



**KERNEL AUTHENTICATION &
AUTHORIZATION FOR J2EE (KAAJEE)
VERSION 1.2.0**

and

**SECURITY SERVICE PROVIDER
INTERFACE (SSPI)
VERSION 1.3.0**

**FOR WEBLOGIC (WL) VERSIONS 10.3.6
AND HIGHER**

INSTALLATION GUIDE

February 2021

Department of Veterans Affairs
Office of Information and Technology
Product Development


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Revision History

Documentation Revisions

The following table displays the revision history for this document. Revisions to the documentation are based on patches and new versions released to the field.

Table i. Documentation revision history

Date	Description	Author(s)
07/2020	Updated the guide with relation to the KAAJEE SSPI 1.3 release	Health Product Support (HPS) (REDACTED)
07/2020	Updated software and documentation with TRM and Fortify compliance items. Software Version: 1.2.0.005 Security Service Provider Interface (SSPI) Version: 1.2.0.005 Kernel Patches: XU*8.0*694 and XU*8.0*696	Health Product Support (HPS) (REDACTED)
03/2011	Software and documentation for KAAJEE 1.1.0.007 and KAAJEE Security Service Provider Interface (SSPI) 1.1.0.002, referencing VistALink 1.6 and WebLogic 10.3.6 and higher. Software Version: 1.1.0.007 Security Service Provider Interface (SSPI) Version: 1.1.0.002 Kernel Patch: XU*8.0*504	Product Development Services Security Program HWSC development team. (REDACTED)
05/2006	Initial software and documentation for KAAJEE 1.0.0.019 and KAAJEE Security Service Provider Interface (SSPI) 1.0.0.010, referencing VistALink 1.5 and WebLogic 8.1. Software Version: 1.0.0.019 Security Service Provider Interface (SSPI) Version: 1.0.0.010  NOTE: For a description of the current KAAJEE software version numbering scheme, please review the readme.txt file distributed with the KAAJEE software. In the future, the Development Technology Advisory Committee (DTAC) will be the authoritative source for determining future version numbering schemes for all Health@Vet-VistA software file and folder names.	ISS KAAJEE Development Team (REDACTED)

Patch Revisions

For a complete list of patches related to this software, please refer to the Patch Module on FORUM.

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Orientation

How to Use this Manual

Throughout this manual, advice and instructions are offered regarding the installation and use of KAAJEE and the functionality it provides for Health_Vet-Veterans Health Information Systems and Technology Architecture (VistA) software products.

The installation instructions for KAAJEE are organized and described in this guide as follows:

1. Pre-Installation Instructions.
2. Installation Overview
3. **Error! Reference source not found.**
4. Java 2 Platforms, Enterprise Edition (J2EE) Application Server Installation Instructions






	<p>Where necessary, separate steps for the following two supported operating systems are provided:</p> <ul style="list-style-type: none">• Linux (i.e., Red Hat Enterprise ES 6.0 or higher)• Windows
---	--

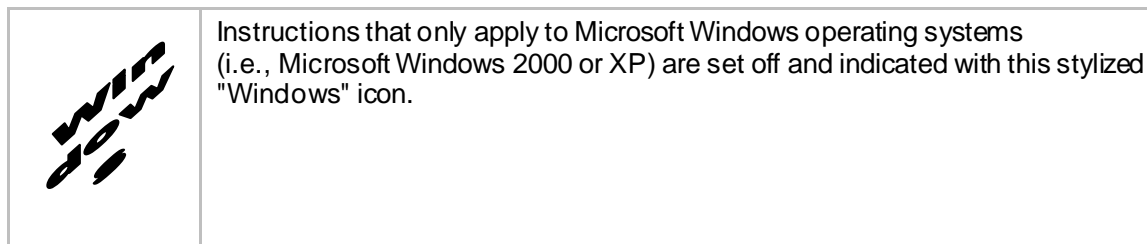
There are no special legal requirements involved in the use of KAAJEE.

This manual uses several methods to highlight different aspects of the material:

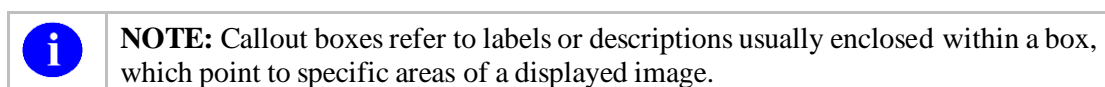
- Various symbols/terms are used throughout the documentation to alert the reader to special information. The following table gives a description of each of these symbols/terms:

Table ii. Documentation symbol/term descriptions

Symbol	Description
	NOTE/REF: Used to inform the reader of general information including references to additional reading material.
	CAUTION or DISCLAIMER: Used to inform the reader to take special notice of critical information.
	UPGRADES/FIRST-TIME INSTALLATION: Used to denote Upgrade or First-time installation instructions only.
	Skip forward to the referenced step or procedure that is indicated.
	Instructions that only apply to the Linux operating systems (i.e., Red Hat Enterprise ES 3.0 or higher) are set off and indicated with this Linux "Tux" penguin icon.



- Descriptive text is presented in a proportional font (as represented by this font).
- "Snapshots" of computer online displays (i.e., roll-and-scroll screen captures/dialogues) and computer source code, if any, are shown in a *non*-proportional font and enclosed within a box.
 - User's responses to online prompts and some software code reserved/key words will be bold typeface.
 - Author's comments, if any, are displayed in italics or as "callout" boxes.



- Java software code, variables, and file/folder names can be written in lower or mixed case.
- All uppercase is reserved for the representation of M code, variable names, or the formal name of options, field and file names, and security keys (e.g., the XUPROGMODE key).

