

Installing and Setting Up Natural on UNIX

This document describes how to set up and install Natural 6.3 on a UNIX platform. The following topics are covered:

- Product Requirements
 - The Natural Distribution Kit
 - Before You Start
 - Upgrading from a 32-bit Environment to a 64-bit Environment
 - Installing Natural More Than Once in Parallel in the Same \$SAG Directory
 - Installing Natural More Than Once in Parallel in Different \$SAG Directories
 - Installation Steps
 - Converting to FDIC 4.4 Format
 - Displaying the Startup Parameters for the Natural Development Server
 - Setting Up Access to the EntireX Broker
 - Further Information on the Additional Packages
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Product Requirements

The following topics are covered below:

- Required Memory Space
- Disk Space
- Compilers Used to Build Natural
- Related Products

See also *Supported Operating Systems* and *License Key File Handling* in the *Release Notes*.

Required Memory Space

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

The memory space per user is determined by the settings in the parameter file NATPARM, 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 600 MB of hard-disk space is required for Natural (including all packages), and another 200 MB for Natural Security.

Compilers Used to Build Natural

The delivered Natural for UNIX was built and tested with the compilers listed below. When relinking Natural during the installation or using the make command, we strongly recommend that you use the same compiler version.

In case a compiler version is used which is compatible according to the declaration of the compiler vendor, Software AG does not ensure that Natural works properly.

Platform	Compiler
Sun Solaris	Sun Studio 11 C++ 5.8 Compiler
HP-UX	HP-UX 11.11 PA-RISC: aCC: HP ANSI C++ B3910B A.03.45 HP-UX 11.23 Itanium: aCC: HP aCC++ /ANSI C B3910B A.06.07
AIX	AIX 5.2: IBM XL C/C++ Compiler Version 8
Linux	SUSE Linux Enterprise Server 9: gcc 3.3

Additional tests were done without problems with Natural for UNIX relinked with the compilers listed below.

Platform	Compiler
HP-UX	HP-UX 11.23 PA-RISC: aCC: HP ANSI C++ B3910B A.03.73 HP-UX 11.31 PA-RISC: aCC: HP ANSI C++ B3910B A.03.74 HP-UX 11.23 Itanium: aCC: HP aC++/ANSI C B3910B A.06.05 HP-UX 11.31 Itanium: aCC: HP C/aC++ B3910B A.06.12
AIX	AIX 5.3: IBM XL C/C++ Compiler Version 8 AIX 6: IBM XL C/C++ Compiler Version 9
Linux	SUSE Linux Enterprise Server 9: gcc 3.3.3 SUSE Linux Enterprise Server 10: gcc 4.1.2 Red Hat Enterprise Linux AS 4: gcc 3.4.6 Red Hat Enterprise Linux Server 5: gcc 4.1.2

Important Information for Solaris

If link problems occur on a machine with multiple compilers, make sure to use the required compiler by setting the environment variable CC to the correct path for the installation process.

Exceptions for AIX

On this platform, you can start the linker separate from the compiler using the `ld` command; this means you do not necessarily need a compiler on AIX.

If you do not want to compile C programs in your Natural environment, you do not have to install a compiler. In this case, it is sufficient to install the IBM XL C/C++ Runtime Version 8 for AIX.

Related Products

Natural 6.3 requires:

- Entire Access 5.3 or 6.1 to access SQL databases. For scrollable cursors and Unicode support, Entire Access 6.1 is required.
- EntireX Communicator 7.3 or 8.0 when using Natural RPC.
- Entire Net-Work 2.1 UNIX to access remote Adabas database systems.

For remote access to Adabas 6 (Open Systems) or 8 (mainframe), Entire Net-Work 7.3.2 is required.

- Tamino 4.4 when using Natural for Tamino.
- HTTP server, like Apache or IIS when using the Natural Web Interface.

Natural 6.3 includes interfaces to:

- Adabas 3.3.
- Adabas 5.1.
- Adabas 6.1.
- Entire Screen Builder 5.3.
- ApplinX 5.1.
- ApplinX 5.2.

The Natural Distribution Kit

The Natural distribution kit on the installation medium contains the installation files for various UNIX platforms as well as for Windows and other platforms. For UNIX, an example of the directory hierarchy on the installation medium is shown in the section *Installing the Contents of the Installation Medium to Disk*.

Please note that the license key file is not contained on this installation medium. It is delivered by e-mail.

Before You Start

This section contains important information on the necessary activities before installing Natural on a UNIX platform.

Please note the following before you start the Natural installation:

- Read the *install.txt* file delivered in the directory *unix/<platform>/nat/<version>* of the installation medium. It contains important pre-installation information which may not be contained in this documentation. If you have not already done so, please perform the steps described there before continuing.

