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# OpenRASP 手册

## 部署前先看

### 环境检查

#### 1. （重要）安装前请确定系统环境是否符合如下条件：

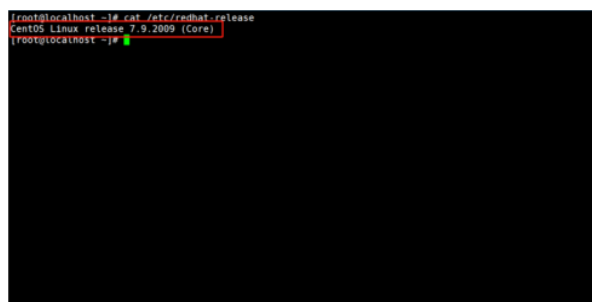
##### a) 中间件：

- i. Resin 3 ~ 4
- ii. Tomcat 8
- iii. WebLogic 12c
- iv. 宝兰德 9.5.x
- v. 东方通 7

##### b) 服务器要求：

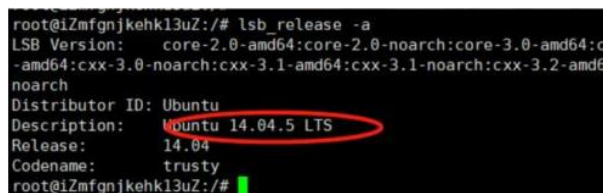
- i. Windows x64
- ii. MacOS 10.10.+
- iii. Linux:

1. RHEL/CentOS 6~7, 查看命令是: `cat /etc/redhat-release`



```
root@localhost ~# cat /etc/redhat-release
CentOS Linux release 7.5.2009 (Core)
root@localhost ~#
```

2. Ubuntu 14 及更高版本, 查看命令是: `lsb_release -a`



```
root@izmfgnjkehk13uZ:/# lsb_release -a
LSB Version: core-2.0-amd64:core-2.0-noarch:core-3.0-amd64:core-3.0-noarch:core-3.1-amd64:core-3.1-noarch:cxx-3.0-amd64:cxx-3.0-noarch:cxx-3.1-amd64:cxx-3.1-noarch:cxx-3.2-amd64:cxx-3.2-noarch
Distributor ID: Ubuntu
Description: Ubuntu 14.04.5 LTS
Release: 14.04
Codename: trusty
root@izmfgnjkehk13uZ:/#
```

3. Debian 6 及更高版本, 查看命令是: `cat /etc/debian_version`



```
root@izmfgnjkehk13uZ:~# cat /etc/debian_version
7.0.3
root@izmfgnjkehk13uZ:~#
```

4. 其他 glibc >= 2.12 的发行版, 查看的命令是: `ldd -version`

```
[root@localhost ~]# ldd --version
ldd (GNU libc) 2.17
Copyright (C) 2012 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
由 Roland McGrath 和 Ulrich Drepper 编写。
[root@localhost ~]#
```

5. **linux 服务器安装前请先确认操作系统的内核架构，目前已知 arm64 和 aarch64 架构不支持。查看命令是 `uname -a`**

```
[root@localhost svn]# uname -a
Linux localhost.localdomain 3.10.0-1160.el7 x86_64 #1 SMP Mon Oct 19 16:18:59 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
[root@localhost svn]#
```

6. **CentOS8 暂时不支持**

c) 运行中间件的 JDK 版本:

- i. Oracle JDK 8
- ii. Open JDK 8

## 常见问题和解决方案

java 不是内部或外部命令

问题描述: 在部署过程中, 如果出现 **java 不是内部或外部命令** 的错误

```
C:\Windows\System32\cmd.exe
Microsoft Windows [版本 10.0.19044.1826]
(c) Microsoft Corporation. 保留所有权利。

C:\Users\210623\Desktop\new\weaver-rasp>java -jar RaspInstall.jar -install E:\WEAVER\Resin
'java' 不是内部或外部命令, 也不是可运行的程序
或批处理文件。

C:\Users\210623\Desktop\new\weaver-rasp>
```

解决方案: 将 java 命令替换为 weaver 路径下 java 的绝对路径+

```
C:\Users\210628\Desktop\newweaver-rasp>E:\WEAVER\JDK\bin\java.exe -jar RaspInstall.jar -install E:\WEAVER\Resin
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html

Detected JDK version: 1.8.0_151
Detected application server type: Resin
Duplicating "rasp" directory
- E:\WEAVER\Resin\rasp
```

## Unsupported major.minor version 52.0

问题描述：如果在执行系统命令时使用了低版本的 java 命令，则会出现如下错误：

```
C:\Windows\System32\cmd.exe
For more details visit: https://rasp.baidu.com/doc/install/software.html
Detected JDK version: 1.6.0_27
Detected application server type: Resin
Duplicating "rasp" directory
- D:\WEAVER\Resin\rasp
Exception in thread "main" java.lang.UnsupportedClassVersionError: org/apache/commons/io/FileUtils : Unsupported major.minor version 52.0
    at java.lang.ClassLoader.defineClass(Native Method)
    at java.lang.ClassLoader.defineClassCond(ClassLoader.java:631)
    at java.lang.ClassLoader.defineClass(ClassLoader.java:615)
    at java.security.SecureClassLoader.defineClass(SecureClassLoader.java:144)
    at java.net.URLClassLoader.defineClass(URLClassLoader.java:283)
    at java.net.URLClassLoader.access$000(URLClassLoader.java:58)
    at java.net.URLClassLoader$1.run(URLClassLoader.java:197)
    at java.security.AccessController.doPrivileged(Native Method)
    at java.net.URLClassLoader.findClass(URLClassLoader.java:190)
    at java.lang.ClassLoader.loadClass(ClassLoader.java:306)
    at sun.misc.Launcher$AppClassLoader.loadClass(Launcher.java:301)
    at java.lang.ClassLoader.loadClass(ClassLoader.java:247)
    at com.baidu.rasp.install.BaseStandardInstaller.install(BaseStandardInstaller.java:82)
    at com.baidu.rasp.App.operateServer(App.java:228)
    at com.baidu.rasp.App.main(App.java:257)
```

解决方法：参考 [Java 命令找不到问题的解决方案](#)。如果按照 [Java 命令找不到问题的解决方案](#) 解决后仍然出现该问题，那么需要重新检查 OA 使用的 JDK 版本。

## cluster-default.xml（拒绝访问）

问题描述：在安装过程中可能会出现如下报错

```
C:\Users\chenjn\Desktop\weaver-rasp>D:\WEAVER\JDK\bin\java -jar RaspInstall.jar -install D:\WEAVER\RESIN
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html

Detected JDK version: 1.8.0_151
Detected application server type: Resin
Duplicating "rasp" directory
- D:\WEAVER\Resin\rasp
Make "rasp" directory writable

Generating "openrasp.yml"
- D:\WEAVER\RESIN\rasp\conf\openrasp.yml
- Create D:\WEAVER\RESIN\rasp\conf\openrasp.yml
Updating startup script
- D:\WEAVER\Resin\conf\cluster-default.xml
java.io.FileNotFoundException: D:\WEAVER\RESIN\conf\cluster-default.xml (拒绝访问。)
    at java.io.FileOutputStream.open0(Native Method)
    at java.io.FileOutputStream.open(FileOutputStream.java:270)
    at java.io.FileOutputStream.<init>(FileOutputStream.java:213)
    at java.io.FileOutputStream.<init>(FileOutputStream.java:162)
    at com.baidu.rasp.install.BaseStandardInstaller.write(BaseStandardInstaller.java:207)
    at com.baidu.rasp.install.BaseStandardInstaller.generateStartupScript(BaseStandardInstaller.java:143)
    at com.baidu.rasp.App.operateServer(App.java:228)
    at com.baidu.rasp.App.main(App.java:257)
Try 'java -jar /C:/Users/chenjn/Desktop/weaver-rasp/RaspInstall.jar -help' for more information.

C:\Users\chenjn\Desktop\weaver-rasp>
```