Assumptions About the Reader

This manual is written with the assumption that the reader is familiar with the following:

- VistALink—VistA M Server and Application Server software
- Linux (i.e., Red Hat Enterprise ES 6.0 or higher) or Microsoft Windows environment
- Java Programming language □ Java 1.7 Standard Edition (J2SE) Java Development Kit (JDK, a.k.a. Java Software Development Kit [SDK])
- WebLogic 10.3.6 and higher—Application server
- Oracle Database 11g—Database (e.g., Security Service Provider Interface [SSPI] or Standard Data Services [SDS] 13.0 (or higher) database/tables)
- Oracle SQL*Plus Software 11 (or higher)

This manual provides an overall explanation of the installation procedures and functionality provided by the Kernel Authentication & Authorization for J2EE (KAAJEE) on Weblogic Application Server Versions 10.3.6 and higher software; however, no attempt is made to explain how the overall HealtheVet-VistA programming system is integrated and maintained. Such methods and procedures are documented elsewhere. We suggest you look at the various VA home pages on the VA Intranet for a general orientation to HealtheVet-VistA at the following address:

REDACTED/

Reference Materials

Readers who wish to learn more about KAAJEE should consult the following:

- *Kernel Authentication & Authorization for J2EE (KAAJEE) Installation Guide (SSPI 1.3.0.xxx)*, this manual
- *Kernel Authentication & Authorization for J2EE (KAAJEE) Deployment Guide (SSPI 1.3.0.xxx)*
- *VistALink Installation Guide*
- *VistALink System Management Guide*
- *VistALink Developer Guide*



REF: For more information on VistALink, please refer to the Application Modernization Foundations Web site located at the following Web address:

REDACTED

HealthVet-VistA documentation is made available online in Microsoft Word format and Adobe Acrobat Portable Document Format (PDF). The PDF documents *must* be read using the Adobe Acrobat Reader (i.e., ACROREAD.EXE), which is freely distributed by Adobe Systems Incorporated at the following Web address:

<http://www.adobe.com/>

HealthVet-VistA documentation can be downloaded from the VHA Software Document Library (VDL) Web site:

<http://www.va.gov/vdl/>

HealthVet-VistA documentation and software can also be downloaded from the Enterprise Product Support (EPS) anonymous directories:

- Preferred Method **(REDACTED)**



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1 Pre-Installation Instructions

1.1 Purpose

The purpose of this guide is to provide instructions for installing the HealthVet-Veterans Health Information Systems and Technology Architecture (VistA) Kernel Authentication and Authorization for Java (2) Enterprise Edition (KAAJEE) and related software.

KAAJEE is *not* an application but a framework. Users of the software need to understand how it integrates in their working environment. Thus, installing KAAJEE means to understand what jars and files need to be put where and what are the configuration files that you need to have and edit.

KAAJEE provides secure sign-on architecture for HealthVet-VistA Web-based applications.

These HealthVet-VistA Web-based applications are able to authenticating against Kernel on the VistA M Server via an Internet Browser on the client workstation and a middle tier application server (e.g., WebLogic).

1.2 Distribution Files



NOTE: Please refer to "Table 1-1. Application server minimum software/network tools/documentation required for KAAJEE" for confirmation of all KAAJEE and related software and documentation files.



REF: For the KAAJEE software preview/test release, all distribution files are available at the following Web address:

(REDACTED)


1.3 Installer/Developer Notes—KAAJEE Software First-Time Installations and Upgrades

First-time KAAJEE installers *must* perform *all* installation steps/procedures, except where noted. Those installation steps/procedures that can be skipped during a first-time installation will be displayed as follows:




FIRST-Time INSTALLATION: *First-time installation-specific instructions or information that can be skipped will be found here.*

If you were a test site prior to the final release of KAAJEE, we have notated those installation steps/procedures that have special information based on the final software upgrades that may affect how you install the released version of KAAJEE or provide other pertinent information. The upgrade information will be displayed as follows:

	UPGRADES: <i>Upgrade-specific instructions or information will be found here.</i>
---	--


In addition, we will use this section to also highlight any KAAJEE code changes from previous test/preview versions of the software to the released version of the software that may affect development teams coding KAAJEE-enabled applications.

1.4 Application Server Environment Requirements

	NOTE: The information in this topic is directed at the systems management personnel responsible for maintaining the application servers.
---	---

The following minimum software tools and files are required to install the KAAJEE software and documentation for application servers running KAAJEE-based Web applications:

Table 1-1. Application server minimum software/network tools/documentation required for KAAJEE

Minimum Software/Configuration/Documentation	Version and Description
Operating System Software	One of the following operating systems: <ul style="list-style-type: none"> Linux (i.e., Red Hat Enterprise ES 3.0 or higher) Microsoft Windows XP or 2000
Application Server Software	WebLogic Versions 10.3 and higher application servers.
SSPI Software	KAAJEE SSPI 1.3  REF: Installation and configuration instructions are included in the Chapter 3, " Error! Reference source not found. ", in this manual.
VistALink Software	Version 1.6
Vista Kernel Software	Patch XU*8*504
KAAJEE_1_3_RELEASENOTES.PDF	Release Notes describes the changes to KAAJEE 1.1 to include new features and enhancements.
KAAJEE_1_3_INSTALLGUIDE.PDF	Installation Guide.
KAAJEE_1_3_DEPLOYGUIDE.PDF	Deployment Guide outlines the details of KAAJEE-related software and gives guidelines on how the software is used within HealthVet-Veterans Health

	Information Systems and Technology Architecture (VistA). It contains the User Manual, Programmer Manual, and Technical Manual information for KAAJEE.
XU_8_708.zip	Security Provider Interface (SSPI) Software. The KAAJEE SSPI software download Zip file for installation on the application server.
XU_8_708.zip.MD5	Security Service Provider Interface (SSPI) Software Checksum. The MD5 checksum value for the KAAJEE SSPI software download Zip file.

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2 Installation Overview

This section provides an overview of the installation procedures for the Kernel Authentication and Authorization for Java (2) Enterprise Edition (KAAJEE). The chapters that follow address the specific installations that comprise KAAJEE:

- **Error! Reference source not found.**

NOTE: Instructions for the VistA M Server installation can also be found in the description for Kernel Patch XU*8*504, located in the Patch Module on FORUM.


- **Error! Reference source not found.**


2.1 WebLogic v 10.3 and Higher Server Preparation

Follow the VistALink 1.6 instructions to deploy your VistALink connector(s).

