opentext™

OpenText™ DAST Agent

Software Version: 26.4.0
For use with OpenText DAST 26.4.0

Installation and Rulepack Guide

Document Release Date: October 2026
Software Release Date: October 2026

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Documentation updates

The title page of this document contains the following identifying information:

- Software Version number
- Document Release Date, which changes each time the document is updated
- Software Release Date, which indicates the release date of this version of the software

This document was produced on November 03, 2026.

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Preface

Contacting Customer Support

Visit the Customer Support website to:

- Manage licenses and entitlements
- Create and manage technical assistance requests
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For more information

For more information about OpenText Application Security Testing products, visit OpenText Application Security.

Product feature videos

You can find videos that highlight OpenText Application Security Software products and features on the Fortify Unplugged YouTube™ channel.

Change log

The following table lists changes made to this document. Revisions to this document are published only if the changes made affect product functionality.

Software Release / Document Version	Change
26.2.0	Updated: Release information
25.4.0	Updated: Release information
25.2.0	Updated: Release information
24.4.0	Updated: Release information

Product name changes

OpenText is in the process of changing the following product names:

Previous name	New name
Fortify Static Code Analyzer	OpenText™ Static Application Security Testing (OpenText SAST)
Fortify Software Security Center	OpenText™ Application Security
Fortify WebInspect	OpenText™ Dynamic Application Security Testing (OpenText DAST)
Fortify on Demand	OpenText™ Core Application Security
Debricked	OpenText™ Core Software Composition Analysis (OpenText Core SCA)
Fortify Applications and Tools	OpenText™ Application Security Tools

The product names have changed on product splash pages, mastheads, login pages, and other places where the product is identified. The name changes are intended to clarify product functionality and to better align the Fortify Software products with OpenText. In some cases, such as on the documentation title page, the old name might temporarily be included in parenthesis. You can expect to see more changes in future product releases.

Chapter 1: System requirements

OpenText DAST Agent technology is delivered for production application logging and protection.

Platforms and architectures

OpenText DAST Agent supports 32-bit and 64-bit applications written in Java 5, 6, 7, 8, and 10.

Java Runtime Environments

OpenText DAST Agent supports the Java Runtime Environments listed in the following table.

JRE	Versions
IBM J9	5 (SR10 or later) 6 (SR6 or later)
Oracle HotSpot	5, 6, 7, 8
Oracle JRockit	5, 6 (R27.6 or later)

Note: The Java agent is supported on Windows, Linux, and UNIX®.

Java application servers

OpenText DAST Agent supports the Java application servers listed in the following table.

Application server	Versions
Apache Tomcat	6.0, 7.0, 8.0, 9.0
IBM® WebSphere®	7.0, 8.0, 8.5, 8.5.5
Oracle® WebLogic®	10.0, 10.3, 11g, 11gR1, 12c

Application server	Versions
Red Hat® JBoss® Application Server Enterprise Application Platform	7.3.0 or earlier
Eclipse® Jetty®	9.3
Red Hat® WildFly	20.0.1 or earlier

.NET Framework

OpenText DAST Agent supports .NET Framework versions 2.0, 3.0, 3.5, 4.0, and 4.5-4.8.

IIS for Windows Server

OpenText DAST Agent supports Internet Information Services (IIS) versions 6.0, 7.0, 7.5, 8, 8.5, and 10.0.

Chapter 2: Installing the OpenText DAST Agent

To install the agent, go to one of the following sections:

"Overview of Java Agent installation" below

"Overview of .NET agent installation" on page 26

Installing the Java agent

Topics covered in this section:

Getting started with the Java agent installation 10
Adding the agent to an application server or service running Java 12
Verifying the Java agent installation 23

Getting started with the Java agent installation

Topics covered in this section:

Overview of Java Agent installation

The runtime agent protects all applications running under a supported Java Runtime Environment (JRE) on a supported application server or service.

Note: If you need to protect a particular subset of applications, you must run that subset under its own JVM.

