

Natural

Release Notes for Natural Version 6.3 for UNIX

Version 6.3.13 for UNIX

October 2012

Natural

This document applies to Natural Version 6.3.13 for UNIX.

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 6.3 for UNIX

These Release Notes summarize the new features and enhancements that are provided with Natural Version 6.3.

In addition to the new features and enhancements described in these Release Notes, this Natural version includes all error corrections, modifications and enhancements provided with previous Natural versions.

For background information, you can also refer to the Release Notes of previous Natural versions. They are available in the archive of the current Natural Documentation DVD.

Update Information for Version 6.3.1, November 2007:

- The section *Migrating Applications to Version 6.3* has been enhanced.
- In the section *Known Issues*, the subsection *Installation of Predict with Natural* has been removed. This information was only applicable to Natural for Windows.

Update Information for Version 6.3.3, January 2008:

- In the section *Known Incompatibilities*, the subsection *Usage of Database Field Short Names* has been added.

Update Information for Version 6.3.n, August 2009:

- The section *Supported Operating Systems* has been updated.

This documentation is organized under the following headings:

Natural Version 6.3.1	
Supported Operating Systems	An overview of the operating systems on which this Natural version can be installed.
General Information	Information that applies in general to this Natural version.
New Features	An overview of the new features in this Natural version.
Changes and Enhancements	Information on changes in this Natural version.
Known Issues	Additional information that you should be aware of after having installed Natural.
Natural Remote Procedure Call (RPC)	Information on enhancements and changes to Natural Remote Procedure Call.
Natural Security	Information on enhancements and changes to Natural Security.
Removed Features	Information on the features that are no longer available with this Natural version.
Notice of Future Changes	Information on features that will change in future Natural versions.
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Release Information for Natural Version 6.3.11 An overview of the new and changed features in Natural Version 6.3.11.

Natural Version 6.3.12

Release Information for Natural Version 6.3.12 An overview of the new and changed features in Natural Version 6.3.12.

Natural Version 6.3.13

Release Information for Natural Version 6.3.13 An overview of the new and changed features in Natural Version 6.3.13.

2 Supported Operating Systems

The operating systems listed below are supported with this Natural version.

- Solaris 10 - 64 bit (Sun and FSC)
- AIX 5.3 - 64 bit
- AIX 6.1 - 64 bit
- HP-UX 11.i v2 64 bit (PA-RISC)
- HP-UX 11.i v2 64 bit (Itanium)
- HP-UX 11.i v3 64 bit (PA-RISC)
- HP-UX 11.i v3 64 bit (Itanium)
- SUSE Linux Enterprise Server 10 (IA32)
- SUSE Linux Enterprise Server 10 (z/Linux)
- SUSE Linux Enterprise Server 10 for AMD64 and Intel EM64T (x86-64)
- SUSE Linux Enterprise Server 11 (IA32)
- SUSE Linux Enterprise Server 11 (z/Linux)
- SUSE Linux Enterprise Server 11 for AMD64 and Intel EM64T (x86-64)
- Red Hat Enterprise Linux 4.0 (IA32)
- Red Hat Enterprise Linux 4.0 (z/Linux)
- Red Hat Enterprise Linux 4.0 for x86-64 (AMD64, EM64T)
- Red Hat Enterprise Linux 5.0 (IA32)
- Red Hat Enterprise Linux 5.0 (z/Linux)
- Red Hat Enterprise Linux 5.0 for x86-64 (AMD64, EM64T)

See also: *Product Requirements* in the *Installation* documentation.

3 General Information

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License Key File Handling

A path to a valid license key file is required during the installation of Natural. The license key file is an XML file which is delivered by e-mail.

Separate license key files are required for Natural for Tamino and Natural Security.

For further information, see the *Installation* documentation.

Migrating Applications to Version 6.3

Applications that were created with Natural for UNIX Version 3.1 and above can be executed with Version 6.3 with the following restriction:

As of Natural Version 6.2 it is no longer recommended to share the system file `FUSER` with previous Natural versions. When you have two installations of Natural (for example, version 6.1.1 (or below) and version 6.3.1), you have to use two different version-specific `FUSER` system files. This is because the format of the Natural library directory file `FILEDIR.SAG` has changed as of Natural Version 6.2. `FILEDIR.SAG` is automatically converted into the new format (which is valid as of Natural Version 6.2.) the first time you modify an object in the `FUSER`. After `FILEDIR.SAG` has been changed to the new format, Natural Version 6.1.1, which is mentioned in the above example, is no longer able to process the `FUSER`. For detailed information, see *Portable Natural System Files* and its subsection *Migrating an Old FILEDIR.SAG File* in the *Operations* documentation.