Notes:

1. It is also a good idea to have a look at the *readme.txt* file. This file contains important post-installation information and is located in the same directory as the *install.txt* file.
 2. The *readme.fix* file in the same directory lists all corrections for the current version of Natural.
- Software AG recommends some common steps for the installation of Software AG products on UNIX. See *Installing and Setting Up Software AG Products on UNIX* for a detailed description.
 - Some installation steps require super-user (root) permissions. The installation offers a choice between the `su` and `sudo` commands and asks for the corresponding password required to become super-user.
 - Before you start the installation, back up your current product version.
 - The directory on the disk into which the Natural distribution files are installed is identified by the environment variable `SAG` (which can be set to an appropriate value in advance). We recommend to use the `/opt/softwareag/` directory as location for Natural. If you have set up a symbolic link `/opt/softwareag` already, you cannot install into the `/opt/softwareag/` directory unless you remove the link. Alternatively, you may install into the location to which `/opt/softwareag` points. If the directory `/opt/softwareag/` does not yet exist, you need to create it manually. The installation does not do this because root privileges are required for this step.
 - Extended Natural functionality needs a shared library for operation, which contains dynamically linked executables. The executables are copied from the installation medium to the `$$SAG/nat/vXXXX/lib/` directory. They are configured with the runpath `/opt/softwareag/nat/vXXXX/lib/` during link time. The Natural installation and the *natenv* environment script add the directory `$$SAG/nat/vXXXX/lib/` to the environment variable `LD_LIBRARY_PATH` to point to the location of the executables. When you install into the `/opt/softwareag/` directory or into the location to which a symbolic link `/opt/softwareag` points, the `LD_LIBRARY_PATH` setting is not needed any more. The same applies when you set a symbolic link `/opt/softwareag` to your `$$SAG` directory after the installation.
 - As of Natural Version 6.2, the runpath `/opt/softwareag/common/lib/` is supported for the shared library load of the `adalnk` shared library in Adabas Version 5 or above environments.
 - If a previous version of Natural is already installed, the configuration settings are evaluated and may be used in the update installation. Migration of subproducts such as Predict is possible within one version, but not from one version to another one.

The files `$SAG\nat\vXXXX\NATCONV.INI` and `$SAG\nat\vXXXX\SAGtermcap` will not be copied from one version (6.3) to another version (6.4).

- During the installation you need a valid license key file.
- As of Natural Version 6.2, the Software AG common component BTY is no longer used by Natural. Instead, the `saglic` module for checking the license key file is delivered with Natural.
- Ensure that prerequisite software is installed.
- As of Natural Version 6.2, the structure of the Natural library directory file `FILEDIR.SAG` has changed. For detailed information, see *Portable Natural System Files* in the *Operations* documentation.

When you install Natural Version 6.2 or above and Natural Version 6.1 is already installed, version 6.2 or above uses the same `FUSER` as in version 6.1 by default. In this case, existing objects which are modified with version 6.2 or above can no longer be read by older versions of Natural. If you want to prevent this problem, you have to define a new `FUSER` during the installation. A new `FUSER` can be defined in the **System File Assignments** installation screen.

- "NSWUCIET" is a reserved name. You should not have another object with this name in a steplib.

Upgrading from a 32-bit Environment to a 64-bit Environment

When you upgrade from a 32-bit environment to a 64-bit environment, you need to perform a new installation of Natural. An update installation is not possible in this case. This also means, that you have to reinstall the subproducts you are using.

The `FNAT` system file will be initialized during an installation automatically. For the `FUSER`, consider that the Natural GP is compatible for 32-bit and 64-bit platforms if the object is cataloged with Natural Version 5.1.1 or above. The file `FILEDIR.SAG`, which contains the library list information, is not compatible for Natural Version 6.1.1 or below. It is compatible with Natural Version 6.2 or above. If you want to use a 32-bit `FUSER` from Natural Version 6.1.1 or below in a 64-bit environment, we recommend using one of the following methods. Either

- transfer the modules using the Object Handler, that is unload and load them, or
- copy the modules using `SPoD`, or
- use the import function of the `SYSMAIN` utility.

Installing Natural More Than Once in Parallel in the Same \$SAG Directory

You have the possibility of parallel installations of different Natural update packages or patch levels on a machine, because every new Natural update package or patch level is installed in a new, separate directory. Two Natural update packages or patch levels are treated in the same way as two different Natural versions. If you use the `LD_LIBRARY_PATH` for locating shared library executables, be aware that the system's dynamic loader loads the executables from the first directory specified by

`LD_LIBRARY_PATH` which contains the executables. When you switch your Natural version using the `natenv` environment script, the library for this version will be the first in the list.