To install the runtime agent and add it to an application server or service, follow these steps:

Step	Description	Instructions
1.	Ensure that your target application runs on supported versions of Java Runtime Environment (JRE) and the application server or service.	See the "Java Runtime Environments" on page 8 in the system requirements.
2.	Install the Java agent.	"Installing the Java agent" on the next page

Step	Description	Instructions
3.	Add the agent to an application server or service.	"Adding the agent to an application server or service running Java" on the next page
4.	Restart the application server and view the new agent.	"Verifying the Java agent installation" on page 23

Installing the Java agent

Important:

- The agent must have the same permissions on the computer as the user who is responsible for starting the application server.
- OpenText recommends that you install the agent in a secure directory having limited access on your computer or in a subdirectory of the application server. If you use a WebSphere server, make sure the directory path does not contain any spaces.

To install the agent:

1. Copy the agent installation file to the computer on which you are going to install the agent.
   Where `xx.x` represents the Runtime version number:
   - For UNIX or Linux, the file name is `Fortify_WebInspect_Runtime_Agent_Java_xx.x_Linux.tar.gz`
   - For Windows, the file name is `Fortify_WebInspect_Runtime_Agent_Java_xx.x_windows.zip`
2. Expand the agent installation file:
   - **UNIX or Linux**:
     Use the following command:

     ```
     tar -xzf Fortify_WebInspect_Runtime_Agent_Java_xx.x_Linux.tar.gz
     ```

   - **Windows:** Logged in as an administrator, expand the file using unzip software. By default, the extracted files are installed in a directory named:

     ```
     Fortify_WebInspect_Runtime_Agent_Java_xx.x_Linux
     ```

Important: The full path to this installation directory is referred to as `<install_dir>` in these instructions.

For example, if the `Fortify_WebInspect_Runtime_Agent_Java_xx.x` directory is located at `C:\`, you replace `<install_dir>` with `C:\Fortify_WebInspect_Runtime_Agent_Java_xx.x` wherever these instructions refer to `<install_dir>`.

Adding the agent to an application server or service running Java

The instructions for adding an agent vary depending on the application server or service to which you are adding the agent. The following topics provide instructions for adding the agent to each supported application server or service.

In general, adding the agent to an application server involves adding an appropriate `-javaagent` argument to the server startup.

Topics covered in this section:

Adding the agent to a standalone Apache Tomcat server

To configure a standalone Apache Tomcat server to start with the agent, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" on page 22.

UNIX or Linux

To add the agent:

1. Open `<Tomcat_home>/bin/catalina.sh`.
2. Do one of the following:
   - To add the first agent, add the following line beneath the JAVA_OPTS section and above the `Execute The Requested Command` comment:

     ```
     CATALINA_OPTS="-javaagent:<install_dir>/lib./FortifyAgent.jar
        $CATALINA_OPTS"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

```
CATALINA_OPTS="-javaagent:<install_dir>/lib./FortifyAgent.jar,
   <existing_agent> $CATALINA_OPTS"
```

Windows

To add the agent:

1. Open `<Tomcat_home>\bin\catalina.bat`.
2. Do one of the following:
   - To add the first agent, add the following line beneath the JAVA_OPTS section and above the `Execute The Requested Command` comment:

     ```
     set CATALINA_OPTS="-javaagent:<install_dir>\lib\FortifyAgent.jar
        %CATALINA_OPTS%"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

     ```
     set CATALINA_OPTS="-javaagent:<install_dir>\lib\FortifyAgent.jar,
        <existing_agent> %CATALINA_OPTS%"
     ```

Adding the agent to an Apache Tomcat Windows service

To configure an Apache Tomcat Windows service to start with the agent, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" on page 22.

To add the agent:

1. Start the Apache Tomcat configuration application. For example, for Apache Tomcat 7, this is `tomcat7w.exe`.
2. Do one of the following:
   - To add the first agent, add the following line to the `Java Options` section under the `Java` tab:

     ```
     "-javaagent:<install_dir>\lib\FortifyAgent.jar"
     ```

- To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

```
"-javaagent:<install_dir>\lib\FortifyAgent.jar, <existing_agent>"
```

Adding the agent to an IBM WebSphere server using the Server Administrative Console

To add the agent to an IBM WebSphere server using the IBM WebSphere administrative console, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" on page 22.

