Natural Business Services

Natural Business Services Installation on Unix

Version 8.2.1

November 2013

Natural Business Services

This document applies to Natural Business Services Version 8.2.1.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Table of Contents

Natural Business Services Installation on Unix

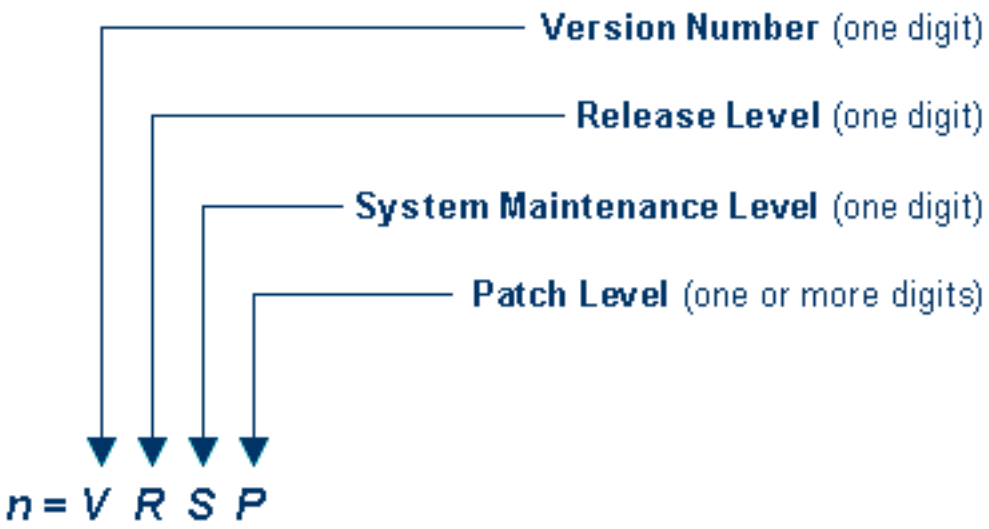
This documentation describes the installation of Natural Business Services V5.3 for UNIX platforms. It is intended for administrators who are responsible for installing Natural Business Services for the first time or upgrading from Natural Business Services V5.1. The following topics are covered:

Installing and Setting Up Software AG Products under UNIX	Provides general information about the installation package and the Software AG environment and describes the pre-installation steps common to *all* installations of Software AG products on a UNIX platform. This information is relevant if you are installing a Software AG product for the first time. This section also explains how to install the contents of the CD-ROM to disk.
Installing and Setting Up Natural Business Services	Describes how to install and setup Natural Business Services on a UNIX platform. This information includes: ■ Product requirements ■ Description of the installation kit ■ Installation prerequisites ■ Installation procedure ■ Manual installation steps ■ How to install the Natural client service runtime component ■ How to install Natural Construct in static (one-language) mode
After Installing Natural Business Services	Describes the actions necessary after the installation of Natural Business Services has been successfully completed.

Note: Refer to Natural Business Services Release Notes for the latest information about the installation procedure, system requirements, and new features.

Conventions

$*string*	Environment variables are preceded by $.

vn	*vn* represents a product version number. *v* can be "v" for released versions, "b" for beta test versions and "r" for runtime versions. *n* consists of the following components: 

1 Installing and Setting Up Software AG Products under UNIX

General Information

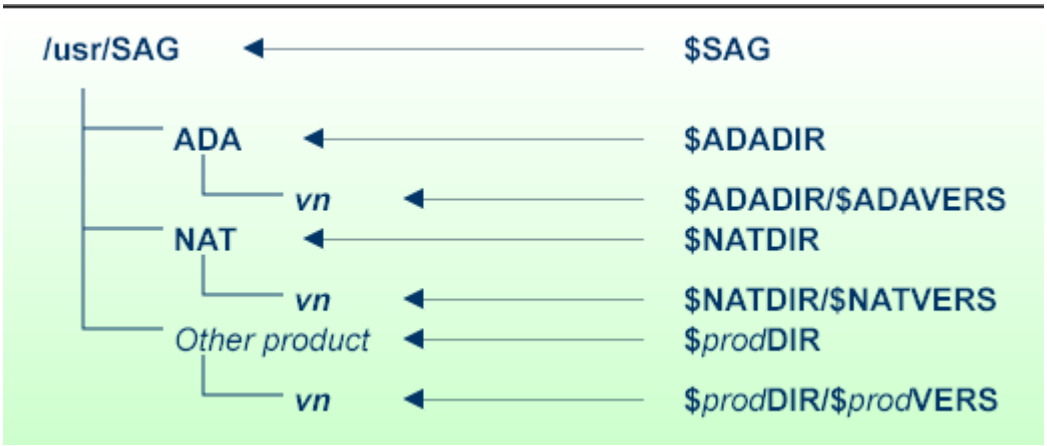
Installation Package

The installation package containing Software AG products is available on ISO 9660 CD-ROM.

The CD-ROM contains a complete directory structure that clearly specifies product and platform.

Software AG Environment

The following figure shows the general directory structure generated during installation and the environment variables that reference the specified directories:



The `SAG` environment variable defines the root directory for all Software AG products.

For each product, the `$prodDIR` variable is set to the path of the main directory of the product specified, where *prod* is a three-letter product code in upper case letters. For example, all files for Adabas, whose product code is "ADA", are contained in the *$ADADIR* directory.

The name of the main directory is usually the same as the product code in lower-case letters. For example, the main directory for Adabas is named *ada*. However, there are exceptions to this convention. For example, the product code for Entire Net-Work is "WCP", but the environment variables use the prefix "NET" instead.

Version-independent parts of the product, such as examples or data, are stored in a subdirectory of the product main directory. For example, all Adabas demonstration data is contained in the *$ADADIR/adademo* directory.

Version-dependent components of the product are kept in the $*prod*DIR/$*prod*VERS version directory. For example, the current version of Natural is stored in the*$NATDIR/$NATVERS* directory .

The *prod*DIR and *prod*VERS environment variables for all products specified during installation are defined in the *sagenv* file. The same applies for any other environment variables needed for the various products.

Before You Begin

This section covers the following topics:

- Create the Administrator's Account and Group
- Back Up Your Current Product Version
- Log in as sag User

We recommend that you use *one* root directory for all of your Software AG product installations. The home directory and the root directory should be separate.

The following activities must be performed if you are installing a Software AG product for the first time or if your environment is not yet set.

Create the Administrator's Account and Group

You must create one administrator account and one group for all Software AG products when you install your first Software AG product.

1. Define an administrator account to which all of the Software AG products installed at your site belong. Since all environment definition files for the products are written in Bourne shell syntax, the Bourne (or Korn) shell is recommended as the login shell for the administrator account. This section assumes that the administrator account is called "sag".
2. Define a group to which the administrator belongs. This section assumes that this group is also called "sag".
3. Create a login directory for the "sag" user.
4. Add the "sag" group in the */etc/group* system file and the "sag" user in the */etc/passwd* system file.

Note: To perform these steps, use an appropriate system administration tool.

Back Up Your Current Product Version

When upgrading a product, it is strongly recommended that you back up your current product version. A number of Natural Business Services programs are delivered in source form. During installation, these programs replace those delivered with the previous version. If you customized any of these programs, copy the modified programs to another library before beginning the installation procedure.

Log in as sag User

This description assumes that the "sag" user is the administrator for Software AG products. Log in as the "sag" user (it is not recommended to log in as "root").

Install the Contents of the CD-ROM to Disk

Before performing the following steps, make sure that the administrator user and group have been created and defined.

To install the contents of the CD-ROM to disk:

1 Load the CD-ROM in the CD-ROM drive and mount it if this is not done automatically.

Command	Description
`su - root`	To mount a CD-ROM, you must be root.
`mkdir /mount-dir`	Create a mount-directory for the CD-ROM
`mount platform-specific_mount_options device-name /mount-dir`	Execute the mount command.
`exit`	Return to "sag" user.

Platform-specific mount command and options to mount the CD-ROM as ISO9660 or High-Sierra file system:

Platform	Mount Command
AIX	`/usr/sbin/mount -F cdfs -o cdcase device-name /mount-dir`
HP-UX	`/usr/sbin/mount -F cdfs -o cdcase device-name /mount-dir`
Solaris	`/usr/sbin/mount -F hsfs -o ro device-name /mount-dir`
Tru64	`/usr/sbin/mount -t cdfs -o noversion device-name /mount-dir`

Platform	Mount Command
Linux	`/bin/mount -r -t iso9660 device-name /mount-dir`
Reliant-UNIX	`/sbin/mount -F hs device-name /mount-dir`
SCO UNIXWare	`/sbin/mount -r -F cdfs device-name /mount-dir`

Notes:

1. On Solaris, the *vold* volume management daemon might be active. This daemon mounts the CD-ROM automatically.
2. Tru64 UNIX requires an ISO 9660 CD-ROM support configured within the kernel.

Example for Linux:

```
/bin/mount -r -t iso9660 /dev/cdrom/mnt
```

2 Check the directory structure of the UNIX part of the CD-ROM running an `ls(1)` command on the CD-ROM.

Note: Depending on the mount options used, the files will be all upper case or all lower case. If you mount the CD-ROM as a pure ISO 9660 Interchange Level I CD, you will also see a version number ';1' appended to all files. Note this for the following steps and use the correct name format.

3 Continue reading the **step-by-step installation instructions** for the Software AG product being installed.

2 Installing and Setting Up Natural Business Services

This section describes how to install and setup Natural Business Services on a UNIX platform. The following topics are covered:

Product Requirements

This section describes the product requirements for Natural Business Services V5.3 on UNIX platforms. The following topics are covered:

Memory Space

The memory space required by Natural Business Services largely depends on the number of users.

The memory space per user is determined by the settings in the *NATPARM* parameter module, especially by the values of profile parameters such as `USIZE` and `SSIZE`.

In addition to the user-specific memory, memory is required for the buffer pool, which is shared among all users.

Disk Space

Approximately 180 MB of hard-disk space is required for Natural Business Services.

Related Software AG Products

Natural Business Services requires:

- Natural V6.2.4 or higher or Natural V6.3.2 or higher

  Note: If you are using the Natural Construct Browse* models, Natural version 6.3.4 PL2 or higher is required for the generated code to work correctly.

- Adabas V5 or higher
- EntireX Communicator V7.2
- Natural Development Server (NDV) V2.2 (conditional on whether Natural for Windows will be used)
- Predict V4.5 (optional, but recommended for full Natural Business Services installation and Natural Construct development version)

Operating Environments

This section describes the operating environments for Natural Business Services V5.3. The following topics are covered:

- Operating Systems
- Data Access

Operating Systems

Natural Business Services functions in any UNIX environment that supports Natural V6.2.4 or higher.

Data Access

Natural Business Services generates applications that access the following data structures:

- Adabas
- SQL

You can also create your own models to access other data structures.