Natural Single Point of Development

Natural Single Point of Development (SPoD) connects Natural for UNIX Version 6.3 to

- a Natural for Windows Version 6.3 client (Natural Studio) via the Natural Development Server (NDV) Version 2.2.

This infrastructure enables the developer to create and maintain Natural applications using the Natural Development Server for UNIX to connect to Natural Studio under Windows.

For further information (including any limitations that may apply for your installation), see the separate Natural Single Point of Development documentation and the Natural Development Server documentation.

Changes in the Documentation

A revised and updated documentation set is available with this Natural version.

The information on installing and configuring the Natural Web I/O Interface client for a production environment, which was previously only available on the product CD, is now included in this Natural for UNIX documentation. See the *Natural Web I/O Interface* documentation.

Explanations of the system error messages that may be issued by the Natural nucleus are now included in this Natural for UNIX documentation. See *Messages and Codes*.

Last-Minute Changes

Information on last-minute changes made just before the product release can be found in the file *readme.txt* that is provided on the Natural installation medium.

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Natural for Ajax

Using the new product Natural for Ajax, you can create rich internet applications which use the Ajax (Asynchronous JavaScript and XML) technology. These rich internet applications use the Natural Web I/O Interface. This interface is available on UNIX and mainframe platforms only. The language extensions which have been made for this purpose (such as the new statement `PROCESS PAGE`) are listed in the remainder of these Release Notes.

A new example library, `SYSEXNJX`, is available for Natural for Ajax.

For detailed information on the installation and usage of Natural for Ajax, see the new Natural for Ajax documentation.

Object Types

The new object type “adapter” is provided in this version. It is used to represent a rich GUI page in a Natural application. For further information on this object type, see *Processing a Rich GUI Page - Adapter* in the *Programming Guide*.

Natural (system commands, utilities, etc.) has been enhanced in order to support this new object type.



Note: The `EDIT` command is not currently supported for this new object type. A specific editor for objects of type “adapter” is planned for a future version.

Statements

The following new Natural statement is provided in this version:

Statement	Description
<code>PROCESS PAGE</code>	Passes application data to a rich GUI page.

System Variables

The following new Natural system variables are provided in this version:

System Variable	Description
*BROWSER-IO	Indicates that the application is running in a web browser. An application can run in a web browser either via the Natural Web I/O Interface or by using Natural for Ajax.
*PAGE-EVENT	Contains the name of the current event delivered from Natural for Ajax. It is used for rich GUI programming with the <code>PROCESS PAGE</code> statement.
*PAGE-LEVEL	Contains the level of the active <code>PROCESS PAGE MODAL</code> statements blocks.

Application Programming Interfaces

The utility `SYSEXT` provides the following new application programming interfaces (APIs):

API	Description
USR2075N	Terminate EntireX Broker Service. Used with Natural Remote Procedure Call (RPC) .
USR4003N	Retrieve Natural stack information (alphanumeric).
USR4004N	Retrieve dynamic Natural profile parameters.
USR6303N	Retrieve Natural stack information (Unicode).

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Utilities

FTOUCH

You can now define that line numbers are not written to the source code in the file system. See *FTOUCH Utility* in the *Tools and Utilities* documentation.

In the Natural main menu, a minus (-) character after the library name indicates that in this library the line numbers are suppressed in the source code.

INPL

The INPL utility now automatically recognizes the type of the load file. It is no longer necessary to specify the correct load file type. See *INPL Utility* in the *Tools and Utilities* documentation.

SYSRPC

See *Natural Remote Procedure Call (RPC)* later in these *Release Notes*.

Parameters

LSTEP

The default value assigned to the profile parameter LSTEP has been changed from "STEP" to "SYSTEM". Therefore, you have to take precautions if you create new parameter files and your applications use these newly created parameter files and depend on objects located in the library STEP (the former default value). The modification of the default value implies an alteration in the default library search order (steplib). Therefore, your applications might not run properly or might produce unexpected results.

When you are using old parameter files in which the value "STEP" is defined for the profile parameter LSTEP, your existing applications which depend on objects located in library STEP will still run properly.

If your applications do not expect objects to be located in library STEP on FUSER or if library STEP on FUSER is empty, your applications will run properly after the default value change of LSTEP. The performance is increased since the library search order decreased in size. You are encouraged to modify LSTEP in your current installation to the proposed new default value in order to take advantage of the above mentioned performance increase.

LT

The range of possible values for the profile and session parameter LT has been changed from 0 - 99999999 to 0 - 2147483647.

