

# **Natural Business Services**

## **Installation on Linux**

Version 8.2.2

November 2023

This document applies to Natural Business Services Version 8.2.2 and all subsequent releases.

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

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## Preface

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This documentation describes the installation of Natural Business Services on a Linux platform.

Natural Business Services is installed using the Software AG Installer, which you download from the Software AG Empower website at <https://empower.softwareag.com/>.

This documentation provides product-specific instructions for installing Natural Business Services. It is intended for use with *Using the Software AG Installer*. That guide explains how to prepare your machine to use the Software AG Installer, and how to use the Software AG Installer and Software AG Uninstaller to install and uninstall your products. The most up-to-date version of *Using the Software AG Installer* is always available at <http://documentation.softwareag.com/> (Empower login required).

This documentation is organized under the following headings:

<b>System Requirements</b>	Supported operating system platforms and prerequisites.
<b>Important Information</b>	Important information that you should be aware of before you start the installation.
<b>Installing Natural Business Services</b>	How to install Natural Business Services with the Software AG Installer.
<b>Completing the Installation</b>	How to proceed after the installation.
<b>Uninstalling Natural Business Services</b>	How to uninstall Natural Business Services.

For important last-minute information, see the readme file that is provided with Natural Business Services. You can find it in the Natural Business Services product documentation at <http://documentation.softwareag.com/> (Empower login required).

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# 1

## About this Documentation

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## Document Conventions

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Convention	Description
<b>Bold</b>	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <i>folder.subfolder.service</i> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies:  Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies:  Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the   symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

## Online Information and Support

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### Product Documentation

You can find the product documentation on our documentation website at <https://documentation.softwareag.com>.

In addition, you can also access the cloud product documentation via <https://www.software-ag.cloud>. Navigate to the desired product and then, depending on your solution, go to “Developer Center”, “User Center” or “Documentation”.

### Product Training

You can find helpful product training material on our Learning Portal at <https://knowledge.softwareag.com>.



## Tech Community

You can collaborate with Software AG experts on our Tech Community website at <https://tech-community.softwareag.com>. From here you can, for example:

- Browse through our vast knowledge base.
- Ask questions and find answers in our discussion forums.
- Get the latest Software AG news and announcements.
- Explore our communities.
- Go to our public GitHub and Docker repositories at <https://github.com/softwareag> and <https://hub.docker.com/publishers/softwareag> and discover additional Software AG resources.

## Product Support

Support for Software AG products is provided to licensed customers via our Empower Portal at <https://empower.softwareag.com>. Many services on this portal require that you have an account. If you do not yet have one, you can request it at <https://empower.softwareag.com/register>. Once you have an account, you can, for example:

- Download products, updates and fixes.
- Search the Knowledge Center for technical information and tips.
- Subscribe to early warnings and critical alerts.
- Open and update support incidents.
- Add product feature requests.

## Data Protection

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Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.



## 2 System Requirements

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## Operating Environments

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### Operating System

Natural Business Services functions in any Linux environment that supports Natural Version 8.3.1 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.

### Natural 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.

## Memory Space Requirements

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

The memory space per user is determined by the settings in the parameter file, especially by the values of profile parameters such as `USIZE` and `SSIZE`. By default, Natural is invoked with the parameter file `NATPARM`. However, you can also invoke Natural with an alternative parameter file (by specifying, for example, `PARM=myparm`).

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

## Disk Space Requirements

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Approximately 317 MB of hard-disk space is required for all components of Natural Business Services (without any Natural or Software AG Installer packages). This value depends on the installation hardware. On some platforms, it is higher.

If you install Natural and/or other required products in one step with Natural Business Services, see the installation documentation for these products for further information.

## Software Requirements

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Natural Business Services requires:

- Natural Version 8.3 or higher
- Adabas Version 6.3 or higher
- EntireX Version 9 or higher
- Predict Version 8.2 or higher (optional, but recommended for full Natural Business Services installation and Natural Construct development version)

It is recommended that you use the latest versions of the above listed Software AG products. The above mentioned product versions are the minimum versions for all platforms. On some platforms, this version may already be out of maintenance. In this case, the last version is the lowest version to be used.

You can view all available Software AG product versions and check the dates when their maintenance ends by visiting Software AG's Empower web site at <https://empower.softwareag.com/>. Go to **Products > Product Version Availability**.

## License File

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During the installation of Natural Business Services, the Software AG Installer prompts you to enter the path to a valid license file. The license file is an XML file which is delivered by e-mail.

