not on the system and the installer or tool will be launched from the command line, run the following command from the session and directory where the installer or tool will be launched:

  - From a Windows command prompt:

    where java

    Note the versions of Java installed: …**bin\java.exe**

  - From a Unix command session:

    which java

    Note the versions of Java installed: …**/bin/java**

- On Windows systems, if an application server is not on the system, and the installer or tool will be launched from the File Explorer, check the user or system environment variable PATH to determine whether the bin directory for an installed JRE is present. Note the highest version referenced.

Eclipse-based tools

For Eclipse-based tools, the location of the JRE is specified in the ini file.

The default location of the ini files for the Eclipse-based tools is shown in the following table.

Tool	Default ini file location
Content Platform Engine Configuration Manager	*ce_install_path*/tools/configure/configmgr.ini
Content Services GraphQL API Configuration and Deployment Tool	*ceclient_install_path*/csgraphQLtool/configure/configmgr.ini

Tool	Default ini file location
FileNet Deployment Manager	*fdm_install_path*/deploy/DeploymentManager.ini

Note

The installation process might update the Java version specified in the associated .ini file.

Check the version manually **after** installing the software to ensure the version in the .ini file is appropriate.

Verify the JRE version

Consult the software product compatibility report for the FileNet Content Manager or IBM Content Foundation release to verify which JRE versions are supported. Use the SPCR website to generate the report: http://www.ibm.com/software/reports/compatibility/clarity/index.html

If a JRE exists on the system, use the following command to retrieve the version:

<path to JRE>/java -version

For the Content Platform Engine configuration manager, verify that the specified JRE is the one that is also used by the application server.

Important:

The Content Platform Engine configuration manager (CMUI) must use a Java 8 JRE. And if Content Platform Engine is deployed on WebSphere, CMUI must use the same JRE as the application server software.

Download a Suitable JRE

If a supported Java environment is not present on the system or a different version is required, download an appropriate version of IBM Semeru Runtime Open Edition from the following site:

https://www.ibm.com/support/pages/semeru-runtimes-getting-started

Ensure that the PATH is set to point to the verified JRE

The following information addresses all the installers and tools, except for those related to Content Search Services. For Content Search Services, refer to the following section: Content Search Services Installation & Run Time Requirements

To avoid potential conflicts with other Java-based applications that use the PATH environment variable, create a local PATH environment variable that points to the correct JRE.

Installers and non-Eclipse-based tools

Define a PATH environment variable that points to the Java runtime. Ensure that the location of the Java executable is the first entry in the PATH environment variable.

- Launching from the Unix command line

  export PATH=/opt/IBM/WebSphere/AppServer/java/8.0/jre/bin:$PATH

  Do not append a forward slash (/) to the end of the Java path.