UNIX or Linux

To add the agent:

1. On the WebSphere Application Servers page, select the server for which you want to add the agent.
2. Do one of the following:
   - To add the first agent, add the following option to the `Generic JVM Arguments` section:

```
-javaagent:<install_dir>/lib./FortifyAgent.jar
```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent in the `Generic JVM Arguments` section. For example:

```
-javaagent:<install_dir>/lib./FortifyAgent.jar, <existing_agent>
```

3. If using WebSphere 7 or higher, add the following option to the `Generic JVM Arguments` section:

```
-Xshareclasses:none
```

Windows

To add the agent:

1. On the WebSphere Application Servers page, select the server for which you want to add the agent.
2. Do one of the following:
   - To add the first agent, add the following option to the `Generic JVM Arguments` section:

     ```
     -javaagent:<install_dir>\lib\FortifyAgent.jar
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent in the `Generic JVM Arguments` section. For example:

     ```
     -javaagent:<install_dir>\lib\FortifyAgent.jar, <existing_agent>
     ```

3. If you are using WebSphere 7 or higher, add the following option to the `Generic JVM Arguments` section:

   ```
   -Xshareclasses:none
   ```

Adding the agent to an IBM WebSphere Server using wsadmin

To add the agent to an IBM WebSphere server using the IBM WebSphere wsadmin command-line utility:

1. In the `<WebSphere_home>/profiles/AppSrvN/bin` directory, execute the following command:

   Note: On UNIX or Linux systems, you must use a forward slash (/) when specifying the path to the `wsadmin` command-line utility. On Windows, use a backslash (\).

   UNIX or Linux

   ```
   wsadmin -conntype none -f <install_dir>/tools/
      websphereJvmSetup.jacl -fortifyHome <install_dir>
   ```

   #### Windows

   ```
   wsadmin.bat
   ```

2. If the application server does not have default WebSphere settings, one or more of the following options might need to be added to the `wsadmin` command:

Parameter	Description
`-cell`	Specifies the WebSphere server's cell
`-server`	Specifies the WebSphere server's name Default: `server1`
`-node`	Specifies the WebSphere server's node name

Adding the agent to a Red Hat JBoss Server

To configure a Red Hat JBoss server to start with the agent, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" on page 22.

This topic contains the following sections:

- "JBoss 5.2.0 or Earlier" below
- "JBoss 6.0.1 or Later" on the next page

JBoss 5.2.0 or Earlier

Configure JBoss 5.20 or lower to start with the agent.

UNIX or Linux

To add the agent:

1. Open `<JBoss_home>/bin/run.sh`.
2. Do one of the following:
   - To add the first agent, add the following line:

     ```
     JAVA_OPTS="-javaagent:<install_dir>/lib./FortifyAgent.jar $JAVA_OPTS"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

```
JAVA_OPTS="-javaagent:<install_dir>/lib./FortifyAgent.jar,
   <existing_agent> $JAVA_OPTS"
```

Windows

To add the agent:

1. Open <*JBoss_home*>\bin\run.bat.
2. Do one of the following:
   - To add the first agent, add the following line:

     ```
     set JAVA_OPTS="-javaagent:<install_dir>\lib\FortifyAgent.jar %JAVA_OPTS%"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

     ```
     set JAVA_OPTS="-javaagent:<install_dir>\lib\FortifyAgent.jar,
        <existing_agent> %JAVA_OPTS%"
     ```

JBoss 6.0.1 or Later

Configure JBoss version 6.0.1 or higher to start with the agent.

UNIX or Linux

To add the agent:

1. Open <*JBoss_home*>/bin/standalone.sh.
2. Do one of the following:
   - To add the first agent, add the following lines:

     ```
     JAVA_OPTS="-javaagent:<install_dir>/lib./FortifyAgent.jar $JAVA_OPTS"

     PROCESS_CONTROLLER_JAVA_OPTS =
        "-javaagent:<install_dir>/lib./FortifyAgent.jar
        $PROCESS_CONTROLLER_JAVA_OPTS"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

     ```
     JAVA_OPTS="-javaagent:<install_dir>/lib./FortifyAgent.jar,
        <existing_agent> $JAVA_OPTS"
     ```

```
PROCESS_CONTROLLER_JAVA_OPTS =
   "-javaagent:<install_dir>/lib./FortifyAgent.jar,
   <existing_agent> $PROCESS_CONTROLLER_JAVA_OPTS"
```