NCFVERS

The new value "3" is now available for the profile parameter NCFVERS. This value indicates that a format file of Entire Connection Protocol Version 3 is written, which is created by Natural Version 6.3. The default value of the NCFVERS parameter has changed from "2" to "3".

Statements

DECIDE ON

The `SUBSTRING` option can now be used as *operand1* and *operand2* in the `DECIDE ON` statement. It allows you to check only a certain part of an alphanumeric, Unicode or binary field.

FOR

An arithmetic expression can now be used as *operand2*, *operand3* and *operand4* in the `FOR` statement.

System Variables

*SERVER-TYPE

The new value "WEBIO" of the `*SERVER-TYPE` variable indicates that Natural has been started as a Natural Web I/O Interface server.

Web Technology

Natural Web Interface

The Natural Web Interface now also supports Apache Version 2.2.x HTTP servers. For further information, see *Supported HTTP Servers* and *Natural Web Server Extensions for MOD* in the *Web Technology* documentation.

Using the Web Interface on a remote machine without EntireX technology is now possible via the PAL interface as used for the SPoD server.

The server extension program initializes a communication directly to the PAL server instead of, for example, using RPC. Because all Web Interface programs are subroutines, and it is not possible to run a subroutine directly using PAL, a generic stub is necessary. This stub handles `steplib` setting, parameter transfer and `CALLNAT` of the subprogram.

For further information, see *Communication Using PAL Techniques* and *Functionality* in the *Web Technology* documentation.

Miscellaneous

Buffer Pool

The `SHUTDOWN` command of the `NATBPMON` utility has been enhanced to quickly shut down a buffer pool. It is now possible to specify the `FORCE` option with an optional parameter. If `NATBPMON SHUTDOWN FORCE grace-period` is executed with super user rights, the terminate signal `SIGTERM` is sent to all active Natural sessions. After the expiry of the seconds defined with the `grace-period` parameter, the IPC resources held by the buffer pool are removed from the system. This command only has effect if executed with super user rights; without these rights, `NATBPMON` will reject its execution. See *NATBPMON Commands* in the *Operations* documentation.

Printing

When you print an object, the database ID and file number are now included on the printout.

NCF Format Files

The content of the NCF format files which are created for the work file type Entire Connection has changed. Now the information fields that were empty before are also filled with the work file processing information. The content of the information field **File name** has changed; the file name and path are now included in the information field. Since Unicode is now supported for NCD files, a new information field is available in the NCF file, containing code page information.

Tracing the SPoD Protocol

The environment variable `SET PALTRACE=nbr` has been dropped. If you want to trace the Pal, you have to use `NCTR_TRACE` for this purpose. The prerequisite is a Natural version which has been optimized for tracing or a debug version. The file `NCTR.cfg` has to be adapted accordingly.

External Editor

The ability to use an external editor like “vi” within a Natural session has been reestablished. However, the use of such an external editor is not recommended as code page conflicts may arise. These conflicts can - but not necessarily must - deteriorate your source code.

6 Known Issues

- Terminal Command %= 20

This chapter provides additional information that you should be aware of after having installed Natural.

Terminal Command %=

If the background color of a window is changed with the terminal command %=, this will now also change the background color of the text constants. In earlier versions, the background color of text constants was not changed which caused an uncommon color layout.

7 Natural Remote Procedure Call (RPC)

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Natural Remote Procedure Call (RPC) 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.

As of Version 6.2 of Natural Remote Procedure Call (RPC), the enhancements listed in this chapter are available.

New Application Programming Interface

The new application programming interface `USR2075N` enables you to terminate the EntireX Broker Service from within your application. See *Terminating a Natural RPC Server* in the *Natural Remote Procedure Call (RPC)* documentation.

SYSRPC Utility Enhancements

It is now possible to terminate all server tasks associated with a given EntireX Broker service. See *Terminating a Server* in the *SYSRPC* part of the *Utility* documentation. In previous versions, it was only possible to terminate a single server.

8 Natural Security

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The enhancements listed in this chapter are available with Natural Security Version 6.3.1.

FSEC System File

With Version 6.3.1, you can continue to use your existing FSEC system file. No migration of Natural Security data from the previous version to the current version is necessary.

Functional Security

WYSIWYG

If you use functional security within Natural Security, that is, if you use the command processor NSCCMD01 to disallow functions within the library SYSSEC, this now has a “WYSIWYG” effect: If functions are disallowed in NSCCMD01, the corresponding menu items will not be visible on the Natural Security menus. This means that within SYSSEC you will only see the functions you are allowed to use.

