



# BEA WebLogic Java Adapter for Mainframe

## Installation Guide

BEA WebLogic Java Adapter for Mainframe 4.1  
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October 2000

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## BEA® WebLogic™ Java for Mainframe Installation Guide

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# About This Document

This document provides instructions for installing BEA WebLogic Java Adapter for Mainframe (JAM) software.

This document covers the following topics:

- [Chapter 1, “Preparing for Installation,”](#) describes tasks you may need to consider before installing and running BEA WebLogic Java Adapter for Mainframe (JAM) software.
- [Chapter 2, “Installing the Software,”](#) provides installation information for BEA WebLogic Java Adapter for Mainframe (JAM) software.

## What You Need to Know

This document is intended for system administrators and application programmers who will configure the BEA WebLogic Java Adapter for Mainframe.

## e-docs Web Site

BEA product documentation is available on the BEA corporate Web site. From the BEA Home page, click on Product Documentation or go directly to the “e-docs” Product Documentation page at <http://e-docs.bea.com>.

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# How to Print the Document

You can print a copy of this document from a Web browser, one file at a time, by using the File—>Print option on your Web browser.

A PDF version of this document is available on the JAM documentation Home page on the e-docs Web site (and also on the documentation CD). You can open the PDF in Adobe Acrobat Reader and print the entire document (or a portion of it) in book format. To access the PDFs, open the JAM documentation Home page, click the PDF files button and select the document you want to print.

If you do not have the Adobe Acrobat Reader, you can get it for free from the Adobe Web site at <http://www.adobe.com/>.

## Related Information

The following BEA publications are also available:

- *BEA WebLogic Java Adapter for Mainframe User Guide*
- *BEA WebLogic Java Adapter for Mainframe Release Notes*
- *BEA WebLogic Java Adapter for Mainframe SNACRM Administration Guide*

## Contact Us

Your feedback on the BEA WebLogic Java Adapter for Mainframe documentation is important to us. Send us e-mail at **[docsupport@bea.com](mailto:docsupport@bea.com)** if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the JAM documentation.

In your e-mail message, please indicate that you are using the documentation for the BEA WebLogic Java Adapter for Mainframe 4.1 release.

If you have any questions about this version of JAM, or if you have problems installing and running JAM, contact BEA Customer Support through BEA WebSupport at **www.bea.com**. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address
- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages

## Document Conventions

The following documentation conventions are used throughout this document:

Item	Examples
Variable names	Variable names represent information you must supply or output information that can change; they are intended to be replaced by actual names. Variable names are displayed in italics and can include hyphens or underscores. The following are examples of variable names in text: <i>error_file_name</i> The <i>when-return</i> value...

---

Item	Examples
User input and screen output	<p>For screen displays and other examples of input and output, user input appears as in the first of the following lines; system output appears as in the second through fourth lines:</p> <p><b>dir c:\accounting\data</b> Volume in drive C is WIN_NT_1 Volume Serial Number is 1234-5678 Directory of C:\BEADIR\DATA</p>
Syntax	<p>Code samples can include the following elements:</p> <ul style="list-style-type: none"><li>■ Variable names can include hyphens or underscores (e.g., <i>error_file_name</i>)</li><li>■ Optional items are enclosed in square brackets: [ ]. If you include an optional item, do not code the square brackets.</li><li>■ A required element for which alternatives exist is enclosed in braces { }. The alternatives are separated by the pipe (vertical bar) character:  . You must include only one of the alternatives for that element. Do not code the braces or pipe character.</li><li>■ An ellipsis ( ... ) indicates that the preceding element can be repeated as necessary.</li></ul>
Omitted code	<p>An ellipsis ( ... ) is used in examples to indicate that code that is not pertinent to the discussion is omitted. The ellipsis can be horizontal or vertical.</p>
Environment variables	<p>Environment variables are formatted in an uppercase font.</p> <p>ENVFILE=\${APPDIR}</p>
Key names	<p>Key names are presented in boldface type.</p> <p>Press <b>Enter</b> to continue.</p>
Literals	<p>Literals are formatted in a monospace font.</p> <p>class extendSample</p>
Window items	<p>Window items are presented in boldface type. Window items can be window titles, button labels, text edit box names or other parts of the window.</p> <p>Type your password in the <b>Logon window</b>.</p> <p>Select <b>Export</b> to make the service available to the client.</p>

# 1 Preparing for Installation

This section contains information about pre-installation preparation that is necessary before installing the BEA WebLogic Java Adapter for Mainframe (JAM) software. To ensure successful installation and operation of the JAM software, complete the tasks described in this section.

This section contains the following topics:

- [Determine Your Configuration](#)
- [Determine Requirements for Other Components](#)
- [Install the Prerequisite Software](#)
- [Establish Your Mainframe Environment](#)
- [Verify SNA Stack Installation](#)
- [Verify WebLogic Server Installation](#)

## Determine Your Configuration

Configuration is important to consider when planning the installation of the JAM software. The normal JAM environment generally includes two properly configured components: the Java Communication Resource Manager Gateway (JCRMGW) and

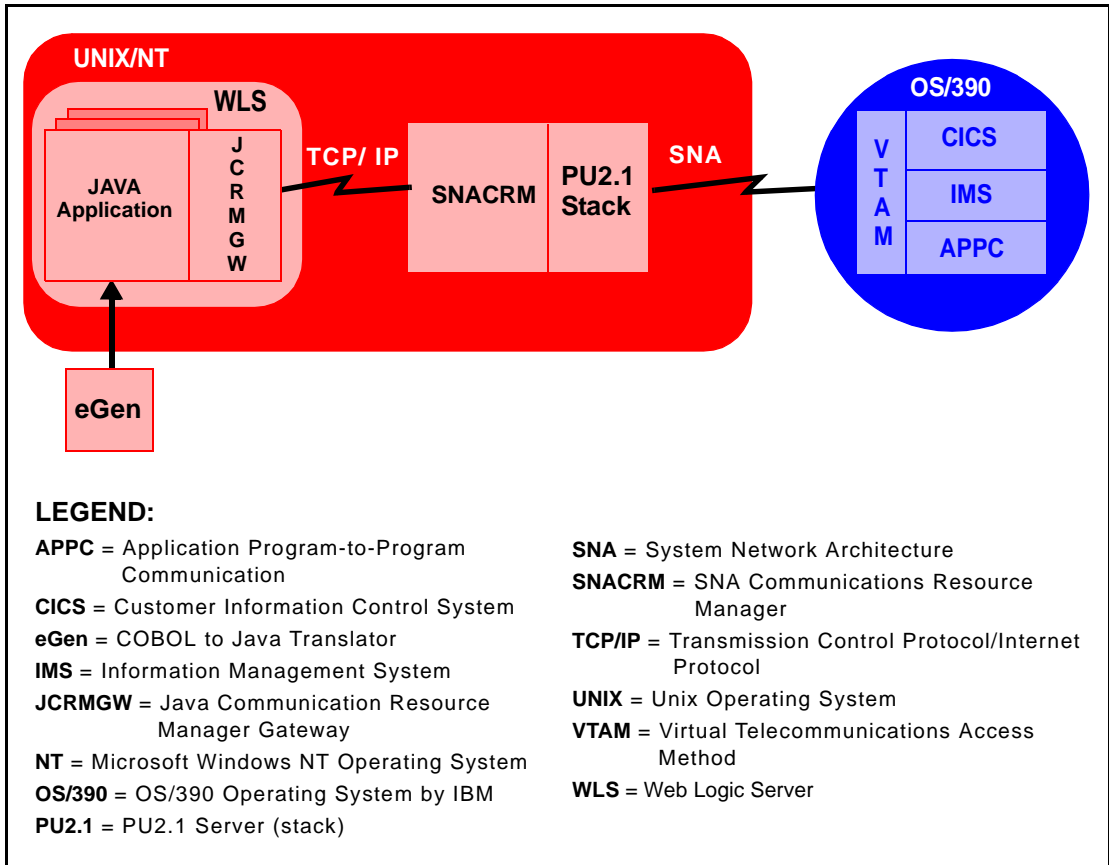
the Systems Network Architecture Communications Resource Manager (SNACRM). The type of network connectivity will determine which type of SNACRM installation and configuration is required.