The components that can be installed with Natural Business Services are based on your license file.



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## Important Information

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## Administrator Status

---

During the installation, the **Sudo** panel may appear. This happens because Natural Business Services depends on the installation of Natural where the **Sudo** panel may be used. For the installation of Natural Business Services, however, you do not need sudoers privileges.

## User ID for Installation

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Natural Business Services depends on Natural. Therefore, the user ID under which you run the Software AG Installer must not be longer than eight characters. If you use a longer user ID, an error message is shown. You can then exit the installer and use a different user ID or - in case you also want to install other products - return to the product selection tree and deselect Natural.

## Installation Directory

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During the installation, you are asked to specify an installation directory. The installation of Natural Business Services requires the installation of Natural. If Natural is already installed, choose the directory of your Natural installation. Otherwise, see *Installation* in the Natural for Linux documentation for detailed information regarding the installation directory. The user that you are using to install must have full read and write permissions to this directory.

## File Permissions

---

The user who starts the installation owns all files that are installed.

The user file-creation mode mask (`umask` command) determines the file permissions for newly created files. Make sure that the `umask` command you are using for the installation will not prevent users from accessing and executing the installed files. On Linux systems, for example, the command `umask 022` allows full access rights for the file owner and read-only access rights for group members and others.



## Side-by-Side Installations

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Natural Business Services is a Natural application. Therefore, the rules for Natural also apply for Natural Business Services. For detailed information regarding side-by-side installations, see *Installation* in the Natural for Linux documentation.

## FNAT Usage

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By default, a new FNAT system file is created in the installation directory during the installation of Natural (`<install-dir>/Natural/fnat`). This FNAT must always exist, and the global configuration file must have an entry which defines this FNAT.

Natural Business Services can only be installed into this FNAT.



**Note:** If you want to check or edit the settings in the global configuration file, use the Natural Configuration Utility.

The Software AG Installer maintains an internal list of installed products, which must coincide with the add-ons that are currently installed in the FNAT. This is important for updates and uninstallations to work correctly.

For this reason:

- Do not install products into the FNAT without the use of the Software AG Installer.
- Do not replace the default FNAT (`<install-dir>/Natural/fnat`) with another FNAT.
- Make sure to complete the installation of Natural Business Services by using the SYSPCI utility (this is explained later in this documentation).

If an error occurs due to the above-mentioned scenarios, the only way to solve the problem is a new installation. In some situations, one of the following workarounds may help:

- Workaround 1: Complete the previous installation by using the SYSPCI utility.
- Workaround 2: Uninstall the product and then start the installation once more.

## FUSER Usage

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During the installation of Natural Business Services, product-specific information is written to the FUSER system file (*<install-dir>/Natural/fuser*).

If you are using your own FUSER, it is required that you also have a default FUSER in *<install-dir>/Natural/fuser* and that you have specified its path in the global configuration file *natconf.cfg*. In addition, you have to copy the Construct modules from this default FUSER to your own FUSER after the installation.

Do not use a different FUSER after the installation of Natural Business Services. Otherwise, messages in libraries starting with CST\* and in the SYSTEM library will be missing, and screens such as the Construct menu will show numbers instead of text.

## Upgrading Your Natural Business Services Environment

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When one of the first two digits of the version number changes, we consider an installation as an upgrade installation.

Natural Business Services is a Natural application. Therefore, it is not possible to upgrade an existing Natural Business Services installation under Natural Version 6.3 with a Natural Business Services Version 8.2 installation.

## Updating Your Natural Business Services Environment

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When the first two digits of the version number remain the same and the third or fourth digit changes, we consider an installation as an update installation.

An update installation does not prompt again for license files. The existing license files will be used.

## Installing Natural Construct Over an Existing Version

A new Natural Construct version delivers the file `<install-dir>/NaturalBusinessServices/INSTALL/data/CST.SYSR` containing code frames. The original code frame names (for example, COPA9) have the suffix "9". If there is a Natural Construct fix for code frames, the name will have the suffix "8" (for example, COPA8), the next fix the suffix "7", and so on. Natural Construct itself will use the code frame with the lowest prefix. Therefore, 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.



**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".

## NBSPARM Parameter File

If you have an existing parameter file called NBSPARM, the installation will reuse the current settings in NBSPARM. However, the following parameters will be set or reset:

- BPSFI=OFF
- CMPRINT=\$CMPRINT
- MADIO=0
- MAXCL=0
- STACK will be reset
- WORK=32
- The definitions for the work files 1 through 5 will be set to \$WRKF1 through \$WRKF5. Make sure that \$WRKF1 through \$WRKF5 are defined in your environment when needed.