解决方案：使用管理员身份运行该程序

## 另一个进程正在使用此文件

问题描述：安装过程中可能出现如下报错

```
Detected JDK version: 1.8.0_151
Detected application server type: Resin
Duplicating "rasp" directory
- D:\WEAVER\Resin\rasp
java.nio.file.FileSystemException: D:\WEAVER\Resin\rasp\conf\openrasp.yml: 另一个程序正在使用此文件，进程无法访问。
    at sun.nio.fs.WindowsException.translateToIOException(WindowsException.java:86)
    at sun.nio.fs.WindowsException.rethrowAsIOException(WindowsException.java:97)
    at sun.nio.fs.WindowsException.rethrowAsIOException(WindowsException.java:102)
    at sun.nio.fs.WindowsFileCopy.copy(WindowsFileCopy.java:165)
    at sun.nio.fs.WindowsFileSystemProvider.copy(WindowsFileSystemProvider.java:278)
    at java.nio.file.Files.copy(Files.java:1274)
    at org.apache.commons.io.FileUtils.doCopyFile(FileUtils.java:1306)
    at org.apache.commons.io.FileUtils.doCopyDirectory(FileUtils.java:1269)
    at org.apache.commons.io.FileUtils.copyDirectory(FileUtils.java:677)
    at org.apache.commons.io.FileUtils.copyDirectory(FileUtils.java:553)
    at org.apache.commons.io.FileUtils.copyDirectory(FileUtils.java:519)
    at com.baidu.rasp.install.BaseStandardInstaller.install(BaseStandardInstaller.java:82)
    at com.baidu.rasp.App.operateServer(App.java:228)
    at com.baidu.rasp.App.main(App.java:257)
Try 'java -jar /D:/weaver-rasp-2.0.3/weaver-rasp/RaspInstall.jar -help' for more information.
D:\weaver-rasp-2.0.3\weaver-rasp>
```

解决方案：停止 OA 后再安装一次

## 部署方法

### Resin3~4（安装包安装）

#### Linux

1. 执行如下命令，将 weaver-rasp.zip 解压至服务器任意目录

1. `unzip weaver-rasp.zip -d ./`

```
[root@localhost tomcat]# ls
apache-tomcat-8.5.77 weaver-rasp.zip
[root@localhost tomcat]# unzip weaver-rasp.zip -d ./
Archive: weaver-rasp.zip
  creating: ./weaver-rasp/
  creating: ./weaver-rasp/rasp/
  creating: ./weaver-rasp/rasp/conf/
  inflating: ./weaver-rasp/rasp/conf/openrasp.yml
  creating: ./weaver-rasp/rasp/plugins/
  inflating: ./weaver-rasp/rasp/plugins/official.js
  inflating: ./weaver-rasp/rasp/rasp-engine.jar
  inflating: ./weaver-rasp/rasp/rasp.jar
  inflating: ./weaver-rasp/RaspInstall.jar
[root@localhost tomcat]# ls
apache-tomcat-8.5.77 weaver-rasp weaver-rasp.zip
[root@localhost tomcat]#
```

2. 进入解压后目录，将<解压位置>替换为真实路径

1. `cd <解压位置>/weaver-rasp/`

```
[root@localhost tomcat]# ls
apache-tomcat-8.5.77  weaver-rasp  weaver-rasp.zip
[root@localhost tomcat]# cd weaver-rasp
[root@localhost weaver-rasp]# ls
rasp  RaspInstall.jar
[root@localhost weaver-rasp]#
```

3. 执行安装命令，将命令中的<resin\_root>替换为真实的 resin 绝对路径

1. `java -jar RaspInstall.jar -install <resin_root>`

```
apache-tomcat-8.5.77  weaver-rasp  weaver-rasp.zip
[root@localhost tomcat]# cd weaver-rasp
[root@localhost weaver-rasp]# ls
rasp  RaspInstall.jar
[root@localhost weaver-rasp]# java -jar RaspInstall.jar -install /usr/local/gs/resin/resin-4.0.42/
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html

Detected JDK version: 1.8.0_321
Detected application server type: Resin
Duplicating "rasp" directory
- /usr/local/gs/resin/resin-4.0.42/rasp
Make "rasp" directory writable

Generating "openrasp.yml"
- /usr/local/gs/resin/resin-4.0.42/rasp/conf/openrasp.yml
- Backed up openrasp.yml to openrasp.yml.bak
Updating startup script
- /usr/local/gs/resin/resin-4.0.42/conf/cluster-default.xml

Installation completed without errors.
Please restart application server to take effect.
[root@localhost weaver-rasp]#
```

4. 在 ecology/WEB-INF/securityRule 下创建名为 Rasp 的文件夹，将解压目录中的 rasp/plugins/official.js 文件复制到该文件夹下

1. `cd /home/weaver/ecology/WEB-INF/securityRule/`

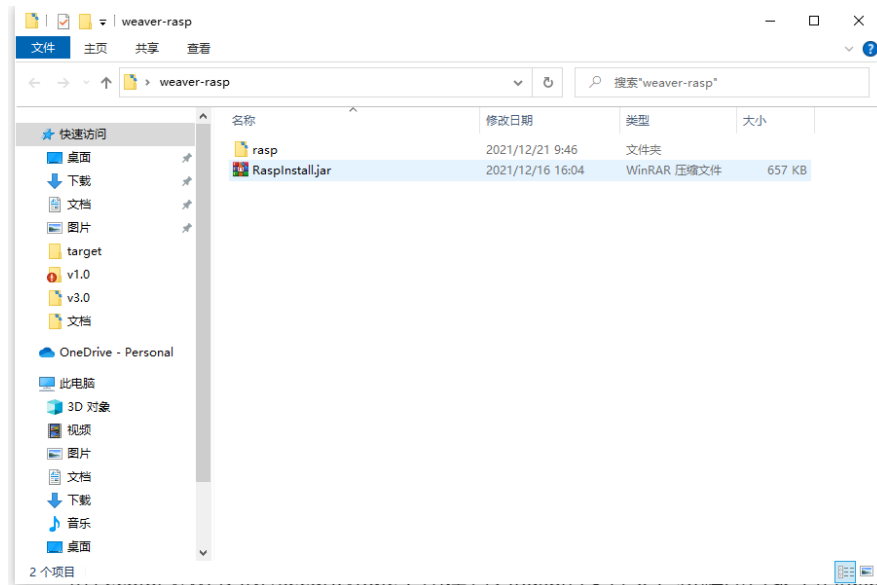
2. `mkdir Rasp`

3. `cp /opt/rasp/weaver-rasp/rasp/plugins/official.js /home/weaver/ecology/WEB-INF/securityRule/Rasp`

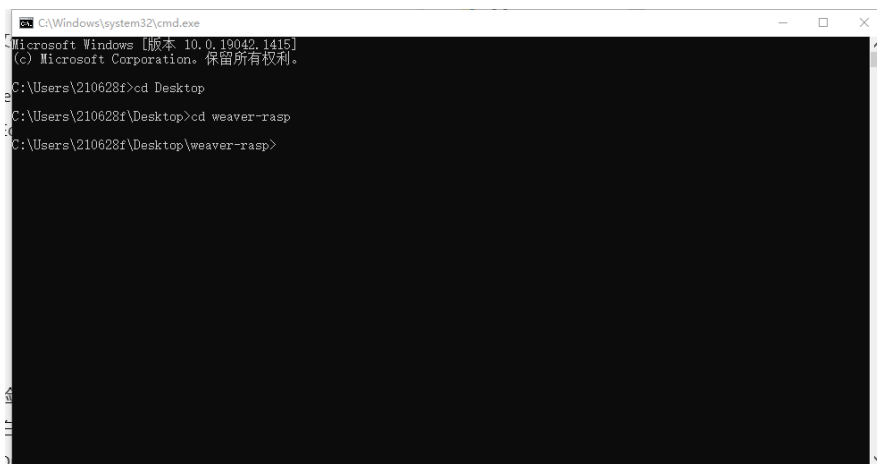
5. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## Windows