2.2 KAAJEE SSPI Installation

1. Unzip the Kaajee Security Provider zip distribution into a staging folder.

 **FIRST-TIME INSTALLATIONS:** Execute steps 2 and 3 if you have *never* deployed KAAJEE SSPIs on the WebLogic Application Server.

 UPGRADES: Skip steps 2 and 3 if you have previously deployed KAAJEE SSPIs on the WebLogic Application Server and will be installing a newer version of the KAAJEE SSPIs.

2. New installation only - Create KAAJEE Schema & SSPI Tables –
 - a. Contact the **DBA to create the KAAJEE user ID, schema, and SSPI tables on the Oracle database.
 - b. Create KAAJEE User ID & Schema.
 - c. To create the SSPI tables, run the OracleTables.sql script, which can be found in the KAAJEE SSPI distribution zip file.
 - d. Validate/Verify the Creation of the KAAJEE Database Schema & Tables. In summary, the DBA will need to perform the following procedures:
 - Identify and create an Oracle Tablespace to hold the KAAJEE schema.
 - Create a user account KAAJEE.
 - Give "connect" and "resource" and "unlimited tablespace" privileges to the user account.
 - The user account should have a "default" profile.
 - Set the default tablespace for the KAAJEE user to the one created earlier.

- Set the default "TEMP" tablespace for the KAAJEE user.
- 3. New installation only - Create KAAJEE SSPI Tables

KAAJEE requires the following two SSPI SQL database tables:

Table 2-1. Caché Database—KAAJEE SSPI SQL table definitions

KAAJEE SSPI Table Name	Description
PRINCIPALS	This table has users and group data and is stored in a database.
GROUPMEMBERS	This table has users and group mappings and is stored in a database.



NOTE: We recommend that you create the KAAJEE SSPI database tables in the same schema created in the previous step.

Run the createSchema.sql script, which can be found in the KAAJEE SSPI distribution zip file (i.e., XU_8_708.zip) in the following directory:

(REDACTED)

This SQL script creates the required KAAJEE SSPI SQL table definitions.

Use the terminal, or other similar software of your choice, to import the SQL script and run it to create/edit the SSPI SQL table definitions (Table 2-1):

Figure 2-1. Database—Sample SSPI SQL script for KAAJEE table definitions

```
drop table Principals;
drop table GroupMembers;

create table Principals ( name varchar(32) not null, isuser varchar(10) not null, password varchar(40),
CONSTRAINT Principals_pk PRIMARY KEY (name,isuser));

create table GroupMembers ( principal varchar(32) not null, mygroup varchar(32) not null, CONSTRAINT
GroupMembers_pk PRIMARY KEY (principal, mygroup));
```



UPGRADES: You *must* perform steps 4 and 5 if you have previously deployed KAAJEE SSPIs on the WebLogic Application Server and will be installing a newer version of the KAAJEE SSPIs.



FIRST-TIME INSTALLATIONS: Skip steps 4 and 5 if you have *never* deployed KAAJEE SSPIs on the WebLogic Application Server.

- 4. Upgrade only – remove existing SSPI (Version 1.2 and prior) - [Undeploy prior version of SSPI Software](#)

5. Upgrade only - Connect to the database with required privileges and execute the following commands (updateSchema.sql):

```
alter table KAAJEE.PRINCIPALS MODIFY PASSWORD varchar2(40);
commit();
```

This command “upgrades” the database field to work with the upgraded security hashing algorithm that comes with a build-in SQAAuthenticationProvider.

6. Edit the createDSSSPI.properties file with information pertaining to your environment:

There are several property values to edit. Pay special attention to the case and whitespace. The ds.name and the ds.jndi.name is better left unchanged. The rest of the datasource information gets copied from the existing KaajeeDatabase.properties file (for upgrades).

(REDACTED)

7. Locate and Run the setWLSEnv.sh script on the application server Ex(12.2):

(REDACTED)

The file is located under the **server/bin** directory by default (Ex: **REDACTED**)

8. Run the java weblogic.WLST and pass the required properties file to the createDSSSPI.py

```
java weblogic.WLST createDSSSPI.py -p createDSSSPI.properties
```

The script will attempt to create a new datasource, wire it up to a database and instantiate an instance of SQLAuthenticationProvider. Upon successful script completion, you will be asked to shutdown an admin server.

9. Start the server; Log onto admin console.

10. Navigate to the Authentication Directory:





- a. Select Security Realms under Domain Structure.
- b. Navigate to the Providers tab, as shown below:
 - Home > Summary of Security Realms > myrealm > Providers
- c. Click on New in the Authentication tab

11. Find the KaajeeManageableAuthenticator, ensure Control Flag is set to 'OPTIONAL'.

- a. When returned to the Authentication page, select and edit the DefaultAuthenticator Authentication Provider.
- b. Ensure that Control Flag is 'SUFFICIENT'.

Installation Overview


This page displays basic information about this WebLogic Authentication provider. You can also use this page to set the JAAS Control Flag to control how this provider is used in the login sequence.

 Name:	DefaultAuthenticator	The name of this WebLogic Authentication provider. More Info...
 Description:	WebLogic Authentication Provider	A short description of the Authentication provider. More Info...
 Version:	1.0	The version number of the Authentication provider. More Info...
 Control Flag:	<input type="text" value="SUFFICIENT"/>	Returns how the login sequence uses the Authentication provider. More Info...

12. Restart the admin server, if any changes to the Authentication Providers has been made.

13. Verify all Changes Have Taken Place:

- a. Use the WebLogic console software (i.e., WebLogic Server 10.3.6 Console Login) to navigate to the following locations:
 - Home > Summary of Security Realms > myrealm > Users and Groups (Users tab)
 - Home > Summary of Security Realms > myrealm > Users and Groups (Groups tab)

	NOTE: If this is a first-time install, you will not see users populated in the Oracle tables or in the WebLogic console.

-
- b. Confirm presence of application-level users retrieved by the KaajeeManageableAuthenticator –

(REDACTED)

This page is left blank intentionally.

