

Natural Version 4.1.2

Release Notes for UNIX and
OpenVMS

Manual Order Number: NAT412-008UNV

This document applies to Natural Version 4.1.2 for UNIX and OpenVMS and to all subsequent releases.

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

Readers' comments are welcomed. Comments may be addressed to the Documentation Department at the address on the back cover or to the following e-mail address:

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Release Notes for UNIX and OpenVMS

The following topics are covered below:

- Introduction
 - Documentation
 - General Enhancements
 - Natural Programming Enhancements
 - New and Enhanced Natural Statements
 - New and Enhanced Natural System Variables and System Commands
 - New and Enhanced Natural Profile Parameters
 - New and Enhanced Natural Utilities
 - Example Library for New Features
 - Compatibility / Functionality Removed
 - Migrating Applications to Version 4.1.2
 - Information Pertaining to Upcoming Natural Release
 - Natural Security
 - Known Problems
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Introduction

These Release Notes describe in summary form the enhancements and new features that are provided with Natural Version 4.1.2 for UNIX and OpenVMS in comparison with Natural Version 3.1.1. Natural Version 4.1.2 offers improved migration capabilities for customers still using Natural Version 2.1.7 for Open VMS.

In addition to providing the enhancements and new features described in these Release Notes, Natural Version 4.1.2 also consolidates all error corrections, modifications and enhancements provided with previous releases of Natural.

Documentation

The documentation is provided in HTML format for online access using a Web browser and also in PDF format for viewing/printing using the Adobe Acrobat Reader.

In addition to the extensive hyperlinks available for online access and navigation, a powerful online search facility is also provided.

For a complete overview of the Natural 4.1.2 documentation set, see the Documentation Overview.

A revised set of Natural documentation will be provided with this release of Natural Version 4.1.2. All enhancements and new features described in these Release Notes are fully documented in the Natural Version 4.1.2 documentation set.

General Enhancements

The following general enhancements are provided with Natural 4.1.2:

- Natural Source Size
- Ringbuffer-Handling
- Natural in Batch Mode
- Natural Buffer Pool in Cluster Environments (**OpenVMS only**)
- Concatenate Fields for Display
- Natural Remote Procedure Call
- Natural Performance Enhancements
- Natural Debugger
- Natural Web Interface
- NaturalX
- FNAT Version Check

Natural Source Size

With Natural 4.1.2, the maximum size of a single source in Natural has been extended from approximately 128 KB to 1 MB.

This applies to all source types (programs, maps, dialogs, data areas, DDM sources, etc.).

Ringbuffer-Handling

With the version 4.1.2 each edit command executed within the editor stores the actual session to the editor buffer pool. With Natural 4.2 the actual session will no longer be stored to the editor buffer pool. It will be replaced by the new session. A new editor profile parameter will be added to switch between the old and new handling.

Note:

With Natural 4.2 the session handling will be changed.

Natural in Batch Mode

Natural Version 4.1.2 provides full batch-mode support.

This means that Natural can be run as a background job. This is particularly useful for performing mass data processing operations and also for re-usable execution. For OpenVMS, the new batch support corresponds to the batch support implementation of Natural 2.1.7.

CMPRTnn Specifications in Batch Mode

In order to allow the user to specify variable print-file names, alpha-format system variables and numeric counter markers may be embedded in the filename specification for CMPRTnn. The supported alpha-format system variables are:

*APPLIC-ID

*APPLIC-NAME

*DEVICE

*ETID

*INIT-USER

*LIBRARY-ID

*NET-USER

*PID

*PROGRAM

*USER

*USER-NAME

If any of these strings (in upper-case only) are encountered within the printfile specification, they will be replaced at run-time with the contents of the appropriate system variable. Additionally, a counter marker (#) may be used. This will be replaced by a 2-digit counter which will automatically be incremented for each print file.

For more information, see Natural Operations, Natural in Batch Mode.

Natural Buffer Pool in Cluster Environments (OpenVMS only)

For starting node-specific buffer pools in an OpenVMS cluster, the installation of the buffer pool services has been improved. For further information, see the Natural Buffer Pool.