Note:

A product version is identified by the first two digits of the version number. An update package is identified by the third digit of the version number. A patch level is identified by the fourth and fifth digit of the version number.

Some Natural components will be shared by default. The shared components in this case are the files and directories located above the `$NATDIR/$NATVERS` directory:

- the `/etc` directory (`NATCONF.CFG`),
- the `/extlib` directory, and
- the file `FUSER`.

If required, these components can also be separated. This means, the directories containing the components must have different names. The directories are defined in the `NATURAL.INI` file and can be specified during the installation.

Also, the buffer pool and Natural Development Server start/stop scripts, if installed, will by default be generated only once per Natural or Natural Development Server version. You may set up different start/stop scripts for different update packages or patch levels manually.

Besides this, Natural copies the license key file to the `$$SAG/common` directory. The `$$SAG/common` directory is also used by other Software AG products.

Installing Natural More Than Once in Parallel in Different \$\$SAG Directories

You may install Natural more than once in different \$\$SAG directories. Although it is rather uncommon, it is possible to have one Natural update package or patch level on a machine more than once. This is not possible in one \$\$SAG directory.

However, if you want to use both \$\$SAG environments simultaneously, you need to access the executables in the shared library by using the `LD_LIBRARY_PATH` environment variable. If the executables in the shared library are located using the runpath via `/opt/softwareag`, the executables for all \$\$SAG environments will be loaded from the same shared library.

For Naturals in two different \$\$SAG directories, the common files above the `$NATDIR/$NATVERS` directory will be different. Buffer pool and Natural Development Server start/stop scripts will be generated with a different name, depending on the \$\$SAG directory.

A Natural buffer pool may be shared. You must not define different `FUSER` or `FNAT` files with the same `DBID` and `FNR` on one machine. `FUSER` and `FNAT` will be locked for a whole machine, while accessed. The lock file name is composed from the `DBID` and `FNR`. This means a lock on one `FNAT/FUSER` can unintentionally lock another `FNAT/FUSER`.

Note:

Installing a 32-bit Natural and a 64-bit Natural on the same machine is not supported and not recommended by Software AG.

Installation Steps

This section describes step-by-step how to install Natural on the UNIX operating system. The installation steps to be taken depend on whether you are installing Natural for the first time, or upgrading an existing Natural version. You will be guided accordingly during the installation process.

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

If you cancel the installation before it has finished and if you want to remove already installed files, you have to do this manually. Or, you also may leave the files installed and replace them with the next installation of the same update package or patch level. Depending on the steps you have already performed, you may stop the buffer pool and/or Natural Development Server, remove start/stop scripts for the buffer pool and/or Natural Development Server or remove all files by removing the *\$NATDIR* directory. In addition, remove the shared library path from *LD_LIBRARY_PATH* and/or the link */opt/softwareag* which points to your *\$SAG* environment (if created manually).

If you cancel the installation during an update installation and/or you want to keep other Natural update packages or patch levels, you may remove all files by removing the *\$NATDIR/\$NATVERS* directory. In addition, depending on the steps you have already performed, you may move the file *\$NATDIR/etc/NATCONF.CFG.BAK* to *\$NATDIR/etc/NATCONF.CFG*. You cannot use *SAGRM* to remove Natural files, because the required file *SAGInst.xml* will not be written until the installation has finished.

For further information, see *Uninstalling Natural on UNIX*.

See the following list for an overview of the necessary steps:

- Step 1: Mount Your Drive for the Installation Medium
- Step 2: Choose Character or Graphical Mode
- Step 3: Start the Installation Process
- Step 4: Welcome
- Step 5: SAG User
- Step 6: Destination Location
- Step 7: SAG Environment Shell
- Step 8: Choose Programs
- Step 9: Software License Agreement
- Step 10: Installation Instructions

- Step 11: License File
- Step 12: Installation Type
- Step 13: Existing Natural
- Step 14: Choose Packages
- Step 15: License File Natural Development Server
- Step 16: License File Natural for Tamino
- Step 17: Installation Information
- Step 18: Installation Status
- Step 19: NATURAL.INI Settings
- Step 20: Buffer Pool Settings
- Step 21: Install Buffer Pool Start/Stop Service
- Step 22: Parameter File Template
- Step 23: System File Assignments
- Step 24: UDB Selection
- Step 25: Adabas Environment Selection
- Step 26: Natural Development Server DBID/FNR Selection
- Step 27: NDV Server Configuration and Installation
- Step 28: Natural Command Processor DBID/FNR Selection
- Step 29: Natural for Tamino Configuration
- Step 30: Web I/O Interface Daemon Installation
- Step 31: Web I/O Interface Daemon Configuration and Installation
- Step 32: INPL Process
- Step 33: Relinking Natural or Shared Library Nucleus
- Step 34: Parameters for Relinking the Natural Nucleus
- Step 35: Relinking Process (for Natural Nucleus)
- Step 36: Parameters for Relinking the Shared Library Nucleus
- Step 37: Relinking Process (for the Shared Library Nucleus)