3. Add the lines described in step 2 to <JBoss_home>/bin/domain.sh.
4. Modify the standalone.conf file as follows:
   a. Append the following to the -Djboss.modules.system.pkgs=org.jboss.byteman JVM option:

      ```
      ,org.jboss.logmanager,com.fortify
      ```

   b. Add the following JVM options, depending on the version of JBoss. Replace <JBoss_home> with the full path to the JBoss home, and replace <jar_file_version> with the version of the jar file for your JBoss release.

      If the JBoss version is 6.0.1:

      ```
      -Djava.util.logging.manager=org.jboss.logmanager.LogManager

      -Xbootclasspath/p:<JBoss_home>/modules/org/
         jboss/logmanager/main/
         jboss-logmanager-<jar_file_version>.jar
      ```

      If the JBoss version is 6.1.0 or higher:

      ```
      -Djava.util.logging.manager=org.jboss.logmanager.LogManager

      -Xbootclasspath/p:<JBoss_home>/modules/
         system/layers/base/org/jboss/logmanager/main/
         jboss-logmanager-<jar_file_version>.jar
      ```

      For example, if you are running JBoss 6.2.0 and it is located in /usr/bin/jboss/jboss-eap-6.2, you add JVM options similar to the following:

      ```
      -Djava.util.logging.manager=org.jboss.logmanager.LogManager

      -Xbootclasspath/p:/usr/bin/jboss/jboss-eap-6.2/modules/
         system/layers/base/org/jboss/logmanager/main/
         jboss-logmanager-1.5.1.Final-redhat-1.jar
      ```

5. Perform the procedures of step 4 for domain.conf.

Windows

To add the agent:

1. Open `<JBoss_home>\bin\standalone.bat`.
2. Do one of the following:
   - To add the first agent, add the following lines:

     ```
     set JAVA_OPTS="-javaagent:<install_dir>\lib\FortifyAgent.jar
        %JAVA_OPTS%"

     set PROCESS_CONTROLLER_JAVA_OPTS =
        "-javaagent:<install_dir>\lib\FortifyAgent.jar
        %PROCESS_CONTROLLER_JAVA_OPTS%"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

     ```
     set JAVA_OPTS="-javaagent:<install_dir>\lib\FortifyAgent.jar,
        <existing_agent> %JAVA_OPTS%"

     set PROCESS_CONTROLLER_JAVA_OPTS =
        "-javaagent:<install_dir>\lib\FortifyAgent.jar,
        <existing_agent> %PROCESS_CONTROLLER_JAVA_OPTS%"
     ```

3. Add the lines described in step 2 to `<JBoss_home>\bin\domain.bat`.
4. Modify the `standalone.conf.bat` file as follows:
   a. Append the following to the `-Djboss.modules.system.pkgs=org.jboss.byteman` JVM option:

      ```
      ,org.jboss.logmanager,com.fortify
      ```

   b. Add the following JVM options, depending on the version of JBoss. Replace `<JBoss_home>` with the full path to the JBoss home, and replace `<jar_file_version>` with the version of the jar file for your JBoss release.

      If the JBoss version is 6.0.1:

      ```
      -Djava.util.logging.manager=org.jboss.logmanager.LogManager

      -Xbootclasspath\p:<JBoss_home>\modules\org\
         jboss\logmanager\main\
         jboss-logmanager-<jar_file_version>.jar
      ```

      If the JBoss version is 6.1.0 or higher:

      ```
      -Djava.util.logging.manager=org.jboss.logmanager.LogManager
      ```

```
-Xbootclasspath\p:<JBoss_home>\modules\
   system\layers\base\org\jboss\logmanager\main\
   jboss-logmanager-<jar_file_version>.jar
```

For example, if you are running JBoss 6.2.0 and it is located in `C:\bin\jboss\jboss-eap-6.2`, you add JVM options similar to the following:

```
-Djava.util.logging.manager=org.jboss.logmanager.LogManager

-Xbootclasspath\p:C:\bin\jboss\jboss-eap-6.2\modules\
   system\layers\base\org\jboss\logmanager\main\
   jboss-logmanager-1.5.1.Final-redhat-1.jar
```

5. Perform the procedures of step 4 for `domain.conf.bat`.

Adding the agent to an Oracle WebLogic server

To configure an Oracle WebLogic server to start with the agent, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" on page 22.