Security

If Natural Security is installed, access to Natural Business Services is protected by the Natural Security facilities. Natural Business Services-generated modules operate in, and are controlled by, the Natural Security system.

Note: If Natural Security is installed, you must perform several manual installation steps. For information, see **Manual Installation Steps**.

Natural Business Services Distribution Kit

The Natural Business Services distribution kit on CD-ROM contains the installation files for your UNIX environment.

Note: The license file is not contained on this CD. It must be obtained from Software AG.

The naming conventions for the datasets identify the product, version number, release number, system maintenance level, dataset type, and work file type. For example, the installation CD-ROM for Natural Business Services includes the following:

```
NBSnnn.INPL.sag
```

where:

- *NBS* is the product code
- *n* is the version number
- *n* is the release number
- *n* is the system maintenance level
- *INPL* is the dataset identifier
- *.sag* is the work file type

The Natural Business Services installation package includes the following datasets:

Dataset	Description
NBS*nnn*.INPL.sag	INPL dataset containing all modules required to generate, catalog, and run Natural Business Services-generated modules.
NBS*nnn*.NCSR.sag	Dataset containing the Natural client service runtime modules. To create a runtime environment for generated Natural clients, install this dataset in a non-Natural Business Services environment. For instructions on installing this component, see **Install the Natural Client Service Runtime Component**.
NBS*nnn*.SYS1.FDU	Dataset containing control parameters for the ADAFDU utility. Used to create the container for the Natural Business Services system file 1 LFILE.
NBS*nnn*.SYS1.FDT	Dataset containing the FDT for the Natural Business Services system file 1 LFILE. Used as input to the ADAFDU utility.
NBS*nnn*.SYS2.FDU	Dataset containing control parameters for the ADAFDU utility. Used to create the container for the Natural Business Services system file 2 LFILE.
NBS*nnn*.SYS2.FDT	Dataset containing the FDT for the Natural Business Services system file 2 LFILE. Used as input to the ADAFDU utility.
CST*nnn*.INPL.sag	INPL dataset containing all modules required to generate, catalog, and run Natural Construct-generated modules, as well as the SYSERR messages used by Natural Construct-generated applications.
CST*nnn*.INPC.sag	INPL dataset containing the modules required to catalog and run generated modules. This dataset is a subset of CST*nnn*.INPL.sag.
CST*nnn*.INPE.sag	INPL dataset containing the modules required to run (but not catalog) generated modules. This dataset is a subset of CST*nnn*.INPC.sag.
CST*nnn*.FDU	Dataset containing control parameters for the ADAFDU utility. Used to create the container for the Natural Construct LFILE.
CST*nnn*.FDT	Dataset containing the FDT for the Natural Construct LFILE. Used as input to the ADAFDU utility.
CST*nnn*.ULD	Data file used as input to the ADAMUP utility. Used to load data to the Natural Construct LFILE.
CST*nnn*.DA4	Predict definitions for the Natural Business Services data file for users running Natural Business Services V5.3 with Predict V4.

Dataset	Description
CST*nnn*.SINP.sag	INPL dataset containing the Natural Business Services demo programs to access SQL tables.
CST*nnn*.SD4	Dataset containing Predict definitions for the SQL tables accessed by the demo application for SQL users.
CST*nnn*.CP45.sag	Dataset containing all Predict interface modules for users running Natural Business Services V5.3 with Predict V4.5.
CST*nnn*.SYSH	Dataset containing help text.
CST*nnn*.SYSM	Dataset containing program models.
CST*nnn*.SYSR	Dataset containing code frames.

Before Installing Natural Business Services

This section contains information you should read before installing Natural Business Services. It contains general information on the prerequisites for installing and setting up Natural Business Services on a UNIX platform. The information contained in this section is independent of hardware type and platform. The following topics are covered:

- Pre-Installation Notes
- Important Notices
- Access to EntireX Broker
- Install Natural Construct Over an Existing Version

Pre-Installation Notes

This section contains installation notes. Note the following before beginning the installation of Natural Business Services.

- Read the *readme.txt* file delivered on your product CD. It contains important information which may not be contained in this documentation.
- Complete the common steps for installing Software AG products under UNIX before installing Natural Business Services. For a detailed description, see **Installing and Setting Up Software AG Products under UNIX**.
- Assign superuser status. As some installation steps require superuser (root) permissions, the installation script offers a choice between the `su` and `sudo` commands and asks for the corresponding password required to become superuser.
- Backup your current product version.
- Ensure that the directory in which the Natural Business Services distribution files are installed on the disk is identified by the SAG environment variable (which can be set to an appropriate value in advance).

- Ensure that you know the name and location of the Natural Business Services license file. To perform the installation procedure, you must provide a valid license file.
- Ensure that all prerequisite software is installed.

Important Notices

This section contains important information you should read before installing this version of Natural Business Services. The following topics are covered:

NBSPARM Profile

If you have an existing NATPARM profile called NBSPARM, it will be overwritten during the installation procedure. To preserve your copy of the profile, either make a backup copy or rename the profile before installing Natural Business Services.

Buffer Pool Search Sequence

When using Natural Business Services, ensure that `BPSFI=OFF`. If `BPSFI=OFF`, Search Sequence 2 is used (alternating search in buffer pool and database for each library). If `BPSFI=ON`, Search Sequence 1 is used (search in buffer pool first for all libraries and then search database).

Access to EntireX Broker

To use Natural Business Services, Natural must be able to communicate with EntireX Broker. For information on how to set up access to EntireX Broker, see the Natural for UNIX installation guide.

Install Natural Construct Over an Existing Version

If you are installing Natural Construct over an existing version, you must delete all code frames supplied as fixes to previous versions of Natural Construct before upgrading (code frames with a suffix of "8"). For example, COPA9 is an original code frame installed with the previous version, while COPA8 was delivered later as a fix.

Important: If you used "8" as the suffix in the name of a customized code frame, change the "8" to a "7" or less before deleting the code frames.

To determine which code frames to delete, list the existing code frames in the SYSCST library (MENU F L) and scan for suffixes of "8".

Installation Steps

This section contains the step-by-step procedure to install Natural Business Services on the UNIX operating system. There are two methods of installing Natural Business Services: installing for the first time or updating from an existing version of Natural Business Services. The installation procedure is a combination of manual and script-driven steps. During the procedure, several steps are common for both methods and several steps are specific to either first-time or update installations. You will be guided accordingly during the installation process.

Note: If you are migrating from an earlier Natural Construct LFILE, ensure that the Adabas SORT and TEMP files exist before beginning the installation procedure. Some Adabas tools require these files.

The installation can be performed in two installation modes, either *graphical mode* or *character mode*.

The installation steps are:

Step 1: Mount Your CD-ROM Drive

- If your CD-ROM drive has not yet been mounted, mount it now as described in the section **Install the Contents of the CD-ROM to Disk** of the steps common to all Software AG products.

When the installation is started, the setup procedure will check the hardware platform and operating system version and then start the appropriate INSTALL installation program.

Step 2: Select Character or Graphical Mode

The installation procedure examines the DISPLAY environment variable to determine whether to run in graphical or character mode. To use *graphical mode*, the DISPLAY environment variable must be set.

- If it is not yet set in your environment and you want to use graphical mode, set it using the following command:

```
DISPLAY="your_machine_name:0" export DISPLAY
```

Character mode will be used automatically if the DISPLAY environment variable is not set. If DISPLAY has been set in your environment but you want to use character mode, you can disable it using the `-nw` option when you start the installation.

At the end of an installation process, in either mode, a batch script is generated and written to the INSTALL directory in the installation path of the product (for example, *$SAG/nbs/v531/NBSv531Inst.sh*). It lists the parameters specified for that particular installation.

For example:

```
# ----------- <Start of generated batch script> ----------
# -- <Adapt the following lines until end of generated> --
# ------------ < batch script to your needs > ------------
#!/bin/sh
# You should replace SECRET by the actual password
# or (even better) call this script with superuser privileges.
#
SAG="/usr/SAG"; export SAG
/bin/sh /cdrom/setup.ux -batch \
  -sagenv /usr/SAG/sagenv.new \
  -installType customized \
  -user sag \
  -password SECRET \
  -authcmd sudo \
  -dbident 022 \
  -packages "
    Nucleus & utilities : off
    Adalnk : on
 Optimized Version of Adalnk : on
 Examples : on
 DBA Workbench : on"
# ----------- <End of generated batch script> ----------
```

You can use the `-help` option to display a list of all supported parameters.

Note: If you run the installation procedure in character mode, you must type in the exact wording (for example: "accept" for "accept", not just "y" or the Enter key) at each command prompt.

Step 3: Start the Installation Process

To perform this step, you must be either the "sag" user or a member of the "sag" group to which the administrator and all users of Software AG products are assigned. Do not perform this step as the "root" user.

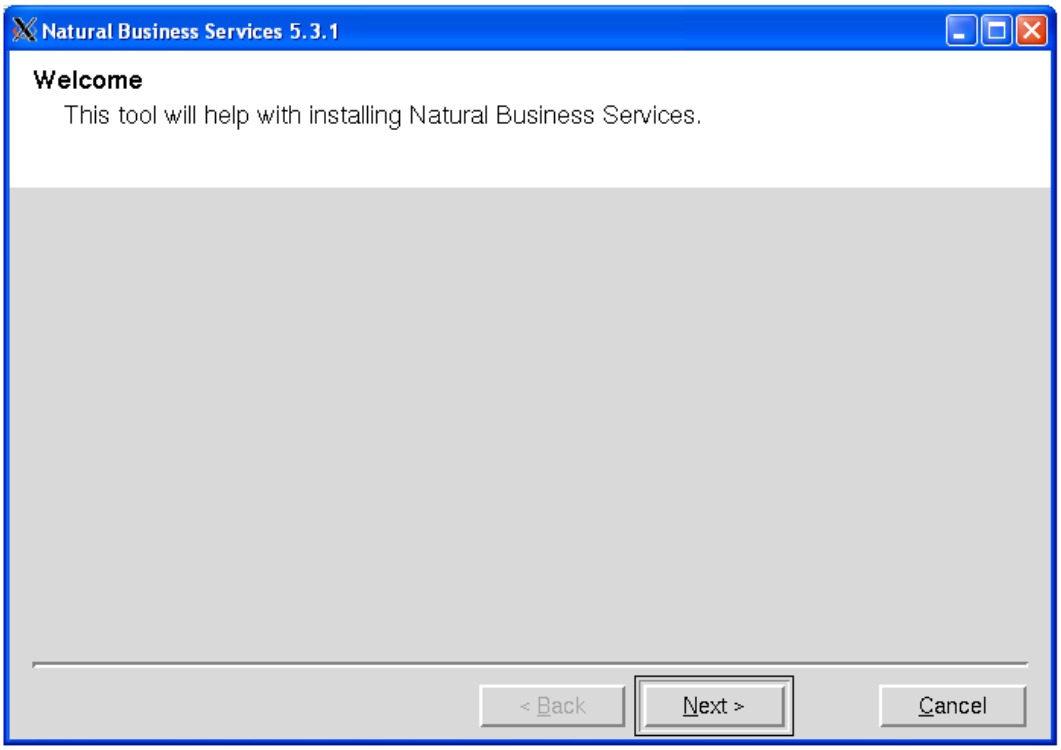
- Start the installation procedure from a writable working directory.