Concatenate Fields for Display

With 0X field positioning, it is now possible to display fields in maps as well as Display, Write and Input statements without having a delimiting character in between.

Natural Remote Procedure Call

The following information applies to various aspects of the Natural Remote Procedure Call (RPC) facilities.

Functional security now also exists for the utility SYSRPC. Major benefits are that the Service Directory Maintenance and the TERMINATE function for servers can now be protected from the client site.

If the client runs under Natural Security and the SYSRPC utility is to be used, then a functional security profile must be defined.

The stub generation function of the SYSRPC utility now offers the possibility to generate stubs directly into the user library.

The work file name for the Remote Service Directory is no longer restricted to 8 characters. The file extension defaults now to "RDS", but it can be specified together with the file name.

Support of EntireX Broker ACI Version 4

The support of EntireX Broker ACI Version 4 (Entire Broker Version 5.2) is required to activate the security exits and the code-page support of EntireX Broker.

Due to non-numeric conversion IDs on the client side (which were introduced with EntireX Broker ACI Version 3), EntireX Broker ACI Version 3 and above on the client side are not compatible with RPC servers of previous Natural versions (Version 2.3 on mainframe, Version 3.1 on other platforms).

As the RPC on the client side does not know the ACI version used by the RPC server, the new parameter ACIVERS has been added to the Natural parameter module. With ACIVERS, you can specify the version to be used.

Support of Code-Page Functionality

RPC servers and clients may specify the code page used in their local environment. For example, the client located on a UNIX computer may use an ASCII code page and the client on a mainframe computer may use an EBCDIC code page. The translation from one code page to the other is done by EntireX Broker.

The code page to be used by the RPC server or client is specified with the new Natural profile parameter CP.

The code-page functionality requires EntireX Broker ACI Version 4. For information on the code-page functionality, please refer to the EntireX Broker ACI documentation.

Support of EntireX Broker Functions LOGON and LOGOFF in RPC Servers

The support of the EntireX Broker functions LOGON and LOGOFF is required for compliance with the EntireX Broker.

With the support of LOGOFF, EntireX Broker will release internal data structures on request and not based on a time-out mechanism. In addition, this support will enable the EntireX Broker to run with the AUTOLOGON attribute set to OFF.

Support of Non-Numeric Conversation IDs

If the client which opens a conversation sets the EntireX Broker ACI version to 3 or above (with the ACIVERS parameter as described above), the EntireX Broker may generate a non-numeric conversation ID (format/length A16).

Therefore, any attribute settings which had to be made to avoid the generation of non-numeric conversation IDs in the EntireX Broker attribute file are now obsolete.

Authentication of the RPC Server

In Natural Security environments, the user ID and password are passed to the EntireX Broker if the subparameter SRVUSER of the NTRPC macro is set to "NSC".

Buffer Sizes

The maximum size of the send/receive buffer (parameter MAXBUFF) has been increased from 32 KB to 16 MB.

RPC Trace File

As default, old RPC trace files are deleted when a new file with the same name is created. If you wish to append the new log to the old one, specify *>>filename*.

Natural Performance Enhancements

Performance enhancements have been made in the following areas:

- output from Natural reports (I/O statement)
- access to Natural objects in the Natural buffer pool

Natural Debugger

The Natural Debugger now supports multiple sources. Multiple source windows can be opened thereby providing a better overview and simplifying error searching.

For more information, see Natural Debugger.

Natural Web Interface

The full functionality of Natural Web Interface has been incorporated into Natural Version 4.1.2.

Natural Web Interface is a link between a web server (more precisely: HTTP server) and your Natural environment. This can be on a separate server machine or on the same machine as the HTTP server (e.g. Netscape's Communication Server or Microsoft's IIS).

Contents of web pages can easily be created dynamically by a Natural program. This is a basis for implementing an interactive application on the web.

An interactive web-based application can receive input information and respond by issuing output depending on that input. Examples of web-based applications are order entry systems, travel booking services and parcel tracking systems. This considerably increases the scope of Natural applications. Not only in-house users but also potential users/customers all over the world can now use the same application.