UNIX or Linux

To add the agent:

1. Open `<WebLogic_home>/bin/startWebLogic.sh`.
2. Do one of the following:
   - To add the first agent, add the following line:

     ```
     JAVA_OPTIONS="-javaagent:<install_dir>/lib./FortifyAgent.jar $JAVA_
        OPTIONS"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

     ```
     JAVA_OPTIONS="-javaagent:<install_dir>/lib./FortifyAgent.jar,
        <existing_agent> $JAVA_OPTIONS"
     ```

Windows

To add the agent:

1. Open `<WebLogic_home>\bin\startWebLogic.cmd`.
2. Do one of the following:
   - To add the first agent, add the following line:

     ```
     set JAVA_OPTIONS="-javaagent:<install_dir>\lib\FortifyAgent.jar
        %JAVA_OPTIONS%"
     ```

   - To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

     ```
     set JAVA_OPTIONS="-javaagent:<install_dir>\lib\FortifyAgent.jar,
        <existing_agent> %JAVA_OPTIONS%"
     ```

Adding the agent to a system service

To add runtime agent protection to a Java Virtual Machine (JVM) or application server running as a system service for UNIX, Linux, or Windows, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" on the next page.

UNIX, Linux, and Windows

Incorporate the following parameter into the script that starts the JVM or application server for the system service:

Note: On Windows systems, replace the forward slashes (/) in the following paths with backslashes (\).

- To add the first agent, add the following line:

  ```
  "-javaagent:<install_dir>/lib./FortifyAgent.jar"
  ```

- To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent in the `Java Options` section under the `Java` tab. For example:

```
"-javaagent:<install_dir>/lib./FortifyAgent.jar,
    <existing_agent>"
```

Adding the agent to a standalone Java application

To configure a standalone Java application to start with the agent, perform the steps in this topic if you are doing one of the following:

- Adding the first agent (you are adding the agent to a system that does not already have an agent)
- Adding another agent (the system already has an agent)

If you are adding the agent to a host machine that is running more than one protected application, follow the instructions in "Adding the agent to a host machine that has more than one protected application" below.

UNIX, Linux, and Windows

Note: On Windows systems, replace the forward slashes (/) in the following paths with backslashes (\).

- To add the first agent, add the following parameter to the application's execution command:

```
"-javaagent:<install_dir>/lib./FortifyAgent.jar"
```

  For example:

```
java "-javaagent:<install_dir>/lib./FortifyAgent.jar
    <other_java_parameters> <application_name>"
```

- To add another agent, add the `-javaagent` startup option (shown in bold text below) to the beginning of the option for the existing agent. For example:

```
java "-javaagent:<install_dir>/lib./FortifyAgent.jar, <existing_agent>
   <other_java_parameters> <application_name>"
```

Adding the agent to a host machine that has more than one protected application

Note: If you are adding the agent to a system that has (or will have) only one protected application, follow the instructions for the application server or service to which you are adding the agent. See "Adding the agent to an application server or

service running Java" on page 12.

If you have more than one protected application running on the same host machine, perform the following steps to add the agent to the application server or service.

UNIX, Linux, and Windows

To add the agent:

Note: On Windows systems, replace the forward slashes (/) in the following paths with backslashes (\) .

1. For each protected application, you must create a unique agent configuration file. Do this by copying the `<install_dir>/config/rt_config.xml` file into the same directory with an application-appropriate name, such as `myapp1_config.xml`.
2. In the new file, change the `ProgramName` setting from `default` to the name of the application. For example, in `<install_dir>/config/myapp1_config.xml`, change the `ProgramName` setting from `default` to `myapp1`.
3. For each application server or service, add the new configuration file to the appropriate `-javaagent` startup option (shown in bold text below) as follows:
   - To add the first agent, add the following line:

     ```
     "-javaagent:<install_dir>/lib./FortifyAgent.jar"
     ```

     For example:

     ```
     "-javaagent:<install_dir>/lib./FortifyAgent.jar=
        <install_dir>/config/myapp1_config.xml"
     ```

   - To add another agent, add the `-javaagent` startup option to the beginning of the option for the existing agent:

     ```
     "-javaagent:<install_dir>/lib./FortifyAgent.jar,
         <existing_agent>"
     ```

     For example, if you are adding an agent to an application server or service that does not already have an installed agent, you add the following:

     ```
     "-javaagent:<install_dir>/lib./FortifyAgent.jar=
        <install_dir>/config/myapp1_config.xml, <existing_agent>"
     ```

Verifying the Java agent installation

Topics covered in this section:

Troubleshooting tips for the Java agent

A new agent does not appear

If, after restarting the application server, the new agent does not appear as described in "Restarting the application server and viewing the new Java agent" below, check the agent's log file for errors as follows:

1. In the log file
   `<install_dir>/log/system.log` for UNIX or Linux
   or
   `<install_dir>\log\system.log` for Windows
   look for a message similar to the following:

   ```
   [<PID> <TIMESTAMP> INFO] OpenText Fortify Runtime setup complete
   ```

2. Ensure that the timestamp on the message corresponds to the time that the application server was started. Also ensure that there are no messages in the log with the prefix `ERROR` or `FATAL`.

The log file does not exist or application server startup messages are not present

If the log file does not exist or if messages that correspond to the application server startup time are not present, it indicates that the agent is not running. Take the following steps to identify the issue:

1. Make sure the startup arguments that you modified earlier are correct.
2. Check the `stderr` output from the application server or service for any fatal configuration errors.

Restarting the application server and viewing the new Java agent

To restart the application server and view the new agent:

1. Restart the application server.
2. After the server has started, make sure the new agent appears:
   a. Start OpenText DAST (Fortify WebInspect).
   b. Start a scan.
   c. In the Scan Dashboard page, verify that in the **Scan** section in the right pane, the **Agent** field is displayed as **Detected**.
   d. If the new agent is not operating as described above, see "Troubleshooting tips for the Java agent" above.

Uninstalling a Java agent

To uninstall a runtime agent for Java and remove the agent from your system:

1. To deactivate Runtime, undo any startup script changes that you made.
2. Delete <*install_dir*>.

Installing the .NET agent

Topics covered in this section:

Getting started with the .NET agent installation 26
Verifying the .NET agent installation 28
Restarting IIS and viewing the new .NET agent 29

Getting started with the .NET agent installation

Topics covered in this section:

Overview of .NET agent installation

The runtime agent protects all applications running under a supported .NET Framework on a supported version of IIS.

Note: If you need to protect a particular subset of applications, you must configure that subset as an application pool and protect that application pool.

Note: If you are upgrading a previous installation of a .NET agent, you must install the new agent without uninstalling the old agent, to preserve your protection settings.

To install the runtime agent and add it to IIS, follow these steps:

Step	Description	Instructions
1.	Ensure that your target application runs on supported versions of .NET Framework and IIS.	See ".NET Framework" on page 9 and "IIS for Windows Server" on page 9 in the system requirements.
2.	Run the agent installer.	"Installing the .NET agent" on the next page
3.	Restart IIS and view the new agent.	"Verifying the .NET agent installation" on page 28

Installing the .NET agent

Important:

- The agent must have the same permissions on the computer as the user who is responsible for starting IIS.
- OpenText recommends that you install the agent in a secure directory having limited access on your computer.

To install the agent:

1. Copy the agent installation file to the computer on which you are going to install the agent, if the file was downloaded to a different computer.

   Where `xx.x` represents the Runtime version number:

   - For 64-bit Windows, the file name is `Fortify_WebInspect_Runtime_Agent_Dotnet_xx.x.windows_x64.exe`
   - For 32-bit Windows, the file name is `Fortify_WebInspect_Runtime_Agent_Dotnet_xx.x_windows_x86.exe`
2. Run the installer from the directory where the extracted files are stored.

   By default, the installer places the files in the following directory:

   `<install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x`

   but you can use a different location. These instructions assume that you use the default location.

   Important: The full path to this installation directory is referred to as `<install_dir>` in these instructions.