  We recommend *$SAG/INSTALL*. Enter the command:

  ```
  sh /mount_dir/setup.ux
  ```

  where *mount_dir* is the starting directory on your product CD-ROM. Upper/lower case usage is possible depending on your site settings.

  The following panel is displayed:



The setup program starts and guides you through the installation. The following conventions apply:

Task	Procedure
Accept the default values and proceed (default values are displayed within square brackets).	Select **Next**.
Select a new value.	Do one of the following: ■ Select the new value from a drop-down list ■ Choose **Browse** or **...** and select the new value ■ Type the new value
Cancel the installation script.	Select **Cancel** (or type "Cancel" and press Enter in character mode).

Notes:

1. During installation, you must provide the name and location of the license file. Ensure you have this information before beginning the procedure.
2. The following installation steps assume that the graphical installation mode is used. The step sequence is the same in character mode.

Select **Next** to proceed.

Step 4: Specify a Valid CD-ROM Directory

a Confirm the path of your CD-ROM drive.

The default path of the mounted CD-ROM drive is displayed. You can enter a different path or choose **Browse** to change the path.

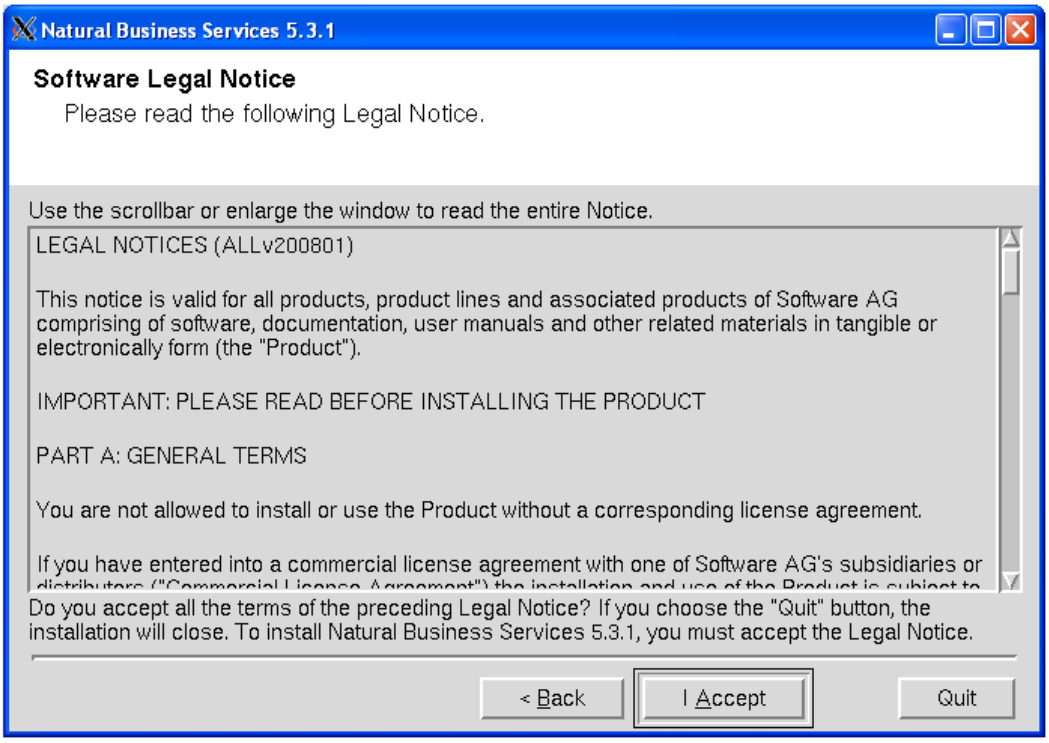
b Select **Next** to proceed.

Step 5: Accept the License Agreement

The license agreement is displayed. You must accept the agreement to proceed with the installation.

■ Select **I Accept** to proceed.

For example:



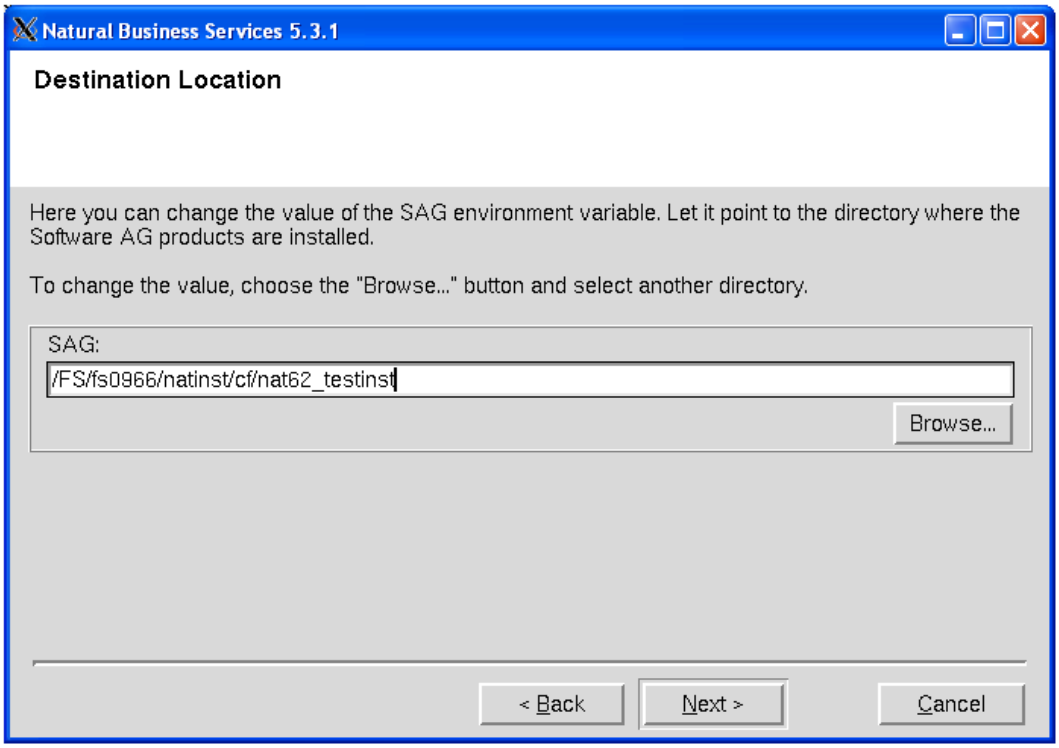
Note: If you run the installation procedure in character mode, you must type the exact wording at each command prompt (for example: you must type "accept" for **I Accept**, not just "y" or the Enter key).

Step 6: Confirm Target Directory

You can change the value of the `$SAG` environment variable on this panel. This variable indicates the path name of the directory tree where all Software AG products are installed.

a Confirm the path name of the directory tree where all Software AG products are installed.

For example:



By default, the current `$SAG` variable is displayed. You can enter a different path or choose **Browse** to select a path.

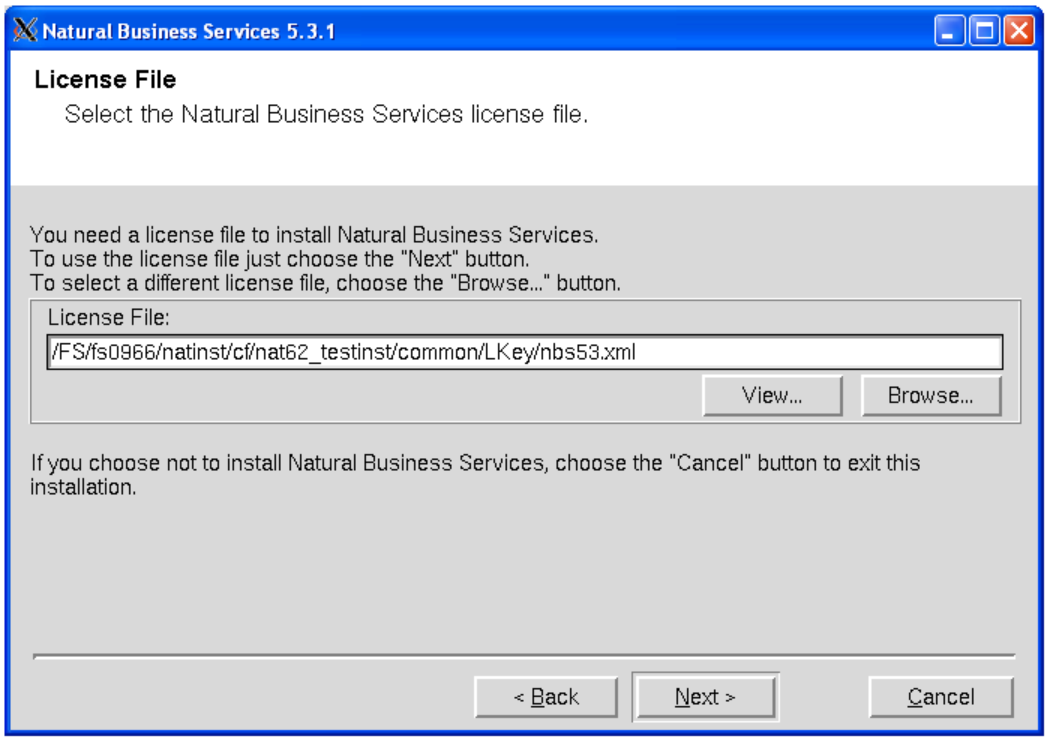
b Select **Next** to proceed.

Step 7: Specify the License File Location

Specify the directory and name of your license file.

a Enter the path where your license file is located (or choose **Browse** to change the path).

For example:



b Select the *<product_code>*.xml file.

If no common Software AG environment exists, *<your current directory>*/*<product_code>*.xml is displayed.

Note: To display the contents of your license file on a separate panel, select **View**. Select **OK** or **Quit** to return to the license file panel.

c Select **Next** to proceed.