Appendix A: Installation Back-Out or Roll-Back Procedure

KAAJEE SSPI 1.3 rollback

1. Locate and Run the setWLSEnv.sh script on the application server

(REDACTED)

The file is located under the **server/bin** directory by default (Ex: **REDACTED**)

2. Run the java weblogic.WLST and pass the required properties file to the deleteDSSSPI.py

```
java weblogic.WLST deleteDSSSPI.py -p createDSSSPI.properties
```

The script will attempt to remove a datasource as well as the SQLAuthenticationProvider. It will use the same properties file. Upon successful script completion, you will be offered to shutdown an admin server.

3. Start the server; Log onto admin console.
4. Navigate to the Authentication Directory:
 - a. Select Security Realms under Domain Structure.
 - b. Navigate to the Providers tab, as shown below:
 - Home > Summary of Security Realms > myrealm > Providers > Authentication tab
5. Confirm absence of the KaajeeManageableAuthenticator.
 - a. When returned to the Authentication page, select and edit the DefaultAuthenticator Authentication Provider. Ensure that Control Flag is **'REQUIRED'**.
6. Restart the admin server, if any changes to the Authentication Providers has been made.
7. Verify all Changes Have Taken Place:
 - a. Use the WebLogic console software (i.e., WebLogic Server 10.3.6 Console Login) to navigate to the following locations:
 - Home > Summary of Security Realms > myrealm > Users and Groups (Users tab)
 - Home > Summary of Security Realms > myrealm > Users and Groups (Groups tab)
 - Confirm absence of application-level users retrieved by the KaajeeManageableAuthenticator

KAAJEE SSPI 1.2 re-install


Re-Deploy SSPI 1.2 Software

To install the KAAJEE SSPIs on the WebLogic server, perform the following procedures:

2.2.1.1 Download/Obtain SSPI Software

Download the `kaajee_security_provider_1.1.0.xxx.zip` software from the EVS anonymous directories.

2.2.1.2 Create SSPI Staging Area on the Application Server

	UPGRADES: Skip this step if you have already created an SSPI staging area on the WebLogic Application Server.
---	--

Create a KAAJEE SSPI staging directory under the WebLogic Application Server:

<SSPI_STAGING_FOLDER>

2.2.1.3 Load/Install the SSPI Software on the Application Server

Extract all files/folders contained inside the **<SSPI_STAGING_FOLDER>** staging directory.

After unzipping/exploding the `kaajee_security_provider_1.1.0.xxx.zip` file in the **<SSPI_STAGING_FOLDER>** directory, you will see the following contents/folder structure:

Table 2-2. kaajee-1.1.0.xxx—KAAJEE folder structure

Folder/Structure	Description
<code>..\kaajee_security_provider</code>	This folder is the KAAJEE SSPI <code><root></code> level. This folder contains the following files: <ul style="list-style-type: none"> <code>build.xml</code>—KAAJEE SSPI Ant build script. <code>readme.txt</code>—KAAJEE SSPI documentation (manual), which includes an introduction, change history, any special installation instructions, and any known issues/limitations. <code>wlKaajeeSecurityProviders-1.1.0.xxx.jar</code>—The KAAJEE SSPI software deployment jar file. <code>wlKaajeeSecurityProviders-1.1.0.xxx.jar.MD5</code>—The MD5 checksum value for the KAAJEE SSPI software deployment jar file.
<code>..\common_pool_jars</code>	This folder contains the following files: <ul style="list-style-type: none"> <code>commons-collections-3.1.jar</code> <code>commons-dbcp-1.2.1.jar</code> <code>commons-pool-1.2.jar</code>
<code>..\props</code>	This properties folder contains the following files: <ul style="list-style-type: none"> <code>KaajeeDatabase.properties</code>

	<ul style="list-style-type: none"> • KaajeeManageableAuthenticator.xml
..\sql	This folder contains the SQL scripts for the following databases: <ul style="list-style-type: none"> • CacheTables.sql • OracleTables.sql
..\src	This folder contains the KAAJEE SSPI Java source code (i.e., the application server software).



BEGIN: Linux Instructions

Use the "jar" command to decompress the kaajee_security_provider_1.1.0.xxx.zip distribution file in the <SSPI_STAGING_FOLDER> staging directory:

(REDACTED)



END: Linux Instructions



Linux users, skip to 2.2.1.4.



BEGIN: Microsoft Windows Instructions

Unzip the kaajee_security_provider_1.1.0.xxx.zip distribution file in the <SSPI_STAGING_FOLDER> staging directory.



END: Microsoft Windows Instructions

2.2.1.4 Configure the SSPI Software on the Application Server

Configure the SSPI software on the WebLogic 9.2 and higher Application Servers, in both the Admin and Managed Servers.



Shut down the WebLogic Admin and Managed Servers. Shutting down the servers ensures that the domain servers will refresh their configuration values, etc. upon startup and that the new configuration changes take effect.



BEGIN: Linux Instructions

2.2.1.4.1 (Linux: Admin Server) Modify the Startup Script

For Linux, the `setDomainEnv.sh` startup script needs to be modified in order for the classes contained in the SSPI, Apache connection pool jar files, and third party jar files to be found at run-time. This script is located in the following directory:

(REDACTED)

For example:

(REDACTED)



NOTE: In the examples that follow, some of the directory paths are represented by their `<Alias>`, as described in **Error! Reference source not found.** You can copy and paste these examples for your own use but *must* substitute the `<Alias>` placeholder with the directory information specific to your workstation.

14. Add SSPI Jar File to the SSPI Classpath

The KAAJEE SSPI jar file is named as follows (“xxx” is a placeholder for the build number which varies):

- `wlKaaJeeSecurityProviders-1.1.0.xxx.jar`

This file is located in the following directory:

(REDACTED)

15. Add Apache Connection Pool Jar Files to the SSPI Classpath

The Apache connection pool jar files listed below are located in the directory named **(REDACTED)**

- commons-collections-3.1.jar
- commons-dbc-1.2.1.jar
- commons-pool-1.2.jar

These files *must* be added to the SSPI classpath.