1. 将 weaver-rasp.zip 解压至服务器任意目录

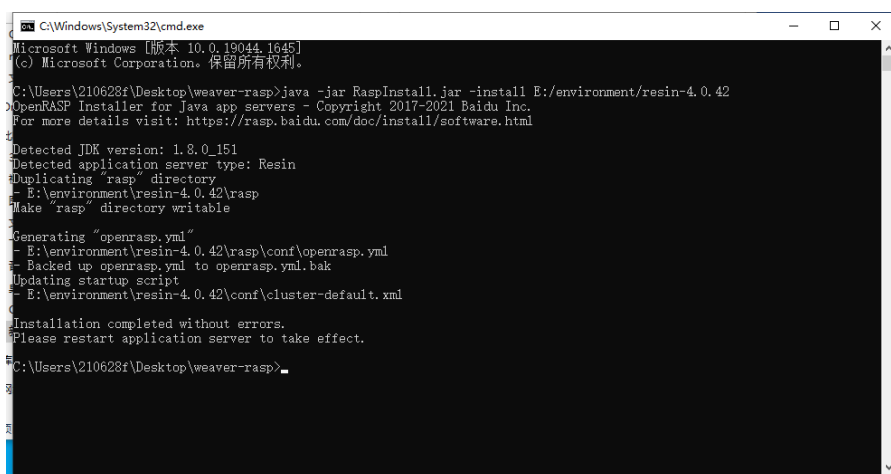


## 2. 通过 cmd，进入解压后的目录



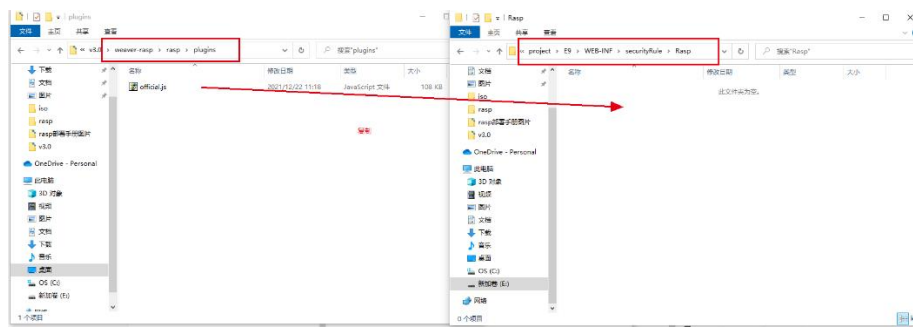
## 3. 在 cmd 中执行安装命令，将命令中的<resin\_root>替换为真实的 resin 绝对路径，如：

**1. java -jar RaspInstall.jar -install <resin\_root>**



## 4. 在 ecology/WEB-INF/securityRule 下创建名为 Rasp 的文件夹，将解压目录中

的 rasp/plugins/official.js 文件复制到该文件夹下



5. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## Tomcat（安装包安装）

### Linux

1. 将 weaver-rasp.zip 解压至服务器任意目录

1. `unzip weaver-rasp.zip -d ./`

```
[root@localhost tomcat]# ls
apache-tomcat-8.5.77 weaver-rasp.zip
[root@localhost tomcat]# unzip weaver-rasp.zip -d ./
Archive:  weaver-rasp.zip
  creating: ./weaver-rasp/
  creating: ./weaver-rasp/rasp/
  creating: ./weaver-rasp/rasp/conf/
  inflating: ./weaver-rasp/rasp/conf/openrasp.yml
  creating: ./weaver-rasp/rasp/plugins/
  inflating: ./weaver-rasp/rasp/plugins/official.js
  inflating: ./weaver-rasp/rasp/rasp-engine.jar
  inflating: ./weaver-rasp/rasp/rasp.jar
  inflating: ./weaver-rasp/RaspInstall.jar
[root@localhost tomcat]# ls
apache-tomcat-8.5.77 weaver-rasp weaver-rasp.zip
[root@localhost tomcat]#
```

2. 进入解压后的目录，将<解压位置>替换为真实路径

1. `cd <解压位置>/weaver-rasp/`



```
[root@localhost tomcat]# cd weaver-rasp
[root@localhost weaver-rasp]# ls
 RaspInstall.jar
[root@localhost weaver-rasp]#
```

3. 执行安装命令，将命令中的<tomcat\_root>替换为真实的 tomcat 绝对路径，  
如：/home/weaver/tomcat/

1. java -jar RaspInstall.jar -install <tomcat\_root>

```
[root@localhost tomcat]# cd weaver-rasp
[root@localhost weaver-rasp]# ls
 RaspInstall.jar
[root@localhost weaver-rasp]# java -jar RaspInstall.jar -install /usr/local/gs/tomcat/apache-to
mcat-8.5.77/
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html

Detected JDK version: 1.8.0_321
Detected application server type: Tomcat
Duplicating "rasp" directory
- /usr/local/gs/tomcat/apache-tomcat-8.5.77/rasp
Make "rasp" directory writable

Generating "openrasp.yml"
- /usr/local/gs/tomcat/apache-tomcat-8.5.77/rasp/conf/openrasp.yml
- Backed up openrasp.yml to openrasp.yml.bak
Updating startup script
- /usr/local/gs/tomcat/apache-tomcat-8.5.77/bin/catalina.sh

Installation completed without errors.
Please restart application server to take effect.
[root@localhost weaver-rasp]#
```

4. 在 ecology/WEB-INF/securityRule 下创建名为 Rasp 的文件夹，将解压目录中的 rasp/plugins/official.js 文件复制到该文件夹下

1. cd /home/weaver/ecology/WEB-INF/securityRule/

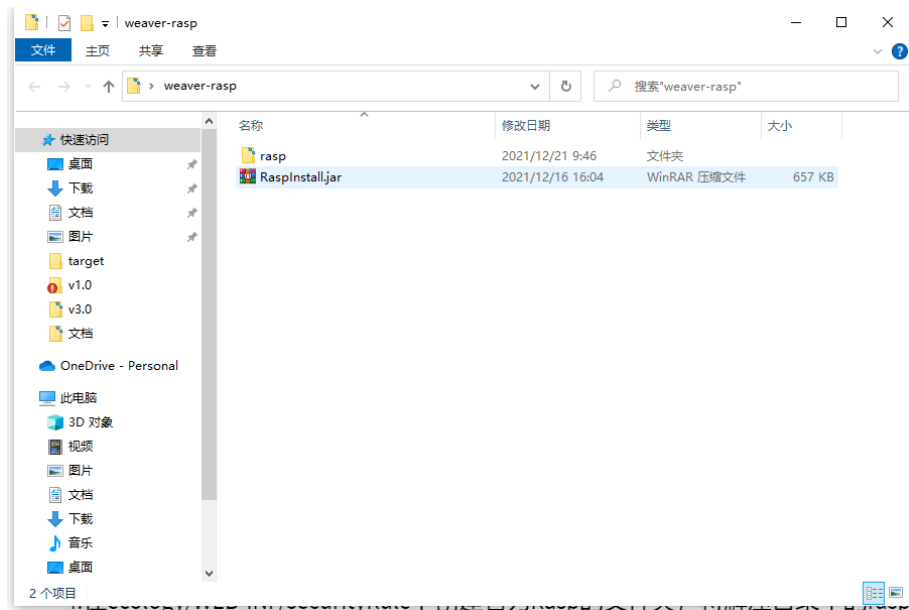
2. mkdir Rasp

3. cp /opt/rasp/weaver-rasp/rasp/plugins/official.js /home/weaver/ecology/WEB-INF/securityRule/Rasp

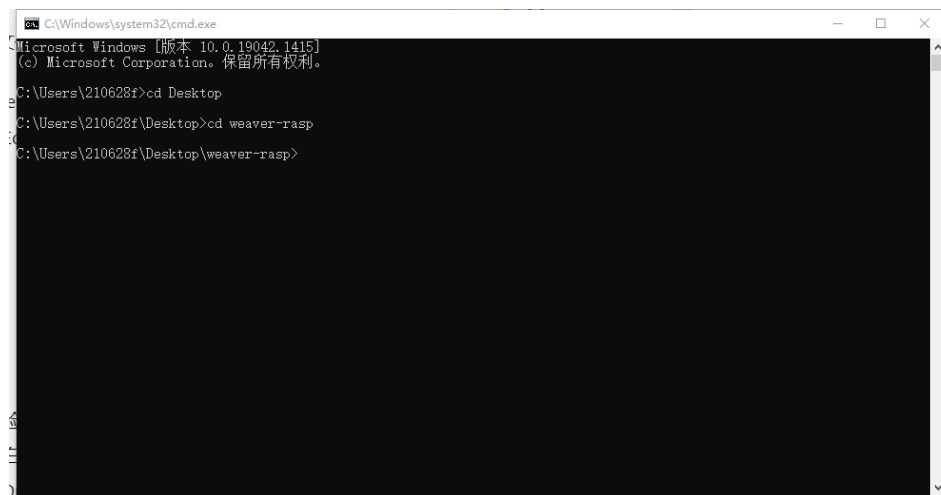
5. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## Windows

