



Application Instrumentation – Jetty

Java

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About this Document

This document provides VSP application instrumentation steps for Jetty Application Server (Java) and provides the steps to determine the values of Deployment Folder and Start-up Script path required during Application configuration on CMS.



NOTE:

Variables `%JETTY_HOME%` and `$JETTY_HOME` used throughout this document refer to the root directory where Jetty Application Server is installed in Windows and Linux operating systems respectively. Some sample values are provided below:

- `%JETTY_HOME%` - `D:\jetty-Server-9.4.42\`
- `$JETTY_HOME` - `/opt/jetty-Server-9.4.42\`

1. Windows

1.1. Auto-Instrumentation

1. **Application Deployment Folder**
 - a. Log in to the Virtual Machine where Jetty is installed
 - b. Utilize the below path as **Application Deployment Folder**
`%JETTY_HOME%\webapps`
 - c. **Example:** `D:\jetty-Server-9.4.42\webapps`
2. **Startup Script File Path** - Jetty is executed as a jar
 - a. Create a startup-script file in the `%JETTY_HOME%` directory
 - b. Provide the required command in the newly created file
 - c. Example:
 - i. Create a file `start_jetty.bat` with the below command:
`java -jar D:\jetty-Server-9.4.42\start.jar`
 - d. Provide the path of this file as the Startup Script File Path in CMS
 - i. **Example:** `D:\jetty-Server-9.4.42\start_jetty.bat`

1.2. Manual Instrumentation

Supported Windows Version: The following configuration is tested on **Windows 2016** Operating System. To manually configure the **Jetty Server** with **VSP**, follow the steps below:

1. Shut down **Jetty Server** if it is running
2. Navigate to the directory of the Jetty Startup Script
 Example: `D:\jetty-Server-9.4.42`
3. Start **Jetty Server** with the below argument

```
java -javaagent:"C:\Program Files (x86)\Virsec\iae-java\instrumentation.jar" -Dvirsec_appcontextpath=<AppCollectiveID> -jar D:\jetty-Server-9.4.42\start.jar
```



NOTE:

- Set the value of `JAVA_HOME` to user Profile or Command Line, to start Jetty Server in the command line.
 - **Example:** `SET "JAVA_HOME=C:\Program Files\Java\jdk1.8.0_161"`
- Ensure that `<AppCollectiveID>` mentioned below is replaced with the App Collective ID in the CMS Application Configuration section

2. Linux

2.1. Auto-Instrumentation

1. Application Deployment Folder

- a. Log in to the Virtual Machine where Jetty is installed
- b. Use the below path as **Application Deployment Folder**

`$JETTY_HOME/webapps`

- c. **Example:** `/opt/jetty-Server-9.4.42/webapps`

2. Startup Script File Path – Jetty Server is executed as a jar file

- a. Create a startup-script file in the `$JETTY_HOME` directory
- b. Provide the required command in the newly created file
- c. Example:

- i. Create a file `start_jetty.sh` with the below command:

```
java -jar /opt/jetty-Server-9.4.42/start.jar
```

- d. Provide the path of this file as the **Startup Script File Path** in CMS

- i. **Example:** `/opt/jetty-Server-9.4.42/start_jetty.sh`

2.2. Manual Instrumentation

Supported Linux Version: The following configuration is tested on **RHEL 7.5** Operating System. To manually configure the **Jetty Server** with **VSP**, follow the steps below:

1. Shut down **Jetty Server** if it is running
2. Navigate to the `$JETTY_HOME` directory
Example: `/opt/jetty-Server-9.4.42`
3. Start **Jetty Server** with below argument

```
java -javaagent:"/opt/virsec/iae-java/instrumentation.jar" -
Dvirsec_appcontextpath=<AppCollectiveID> -jar /opt/jetty-Server-
9.4.42/start.jar
```



NOTE:

- Set the value of `JAVA_HOME` and `VSP_Home` to user Profile or Command Line, to start Jetty Server in the command line.
 - **Example:** `export JAVA_HOME=/opt/jdk1.8.0_161`
- Ensure that `<AppCollectiveID>` mentioned below is replaced with the App Collective ID in the CMS Application Configuration section

Using Script:

4. Shut down the **Jetty Server** (if it is running)
5. Navigate to the bin directory using the command:
 - a. `cd $JETTY_HOME/bin`
6. Take a backup of the file `jetty.sh`
7. Modify the file `jetty.sh` to append **VSP JVM** argument to **Java Options** as described below

a. Before Modification:

```
JAVA_OPTIONS=(${JAVA_OPTIONS[*]} "-Djetty.home=$JETTY_HOME" "-Djetty.base=$JETTY_BASE" "-Djava.io.tmpdir=$TMPDIR")\
```

b. After Modification:

```
JAVA_OPTIONS=(${JAVA_OPTIONS[*]} -javaagent:/opt/virsec/iae-java/instrumentation.jar -Dvirsec_appcontextpath=<AppCollectiveID> "-Djetty.home=$JETTY_HOME" "-Djetty.base=$JETTY_BASE" "-Djava.io.tmpdir=$TMPDIR")
```



NOTE:

Ensure that `<AppCollectiveID>` mentioned above is replaced with the App Collective ID in the CMS Application Configuration section

8. Start Jetty Server using the command:
 - a. `./jetty.sh start`

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