

# Installation Procedure for z/OS

- Important Information
  - Overview
  - Actions Required Before Starting the Install
  - Installation Steps
  - Use the Runtime from the Browser UI
- 

## Important Information

The Software AG Installer (download center) has limited support for z/OS at present. However, the installation (and activation) of the z/OS software is downloaded along with all other platforms. Here are some useful points to help you understand the process overall:

- The install image must be downloaded to one of the other supported platforms (Windows or Unix for example).
- There is a special z/OS activation step that has to run in the download platform (off-host).
  - This step guides you through the FTP process to load the z/OS software into the z/OS system.

## Overview

Data Archiving for Adabas is a fully portable technology. It runs in all primary Unix systems, Windows and also in z/OS. There is only one code-base rather than one code-base for open systems and another for mainframe. Data Archiving for Adabas uses the openness of z/OS by running within a USS process within z/OS.

### **Note:**

This is not the same as running in a z/Linux partition.

IBM's z/OS has embedded Unix System Services (USS) within it. This is part of the ongoing modernization that has been happening to the operating system in recent years. This means z/OS is able to embrace modern technologies that in the past were considered only for off-host (outside the mainframe).

When running in z/OS, Data Archiving for Adabas uses normal z/OS Adabas databases, not a special "Unix like" Adabas. This is because systems running with USS can also interact with normal z/OS resources at the same time.

## Actions Required Before Starting the Install

During the install you must identify the configuration file. Please refer to the section Installation Planning and Preparation for information on how to manage that part of the installation.

Before the installation you must:

- Create Data Set for ADR Load Library
- Create Site-Based Adabas Link Routine (ADALNKR)
- Establish Access to the Browser User Interface
- Some Useful Information about USS (OMVS)

## Create Data Set for ADR Load Library

The ADR install requires that you construct a load library with the following specific attributes:

```
DCB=(BLKSIZE=23200,RECFM=U)
```

Example dataset name: *SAG.ADR111.LOAD*

## Create Site-Based Adabas Link Routine (ADALNKR)

Make a site-based ADALNKR with the appropriate SVC number for your site. Make it available in the z/OS dataset mentioned above. LNKGBLS must be linked in with your ADALNKR in this library.

Make sure ADALNKR is fully maintained.

Here is some example JCL...

```
//LNKRGBLS JOB CLASS=G,MSGCLASS=X
//* ----- *
//* Assemble LNKGBLS - reentrant - *
//* ----- *
//GBLSWLS EXEC ASMACL,
//      PARM.C='ASA,NODECK,OBJECT,XREF(SHORT),TERM',
//      PARM.L='XREF,LIST(ALL),LET,MAP,NCAL'
//C.SYSLIB      DD DISP=SHR,DSN=SAG.ADA822.SRCE
//              DD DSN=SYS1.MACLIB,DISP=SHR
//              DD DSN=SYS1.MODGEN,DISP=SHR
//C.SYSPRINT    DD SYSOUT=*
//C.SYSTEM     DD SYSOUT=*
//C.SYSIN      DD *
*
*      Global definitions for the Adabas link routine
*      for Batch/TSO.
*      Modify this sample for your site.
*      Then assemble and link it and include the
*      resulting module with ADALNK8 to create the ADALNKR
*      for use with ADR in z/OS.
*
*      LGBLSET LOGID=1,          DEFAULT ADABAS DBID          X
*              SVCNO=252,      DEFAULT ADABAS SVC NUMBER    X
*              OPSYS=ZOS,      Operating system            X
*              COR=NO,         Activate System Coordinator   X
*              TPMON=BAT,      Batch/TSO                    X
*              RENT=YES,       Non-reentrant for Batch/TSO   X
*              GEN=CSECT,      Generate CSECT for load module X
*              GBLNAME=LNKGBLS, DEFAULT GLOBALS MODULE NAME X
*              USERX1=NO,     Link user exit 1 YES/NO       X
*              LX1NAME=UEXITB, User exit 1 module name       X
*              USERX2=NO,     Link user exit 2 YES/NO       X
```

```

                LX2NAME=UEXITA,      User exit 2 module name          X
                UES=YES             Enable UES
*
                END
//L.SYSPRINT DD SYSOUT=*
//L.SYSLMOD DD DISP=SHR,DSN=SAG.ADR111.LOAD
//L.SYSIN DD *
MODE AMODE(31),RMODE(ANY)
ENTRY LNKGBLS                      Default entry name
NAME LNKGBLS(R)                   DEFAULT TABLE NAME
//*
/* ----- *
/* LINK ADALNKR with LNKGBLS      - *
/* ----- *
//LINKA8Y EXEC PGM=IEWL,
//      PARM='LET,LIST(ALL),MAP,XREF,REUS=RENT',REGION=4M
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=&&SYSUT1,SPACE=(1024,(120,120),,ROUND),UNIT=VIO
//ADALIB DD DISP=SHR,DSN=SAG.ADA822.LOAD
//SYSLMOD DD DISP=SHR,DSN=SAG.ADR111.LOAD
//SYSLIN DD *
MODE AMODE(31),RMODE(ANY)
INCLUDE ADALIB(ADALNKR8)           /* V8 LINK ROUTINE */
INCLUDE SYSLMOD(LNKGBLS)
INCLUDE ADALIB(LNKUES)
INCLUDE ADALIB(ASC2EBC)
INCLUDE ADALIB(EBC2ASC)
ENTRY ADABAS
NAME ADALNKR(R)
/*
//

```

## Establish Access to the Browser User Interface

Data Archiving for Adabas uses the UI provided by System Management Hub. The UI *cannot* be installed in z/OS. It must therefore be installed in another platform and be available for use before the ADR runtime installation can be started.

The user interface to Data Archiving for Adabas is the same for all operating systems. You use the UI to operate, configure and monitor your archiving environment throughout your network. The most common approach is to install and use the UI on a Windows platform.

## Some Useful Information about USS (OMVS)

### Activating OMVS (USS: Unix System Services) in z/OS

OMVS is usually available within z/OS by default because many other software components from other vendors (including IBM) use it. If it is not available, you can use the following information to make it available:

- When z/OS is first installed and configured a RACF (or equivalent) basic user called IBMUSER is defined. The IBMUSER is automatically defined with an OMVS segment. It is an OMVS segment that enables a user to use OMVS (USS).
- Therefore, your RACF or equivalent systems such as ACF2, TOP SECRET etc. (please consult the appropriate documentation of these other systems for similar information) administrator needs to add an OMVS segment to all users who are to use OMVS, including the person who will be doing the

ADR install.

- An OMVS segment contains the following:

- UID.

A numeric UID like in any other Unix system. This UID represents one sharable Unix that one or more userids may be able to use. There may be many more OMVS systems (UID) defined for your system.

- Home directory.

Something like /u/nat/xyz

- A shell program.

This is essentially Unix (the korn shell), often called “ksh” in the Unix community. An example of this may be: /bin/sh

- Maximum size.

This is akin to address-space size. It may be allowed to default. It is not unusual for a Unix OMVS to be 128-512 meg.

- In RACF the command to add such a segment would be...

```
ALU <userid> OMVS (UID(1234) HOME ('/u/nat/xyz') PROGRAM ('/bin/sh')
```

This command needs to be entered using a tool that supports mixed case (such as TSO ISPF/PDF/Option 6).

- Next, a Unix group should be assigned to the <userid>. Again, this is a numeric and is referred to as "GID". A normal RACF "connect" command can be used to do this.

A GID can be assigned to a RACF group with...

```
ALG <group> OMVS(GID(nn))
```

- The home directory needs to be created in the filesystem (HFS, ZFS etc).

## Getting into OMVS via TSO

Once the permissions, home directory etc. are acquired, there are two typical ways to get into OMVS. One is through TSO. Get into TSO and issue the OMVS command and press Enter.

```

The F Machine - Entire Connection Terminal
-----
Menu List Mode Functions Utilities Help
-----
                                ISPF Command Shell
Enter TSO or Workstation commands below:

==> OMVS_

Place cursor on choice and press enter to Retrieve command

```

```

The F Machine - Entire Connection Terminal
-----
Session Edit View Utilities Window Help
-----
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Disclosure restricted by GSA-ADP schedule contract with IBM Corp.

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-----
- Welcome to Software AG's Unix System Services Shell -
----- OS/390 DA3F 19.00 03 2098 -----

The system DA3F was upgraded to z/OS 1.9. Java 2 SDK 5 is available
in /usr/lpp/java (31 & 64 Bit), Java 1.3 in /usr/lpp/java/IBM.

Bernhard Dolderer    15-December-2008

Executing SAG.login
Executing /u/saguk/ukrje/.profile
$
==>

RUNNING
ESC=Å  1=Help    2=SubCmd    3=HlpRetrn  4=Top        5=Bottom    6=TSO
        7=BackScr  8=Scroll    9=NextSess 10=Refresh   11=FwdRetr  12=Retrieve

```

## Getting into OMVS via Telnet

You can get to OMVS like any other Unix system from outside z/OS using telnet. Enter the following at your workstation:

```
telnet <computer> <port>
```

This will enable access into the OMVS Unix at the same point as entering “OMVS” in TSO.

### Entering Unix Commands

Once in OMVS, you will be able to use all the usual Unix directives:

Directive	Description
cd	Change directory
mkdir	Make directory
chmod	Set protection
chown	Set owner
chgrp	Change group
ls -la	Display directory contents

## Installation Steps

This section describes the steps required to install Data Archiving for Adabas for z/OS.

### Important:

Please read the Installation Preparation Checklist (below) before starting with the installation.