When JCRMGW and SNACRM are installed on the same machine, the installation is referred to as a combined (or local) configuration. When these components are installed on different Unix, NT, or OS/390 platforms, the installation is referred to as a distributed (or remote) configuration. The diagrams in the following sections show examples of the relationships of the JAM components in three types of configurations.

# Local Configuration

The local configuration combines the Java application, JCRMGW, WebLogic Server, and the SNACRM with the stack (PU2.1 server) on the same Unix or Windows NT platform. It employs the IBM proprietary SNA protocol for transactions with the mainframe via the stack.

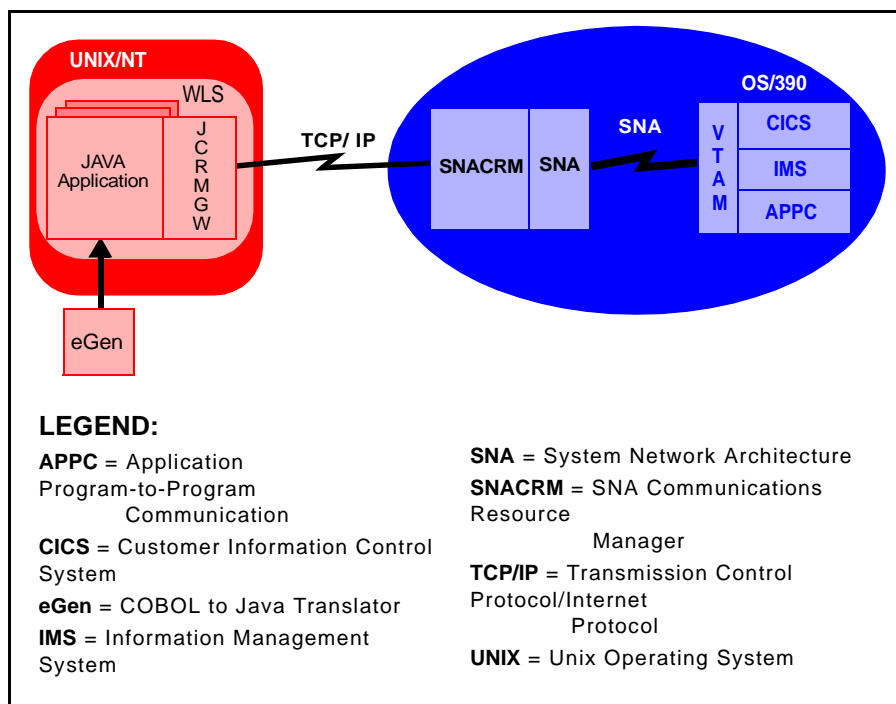
**Figure 1-1 JAM Local Configuration**



## Distributed Configurations

One type of distributed configuration separates Java applications and the JCRMGW from the SNACRM by installing the SNACRM to the IBM OS/390 Mainframe. This configuration eliminates the need for a third-party stack on the Unix or NT machine. Note that this configuration requires a one-to-one relationship between the local JCRMGW and the remote SNACRM.

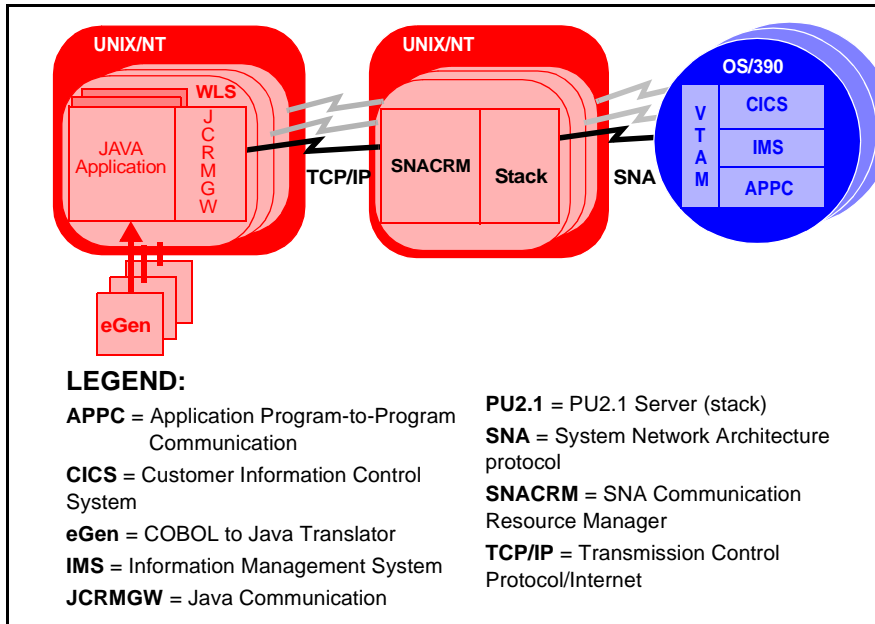
**Figure 1-2 JAM Distributed Configuration**



Another type of distributed configuration separates Java applications and the JCRMGW from the SNACRM on different Unix or Windows NT platforms. It employs Transmission Control Protocol/Internet Protocol (TCP/IP) connectivity between the Java applications platform and the SNACRM platforms, as well as the SNA connectivity to the mainframe environment(s). This configuration gives you the flexibility to deploy WebLogic Server separately from the SNACRM at installations

that require WebLogic Server on a platform other than the one on which the SNA stack is running. Note that this configuration requires a one-to-one relationship between the local JCRMGW and the remote SNACRM.

**Figure 1-3 Alternate JAM Distributed Configuration**



## The New Distributed CRM

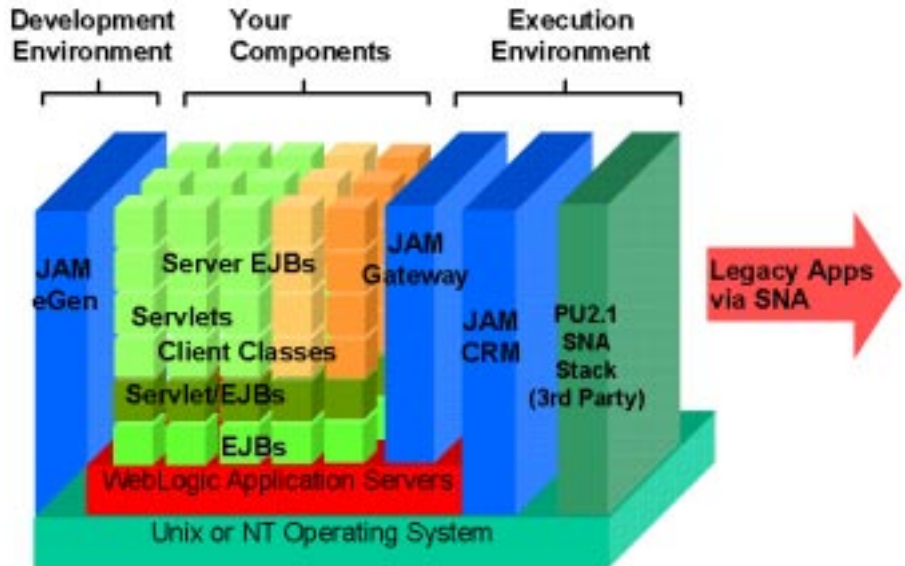
As in prior releases, the JAM product includes two JAM software components:

- JCRMGW—Java Gateway component
- SNACRM —Communication Resource Manager component

In prior releases, the JCRMGW operated under WebLogic; and the SNACRM operated on the same operating system as WebLogic, but outside of the confines of WebLogic. The communication between these two components was through TCP/IP. The JCRMGW conversed bidirectionally via TCP/IP with the SNACRM. The SNACRM communicated with the mainframe through SNA LU 6.2 protocols to the supported third party SNA stack. These supported SNA stacks included Windows NT

Server and Microsoft SNA Server, Hewlett Packard SNAplus2, SUN SunLink, and Data Connection Limited SNAP-IX. This architecture is illustrated in the following diagram.