And best of all: Natural users do not have to learn a new programming language to implement such an application. Navigation and user input/output are implemented fully in Natural (with some additional embedded HTML statements).

For more information, see the Natural Web Interface documentation.

NaturalX

NaturalX will be provided for HP-UX 11.0 (32 bit) and OpenVMS 7.2-1 (Alpha) as separate chargeable program packages.

NaturalX enables you to create and distribute component-based applications. Using Component Technology (currently DCOM), NaturalX enables you to:

- allow your application components to be accessed by other components,
- execute these components on local and/or remote servers,
- access components written in a variety of programming languages across process and machine boundaries from within Natural programs,
- provide your existing Natural applications with (quasi) standardized interfaces.

For more information, see the NaturalX documentation.

FNAT Version Check

After Natural 4.1.2 has been installed, the use of FNAT from the previous version, Version 3.1, will be rejected at Natural startup.

Natural Programming Enhancements

The following programming enhancements are provided with Natural 4.1.2:

- Large and Dynamic Variables
- Optional Parameters

Large and Dynamic Variables

Natural Version 4.1.2 provides enhanced capabilities for the use of large variables by removing the existing size limitations and by providing for dynamic allocation of these variables at execution time.

Large variables for alphanumeric and binary data are based on the well known Natural formats A and B. The old limitations of 253 for Format A and 126 for Format B are no longer in effect. The new size limit is 1 GB.

In that the maximum size of large data structures (for example, pictures, sounds, videos) may not exactly be known at application development time, Natural additionally provides for the definition of alphanumeric and binary variables with the attribute DYNAMIC. The value space of variables which are defined with this attribute will be extended dynamically at execution time when it becomes necessary (for example, during an assignment operation: #picture1 := #picture2). This means that large binary and alphanumeric data structures may be processed in Natural without having to define a limit at development time.

The new Natural system variable *LENGTH can be used to obtain the number of bytes of the value space which are currently used for a given dynamic variable.

For performance optimization and also to prevent problems with insufficient memory, the new statements REDUCE and EXPAND have been introduced. If the dynamic variable space is no longer needed, the REDUCE DYNAMIC VARIABLE statement can be used to reduce the allocated space for the dynamic variable to zero (or any other desired size). If the upper limit of memory usage is known for a specific dynamic variable, the EXPAND statement can be used to set the space used for the dynamic variable to this specific size.

Optional Parameters

Natural Version 4.1.2 supports the use of optional parameters.

Parameters of subprograms and dialogs can be defined as optional (DEFINE DATA PARAMETER).

The statements which involve parameter transfer (CALLNAT, PERFORM, OPEN DIALOG, SEND EVENT, PROCESS GUI and SEND METHOD) now support optional parameters (nX notation).

The transfer of optional parameters can be checked by using the SPECIFIED clause in the logical condition criterion.

New and Enhanced Natural Statements

The following table provides a summary of the new/enhanced Natural statements provided with Natural 4.1.2:

New Natural Statements	Description
CALLDBPROC and READ RESULT SET	CALLDBPROC invokes a stored procedure of the SQL database system. READ RESULT SET reads a result set which was created by a stored procedure.
EXPAND and REDUCE	Expands/reduces the size of the allocated memory for a dynamic variable.
Enhanced Natural Statements	
CALL	INTERFACE4 option provides a new interface to 3GL programs.
CALLNAT, SEND METHOD	Specify optional parameters (nX notation).
DEFINE CLASS	The ACTIVATION clause defines the activation policy of the class.
DEFINE WORK FILE	The TYPE clause defines a work file type.
SET KEY	Support of keys PGUP and PGDN
SEND METHOD	The statement SEND METHOD supports the option AD.
Logical Condition Criteria	SPECIFIED clause to check if optional parameters are transferred.

