

# **Natural**

## **Release Notes for Natural Version 9.1 for UNIX**

Version 9.1.2

October 2021

This document applies to Natural Version 9.1.2 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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# 1 Release Notes for Natural Version 9.1 for UNIX

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These Release Notes summarize the new features, changes and enhancements that are provided with Natural Version 9.1. The following topics are covered:

<a href="#">Release Information for Natural Version 9.1.1</a>
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<a href="#">Release Information for Natural Version 9.1.2</a>
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For information on the supported operating system platforms and other requirements for the current version of Natural, see *System Requirements* in the *Installation* documentation.



## 2 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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### Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <https://documentation.softwareag.com>.

### Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to [empower@softwareag.com](mailto:empower@softwareag.com) with your name, company, and company email address and request an account.

Once you have an account, you can open Support Incidents online via the eService section of Empower at <https://empower.softwareag.com/>.

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To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the [Knowledge Center](#).

If you have any questions, you can find a local or toll-free number for your country in our Global Support Contact Directory at [https://empower.softwareag.com/public\\_directory.aspx](https://empower.softwareag.com/public_directory.aspx) and give us a call.

### **Software AG Tech Community**

You can find documentation and other technical information on the Software AG Tech Community website at <https://techcommunity.softwareag.com>. You can:

- Access product documentation, if you have Tech Community credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.
- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

## **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.



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## Release Information for Natural Version 9.1.1

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## Installation

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### System Requirements

The system requirements for the current version of Natural are now listed in the *Installation* documentation.

Please also refer to the system requirements for specific information concerning Oracle Solaris 11.3.

### Compilers Used to Build Natural

With Natural for UNIX Version 9.1.1, different compiler versions were used to build and test Natural. For detailed information, see *Compilers Used to Build Natural* in the *Installation* documentation.

## Migrating Applications to Version 9.1

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Applications that were created with Natural for UNIX Version 3.1 and above can be executed with Version 9.1.

## New Features

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### Natural in a Docker Container

As of Natural 9.1.1, it is possible to execute Natural in a Docker container. For detailed information see *Building a Natural Docker Image* in the *Installation* documentation.

### System Variables

The following system variables are now available:

Variable	Description
*EDITOR	The new *EDITOR system variable returns information on whether the Natural program, data area and map editors are enabled (activated).

## Changes and Enhancements

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### AT BREAK Statement

The behavior of an `ESCAPE` in an `AT BREAK` statement has been changed due to compatibility reasons with Natural for Mainframe.

When an `ESCAPE ROUTINE` or `ESCAPE BOTTOM` is processed in an `AT BREAK` statement, the `AT BREAK` processing is stopped. If there are multiple `AT BREAK` blocks in the processing loop, no further `AT BREAK` statement is executed for the current processing loop.

When the processing loop is terminated and an `ESCAPE ROUTINE` or `ESCAPE BOTTOM` is processed in the final `AT BREAK` processing, the `AT BREAK` processing is stopped and no further `AT BREAK` block is executed.

Refer to `AT BREAK` in the *Statements* documentation for further details.

### EXAMINE Statement

The syntax of the `EXAMINE` statement has been enhanced with the following effects:

- An `EXAMINE` statement with a multi-character wild character (\* or %) at the beginning or at the end of the search-pattern, matches now only to the next delimiter (if delimiters are used). This can lead to a different result.
- In general, a mirrored `EXAMINE` now delivers the mirrored result. That means, if you swap the characters (first to last, etc.) of the inspected field and of the search-pattern, and change the direction from `FORWARD` to `BACKWARD`, the resulting field contains the swapped value of the non-mirrored `EXAMINE`.

Refer to `EXAMINE` in the *Statements* documentation for further details.

## ETID Parameter

The behavior of the `ETID` parameter has been changed. If the `ETID` is not specified, neither in `NATPARM` nor dynamically, Natural uses the setting of `*INIT-USER` to fill the `ETID`. This also applies now, if Natural Security is used.

If you want to use the `ETID` from Natural Security, you have to set the `ETID` parameter to `OFF`.

Refer to *ETID - Adabas User Identification* in the *Parameter Reference* documentation for further details.

## CATALL Command

The option to automatically renumber the source-code lines of sources that were saved or stowed is now deactivated by default. If you want to use automatic renumbering, you now have to activate this option. Refer to `CATALL` in the *System Commands* documentation for further details.

## Statistical Information in NATBPMON

When using the Buffer Pool Monitor (`NATBPMON`), additional statistics (hot fix level, read-only and swap status) are displayed when issuing the `STATUS` command in `NATBPMON`. Refer to *Statistical Information About the Buffer Pool* in the *Operations* documentation for details.

## Profiler Utility

### Summary of Executed Source Lines

The Natural Profiler utility now provides the option to generate a summary of source lines executed in a Natural object. The summary shows how many events occurred during execution of a source line and the CPU and elapsed time spent executing the line.

For more information, see *Line Summary* in the section *Using the Profiler Utility in Batch Mode*.