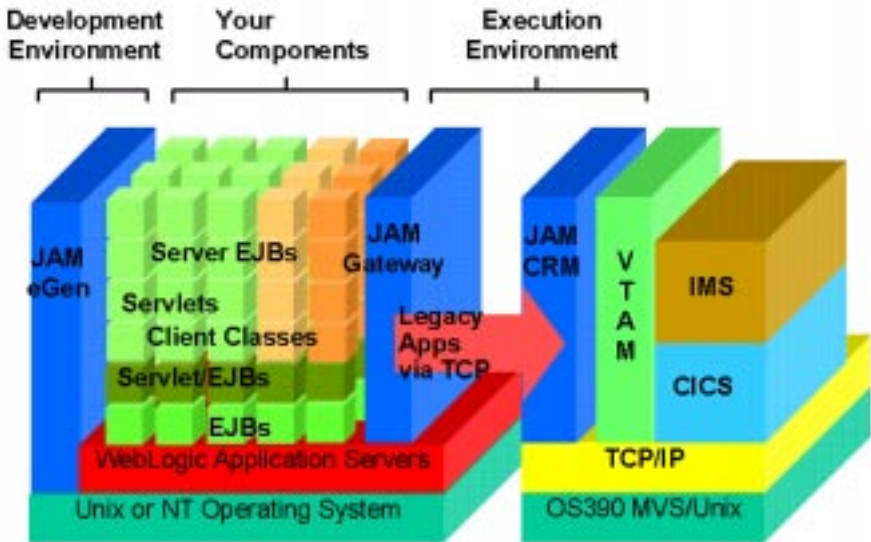
**Figure 2 JAM Architecture in Previous Releases**



WebLogic Java Adapter for Mainframe v4.1 provides an additional configuration option: the distributed CRM. This new feature allows the SNACRM to be installed on the mainframe. Because communication between the two components (JCRMGW and SNACRM) is TCP, this configuration allows TCP/IP communication to the mainframe. This feature has been added by enhancing a layer within the SNACRM. This abstraction layer converses with VTAM, eliminating the need for a PU2.1 SNA

stack altogether. The communication from the SNACRM to VTAM on the mainframe is still SNA, while the network protocol is TCP/IP. The following diagram illustrates the configuration architecture of the new JAM feature.

**Figure 3 New JAM Architecture**



Note that module names within the JAM product have been retained from JAM v4.0 to JAM v4.1. The JAM gateway (JCRMGW) and Communications Resource Manager (SNACRM) still exist. The SNACRM component is used to communicate both SNA and TCP protocols. TCP protocols always flow between JCRMGW and SNACRM. SNA protocols always flow from the SNACRM to the mainframe and from either an SNA stack or VTAM on the mainframe to the SNACRM depending upon the configuration option.

## How the Configuration Affects Installation

Make sure you understand which configuration applies to your application development environment. During installation, you must enter the destinations for the two major JAM components, the SNACRM and the JCRMGW. These destinations are determined by your configuration. If you are using the combined configuration, both components are installed on the same platform. If you are using a distributed

configuration, the components are installed on different platforms; the JCRMGW must be installed on the platform with WebLogic Server and the SNACRM must be installed on the same platform with the SNA stack. Some platforms do not support local SNACRMs. Check the *BEA WebLogic Java Adapter for Mainframe Release Notes* for detailed information about supported platforms.

# Determine Requirements for Other Components

Because JAM interacts with mainframe applications, be sure to involve your mainframe system support personnel early in the process of planning and installing your JAM software. In a large shop, separate individuals may be responsible for Multiple Virtual System (MVS), Virtual Telecommunications Access Method (VTAM), Information Management System (IMS), and Customer Information Control System/Enterprise Systems Architecture (CICS/ESA). Make sure everyone is involved.

Whether your JAM software is installed on Windows NT, Unix, or a mainframe, you will need to make sure your system meets the appropriate requirements and that supporting software is operating correctly. The following sections describe mainframe and non-mainframe requirements, and verification of supporting software installations.

## Mainframe Requirements

The SNACRM component of JAM may or may not be located on the mainframe environment; however, mainframe configurations affect how JAM works. The following configurations are required on the mainframe in order to conduct operations within the JAM/WebLogic Server environment:

- Established VTAM configuration
- CICS/ESA Logical Unit (LU) configured with proper connections created and sessions defined

- If using IMS, APPC and transaction definitions must exist for that environment

## Non-Mainframe Requirements

A non-mainframe environment is a Unix-based or Windows NT-based machine running the JAM software. The software is fully bi-directional, supporting the local system as either a client or server. This environment consists of the following components:

- Hardware, which is any workstation and network interface supported by the required software
- Operating system software and SNA protocol stacks (PU servers) if the SNACRM is not installed on the mainframe (Refer to the *BEA WebLogic Java Adapter for Mainframe Release Notes* for a complete listing.)

Stack installation should also be completed and verified. (Refer to vendor documentation for stack installation and verification information.)

- BEA WebLogic Server 5.1

For JAM installations in a WebLogic Server environment, you must have the BEA WebLogic Server 5.1 software installed.

## Install the Prerequisite Software

The following software should be installed prior to installing the JAM software:

1. Install and configure a supported SNA stack on the operating system where the SNACRM will be installed.

A properly configured SNA protocol stack is required for the SNACRM to communicate with a mainframe.

The Java gateway requires the following parameters from the SNA stack configuration:

Local LU - The local name of the SNACRM that will be used by the mainframe application.

Remote LU - The name of the mainframe application that the SNACRM will use.

Mode Name - The SNA mode definitions provide session characteristics for a given local/remote LU pair.

Max sessions - Sessions are required for connections to be made between two LUs. Max sessions should be high enough to handle the expected gateway traffic. This parameter is optional and defaults to 4.

Minimum Contention Winners - Determines the priority of the session activation. This parameter is optional and defaults to one half the value specified for max sessions.

Refer to the *BEA WebLogic Java Adapter for Mainframe Release Notes* for a list of supported SNA stacks.

**Note:** Refer to the SNA stack vendor's documentation on configuring for your environment. Ensure that the stack is properly installed and that the configuration can be activated.

2. Install the appropriate Java JDK for the WebLogic Server platform. Refer to the *BEA WebLogic Java Adapter for Mainframe Release Notes* for the correct version for your platform.

Obtain the JDK from the OEM who provided the hardware on which WebLogic Server is to run. Follow the installation instructions provided with the JDK distribution. Be sure to get the most recent service patch available.