1. 将 weaver-rasp.zip 解压至服务器任意目录



## 2. 通过 cmd，进入解压后的目录



## 3. 在 CMD 中执行安装命令，将命令中的<tomcat\_root>替换为真实的 tomcat 绝对路径

1. D:\weaver\Resin\ java -jar RaspInstall.jar -install <tomcat\_root>

```
C:\Windows\System32\cmd.exe

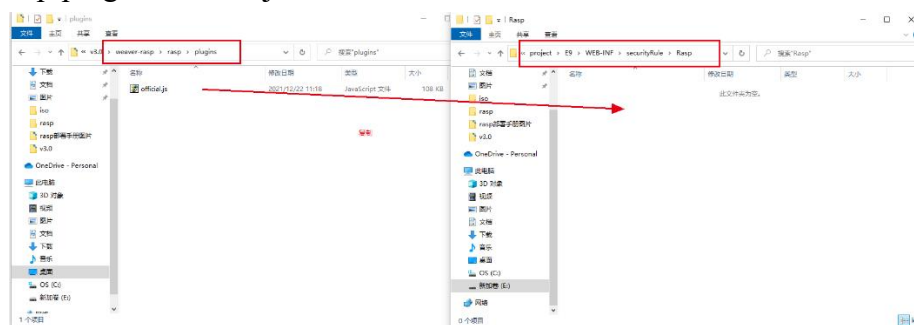
C:\Users\210628f\Desktop\weaver-rasp>java -jar RaspInstall.jar -install E:\environment\apache-tomcat-8.5.77
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html
?
Detected JDK version: 1.8.0_151
Detected application server type: Tomcat
Duplicating 'rasp' directory
- E:\environment\apache-tomcat-8.5.77\rasp
Make 'rasp' directory writable

Generating "openrasp.yml"
- E:\environment\apache-tomcat-8.5.77\rasp\conf\openrasp.yml
- Backed up openrasp.yml to openrasp.yml.bak
Updating startup script
- E:\environment\apache-tomcat-8.5.77\bin\catalina.bat

Installation completed without errors.
Please restart application server to take effect.

C:\Users\210628f\Desktop\weaver-rasp>
```

4. 在 ecology/WEB-INF/securityRule 下创建名为 Rasp 的文件夹，将解压目录中的 rasp/plugins/official.js 文件复制到该文件夹下



5. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## Weblogic 12c（安装包安装）

### Linux

1. 将 weaver-rasp.zip 解压至服务器任意目录

#### 1. unzip weaver-rasp.zip

```
# unzip weaver-rasp.zip
Archive:  weaver-rasp.zip
  creating: weaver-rasp/
  creating: weaver-rasp/rasp/
  creating: weaver-rasp/rasp/conf/
  inflating: weaver-rasp/rasp/conf/openrasp.yml
  creating: weaver-rasp/rasp/plugins/
  inflating: weaver-rasp/rasp/plugins/official.js
  inflating: weaver-rasp/rasp/rasp-engine.jar
  inflating: weaver-rasp/rasp/rasp.jar
  inflating: weaver-rasp/RaspInstall.jar
```

2. 进入解压后的目录，将<解压位置>替换为真实路径

1. `cd <解压位置>/weaver-rasp/`

```
(root@pine) - [~/tmp]
# ls
weaver-rasp  weaver-rasp.zip
(root@pine) - [~/tmp]
# cd weaver-rasp/
(root@pine) - [~/tmp/weaver-rasp]
# ls
rasp  RaspInstall.jar
```

3. 执行安装命令，将命令中的<domain\_root>替换为真实的 weblogic 里 domain 的绝对路径，如：/opt/Oracle/Middleware/user\_projects/domains/base\_domain/

1. `java -jar RaspInstall.jar -install < domain_root >`

```
./opt/jdk1.8.0_331/bin/java -jar RaspInstall.jar -install /opt/Oracle/Middleware/user_projects/domains/base_domain/
Picked up JAVA_OPTIONS: -Dawt.useSystemAAFontSettings=on -Dswing.aatext=true
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html

Detected JDK version: 1.8.0_331
Detected application server type: Weblogic
Duplicating "rasp" directory
- /opt/Oracle/Middleware/user_projects/domains/base_domain/rasp
Make "rasp" directory writable

Generating "openrasp.yml"
- /opt/Oracle/Middleware/user_projects/domains/base_domain/rasp/conf/openrasp.yml
- Create /opt/Oracle/Middleware/user_projects/domains/base_domain/rasp/conf/openrasp.yml
Updating startup script
- /opt/Oracle/Middleware/user_projects/domains/base_domain/bin/startWebLogic.sh

Installation completed without errors.
Please restart application server to take effect.
```

4. 在 ecology/WEB-INF/securityRule 下创建名为 RASP 的文件夹，将解压目录中的 rasp/plugins/official.js 文件复制到该文件夹下

1. `cd /home/weaver/ecology/WEB-INF/securityRule/`

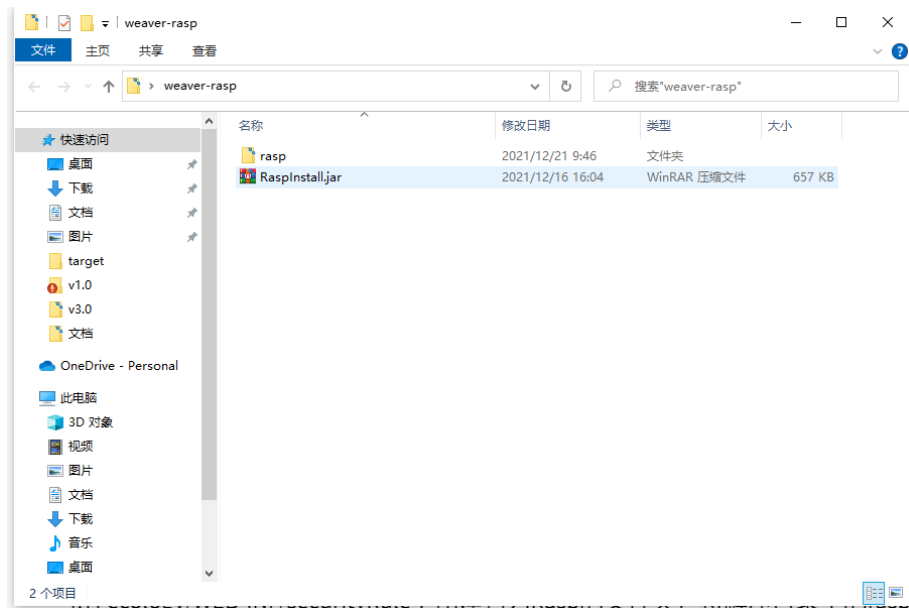
2. `mkdir RASP`

3. `cp /opt/rasp/weaver-rasp/rasp/plugins/official.js /home/weaver/ecology/WEB-INF/securityRule/RASP`

5. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## Windows

1. 将 weaver-rasp.zip 解压至服务器任意目录



2. 通过 cmd，进入解压后的目录

```
Microsoft Windows [版本 10.0.19044.1766]
(c) Microsoft Corporation。保留所有权利。

C:\Users\Administrator>D:

D:\>cd weaver-rasp

D:\weaver-rasp>
```

3. 在 CMD 中执行安装命令，将命令中的<domain\_root>替换为真实的 weblogic 里 domain 的绝对路径

1. `java -jar RaspInstall.jar -install <domain_root>`

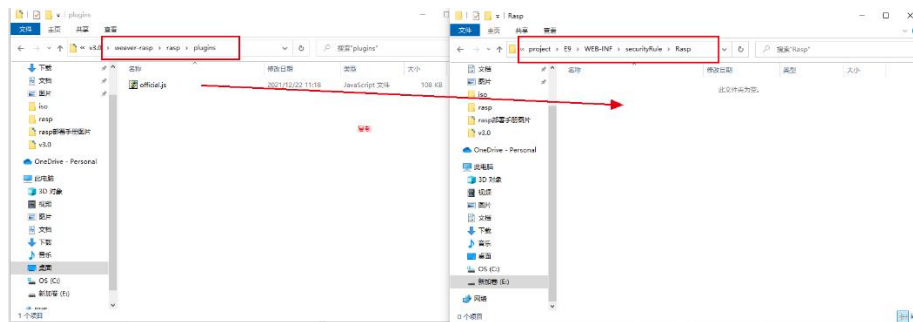
```
D:\weaver-rasp>java -jar RaspInstall.jar -install D:\weblogic12c\user_projects\domains\base_domain
OpenRASP Installer for Java app servers - Copyright 2017-2021 Baidu Inc.
For more details visit: https://rasp.baidu.com/doc/install/software.html

Detected JDK version: 1.8.0_151
Detected application server type: Weblogic
Duplicating "rasp" directory
- D:\weblogic12c\user_projects\domains\base_domain\rasp
Make "rasp" directory writable

Generating "openrasp.yml"
- D:\weblogic12c\user_projects\domains\base_domain\rasp\conf\openrasp.yml
- Create D:\weblogic12c\user_projects\domains\base_domain\rasp\conf\openrasp.yml
Updating startup script
- D:\weblogic12c\user_projects\domains\base_domain\bin\startWebLogic.cmd

Installation completed without errors.
Please restart application server to take effect.
```