### Transaction Response Time Evaluation

The Natural Profiler utility now provides the option to evaluate transactions and generate a transaction summary. The summary shows how many events occurred during execution of the transaction and the response time used by the transaction.

For more information, see *Transaction Summary* in the section *Using the Profiler Utility in Batch Mode*.

## Natural Development Server

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Natural Development Server is released with the same version number as Natural for UNIX.

## Natural RPC (Remote Procedure Call)

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Natural RPC (Remote Procedure Call) is available as a separate subcomponent of Natural. It has its own version number. This measure takes into account that Natural RPC is a cross-platform component and makes it possible to provide new Natural RPC versions independent of new Natural versions for the various platforms supported.

With Natural Version 9.1.1, an enhanced Natural RPC Version 9.1.1 is delivered. This version contains error corrections. In addition, the following new functionality is provided.

- [SYSRPC Utility](#)

### SYSRPC Utility

#### Service Directory Maintenance: Cursor Now Placed at Inserted Lines

The **I** insert line command of the **Service Directory Maintenance** now places the cursor at the position where new items can be entered for a selected node.

For more information, see *Line Commands* in the section *Commands for Service Directory Maintenance*

## Natural Security

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The following enhancements are provided with Natural Security Version 9.1.1:

- [Administrator Services](#)
- [Unlocking Locked Users](#)
- [Password Phrases](#)
- [Password Rules](#)
- [Passing Natural User ID to Adabas](#)
- [Authentication Options](#)

- [Application Programming Interfaces \(APIs\)](#)

## Administrator Services

The menu structure of Administrator Services has been revised slightly. In particular, **User Preset Values** and **Library Preset Values** are now two separate menu items.

### Unlocking Locked Users

**User Preset Values** provide a new option **Automatically unlock users after *nn* hours, *nn* minutes**. If you use the Lock User Option, you had to unlock every locked user manually. With this option, you can specify a time interval after which locked users are unlocked automatically: A locked user ID will then be unlocked *nn* hours and *nn* minutes after which the locking occurred.

### Password Phrases

In addition to "regular" passwords of up to 8 characters, Natural Security now also supports the use of *password phrases*, that is, passwords which are longer than 8 characters. The use of password phrases is activated by the new option **Password phrases active** in the **User Preset Values** section of *Administrator Services*.

Several **Password Phrase Options** are available to control the use password phrases.

In conjunction with password phrases, the new logon-related user exit LOGONEX0 is used instead of LOGONEX1; see *Logon-Related User Exits*.

See also *Application Programming Interfaces (APIs)* below.

### Password Rules

In the **Password Options** section of **User Preset Values**, the option **Minimum no. of non-alphabetical characters** has been replaced by the two new options **Minimum no. of numeric characters** and **Minimum no. of special characters**.

### Passing Natural User ID to Adabas

A new option **Pass Natural User ID (\*USER) to Adabas** is available in the **Library Preset Values** section of *Administrator Services*. It determines which user ID is passed to Adabas to be used as Adabas login ID: the value of the Natural system variable \*USER or that of the Natural system variable \*INIT-USER.

## Authentication Options

User authentication via an LDAP server is now also possible with `AUTO=ON`: If technical user support is defined and the Natural session is started with the Natural profile parameter `AUTO=ON`, the user ID is LDAP-verified.

The following components of the LDAP security profile have been changed:

- **LDAP Options 1:** The field **Log level**, which could be set to **0** (logging not active) and **1** (logging active), now provides a value range of **0 to 6** for selective logging of various items.
- **LDAP Options 2:** The **Technical user support** fields **Credential** and **Key value** have been re-named to **Path to output file** and **Path to key file** respectively.
- **LDAP Options 3:** The field **Default separator** has been removed.

## Application Programming Interfaces (APIs)

For the handling of password phrases, two new APIs are available:

- `NSC--PH` can be used to check password phrases.
- `NSC--PHS` can be used to check and change password phrases.

The existing API `NSC-US` has been enhanced: The parameter `PPARM4` can be used to set a password phrase in a user security profile (see example program `PGMUS001`).

To set the user ID and password phrase for an Natural RPC service request, you use the new API `USR9171` provided in the library `SYSEXT`.

## Removed Features

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The following changes apply with Natural Version 9.1:

### Disabled Editors

The Natural program, data area and map editor have been disabled in your environment by default. For more information, see *Disabled Natural Editors* in the *Editors* documentation.



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## Release Information for Natural Version 9.1.2

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## New Features

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The following new features are available with this version:

- [Profile Parameters](#)
- [Support of External Sort](#)
- [Docker Support](#)

### Profile Parameters

The following parameters are now available:

Parameter	Description
SHAPED	This new session and profile parameter controls conversion of unshaped characters to correctly display text in a bidirectional language format.

### Support of External Sort

This version of Natural supports the use of the DMExpress Syncsort Version 9.1 and IRI CoSort libraries. To use these libraries, you have to link them to your Natural nucleus as described in *Re-Linking a Natural Nucleus* in the *Installation* documentation.