3. Install and configure WebLogic Server.

Refer to the WebLogic Server Installation Guide for installation and configuration information. Some specific WebLogic configuration tasks must be completed to install JAM.

- Add the JAM .jar files to the WEBLOGICCLASSPATH variable in your start WebLogic script. This script is provided with the WebLogic Server install and is named `start WebLogic.cmd` on Windows NT systems and `start weblogic.sh` on UNIX systems. Both the `jam.jar` and the `ebase.jar` files must be added to the WEBLOGICCLASSPATH. Both of these files may be found in the "lib" directory of your JAM installation.
- Add the following necessary lines to your `weblogic.properties` file. The `weblogic.properties` file is located in the WebLogic installation directory.

- a. The following line is for gateway startup class specification:

```
weblogic.system.startupClass.jcrmgw=com.bea.sna.jcrmgw.gwboot
```

- b. The following options will specify gateway startup arguments, if necessary:

```
weblogic.system.startupArgs.jcrmgw=options
```

Where:

-t

will turn on tracing in the SNACRM.

-r

indicates that the SNACRM is remote. The SNACRM should run on the same platform as the SNA stack. The SNACRM can be the same machine as the WebLogic Server. In this case -r is omitted and the JCRMGW will spawn a new SNACRM using the address specified in the `jcrmgw.cfg` file. If -r is used, the SNACRM will not spawn, but is assumed to already be running at the address specified in the `jcrmgw.cfg`, even if this is the same machine running the gateway. In addition, the local SNACRM group identifier must match the group identifier specified on the command line used to start the remote SNACRM.

-u<userid>

<userid> is the mainframe userid that should be associated with all requests originating from this gateway. This parameter is useful for IDENTIFY type security where the client cannot provide a userid.

**Note:** The `WEBLOGICCLASSPATH` must contain the fully-qualified name of the `jam.jar` file and the `ebase.jar` file.

- c. The JAM EJB deployment specification:

```
weblogic.ejb.deploy=/jam-install-directory/lib/jam.jar
```

---

### Listing 3-1 Sample Lines from `weblogic.properties` File

---

```
weblogic.system.startupClass.jcrmgw=com.bea.jcrmgw.gwboot
weblogic.system.startupArgs.jcrmgw=-t -r -u userName
weblogic.ejb.deploy=/jam-install-directory/lib/jam.jar
```

---

# Establish Your Mainframe Environment

Refer to the *SNACRM Administration Guide* for additional information about configuration/environment options. The following configurations are required on the mainframe in order to conduct operations with the BEA eLink Platform/WebLogic Server environment:

Established VTAM configuration

CICS/ESA Logical Unit (LU) configured with proper connections created and sessions defined

If using IMS, APPC and transaction definitions must exist for that environment

## Verify SNA Stack Installation

Proper stack installation will ensure that your applications deploy and operate correctly. Complete the following installation tasks in order:

1. Install the stack software per vendor instructions.
2. Start the stack.
3. Successfully activate definitions.
4. Execute vendor-provided tests.

## Verify WebLogic Server Installation

Proper WebLogic Server installation will ensure that your applications deploy and operate correctly.

Validate the WebLogic Server software installation by running the sample applications found at the following url:

<http://www.weblogic.com/docs51/examples/index.html>

You should run at least one of the servlet examples.



# 2 Installing the Software

This section provides information for installing the BEA Java Adapter for Mainframe (JAM) software. After completing the tasks included in the previous section, “[Preparing for Installation](#),” install the JAM and SNA Communications Resource Manager (SNACRM) components according to your configuration requirements:

**Note:** Refer to the *BEA WebLogic Java Adapter for Mainframe Release Notes* for information on hardware and software requirements. For additional operational and administrative information on the SNACRM, refer to the *SNACRM Administration Guide*.

Installation topics are grouped by platform, and by component (JAM or SNACRM) if the component installations differ for particular platforms.

This section includes the following topics:

- [Installing the Software on a Non-Mainframe Unix-based Platform](#)
- [Installing the SNACRM Component on an OS/390 MVS Platform](#)
- [Installing the Software on a Windows NT Platform](#)
- [Verifying Installation Files and Directories](#)
- [Setting Up the License Key](#)

# Installing the Software on a Non-Mainframe Unix-based Platform

Both the JAM and the SNACRM components are installed on non-mainframe Unix-based platforms with the `install.sh` script. You will select which components to install based on your configuration requirements.

To install the software on a Unix-based platform, complete the following steps:

1. Run the `install.sh` script supplied on the product CD-ROM.
2. Enter the needed information as the script progresses through the installation process. This script allows you to select the JAM components you want to install. The script will ask for the following information:

Platform on which to install the software (Refer to *Java Adapter for Mainframe Release Notes* for a complete listing of supported platforms.)

Verification of the platform you chose

Package you wish to install: SNACRM (`crm`), JAM (`jam`), or all

Directory where the JAM system is to be installed (You must enter a valid directory name.)

SNA stack support for the platform selected if you are installing the `crm` package (Refer to *Java Adapter for Mainframe Release Notes* for a complete listing of platform-stack compatibility.)

The following listings provide examples of running this script for each of the JAM components. You will supply the values in bold during installation. To accept default values at a prompt, press Enter.

**Note:** The platforms, stacks, and file names shown in the following listings are examples only. These values are dependent on platform and stack configurations for your system and may vary from the example.

**Listing 2-1 Sample Script for JAM Component Installation on a Unix-based Platform**

---

```
cmadm@dalhwp1:/cmhome/dist/fig-4> sh install.sh

01) hp/hpux11          02) ibm/aix43          03) sun5x/sol26
04) sun5x/sol17        05) sun5x/sol18

Install which platform's files? [01-5, q to quit, l for list]: 1

** You have chosen to install from hp/hpux11 **

BEA WebLogic Java Adapter for Mainframe Release 4.1

This directory contains the BEA WebLogic Java Adapter for Mainframe
4.1
for HP-UX 11.0 on 9000/800 series.

Is this correct? [y,n,q]: y

To terminate the installation at any time
press the interrupt key,
typically <del>, <break>, or <ctrl+c>.

The following packages are available:

      1      crm          SNA Communications Resource Manager
      2      jam          BEA WebLogic Java Adapter for Mainframe

Select the package(s) you wish to install (or 'all' to install
all packages) (default: all) [?,??,q]: 2

BEA WebLogic Java Adapter for Mainframe
(9000) Release 4.1
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BEA eLink is a trademark of BEA Systems, Inc.

Directory where BEA WebLogic Java Adapter for Mainframe files are
to be installed
(Enter your directory path) [?,q]: /work/cmadm

Using /work/cmadm as the BEA WebLogic Java Adapter for Mainframe
base directory
```

## 2 *Installing the Software*

---

```
Determining if sufficient space is available ...
7776 blocks are required
2156958 blocks are available to /work/cmadm

Unloading /cmhome/dist/fig-4/hp/hpux11/jam/JAMJA.Z ...
bin/jsnacrm.html
bin/jsnacrm.jar
bin/moncrm.jar
bin/moncrm.x509
classdocs/jamdoc.jar
examples/samples.jar
lib/ebase.jar
lib/jam.jar
7710 blocks
... finished

Changing file permissions...
... finished

Installation of BEA WebLogic Java Adapter for Mainframe was
successful

The following packages are available:

      1      crm                SNA Communications Resource Manager
      2      jam                BEA WebLogic Java Adapter for Mainframe

Select the package(s) you wish to install (or 'all' to install
all packages) (default: all) [?,??,q]: q

Installation terminated
cmadm@dalhpw1:/cmhome/dist/fig-4>
```

---

### **Listing 2-2 Sample Script for SNACRM Component Installation on a Unix-Based Platform**

---

```
cmadm@dalhpw1:/cmhome/dist/fig-4> sh install.sh

01) hp/hpux11          02) ibm/aix43          03) sun5x/sol26
04) sun5x/sol7         05) sun5x/sol8

Install which platform's files? [01-5, q to quit, l for list]: 1

** You have chosen to install from hp/hpux11 **
```

BEA WebLogic Java Adapter for Mainframe Release 4.1

This directory contains the BEA WebLogic Java Adapter for Mainframe 4.1 for HP-UX 11.0 on 9000/800 series.