- Installation Preparation Checklist
- Step 1: Use Software AG Installer to Acquire the Software
- Step 2a: Perform the Off-host Activation (FTP) in Windows or Unix

### Installation Preparation Checklist

There are a number of things that need to be done prior to installing. These have been covered in the preceding sections and are summarized here as a checklist to help you ensure the installation is successful:

#### Installation Preparation Checklist

Step	Description	Notes
1	<p>Check the system name and hostname of the z/OS machine where the software is being installed:</p> <ul style="list-style-type: none"> <li>● the system name and hostname must be the same</li> <li>● the hostname must resolve to the correct IP address</li> </ul>	<p>Use the <code>uname</code> command to acquire the system name:</p> <pre>da3f:saguser&gt; uname -a OS/390 DA3F 20.00 03 2098</pre> <p>Use the <code>onslookup</code> command with the system name to acquire the hostname and IP address:</p> <pre>da3f:saguser&gt; onslookup DA3F Defaulting to nslookup version 4 Starting nslookup version 4 Server: daedns.ad.sag Address: 10.20.xxx.xxx  Name:    DA3F.hq.sag Address: 10.20.xxx.xxx</pre>
2	<p>Check the amount of free disk space available in the directory in the USS filesystem where the software is being installed.</p> <p>Minimum disk space: 300 MB</p>	<p>Use the <code>df</code> command to see the amount of free space available:</p> <pre>da3f:saguser&gt; df -k /opt/softwareag</pre>
3	<p>Check the amount of memory (region size) available to a process running in the USS environment.</p> <p><b>Note:</b> If you use USS via TSO (OMVS) then the size of your TSO session governs the size of the USS session.</p> <p>Minimum memory: 64 MB</p>	<p>Minimum memory: 64 MB</p>
4	<p>User ID and password for the USS account that will be used to install and run the software.</p> <p>Make sure that the account has read/write and execute permissions to the installation directory in the USS filesystem (from Step 2 above).</p>	<pre>User ID: saguser Password: ***** Permissions:</pre>

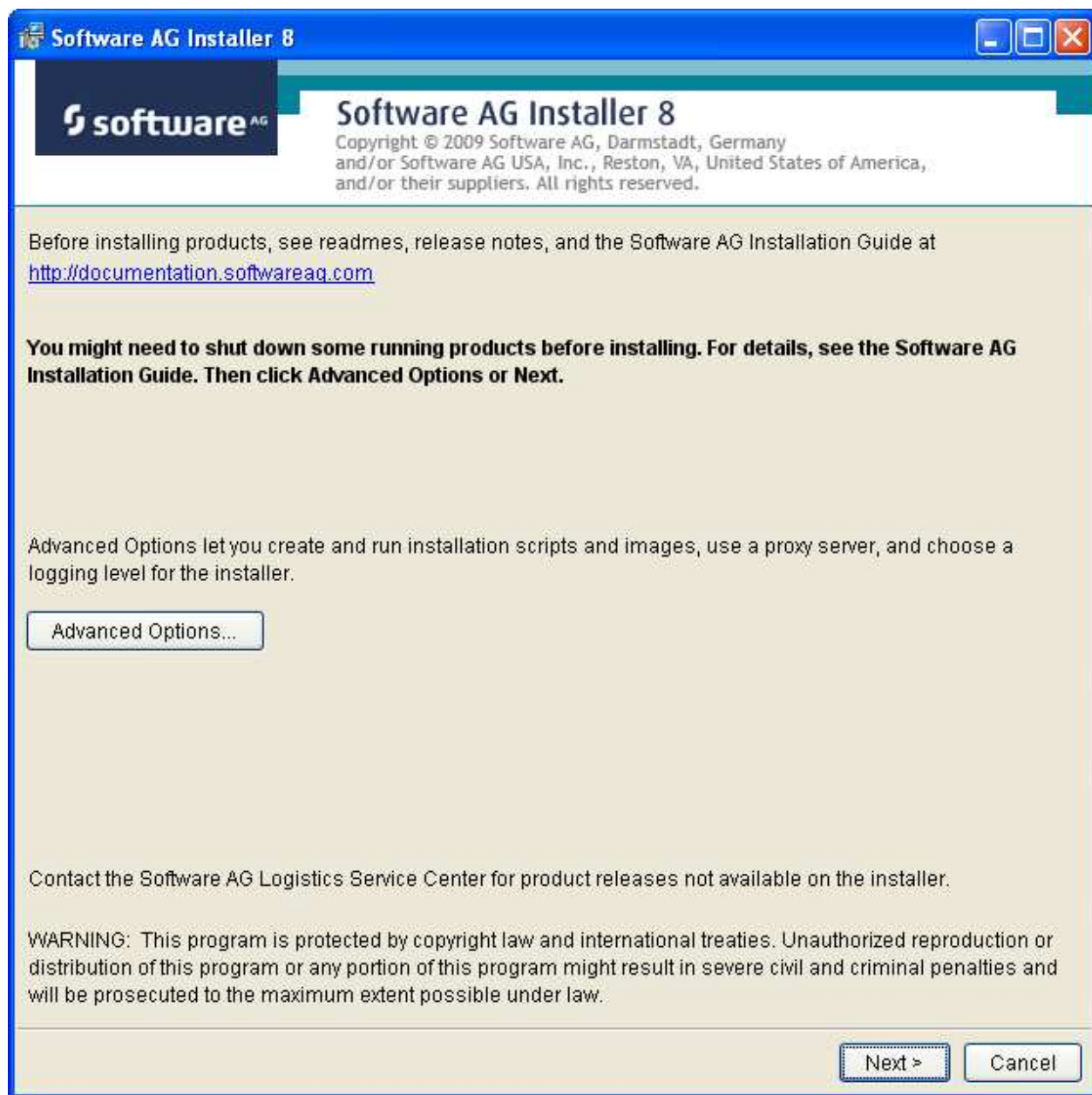
Step	Description	Notes
5	<p>Check that the USS account (from Step 4 above) has the correct z/OS security permissions for the dataset where the ADALNKR/LNKGBLS were prepared earlier.</p> <p><b>Note:</b> The load library dataset must not be in use by any other process.</p>	<p>Dataset: <i>SAG.ADRvrl.LOAD</i> Permissions:</p>
6	<p>Adabas database and file number for the Configuration File.</p> <p>This can be a file that will be created or replaced as part of the installation, or it can be an existing file shared by another computer already running Data Archiving for Adabas.</p> <p>If the file is being shared by another computer, the hostname of the computer and its Group Services port number will be required (default 53376).</p>	<p>Database: 10 File number: 120</p> <p>Choose one of:</p> <ul style="list-style-type: none"> <li>● create</li> <li>● replace</li> <li>● share</li> </ul> <p>When choosing share you will be prompted for:</p> <p>Hostname: <i>sunpcc10.hq.sag</i> Portnumber: <i>53376</i></p>
7	<p>Download location. This is the non-z/OS computer where you either download directly or placed the software distribution image.</p> <p><b>Note:</b> Installations are much faster if you use a local disk on the download computer.</p>	<p>Example:</p> <p><i>C:\SoftwareAG\Temp</i></p>



Step	Description	Notes
8	<p>Details for the FTP upload of the z/OS software because the software must be uploaded to z/OS. The following information is needed:</p> <ul style="list-style-type: none"> <li>● Hostname of z/OS (from 1 above)</li> <li>● User ID (from 4 above)</li> <li>● Password (from 4 above)</li> <li>● Temporary target upload directory</li> </ul> <p>Software AG recommends the target directory for the upload is different to the location where the software will finally be installed, since the FTP is only a temporary step. Typically, this is a temporary directory in the user's home directory.</p> <p>Check the amount of free disk space available in the target directory.</p> <p>Minimum upload disk space: 30MB</p>	<p>Hostname: <i>da3f.hq.sag</i>  User ID: <i>saguser</i>  Password: <i>*****</i>  Directory: <i>/u/saguser/tmp</i></p> <p>The <code>df</code> command shows the amount of free space available:</p> <pre>da3f:saguser&gt; df -k /u/saguser/tmp</pre>

## Step 1: Use Software AG Installer to Acquire the Software

On the Software AG Installer Welcome Screen, click Next to start the installation.



Identify yourself to the Installer by logging in with your credentials as shown below. Click Next to proceed to the next step:

Software AG Installer 8

**software AG** **Software AG Installer 8**  
Copyright © 2009 Software AG, Darmstadt, Germany  
and/or Software AG USA, Inc., Reston, VA, United States of America,  
and/or their suppliers. All rights reserved.

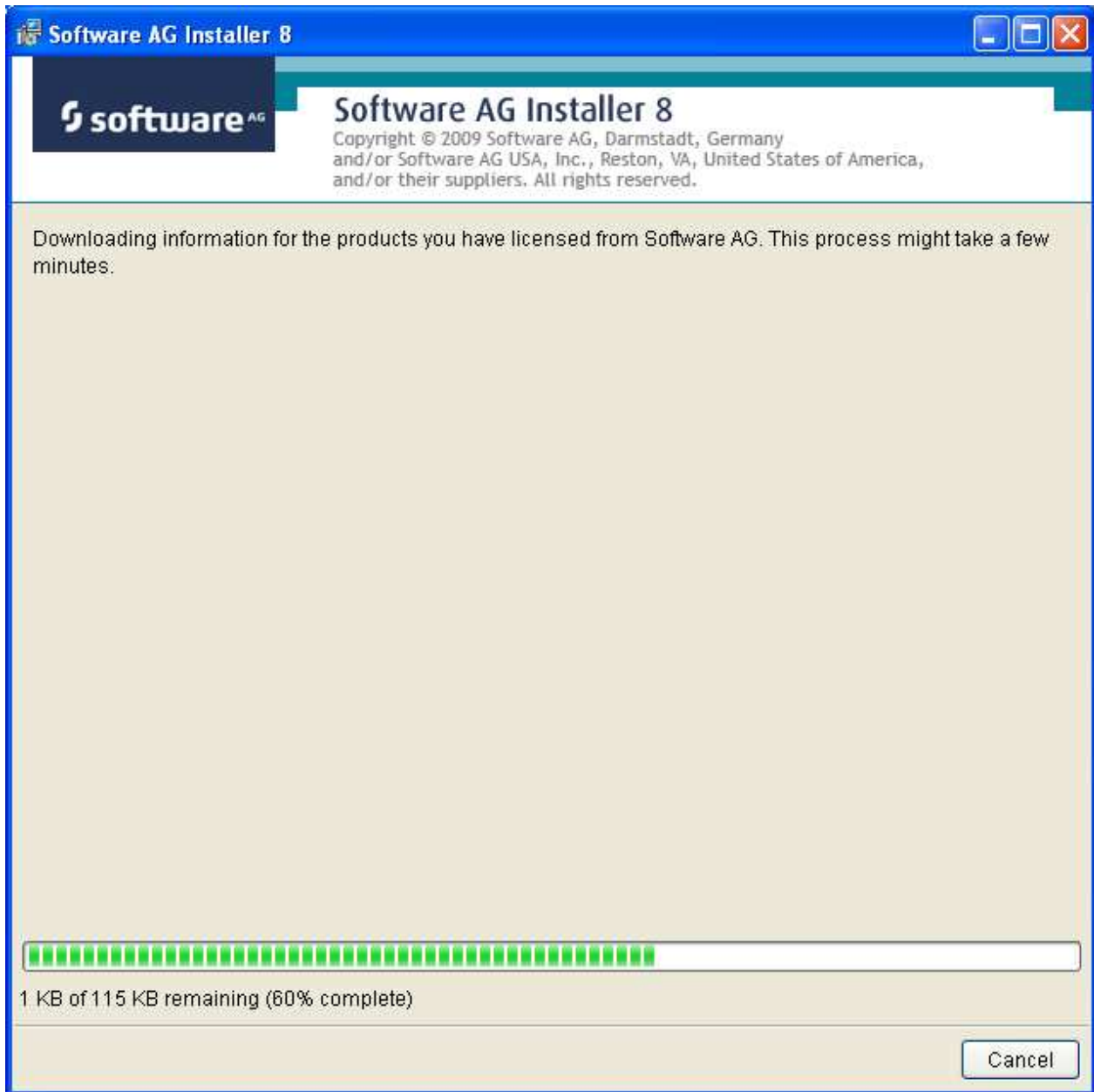
The user name and password are case sensitive.