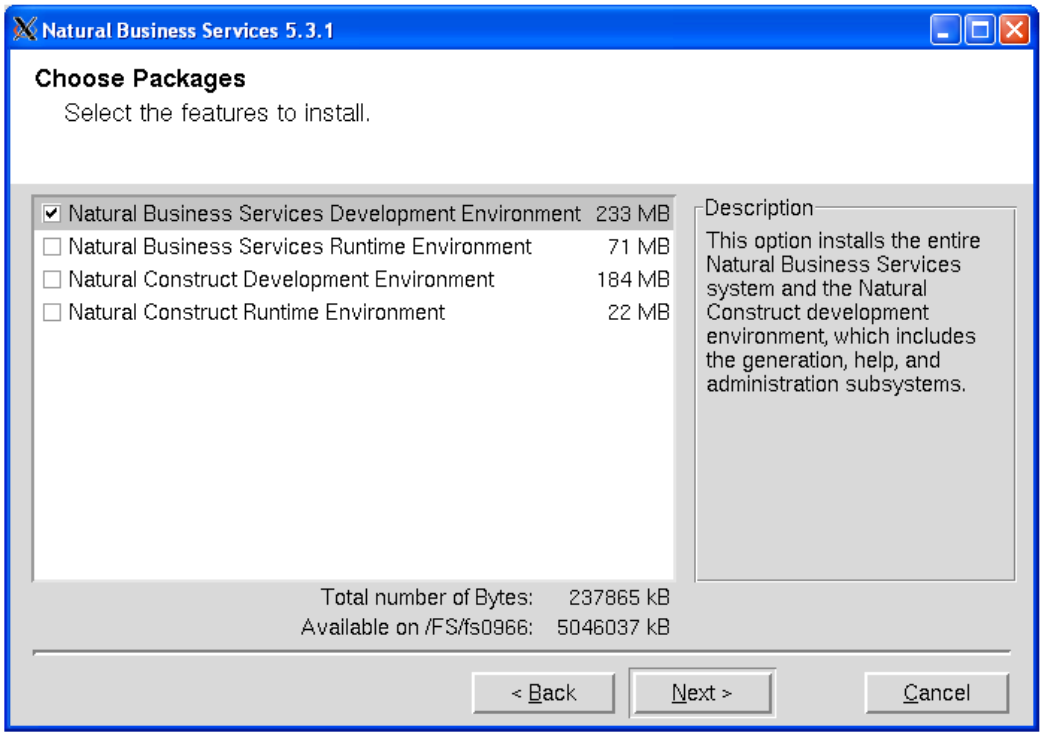
Step 8: Select the Installation Type

The default installation package is pre-selected and displayed on this panel. The total number of bytes required to install that package and the number of bytes available are also displayed.

Note: The packages displayed on this panel are based on the license file selected on the previous panel. If the license file indicates there is only one selection available, this panel and the following panel are not displayed.

a Review the installation information and select the package(s) you want to install.

For example:



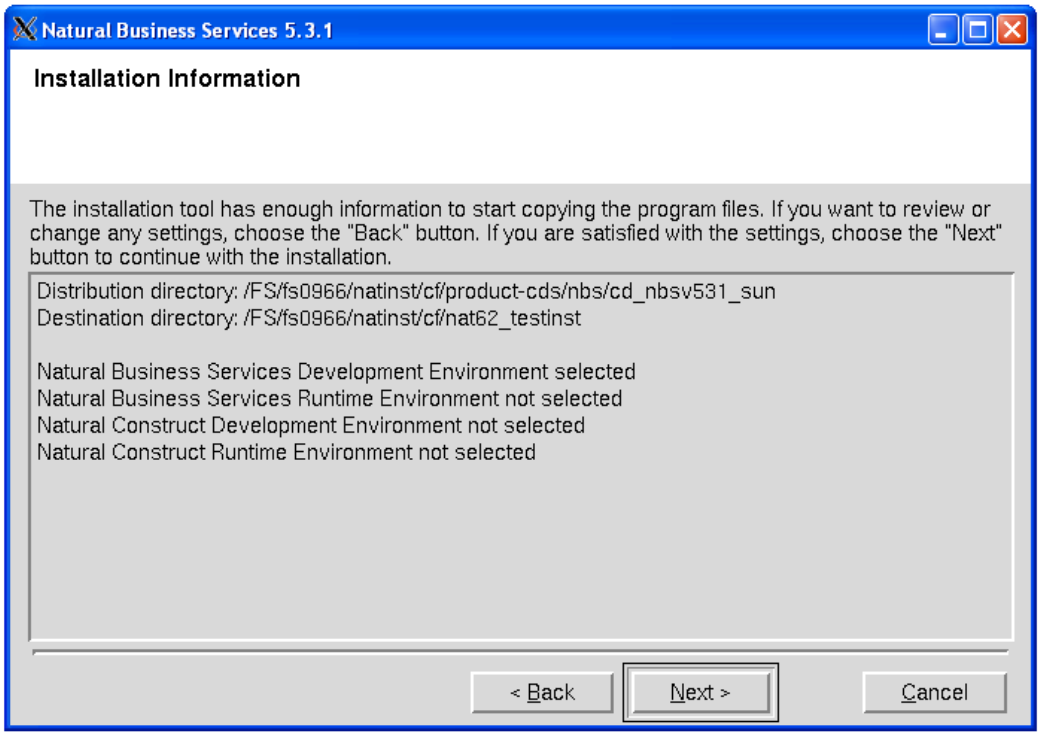
b Select **Next** to proceed.

Step 9: Review the Configuration Settings

Your installation settings are displayed on this panel.

a Review your configuration settings.

For example:



To change the settings, select **Back**.

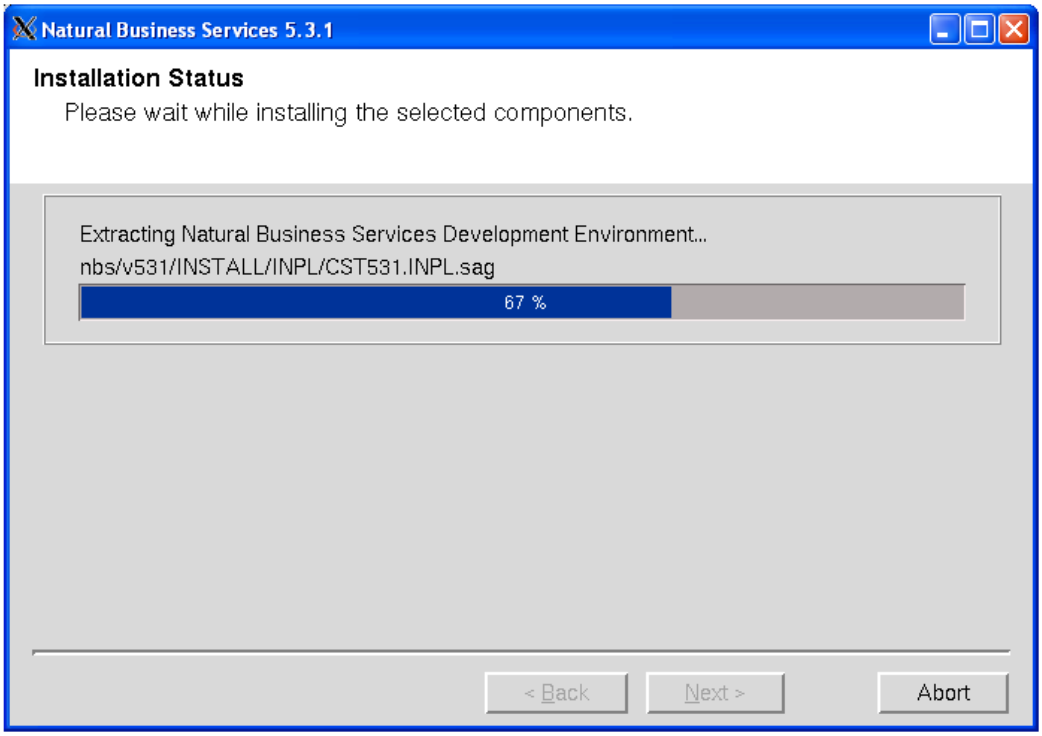
b Select **Next** to proceed.

Step 10: Begin Copying Files

The copy process begins.

a Wait while the selected components are installed.

For example:



Progress is indicated by a bar displaying a percentage scale. When the process ends, the total number of bytes extracted is displayed.

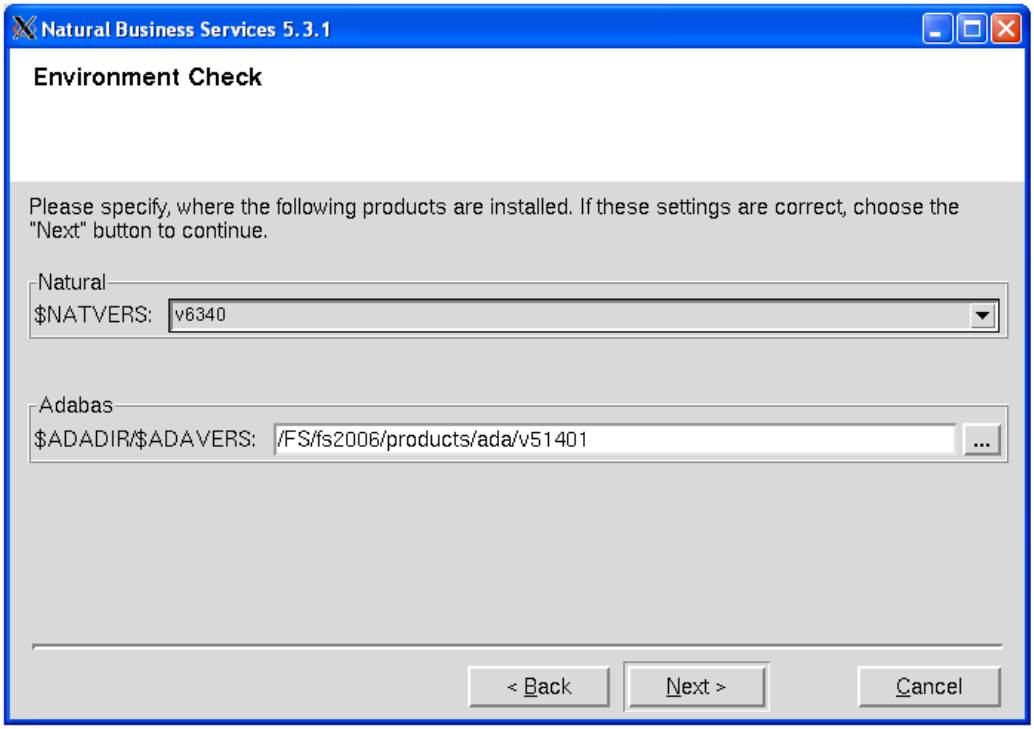
b Select **Next** to proceed.

Step 11: Confirm Natural and Adabas Versions

The default version numbers for Natural and Adabas are displayed, as well as the location where Adabas is installed.

a Verify the Natural and Adabas versions.

For example:



To change the default values:

Product	Procedure
Natural	Select a different version of Natural.
Adabas	Choose **...** and select a different location for Adabas.