- Launching from the Windows command line

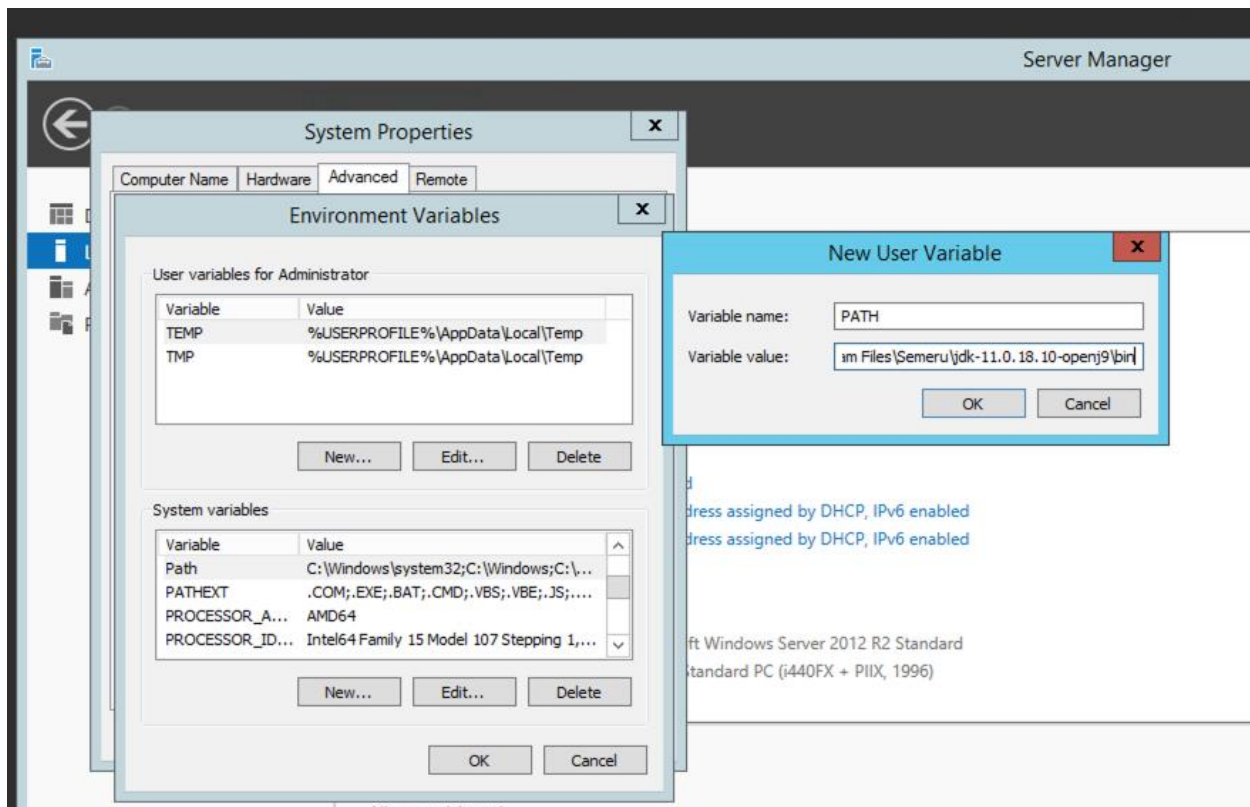 set PATH="c:\Program Files\IBM\Java80\jre\bin;%PATH%"

  Do not append a back slash (\) to the end of the Java path.

- Launching on Windows from File Explorer

  Create or verify the PATH environment variable at the user or system level. On Windows systems, you must be an administrator to create or modify environment variables.

  To create or modify user environment variable.

  1. Log in to Windows as the user who will run the installer or the tool.
  2. On the Windows taskbar, right-click the **Windows** icon and select **System**.
  3. In the Settings window, under Related Settings, click Advanced system settings.
  4. On the Advanced tab, click Environment Variables.
  5. Click New to create a new environment variable. Click Edit to modify an existing environment variable.

6. After creating or modifying the environment variable, click Apply and then OK to have the change take effect.

Note:

The graphical user interface for creating environment variables might vary slightly, depending on the version of Windows.

Eclipse-based tools

In the appropriate .ini file, add the full path to the directory that contains the JRE binary file. As shown in the following examples, ensure **-vm** is on a separate line.

Windows Example

 -vm

C:\Program Files\IBM\WebSphere\AppServer\java\8.0\jre\bin

Unix Example

 -vm

/opt/IBM/WebSphere/AppServer/java/8.0/jre/bin

Note: The Content Platform Engine configuration manager (CMUI) must use a Java 8 JRE. And if Content Platform Engine is deployed on WebSphere, CMUI must use the same JRE as the application server software.

Content Search Services Installation, Run Time, *& Tools Requirements

To install Content Search Services, the location of Java must be specified in the PATH environment variable.

For Content Search Services runtime and the Content Search Services tools, the location of Java must be specified in the JAVA_HOME environment variable.

Windows

The same Java must be used for the Content Search Services installer and the Content Search Services runtime.

Installer
Use the PATH to set the location of the required Java. The first occurrence of Java in the PATH is used.

If there are multiple versions of Java in the PATH, it is possible that Content Search Services will use an unexpected version of Java. To avoid potential conflicts with other Java-based applications that use the PATH environment variable, create a local PATH environment variable that points to the correct Java.

Important:

When updating the PATH environment variable, ensure **\bin** is at the end of the Java path.