To preserve your NBSPARM parameter file, either make a backup copy or rename the parameter file before installing Natural Business Services.



## 4 Installing Natural Business Services

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This installation documentation provides just a brief description on how to install Natural Business Services directly on the target machine using the Software AG Installer GUI. For detailed information on the Software AG Installer, see *Using the Software AG Installer*.

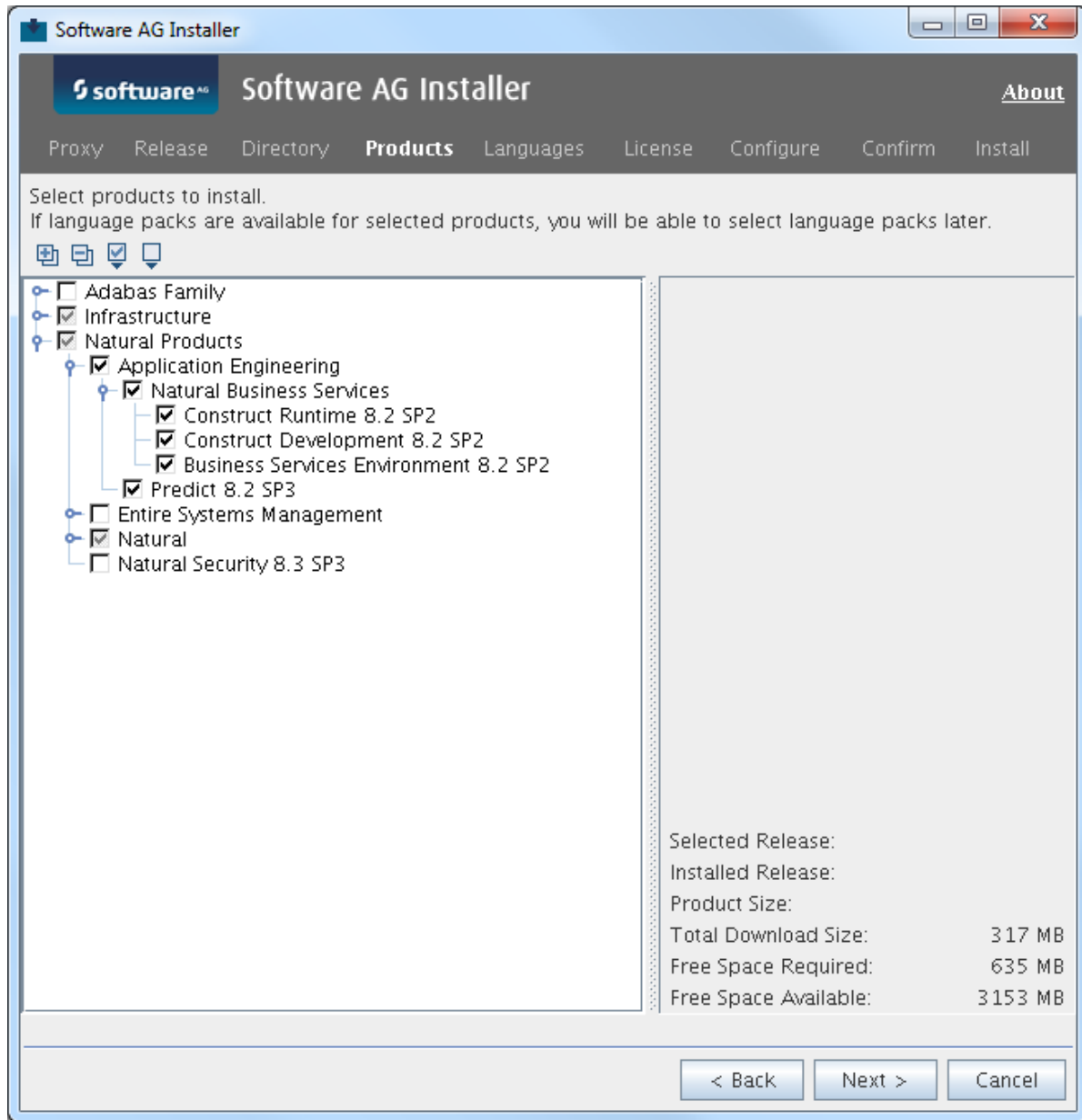
### » To install Natural Business Services

Software AG provides license files for Natural Construct and/or Natural Business Services. Copy the license file to the machine on which you want to install Natural Business Services. You can copy the license file to any temporary location. The installer will ask for the location of your license file and will then copy it to the *common/conf* directory of your installation directory. Exception: A license file is not required if you only want to install the Natural Construct runtime environment.