   For example, if the WebInspect_RuntimeAgt_Dotnet_xx.x directory is located at `C:\`, you replace `<install_dir>` with `C:\WebInspect_RuntimeAgt_Dotnet_xx.x` wherever these instructions refer to `<install_dir>`.

Silent Install

You can streamline the .NET installation process with a silent installation. To install the .NET agent from the command line:

- Run the installation `.exe` file from the command line with the option `--mode unattended`.

  or
- Run the installation `.exe` file from the command line with the option `--help` to access a list of options.

Verifying the .NET agent installation

Topics covered in this section:

Restarting IIS and viewing the new .NET agent

To restart IIS and view the new agent:

1. As an administrative user, execute the following command to activate Runtime:

   ```
   <install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x\
   tools\IISControl.exe register restart
   ```

   Note: If you need to protect a particular subset of applications on the server, configure that subset as an application pool and add `-a <application pool name>` to the command. For example:

   ```
   <install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x\
   tools\IISControl.exe -a MyAppPool register restart
   ```

2. .NET requires that you open your application from a browser. When you do so, IIS starts both the application and Runtime.
3. After the server has started, make sure the new agent appears:
   a. Start OpenText DAST (Fortify WebInspect).
   b. Start a scan.
   c. In the Scan Dashboard page, verify that in the **Scan** section in the right pane, the **Agent** field is displayed as **Detected**.
   d. If the new agent is not operating as described above, see "Troubleshooting tips for the .NET agent" below.

Troubleshooting tips for the .NET agent

A new agent does not appear

If, after restarting IIS, the new agent does not appear as described in "Restarting IIS and viewing the new .NET agent" on the next page, check the agent's log file for errors as follows:

1. In the log file

   ```
   <install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x\
   log\system.log
   ```

   look for a message similar to the following:

   ```
   [<PID> <TIMESTAMP> INFO] OpenText Fortify Runtime setup complete
   ```

2. Ensure that the timestamp on the message corresponds to the time that IIS was started. Also ensure that there are no messages in the log with the prefix `ERROR` or `FATAL`.

The log file does not exist or IIS startup messages are not present

If the log file does not exist or if messages that correspond to the IIS startup time are not present, it indicates that the agent is not running. In this case, see whether an error has been reported in the Windows system event log.

Uninstalling a .NET agent

To deactivate a .NET runtime agent and remove the agent from your system:

1. As an administrative user, execute the following command:

   ```
   <install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x\
   tools\IISControl.exe unregister restart
   ```
2. Select **Control Panel > Programs and Features.**
3. Right-click **Fortify WebInspect Runtime Agent Dotnet xx.x** where **xx.x** represents the version number, and perform the uninstall.

Restarting IIS and viewing the new .NET agent

To restart IIS and view the new agent:

1. As an administrative user, execute the following command to activate Runtime:

   ```
   <install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x\
   tools\IISControl.exe register restart
   ```

   Note: If you need to protect a particular subset of applications on the server, configure that subset as an application pool and add `-a <application pool name>` to the command. For example:

   ```
   <install_dir>\WebInspect_RuntimeAgt_Dotnet_xx.x\
   tools\IISControl.exe -a MyAppPool register restart
   ```
2. .NET requires that you open your application from a browser. When you do so, IIS starts both the application and Runtime.
3. After the server has started, make sure the new agent appears:
   a. Start OpenText DAST (Fortify WebInspect).
   b. Start a scan.
   c. In the Scan Dashboard page, verify that in the **Scan** section in the right pane, the **Agent** field is displayed as **Detected**.
   d. If the new agent is not operating as described above, see "Troubleshooting tips for the .NET agent" on the previous page.

Chapter 3: Using the OpenText DAST Agent Rulepack Kit

This chapter describes the detection capabilities of the OpenText DAST Agent Rulepack Kit. The DAST Agent Rulepack Kit runs atop Fortify's Runtime Agent, allowing it to monitor your code for software security vulnerabilities as it runs. OpenText DAST Agent Rulepack Kit provides the runtime technology to help connect your dynamic results to your static ones.

There are four major types of rules in the OpenText DAST Agent Rulepack Kit, the details of these rules will be discussed in the following sections.