Is this correct? [y,n,q]: y

To terminate the installation at any time press the interrupt key, typically <del>, <break>, or <ctrl+c>.

The following packages are available:

1	crm	SNA Communications Resource Manager
2	jam	BEA WebLogic Java Adapter for Mainframe

Select the package(s) you wish to install (or 'all' to install all packages) (default: all) [?,??,q]: 1

SNA Communications Resource Manager  
(9000) Release 1.2  
Copyright (c) 2000 BEA Systems, Inc.  
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Distributed under license by BEA Systems, Inc.  
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Directory where SNA Communications Resource Manager files are to be installed

(Enter your directory path) [?,q]: /work/cmadm

Using /work/cmadm as the SNA Communications Resource Manager base directory

The following CRM stack support options are available:

1	hp60	SNA plus2 v6.0
---	------	----------------

Select an option [?,??,q]: 1

Determining if sufficient space is available ...  
21828 blocks are required  
2156958 blocks are available to /work/cmadm

Unloading /cmhome/dist/fig-4/hp/hpux11/crm/CRMSA.Z ...  
bin/CRMLOGS  
bin/SNACRM  
bin/bealogo.gif  
bin/crmdown

## 2 *Installing the Software*

---

```
bin/crmlkoff
bin/crmlkon
bin/hpux.env
lib/fmb.def
lib/libbuft.sl
lib/libcsxappc.sl
lib/libcsxcrm.sl
lib/libcsxgpc.sl
lib/libcsxscrm.sl
lib/libcsxxcrm.sl
lib/libcsxxfm.sl
lib/libcsxxmw.sl
lib/libctxdebugs_12.sl
lib/libctxmess_12.sl
lib/libctxos_12.sl
lib/libctxplat_12.sl
lib/libctxprim_12.sl
lib/libfml.sl
lib/libfml32.sl
lib/libgp.sl
lib/libgpnet.sl
lib/libtux.sl
lib/libtux2.sl
21370 blocks
... finished

Unloading /cmhome/dist/fig-4/hp/hpux11/crm/STKSA.Z ...
lib/libcsxhp60.sl
1610 blocks
... finished

Changing file permissions...
... finished

Installation of SNA Communications Resource Manager was successful

The following packages are available:

    1      crm                SNA Communications Resource Manager
    2      jam                BEA WebLogic Java Adapter for Mainframe

Select the package(s) you wish to install (or 'all' to install
all packages) (default: all) [?,??,q]: q

Installation terminated
cmadm@dalthpwl:/cmhome/dist/fig-4>
```

---

# Installing the SNACRM Component on an OS/390 Unix Platform

The following steps install the SNACRM on an OS/390 Unix platform. This installation is for a distributed configuration where the SNACRM resides on the mainframe in an OS/390 environment.

**Note:** This procedure assumes the installer is familiar with File Transfer Protocol (FTP) functions.

1. Load the product CD-ROM on a machine that has File Transfer Protocol (FTP) access to the OS/390 host.
2. Copy the file `os390.tar` (in binary mode) from the root directory on the CD-ROM to the working directory on the OS/390 host.
3. To extract the installation script from the `tar` file on the mainframe, use the following command:

```
tar xvfo os390.tar
```

Executing the `tar` command extracts the `install.sh` script and subdirectories containing the software to be installed from the `tar` file.

4. Execute the `install.sh` script using the following command:

```
sh install.sh
```

The installation script prompts you for responses. [Listing 2-3](#) is a sample installation. It shows the installation of the SNACRM only in a distributed configuration on an OS/390 mainframe platform. User responses are in bold.

## **Listing 2-3 Sample Script for SNACRM Component Installation on an OS/390 Unix Platform**

---

```
igor:/bea/loads/dist/fig-4: >sh install.sh

01) os390/os390r8

Install which platform's files? [01-      1 , q to quit, l for list]:
```

## 2 *Installing the Software*

---

```
1

** You have chosen to install from os390/os390r8 **

BEA eLink SNA Communications Resource Manager Release 1.2

This directory contains the BEA eLink SNA Communications Resource
Manager 1.2
for IBM OS/390 Unix R8 on IBM OS/390.

Is this correct? [y,n,q]: y

To terminate the installation at any time
press the interrupt key,
typically <del>, <break>, or <ctrl+c>.

The following packages are available:

      1      crm              SNA Communications Resource Manager

Select the package(s) you wish to install (or 'all' to install
all packages) (default: all) [?,??,q]:

SNA Communications Resource Manager
(OS390) Release 1.2
Copyright (c) 2000 BEA Systems, Inc.
All Rights Reserved.
Distributed under license by BEA Systems, Inc.
BEA eLink is a trademark of BEA Systems, Inc.

Directory where SNA Communications Resource Manager files are to be
installed
(Enter your directory path) [?,q]: /u/igor

Using /u/igor as the SNA Communications Resource Manager base
directory
Usage: expr expression

The following CRM stack support options are available:

      1      vtm28 OpenEdition MVS 390              vtm28 OpenEdition
MVS 390

Select an option [?,??,q]: 1

Determining if sufficient space is available ...
68000 blocks are required
270552 blocks are available to /u/igor
```

```
Unloading /bea/loads/dist/fig-4/os390/os390r8/crm/CRMSA.Z ...
6800 blocks
x bin/CRMLOGS
x bin/SNACRM
x bin/crmdown
x bin/crmlkoff
x bin/crmlkon
x bin/uss.env
x lib/csxappc.dll
x lib/csxcrm.dll
x lib/csxgpw.dll
x lib/csxsrm.dll
x lib/csxxcrm.dll
x lib/csxxfm.dll
x lib/csxxmw.dll
x lib/ctxdebugs_12.dll
x lib/ctxmess_12.dll
x lib/ctxos_12.dll
x lib/ctxplat_12.dll
x lib/ctxprim_12.dll
x lib/fmb.def
x lib/libbuft.dll
x lib/libfml.dll
x lib/libfml32.dll
x lib/libgp40.dll
x lib/libgpnet.dll
x lib/libtux.dll
x lib/libtux2.dll
... finished
```

```
Unloading /bea/loads/dist/fig-4/os390/os390r8/crm/STKSA.Z ...
241 blocks
x lib/csxvtm28.dll
... finished
```

```
Changing file permissions...
... finished
```

Installation of SNA Communications Resource Manager was successful

Please don't forget to fill out and send in your registration card  
igor:/bea/loads/dist/fig-4: >

---

# Installing the SNACRM Component on an OS/390 MVS Platform

This section explains how to install the SNACRM component on an OS/390 Multiple Virtual Storage (MVS) platform. This installation is for a distributed configuration where the SNACRM resides on the mainframe in an OS/390 MVS environment.