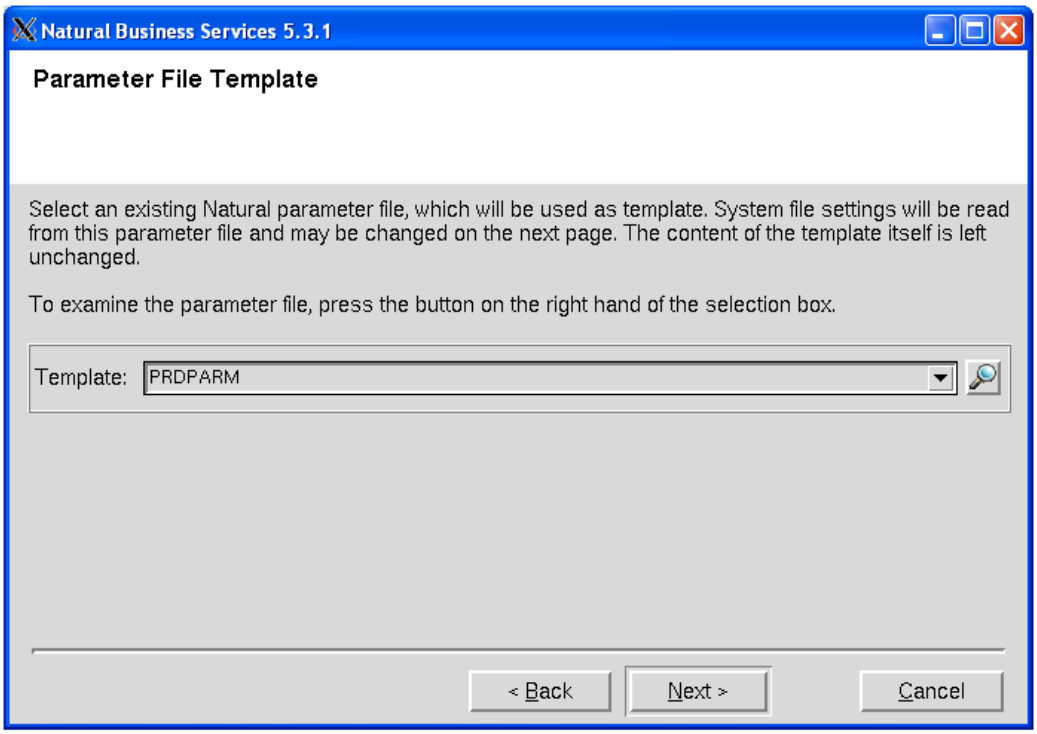
b Select **Next** to proceed.

Step 12: Select the Natural Parameter Module

The default Natural parameter module used as a template for a new Natural Business Services parameter module is displayed. The installation script reads the system file settings from this parameter module.

a Verify the Natural parameter module.

For example:



To change the Natural parameter module, select a different module in **Template**.

Note: You can change the FNAT settings during the following step. This will not change the contents of the module used as the template.

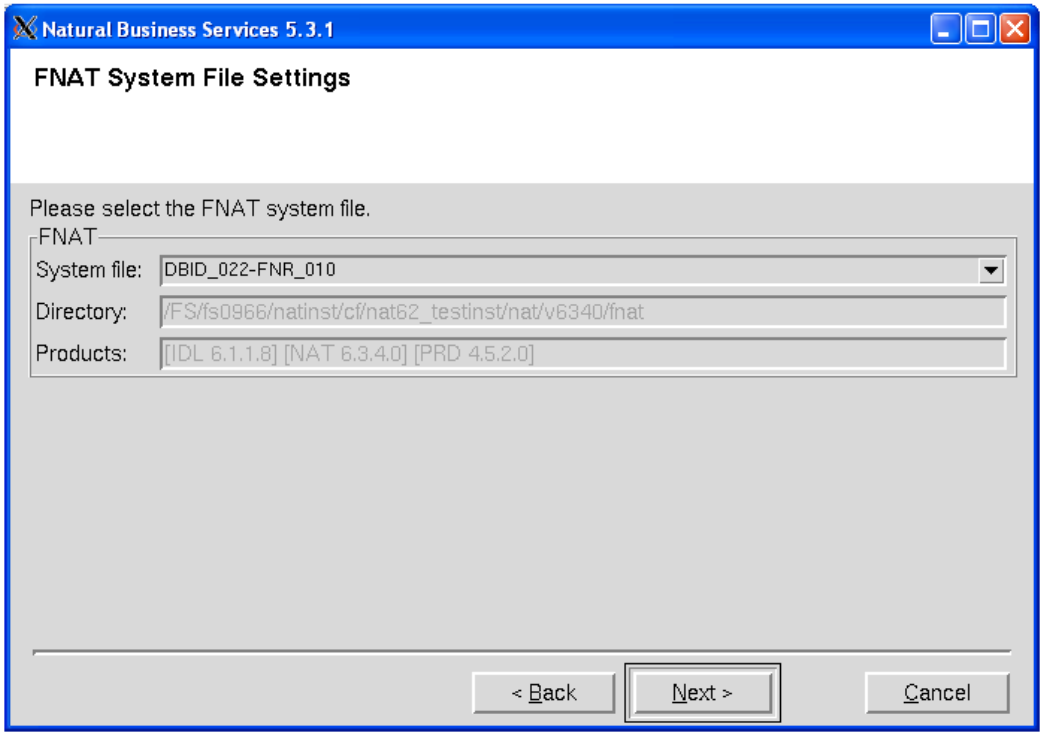
b Select **Next** to proceed.

Step 13: Review FNAT Settings

The default database ID (DBID) and file numbers (FNR) for the FNAT file should be displayed, as well as the path name for the FNAT directory. These settings are based on the Natural parameter module specified in **Select the Natural Parameter Module**.

a Verify the FNAT settings.

For example:



To change the default values, select a different file in **System file**.

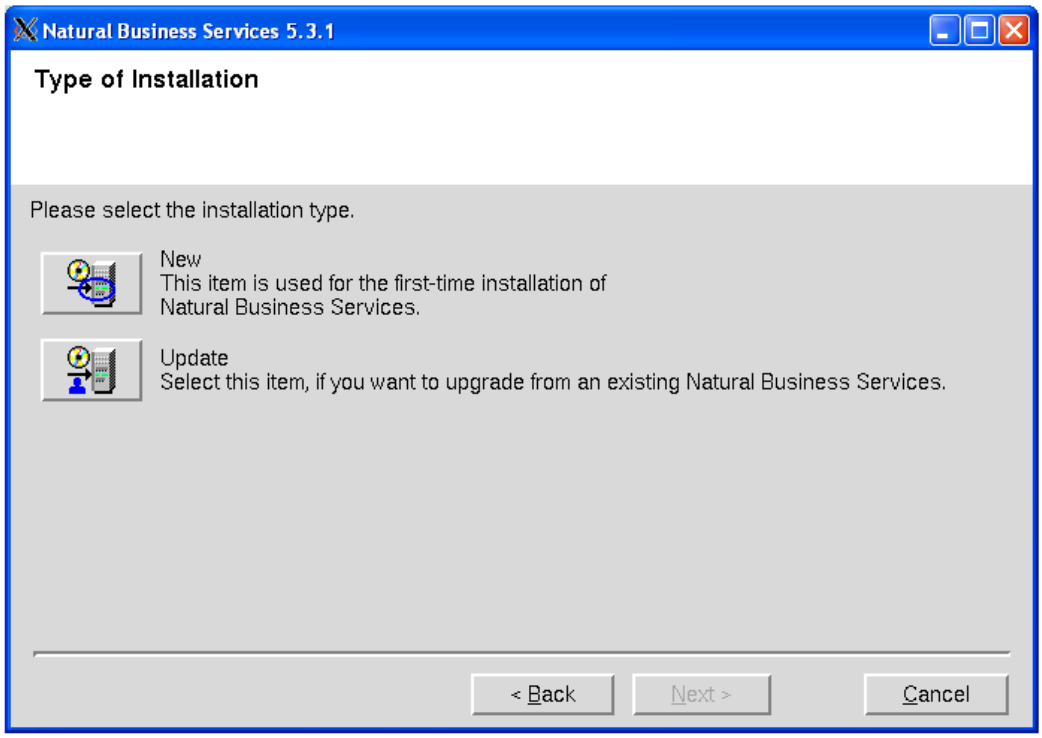
b Select **Next** to proceed.

Step 14: Select Type of Installation

By default, the steps performed during post installation are displayed.

a Select the type of installation.

For example:



Select one of the following options:

Option	Description
New	Install Natural Business Services for the first time.
Update	Upgrade from an earlier version of Natural Business Services.

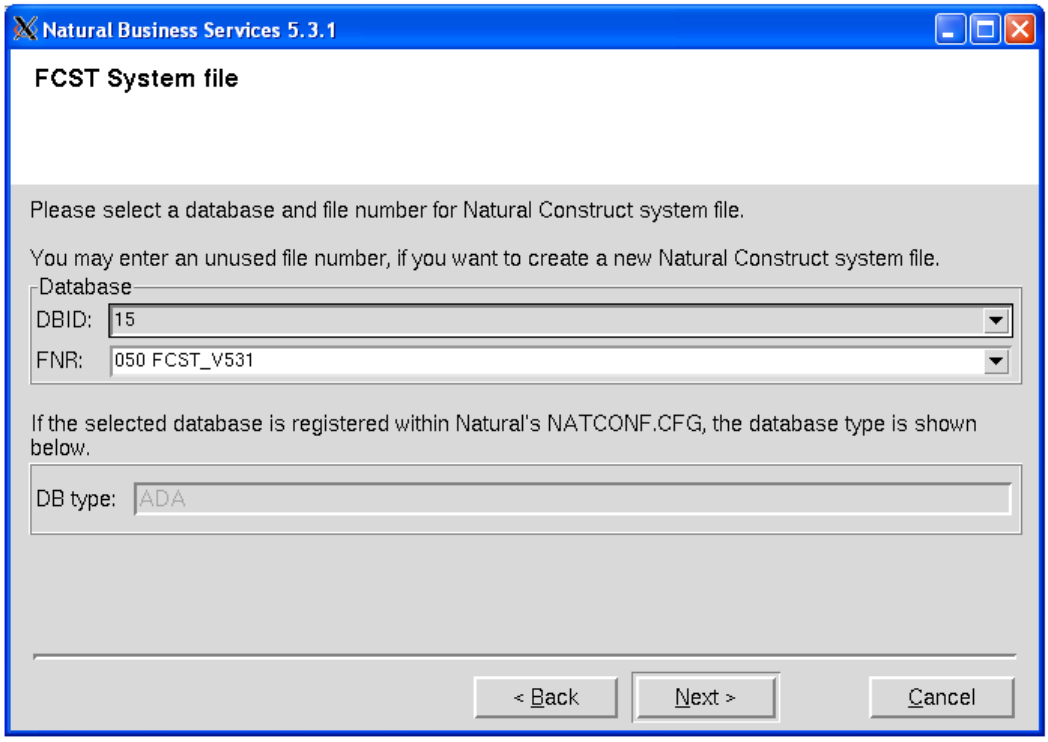
b Select **Next** to proceed.

Step 15: Confirm DBID and FNR for FCST System File (First-Time Only)

The default database ID (DBID) and file number (FNR) for the Natural Business Services FCST system file are displayed.

a Verify the DBID and FNR for the FCST system file.