New Direct Commands

The following new direct commands - and keywords in NSCCMD01 - are available to invoke Administrator Services functions directly:

Command	Function Invoked
ADMIN_D	Library And User Preset Values
ADMIN_I	Application Programming Interfaces
ADMIN_N	Maintenance Log Records
ADMIN_S	System-Library Definitions
ADMIN_U	User Default Profiles
ADMIN_X	Utility Defaults/Templates
ADMIN_Y	Library Default Profiles
ADMIN_1	Environment Profiles

Administrator Services

Concurrent Modifications Without Notification

With previous versions of Natural Security, the general option **Concurrent Modifications Without Notification** only applied to mailbox profiles. As of this version, it also applies to user profiles, library profiles and special-link profiles.

As a result, Natural Security may react differently when you modify a user, library or special-link profile.

System-Library Definitions

Several new system libraries (that is, libraries whose names begin with “SYS”) are provided with this Natural version. They are included in the list of libraries provided by the Administrator Services function **System-Library Definitions**, which you can use to automatically create security profiles for them.

Library Profiles

Adapters

The use of the new Natural object type “adapter” can also be controlled by Natural Security: This is done by allowing/disallowing the editing of the object type “adapter” in the Editing Restrictions section of library profiles.

Utility Profiles

SYSOBJH Object Handler

The initialization of the Natural utility `SYSOBJH` (Natural Object Handler) under Natural Security has been improved to make the use of the utility more user-friendly: With previous versions, users were not notified that they were not allowed to use a selected function/option until they actually attempted to execute it. Now a disallowed function/option is intercepted at the earliest possible stage in the selection process.

Application Programming Interfaces

New Application Programming Interface NSCXLO

The new application programming interface NSCXLO allows you to read the maintenance log records, which are created by Natural Security if the general option **Logging of Maintenance Functions** has been activated.

Invoking of NSCXRIER

With previous versions of Natural Security, the application programming interface NSCXRIER could only be invoked from within the library SYSSEC. As of this version, it can also be invoked from outside SYSSEC.

9 Removed Features

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- Utilities NATUNLD, NATLOAD and SYSTRANS 28

This chapter provides an overview of functionality no longer supported with this Natural version.

Natural Web Interface

Natural 6.3 is the last version to deliver SYSWEB.

The interface SYSWEB3 is now to be used instead of SYSWEB. SYSWEB is only delivered on the product CD and can only be installed manually. It is therefore recommended that you update your programs written for SYSWEB to run with the new interface SYSWEB3. See *Migrate Natural Web Interface SYSWEB to SYSWEB3* in the *Web Technology* documentation for further information.

Utilities NATUNLD, NATLOAD and SYSTRANS

Natural 6.3 is the last version to deliver the utilities NATUNLD, NATLOAD and SYSTRANS.

The utilities NATUNLD, NATLOAD and SYSTRANS are no longer installed by default. The Natural Object Handler is to be used instead.

However, if you want to continue using these utilities, you can still issue the system commands which invoke these utilities (SYSUNLD and SYSTRANS). When you issue such a system command for the first time, you have the possibility to install the corresponding utility. Follow the installation instructions displayed on the screen. When the installation for a utility has been completed, you can invoke it using the corresponding system command.

The documentation for these utilities can be found as a PDF book in the archive of the Natural Documentation CD.

10 Notice of Future Changes

- Remote Debugging 30

The following changes are planned for future versions of Natural.

Remote Debugging

Remote debugging (that is debugging a native Natural for UNIX application from a Windows computer) will no longer be supported. The Windows client will no longer be delivered.

Debugging a UNIX application will only be possible with Natural Studio when you are working in a remote UNIX environment using SPoD.

11 Release Information for Natural Version 6.3.2

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Changes in the Documentation

The documentation for the `SYSMAIN` utility has been completely revised.

New Features

Application Programming Interfaces

The utility `SYSEXT` provides the following new application programming interface (API):

API	Description
USR4208N	Read or write shared resource.

Changes and Enhancements

International Support

Natural for UNIX now includes the international support which was previously only provided with the international version of Natural 6.1.1.

Bidirectional languages and double-byte characters are now supported. For detailed information on how to activate these features, see the sections *Bidirectional Language Support* and *Double-Byte Character Support* in the *Unicode and Code Page Support* documentation.

The following has changed (as compared with the international version of Natural 6.1.1):

- In the map editor, the **Flip Map** command has been renamed to **Reverse Map**.
- The environment variable `RTL_BW_COMP` is no longer supported. Natural no longer supports logical resorting of the characters during input; the characters are always displayed in the keying sequence for left-to-right fields and in the reversed keying sequence for right-to-left-fields.
- The environment variable `NATLANG` is no longer supported. For enabling the international support, the setting of the profile parameter `CP` is now used.
- The locale files (previously installed in *etc/locale*) which were delivered with the international version of Natural 6.1.1 are no longer supported.
 - Month and day names are now retrieved from the Natural text/error message files.
 - Character property information such as “is the character upper case” is retrieved from the ICU library which is used for the Unicode support.