User name:

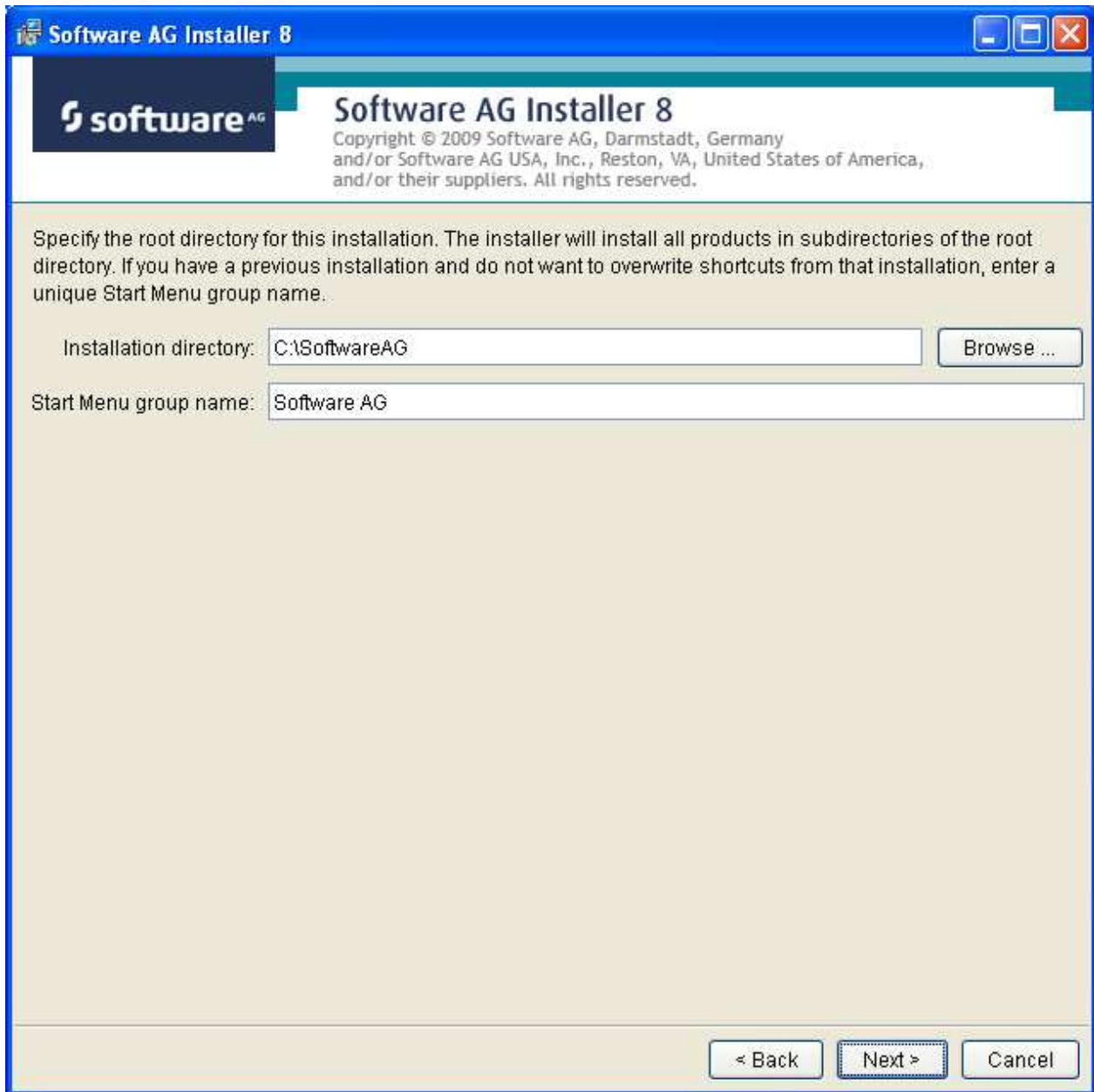
Password:

< Back    Next >    Cancel

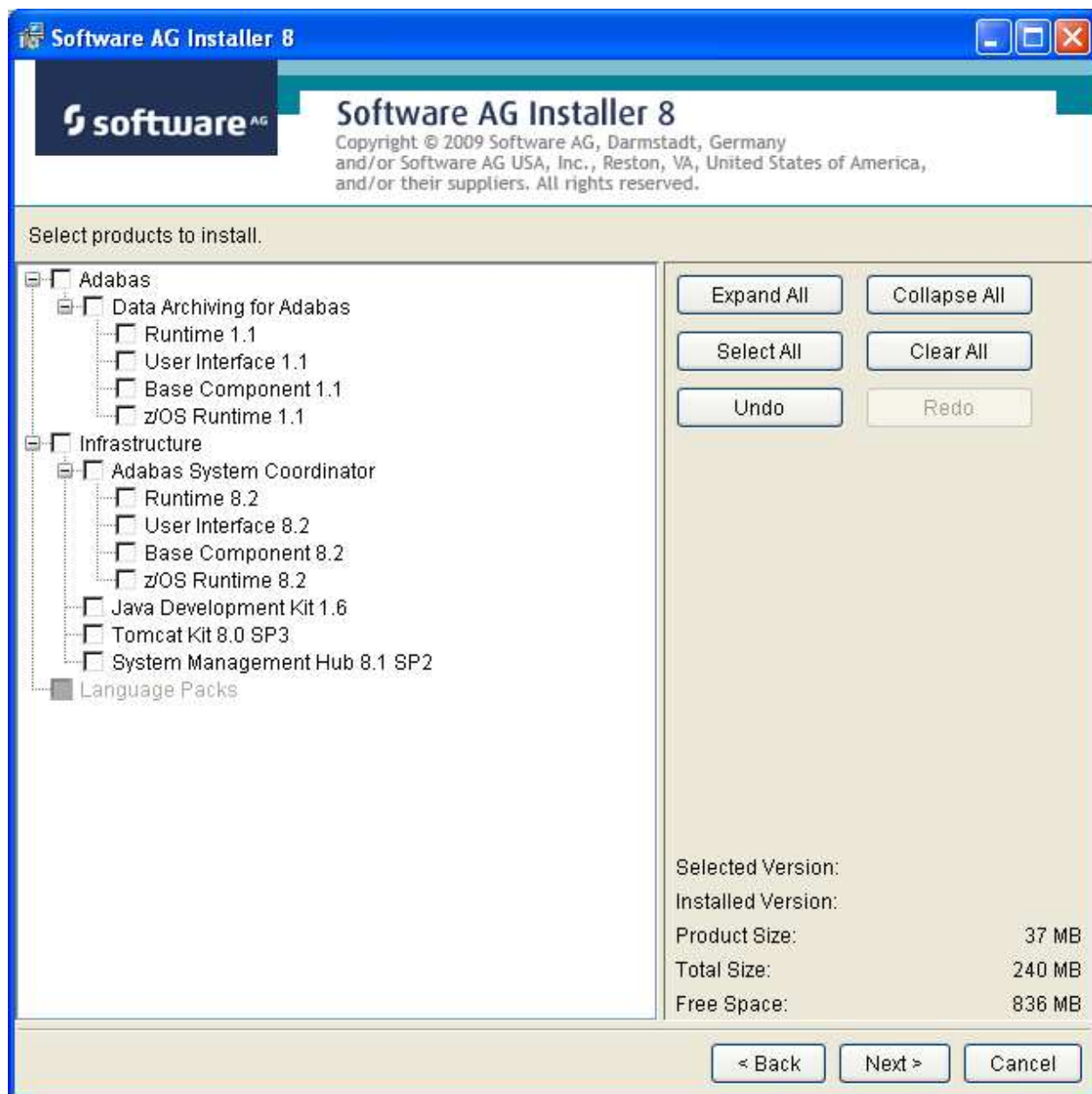
The Installer acquires information about a) all the products for which you are licensed and b) are able to be installed using the Installer. You can see this happening (below). It may take a few minutes:



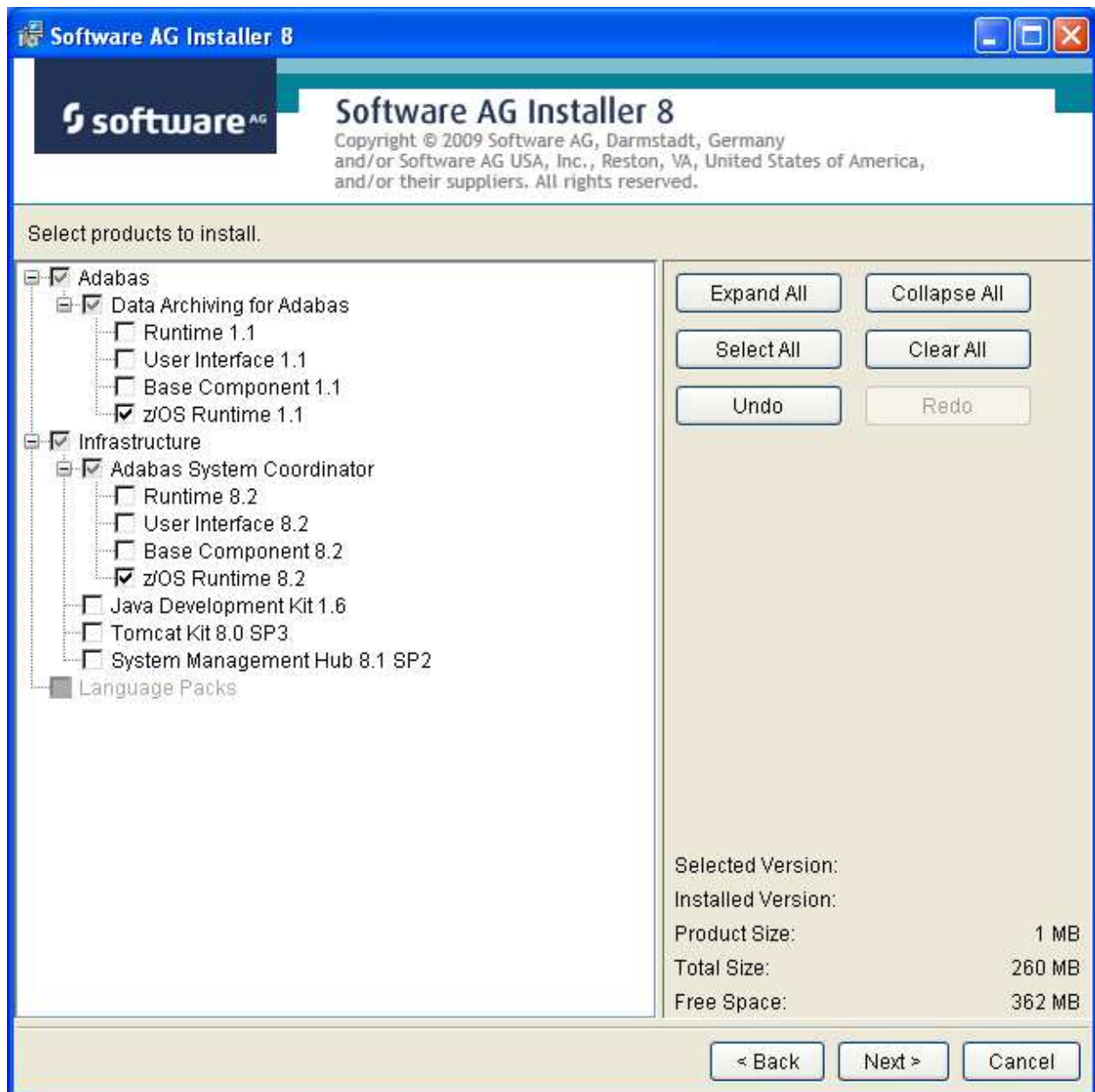
Once the Installer has acquired all licensing information for your site, it shows the default install location. You can alter this if you wish but make sure you understand the implications of changing it for all the products being installed. Click Next to proceed further:



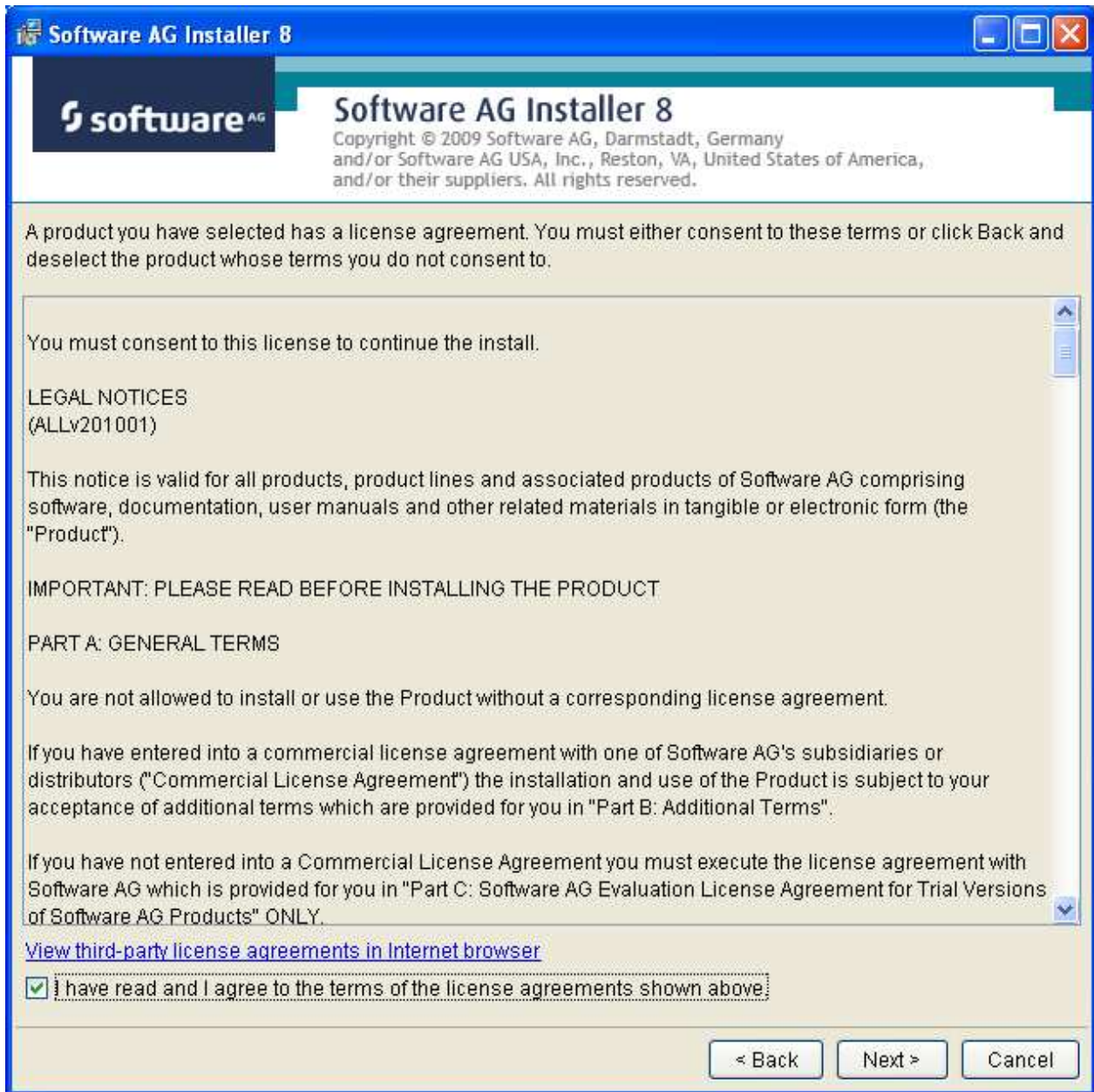
You can now choose the products that you wish to install:



You can see below which products have been selected. In making these choices, other implied choices of sibling and prerequisite products are also made automatically. Once your selections are made, click Next to proceed:

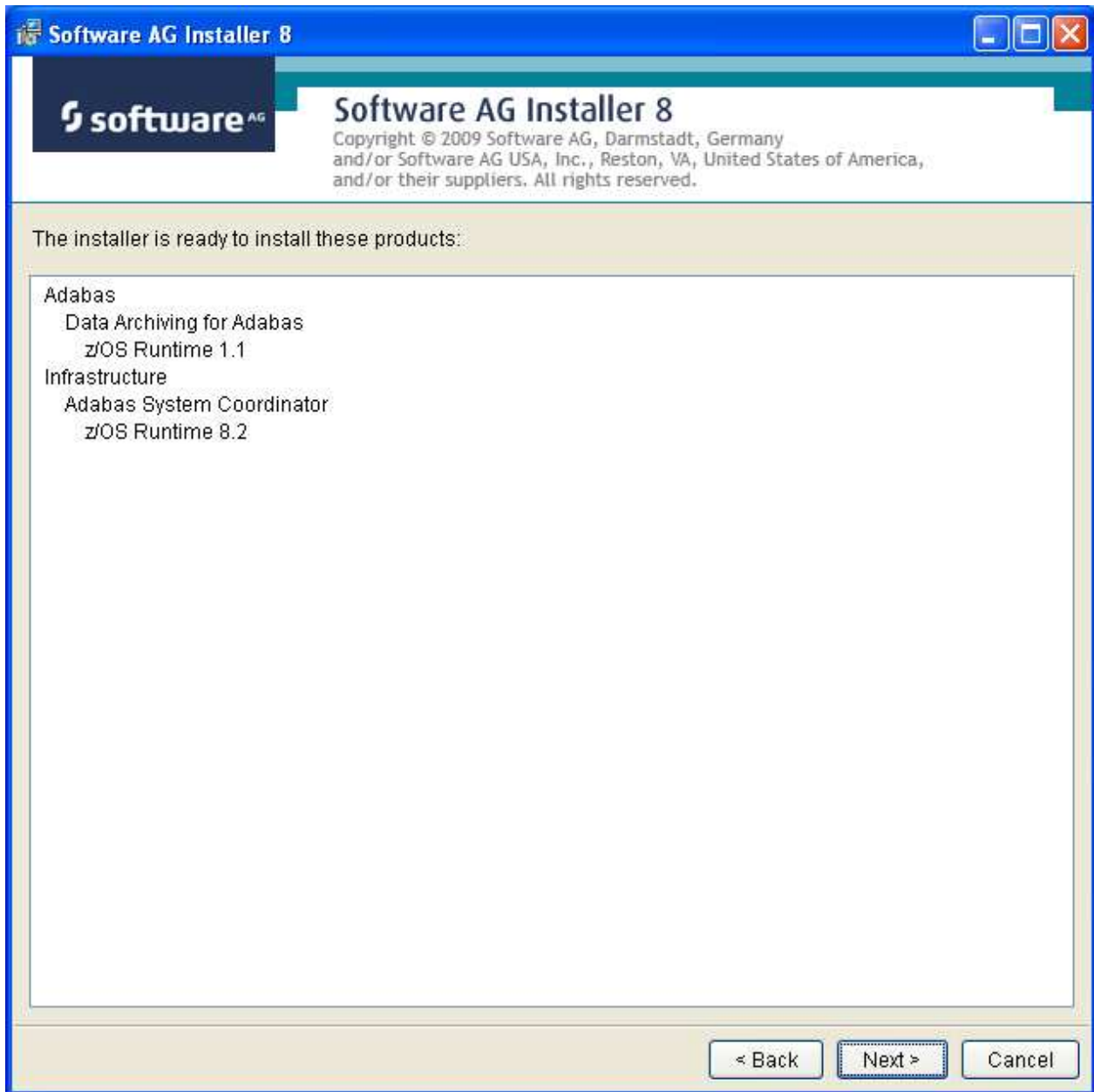


Read the terms and conditions. When you have finished confirm you have done so by checking the box. Click Next to continue:

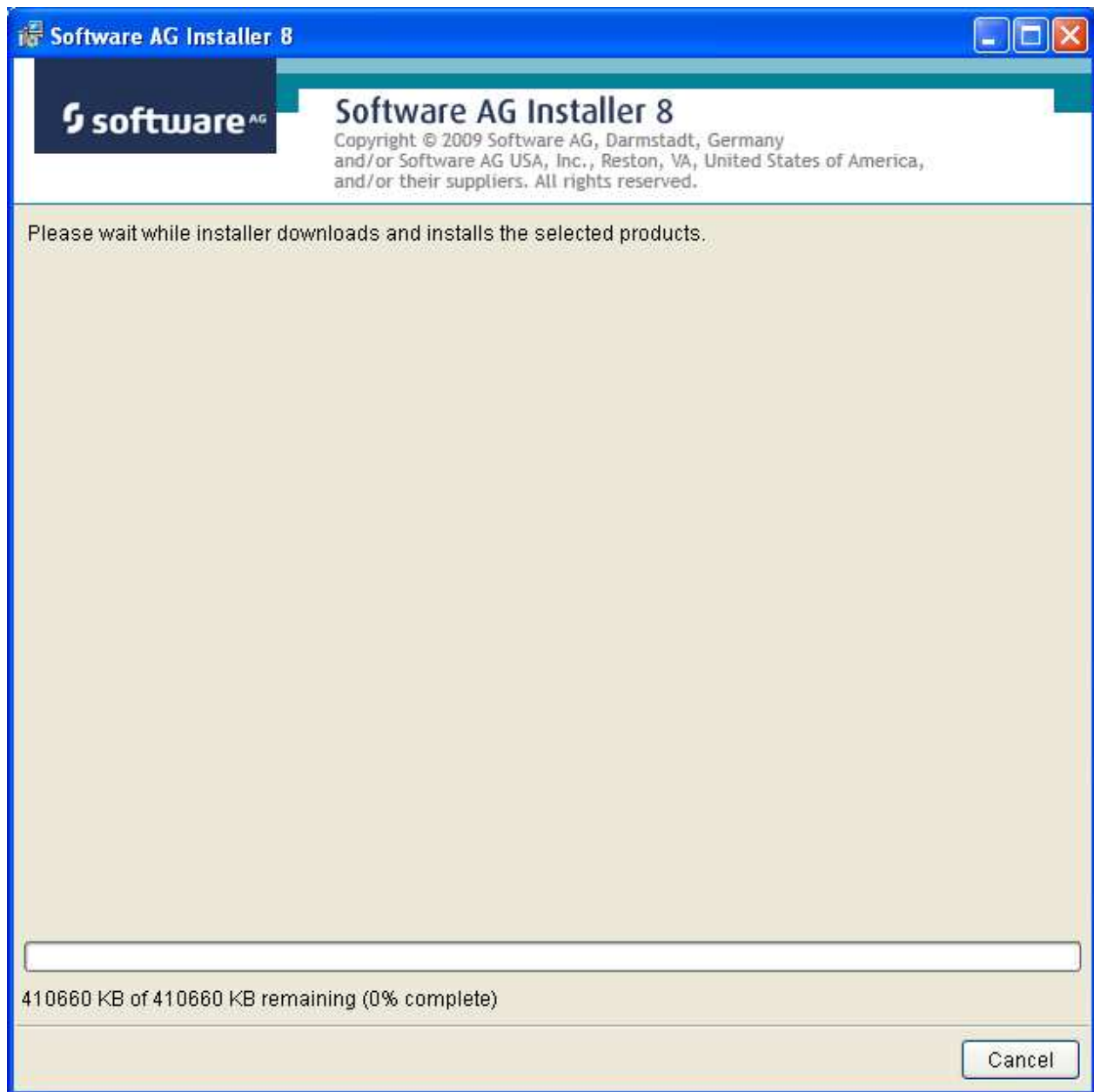


A list of the products selected for install is provided. Click Next to perform the installation:

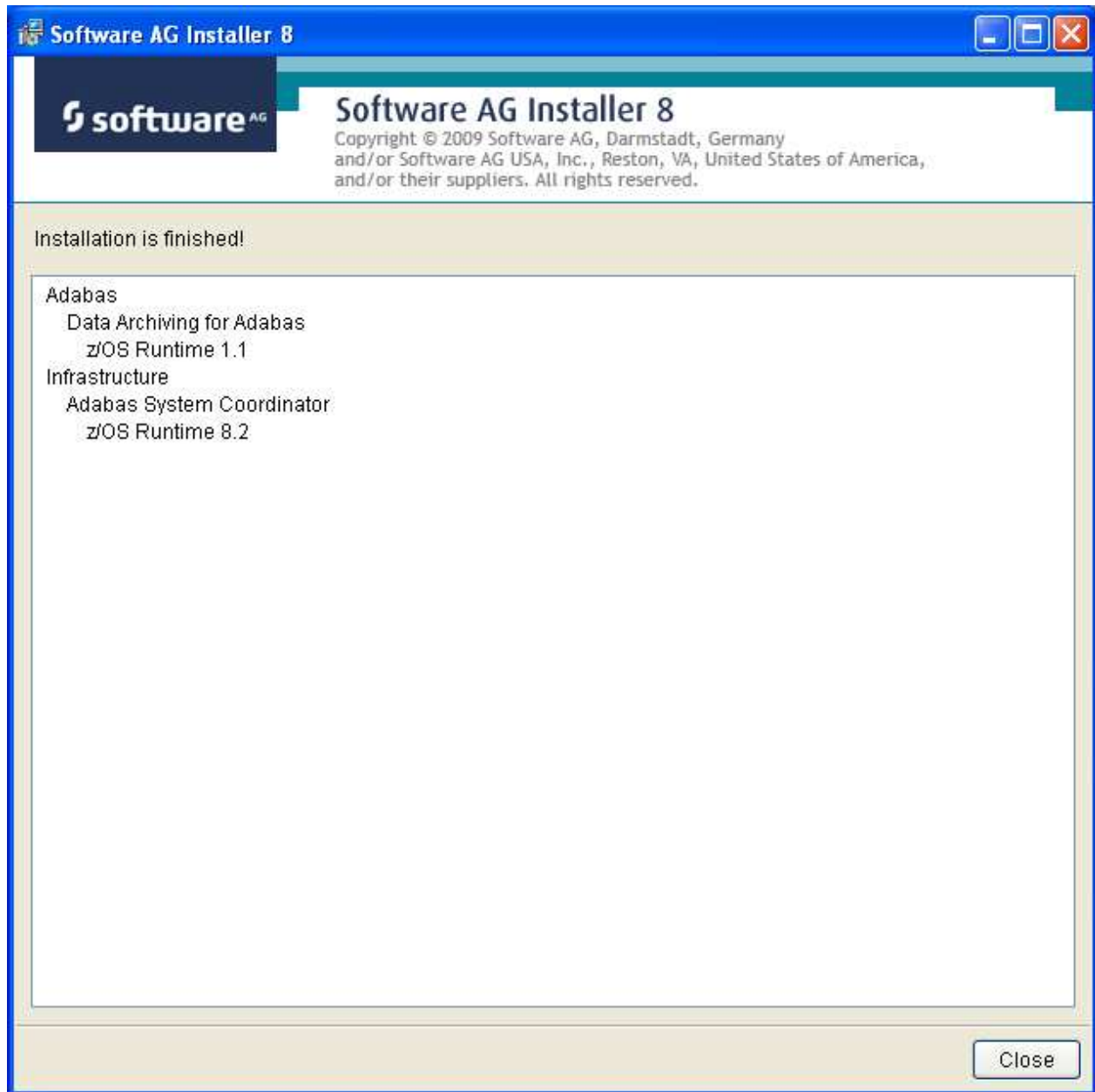




The installation may take some time.

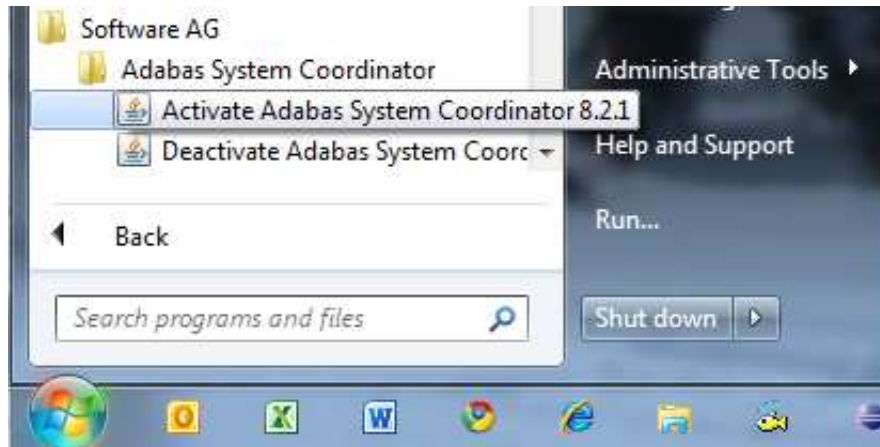


Once the installation of all the products is completed you will see the following confirmation screen:



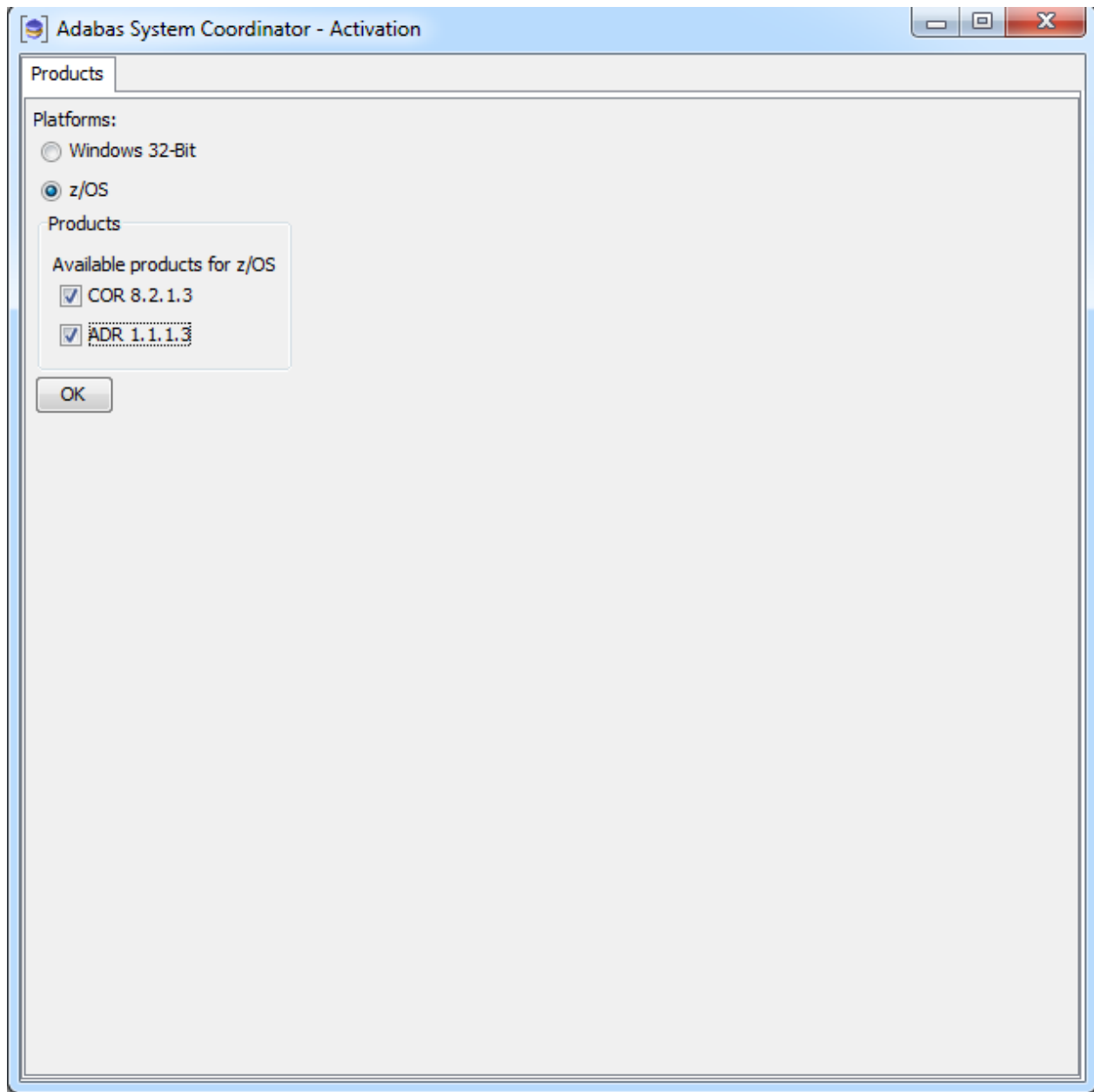
## Step 2a: Perform the Off-host Activation (FTP) in Windows or Unix

z/OS activation can be performed from either Unix or Windows, this example is from Windows. First click the activation in the Start menu:



### Activation Platform and Products

The first screen in the activation requires that you select the platform that you are activating and the products too. The following show z/OS:



### Activation: Adabas System Coordinator

1. Ports: System Coordinator uses ports for communication between components. Normally Group Services Port, Dynamic port range (start) and Dynamic port range (end) are left with the default settings shown below. If you decide to change these ports you must keep a careful note of the port numbers chosen for this computer for use later.
2. Configuration file location: it is very important that the configuration file (and Adabas file) is shared by all computers that are to collaborate. You must identify where the configuration file already resides in another computer; or if this is the first installation you must be sure that this is the computer where the configuration file is to be created by the activation. If the configuration file does already exist in another computer you must identify it with hostname and group services port used in that computer (if group services port was not allowed to default). Finally, the database and file for the file is needed too of course.

3. Dataset for ADALNKR: you must identify the z/OS dataset where you prepared the ADALNKR earlier, as previously described.
4. JCL for dynamic activation submission: you must edit the model JCL so that it is valid for your site, but do not modify the <COMMAND\_PLACEHOLDER> because this is dynamically replaced at runtime.

Adabas System Coordinator - Activation

Products COR 8.2.1.3 ADR 1.1.1.3 FTP Parameters Activate

COR

Group Services Port: 53376

Dynamic Port Range (start): 53377

Dynamic Port Range (end): 53399

Configuration File Location

Computer Hostname: mcukayh01.eur.ad.sag

Group Services Port: 53376

Adabas database: 1 file: 500

Dataset where prepared ADALNKR (etc) resides:

RDU.AYH.ADR

JCL

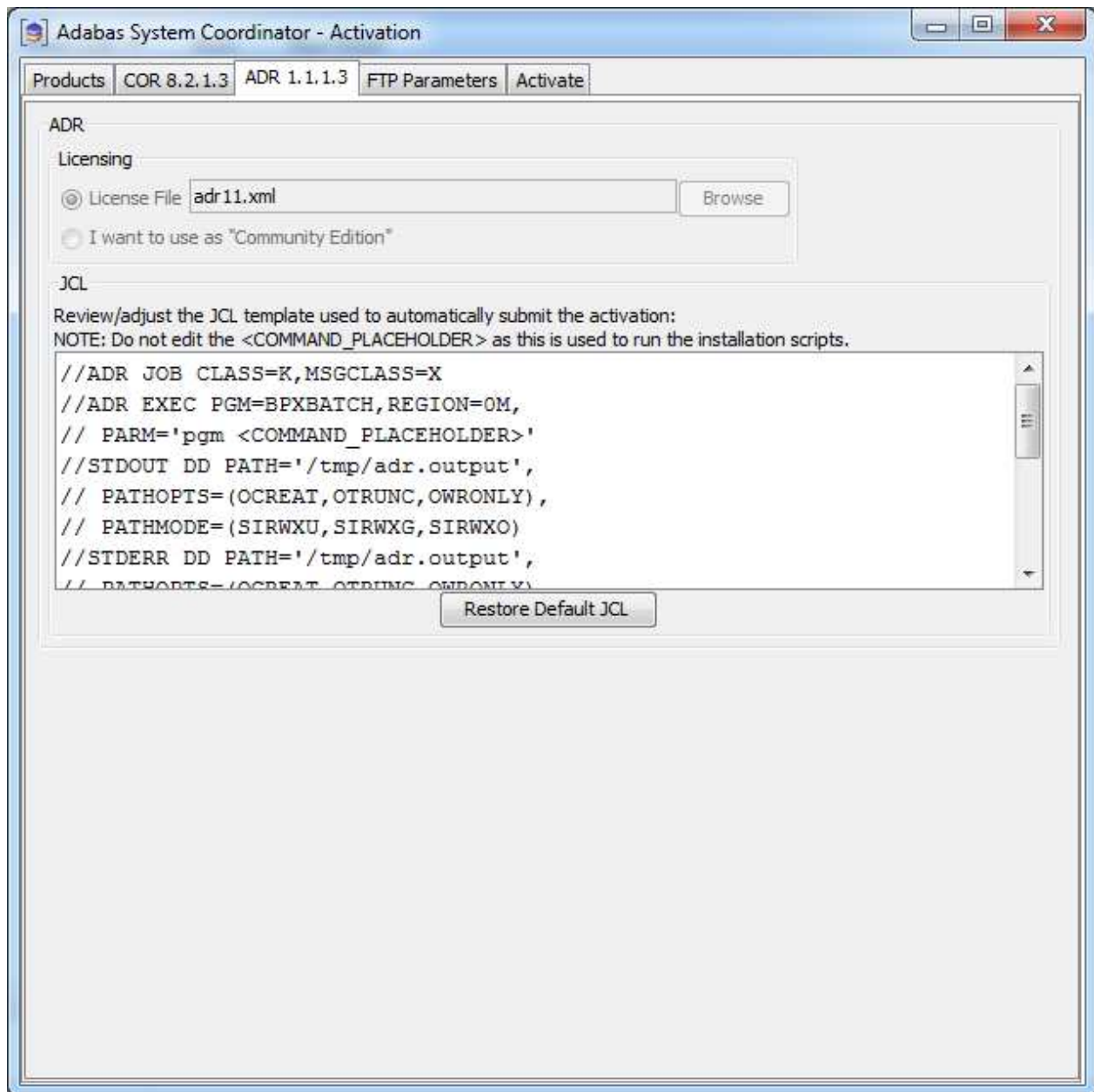
Review/adjust the JCL template used to automatically submit the activation:  
NOTE: Do not edit the <COMMAND\_PLACEHOLDER> as this is used to run the installation scripts.

```
//COR JOB CLASS=K,MSGCLASS=X
//COR EXEC PGM=BPXBATCH,REGION=0M,
// PARM='pgm <COMMAND_PLACEHOLDER>'
//STDOUT DD PATH='/tmp/cor.output',
// PATHOPTS=(OCREAT,OTRUNC,OWRONLY),
// PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//STDERR DD PATH='/tmp/cor.output',
// PATHOPTS=(OCREAT,OTRUNC,OWRONLY)
```

Restore Default JCL

### Activation: Data Archiving for Adabas

Dynamic submission JCL must be adjusted to run correctly at your site, but do not modify the <COMMAND\_PLACEHOLDER> because this is dynamically replaced at runtime:



### Activation: FTP Preparation

The activation involves an FTP into the z/OS system and then dynamically submitting the activation. To do this your z/OS FTP information is required.

1. Hostname: the name of the z/OS system where the activation is to take place.
2. Port: the z/OS FTP port, usually 21.
3. User: your z/OS userid for RACF, ACFR2 or Top Secret etc.
4. Password: your z/OS password.