New and Enhanced Natural System Variables and System Commands

The following table provides a summary of the new/enhanced Natural system variables and Natural system commands provided with Natural 4.1.2:

New Natural System Variables	Description
*CPU-TIME	CPU time used by Natural process.
*DATV	Current date in format dd-mmm-yyyy
*DATVS	Current date in format ddmmyyyy
*HOSTNAME	Name of the machine on which Natural is running.
*LENGTH(field)	The current length of valid data for a large dynamic data variable.
*NATVERS	Natural version string.
*NET-USER	User ID including domain name
*PARAM-USER	Name of the parameter file currently in use
*PATCH-LEVEL	Natural patch level number as string value
*PID	Current process ID as string value
*SCREEN-IO	Screen input/output possible
*SERVER-TYPE	Server start-up type of Natural
*THIS-OBJECT	Enables an object to call its own methods.
New Natural System Commands	
LIST DIR	Displays detailed directory information about Natural objects.
LIST COUNT	Displays information about the number of objects in the current library.
STRUCT	Performs structural identification of a source program.
SYSFILE	Displays Work and Print file assignments.

New and Enhanced Natural Profile Parameters

The following new/enhanced Natural profile parameters are provided with Natural 4.1.2:

New Profile Parameters	Description
ACIVERS	Specifies the EntireX ACI version to be used.
AUTORPC	This parameter was previously called AUTOREMOTE.
BATCHMODE	Enable real batch mode
BMBLANK	Display trailing blanks (for batch mode only)
BMCONTROL	Display control characters (for batch mode only)
BMFRAME	Window frame characters (for batch mode only)
BMSIM	Simulate batch mode output (for batch mode only)
BMTIME	Display process time (for batch mode only)
BMTITLE	Display window title (for batch mode only)
BMVERSION	Display Natural version (for batch mode only)
CC	Error processing in batch mode (for batch mode only)
CMOBJIN	Batch output file for Natural INPUT data (for batch mode only)
CMPRINT	Batch output file (for batch mode only)
CMPRTnn	Additional report file name. This parameter can only be used in batch mode and can be dynamically specified at Natural start-up.
CMSYSIN	Batch input file for Natural commands and INPUT data (for batch mode only)
CMWRKnn	Natural work file name. This parameter can only be used in batch mode and can be dynamically specified at Natural start-up.
CP	Specifies the code page to be used by the EntireX Broker
CVMIN	Control variable modified on input
ECHO	Control printing of batch input data (for batch mode only)

New Profile Parameters	Description
ENDMSG	Display session end message (for batch mode only)
NATLOG	Natural log file
RPCSIZE	This parameter was formally called SIZE.
TMPSTORTUNIQ	Choose an alternate algorithm for generating sort work file names
TRANSP	TRANSP has new values in this version. This parameter has been changed in order to enable compatibility with the mainframe platform.

New and Enhanced Natural Utilities

The following new/enhanced Natural utilities are provided with Natural 4.1.2:

- SYSEXT Utility
- SYSOBJH Utility
- SYSRPC Utility
- SYSTRANS Utility
- SYSUNLD Utility
- Additional Configuration Enhancements

SYSEXT Utility

The SYSEXT utility has two new user exits:

- User exit USR2027N performs a wait interval.
- User exit USR2030N reads error tokens up to 253 bytes long.

SYSOBJH Utility

The new utility SYSOBJH (Object Handler) processes objects for the purpose of application distribution. This utility combines the functionality currently provided by the SYSUNLD and SYSTRANS utilities. The utilities SYSUNLD and SYSTRANS will be discontinued with the next Natural release.

SYSOBJH can be used to unload objects in the source environment to work files and then load these objects from work files into the target environment. SYSOBJH can process Natural programming objects, DDMs, error messages, Natural related objects, Natural command processors, external objects and Adabas FDTs.

Unloading and loading can be performed in internal format (as with the utility SYSUNLD), or in transfer format (as with the utility SYSTRANS).

Work files created with the utilities SYSUNLD and SYSTRANS can also be processed.

Work files created with SYSOBJH in transfer format can be processed by the utility SYSTRANS on all platforms.