- Step 38: Root Authentication
- Step 39: Post Installation Steps
- Step 40: Installation Complete
- Step 41: Activate Installed Products
- Step 42: Installation Finished
- Step 43: Execute the SAG Environment File

Step 1: Mount Your Drive for the Installation Medium

- If your drive for the installation medium has not yet been mounted, mount it now as described in the section *Installing the Contents of the Installation Medium 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 installation program.

Step 2: Choose Character or Graphical Mode

The installation procedure examines the environment variable `DISPLAY` to determine whether to run in graphical or character mode.

- To use graphical mode, the environment variable `DISPLAY` must be set. If it is not yet set in your environment and you want to use graphical mode, set it using the following commands:

```
DISPLAY="machine_name:0"  
export DISPLAY
```

Character mode will be used automatically if the environment variable `DISPLAY` is not set. If `DISPLAY` has been set in your environment but you want to use character mode, you can use 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 end of the installation log. It lists the parameters specified for that particular installation. Adapt the script to your needs.

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

To display the Natural-specific batch mode parameters, enter the following command:

```
setup.ux nat version -help
```

where *version* represents the version of the current Natural installation medium; for example, "v6320".

To display the Natural Security parameters which are supported in batch mode, enter the following command:

```
setup.ux nsc version -help
```

where *version* represents the version of the current Natural installation medium; for example, "v6320".

Step 3: Start the Installation Process

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

- Start the installation procedure from a writable working directory. We recommend *\$SAG/INSTALL*. Enter the command:

```
sh /mount_dir/setup.ux [-nw]
```

where *mount_dir* is the starting directory on your product installation medium. Upper/lower case usage is possible depending on your local settings.

Note:

The following descriptions of installation steps assume that the graphical installation mode is used. The step sequence is the same in character mode.

The setup program is started and guides you through the installation. During installation you have to provide the license key.

Step 4: Welcome

In this screen, the variant of Natural that is to be installed is displayed.

- Choose **Next** to proceed.

Step 5: SAG User

This screen appears only when you are logged in as the user "root".

We do not recommend that you perform the installation as "root". It is recommended to use the Software AG user "sag" instead.

1. If you still need to perform the installation as "root", enter the user ID of the Software AG user to be able to continue.
2. Choose **Next** to proceed.

Step 6: Destination Location

In this screen, you can change the value of the `SAG` environment variable, which is the path of the directory tree where all Software AG products are installed.

By default, the content of the current `$SAG` variable is displayed.

1. If required, enter a different path.

Or:

Choose the **Browse** button to select a different path.

2. Choose **Next** to proceed.

Step 7: SAG Environment Shell

In this screen, you can change the path and name of the environment file.

The default name is `sagenv.new`. This documentation assumes that the environment file is called `sagenv.new`.

1. If required, enter another environment file.

Or:

Choose the **Browse** button to select a different environment file.

Note:

You can use any name for your environment file.

2. Choose **Next** to proceed.

Step 8: Choose Programs

In this screen, you decide whether to install both Natural and Natural Security, or only one of them alone.

1. Activate the required check box(es).

If you choose to install both products at a time, the installation process leads you first through the installation of Natural and, after Natural has been installed successfully, through the installation of Natural Security. The installation of Natural Security is described separately; see *Installing Natural Security on UNIX* for further information.

Notes:

1. To install Natural Security, Natural must be installed. You can install Natural Security at any later occasion.
 2. It is recommended that you install Natural Security *after* having installed all other subproducts of Natural, as this makes defining the subproducts' system libraries to Natural Security easier.
2. Choose **Next** to proceed.

Step 9: Software License Agreement

In this screen, the license agreement is displayed.

- Choose the **I Accept** button to proceed.

Note:

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

Step 10: Installation Instructions

In this screen, installation instructions are displayed. This text may contain important information not included in this *Installation* documentation.

1. Read the installation instructions before proceeding with the installation.
2. Choose **Next** to proceed.

Step 11: License File

In this screen, you specify the path to the Natural license key file.

Note:

If no common Software AG environment exists yet, `<your-current-directory>/<product-code>.xml` is displayed.