4. 在 ecology/WEB-INF/securityRule 下创建名为 Rasp 的文件夹，将解压目录中的 rasp/plugins/official.js 文件复制到该文件夹下



5. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## 东方通 7（手动安装）

1. 将 weaver-rasp.zip 放在东方通根目录下

```
[root@localhost TongWeb7.0.4.4]# ls
Agent          bin            domain_template native    snapshot    weaver-rasp.zip
apache-activemq conf           lib        persistence temp
applications  deployment    license.dat  samples  TongDataGrid
autodeploy    doc           logs        service  tools
[root@localhost TongWeb7.0.4.4]#
```

2. 解压 weaver-rasp.zip，生成 weaver-rasp 文件

1. unzip weaver-rasp.zip

```
[root@localhost TongWeb7.0.4.4]# ls
Agent      bin          domain_template native  snapshot  weaver-rasp.zip
apache-activemq conf        lib      persistence temp
applications deployment license.dat samples  TongDataGrid
autodeploy doc         logs     service  tools

[root@localhost TongWeb7.0.4.4]# unzip weaver-rasp.zip
Archive: weaver-rasp.zip
  creating: weaver-rasp/
  creating: weaver-rasp/rasp/
  creating: weaver-rasp/rasp/conf/
  inflating: weaver-rasp/rasp/conf/openrasp.yml
  creating: weaver-rasp/rasp/plugins/
  inflating: weaver-rasp/rasp/plugins/official.js
  inflating: weaver-rasp/rasp/rasp-engine.jar
  inflating: weaver-rasp/rasp/rasp.jar
  inflating: weaver-rasp/RaspInstall.jar
[root@localhost TongWeb7.0.4.4]# ls
Agent      bin          domain_template native  snapshot  weaver-rasp
apache-activemq conf        lib      persistence temp      weaver-rasp.zip
applications deployment license.dat samples  TongDataGrid
autodeploy doc         logs     service  tools
```

3. 将 rasp 文件夹从 weaver-rasp 文件夹内移出

1. mv weaver-rasp/rasp ./

```
Agent      bin          domain_template native  snapshot  weaver-rasp.zip
apache-activemq conf        lib      persistence temp
applications deployment license.dat samples  TongDataGrid
autodeploy doc         logs     service  tools

[root@localhost TongWeb7.0.4.4]# unzip weaver-rasp.zip
Archive: weaver-rasp.zip
  creating: weaver-rasp/
  creating: weaver-rasp/rasp/
  creating: weaver-rasp/rasp/conf/
  inflating: weaver-rasp/rasp/conf/openrasp.yml
  creating: weaver-rasp/rasp/plugins/
  inflating: weaver-rasp/rasp/plugins/official.js
  inflating: weaver-rasp/rasp/rasp-engine.jar
  inflating: weaver-rasp/rasp/rasp.jar
  inflating: weaver-rasp/RaspInstall.jar
[root@localhost TongWeb7.0.4.4]# ls
Agent      bin          domain_template native  snapshot  weaver-rasp
apache-activemq conf        lib      persistence temp      weaver-rasp.zip
applications deployment license.dat samples  TongDataGrid
autodeploy doc         logs     service  tools

[root@localhost TongWeb7.0.4.4]# mv weaver-rasp/rasp ./
[root@localhost TongWeb7.0.4.4]# ls
Agent      bin          domain_template native  service  tools
apache-activemq conf        lib      persistence snapshot  weaver-rasp
applications deployment license.dat rasp      temp      weaver-rasp.zip
autodeploy doc         logs     samples  TongDataGrid
```

4. 进入 bin 文件夹内，修改 external.vmoptions

1. cd bin

2. vim external.vmoptions

```
#jvm_options
-Xmx2048m
-Xms1024m
-XX:CICompilerCount=6
-server
-XX:+UnlockDiagnosticVMOptions
-XX:+LogVMOutput
-Djava.io.tmpdir=${TongWeb_Base}/temp
-Duser.dir=${TongWeb_Base}/bin
-Djava.security.egd=file:/dev/./urandom
-XX:LogFile=${TongWeb_Base}/logs/jvm.log
-XX:+HeapDumpOnOutOfMemoryError
-XX:HeapDumpPath=${TongWeb_Base}/logs/heap${sysdate}.hprof
-Djava.security.policy=${TongWeb_Base}/conf/tongweb.policy
-Djava.rmi.server.RMIClassLoaderSpi=com.tongweb.server.TongWebRMIClassLoader
-Djava.util.logging.manager=com.tongweb.log.TongwebLogManager
-javaagent:${TongWeb_Home}/lib/ejb-agent.jar
-Djava.awt.headless=true
-Dibm.stream.nio=true
-Djava.net.preferIPv4Stack=false
-XX:MaxMetaspaceSize=1024m
--add-opens=java.base/java.lang=ALL-UNNAMED
--add-opens=java.base/jdk.internal.ref=ALL-UNNAMED
--add-modules=ALL-MODULE-PATH
--module-path=${JAVA_ENDORSED_DIRS}
--upgrade-module-path=${JAVA_ENDORSED_DIRS}/
"external.vmoptions" 73L, 2285C 已写入
```

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5. 在-javaagent:\${... 一行下增加如下语句后保存

1. -javaagent:\${TongWeb\_Home}/rasp/rasp.jar

```
#jvm_options
-Xmx2048m
-Xms1024m
-XX:CICompilerCount=6
-server
-XX:+UnlockDiagnosticVMOptions
-XX:+LogVMOutput
-Djava.io.tmpdir=${TongWeb_Base}/temp
-Duser.dir=${TongWeb_Base}/bin
-Djava.security.egd=file:/dev/./urandom
-XX:LogFile=${TongWeb_Base}/logs/jvm.log
-XX:+HeapDumpOnOutOfMemoryError
-XX:HeapDumpPath=${TongWeb_Base}/logs/heap${sysdate}.hprof
-Djava.security.policy=${TongWeb_Base}/conf/tongweb.policy
-Djava.rmi.server.RMIClassLoaderSpi=com.tongweb.server.TongWebRMIClassLoader
-Djava.util.logging.manager=com.tongweb.log.TongwebLogManager
-javaagent:${TongWeb_Home}/lib/ejb-agent.jar
-javaagent:${TongWeb_Home}/rasp/rasp.jar
-Djava.awt.headless=true
-Dibm.stream.nio=true
-Djava.net.preferIPv4Stack=false
-XX:MaxMetaspaceSize=1024m
--add-opens=java.base/java.lang=ALL-UNNAMED
--add-opens=java.base/jdk.internal.ref=ALL-UNNAMED
--add-modules=ALL-MODULE-PATH
--module-path=${JAVA_ENDORSED_DIRS}
"external.vmoptions" 74L, 2326C 已写入
```

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6. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## 宝兰德（手动安装）

1. 将 weaver-rasp.zip 放在宝兰德根目录下



```
[root@localhost BES-9.5.2.4160]# ls
bin  deployments  hotdeploy  license  modules  repository  weaver-rasp.zip
conf docs      lib        logs    patch    samples    work
[root@localhost BES-9.5.2.4160]#
```

## 2. 解压 weaver-rasp.zip, 生成 weaver-rasp 文件

### 1. unzip weaver-rasp.zip

```
[root@localhost BES-9.5.2.4160]# ls
bin  deployments  hotdeploy  license  modules  repository  weaver-rasp  work
conf docs      lib        logs    patch    samples    weaver-rasp.zip
[root@localhost BES-9.5.2.4160]#
```

## 3. 将 rasp 文件夹从 weaver-rasp 文件夹内移出

### 1. mv weaver-rasp/rasp ./

```
conf docs      lib        logs    patch    samples    weaver-rasp.zip
[root@localhost BES-9.5.2.4160]# mv weaver-rasp/rasp/ ./
[root@localhost BES-9.5.2.4160]# ls
bin  deployments  hotdeploy  license  modules  rasp    samples    weaver-rasp.zip
conf docs      lib        logs    patch    repository  weaver-rasp  work
[root@localhost BES-9.5.2.4160]# clear
[root@localhost BES-9.5.2.4160]# ls
bin  deployments  hotdeploy  license  modules  rasp    samples    weaver-rasp.zip
conf docs      lib        logs    patch    repository  weaver-rasp  work
[root@localhost BES-9.5.2.4160]#
```