The utility is provided in an early version, some functions are not implemented yet. These are:

- most of the help texts
- selection list for Natural system error messages
- selection list for FDTs
- View function for Natural system error messages
- View function for NCP sources
- View function for FDTs
- The command menu
- Some of the internal commands
- The option to create parameter and selection workplans with wizards. Only 'Free Format Editing' is possible

SYSRPC Utility

When you invoke the SYSRPC utility Natural internally does a 'logon sysrpc' and returns to your user library when you leave the SYSRPC utility.

Stubs can now be generated in any library, the Service Directory is always generated in the library SYSRPC.

It is not necessary to define the steplibs SYSRPC or SYSLIBS in order to use the SYSRPC utility.

SYSTRANS Utility

The following enhancements are provided with the SYSTRANS utility:

- With Natural Version 3.1, records written to work file 1 were written with a fixed length of 96 bytes. With Natural Version 4.1.2, they are written with a variable length of 12 to 96 bytes. This will reduce the size of the work file by approximately fifty percent.
- As a result of an improvement in SYSTRANS internal processing, Work File 3 is now used only if 'Selection List = Y' is specified online.
- The user exit TRA-E1-S (TRA-EX-1) has been expanded. For details see the source of TRA-E1-S.

SYSUNLD Utilities NATUNLD and NATLOAD

Enhancements

The SYSUNLD utilities NATUNLD and NATLOAD provide the following enhancements:

- With Version 3.1, records written to Work File 1 were written with a length of 250 bytes. With Version 4.1, they are written with a variable length of 63, 126, 189 or 252 bytes. This will reduce the size of the work file by approximately 30 %.
- In the Date From/To fields, you can now enter the following special values: YESTERDAY, TODAY, MONTH, YEAR (the last two meaning the first day of the current month or year respectively).
- Online, after PF3, PF12 or CLR has been pressed on the report screen, NATUNLD now returns to the NATUNLD Menu instead of terminating.
- Online, after the loading/scanning has been performed, NATLOAD now returns to the NATLOAD Menu instead of terminating.
- On the NATLOAD report, the save/catalog times are now displayed in minutes and seconds; previously, they were only displayed in minutes.

New User Exit LOADEX02

NATLOAD provides a new user exit, LOADEX02 (source name L-S-EX02), which enables you to stop processing when a Natural Security error occurs during the processing of the Load function.

Additional Configuration Enhancements

SQL Date/Time Conversion

A conversion table can now be specified using: Natural Configuration Utility > Global Config File > DBMS Assignment > SQL Date/Time Conversion. Date and time conversions will be performed based on the definitions provided in this conversion table.

Adabas Multi-Fetch Disabling

Multi-fetch processing can now be disabled explicitly for the Adabas commands L1, L2, L3 and/or L9 for each dbid/filenumber combination. This can be done using: Natural Configuration Utility > Global Config File > DBMS Assignment > Multi-Fetch Disabling.

New configuration parameter BPNLE

For more information on BPNLE, see Operations Environment section on the Natural Bufferpool in the Natural Operations documentation.

Example Library for New Features

A new example library SYSEXV is available with Natural Version 4.1.2. This library replaces the previous example library SYSEXV31 and contains examples for both Version 3.1 and Version 4.1.2.

You can view these examples by logging on to library SYSEXV and executing the program VERSION. You can then use the resulting menu to select the various example programs.

Compatibility / Functionality Removed

Applications created with Natural Version 3.1 can be executed with Natural Version 4.1.2 without any conversion or adjustments to Natural programs, except in the few cases of intentional minor incompatibilities as documented below.

When a Version 3.1 application is executed with Version 4.1.2, these incompatibilities will cause the application to produce better, but slightly different, results. If in these cases you wish to get the same results as with Version 3.1, you must adjust your Natural applications accordingly.

The following list provides an overview of the intentional incompatibilities as well as functionality no longer supported.