16. Edit the setDomainEnv.sh file – Create KAAJEE variables

Edit the setDomainEnv.sh file to include the classpath to the three files listed in the section above "Add Apache Connection Pool Jar Files to the SSPI Classpath," instructed as follows:



NOTE: Only the sections of setDomainEnv.sh script pertinent to demarcating file updates are displayed below.

Immediately following the standard “ADD EXTENSIONS TO CLASSPATHS” comment statement in the standard generated setDomainEnv script below,

```
# ADD EXTENSIONS TO CLASSPATHS
```

Add the following lines of code (Figure 2-2):

Figure 2-2. Linux Admin Server—KAAJEE SSPI classpath additions to the setDomainEnv.sh file
(*Generic example with <Alias> placeholders*)

```
# ADD EXTENSIONS TO CLASSPATHS
# Create KAAJEE variables (REDACTED)
```

For the following example, we substituted the <Alias> placeholder as shown below:
(REDACTED)

Figure 2-3. Linux Admin Server—KAAJEE SSPI classpath additions to the setDomainEnv.sh file
(*Alias placeholders resolved with actual path names.*)

```
# ADD EXTENSIONS TO CLASSPATHS
# Create KAAJEE variables (REDACTED)
```

17. Add Variables to the PRE_CLASSPATH

Add the following variables (that you created in the previous steps) to the script's PRE_CLASSPATH variable:

- propertiesdir (this directory points to the KaajeeDatabase.properties file)



NOTE: For more information on the KaajeeDatabase.properties file, please refer to the "**Error! Reference source not found.**" topic in this chapter.

- sspidir (this directory points to the location where you decompressed the SSPI software.)
- sspijar (this includes the directory path listed in sspidir above plus the SSPI JAR file: wlKaajeeSecurityProviders-1.1.0.xxx.jar)
- commonpool
- commondbcp
- commoncollection



NOTE: KAAJEE allows users to locate the file(s) pointed to by the propertiesdir and sspidir as follows:

- Co-located together in the same directory—Only one classpath is required.
- Located in separate directories—Two separate classpaths are required.

For these examples, the propertiesdir and sspidir classpaths are listed separately because they are located in separate directories.

18. Edit PRE_CLASSPATH

In the setDomainEnv.sh script, immediately after the “ADD EXTENSIONS TO CLASSPATHS” comment, and following the KAAJEE-specific variables that you set up in the preceding steps, append the following KAAJEE-specific items to the PRE_CLASSPATH variable:

```
# ADD EXTENSIONS TO CLASSPATHS  
# Create KAAJEE variables (REDACTED)
```

If you've already installed VistALink V 1.6, you may already have an addition to the PRE_CLASSPATH containing the directory location where the VistALink connectorConfig.xml file resides.

19. Add the sspidir Argument

Add the following sspidir argument:

```
-Dweblogic.alternateTypesDirectory=${sspidir}
```

This Java Virtual Machine (JVM) argument is significant because it allows WebLogic to find the appropriate directory where the custom SSPIs are located. Otherwise, WebLogic assumes that the custom SSPIs are located in the mbeantypes directory (e.g. (REDACTED)). Classpaths are used by the HealthVet-VistA applications.

Somewhere AFTER the script lines setting the KAAJEE variables in the setDomainEnv.sh script (but before the final “export JAVA_OPTIONS” statement in the script), add the following lines of code:

```
# for KAAJEE (REDACTED)
```

SetDomainEnv.sh Script Changes Summary

After completing the previous steps, the complete section of modified script should look similar to the following:

```
# ADD EXTENSIONS TO CLASSPATHS
# Create KAAJEE variables
(REDACTED)
# for KAAJEE
(REDACTED)
```



END: Linux Instructions



Linux users, skip to 2.2.1.4.3.



2.2.1.4.2 (Windows: Admin Server) Modify the setDomainEnv.cmd File

For Windows, the setDomainEnv.cmd file needs to be modified in order for the classes contained in the SSPI, Apache connection pool jar files, and third party jar files to be found at run-time. This file is located in the following directory:

(REDACTED)

For example:

(REDACTED)



NOTE: In the examples that follow, some of the directory paths are represented by their <Alias>, as described in **Error! Reference source not found.** You can copy and paste these examples for your own use but *must* substitute the <Alias> placeholder with the directory information specific to your workstation.

20. Add SSPI Jar File to the SSPI Classpath

The KAAJEE SSPI jar file is named as follows (“xxx” is a placeholder for the build number which varies):

(REDACTED)

This file is located in the following directory:

(REDACTED)

21. Add Apache Connection Pool Jar Files to the SSPI Classpath

The Apache connection pool jar files listed below are located in the directory named (REDACTED)

- commons-collections-3.1.jar
- commons-dbc-1.2.1.jar
- commons-pool-1.2.jar

These files *must* be added to the SSPI classpath.

22. Edit the setDomainEnv.cmd file – Create KAAJEE variables

Edit the setDomainEnv.cmd file to include the classpath to the three files listed in the section above "Add Apache Connection Pool Jar Files to the SSPI Classpath," instructed as follows:



NOTE: Only the sections of setDomainEnv.cmd script pertinent to demarcating file updates are displayed below.

Immediately following the standard "ADD EXTENSIONS TO CLASSPATHS" comment statement in the standard generated setDomainEnv script below,

```
@REM ADD EXTENSIONS TO CLASSPATHS
```

Add the following lines of code (Figure 2-4):

Figure 2-4. Windows Admin Server—KAAJEE SSPI classpath additions to the setDomainEnv.cmd file
(Generic example with <Alias> placeholders)

```
@REM ADD EXTENSIONS TO CLASSPATHS
<Alias> placeholders.

@REM Create KAAJEE variables
set
ApacheConnPool=<SSPI_STAGING_FOLDER>\kaajee_security_provider\common_pool_jars
set commonpool=%ApacheConnPool%\commons-pool-1.2.jar
set commondbcp=%ApacheConnPool%\commons-dbc-1.2.1.jar
set commoncollection=%ApacheConnPool%\commons-collections-3.1.jar
set propertiesdir=<SSPI_STAGING_FOLDER>\kaajee_security_provider\props
set sspidir=<SSPI_STAGING_FOLDER>\kaajee_security_provider
set sspijar=<SSPI_STAGING_FOLDER>\kaajee_security_provider\
wlKaajeeSecurityProviders-1.1.0.xxx.jar
```

23. Add Variables to the PRE_CLASSPATH

Add the following variables (that you created in the previous steps) to the script's PRE_CLASSPATH variable:

- propertiesdir (this directory points to the KaajeeDatabase.properties file)



NOTE: For more information on the KaajeeDatabase.properties file, please refer to the "**Error! Reference source not found.**" topic in this chapter.