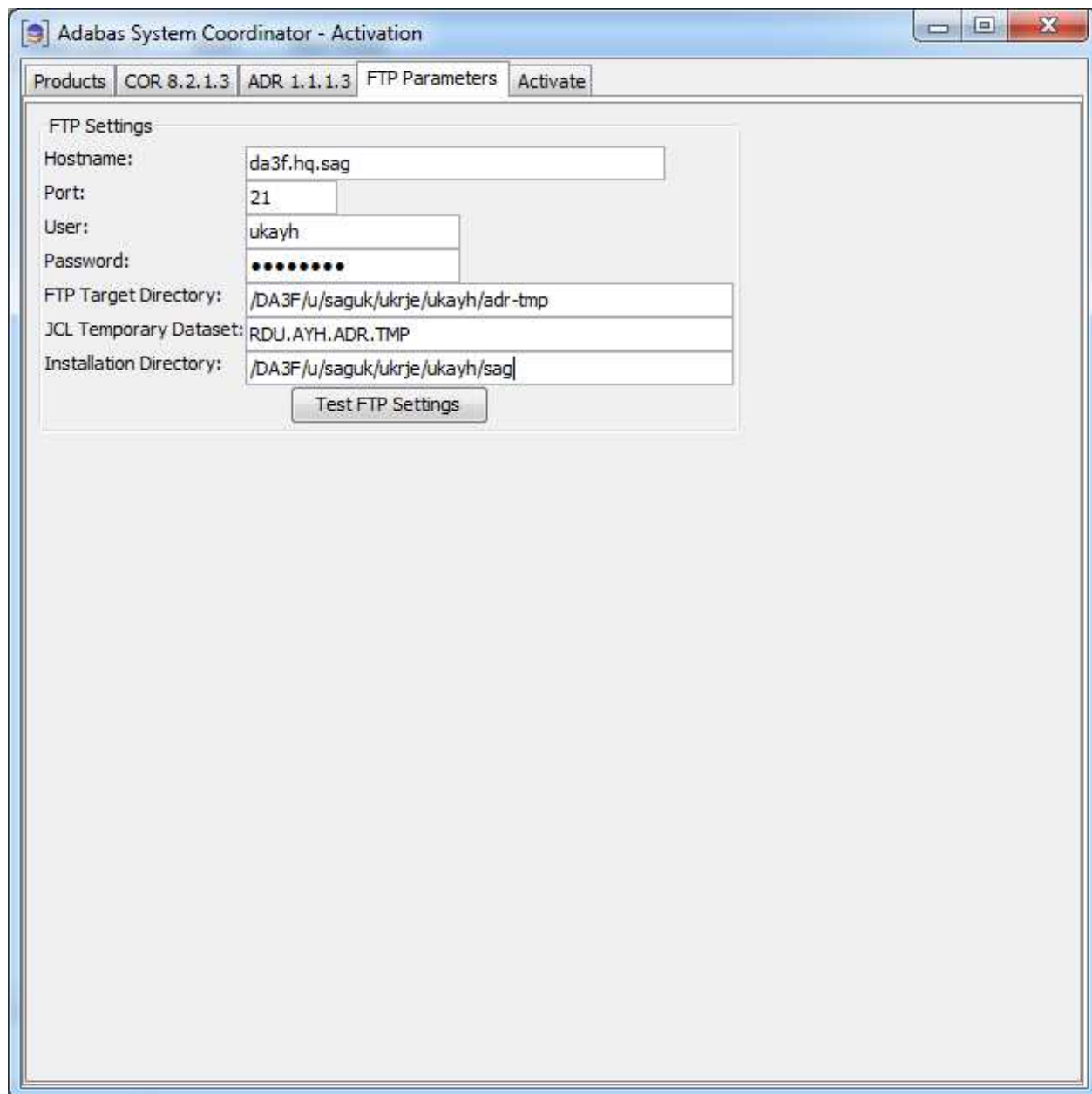
5. FTP target directory: the area where you wish to initially load the copied install files into z/OS.

**Note:**

This is an intermediate destination, not the final installation location.

6. JCL temporary dataset: a temporary z/OS dataset is required to dynamically construct the activation JCL. This must be a file that your z/OS userid has modify permissions.
7. Installation directory: the final location where the software will be located and run.

There is a *test* button to do some basic checking of the information you supply below but this cannot check everything. Only when you finally execute the activation will you find out if it is successful or not.



The screenshot shows a window titled "Adabas System Coordinator - Activation". At the top, there are tabs for "Products", "COR 8.2.1.3", "ADR 1.1.1.3", "FTP Parameters", and "Activate". The "FTP Parameters" tab is selected. Below the tabs, the "FTP Settings" section contains the following fields:

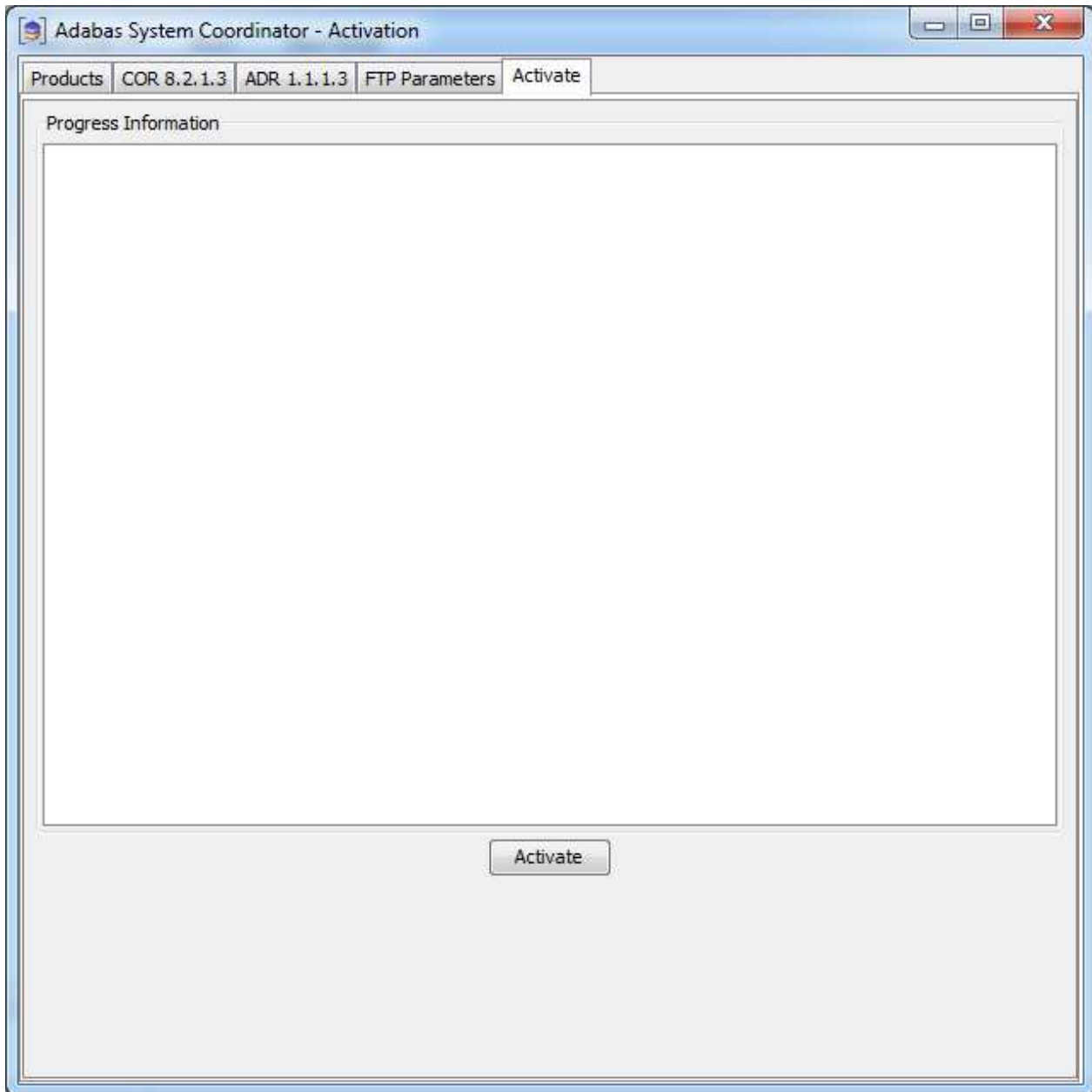
Hostname:	da3f.hq.sag
Port:	21
User:	ukayh
Password:	••••••••
FTP Target Directory:	/DA3F/u/saguk/ukrje/ukayh/adr-tmp
JCL Temporary Dataset:	RDU.AYH.ADR.TMP
Installation Directory:	/DA3F/u/saguk/ukrje/ukayh/sag

Below the fields is a button labeled "Test FTP Settings".

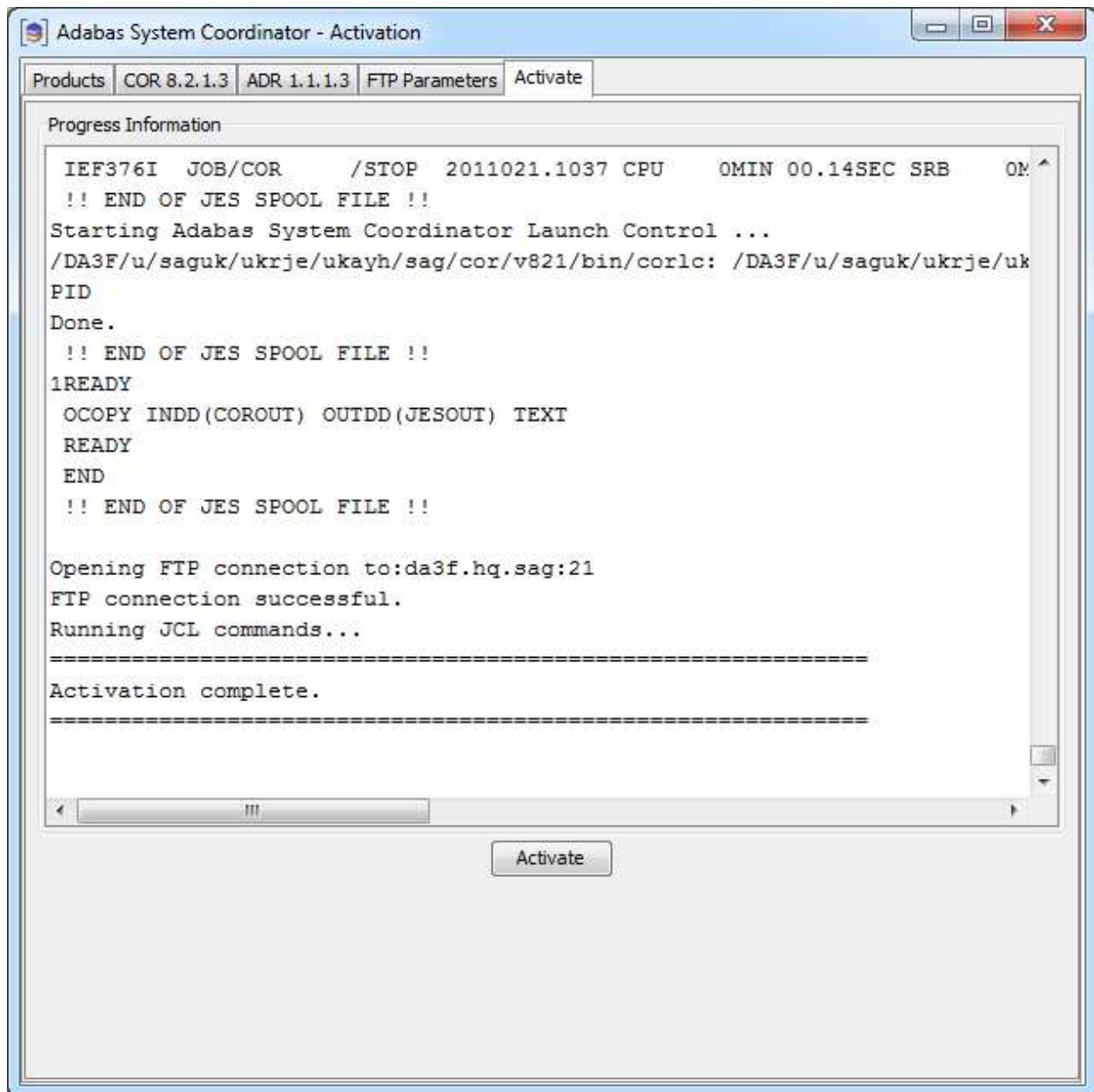


## Activation: Execution

Once all options have been selected the next thing to do is to select the activate tab so the activation log screen appears. Start the activation by clicking the Activate button below.