- Using the AM/PM strings from the locale files is no longer supported.
- Using the year edit masks EC, EE, EV and EY is no longer supported.
- Characters which are entered in a right-to-left field are no longer automatically converted according to the keymap defined in the locale files. Natural now uses the characters which are delivered from the operating system, which is compatible to the Windows behavior. Changing the input language has to be achieved by executing the appropriate operating system functions.

Utilities

Object Handler

The Object Handler now automatically recognizes the type of the load file for the load and scan functions. It is no longer necessary to specify the correct load file type. The user interface of the Object Handler has not been changed due to compatibility reasons, however, the **Portable work file** option will not be evaluated for the load and scan functions. See the description of `WORKFILETYPE` in *Keyword Explanation of option-setting*.

The `DELETEALLOWED` option can be used in an Object Handler direct command to specify that the delete instructions from work files created with `NATUNLD` (which is no longer installed by default) are processed. This option is also available as of Natural Version 6.1.

System Commands

CATALL

The system command `CATALL` can now be used in batch mode. The direct command syntax has been enhanced accordingly.

Known Incompatibilities

This section provides additional information that you should be aware of after having installed Natural.

Error Messages

The following error message is new for this version of Natural in order to improve the edit mask handling and the compatibility between Natural for Windows, Natural for UNIX and Natural for Mainframes.

Error Message	Description
NAT1145	Input does not match edit mask :1:. NAT1145 replaces NAT1143 in case of interactive input/output. This new error advises the user of the expected input format for the current field.

Removed Features

This section provides an overview of functionality no longer supported with this Natural version.

Natural Expert

Natural Expert models are no longer displayed in the list of object types.

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New Features

Adabas 6 (Open Systems) and Adabas 8 (Mainframe) Support

With Natural Version 6.3.3, a new database driver (ADA2) is delivered for testing purposes. This database driver supports large objects and LA fields of Adabas 6 (Open Systems) and Adabas 8 (mainframe). This database driver is not yet intended for a production environment since the complete Adabas functionality is not yet supported.

Currently, large objects in MU and PE fields are not supported.

By default, the “old” database driver ADA is used. This ensures that your Natural applications run as usual; there is no difference to previous Natural versions. Only when you define the database type ADA2 in the Configuration Utility, the new database driver will be used.

Read-Only Buffer Pool

It is now possible to define a special buffer pool that only allows read access. For a read-only buffer pool, it is also possible to define an alternate buffer pool. See *Read-Only Buffer Pool* in the *Operations* documentation.

Parameters

The following new Natural profile parameters are provided in this version:

Profile Parameter	Description
BPID2	Specifies the name (ID) of an additional read/write buffer pool to which Natural can attach/detach during execution.
SRVWAIT	Specifies the number of seconds the server is to wait for an RPC client request.

Application Programming Interfaces

The utility SYSEXT provides the following new application programming interfaces (APIs):

API	Description
USR4209N	Return short name of subroutine.
USR4210N	Base64 conversion of alphanumeric and binary bytes.

Changes and Enhancements

Configuration Utility

Database Management System Assignments

It is now possible to specify the database type ADA2. This database type supports alphanumeric objects (Adabas LA option) and large object database fields (LOBs), which are dynamically defined inside a view, and view sizes greater than 64KB. It can be used for Adabas as of version 6 on Open Systems and Adabas as of version 8 on mainframes. See *DBMS Assignments* in the *Configuration Utility* documentation.

Buffer Pool Assignments

It is now possible to define a read-only buffer pool and an alternate buffer pool for the read-only buffer pool. See *Buffer Pool Assignments* in the *Configuration Utility* documentation.

Remote Procedure Call

The new profile parameter SRVWAIT can be specified. See *RPC (Server)* in the *Configuration Utility* documentation.

Parameters

ACIVERS

The EntireX ACI Version 9 is now supported by ACIVERS. Therefore, the maximum value has been increased from 8 to 9. See also the corresponding information in the section [Natural Remote Procedure Call \(RPC\)](#) below.

STEPLIB

The profile parameter LSTEP has been renamed to STEPLIB. The information which was previously provided for the STEPLIB parameter is now available under *Additional Steplib Assignments* in the *Configuration Utility* documentation.