## Summary of Installation Tasks

The following list is a summary of the tasks detailed in "[Installation Procedure](#)":

- Put the JCL files in the MVS environment prior to installation, using the FTP program.
- Allocate the initial data sets, using one of the JCL jobs.
- FTP the product software files (JAM41 .xxx) to the allocated data sets.
- Run the second JCL job to allocate the final data sets.
- Run the TSO RECEIVE command to unload the data in your product data sets.  
Note that this procedure assumes you are installing the SNACRM software from the product CD-ROM mounted on a Windows NT platform. The FTP program must be available on the installation platform.

**Note:** The installation process assumes the installer is familiar with Job Control Language (JCL) job operations and File Transfer Protocol (FTP) functions.

The installation for this environment is semi-automated. Two JCL files are provided to facilitate prerequisites for allocating data sets in the MVS environment and to unload JAM product software into the allocated data sets.

The product CD-ROM contains the following files relating to this installation procedure:

- README file contains notes on how to install the product in this environment.  
This is a summary of the procedure in this section.

- `dsupload.jcl` file is a JCL example for creating MVS data sets to receive the JAM software.
- `install.jcl` file is a JCL example for unloading the JAM software.
- `JAM41.LOAD` file contains the JAM program objects. (Required)
- `JAM41.DATA` file contains JAM data files. (Required)
- `JAM41.SAMPLE` file contains sample data files and sample JCL.

## Installation Procedure

Perform the following steps to install the SNACRM component on an OS/390 MVS platform:

1. Load the product CD-ROM on a machine that has File Transfer Protocol (FTP) access to the OS/390 host.
2. Use FTP to put the following JCL files in the MVS destination PDS dataset:

```
README
dsupload.jcl
install.jcl
```

3. In your MVS environment, change the `DSUPLOAD` job to suit your environment. This job allocates the initial data sets needed to receive the product software files from the FTP file transfer.

Use the `SET` statements in the `DSUPLOAD` job to set the high-level qualifiers of the receiving datasets.

```
SET BEAHLQ=[QUALIFIER]
```

Where `[DATASET]` is a high-level qualifier used to create the data sets.

The `DSUPLOAD` job has the following steps:

```
DELOLD
```

Deletes any existing data sets previously created so you can run this JCL multiple times, if necessary. To run this step, remove the `RESTART` parameter in the job information.

```
CREATE
```

Allocates the initial data sets needed to receive the product software files.

4. Run the DSUPLOAD job.
5. Put the files listed in [Table 2-1](#) into their corresponding data sets. Use the table as a worksheet and fill in the names you created in step 3. Use the worksheet as a guide for transferring the product data to the OS/390 platform.

**Table 2-1 MVS Installation Product Files and DD Name Data Sets**

Product File	Set Statement	Your Dataset Name
JAM41 .LOAD	BEAHLQ	.LOAD
JAM41 .DATA	BEAHLQ	.DATA
JAM41 .SAMPLE	BEAHLQ	.SAMPLE

6. From the Unix/NT command prompt, set binary data transfer mode using the FTP program.

Example of a PUT command:

```
PUT JAM41 .LOAD 'BEA.JAM41 .LOAD'
```

Transfer the data sets using the put command.

7. In your MVS environment, change the INSTALL job to suit your environment.

Use the SET statements to alter the job for your environment.

```
SET SMSHLQ=[QUALIFIER]
```

Where [QUALIFIER] is the high-level qualifier for the SNACRM Load Library. The load library containing the JAM41 .LOAD program objects must be a Partitioned Data Set with Extended attributes (PDSE). The PDSE minimally must have storage class SMS declaration for OS/390 v2.8.

```
SET HLQ=[QUALIFIER]
```

Where [QUALIFIER] is the high-level qualifier for the sample and data datasets. These are standard PDS.

```
SET SCLASS=[CLASS NAME]
```

Where [CLASS NAME] is the storage class name of the PDSE. This is required for OS/390 v2.8.

The `INSTALL` job has the following steps:

**DELOLD**

Deletes any existing data sets created by the `INSTALL` job so you can run this JCL multiple times, if necessary. To run this step, remove the `RESTART` parameter in the job information.

**CREATE**

Creates the MVS data sets for you.

This step includes the minimal JCL needed to create the data sets for OS/390 v2.8. You may change the JCL to reflect your own environment.

8. Run the `INSTALL` job.

Use the following table as a worksheet to fill out the names of the datasets created in this step.

**Table 2-2 Set Statements and Corresponding Datasets**

Set Statement	Your Dataset Name
<code>SMSHLQ</code>	<code>.LOAD</code>
<code>BEAHLQ</code>	<code>.DATA</code>
<code>BEAHLQ</code>	<code>.SAMPLE</code>

9. Enter the `TSO RECEIVE` command to unload the data in your installation data sets created in Step 8. For example, enter the following command:

```
TSO RECEIVE INDS('xxx')
```

When prompted, enter:

```
DA("YY")
```

where:

`xxx`

Is the dataset name you listed in [Table 2-1](#).

`YY`

Is the corresponding dataset name you listed in [Table 2-2](#).

# Installing the Software on a Windows NT Platform

Complete the following steps to install the JAM software on a Windows NT system.

1. Insert the product CD-ROM into your drive and click on the **Run** option from the **Start** menu. The **Run** window displays. Click the **Browse** button to select the CD-ROM drive. Select the `winnt` folder, then select the `Setup.exe` file. Click **OK** to run the executable and begin the installation. The **Welcome** screen displays as shown in Figure 2-1. Click **Next** to continue.

**Figure 2-1 Welcome Screen**



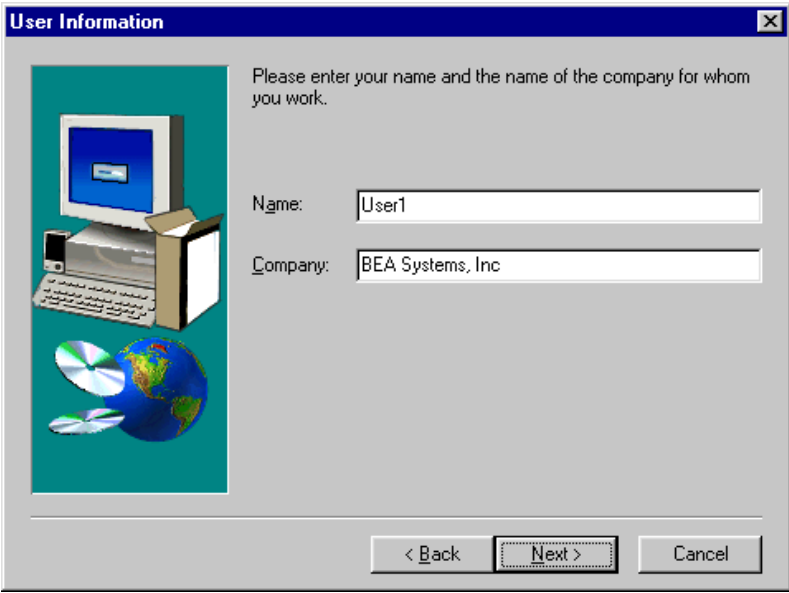
2. When the **BEA Software License Agreement** displays as shown in Figure 2-2, click **Yes** to accept the terms of the agreement and continue with the product installation. Click **No** to exit the installation process.

**Figure 2-2 BEA Software License Agreement**



3. When the **User Information** screen, shown in Figure 2-3, displays after the License Agreement, enter the name of the eLink Platform System Administrator in the **Name** field. Enter the name of your company in the **Company** field. Click **Next** to continue with the installation.