1. If you do not want to use the displayed license key file, specify the path to your license key file.
Or:
Choose the **Browse** button to select the license key file.
2. If you choose the **View** button, the content of your license key file is displayed in a separate screen. Choose **OK** or **Quit** to go back to the **License File** screen.
3. Choose **Next** to proceed.

Step 12: Installation Type

In this screen, you specify whether you are installing Natural for the first time, or updating an older Natural version already installed on your machine.

- Select the command button for the required option to proceed.

Step 13: Existing Natural

This screen appears only when you are updating an existing Natural version. You have to specify the location of your previous Natural installation (`$NATDIR/$NATVERS`).

1. If required, enter a different directory.
Or:
Choose the **Browse** button to select a different directory.

2. Choose **Next** to proceed.

Step 14: Choose Packages

In this screen, you can choose additional packages to be installed. Adabas must be started to successfully install the package Natural Development Server or Natural Command Processor.

For each package you select, a description is displayed in the **Description** field on the right.

If you perform an update installation, all packages from the previous Natural will be pre-selected. If pre-selected, Natural Development Server, Entire Screen Builder and ApplinX cannot be deselected.

1. When you expand the Natural node, you can decide whether to install the Natural example files in addition to the Natural program files.
2. Choose **Next** to proceed.

Step 15: License File Natural Development Server

This screen appears only when you have selected the package Natural Development Server.

1. Specify the path to the Natural Development Server license key file in the same way as described above for the Natural license key file.
2. Choose **Next** to proceed.

Step 16: License File Natural for Tamino

This screen appears only when you have selected the package Natural for Tamino.

1. Specify the path to the Natural for Tamino license key file in the same way as described above for the Natural license key file.
2. Choose **Next** to proceed.

Step 17: Installation Information

In this screen, the selected features are displayed.

1. To review or change your settings, choose the **Back** button.
2. Choose **Next** to begin extracting files.

If the common Software AG components are not installed in your environment, they are automatically installed now.

Step 18: Installation Status

This screen, which contains a progress indicator, informs you about the installation status. Please wait until the selected components have been installed.

- When all files have been extracted, choose **Next** to proceed.

Step 19: *NATURAL.INI* Settings

The installation assignments which will be stored in your local configuration file are shown on two screens. You have to review these settings.

1. If required, change the installation assignments on the first screen.
Or:
Choose the browse buttons to select the required directories or files.
2. Choose **Next** to proceed to the second screen.
3. If required, change the installation assignments as described above.
4. Choose **Next** to proceed.

Step 20: Buffer Pool Settings

In this screen, you can specify the settings for the Natural buffer pool. The name of the default buffer pool is "NATBP".

1. Optional. Change the values offered for the buffer pool.

For a list of these parameters, see *Buffer Pool Assignments* in the *Configuration Utility* documentation.

2. Choose **Next** to proceed.

Natural is now initialized.

Step 21: Install Buffer Pool Start/Stop Service

In this screen, you can decide whether you want to install a buffer pool start/stop service. This service starts the buffer pool automatically when the system will be started.

1. Mark **Install Service**, if you want to install a buffer pool start/stop service. A script will be copied to the directory defined with the **Initscript Directory** option. Links will be created for all runlevels which are selected by the **Activate in Runlevel** flags, so that the buffer pool will be started for these runlevels.

The installation of the buffer pool start/stop service requires root privileges.

Note:

Service Name, **Path to Daemon**, **Startlink Name** and **Stoplevel Name** are generated automatically by the installation. The **Service Name** can be changed. It will be automatically prefixed by a name for your *\$SAG* environment, usually "sag1". **Startlink Name** and **Stoplevel Name** will be generated from the **Service Name**.

2. Choose **Next** to proceed.

Step 22: Parameter File Template

This screen appears only when you are updating an existing Natural version.

1. Select the Natural parameter file that you want to use as a template.

The FNAT and FUSER values will be read from this template and the parameter file NATPARM will be generated. The parameter file you selected will not be modified, unless it is NATPARM.

Note:

You can choose the command button displaying a magnifying glass to display the contents of the currently selected parameter file.

2. Select for all other parameter files, if you want the FUSER settings to be adapted to the new Natural version. The FNAT settings and, if unambiguous, DBID and FNR of steplib will be adapted without prior selection.
3. Choose **Next** to proceed.

Note:

At this stage of the installation, all parameter files from the old Natural environment have already been copied to the new environment.

Step 23: System File Assignments

In this screen, the environment settings (DBID, FNR and directory) for FNAT and FUSER are shown.

1. Adapt the displayed values to your Natural environment. Enter an FNAT system file of your Natural Version 6.

You can use the browse buttons to select to the required directories.