Topic	Intended Incompatibility / Functionality Removed
Natural Parameter LANG	The Natural dynamic parameter LANG has been removed. The parameter ULANG should be used instead.
Natural Parameters SIZE and AUTOREMOTE	The Natural parameter SIZE has been renamed to RPCSIZE. The Natural parameter AUTOREMOTE has been renamed to AUTORPC. This was done to ensure consistency across all Natural platforms, and also for clearer direct association of these parameters with RPC.
Natural Work Files	Natural work files are closed automatically in the following cases: <ul style="list-style-type: none"> ● a READ statement execution reaches end-of-file ● a DEFINE WORK statement is executed

Topic	Intended Incompatibility / Functionality Removed
New Error Message NAT0777	Error message NAT0777 will be returned if no contiguous memory is available in the buffer pool for loading a Natural object.
New Error Message NAT0967	Error message NAT0967 will be returned if any of the Natural statements FETCH, RUN, STOP or TERMINATE attempts to execute a method.
New Error Message NAT0968	Error message NAT0968 will be returned if a parameter which is defined as mandatory is not transferred.
Error Message NAT0300	Error message NAT0300 will be returned in case of data transfer incompatibility in method calls and property assignments instead of error message NAT6003.
Error Message NAT1317	Error message NAT1317 will be returned in case of array mismatch in property assignments instead of error message NAT0748.
Error Message NAT6149	Error message NAT6149 will be returned in case of locking conflicts instead of error message NAT6153.
NATLINK Support	NATLINK is no longer supported. The appropriate user exit (USExxx) should be used instead.
NaturalX Registration	The type libraries and registry files created during class registration are now stored in a separate directory for each class.
WRITE PC with COMMAND Clause	This statement will return error message NAT1183 if the work file is already open or if the work file type is not TRANSFER.

Migrating Applications to Version 4.1.2

The following should be considered when migrating Natural applications from Natural 3.1 to Natural 4.1.2:

- Parameter settings need to be checked (SSIZE parameter) in order to use large Natural source.

For migration from Natural 2.1.7 for OpenVMS to Natural 4.1.2, see Migration from Natural 2.1 for OpenVMS

Information Pertaining to Upcoming Natural Release

The following information pertains to functionality that will most likely not be supported in future Natural releases:

- Omission of DBID/FNR within Context of FUSER
- CSCI Support
- EXECUTE and RUN Commands
- Statement Restrictions for RPC
- Statement Restrictions for DCOM Server
- Parameter Name Changes

Omission of DBID/FNR within Context of FUSER

Natural currently allows a steplib without DBID/FNR defined in the context of FUSER. This will not be permitted in future Natural releases.

CSCI Support

CSCI will no longer be supported in future Natural releases.

EXECUTE and RUN Commands

For compatibility reasons, the next version of Natural will fully enforce the restriction that a library name cannot begin with 'SYS'. The only exception to this restriction which will be allowed is the library name 'SYSTEM'.

Statement Restrictions for RPC

The use of the following Natural statements is currently permitted but not recommended for remote procedure calls:

Statement	Explanation / Undesired Effects
TERMINATE	The server is terminated regardless of any conversations that may still be open.
FETCH, RUN, STOP	The server detects that it has lost its CALLNAT context and returns an error message to the client. However, the statement has already been executed by the server.
INPUT	Input data values are unpredictable when read from a file (and not from the Natural stack).

In order to prevent these undesired effects, the use of the above statements will be restricted so that it will no longer be possible to use them with RPC in future Natural releases.

Statement Restrictions for DCOM Server

The use of the "FETCH" statement is currently permitted but not recommended for the execution of components on the DCOM Server.

Parameter Name Changes

- AUTOREMOTE has been renamed to AUTORPC.
- SIZE has been renamed to RPCSIZE.

The parameters SIZE and AUTOREMOTE are still valid in this version, however, they will no longer be available in future Natural releases.

Natural Security

This part of the Release Notes covers the following topics:

- Introduction
 - Known Problems
 - Using Multiple Versions of Natural Security
 - Documentation
 - Central Administration in a Heterogeneous Environment
 - General Options in Administrator Services
 - User Profiles
 - Library Profiles
 - Utility Protection
 - Mailbox Profiles
 - User Interface
 - User Exits
 - Interface Subprograms
 - Transferring Security Data with Secload/Seculd
 - Support of Batch Mode
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Introduction

This part of the Release Notes informs you of the enhancements and new features that are provided with Version 4.1.2 of Natural Security for Windows. For details on the individual items, please see the corresponding section of the new Natural Security documentation provided with this release.