Example

set PATH="C:\Program Files\Semeru\jdk-11.0.18.10-openj9**bin**"

Run time
On Windows, Content Search Services can be configured to run as a service or as a server.

- To run Content Search Services as a service, define JAVA_HOME as a system environment variable. When updating the JAVA_HOME environment variable, do **not** put \bin at the end of the Java location.

  Example

  set JAVA_HOME="C:\Program Files\Semeru\jdk-11.0.18.10-openj9"

- To run Content Search Services as a server, define JAVA_HOME as a user environment variable or a local session environment variable for the account under which CSS will run.

  Use the following procedure to create or verify the JAVA_HOME environment variable. On Windows systems, you must be an administrator to create or modify environment variables. Once the environment variable has been set, if you are running the installer from a command prompt, ensure the command window was instantiated after the environment variable was set. Command windows that are open before setting the environment variable are not aware of the JAVA_HOME update.

The graphical user interface for creating environment variables varies slightly on different Windows versions.

1. Log in to Windows as an administrator.

2. On the Windows taskbar, right-click the **Windows** icon and select **System**.

3. In the Settings window, under Related Settings, click Advanced system settings.

4. On the Advanced tab, click Environment Variables.

5. Choose to make changes in either the *User variables for <user>* or *System variables* section.

6. Click New to create a new environment variable. Click Edit to modify an existing environment variable.

7. After creating or modifying the environment variable, click Apply and then OK to have the change take effect.

   Note that any open command windows will not pick up the change. You must open a new command window to verify that JAVA_HOME is set correctly.

- If the scripts will be run from a command prompt, set the local session environment variable JAVA_HOME of the JRE. Do **not** put \bin at the end of the path.

  Example

  set JAVA_HOME="C:\Program Files\Semeru\jdk-11.0.18.10-openj9"

Unix

The same Java must be used for the installer and the runtime.

Use the environment variable PATH to specify the Java location for the installer, and the environment variable JAVA_HOME to specify the Java location for runtime.

The update to the PATH can be made in the installation session or to the profile file.

After the installation is complete, the update to the PATH environment variable can be removed.

JAVA_HOME must be set permanently.

Both PATH and JAVA_HOME must use the same Java instance.

Installer
In the session in which the CSS installer will run, add the required Java version as the first entry in the PATH.

Example

export PATH =/opt/ibm/Semeru/jre-11.0.18.10-openj9/bin:$PATH

Do not add a forward slash (/) after the bin.

Runtime

On Unix, Content Search Services runs as a server and the JAVA_HOME must be a local session environment variable for the account under which Content Search Services will run. Do **not** add /bin to the end of the Java location.

Example

export JAVA_HOME=/opt/ibm/Semeru/jre-11.0.18.10-openj9

Content Platform Engine Additional Considerations

Content Platform Engine runs within the application server environment. For more information about the JRE used with the application server, refer to the application server vendor documentation.

Upgrades

If you are upgrading a system where a Java was previously installed for use by the FileNet Content Manager services and tools, you are responsible for determining if that Java is supported with the new levels of software.

See the table at the beginning of the technote for supported JRE versions. And use the information in the "Verify the JRE version" topic in this attachment for steps to determine the available JRE versions on the local server.

For more information about the vendor support for the Java version, refer to the vendor's documentation.

Troubleshooting

The first step in troubleshooting is to check that the software is using the correct Java version. Check that the path specified in the PATH and JAVA_HOME variable

- Does not have any spaces or a slash at the end of the path

- There is not a \bin or /bin at the end of the Java path in the JAVA_HOME environment variable

- There is a \bin or /bin at the end of the Java path in the PATH environment variable

- That the Java specified in the path is a supported version

- If accessing any of the software from a command window, the window was opened after the environment variable was set

- That the environment is set at the correct level (session, user, system-wide) for the way the software is being instantiated.

If an installer cannot find the appropriate JRE, use the Install Anywhere LAX_VM command to work around the issue. For more information on this option, refer to the following documentation:

https://docs.revenera.com/installanywhere2022/Content/helplibrary/ia_ref_command_line_launcher.htm