1. Vulnerability Rules
2. Attack Surface Rules
3. Trace Rules
4. Platform Rules

Output from vulnerability rules will be logged to Runtime Agent event log (if configured) in standard OpenText DAST Agent event log format. However, attack surface and trace rules will only be sent to OpenText DAST and will not be logged in event log. Platform rules do not generate any events.

Vulnerability rules

Vulnerability rules improve OpenText DAST Agent scanning by:

1. Reporting security vulnerabilities that OpenText DAST does not typically find. For example, OpenText DAST might not be able to find certain types of Blind SQL Injection while DAST Agent intercepts all SQL database operations, will be able to detect it.
2. Reporting code level details to OpenText DAST. For example, in the case of a Cross-site Scripting attack, DAST Agent can report the user source file name, line number and any other related stack traces which are very useful to developers when fixing the vulnerability reported.

DAST Agent sends the attack string being used in each request to DAST Agent in a custom HTTP header. Most vulnerability rules detect vulnerabilities by comparing the security sensitive parameter or argument with the OpenText DAST provided attack vector. For example, for SQL Injection rules, the monitor will check if the SQL query string contains the attack vector, which may be "`' or 1=1 --`".

Both Java and .NET OpenText DAST Agent Rulepack Kits can detect the following vulnerabilities:

- Arbitrary File Upload
- Command Injection
- Credit Card Number Disclosed
- Cross-Site Scripting
- Dangerous File Inclusion: Local
- Dangerous File Inclusion: Remote
- Denial of Service: Parse Double
- Insecure Randomness
- Leftover Debug Code
- Mass Assignment: Insecure Binder Configuration
- Open Redirect
- Privacy Violation: Credit Card Number
- Privacy Violation: Social Security Number
- SQL Injection
- Social Security Number Disclosed
- Value Shadowing
- XML External Entity Injection
- XML Entity Expansion Injection

Additionally, the Java OpenText DAST Agent Rulepack Kit can detect the following vulnerabilities:

- ClassLoader Manipulation: Struts
- Header Manipulation: IMAP
- Header Manipulation: SMTP
- Mail Command Injection: IMAP
- Mail Command Injection: POP3
- Mail Command Injection: SMTP
- Transport Layer Protection: Insecure Mail Transmission

Attack surface rules

Attack Surface Rules is used to report the list of the available web pages and URLs to OpenText™ DAST Agent. OpenText DAST can then use this information to find hidden pages or pages that the crawler failed to find.

Supported attack surfaces are:

Java	.NET
Tomcat/WebSphere JAX-RS	IIS WCF

Trace rules

Trace rules report various events to OpenText DAST Agent to help OpenText DAST have a better insight into the application being tested. For example, a File_IO trace may notify OpenText DAST Agent that the application is reading a particular file. OpenText DAST may then use the information to determine if the file operation is expected and/or if a “Path Manipulation” test should be conducted afterwards.

Both Java and .NET OpenText DAST Agent Rulepack Kits can detect the following traces:

Trace Type	Operations
Database	execute, close
Attack Suggestion	N/A
Session	start, stop
File IO	open, read, write, close
Authentication	logon, logoff
Authorization	successful, failure
Unused Parameter	N/A
Network	stream
HTTP/URL Connection	init
OAuth	client_version, server_version, token, store_token, store_access_token, request
Validation Failure	struts, spring, webcontrols
autobind	trace_spring_modelattribute, trace_spring_modelmap, trace

Trace Type	Operations
email	smtp_send, email_secure, smtp_command, imap_command, pop3_command

Platform rules

Platform rules do not detect any vulnerabilities or events but modify the application or platform to be more suitable for vulnerability scanning.

The list of all supported platform rules is as follows:

Rule	Java	.NET
Enable DEBUG in web.config*	N/A	YES
Disable CAPTCHA	ReCaptcha SimpleCaptcha jCaptcha Are You A Human? NuCaptcha	ReCaptcha BotDetect NuCaptcha
Unlimited password retries	N/A	Standard MembershipProvider
Prevent accidentally changing password	N/A	Standard MembershipProvider

* DEBUG is required in order to retrieve line numbers in a stack trace.

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