#### 4. 进入 conf 文件夹，编辑 server.conf 文件

1. cd conf

2. vim server.conf

```
<?xml version='1.0' encoding='UTF-8'?>
<server>
  <ejb-container http-channel-enabled="true" enabled="true">
    <mdb-container instance-limit="10" resource-adapter="jmsra" fail-on-unknown-activation-spec="true" activation-spec-class="com.bes.mq.ra.BESMQActivationSpec" enabled="true" message-listener-interface="javax.jms.MessageListener"/>
    <singleton-container access-timeout-in-seconds="30"/>
    <stateful-container frequency-in-seconds="60" session-store="${com.bes.instanceRoot}/repository/session" timeout-in-seconds="1200" access-timeout-in-seconds="30" bulk-passivate="100" capacity="1000"/>
    <ejb-listener address="0.0.0.0" min-spawn-threads="8" tcp-no-delay="true" work-threads="200" enabled="true" mode="BIO" receive-buffer-size="-1" backlog="200" thread-rate="2" max-idle-time="120" port="3000" request-timeout="60" name="ejb-listener-1" send-buffer-size="-1" max-threads="128" max-queue-size="4096" request-timeout-warning="0" request-handle-buffer-size="8192"/>
    <stateless-container max-age-in-seconds="0" min-size="0" max-size="10" idle-timeout-in-seconds="0" access-timeout-in-seconds="30"/>
  </ejb-container>
  <web-container enabled="true">
    <session-managers>
      <session-manager name="default" class-name="com.bes.enterprise.webtier.session.DefaultManager">
        <manager-properties>
          <property name="maxInactiveInterval" value="1800"/>
          <property name="reapInterval" value="60"/>
          <property name="maxActiveSessions" value="-1"/>
        </manager-properties>
      </session-manager>
    </session-managers>
  </web-container>
</server>
```

#### 5. 在<jvm-options>-Dfile.encoding=GBK</jvm-options>下增加如下内容

1. <jvm-options>-javaagent:/usr/local/gs/BES-9.5.2.4160/rasp/rasp.jar</jvm-options>

```
<jvm-options>-Djava.net.preferIPv4Stack=true</jvm-options>
<jvm-options>-XX:NewRatio=2</jvm-options>
<jvm-options>-XX:+LogVMOutput</jvm-options>
<jvm-options>-XX:LogFile=${com.bes.instanceRoot}/logs/jvm.log</jvm-options>
<jvm-options>-Djavax.net.ssl.certificateFile=${com.bes.instanceRoot}/conf/security/cert.pem</jvm-options>
<jvm-options>-Djavax.net.ssl.certificateKeyFile=${com.bes.instanceRoot}/conf/security/key.pem</jvm-options>
<jvm-options>-Djavax.net.ssl.certificateChainFile=${com.bes.instanceRoot}/conf/security/cain.pem</jvm-options>
<jvm-options>-Djavax.xml.stream.XMLInputFactory=com.bes.wstx.stax.WstxInputFactory</jvm-options>
<jvm-options>-XX:+HeapDumpOnOutOfMemoryError</jvm-options>
<jvm-options>-XX:HeapDumpPath=${com.bes.instanceRoot}/logs/dump/</jvm-options>
<jvm-options>-Dfile.encoding=GBK</jvm-options>
<jvm-options>-javaagent:/usr/local/gs/BES-9.5.2.4160/rasp/rasp.jar</jvm-options>
</java-config>
<hotdeploy-config delegate="false" only-on-startup="false" session-manager="default" virtual-server="server" check-interval="3000" precompile-jsp="false" directory="${com.bes.instanceRoot}/hotdeploy" watched-resources="*" enabled="true"/>
  <applications app-location="${com.bes.instanceRoot}/deployments/_internal" location="${com.bes.instanceRoot}/deployments">
    <web-module high-availability="false" deploy-order="100" virtual-server="__admin" precompile-jsp="false" version="" enabled="true" delegate="false" context-root="/" session-manager="default" object-type="system" name="admin-root" location="${com.bes.installRoot}/lib/system/apps/admin-root"/>
  </applications>
</hotdeploy-config>
```

#### 6. 安装步骤完毕，重启 OA 服务后 OpenRASP 生效

## 验证部署结果

### 方式一：检查日志验证部署

重启服务后，在 rasp 运行日志中查找：

1. [OpenRASP] Engine Initialized 字样，如果找到，则说明 OpenRasp 成功运行

```

un.org.apache.xerces.internal.parsers.DOMParser.parse(org.xml.sax.InputSource)
2022-02-23 17:31:39,683 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method com.s
un.org.apache.xerces.internal.parsers.DOMParser.parse(java.lang.String)
2022-02-23 17:31:39,775 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
lang.ClassLoader.loadLibrary(java.lang.Class,java.lang.String,boolean)
2022-02-23 17:31:39,819 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.BufferedOutputStream.write(byte[],int,int)
2022-02-23 17:31:39,848 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.FileOutputStream(java.io.File,boolean)
2022-02-23 17:31:39,876 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.FileInputStream(java.io.File)
2022-02-23 17:31:39,922 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.File.renameTo(java.io.File)
2022-02-23 17:31:39,954 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.File.list()
2022-02-23 17:31:39,989 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.File.delete()
2022-02-23 17:31:40,031 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
lang.ClassLoader.loadLibrary0(java.lang.Class,java.io.File)
2022-02-23 17:31:40,061 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert after method: java.
lang.ClassLoader.loadLibrary0(java.lang.Class,java.io.File)
2022-02-23 17:31:40,077 INFO [main][com.baidu.openrasp.EngineBoot] [OpenRASP] Engine Initialized [2.0.1]
2022-02-23 17:31:40,641 INFO [main][com.baidu.openrasp.HookHandler] detect server: tongweb/7.0.4.4
2022-02-23 17:31:40,692 INFO [main][com.baidu.openrasp.HookHandler] detect server: com/tongweb/cata
lina/Server
2022-02-23 17:31:44,752 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method com.s
un.org.apache.xerces.internal.jaxp.SAXParserImpl$JAXPSAXParser.parse(org.xml.sax.InputSource)
2022-02-23 17:31:44,755 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method com.s
un.org.apache.xerces.internal.jaxp.SAXParserImpl$JAXPSAXParser.parse(java.lang.String)
2022-02-23 17:31:45,295 INFO [main][com.baidu.openrasp.hook.AbstractClassHook] insert before method java.
io.ObjectInputStream.resolveClass(java.io.ObjectStreamClass)
[root@localhost ~]#

```

2. `algorithm.config`: 字样, 如果找到, 则说明 OpenRasp 防护插件成功加载

[illegible]

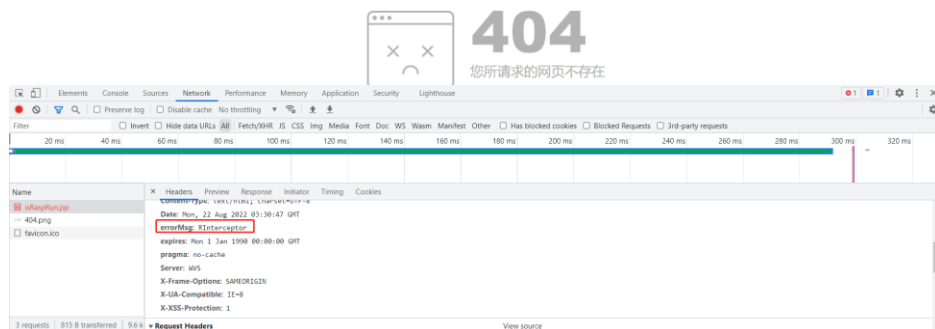
如上两条字样能同时找到，则 rasp 部署成功

rasp 运行日志地址：中间件根目录/rasp/logs/rasp/rasp.log

比如: /oa/weaver/Resin/rasp/logs/rasp/rasp.log

### 方式二：通过访问页面校验部署

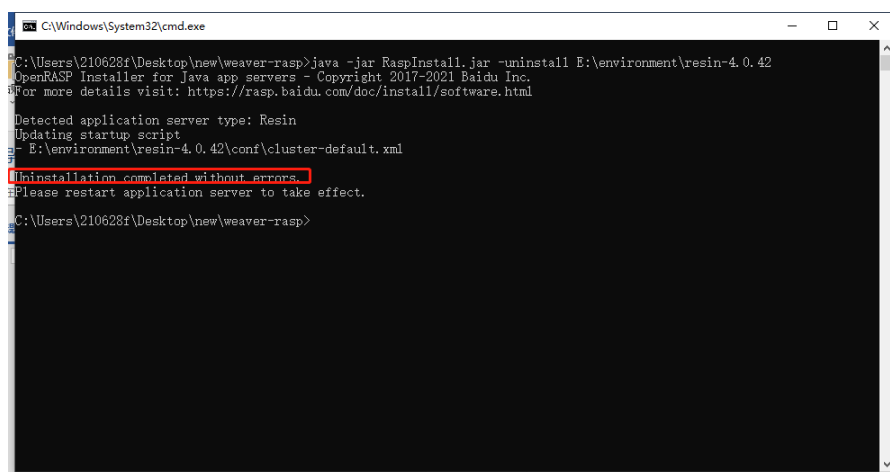
1. 安装完 RASP 后使用 sysadmin 登录 OA，然后访问 `/security/monitor/isRaspRun.jsp`，如果显示是 404 且控制台头部信息中有 `errorMsg:RInterceptor` 字样则表示安装成功。