- 1 Start the Software AG Installer GUI as described in *Using the Software AG Installer*.
- 2 When the first page of the Software AG Installer GUI (the so-called Welcome panel) is shown, choose the **Next** button repeatedly (and specify all required information on the shown panels as described in *Using the Software AG Installer*) until the panel containing the product selection tree appears. This tree lists the products you have licensed and which can be installed on the operating system of the machine on which you are installing.
- 3 To install Natural Business Services with all of its product components, expand the **Natural Products** node and select **Application Engineering > Natural Business Services**.

Or:

Expand **Natural Products > Application Engineering > Natural Business Services** and select the product components that you want to install.



**Note:** Products or product versions which are already installed in the selected installation directory are shown as disabled.

The following product components are available:

#### ■ **Construct Runtime**

This option installs a Natural Construct runtime environment, which allows you to catalog and run generated modules, but not to generate modules. It does not install the Natural Business Services environment.

### ■ **Construct Development**

This option installs a Natural Construct development environment, which allows you to generate modules and to catalog and run generated modules. Furthermore, it includes the help and administration subsystems. It does not install the Natural Business Services environment.

### ■ **Business Services Environment**

This option installs the Natural Business Services environment, which allows you to create and maintain business services. It requires the Construct Runtime or Construct Development environment.

The installer automatically selects any additional components which are also required. If you have not yet installed the Natural development environment and/or Predict, these components are automatically selected.

Natural Business Services also requires Adabas. However, since it is possible to use a remote Adabas installation or an older Adabas version, this is not automatically selected in the tree.

- 4 Choose the **Next** button.
- 5 Read the license agreement, select the check box to agree to the terms of the license agreement, and choose the **Next** button.



**Note:** If you are installing other products together with Natural Business Services, several panels may appear that are not explained in this documentation. See the documentation for these products for more information.

- 6 First-time installation only. Depending on your selection in the tree, the installer may ask for a license file. Enter the full path to the license file (or use the **Browse** button to select it from a dialog box), and choose the **Next** button.
- 7 On the last panel, review the list of products and items you have selected for installation. If the list is correct, choose the **Next** button to start the installation process.

When the Software AG Installer has completed the first-time installation, additional configuration steps are required. See [Completing the Installation](#) for further details.





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## Completing the Installation

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## Defining the Natural Business Services Libraries to Natural Security

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After you have installed Natural Business Services for the first time and if Natural Security is active, you have to define the following in Natural Security (for detailed information, see *Natural Security* in the Natural for Linux documentation):

1. Define the utility profile for the SYSMAIN utility and allow the function **Co** (copy) for **Programming Objects**.
2. Define the following libraries:

SYSCST  
SYSDIC  
SYSDICBE  
SYSEXT  
SYSLIBS  
SYSMAP  
SYSBIZ



**Important:** You have to do this before invoking the SYSPCI utility for Natural Business Services. Otherwise, the initialization with the SYSPCI utility will fail.

## Setting Up Your Products Using the SYSPCI Utility

---

After you have installed your product, you need to set up a number of files, parameters and individual settings depending on your environment. These are described below. To set them up, you use the SYSPCI utility. For detailed information on this utility, see *SYSPCI Utility - Product Configuration and Initialization* in Natural's *Tools and Utilities* documentation.

Natural Business Services requires the following Adabas system files:

NBS\_REPOSI, where the logical file number (LFILE) is 135  
NBS\_SECURED, where the logical file number (LFILE) is 136

Natural Construct requires the following Adabas system file:

FCST, where the logical file number (LFILE) is 227

The database IDs and file numbers of the new or existing files that you specify using the SYSPCI utility are entered into the default parameter file NBSPARM.

The required Adabas files can either be local or remote.

### ■ Remote Access

If the file is located in a remote database, Entire Net-Work must be active and the database must be accessible.

### ■ Existing Local File

Before you start the SYSPCI utility, make sure that the Adabas database containing the required files is active. With this version, you can continue to use your existing files. No migration of data from the previous version to the current version is necessary.