The activation log screen shows progress during execution which may contain important information if a problem occurs (such as permissions failure). Here is a successful activation execution completion:

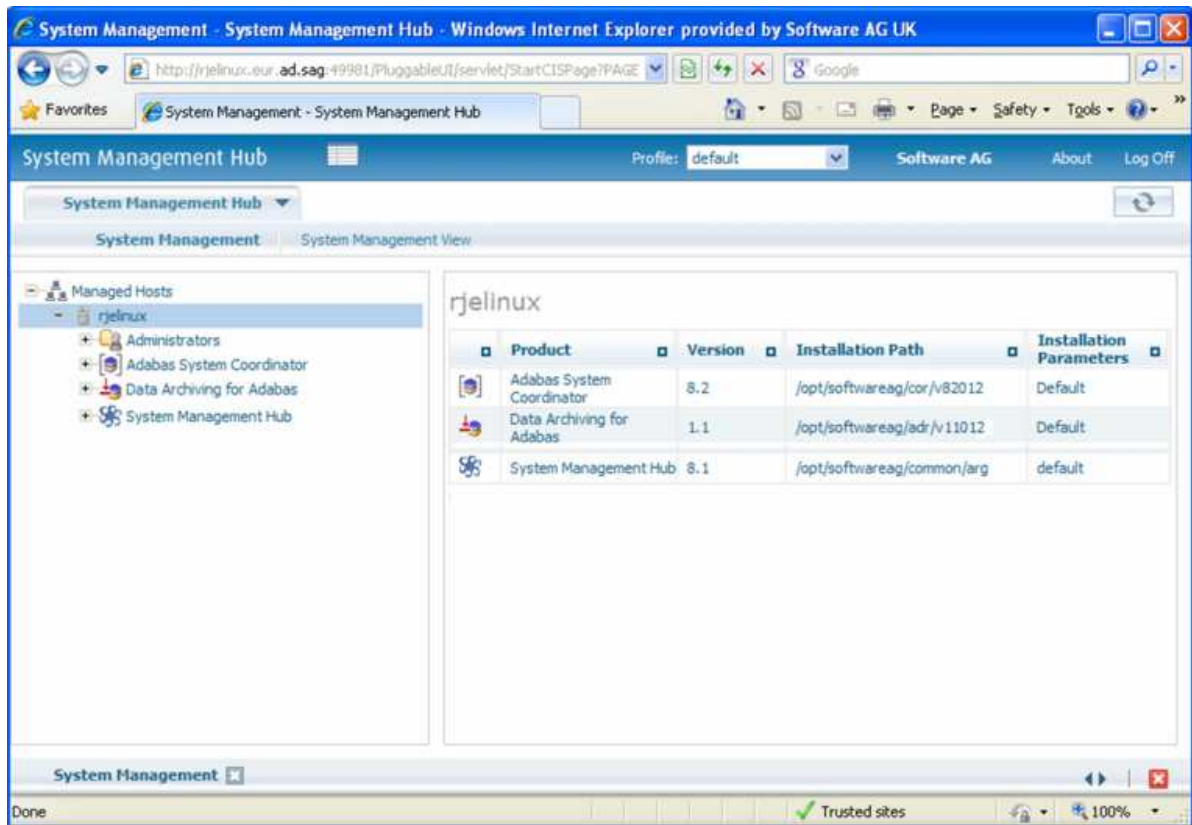


## Use the Runtime from the Browser UI

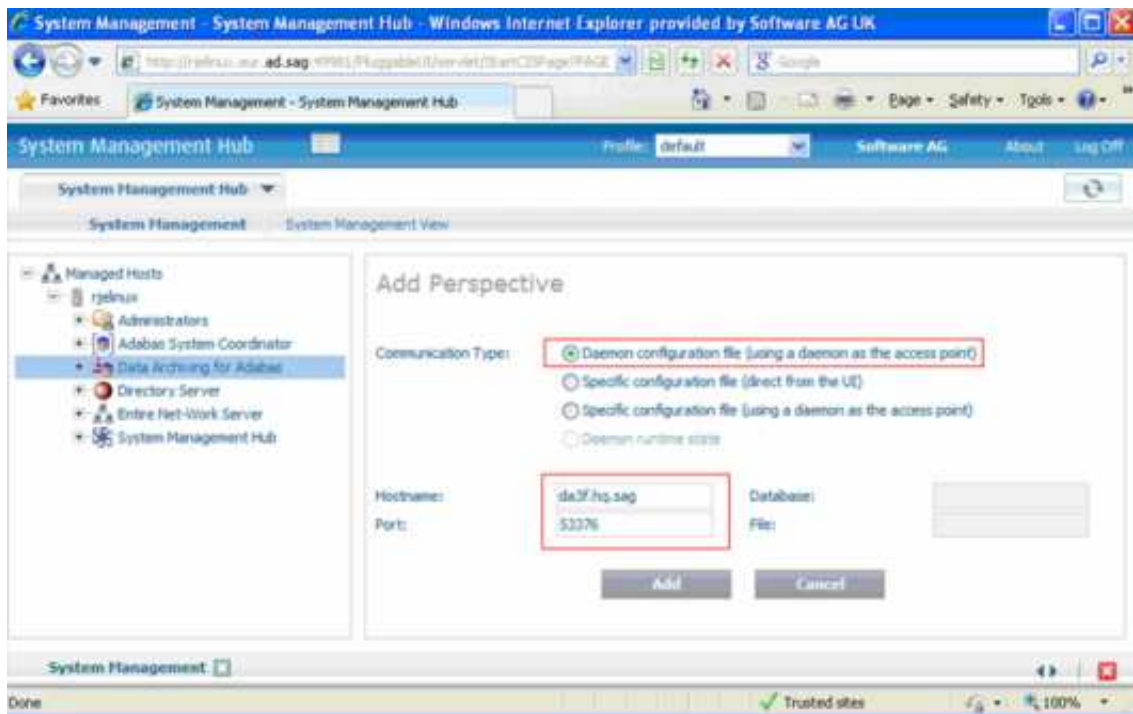
After installing the ADR runtime for the first time you must activate the ADR runtime within the UI browser. The browser (and prerequisite System Management Hub) must have been previously installed.

### ▶ to use the Runtime from the Browser UI:

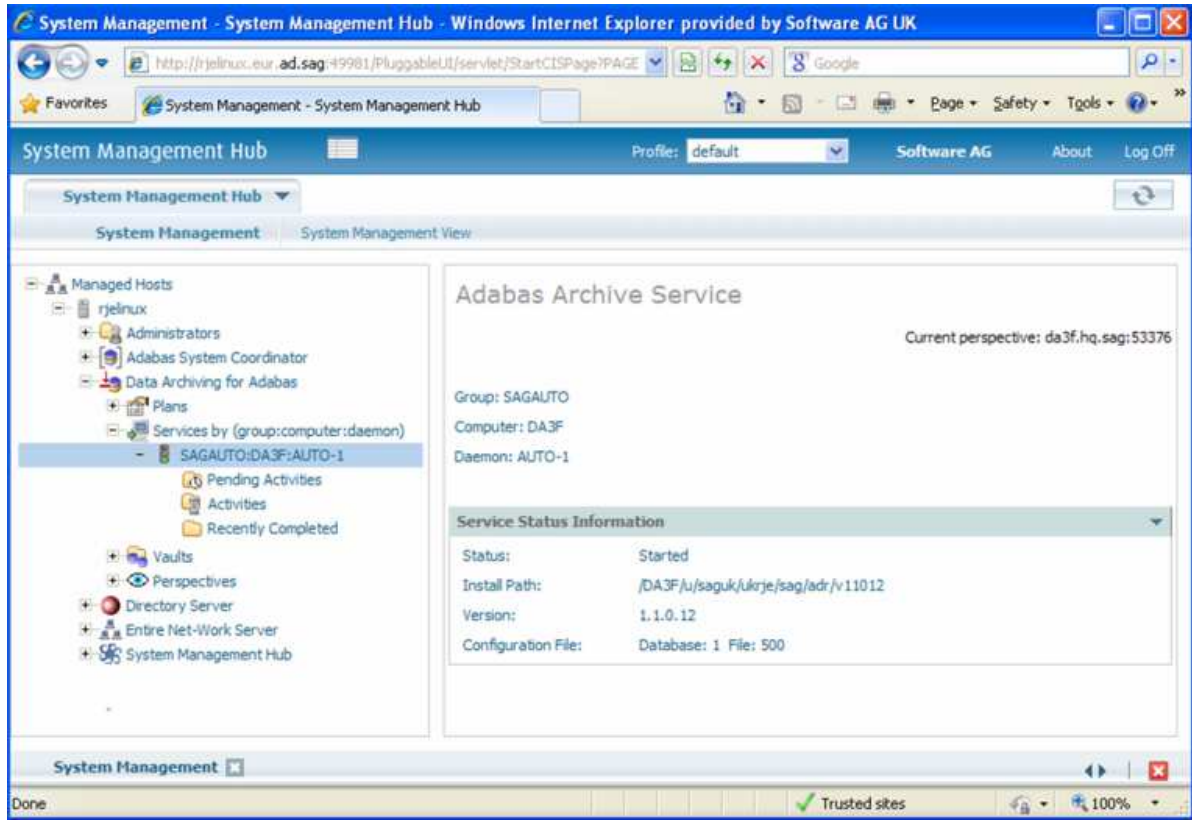
1. Log on to SMH on a computer where the UI has been installed and expand the tree node for the UI computer.



2. Select the main **Data Archiving for Adabas** node. If the UI computer does not also have the runtime installed there, the first time you enter it you will be asked to identify the location of the configuration file that has just been created in z/OS (or elsewhere if it was created during the install of the runtime in a different computer altogether)...then click Add.



3. Right-click on the main **Data Archiving for Adabas** node in the tree and select Refresh so that the selected perspective comes into force.
4. Within the tree select the **Services by ...** node. You should see the archive service for the runtime in the computer you have just installed. This should show a green traffic light which indicates that the service is active.



The installation is now complete. You can begin using Data Archiving for Adabas. See the section Getting Started for further information.