**Figure 2-3 User Information Screen**

A screenshot of a Windows-style dialog box titled "User Information". The dialog has a blue title bar with a close button (X) in the top right corner. On the left side, there is a graphic showing a computer monitor, a tower unit, a keyboard, and a CD-ROM. To the right of the graphic, the text "Please enter your name and the name of the company for whom you work." is displayed. Below this text are two text input fields. The first field is labeled "Name:" and contains the text "User1". The second field is labeled "Company:" and contains the text "BEA Systems, Inc". At the bottom of the dialog, there are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".

**User Information**

Please enter your name and the name of the company for whom you work.

Name:

Company:

< Back **Next >** Cancel

4. When the **Select Components** screen (shown in Figure 2-4) displays after the **User Information** screen, select the components you want to install; clear the components you do not want to install.

**Figure 2-4 Select Components Screen**



5. When the **Choose Destination Location** screen displays as shown in Figure 2-5, enter the directory where you want the software installed and click **Next**.

**Note:** The **Choose Destination Location** screen will display for each component you select to install.

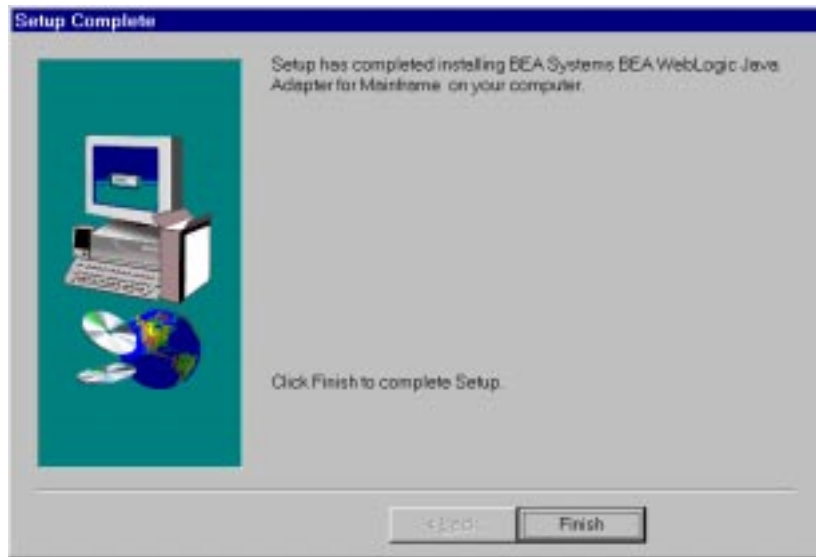
**Figure 2-5 Choose Destination Location Screen**



6. When the **Installation Progress** screen displays, indicating the progress of the installation of files, the quantity of read operations from the CD-ROM, the available disk space being used, and the completion percentage of the installation process. When the bar displays 100%, the installation has completed. You may abort the installation process anytime prior to completion by clicking the **Cancel** button.

7. The **Setup Complete** Screen will display, indicating the eLink software has been successfully installed on your platform. Click **Finish** to exit the installation process. See Figure 2-6.

**Figure 2-6 Setup Complete Screen**



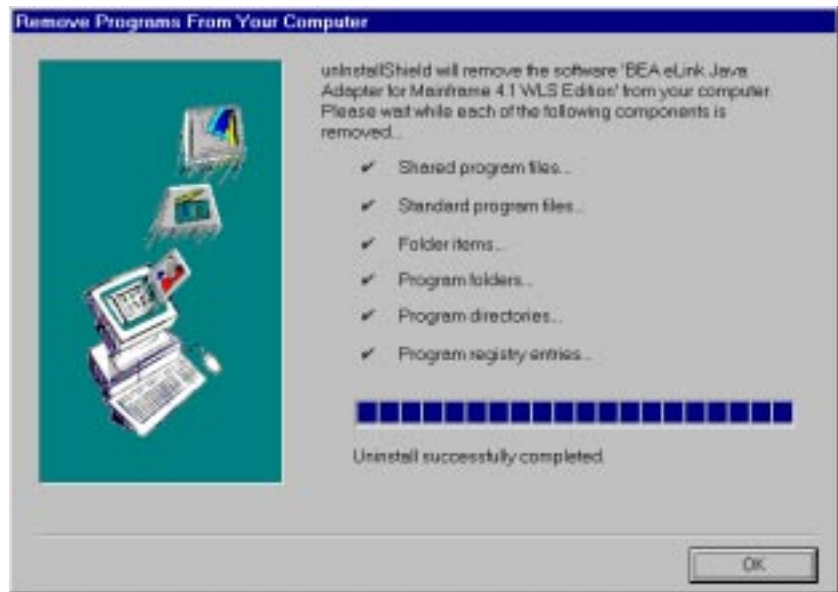
## Uninstalling Java Adapter for Mainframe on Windows NT

Complete the following steps to uninstall JAM on a Windows NT system.

1. Click the **Start** button, and then point to **Settings**. Point to the folder that contains **Control Panel**, and then click **Control Panel**.
2. Double-click on the **Add/Remove Programs** option from the **Control Panel** listings to access the **Add/Remove Programs Properties** window.
3. In the **Add/Remove Program Properties** window, select **eLink Java Adapter for Mainframe 4.1, JAM Edition** from the program list and click the **Add/Remove** button.

4. When the message box asks if you are sure you want to completely remove the software and its components, click **Yes** to continue with uninstalling. Click **No** to cancel uninstalling.
5. The uninstall process for JAM begins. As shown in Figure 2-7, the **Remove Programs From Your Computer** screen displays. Click **OK** to complete the uninstall process.

**Figure 2-7 Remove Programs From Your Computer Screen**



# Verifying Installation Files and Directories

The JAM CD-ROM contains the following libraries and executable programs for each of the following installation scenarios and their supported platforms. After installing the JAM software, verify that these libraries and programs are installed on your system.

## JAM Installation

All directories are relative to the installation directory. Platform specific stack abstraction libraries are included in these tables as well.

### Solaris

Verify that the following JAM files are installed by the JAM software:

**Table 2-3 Solaris Installation Files and Directories**

Directory	Files
bin	jsnacrm.html jsnacrm.jar moncrm.jar moncrm.x509 egencobol
lib	jam.jar ebase.jar
classdocs	jamdocs.jar
examples	samples.jar

**AIX**

Verify that the following JAM files are installed by the JAM software:

**Table 2-4 HP-UX Installation Files and Directories**

Directory	Files
bin	jsnacrm.html jsnacrm.jar moncrm.jar moncrm.x509 egencobol
lib	jam.jar ebase.jar
classdocs	jamdocs.jar

**HP-UX**

Verify that the following JAM files are installed by the JAM software:

**Table 2-5 HP-UX Installation Files and Directories**

Directory	Files
bin	jsnacrm.html jsnacrm.jar moncrm.jar moncrm.x509 egencobol
lib	jam.jar ebase.jar
classdocs	jamdocs.jar

## Windows NT

Verify that the following JAM files are installed by the JAM software:

**Table 2-6 Windows NT Installation Files and Directories**

Directory	Files
bin	jsnacrm.html jsnacrm.jar moncrm.jar moncrm.x509 egencobol.cmd
lib	jam.jar ebase.jar
classdocs	jamdocs.jar

## Examples Directories and Files

The following directories and files are included in the examples installation directory. These files are used in examples described in the *BEA WebLogic Java Adapter for Mainframe User Guide*.