- sspidir (this directory points to the location where you unzipped the SSPI software.)
- sspijar (this includes the directory path listed in sspidir above plus the SSPI JAR file: wlKaajeeSecurityProviders-1.1.0.xxx.jar)
- commonpool
- commondbcp
- commoncollection



NOTE: KAAJEE allows users to locate the file(s) pointed to by the propertiesdir and sspidir as follows:

- Co-located together in the same directory—Only one classpath is required.
- Located in separate directories—Two separate classpaths are required.

For these examples, the propertiesdir and sspidir classpaths are listed separately because they are located in separate directories.

24. Edit PRE_CLASSPATH

In the setDomainEnv.cmd script, immediately following the “ADD EXTENSIONS TO CLASSPATHS” comment, and following the KAAJEE-specific variables that you set up in the preceding steps, append the following KAAJEE-specific items to the PRE_CLASSPATH variable:

```
@REM ADD EXTENSIONS TO CLASSPATHS
@REM Create KAAJEE variables
set
ApacheConnPool=<SSPI_STAGING_FOLDER>\kaajee_security_provider\common_pool_jars
set commonpool=%ApacheConnPool%\commons-pool-1.2.jar
set commondbcp=%ApacheConnPool%\commons-dbc-1.2.1.jar
set commoncollection=%ApacheConnPool%\commons-collections-3.1.jar
set propertiesdir=<SSPI_STAGING_FOLDER>\kaajee_security_provider\props
set sspidir=<SSPI_STAGING_FOLDER>\kaajee_security_provider
set sspijar=<SSPI_STAGING_FOLDER>\kaajee_security_provider\
wlKaajeeSecurityProviders-1.1.0.xxx.jar
```

```

@REM Append KAAJEE items to PRE_CLASSPATH
set PRE_CLASSPATH=%PRE_CLASSPATH%;%propertiesdir%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%sspidir%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%sspijar%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%commonpool%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%commondbcp%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%commoncollection%

```

If you've already installed VistALink 1.6, you may already have an addition to the PRE_CLASSPATH variable containing the directory location where the VistALink connectorConfig.xml file resides.

25. Add the sspidir Argument

Add the following sspidir argument:

```
-Dweblogic.alternateTypesDirectory=%sspidir%
```

This Java Virtual Machine (JVM) argument is significant because it allows WebLogic to find the appropriate directory where the custom SSPIs are located. Otherwise, WebLogic assumes that the custom SSPIs are located in the mbeantypes directory (e.g. (REDACTED)). Classpaths are used by the HealthVet-VistA applications.

Somewhere AFTER the script lines setting the KAAJEE variables in the setDomainEnv.cmd script (but before the final “set JAVA_OPTIONS=%JAVA_OPTIONS%” statement in the script), add the following lines of code:

```

@REM for KAAJEE
set JAVA_OPTIONS=%JAVA_OPTIONS% -Dweblogic.alternateTypesDirectory=%sspidir%

```

26. SetDomainEnv.cmd Script Changes Summary

After completing the previous steps, the complete section of modified script should look similar to the following:

Appendix A: Installation Back-Out or Roll-Back Procedure

```
@REM ADD EXTENSIONS TO CLASSPATHS
@REM Create KAAJEE variables
set
ApacheConnPool=<SSPI_STAGING_FOLDER>\kaajee_security_provider\common_pool_jars
set commonpool=%ApacheConnPool%\commons-pool-1.2.jar
set commondbcp=%ApacheConnPool%\commons-dbc-1.2.1.jar
set commoncollection=%ApacheConnPool%\commons-collections-3.1.jar
set propertiesdir=<SSPI_STAGING_FOLDER>\kaajee_security_provider\props
set sspidir=<SSPI_STAGING_FOLDER>\kaajee_security_provider
set sspijar=<SSPI_STAGING_FOLDER>\kaajee_security_provider\
wlKaaJeeSecurityProviders-1.1.0.xxx.jar

@REM Append KAAJEE items to PRE_CLASSPATH
set PRE_CLASSPATH=%PRE_CLASSPATH%;%propertiesdir%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%sspidir%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%sspijar%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%commonpool%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%commondbcp%
set PRE_CLASSPATH=%PRE_CLASSPATH%;%commoncollection%

@REM for KAAJEE
set JAVA_OPTIONS=%JAVA_OPTIONS% -Dweblogic.alternateTypesDirectory=%sspidir%
```



END: Microsoft Windows Instructions



Windows users, skip to 2.2.1.4.4.



BEGIN: Linux Instructions

2.2.1.4.3 (Linux: Managed Servers) Modify the KAAJEE SSPI-related Classpath, Arguments, and Security Policy

Use the WebLogic Server Console to navigate to the **Server Start** tab on the **Configuration** tab to update the Managed Server(s) KAAJEE SSPI-related classpath and arguments.

Home > Summary of Servers > kjm92L_ManagedSvr1

Figure 2-5. WebLogic Server Administration Console: Managed Server Start tab settings

(REDACTED)



NOTE: In the examples that follow, some of the directory paths are represented by their <Alias>, as described in **Error! Reference source not found.**. You can copy and paste these examples for your own use but *must* substitute the <Alias> placeholder with the directory information specific to your workstation.

Users *must* repeat the following procedures for *each* Managed Server.

27. Add/Replace the KAAJEE SSPI Directories/Files to the Managed Server Classpath

Add or replace the following KAAJEE SSPI-related classpaths in the **Class Path** field (i.e., the classpath used to start the Managed Server) on the **Server Start** tab on the Managed Server(s):

- propertiesdir (this directory points to the KaajeeDatabase.properties file)



NOTE: For more information on the KaajeeDatabase.properties file, please refer to the "**Error! Reference source not found.**" topic in this chapter.