System Commands

CATALL

The system command CATALL can now also be used to check, save or stow objects. By default, the source-code lines of sources that were saved or stowed are now automatically renumbered.

When Natural Security is active, it is now checked whether the selected action (catalog, check, save or stow) is allowed under Natural Security. When it is not allowed, an occur occurs.

Natural Web I/O Interface Client

The Natural Web I/O Interface client can now be installed on JBoss Application Server 4.0.5. See *Installing the Natural Web I/O Interface Client on JBoss Application Server* in the *Natural Web I/O Interface* documentation.

It is now possible to define the screen resolution for the output window in the configuration file for the session (attributes `rows` and `columns` of the `screen` element). In this file, it is also possible now to define the platform on which user ID and password are to be authenticated (attribute `type` of the `session` element) and whether the input field for the user ID is in upper-case mode (attribute `ucase` of the `user` element). Furthermore, it is now possible to specify the version of the Natural Web I/O Interface protocol that is to be used (attribute `protocol` of the `session` element); the latest Natural versions automatically use the appropriate protocol version. For older Natural versions, it is required to define the appropriate protocol version in the configuration file.

Application Programming Interfaces

The application programming interface `USR6203N` (available with the utility `SYSEXT`) has been enhanced. It can now be used to add and delete resources.

Error Messages Corresponding to Adabas Response Codes

The Natural error messages that correspond to Adabas response codes have been completely revised with Natural Version 6.3.3.

Natural displays subcodes or other information from Additions fields if they are provided by Adabas.

Known Incompatibilities

This section provides additional information that you should be aware of after having installed Natural.

SQL Databases

When working in structured mode, the format/length of a variable must now be the same for both DDMs and views. With previous versions, it was possible, for example, to define a variable as dynamic in the DDM and with a fixed length in the view. This is no longer possible. When a variable is defined as dynamic in the DDM, it must now also be defined as dynamic in the view.

If you want to retain the previous behavior, you can add a corresponding entry with a fixed length to the DDM (however, this is not recommended).

Usage of Database Field Short Names

In previous versions, a database field short name was not rejected during compilation if the parameter `DBSHORT=ON` and the `DEFINE DATA LOCAL` statement were specified. This problem was corrected with Natural Version 6.3.3 PL 1. The syntax error NAT0981 is now returned. For further information, see the enhanced description of the `DBSHORT` parameter.

Natural Remote Procedure Call (RPC)

With Natural Version 6.3.3 an enhanced Natural Remote Procedure Call (RPC) Version 6.3.1 is delivered that replaces the existing Natural RPC Version 6.2.3.

As of Natural RPC Version 6.3.1, the following enhancements are available:

Wait Time of RPC Server

The new parameter `SRVWAIT` is used to specify the number of seconds the server is to wait for an RPC client request.

ACIVERS Profile Parameter Enhanced

The EntireX ACI Version 9 is now supported by `ACIVERS`. This allows you to enable the EntireX Broker stub to send additional environmental information about client and server to the EntireX Broker, or to use the Integrated Authentication Framework (IAF).

Support of Integrated Authentication Framework (IAF) on Server Side

If Natural Security is installed on the Natural RPC server side and if the EntireX Broker uses IAF for authentication, the Natural RPC server can optionally be configured to use an IAF token for client authentication instead of the Natural Security logon data. The IAF token is provided by the EntireX Broker and contains the user ID that the client has used to log on to the EntireX Broker. As a consequence, after a successful authentication the Natural user ID `*USER` is always identical to the client user ID used by the EntireX Broker. It is no longer possible to use a user ID within Natural that is different from the client user ID used by the Entirex Broker.

To use this feature, the Natural RPC server and IAF must be configured in Natural Security. See the section *Protecting Natural RPC Servers and Services* in the *Natural Security* documentation for details.

No changes are required on the client side.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.3.

- Administrator Services
- Utility Profiles
- Natural RPC Server Profiles

Administrator Services

The following enhancements are provided in Administrator Services:

- Set *APPLIC-NAME Always to Library Name
- Logon/Countersign Errors

Set *APPLIC-NAME Always to Library Name

With previous versions, the Natural system variable *APPLIC-NAME either contained the name of the library to which the user was logged on, or, if the user was logged on via a special link, the special-link name.

With this version, a new general option Set *APPLIC-NAME always to library name is available. It can be set so that *APPLIC-NAME always contains the library name, regardless of whether the user is logged on via a special link or not.