### ■ New File

Before you start the SYSPCI utility, make sure that the Adabas database which will contain the required files is active. The SYSPCI utility will load and initialize these files. This should be also done if another file is required for your product.

Before you create new files with the SYSPCI utility, make sure that the ASSO and DATA sizes of your Adabas database are appropriate for these files. It is therefore recommended that you check the Adabas *.fdu* files in the `<install-dir>/<product>/INSTALL/<product-code>` directory for the used sizes. If required, change your database setup so that the files can be created.

For Natural Business Services and Natural Construct, the SYSPCI utility offers the following optional functions:

Option	Description
Load Construct data	If marked, the Construct help texts, models and frames will be loaded.
Load Predict data	If marked, the Predict data for Construct will be loaded.



**Important:** Before you configure and initialize Natural Business Services using the SYSPCI utility, make sure that Predict has already been configured and initialized.

## Invoking the SYSPCI Utility

In order to invoke the SYSPCI utility, you must first invoke Natural. You can then invoke the SYSPCI utility using the **Direct Command** window.

### ➤ To invoke the SYSPCI utility

- 1 Enter the following command at the Linux system prompt to invoke Natural:

```
natural
```

- 2 Select the **Direct** menu and press ENTER to invoke the **Direct Command** window.
- 3 Enter the following command in the **Direct Command** window:

```
SYSPCI
```

For more information, see *SYSPCI Utility - Product Configuration and Initialization* in Natural's *Tools and Utilities* documentation.

## Invoking the SYSPCI Utility Using a Shell Script

---

It is possible to execute certain functions of the SYSPCI utility with a Linux shell script. Two shell scripts are available in `<install-dir>/Natural/INSTALL` directory. They are called `syspci_reuse.sh` and `syspci_create.sh`. These scripts can be used to automatically call SYSPCI for each installed product to initialize the product.

The scripts can be used for the following tasks:

- **syspci\_reuse.sh**

This script executes the SYSPCI utility to initialize installed Natural products with already existing Adabas files.



**Note:** The necessary conversion of Adabas files to the new version has to be done before starting this script.

- **syspci\_create.sh**

This script executes the SYSPCI utility to initialize installed Natural products and create the required Adabas files.

For more information, see *SYSPCI Utility - Product Configuration and Initialization* in Natural's *Tools and Utilities* documentation.

## Buffer Pool Search Sequence

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When using Natural Business Services, ensure that the Natural profile parameter `BPSFI` is set to `OFF` in `NBSPARM` or in your own parameter file so that Search Sequence 2 is used. This means: alternating search in buffer pool and system file(s) for each library.

If `BPSFI` is set to `ON`, Search Sequence 1 is used. This means: search buffer pool first for all libraries, then the system file(s).

## Activating the Business Service Administration Subsystem

To use the Business Service Administration subsystem, you must first activate the system. This section describes a series of updates and system-related functions you must perform to use the supplied demo application and samples. The following topics are covered:

- Step 1: Execute the SAG Environment File
- Step 2: Define Libraries to Natural Security (First-Time Only)
- Step 3: Add SYSLIBS to Steplib Chain
- Step 4: Load Skipped Files (Conditional)
- Step 5: Verify System File Assignments
- Step 6: Run the CVUSRCOP Utility (Conditional)
- Step 7: Verify Natural APIs
- Step 8: Verify Software AG Editor
- Step 9: Load Default Repository Data
- Step 10: Update Broker Attribute File (for Older Applications Only)
- Step 11: Verify Broker Attribute File (for Older Applications Only)
- Step 12: Verify Message Queue API
- Step 13: Confirm all Verifications

### Step 1: Execute the SAG Environment File

To set the required 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=NBS` and define the following libraries to Natural Security:

Library	Contents
SYSBIZDE	Natural Business Services demo application.
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 Files (Conditional)

If Natural Security is installed, some files may not have been loaded by the SYSPCI utility. If you want to load frames, models or help texts afterwards, load them using the utilities listed below:

File	Utility	Described In
CST $nnn$ .DA4	SYSDICBE	Predict documentation (first-time only)
CST $nnn$ .SYSM	CSMLOAD	<i>Natural Construct Generation</i>
CST $nnn$ .SYSR	CSFLOAD	<i>Multiple Code Frame Import Utility in the Natural Construct Administration and Modeling documentation</i>
CST $nnn$ .SYSH	CSHLOAD	<i>CSHLOAD Load Utility in the Natural Construct Help Text documentation</i>

### Step 5: Verify System File Assignments

This step verifies that the parameter file was created correctly.