- sspidir (this directory points to the location where you decompressed the SSPI software.)
- wlKaajeeSecurityProviders-1.1.0.xxx.jar (SSPI JAR file)
- commons-pool-1.2.jar (file)
- commons-dbcp-1.2.1.jar (file)
- commons-collections-3.1.jar (file)

i **NOTE:** KAAJEE allows users to locate the file(s) pointed to by the `propertiesdir` and `sspidir` as follows:

- Co-located together in the same directory—Only one classpath is required.
- Located in separate directories—Two separate classpaths are required.

For these examples, the `propertiesdir` and `sspidir` classpaths are listed separately because they are located in separate directories.

Figure 2-6. Linux Managed Server—KAAJEE SSPI classpath additions on the Server Start tab
(Generic example with `<Alias>` placeholders)

(REDACTED) .
.
.
.

Other Managed Server classpaths will follow.

i **NOTE:** Other VistALink- and WebLogic-specific classpaths will also be displayed in this field.

For the following example, we substituted the `<Alias>` placeholders with the values as shown below:

- `<JAVA_HOME>` = (REDACTED)
- `<BEA_HOME>` = (REDACTED)
- `<SSPI_STAGING_FOLDER>` = (REDACTED)
- `<MANAGED_SERVER_NAME>` = (REDACTED)
- `<BEA_STAGE>` = (REDACTED)
(Staging area for applications, JCA Connectors, and configuration files)

Figure 2-7. Linux Managed Server—KAAJEE SSPI classpath additions/replacements on the Server Start tab
(Actual example without `<Alias>` placeholders)

(REDACTED) .
.
.
.

i **NOTE:** Other VistALink- and WebLogic-specific classpaths will also be displayed in this field.

28. Add/Replace the KAAJEE SSPI-related Arguments on the Managed Server(s)

Add or replace the following KAAJEE SSPI-related arguments on the Managed Server(s):

(REDACTED)

The KAAJEE SSPI-related arguments are added/replaced in the **Arguments** field (i.e., the arguments used to start the Managed Server) on the **Server Start** tab on the Managed Server(s). The arguments are added or replaced in one long string, as shown below:

Figure 2-8. Linux Managed Server—KAAJEE SSPI argument additions/replacements on the Server Start tab

(Generic example with <Alias> placeholders)

(REDACTED)

For the following example, we substituted the <Alias> placeholders as shown below:

(REDACTED)

Figure 2-9. Linux Managed Server—KAAJEE SSPI argument additions/replacements on the Server Start tab

(Actual example without <Alias> placeholders)

(REDACTED)

29. Add/Replace the KAAJEE SSPI-related Security Policy File Reference

Add or replace the following KAAJEE SSPI-related security policy (permissions) file reference in the **Security Policy File** field (i.e., the security policy file used to start the Managed Server) on the **Server Start** tab on the Managed Server(s):

Figure 2-10. Linux Managed Server—KAAJEE SSPI Security Policy File field addition/replacement on the Server Start tab

(Generic example with <Alias> placeholders)

(REDACTED)

For the following example, we substituted the <Alias> placeholder as shown below:

(REDACTED)

Figure 2-11. Linux Managed Server—KAAJEE SSPI Security Policy File field addition/replacement on the Server Start tab

(Actual example without <Alias> placeholders)

(REDACTED)



END: Linux Instructions



Linux users, skip to **Error! Reference source not found..**



2.2.1.4.4 (Windows: Managed Servers) Modify the KAAJEE SSPI-related Classpath, Arguments, and Security Policy File

Use the WebLogic Server Console to navigate to the **Server Start** tab on the **Configuration** tab to update the Managed Server(s) KAAJEE SSPI-related classpath and arguments.



NOTE: In the examples that follow, some of the directory paths are represented by their <Alias>, as described in **Error! Reference source not found.** You can copy and paste these examples for your own use but *must* substitute the <Alias> placeholder with the directory information specific to your workstation.

You *must* repeat the following procedures for *each* Managed Server.

30. Add/Replace the KAAJEE SSPI Directories/Files to the Managed Server Classpath

Add or replace the following KAAJEE SSPI-related classpaths in the **Class Path** field (i.e., the classpath used to start the Managed Server) on the **Server Start** tab on the Managed Server(s):

- propertiesdir (this directory points to the KaajeeDatabase.properties file)



NOTE: For more information on the KaajeeDatabase.properties file, please refer to the "**Error! Reference source not found.**" topic in this chapter.

- sspidir (this directory points to the location where you unzipped the SSPI software.)
- wlKaajeeSecurityProviders-1.1.0.xxx.jar (SSPI JAR file)
- commons-pool-1.2.jar (file)
- commons-dbcp-1.2.1.jar (file)
- commons-collections-3.1.jar (file)

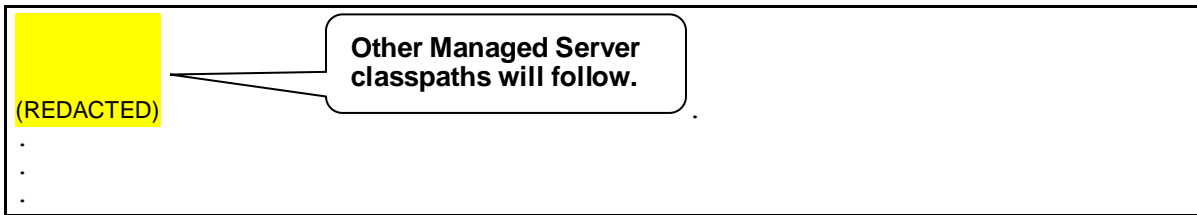


NOTE: KAAJEE allows users to locate the file(s) pointed to by the propertiesdir and sspidir as follows:

- Co-located together in the same directory—Only one classpath is required.
- Located in separate directories—Two separate classpaths are required.

For these examples, the propertiesdir and sspidir classpaths are listed separately because they are located in separate directories.