For example:



To create a new Natural Construct system file, select a file number in FNR (or enter an unused file number).

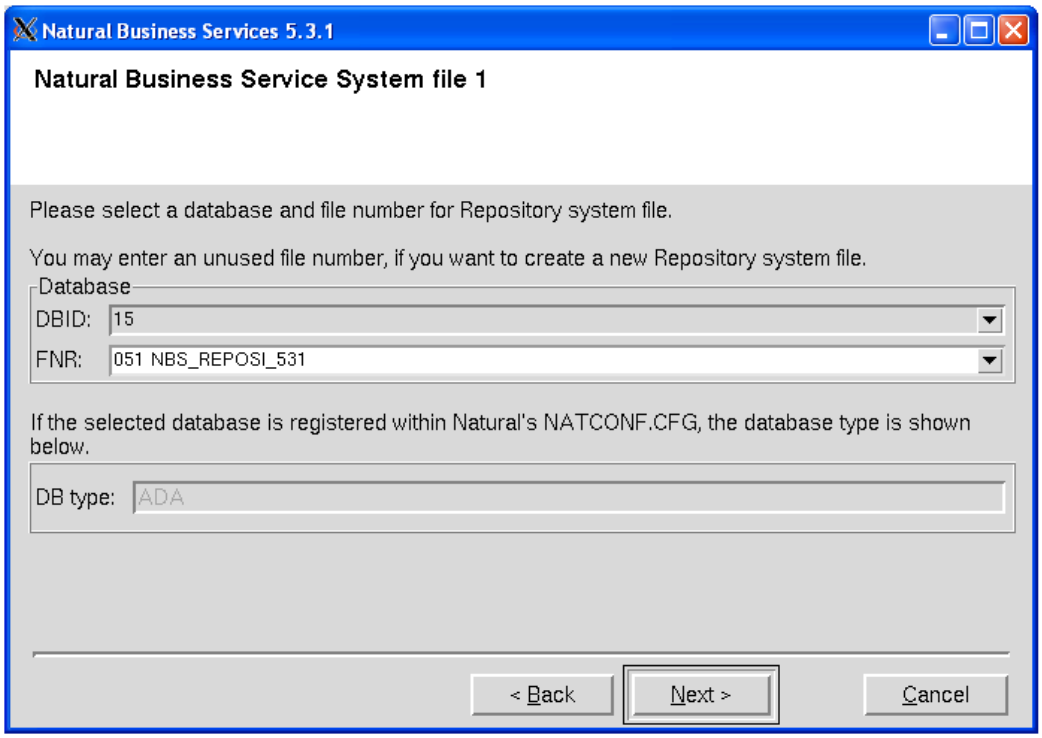
b Select **Next** to proceed.

Step 16: Confirm DBID and FNR for NBS System File 1 (First-Time Only)

The default database ID (DBID) and file number (FNR) for the Natural Business Services system file 1 are displayed.

a Verify the DBID and FNR for the NBS system file 1.

For example:



To create a new Repository system file, select a file number in FNR (or enter an unused file number).

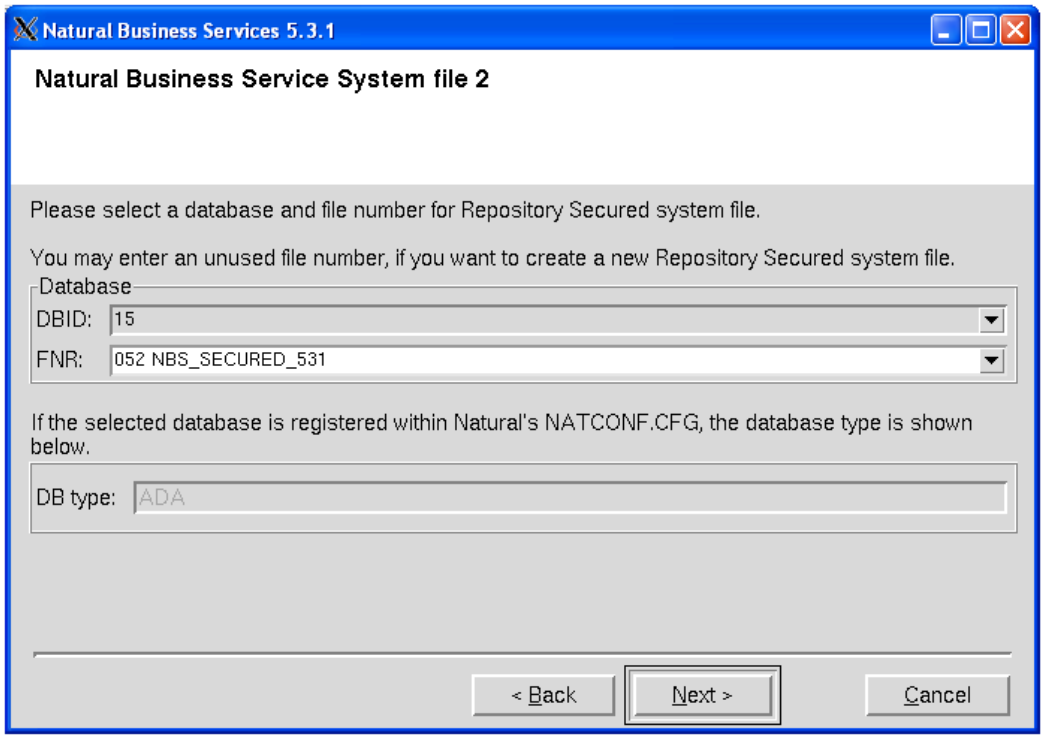
b Select **Next** to proceed.

Step 17: Confirm DBID and FNR for NBS System File 2 (First-Time Only)

The default database ID (DBID) and file number (FNR) for the Natural Business Services system file 2 are displayed.

a Verify the DBID and FNR for the NBS system file 2.

For example:



To create a new Repository Secured system file, select a file number in FNR (or enter an unused file number).

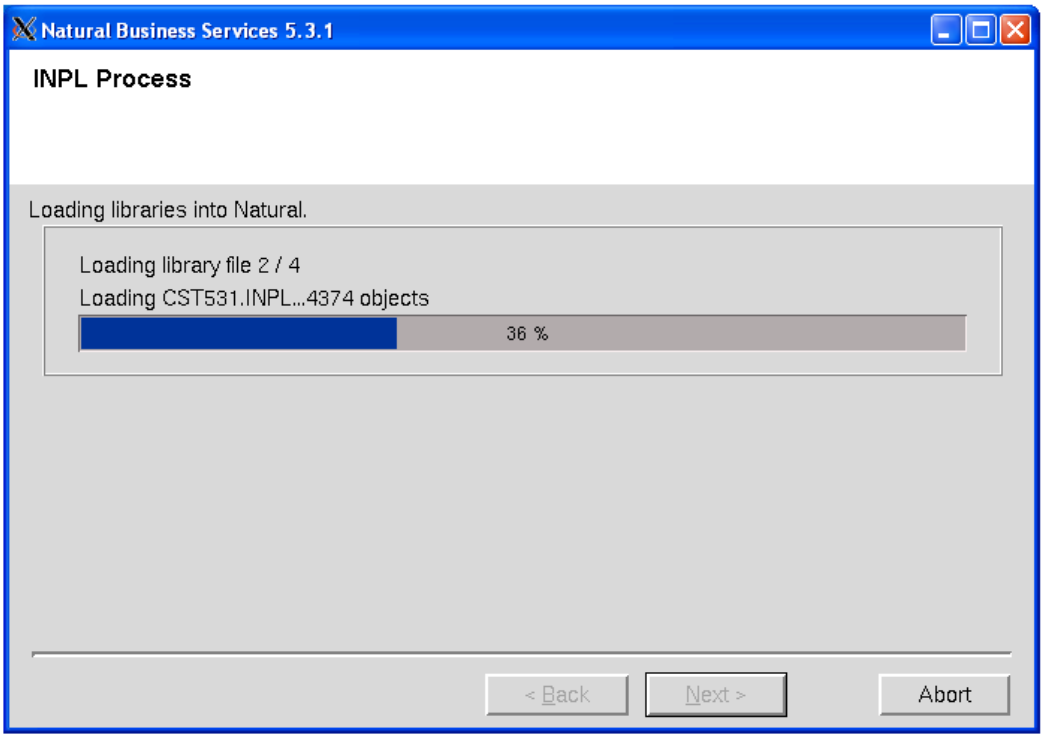
b Select **Next** to proceed.

Step 18: Start INPL Process

At this point, the INPL process begins and the libraries are loaded into Natural. Progress is indicated by a bar displaying a percentage scale.

a Wait while the installation script loads the libraries.

For example:



The INPL process does the following:

- Creates the INPL parameter module
- Checks the Natural buffer pool
- Backs up the FNAT directory
- Scans and/or loads the Natural Business Services libraries

Note: If Natural Security is installed, some datasets may not be loaded during the INPL process. For instructions on loading these datasets, see **Manual Installation Steps**.

b Select **Next** to proceed.

The installation procedure loads the following data from the Natural Business Services datasets:

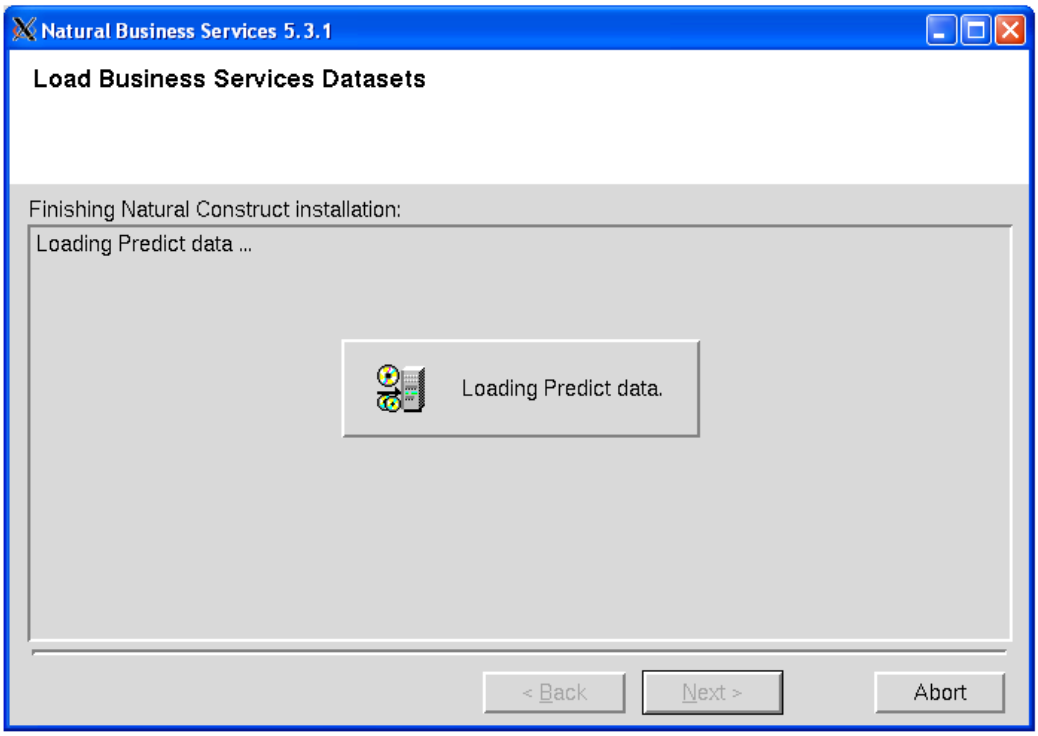
- Predict definitions of data used in the demo applications
- Natural Business Services code frames, help text, and models

Step 19: Load Additional Natural Business Services Datasets

The installation script loads additional Natural Business Services datasets. Progress is indicated by messages on the panel.

a Wait while the installation script loads the additional Natural Business Services datasets.