## 卸载 OpenRASP

## 使用安装包安装 RASP 后卸载

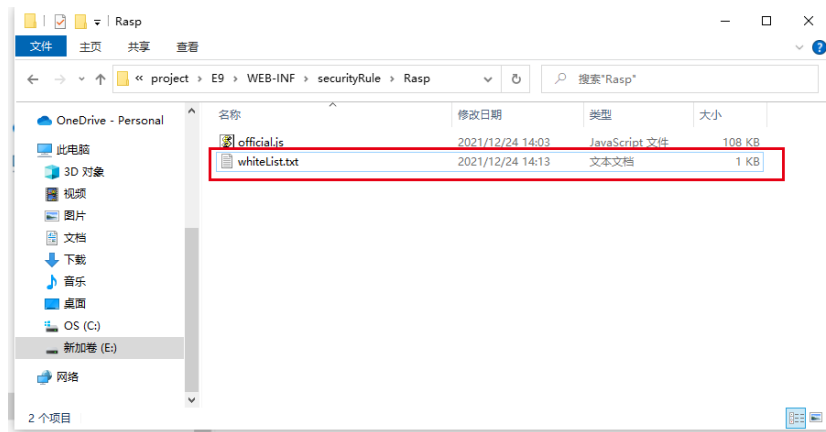
1. 进入 RASP 安装包, 执行命令: `java -jar RaspInstall.jar -uninstall <Resin 路径>`后重启 OA 即可



## 手动安装后卸载

1. 编辑带有 rasp 参数的配置文件, 删除增加的 rasp 相关参数后重启 OA 即可



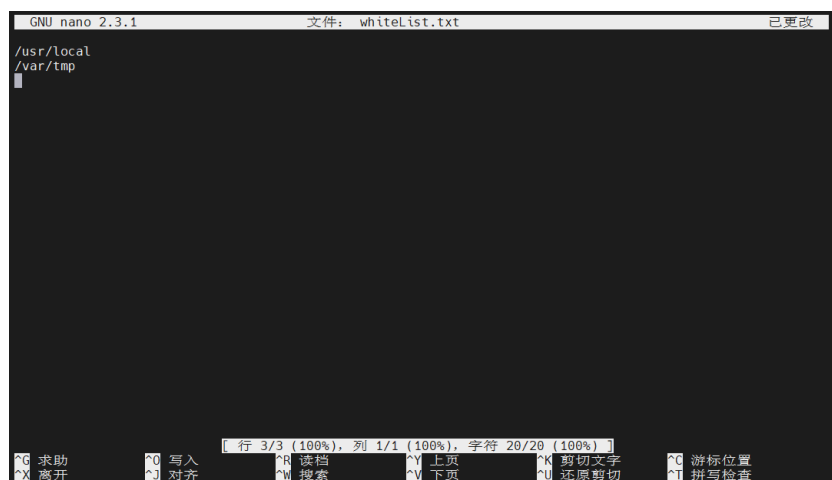


3. 将系统中上传文件的目录路径按照格式添加到 `whiteList.txt` 文件中。具体路径格式如下：

- 多个路径使用换行符分隔
- 路径末尾除换行符之外不能添加任何符号
- Windows 系统中磁盘号要大写，分隔符使用 `/` 号，有且只有一个，如下图：



- Linux 系统中分隔符使用 `/` 号，有且只有一个，如下图：

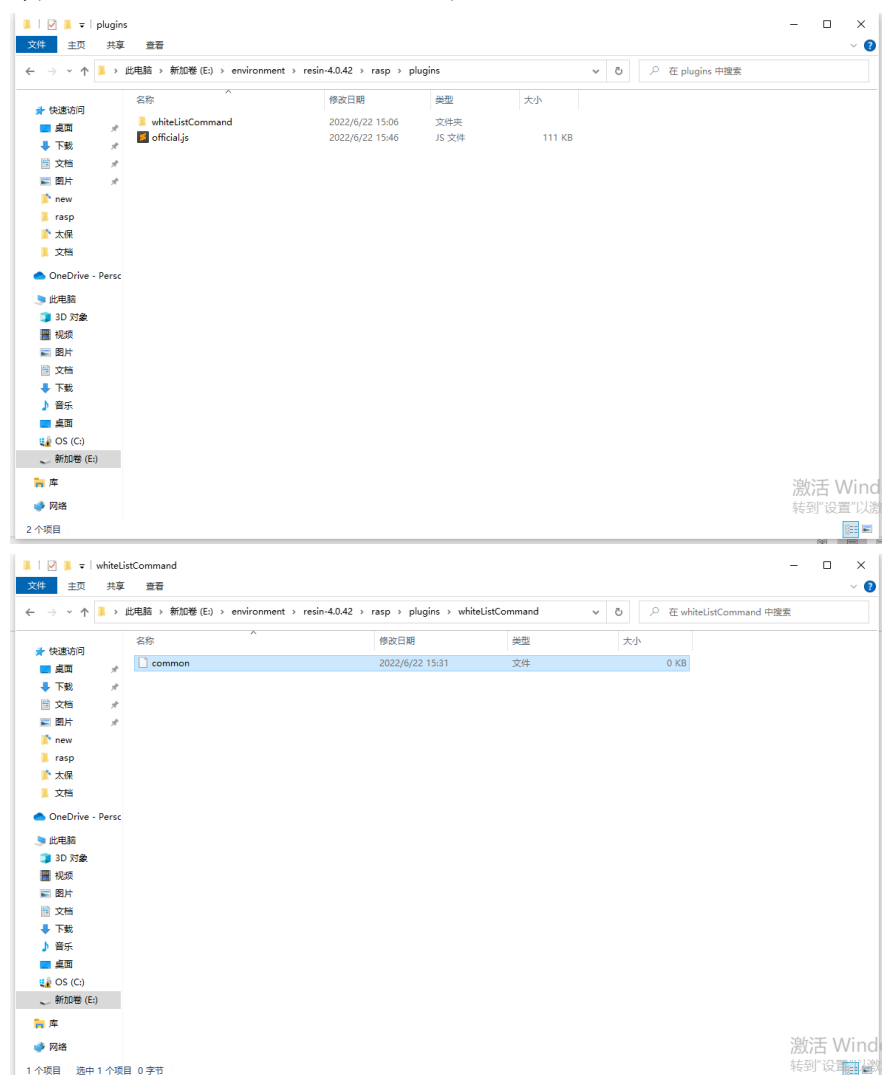


## 命令执行白名单配置

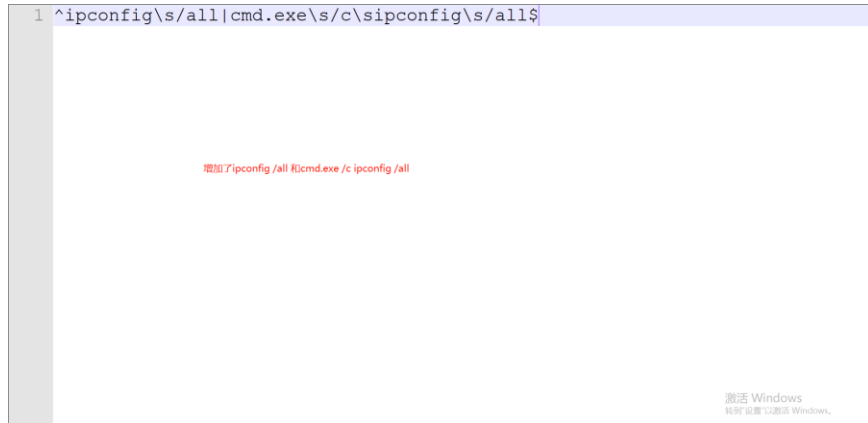
- 由于系统中会存在二次开发的功能，这些功能可能会包含执行系统命令，从而产生被 RASP 拦截后功能异常的问题，因此开放命令白名单配置，用户可以自己添加命令执行的白名单。**由于该配置技术性较强，因此建议技术人员来配置。**