For CoSort libraries, please ensure the Runtime Monitoring is set to (level 0). Steps involved can be found in *Cosort Version 9.5 Overview Booklet* under the *System Tuning* section. Once linked to your Natural nucleus, you can use Syncsort or CoSort options when issuing a `Sort` statement.

Refer to *Using External Sort Programs* in the section `Sort` in the *Statements* documentation for further details.

### Docker Support

There are two additional Natural docker use cases available:

- Natural with Applinx
- Natural with Applinx and Natural Security (NSC)

For detailed information see *Building a Natural Docker Image* in the *Installation* documentation.

## Changes and Enhancements

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The following changes and enhancements are available with this version:

- [Adabas MULTI-FETCH Support](#)
- [DEFINE DATA as Source Format for Data Areas](#)

### Adabas MULTI-FETCH Support

The Adabas multi-fetch functionality is now also supported for the database type `ADA2`. For detailed information refer to *MULTI-FETCH Clause* in section *Accessing Data in an Adabas Database* of the *Programming Guide* documentation.

### DEFINE DATA as Source Format for Data Areas



**Note:** The following only applies when using Natural for UNIX as a development server and NaturalONE as a client.

Starting with Natural Version 9.1.2., all types of data area sources (local, parameter and global) will be saved using the `DEFINE DATA` format. This means that a data area source only consists of a `DEFINE DATA` statement followed by data definitions and comments.

For details refer to `DEFINE DATA` in the *Statements* documentation. For further recommendations, please refer to *Data Area Editor* in the *Editors* documentation.

## Natural Development Server

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Natural Development Server is released with the same version number as Natural for UNIX. In addition, the following has been enhanced:

- [SSL Support](#)

### SSL Support

It is now possible to establish SSL-secured connections to Natural Development (NDV) servers (running on version 9.1.2 or above).

## Natural RPC (Remote Procedure Call)

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Natural RPC (Remote Procedure Call) is available as a separate subcomponent of Natural. It has its own version number. This measure takes into account that Natural RPC is a cross-platform component and makes it possible to provide new Natural RPC versions independent of new Natural versions for the various platforms supported.

With Natural Version 9.1.2, an enhanced Natural RPC Version 9.1.2 is delivered. This version contains error corrections. New functionality is not provided.

## Natural Security

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The following enhancements are provided with Natural Security Version 9.1.2:

- [Maximum Number of Logon Attempts](#)
- [Lock User Option](#)
- [User Preset Values](#)
- [Authentication Options \(LDAP\)](#)
- [Application Programming Interfaces \(APIs\)](#)
- [SECLOAD](#)

### Maximum Number of Logon Attempts

The Administrator Services general option **Maximum Number of Logon Attempts** has been changed: its maximum value, which used to be "5", is now "9". The default value continues to be "5".

Remember that the setting of this option also applies to the following application programming interfaces: NSC---P, NSC--PH, NSC---SP, NSC----P and NSC--PHS.

### Lock User Option

The Administrator Services general option **Lock User Option** provides an additional value "Z". It corresponds to "X" - in addition, the following applies: If the user ID corresponding to the value of the Natural system variable \*INIT-USER is locked, the Natural session *cannot be started with any user ID* (neither with AUTO=ON nor with AUTO=OFF).

## User Preset Values

The value for the user profile component **Change password after *nnn* days** can now be pre-defined in the **User Preset Values** section of Administrator Services.

## Authentication Options (LDAP)

Two enhancements to Administrator Services **Authentication Options**:

- User authentication via an LDAP server is now also possible for the Natural Development Server.
- The components of the LDAP security profile provide a new option **Start TLS connection**. It can be used to attempt to set up an encrypted communication over the plain LDAP port if the LDAP server supports this.

## Application Programming Interfaces (APIs)

The application programming interface `NSCADM` has been enhanced and can now be used to also process logon/countersign error records.

## SECLOAD

The `SECLOAD` program for loading Natural Security data provides a new option **Expire passwords for loaded user profiles**. It can be used to enforce a password expiration for all loaded user profiles (user types A, P, M), which means that these users will have to change their passwords at the next logon.

## Documentation

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The following documentation changes have been applied with this version:

- [SQL Statements Revised](#)

### SQL Statements Revised

The section *Using Natural SQL Statements* and the descriptions of the `DELETE`, `INSERT`, `SELECT` and `UPDATE` SQL statements have been revised with this release.

## Notice of Future Changes

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The following will be changed in upcoming releases of Natural:

- [Database Servers Supported via Entire Access](#)

### **Database Servers Supported via Entire Access**

With an upcoming release of Entire Access, we will discontinue the support of the database servers Informix and Sybase. No new features, patches or updates related to Informix and Sybase will then be provided any longer. Only updates and patches that have been developed already will still be available.

Any concern regarding the discontinuation of this support, please address to your global support organization.