For example:



b Select **Next** to proceed.

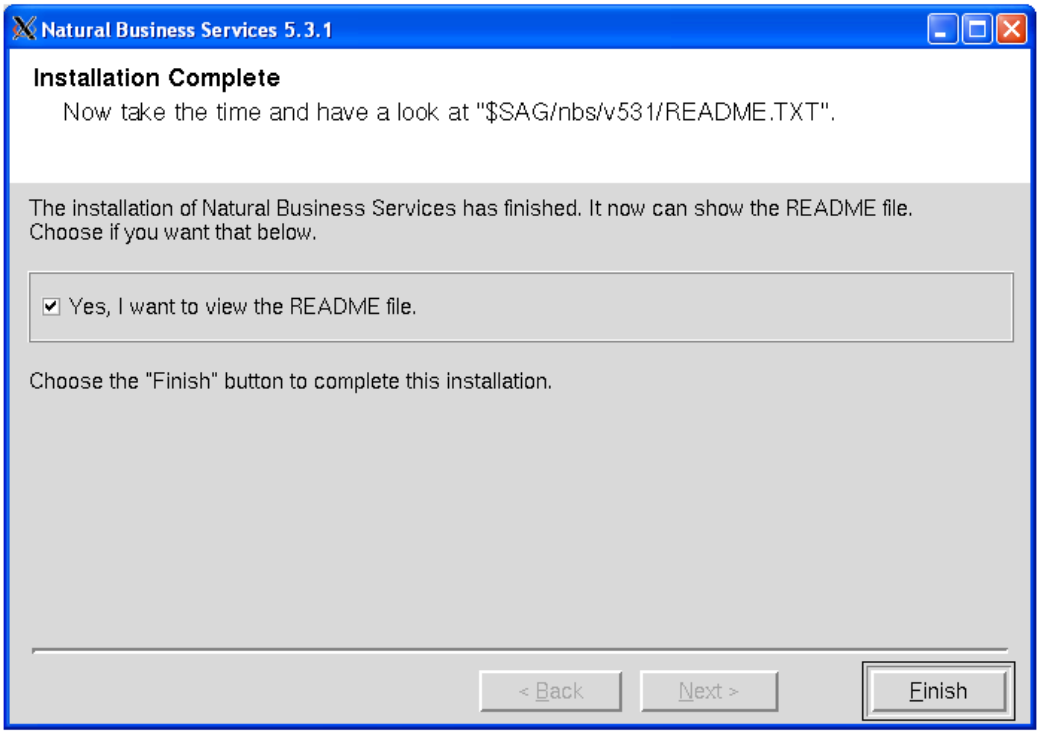
Step 20: Define SAG Environment File (Conditional)

Perform this step after the successful installation of Natural Security.

a Select the products and paths that will be written to the *sagenv.new* file.

b Select **Next** to proceed.

The Installation Complete panel is displayed. For example:



This panel informs you that the installation has finished successfully. You are advised to view the README file for further information.

Notes:

1. If you do not want to display the README file, remove the selection.
2. If Natural Security is installed, you must perform several manual installation steps. For information, see **Manual Installation Steps**.

c Select **Finish**.

d Remove the working directory and all of its contents (after the installation has been successfully completed).

Manual Installation Steps

You must perform the following steps manually; they are not part of the installation script:

Step 1: Execute the SAG Environment File

To set the `NATDIR`, `NATVERS` and `PATH` environment variables, execute the *sagenv.new* file. The environment file must be executed before using Natural Business Services.

Step 2: Define Libraries to Natural Security (First-Time Only)

If Natural Security is installed, start Natural with `PARM=NBSPARM` and define the following libraries to Natural Security:

Library	Contents
SYSBIZ	Natural Business Services administration data.
SYSBIZDE	Natural Business Services demo application.
SYSCST	Natural Construct administration data.
SYSCSTX	Natural Construct source code for user exits.
CSTAPPL	Natural Construct SYSERR message text.
SYSCSTDE	Natural Construct Adabas demo application.
SYSCSTDS	Natural Construct SQL demo application.

Step 3: Add SYSLIBS to Steplib Chain

To activate Natural Business Services, add the SYSLIBS library to your Natural steplib chain (if the library is not already in the steplib chain).

Note: If you use the Natural Security Administration option to define all Natural system libraries, ensure that the SYSLIBS library is defined as public. (By default, SYSLIBS is protected.)

Step 4: Load Skipped Datasets (Conditional)

If Natural Security is installed, some datasets may not be loaded during the INPL process.

To load datasets that were skipped during the INPL process:

- Load the following datasets using the utilities listed:

Dataset	Utility	Described In
CST*nnn*.DA4	SYSDICBE	Predict documentation (first-time only)
CST*nnn*.SYSM	CSMLOAD	*Natural Construct Generation*
CST*nnn*.SYSR	CSFLOAD	Multiple Code Frame Import Utility
CST*nnn*.SYSH	CSHLOAD	CSHLOAD Load Utility

Step 5: Verify System File Assignments

This step verifies that the profile was created correctly.

To verify the system file assignments:

1 Invoke Natural using the new NBSPARM profile.

2 Log onto the SYSBIZ library.

3 Issue the VERIFY command.

4 Enter LF.

The following output is displayed:

```
Construct System File (LFILE 227) checked successfully
NBS Secured File (LFILE 136) checked successfully
NBS Unsecured File (LFILE 135) checked successfully
FNAT System File checked successfully
FUSER System File checked successfully
FDIC System File checked successfully
```

Note: If you are installing Natural Business Services without Natural Construct, you do not require Predict. Therefore, you may encounter an Adabas 3061 error while reading the FDIC system file. If this happens, use the SYSPROF command to verify the system file assignments and, if necessary, use the NATPARM utility to correct the LFILE assignments in the NBSPARM profile.

If any file fails to verify:

1. Correct the NBSPARM profile.
2. Restart your Natural session.
3. Reissue the VERIFY command.

Step 6: Run the CVUSRCOP Utility (Conditional)

If Natural Security is installed, the following message may be displayed:

```
Since NSC is installed, some of the installation steps have to be performed manually.
```

If this message is displayed, run the CVUSRCOP utility from any library to copy the user exits.

Tip: If the CVUSRCOP utility returns a NAT4889 error: `SYSMAIN 4889 : Library is not defined to Natural Security`, apply the latest hot fixes for Natural Security.

Step 7: Verify USR* Subprograms

This step verifies that all required USR modules are available from within the current steplib chain.

To verify that all required USR modules are available:

1 Log onto the SYSBIZ library.

2 Issue the VERIFY command.

3 Enter "US".

The VERIFY program calls the USR routines to confirm their availability.

Step 8: Verify Software AG Editor

This step verifies the installation of the Software AG editor.

To verify the installation of the Software AG editor:

1 Log onto the SYSBIZ library.

2 Invoke the VERIFY program.

3 Enter "SE".

The VERIFY program:

1. Opens a Software AG editor session.
2. Writes lines to the Software AG editor.
3. Reads the lines back from the Software AG editor.
4. Closes the Software AG editor session.
5. Writes out a success/fail message.

Step 9: Load Default Repository Data

This step populates the Natural Business Services files with data for this version. The CSRLOAD program clears the source area, loads the current repository data, and generates entries required for the Broker attribute file. You must copy the entries manually.

To load the repository data:

1 Log onto the SYSBIZ library.

2 Invoke the CSRLOAD program.

The following panel is displayed:

```
This process will load the current repository. Make sure your LFILES
are set correctly. This program also clears the source area and generates
entries required for the BROKER Attribute File. These must be copied manually.

Enter default values to be used to establish server records...
  Broker ID ........ BKRnnn_____________________________
  Server qualifiers Prefix: __________ Suffix: __________
  Server Class ..... BUSINESS_____________________________ Unicode (Y/N): N
  Transaction ...... Natural_____________________________
  Profile FNAT DBID  _____99
  Profile FNAT FNR . ___107
  Profile .......... NBSPARM_ Path to CMPRINT: $NATDIR$NATVERS_____________________ ↩


Natural Security Settings...
  Servers under NSC  _
  User id .......... ____________________________________
  Password .........

Mark default records to be loaded...
  X Users             X Groups            X Domains            X Steplibs
  X Servers           X Business Services X Security Links
```

Note: For upgrades, only the Business Services records must be loaded (i.e., de-select all records except Business Services in `Mark default records to be loaded`).

Tip: If you create errors while specifying this data, you can manually change the repository data in the Business Service Administration subsystem (enter MENU SA MM SE in the command box).

3 Specify the default settings for the records to be loaded.

You can use the default values for most settings. Specify the following fields:

Field	Description
Broker ID	Name of the broker to use in this environment.
Server qualifiers	Prefix and suffix values added to the names of the server records being created. The combination of prefix and suffix characters must be less than or equal to 10.
Server class	Name of the server class under which the service will register with Broker. The default class name is BUSINESS, but you can change the name if desired.
Unicode	If you want NBS servers to invoke Natural subprograms that contain Unicode parameters, type "Y" in this field. For more information, see Use Unicode Parameters for Your Business Service. **Note:**

Field	Description
	1. The Broker attribute file definition generated by CSRLOAD will be different for a Unicode dispatcher, since the generated entry for SERVER=DISPATCH, SERVICE=MAIN will require CONVERSION=SAGTCHA. 2. The servers must run in a Unicode-enabled Natural environment.
Transaction	Name of the Natural nucleus under which the service will run. The default transaction name is Natural, but you can change the name if desired.
Profile FNAT DBID and FNR	Database ID and file number for the Natural FNAT system file in which the NBSPARM profile is located.
Profile	Name of the profile used. By default, NBSPARM is displayed.
Path to CMPRINT	Path to the batch output file for each server session. This path can be changed if desired, but it must reference an existing path before the server is started. For more information on CMPRINT, see DEBUG Command.
Natural Security Settings	If your servers run under Natural Security, mark Servers under NSC and specify a user ID and password; use the specified user ID and password to start all servers.