Logon/Countersign Errors

The functions for the handling of logon/countersign error records have been enhanced. They allow you to selectively handle logon errors which occurred in conjunction with Natural RPC service requests and Natural Web I/O service requests. To do so, you specify the following in the **Start Value** field on the **Logon/Countersign Errors Menu**:

- RPCSRVRQ - for logon errors in conjunction with Natural RPC service requests.
- NWOSRVRQ - for logon errors in conjunction with Natural Web I/O service requests.

Utility Profiles

Search Order for Applicable Profile

When a user invokes a utility function and Natural Security searches for appropriate utility profile to be applied, the search sequence, by default, includes user-library-specific and user-specific utility profiles of all groups in which the user is contained. With the new session option `*GROUP Only`, which can be set in a utility's default profile, you can restrict the search to utility profiles of the current group (as determined by the current value of the Natural system variable `*GROUP`) and exclude the utility profiles of other groups from the search sequence. See the section *Which Utility Profile Applies?* in the Natural Security documentation for details.

SYSOBJH - Object Handler

A new **Additional Option** named **Utilities** option is available in the default utility profile of the Object Handler (`SYSOBJH` utility). With it, you can make the **Utilities** option in library profiles apply to `SYSOBJH`.

Natural RPC Server Profiles

Single-Library RPC Servers

For Natural RPC servers which provide services performed by subprograms contained in a single library, a new option **Logon Mode** is available. It can be specified in the security profiles of Natural RPC servers to improve performance.

Setting the option to "S" (Static Mode) has the following effects:

- The library on the server is set at the start of the server session, and will remain unchanged until the end of the server session.
- The server will process only service requests for this library. Service requests for any other library will be rejected.
- If the library is unprotected (People-protected = N), the user's authorization to access the library is not checked. If the library is protected (People-protected=Y), the user's authorization to access the library is checked.
- After a successful check, the user's conditions of use of the library are determined by the library profile. Even if a special link exists between the user and the library, any settings in the special link profile will be ignored.

See the section *Validation of an RPC Service Request* in the Natural Security documentation for details.

Support of Integrated Authentication Framework

As of this version, Natural Security supports Natural RPC servers which use an Integrated Authentication Framework (IAF) server for token validation. See also [Support of Integrated Authentication Framework \(IAF\) on Server Side](#) in the RPC section of these Release Notes.

See the section *IAF Support* in the Natural Security documentation for details.

Notice of Future Changes

The following changes are planned for future versions of Natural.

Versioning Software

If you want to use third-party versioning software together with Natural, it is no longer required that you write your own interface. Therefore, NATNCVC will no longer be supported.

It is recommended that you use Local Versioning which is available with Natural Studio when you are working in a remote UNIX environment using SPoD. Using Local Versioning, you can use the source control system Concurrent Versions System (CVS) or Subversion (SVN) from within your Natural environment. To use this functionality, you must have the Subversion or CVS client part (*svn.exe* or *cvs.exe*) installed on your PC and you must have access to a Subversion or CVS repository server which has been installed locally or on a server. When you search the internet, you can find these Subversion or CVS components on several download sites. For detailed information on Local Versioning, see *Natural Studio Extensions* which is part of the Natural for Windows documentation.

Natural Web I/O Interface Daemon

The following environment variables will no longer be supported:

- NWO_PF_MSG_LINES_NATIVE_FORMAT
- NWO_BORDERS
- NWO_PFKKEYS

It is recommended that you do not use these environment variables any longer. In a later version, equivalent functionality is planned for the client side.

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New Features

Adabas 6 (Open Systems) and Adabas 8 (Mainframe) Support

With Natural Version 6.3.4, a new database driver ADA2 is delivered that supports features introduced with Adabas 6 (Open Systems) and Adabas 8 (mainframe). This includes support of Adabas large objects fields, Adabas LA fields and extended Adabas buffer lengths.

See also *Adabas Database Management Interfaces ADA and ADA2* in the *Programming Guide*.

Parameters

The following new Natural parameter is provided in this version:

Parameter	Description
D0	Specifies how fields are to be interpreted for display on terminals that support bidirectional data.

Changes and Enhancements

Natural Web I/O Interface Daemon

Logging

An enhanced logging information system is now provided. See *Logging Information* in the *Natural Web I/O Interface* documentation.

Daemon Commands

In addition to editing the configuration file *nwosrvd.conf*, it is now also possible to configure the Natural Web I/O Interface daemon by specifying commands at the UNIX command prompt. See *Natural Web I/O Interface Daemon Commands* in the *Installation* documentation.

Natural Web I/O Interface Client

Java Version for Java EE-based Server

The prerequisite for using the Natural Web I/O Interface client on a Java EE-based server has changed. It is now required that Java Runtime 5 or above is installed.

Tracing

It is now possible to define a different trace directory for IIS.