2. If you perform an update installation, select if you want to migrate subproducts such as Predict or Construct to the new FNAT (this is the default).
3. Choose **Next** to proceed.

Notes:

1. All Natural modules from the old FNAT, delivered with Natural in Natural source code (for example, user exits), will not be available on the new FNAT. They will be replaced by the new sources. If required, you have to copy the old sources after the update installation. This does not apply to sources delivered with subproducts.
2. The migration of the FNAT and subproducts is supported for update packages and patch levels. It is not supported between two versions. When you migrate an FNAT with Natural Security, you need to install Natural Security again, to be able to use the FNAT.

Step 24: UDB Selection

In this screen, you specify the user database (UDB parameter) for your current Natural environment.

If you are updating an existing Natural version, the ID of the current user database is shown.

1. Specify the ID of the required user database.
2. Choose **Next** to proceed.

Important:

The screens which are displayed next depend on the packages you selected in the **Choose Packages** screen. If you have not selected Natural Development Server, Natural for Tamino or Natural Command Processor, the following steps are not relevant and you can continue reading with the step *INPL Process*.

Step 25: Adabas Environment Selection

This screen appears only when you have selected the package Natural Development Server or Natural Command Processor. Adabas must be started to successfully install these packages.

Note:

Using the *adaenv* environment script ensures that your Adabas environment is set correctly for your current Adabas version.

1. Specify the path to the directory in which Adabas has been installed.

You can also use the browse button to select to the required directory.

Or:

Activate the **Use remote database** check box.

If you want to use a remote database, you need to make sure that the database you want to use has been configured correctly and the `FDIC` file already exists.

Adabas databases outside of the current `$SAG` directory (that is: in another `$SAG` directory) must be defined as remote.

2. Choose **Next** to proceed.

Step 26: Natural Development Server DBID/FNR Selection

This screen appears only when you have selected the package Natural Development Server.

You have to specify a database ID and file number for the Natural Development Server system file (`FDIC`).

1. Select an existing DBID and FNR.

Or:

To create a new Natural Development Server system file, select an existing DBID and enter an unused number for FNR. In this case, you will be asked whether you want the new system file `FDIC` to be created.

The following table shows the possible combinations of Predict `FDIC` files and Natural:

	PRDv44, FDICv44	PRDv45, FDICv45
NAT63n	X	X
NDV22n	X	X

If you are using an FDIC file of a Predict version 4.3 and when you want to convert to FDIC 4.4, further activities are to be performed during the INPL process. See *Converting to FDIC 4.4 Format* for detailed information.

To create a new FDIC file for your Natural Development Server environment, check if the Adabas nucleus parameters listed in the following table are set for the database you want to use for your Natural Development Server system file (FDIC).

Note:

The nucleus parameters LP, LS, NC and NH do not longer exist with Adabas version 5.1 and therefore need not be set as indicated below.

LAB	Must be at least 200,000.
LP	Must be at least 200.
LS	Must be at least 200,000.
LBP	Must be at least 4,000,000.
LWP	Must be at least 1,000,000.
MGC	Must be at least 50.
NC	Must be at least 200.
NH	Must be at least 10,000.
NISNHQ	Must be at least 1,000.
NT	Must be at least 2.
OPTIONS	The option TRUNCATION must be set in the OPTIONS parameter.

If Adabas is running, use the Adabas utility ADAOPR. Additionally, declare these parameters as start parameters for the Adabas utility ADANUC to ensure that these parameters are set after the next reboot of the specified database.

2. Choose **Next** to proceed.

Step 27: NDV Server Configuration and Installation

This screen appears only when you have selected the package Natural Development Server.

1. Optional. Change the default port number.
2. Mark **Update /etc/services File**, if you want to write an entry for the specified port to the */etc/services* file. You need root privileges for this option.

3. Mark **Install Service**, if you want to install a Natural Development Server start/stop service. This service starts a Natural Development Server automatically when the system is started. A script will be copied to the directory defined with the **Initscript Directory** option. Links will be created for all runlevels which are selected by the **Activate in Runlevel** flags, so that the Natural Development Server will be started for these runlevels.

The installation of the Natural Development Server start/stop service requires root privileges.

If you do not want to copy the Natural Development Server procedure to your system directory during the installation, you will find the template for the Natural Development Server startup under *\$NATDIR/\$NATVERS/INSTALL*.

Note:

Service Name and **Path to Daemon** are generated automatically by the installation. The **Service Name** can be changed. It will be automatically prefixed by a name for your *\$SAG* environment, usually "sag1".

4. Mark **Activate Service after Installation**, if you want the Natural Development Server to be started automatically at the end of the installation.
5. Choose **Next** to proceed.