#### » To verify the system file assignments

- 1 Invoke Natural using the new NBSPARM parameter file.
- 2 Log on to 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
```

If any file fails to verify:

1. Correct the NBSARM parameter file.
2. Restart your Natural session.
3. Reissue the VERIFY command.

### Step 6: Run the CVUSRCOP Utility (Conditional)

If Natural Security is installed, some steps may not have been performed by the SYSPCI utility and a message may be displayed indicating that some 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 the Natural error NAT4889 (library is not defined to Natural Security), apply the latest hot fixes for Natural Security.

### Step 7: Verify Natural APIs

This step verifies that all required Natural APIs (that is, the USR\* subprograms) are available from within the current steplib chain.

#### ➤ To verify that all required Natural APIs are available

- 1 Log on to the SYSBIZ library.
- 2 Issue the VERIFY command.
- 3 Enter "US".

The VERIFY program calls the Natural APIs 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 on to 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 and loads the current repository data.

### » To load the repository data

- 1 Log on to the SYSBIZ library.
- 2 Invoke the CSRLOAD program.

If you are using the Natural RPC server and NaturalONE to generate your applications, just press ENTER now. You need not modify any information on the resulting screen. Make sure that your Natural RPC server has been set up and is working. For more information, see *Natural RPC (Remote Procedure Call)* in the Natural for Linux and Cloud documentation.

The following information in this Step 9 applies only if you want to use older applications and the dispatch/security/attach servers.

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: $NAT_HOME_____

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 (that is, deselect all records except **Business Services** in **Mark default records to be loaded**).





**Tip:** If you make any 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	<p>If you want NBS servers to invoke Natural subprograms that contain Unicode parameters, type "Y" in this field.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>2. The servers must run in a Unicode-enabled Natural environment.</li> </ol>
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 parameter file is located.
Profile	Name of the parameter file 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 <i>DEBUG Command</i> in the <i>Natural Business Services Administration</i> documentation.
Natural Security Settings	If your servers run under Natural Security, mark <b>Servers under NSC</b> 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

Applies only if you want to use older applications and the dispatch/security/attach servers.

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 on to the SYSBIZ library.
- 2 Invoke the CSRLOAD program.
- 3 Select one or more server options.
- 4 Deselect 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: $NAT_HOME_____

```

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

Applies only if you want to use older applications and the dispatch/security/attach servers.

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 (for Older Applications Only)



**Note:** This step is only required if you want to use older applications and the dispatch/security/attach servers. It does not apply if you are using the Natural RPC server and NaturalONE to generate your applications.

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 (for Older Applications Only)



**Note:** This step is only required if you want to use older applications and the dispatch/security/attach servers. It does not apply if you are using the Natural RPC server and NaturalONE to generate your applications.

This step verifies the additions to the Broker attribute file.

#### ➤ To verify the Broker attribute file additions

- 1 Log on to 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 on to 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 SQUESEND/SQUIRECV 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 on to 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 APIs are available
- the program editor is available
- the middleware connection is working
- the steplib chain settings are correct

## Installing the Natural Client Service Runtime Component

---

After the installation, the Natural client service runtime component is available in the *NaturalBusinessServices/INSTALL/inplnbs* directory. Its name is NBSNCSR.SAG.

To create a runtime environment for generated Natural clients, install this file in a non-Natural Business Services environment.

### ➤ To install the Natural client service runtime component

1 Load the NBSNCSR.SAG file as follows:

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

```
INPL  
B
```

2 Run the CVCLICOP utility.

This utility copies the subprograms required by the Natural client service runtime component to the SYSTEM library. That is, it copies:

- the Natural APIs (USR\* subprograms) from the SYSEXT library
- the NAT\* subprograms from the SYSLIBS library

## Installing 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* in the *Natural Construct Administration and Modeling* documentation.



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

## Verifying the Installation

After installing a full version of Natural Business Services, there are several procedures you can perform to ensure that the product has been installed correctly. This is explained in the topics below.

- [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 on to 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 on to 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 on to 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 on to 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.



## 6 Uninstalling Natural Business Services

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You uninstall Natural Business Services using the Software AG Uninstaller. For detailed information on how to use the uninstaller, see the *Using the Software AG Installer* guide.

In short: to uninstall Natural Business Services, proceed as follows:

1. Open a command window and go to the *bin* directory of your main installation directory.
2. Run the command `uninstall`. This starts the Software AG Uninstaller.