**Table 2-7 Examples Directories and Files**

Directory	Files
examples/common	CICS.RDO DPLDEMO DPLDEMOR DPLDEMOU DPLDEMOD EMPREC
examples/servlet	README servlet.script
examples/ejb	README ejb.script

**Table 2-7 Examples Directories and Files**

Directory	Files
examples/standalone	README standalone.script
examples/inbound/loopback	README CICS.RDO LBDPLOUT LBDPLIN inbound.script
examples/inbound/TDQueue	README CICS.RDO DPLINIT DPLSERVER inbound.script

## Distributed SNACRM Installation

Verify that the following SNACRM platform files are installed on your system.

All directories are relative to the specified installation directory. Also included are the eLink Platform libraries that will ship with the standalone SNACRM. For encryption purposes, the `libgp` that is shipped will be the one enabled for 40-bit encryption.

## Solaris

Verify that the following SNACRM platform files are installed by the JAM software:.

**Table 2-8 Solaris Installation Files and Directories**

Directory	Files
bin	CRMLOGS SNACRM crmlkon crmlkoff crmdown bealogo.gif solaris.env
lib	fmb.def libbuft.so libcsxappc.so libcsxcrm.so libcsxgpw.so libcsxsrm.so libcsxxcrm.so libcsxxfm.so libcsxxmw.so libctxdebugs_12.so libctxmess_12.so libctxos_12.so libctxplat_12.so libctxprim_12.so libfml.so libfml32.so libgp.so libgpnet.so libtux.so libtux2.so

**HP-UX**

Verify that the following SNACRM platform files are installed by the JAM software.

**Table 2-9 HP-UX Installation Files and Directories**

Directory	Files
bin	CRMLOGS SNACRM crmlkon crmlkoff crmdown bealogo.gif hpux.env
lib	fmb.def libbuft.sl libcsxappc.sl libcsxcrm.sl libcsxgpw.sl libcsxscrm.sl libcsxxcrm.sl libcsxxfm.sl libcsxxmw.sl libctxdebugs_12.sl libctxmess_12.sl libctxos_12.sl libctxplat_12.sl libctxprim_12.sl libfml.sl libfml32.sl libgp.sl libgpnet.sl libtux.sl libtux2.sl

## OS/390 Unix

Verify that the following SNACRM platform files are installed by the JAM software.

**Table 2-10 OS/390 Installation Files and Directories**

Directory	Files
bin	crmlkoff crmlkon CRMLOGS SNACRM crmdown uss.390
lib	fmb.def ctxmess_12.dll ctxdebugs_12.dll ctxos_12.dll ctxprim_12.dll ctxplat_12.dll csxappc.dll csxxfm.dll csxxmw.dll csxgpw.dll csxcrm.dll csxxcrm.dll csxscrm.dll csxvtm28.dll libbuft.dll libgp40.dll libgpnet.dll libfml.dll libfm132.dll libtux.dll libtux2.dll

**OS/390 MVS**

Verify that the following SNACRM platform files are installed by the JAM software.

**Table 2-11   HP-UX Installation Files and Directories**

Directory	Files
misc	README DSUPLOAD INSTALL
load library	CRMLOGS SNACRM CRMLKON CRMLKOFF CSXAPPC CSXFR CSXXMW CSXGPW CSXCRM CSXXCRM CSXSCRM CSXVTM28 CRMDOWN MESS DEBUGS OS PRIM PLAT
data library	FMB ENV
sample library	SNACRM CRMLOGS CRMLKON CRMLKOFF CRMDOWN

## Windows NT

Verify that the following SNACRM platform files are installed by the JAM software

**Table 2-12 Windows NT Installation Files and Directories**

Directory	Files
bin	bealogo.gif crmlkoff.exe crmlkon.exe crmlogs.exe crmdown.exe csxappc.dll csxcrm.dll csxgpw.dll csxibm60.dll csxms40.dll csxscrm.dll csxxfm.dll ctxdebugs_12.dll ctxmess_12.dll ctxos_12.dll ctxprim_12.dll ctxplat_12.dl ntenv.bat libgp.dll libgpnet.dll libfml.dll libfml32.dll libtux.dll libtux2.dll libbuft.dll
lib	fmb.def

# Setting Up the License Key

After you install the JAM software, you need to set up your license key. As a prerequisite for using the JAM license key, WebLogic Server and the WebLogic Process Integrator must be installed and operational. The license files for WebLogic Server and WebLogic Process Integrator are XML-based and reside in the `server/license` directory in your WebLogic Process Integrator installation. The WebLogic Server license file is `WebLogicLicense.xml`. You must append the license key for the JAM software to the BEA license file, `license.bea`, to enable the connection capabilities for your system. Refer to your BEA WebLogic Server and BEA WebLogic Process Integrator documentation for more information about their respective license files.

**Note:** If you are not integrating with WebLogic Process Integrator, disregard instructions and examples pertaining to WebLogic Process Integrator.

The directory where the BEA license file resides is specified by one of the following:

- `bea.home` system property, which is set by:

Using the Java `-D` command line option when you start WebLogic Server, or

Modifying the `weblogic.properties` file to add:

```
java.system.property.bea.home=<directory containing  
license.bea file>
```

- `CLASSPATH`.

In addition to appending the JAM license key, you must place a set of JAM jar files in your `CLASSPATH` so that the JAM software can be used.

## Appending the License Key to the BEA License File

To enable the JAM license key, you must append the license key file provided with the JAM product software to the BEA license file (`license.bea`). This can be done automatically by answering a query at JAM installation time, or it can be done manually as shown in the steps below.

**Caution:** Do not alter any information within sections of the license key files. This is a violation of the BEA Systems licensing agreement. Doing so may disable JAM and/or additional components.

Perform the following steps to use the license key.

1. With the text editor of your choice, open the BEA license file in `server/license/license.bea`. An example of this file follows.

### Listing 13 Sample BEA License File

---

```
<!--
! license.bea
!BEA product software license file.
!-->

<bea-licenses>

  <license-group
    format="1.0"
    product="wlpi"
    release="1.0">

    <license
      component="WebLogic Process Integrator"
      expiraton="2001-12-31"
      id="001-0001-02A
      licensee="Sally GoodUser"
      type="normal"
      users="200"
      cpus="10"
      ip="*"
      signature="MCwC88hbwQK9aANkMvdkworeigNr"
    />

  </license-group>
</bea-licenses>
```

---

2. Append the JAM group portion of the JAM license key file to the BEA license file. Following is an example of the JAM license key appended to the BEA license file with the JAM license key portion highlighted in bold.

### **Listing 14 Sample BEA License File with JAM License Key Appended**

---

```
<!--
! license.bea
!BEA product software license file.
!-->

<bea-licenses>

  <license-group
    format="1.0"
    product="wlpi"
    release="1.0">

    <license
      component="WebLogic Process Integrator"
      expiraton="2001-12-31"
      id="001-0001-02A"
      licensee="Sally GoodUer"
      type="normal"
      users="200"
      cpus="10"
      ip="*"
      signature="MCwC88hbWQK9aANkMvdkworeigNr"
    />

  </license-group>

  <license-group
    format="1.0"
    product="jam"
    release="4.1">

    <license
      component="JAM CRM Gateway"
      expiraton="2001-12-31"
      id="001-0001-01A"
      licensee="Sally GoodUer"
      type="normal"
      users="200"
      cpus="10"
      ip="*"
      signature="ABCQ6d9AhRd4dTUYHuLM72"
    />

  </license-group>
</bea-licenses>
```

---

3. Save the file and exit the text editor. Your license key is now in effect.

## Setting the CLASSPATH

The following JAM `jar` files should be placed on the CLASSPATH in order for the JAM license key and JAM to work:

- `lib/jam.jar`
- `lib/ebase.jar`