Figure 2-12. Windows Managed Server—KAAJEE SSPI classpath additions/replacements on the Server Start tab
(Generic example with <Alias> placeholders)

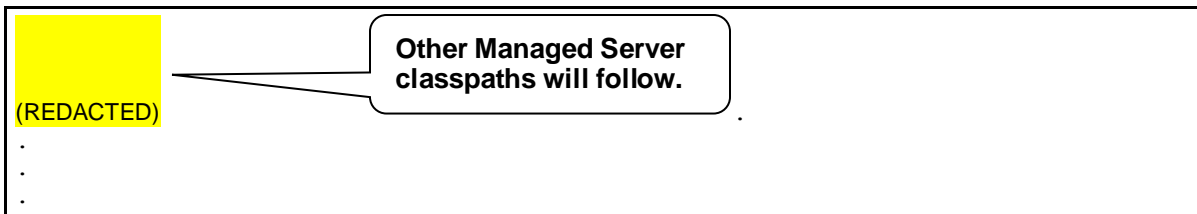


i **NOTE:** Other VistALink- and WebLogic-specific classpaths will also be displayed in this field.

For the following example, we substituted the <Alias> placeholders as shown below:

(REDACTED)

Figure 2-13. Windows Managed Server—KAAJEE SSPI classpath additions/replacements on the Server Start tab
(Actual example without <Alias> placeholders)



i **NOTE:** Other VistALink- and WebLogic-specific classpaths will also be displayed in this field.

31. Add/Replace the KAAJEE SSPI-related Arguments on the Managed Server(s)

Add or replace the following KAAJEE SSPI-related arguments on the Managed Server(s):

(REDACTED)

The KAAJEE SSPI-related arguments are added/replaced in the **Arguments** field (i.e., the arguments used to start the Managed Server) on the **Server Start** tab on the Managed Server(s). The arguments are added or replaced in one long string, as shown below:

Figure 2-14. Windows Managed Server—KAAJEE SSPI argument additions/replacements on the Server Start tab
(Generic example with <Alias> placeholders)

For the following example, we substituted the <Alias> placeholders as shown below:

(REDACTED)

Figure 2-15. Windows Managed Server—KAAJEE SSPI argument additions/replacements on the Server Start tab (*Actual example without <Alias> placeholders*)

(REDACTED)

32. Add/Replace the KAAJEE SSPI-related Security Policy File Reference

Add or replace the following KAAJEE SSPI-related security policy (permissions) file reference in the **Security Policy File** field (i.e., the security policy file used to start the Managed Server) on the **Server Start** tab on the Managed Server(s):

Figure 2-16. Windows Managed Server—KAAJEE SSPI Security Policy File field addition/replacement on the Server Start tab (*Generic example with <Alias> placeholders*)

(REDACTED)

For the following example, we substituted the <Alias> placeholder as shown below:

(REDACTED)

Figure 2-17. Windows Managed Server—KAAJEE SSPI Security Policy File field addition/replacement on the Server Start tab (*Actual example without <Alias> placeholders*)

(REDACTED)



Undeploy SSPI 1.2 and before



FIRST-TIME INSTALLATIONS: Skip this step if you have *never* deployed KAAJEE SSPIs on the WebLogic Application Server.



UPGRADES: You *must* perform this step if you have previously deployed KAAJEE SSPIs on the WebLogic Application Server and will be installing a newer version of the KAAJEE SSPIs.

Before installing any new version of the KAAJEE SSPIs on the WebLogic server, users *must* remove any previously installed KAAJEE SSPIs. To do this, perform the following procedures:



NOTE: Before starting, users should shut down all Managed Servers running on the WebLogic Application Server. Shutting down the server ensures that the domain server will refresh its configuration values, etc. upon startup and that the new configuration changes take effect.

Delete `kaajeeManageableAuthenticator`

On the WebLogic Admin Server, use the console to navigate to the following directory:

Home > Summary of Security Realms > myrealm > Providers

Delete `kaajeeManageableAuthenticator`. Confirm the delete when prompted.

Modify `DefaultAuthenticator Control Flag`

In the same directory, select `DefaultAuthenticator`. Use the dropdown box next to the `Control Flag` field to change the setting to **REQUIRED** and then click **Save**.

Shut Down the Admin Server on the Application Server

Users should shut down the Admin Server running on the WebLogic Application Server. Shutting down the server ensures that the domain server will refresh its configuration values, etc. upon startup and that the new configuration changes take effect.



BEGIN: Linux Instructions

(Linux: Admin Server) Edit the startWebLogic.sh File

On the application server, users need to edit the startWebLogic.sh file. This file is located in the following directory:

(REDACTED)

For example:

(REDACTED)

In the startWebLogic.sh file, delete the following argument:

(REDACTED)

Save and close the file.



END: Linux Instructions



Linux users, skip to 0.



BEGIN: Microsoft Windows Instructions

(Windows: Admin Server) Edit the startWebLogic.cmd File

On the application server, users need to edit the startWebLogic.cmd file. This file is located in the following directory:

(REDACTED)

For example:

(REDACTED)

In the startWebLogic.cmd file, delete the following argument:

(REDACTED)

Save and close the file.



Start the Admin Server on the Application Server

Users should start the Admin Server on the WebLogic Application Server and then log into the WebLogic Console.

Verify Removal of the kaajeeManageableAuthenticator

Users should navigate to the following directory:

Home > Summary of Security Realms > myrealm > Providers

Verify that the kaajeeManageableAuthenticator is no longer listed.

Shut Down the Admin Server on the Application Server

Users should shut down the Admin Server running on the WebLogic Application Server. Shutting down the server ensures that the domain server will refresh its configuration values, etc. upon startup and that the new configuration changes take effect.

Move and Back Up the wIKaajeeSecurityProviders-1.2.0.xxx.jar File

On the application server, users should navigate to the **<SSPI_STAGING_FOLDER>** staging directory. To complete the cleanup and create a backup, locate and move the wIKaajeeSecurityProviders-1.2.0.xxx.jar file to a backup directory.

KAAJEE SSPI Successfully Undeployed

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