Step 28: Natural Command Processor DBID/FNR Selection

This screen appears only when you have selected the package Natural Command Processor.

1. Select an existing DBID and FNR.

Or:

To create a new system file, select an existing DBID and enter an unused number for FNR. In this case, you will be asked whether you want the new system file to be created.

2. Choose **Next** to proceed.

Step 29: Natural for Tamino Configuration

This screen appears only when you have selected the package Natural for Tamino.

1. Specify the DBID and URL for the configuration of Natural for Tamino.
2. Choose **Next** to proceed.

Step 30: Web I/O Interface Daemon Installation

This screen appears only when you have selected the package Web I/O Interface and the installation finds a previously installed Natural Web I/O Interface.

1. Decide whether you want to keep the previous environment of the Natural Web I/O Interface daemon, that is the directory *\$NATDIR/\$NATVERS/nwo/\$NWONODE*.
2. Choose **Next** to proceed.

Step 31: Web I/O Interface Daemon Configuration and Installation

This screen appears only when you have selected the package Web I/O Interface.

1. Optional. Change the default port number.
2. Mark **Update /etc/services File**, if you want to write an entry for the specified port to the */etc/services* file. You need root privileges for this option.
3. Mark **Install Service**, if you want to install a Natural Web I/O Interface daemon start/stop service. This service starts a Natural Web I/O Interface daemon automatically when the system is started. A script will be copied to the directory defined with the **Initscript Directory** option. Links will be created for all runlevels which are selected by the **Activate in Runlevel** flags, so that the Natural Web I/O Interface daemon will be started for these runlevels.

The installation of the Natural Web I/O Interface daemon start/stop service requires root privileges.

If you do not want to copy the Natural Web I/O Interface daemon procedure to your system directory during the installation, you will find the template for the Natural Web I/O Interface daemon startup under *\$NATDIR/\$NATVERS/INSTALL*.

Note:

Service Name and **Path to Daemon** are generated automatically by the installation. The **Service Name** can be changed. It will be automatically prefixed by a name for your *\$SAG* environment, usually "sag1".

4. Mark **Activate Service after Installation**, if you want the Natural Web I/O Interface daemon to be started automatically at the end of the installation.
5. Choose **Next** to proceed.

Step 32: INPL Process

This screen, which contains a progress indicator, appears after the configuration steps for the selected packages (including Natural) have been completed. The installation now loads all Natural libraries belonging to the selected packages. Please wait until all libraries have been loaded.

If you have selected to install the Natural Development Server, the selected *FDIC* will be initialized automatically during the *INPL* of the Natural modules for the Natural Development Server. For a migration of the *FDIC*, see *Converting to FDIC 4.4 Format*.

- When the loading of the libraries is complete, choose **Next** to proceed.

Step 33: Relinking Natural or Shared Library Nucleus

In this screen, you can decide whether you want to link a new Natural nucleus and/or a new shared library nucleus.

If you have selected Entire Screen Builder, ApplinX and/or Natural for Tamino or if Entire Access is installed, the option **Relink Natural nucleus** is preselected.

See *Compilers Used to Build Natural* for the compiler you must use.

1. Select the option **Relink Natural nucleus** and/or **Relink shared library nucleus**
2. Choose **Next** to proceed.

Step 34: Parameters for Relinking the Natural Nucleus

This screen appears only when you have selected the option **Relink Natural nucleus**.

The relinking process creates a new Natural nucleus.

1. Select the required options.

The **XML SAX parser** option is required for the `PARSE XML` statement, for Tamino access, and for the application programming interface `USR6001N` (call external XSLT processor) in the library `SYSEXT`.

The **XSLT processor** option is required for `USR6001N`.

In order to activate the external sort program `SyncSort UNIX` to process the sort operations, **SyncSort** must be selected.

2. Choose **Next** to proceed.

Step 35: Relinking Process (for Natural Nucleus)

This screen appears only when you have selected the option **Relink Natural nucleus**. It displays the output of this relinking process.

When you have not selected to relink Entire Screen Builder or ApplinX, you are first asked whether the new nucleus shall be the default nucleus and replace the current Natural nucleus which is called "natural".

If you have selected to relink Entire Screen Builder or ApplinX, a nucleus called "natnsw" (for Entire Screen Builder) or "natapx" (for ApplinX) is created. The Natural nucleus called "natural" is not replaced in this case. Therefore, you are not asked whether you want to replace the current nucleus.

1. When you are asked whether to use the new nucleus, choose **Yes** to use the new nucleus.

When you confirm this action, a backup copy of the original prelinked Natural nucleus, which is called "natural", is created in the `NATBIN` directory. This backup is called "natural.version" (for example, "natural.6320").