In addition to providing the enhancements and new features described in these Release Notes, Natural Security Version 4.1.2 also consolidates all error corrections, modifications and enhancements provided with the previous patch-level releases of Natural Security. Version 4.1.2 contains all changes applied to Version 3.1 as error corrections.

These Release Notes summarize the changes and corrections which might result in a difference in handling between Natural Security Version 4.1.2 and Version 3.1.

Known Problems

For information on problems that are known to Software AG, but have not yet been solved with this version of Natural Security, please refer to the section "Known Problems" in the README file supplied on the Natural Security installation CD.

Using Multiple Versions of Natural Security

The Natural Security system file FSEC can be shared by Natural Security Versions 3.1.1 and 4.1.2.

To ensure the consistency and completeness of the security data on a shared FSEC file, it is strongly recommended that you use only the highest Natural Security version for Natural Security maintenance.

If you use a shared FSEC file, it is **not** necessary to transfer any security data with SECULD/SECLOAD.

Documentation

A revised Natural Security documentation is available with the release of Natural Security Version 4.1.2 for Windows.

The Natural Security documentation has been consolidated, so that this new documentation not only applies to Version 4.1.2 on Windows, but will also apply to OpenVMS and UNIX.

Central Administration in a Heterogeneous Environment

With Natural Security, you can also control access to Natural in a heterogeneous environment, that is, an environment comprising Natural on a mainframe computer and Natural on various non-mainframe platforms (OpenVMS, UNIX, Windows NT/2000, and Windows 98).

To make security administration in such a heterogeneous environment easier, Natural Security Version 3.1 for mainframes allows you to store all security data in a single mainframe FSEC system file, and maintain them centrally for all other platforms in the heterogeneous environment using Natural Security on the mainframe computer.

Thus, security administration can be simplified and standardized on a company-wide basis.

The security data on the mainframe FSEC file are accessible from the non-mainframe platforms via Entire Net-Work. On a non-mainframe platform, you can retrieve these central security data, but not maintain them (neither directly nor via interface subprograms).

For further information on Natural Security in heterogeneous environments, please refer to your Natural Security documentation (Version 4.1.2 for OpenVMS, UNIX and Windows or Version 3.1 for Mainframes).

To make this central administration possible, an enhancement was necessary to allow module restrictions of non-existent modules in library maintenance. See Disallow/Allow "Non-Existent" Modules - The Disallow/Modules for further information.

General Options in Administrator Services

Control of System File Access

The new Administrator Services function "Definition of system file access" allows you to control the access to the Natural system files which are defined in the Natural configuration file NATCONF.CFG.

When you invoke the function, a list of all system files defined in NATCONF.CFG will be displayed. For each system file, you can set an "Access" status, which can be one of the following:

Ma	Maintain - The system file is not protected; it can be accessed by any user (this is the default).
No	No access - The system file is protected; it can only be accessed by users who are linked to it.

To allow a user access to a protected system file, a *link* has to be established between the user and the system file. Corresponding functions for creating and deleting such links are provided.

Password History

With Version 3.1, the maximum number of stored passwords, which cannot be used again by the user, could only be set in steps of 10.

With Version 4.1, this number can be set to any value from 1 to 99.

Free Access to Functions via Interface Subprograms

You can specify the new value "R", which allows only the retrieval and display functions (but not the maintenance functions) to be accessed via interface subprograms by anybody who may use the subprograms.

Lock User Option

Besides "Y" and "N", you can specify the new value "F". This causes the user's Natural session to be terminated automatically when the user is locked after having entered too many invalid passwords.

User Profiles

Activation Dates for Group Security Profiles

The setting of an activation date in a user profile, which has already been possible for users of types ADMINISTRATOR, PERSON and MEMBER, is now also possible for users of type GROUP.