## 方法 1：通用性配置

- 通用性配置是指配置完后**所有的 java 类**都可以执行该系统命令。方法如下：
  1. 进入 ecology/WEB-INF/securityRule/Rasp，新建文件夹 whiteListCommand (**注意大小写**)，进入 whiteListCommand 文件夹，新建文件 common



2. 将需要加白的命令**以正则表达式的方式**写入该文件，多个命令合并成一条正则表达式。完成之后保存退出即可。



## 方法 2: 方法层面配置

- 方法层面配置是指配置完后只有**指定类的指定方法**可以执行该系统命令。如果某条命令只在某个方法中被调用，出于安全性考虑，建议使用该方法配置白名单。方法如下：
  - 进入 ecology/WEB-INF/securityRule/Rasp，打开 official.js 文件，搜索 command\_comm，找到如下内容：



- 在此处增加日志输出语句：plugin.log(params) 后保存

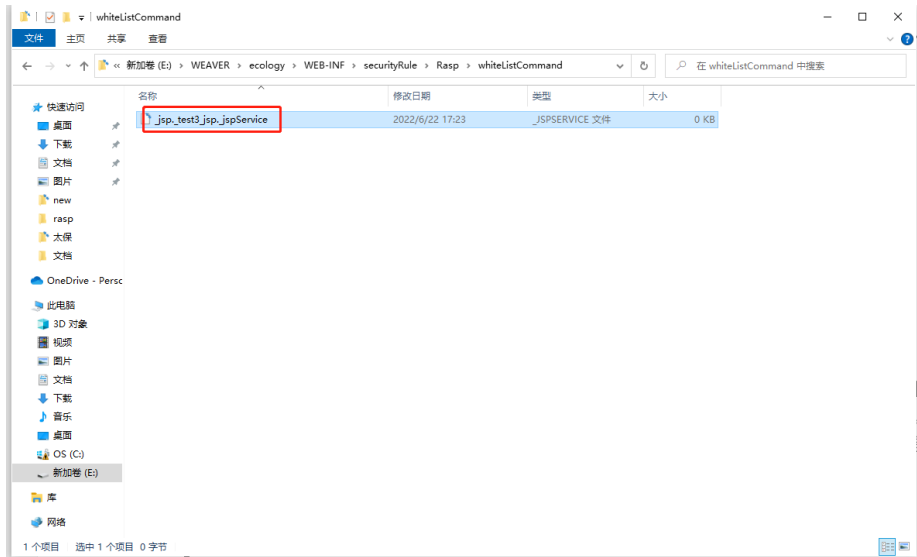


- 触发问题功能，使问题复现，然后查看 resin/rasp/logs/plugin/plugin.log 文件，可以看到 RASP 将拦截的命令和堆栈都打印了出来



```
1001 2022-06-22 15:24:26,021 INFO [resin-port-8848-20] [com.baidu.openrasp.plugin.js.log] http://192.168.47.107:8848/ecology/Test3.1
1002 {
1003   'java.lang.ProcessImpl.<init>',
1004   'java.lang.ProcessBuilder.start',
1005   'java.lang.Runtime.exec',
1006   'java.lang.Runtime.exec',
1007   'java.lang.Runtime.exec',
1008   '_jsp_test3_jsp._jspService',
1009   '_jsp_test3_jsp._jspService',
1010   'com.caucho.jsp.JavaPage.service',
1011   'com.caucho.jsp.Page.pageservice',
1012   'com.caucho.server.dispatch.PageFilterChain.doFilter',
1013   'com.caucho.server.webapp.WebAppFilterChain.doFilter',
1014   'com.caucho.server.webapp.AccessLogFilterChain.doFilter',
1015   'com.caucho.server.dispatch.ServletInvocation.service',
1016   'com.caucho.server.http.HttpServletRequest.handleRequest',
1017   'com.caucho.network.listen.TcpSocketLink.dispatchRequest',
1018   'com.caucho.network.listen.TcpSocketLink.handleRequest',
1019   'com.caucho.network.listen.TcpSocketLink.handleRequestsImpl',
1020   'com.caucho.network.listen.TcpSocketLink.handleRequests',
1021   'com.caucho.network.listen.ConnectionTask.runThread',
1022   'com.caucho.network.listen.ConnectionTask.run',
1023   'com.caucho.network.listen.SocketLinkThreadLauncher.handleTasks',
1024   'com.caucho.network.listen.TcpSocketAcceptThread.run',
1025   'com.caucho.env.thread2.ResinThread2.runTasks',
1026   'com.caucho.env.thread2.ResinThread2.run' },
1027
1028 whitelistApi:
1029 { '_jsp_test3_jsp._jspService',
1030   '_jsp_test3_jsp._jspService' },
1031 whitelist: { 'calc', 'calc' },
1032 env: {},
1033 command: 'calc' } 拦截的命令
```

4. 找到需要加白的类和方法后，进入 ecology/WEB-INF/securityRule/Rasp 下创建文件夹 whiteListCommand，进入 whiteListCommand 文件夹创建以加白堆栈为名的文件。（比如要加白上图中的 \_jsp\_test3\_jsp.\_jspService，那么创建的文件名就是 \_jsp\_test3\_jsp.\_jspService）



5. 将命令对应的正则放入该文件内第一行，如果有多条命令，则合并为一条正则表达式。完成之后保存退出即可。

## 说明

1. 如果不清楚具体被拦截的是哪条命令，那么可以通过在 official.js 中增加日志输出的方式来确认，详细步骤参考方法层面配置中的第 3 步
2. 如果增加了日志输出语句，在配置完白名单后要将该语句删除，避免产生多余的日志信息，从而导致日志文件过大
3. 可以同时使用通用性配置和方法层面配置

## OpenRASP 日志

安装完成后，在中间件的根目录下会生成名称为 `rasp` 的文件夹。收集日志时，需要将该 `rasp` 文件夹下的 `logs` 文件夹打包压缩。各个日志及功能如下：

文件名	文件内容
plugin/plugin-DATE.log	检测插件的日志，e.g 插件异常、插件调试输出
rasp/rasp-DATE.log	rasp agent 调试日志
alarm/alarm-DATE.log	攻击报警日志，JSON 格式，一行一个
policy_alarm/policy_alarm-DATE.log	安全基线检查报警日志，JSON 格式，一行一个

分析攻击行为时可重点关注 `alarm` 日志；`alarm` 日志是 json 格式，建议在文本编辑器里下载格式化 json 的插件，然后将对应的 json 格式化后输出，比如：

```
1 {
2   "server_nic": [
3     {
4       "name": "eth4",
5       "ip": "192.168.56.1"
6     },
7     {
8       "name": "wlan0",
9       "ip": "192.168.47.231"
10    }
11  ],
12  "attack_type": "command",
13  "intercept_state": "block",
14  "plugin_confidence": 95,
15  "plugin_algorithm": "command_common",
16  "plugin_name": "weaver_rules_v7",
17  "server_version": "4.0.42",
18  "server_hostname": "DESKTOP-V32SV80",
19  "event_type": "attack",
20  "attack_params": {
21    "stack": [
22      "java.lang.ProcessImpl.<init>(ProcessImpl.java)",
23      "java.lang.ProcessImpl.start(ProcessImpl.java:137)",
24      "java.lang.ProcessBuilder.start(ProcessBuilder.java:1029)",
25      "java.lang.Runtime.exec(Runtime.java:620)",
26      "java.lang.Runtime.exec(Runtime.java:450)",
27      "java.lang.Runtime.exec(Runtime.java:347)",
28      "Main6.lambda$static$0(Main6.java:6)",
29      "java.lang.Thread.run(Thread.java:748)"
30    ],
31    "env": [],
32    "command": "cmd /c echo 123 > 123.jsp"
33  },
34  "source_code": "",
35  "request_id": "23f9749c027147ea82edb33c9e27ce3e",
36 }
```