2. Review the results of the relinking process.
3. Choose **Next** to proceed.

Step 36: Parameters for Relinking the Shared Library Nucleus

This screen appears only when you have selected the option **Relink shared library nucleus**.

The relinking process creates a new shared library nucleus.

1. Select the required options.
2. Choose **Next** to proceed.

Step 37: Relinking Process (for the Shared Library Nucleus)

This screen appears only when you have selected the option **Relink shared library nucleus**. It displays the output of this relinking process.

However, you are first asked whether the new nucleus shall be the default nucleus and replace the current shared library nucleus.

1. Choose **Yes** to use the new nucleus.
2. Review the results of the relinking process.
3. Choose **Next** to proceed.

Step 38: Root Authentication

This screen appears only when you have selected options which require root privileges.

1. Enter a user ID with root privileges (for example, "root", "su", "sudo" or another user ID).
2. Enter the corresponding password.
3. Choose **Next** to proceed.

Step 39: Post Installation Steps

This screen appears only when you have selected options which are performed in this post installation step.

The steps are performed and listed. Most of them require super user privileges.

- Choose **Next** to proceed.

Step 40: Installation Complete

This screen informs you that the installation has finished successfully. You are asked whether you want to read the Readme file.

It is recommended that you read the Readme file.

1. If you do not want to display the Readme file, remove the corresponding selection.
2. Choose **Finish**.

If you have chosen to install both Natural and Natural Security, the installation program will now continue to guide you through the installation of Natural Security. Please continue reading *Software License Agreement* in the section *Installing Natural Security on UNIX*. After a successful installation of Natural Security, the **Activate Installed Products** screen (see below) will then be displayed.

Step 41: Activate Installed Products

If you are not installing Natural Security, this screen appears now.

1. Select the product(s) you want to activate in the Software AG environment file.
2. Choose **Next** to proceed.

Step 42: Installation Finished

This screen appears when the installation has finished.

- Choose **Finish** to exit the installation program.

Step 43: Execute the SAG Environment File

It is necessary to execute the *sagenv.new* file after finishing this installation program to set the environment variables `NATDIR`, `NATVERS` and `PATH`. You can do this now, if you want to work with Natural immediately, or later, if you want to perform other tasks first. But the environment file must have been executed before using Natural.

Note:

When you install both Natural and Natural Security at the same time, this step is required only once. When you install Natural and Natural Security separately and do not use Natural in the meantime, you can perform this step directly after the installation of Natural Security. Otherwise, you have to perform this step twice (after the installation of Natural and after the installation of Natural Security).

- Check these settings and insert them into your profile (for example, *.profile*).

Once the installation has been successfully completed, you can remove the working directory (which you specified in step *Start the Installation Process*) and all of its contents.

Converting to FDIC 4.4 Format

1. Start Natural with `PARM=NDV Parm`, or with a parameter file in which the relevant `FNAT` and `FDIC` file are defined.

This step converts Predict Version 4.3 data to Version 4.4 format. If the data on your Predict system file already is in Version 4.4 format, a corresponding message is returned.

2. Log on to the library `SYSNDVCO`.
3. Invoke the **Main Menu** by entering `MENU` in the **Direct Command** window.
4. Enter the function code "C".

The conversion to Version 4.4 is now performed.

Important:

You can no longer use this `FDIC` file together with Predict Version 4.3.

You can also convert in batch mode. In this case, the file defined by the parameter CMSYNIN should contain the following:

```
LOGON SYSNDVCO
MENU
CONVERT VERSION44
FIN
```

Displaying the Startup Parameters for the Natural Development Server

After the installation has finished, you may want to get information about the startup parameters for the Natural Development Server.

Enter the following command in the binary directory of Natural:

```
natdvsrv -help
```

The possible startup parameters are shown with explanations.

Setting Up Access to the EntireX Broker

Access to EntireX Broker is required when you are using the Natural RPC (either as client or as server) or when you are using native ACI programming, that is when you are using the `CALL 'BROKER'` statement.

If you want to access EntireX Broker, you must copy the Natural-specific broker stub `natetb.so/natetb.sl` from the directory `$EXXDIR/$EXX/VERS/lib` to the directory which is specified as the binary load path (NATEXTLIB) in the installation assignments of the local configuration file.

Further Information on the Additional Packages

For further information on the packages you may have selected, see the following documentation:

- SYSNCP Utility (for the Natural Command Processor)
- Natural Web Interface
- Debugger
- Natural Web I/O Interface

For Entire Screen Builder, see your Entire Screen Builder documentation.

For ApplinX, see your ApplinX documentation.

For Natural Development Server, see your Natural Development Server documentation.