4 Press Enter.

The CSRLOAD program displays all records that are being loaded.

Note: If any records currently exist in your Natural Business Services files, they will not be replaced. The output report indicates which records were not replaced. Rename or delete the existing records and rerun the CSRLOAD program, specifying only the objects you want to load.

Load Servers Only

When using the CSRLOAD program, you can optionally load the servers only (Attach, Dispatch, Security, etc.). When loading servers, determine whether the servers will use Natural Security. Although the servers can use any setting for this option, problems may arise if you load a server that uses one option (for example, without assigning Natural Security) and then change the option (for example, specify Natural Security later). To eliminate this problem, you can load different sets of servers that have different options and specify a prefix or suffix to identify each set. For example, you can specify an NSC- prefix, select `Servers under NSC`, and enter a user ID and password to be used with NSC. You can also specify a different Broker (server) class for each set of servers to help with the Broker administration. This allows the same set of servers to start up with and without Natural Security.

Note: To allow the secure and non-secure servers to run at the same time, define the settings for both sets of servers in Broker.

To load the servers only:

1 Log onto the SYSBIZ library.

2 Invoke the CSRLOAD program.

3 Select one or more server options.

4 De-select all options except `Servers` in the Default Records to be Loaded section.

For example:

```
This process will load the current repository. Make sure your LFILES
are set correctly. This program also clears the source area and generates
entries required for the BROKER Attribute File. These must be copied manually.

Enter default values to be used to establish server records...
  Broker ID ........ BKRnnn_____________________________
  Server qualifiers Prefix: __________ Suffix: __________
  Server Class ..... BUSINESS_____________________ Unicode (Y/N): N
  Transaction ...... Natural_____________________
  Profile FNAT DBID  ____99
  Profile FNAT FNR . ___107
  Profile .......... NBSPARM_ Path to CMPRINT: $NATDIR$NATVERS_________________ ↩


Natural Security Settings...
  Servers under NSC  _
  User id .......... ____________________________________
  Password .........

Mark default records to be loaded...
  _ Users             _ Groups            _ Domains            _ Steplibs
  X Servers           _ Business Services _ Security Links
```

5 Press Enter.

The selected servers are loaded.

Create Servers for Other Environments

You can also run the CSRLOAD utility again to create servers for other environments. To create servers for other environments, add a prefix or suffix as server qualifiers and specify an alternate server class.

Step 10: Update Broker Attribute File

When the CSRLOAD program ends, the Natural source area contains the definitions required for the Broker attribute file. Copy these definitions from the source area to your Broker attribute file and confirm the following global settings:

```
*--------------------------------------------------------------------*
* Broker specific Attributes / Definition of global resources       *
*--------------------------------------------------------------------*
 DEFAULTS = BROKER
   NUM-CLIENT        = 250
   NUM-CONVERSATION  = 1000
   NUM-SERVER        = 50
   NUM-SERVICE       = 500
   NUM-LONG-BUFFER   = 500
   NUM-SHORT-BUFFER  = 2000
```

Step 11: Verify Broker Attribute File

This step verifies the additions to the Broker attribute file.

To verify the Broker attribute file additions:

1 Log onto the SYSBIZ library.

2 Issue the VERIFY command.

3 Enter "AF".

A confirmation message is displayed:

```
Business service                        Broker service
------------------------ ------------------------------------------------
ATTACH                   BKR057/BUSINESSSERVICES-QA/ATTACH/MAIN
                         MAIN and CMD services registered successfully
CFACTORY                 BKR057/BUSINESSSERVICES-QA/CFACTORY/MAIN
                         MAIN and CMD services registered successfully
DISPATCH                 BKR057/BUSINESSSERVICES-QA/DISPATCH/MAIN
                         MAIN and CMD services registered successfully
SECURITY                 BKR057/BUSINESSSERVICES-QA/Security/MAIN
                         MAIN and CMD services registered successfully
TIMESTAMP                BKR057/BUSINESSSERVICES-QA/TIMESTAMP/MAIN
                         MAIN and CMD services registered successfully
```

If any errors appear in the output, correct either the records in your Natural Business Services file or the definitions in your Broker attribute file and rerun the test.

Step 12: Verify Message Queue API

This step verifies the message queue API.

To verify the message queue API:

1 Log onto the SYSBIZ library.

2 Invoke the VERIFY program.

3 Enter "MQ".

The VERIFY program:

1. Calls the message queue (conversation factory) APIs to pass data (as a multi-part message). This confirms that no limits are specified on Broker message lengths that will cause SQUSEND/SQURECV to fail.
2. Sends the binary values from H'00' to H'FF'. This confirms that no translation routine was added to the Broker attribute file.
3. Confirms that the data it receives matches the data it sent.

Step 13: Confirm all Verifications

This step confirms that all verifications have been successful.

To confirm all verifications:

1 Log onto the SYSBIZ library.

2 Invoke the VERIFY program.

3 Enter "*".

The program performs all verifications and confirms that:

- the required Adabas files are available
- the required class/server/service combinations for NBS have been defined in the Broker attribute file
- the required Natural user exit routines are available
- the program editor is available
- the middleware connection is working

- the steplib chain settings are correct

Install the Natural Client Service Runtime Component

The Natural Business Services Natural client service runtime component is available on the CD structure in the top-level path *client*/. It contains several Java modules and the documentation set. The Java modules can be loaded on an OS platform (Windows, UNIX, or Linux).

To install the Natural client service runtime component:

1 Load the NBS*nnn*.NCSR.sag dataset as follows:

- Invoke the Natural INPL utility.
- Set work file 1 to the dataset name.
- Enter the following:

```
INPL
B
```

2 Run the CVCLICOP utility.

This utility copies the USR and Natural routines required by the Natural client service runtime component. The following table describes which libraries the applicable routines are copied from and to:

Routines	From	To
USR	SYSEXT library	SYSTEM library
NAT	SYSLIBS library	SYSTEM library

Install Natural Construct in Static (One-Language) Mode

By default, Natural Construct is installed in dynamic (multilingual) mode, which allows users to display Natural Construct in any available language. If you intend to run the system in one language only, you can install Natural Construct in static (one-language) mode to improve performance and reduce database calls. For information, see Static (One-Language) Mode.

Note: Installing in static mode does not limit your ability to generate multilingual applications; static mode applies to the Natural Construct interface only.

3 After Installing Natural Business Services

After Natural Business Services has been successfully installed, a variety of post-installation activities are necessary.

Post-Installation Steps Common to All Software AG Products

This section describes the activities that must be performed for *all* Software AG products after the installation procedure for your Software AG product has been successfully completed.

Dismount and Unload CD-ROM

Dismount the CD-ROM and unload it using the following commands:

Command	Description
`su - root`	To dismount a CD-ROM you must be root.
`umount mount-dir`	Execute the umount command.
`rmdir mount-dir`	Remove the mount-directory (optional).
`exit`	Return to SAG user.

Note: On Solaris machines on which the volume management daemon *vold* is active, use the `eject(1)` command to dismount and unload your CD-ROM.

Check Images

Ensure that all installed images are owned by the "sag" user and have the "sag" group ID.

Create the sagenv Environment File

The product installation generates a *sagenv.new* environment settings file.

1. Review the contents of *sagenv.new* and customize it as necessary.
2. Rename *sagenv.new* to another file name (optional). In the following examples, it is assumed that the environment file is called *sagenv*.

Note: If you are performing an update installation and changes were made to your environment, only replace the modified product-specific part in your existing *sagenv* file.

Modify User Profiles

Enter the following command line in the *.profile* file for each permanent user in this environment:

```
. SAG-root-directory/sagenv
```

Post-Installation Steps for Natural Business Services

After installing Natural Business Services, there are several procedures you can perform to ensure that the product has been installed correctly. This section describes the following topics:

- Regenerate and Recatalog the Natural Business Services Demo System
- Access the Business Service Administration Subsystem
- Regenerate and Recatalog the Natural Construct Demo System
- Access the Natural Construct Demo System
- Access the Natural Construct Help Text Subsystem
- Access the Natural Construct Administration and Modeling Subsystem

Regenerate and Recatalog the Natural Business Services Demo System

To regenerate and recatalog the Natural Business Services demo system:

1 Log onto the demo system as follows:

- SYSNBSDE for Adabas
- SYSNBSDS for SQL

2 Enter NCSTBGEN in the Direct Command box.

The Multiple Generation panel is displayed.

3 Type * in the first Module field.

4 Type x in the Catalog regenerated modules field.

5 Press Enter.

The utility regenerates all modules and produces a report listing the names of the modules it generated.

Note: If the modules cannot be regenerated or recataloged, check the Natural parameters. If a NAT0082 error occurs, one or more modules is not loaded. Check the INPL jobs to determine which modules are missing.

Access the Business Service Administration Subsystem

To access the Business Service Administration subsystem:

1 Log onto the SYSBIZ library.

2 Enter menu in the Direct Command box.

The Business Service Administration Subsystem main menu should be displayed.

3 Enter AA in the Function field.

The Application Administration main menu is displayed.

4 Enter MM in the Function field.

The Application Administration Maintenance menu is displayed.

5 Enter DO in the Function field.

The Maintain Domains Table panel is displayed.

6 Enter B in the Action field.

The Select Domain window is displayed. Ensure that the supplied domains are loaded. These domains are ADMIN, CST, DEMO, INTERNAL, and VBADDIN.

Regenerate and Recatalog the Natural Construct Demo System

To regenerate and recatalog the demo system:

1 Log onto the demo system as follows:

- SYSCSTDE for Adabas
- SYSCSTDS for SQL

2 Enter NCSTBGEN in the Direct Command box.

The Multiple Generation panel is displayed.

3 Type * in the first Module field.

4 Type x in the Catalog regenerated modules field.

5 Press Enter.

The utility regenerates all modules and produces a report listing the names of the modules it generated.

Note: If the modules cannot be regenerated or recataloged, check the Natural parameters. If a NAT0082 error occurs, one or more modules are not loaded. Check the INPL jobs to determine which modules are missing.

Access the Natural Construct Demo System

To access the demo system:

1 Enter menu in the Direct Command box.

The Order Entry main menu should be displayed.

2 Select a function from the menu.

Ensure that the function is available and working.

Access the Natural Construct Help Text Subsystem

To access the Help Text subsystem:

1 Enter ncsth in the Direct Command box.

The Help Text main menu should be displayed.

2 Enter L in the Function field to list the available help members.

Ensure that the Natural Business Services help members are loaded.

Access the Natural Construct Administration and Modeling Subsystem

To access the Natural Construct Administration and Modeling subsystem:

1 Log onto the SYSCST library.

2 Enter menu in the Direct Command box.

The Administration main menu should be displayed.

3 Enter M in the Function field.

The Maintain Models panel is displayed.

4 Enter B in the Action field.

The Select Model window is displayed. Ensure that the supplied models are loaded.