It is now possible to enable tracing for a session on a Java EE-based server (Sun Application Server and JBoss Application Server). To do so, you set the `trace` attribute in a session definition to "true".

Logging

In case of problems with the Natural Web I/O Interface client or Natural for Ajax on a Java EE-based server, you can now enable logging and thus write the logging information to an output file. See *Logging* in the *Natural Web I/O Interface* documentation.

Notice of Future Changes

The following changes are planned for future versions of Natural.

Default Setting for Adabas Database Driver

With Natural Version 6.3.4, the database driver `ADA` is still used by default.

With a future version of Natural, the default setting for the database driver will change to `ADA2`.

Handling of the TF Parameter

With a future version of Natural, the handling of the `TF` parameter will be changed.

Currently, it is only possible to use the asterisk (*) notation for the database ID (DBID) and file number (FNR) of the production database. In a future version, it will also be possible to use the asterisk notation for the database ID and file number of the test database. It may then be possible that your applications will behave in a different way.

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New Features

Parameters

The following new Natural parameters are provided in this version:

Parameter	Description
RPCSDIR	Specifies the name of the Natural library in which the service directory is located.
SRVCMIT	Specifies the time at which a Natural RPC server automatically commits an RPC conversation or a non-conversational RPC request.
SRVTERM	Specifies the event at which a Natural RPC server is automatically terminated.

Application Programming Interfaces

The utility SYSEXT provides the following new application programming interfaces (APIs):

API	Description
USR4005N	Read current PF-key settings.
USR4212N	Read a data area from the system file/file system and return the single entries in a table. This allows you to analyze a data area independent of the way the definitions were done in the data area editor. It also allows you to process data areas in DEFINE DATA format.
USR6304N	Set/get the reliable state for the reliable Natural RPC.
USR6305N	Commit/rollback reliable RPC message(s). This API is required if the reliable RPC state has been set to "client commit".
USR6306N	Retrieve the status of all reliable RPC messages of the user who is currently logged on to the EntireX Broker.

Natural for Ajax

Natural for Ajax is now delivered in the Version 1.2.1 and is based on Application Designer Version 2.4.

Support is now provided for converting character-based Natural applications to Natural for Ajax applications. This support consists of the following: map extraction, INPUT statement extraction, map conversion and code conversion. INPUT statement extraction and code conversion are supported with Natural Engineer Version 6.1.2. See *Application Modernization* in the Natural for Ajax documentation.

In order to support the conversion of character-based Natural applications to Natural for Ajax applications, a number of new controls is provided:

NJX:BUTTONITEMLIST

NJX:BUTTONITEM
NJX:BUTTONITEMLISTFIX
NJX:BUTTONITEMFIX
NJX:FIELDLIST
NJX:FIELDITEM
NJX:FIELDVALUE
NJX:NJXVARIABLE

A new control is provided to support event parameters:

NJX:EVENTDATA

The above controls are available in the controls palette of the Layout Painter, in the new section with the name **Natural Extensions**.

Support is now provided for server-side scrolling and sorting. See *Server-Side Scrolling and Sorting* in the Natural for Ajax documentation.

The following Natural parameters are now evaluated in Natural for Ajax applications and passed to Application Designer at runtime:

DC
DTFORM

See also *Natural Parameters and System Variables* in the Natural for Ajax documentation.

Configuration Tool for the Natural Web I/O Interface Client and for Natural for Ajax

A configuration tool is now available on Java EE-based servers. It is used to manage the contents of the configuration files for the session (*sessions.xml*) and for logging (*natlogger.xml*). See *Using the Configuration Tool* in the *Natural Web I/O Interface* documentation.

Changes and Enhancements

Configuration Utility

Remote Procedure Call

The new profile parameters `RPCSDIR`, `SRVCMIT` and `SRVTERM` can be specified. See *Remote Procedure Call* in the *Configuration Utility* documentation.

Natural for Ajax

Natural for Ajax now supports right-to-left languages and bidirectional text. See *Support of Right-to-Left Languages* in the Natural for Ajax documentation.

It is now possible to change the language while an application is running. This is done by setting the Natural system variable `*LANGUAGE` in the Natural program. Each time this system variable is changed, Natural for Ajax changes the language code for the web pages when the next update of the page occurs. See also *Multi Language Management* in the Natural for Ajax documentation.

Session Configuration for the Natural Web I/O Interface Client and for Natural for Ajax

A number of features that was previously controlled by an XSLT file (colors, fonts, PF key buttons) is now controlled by a style sheet (CSS). As of this version, the XSLT file only provides restricted possibilities (see *Modifying the Field Attributes* in the *Natural Web I/O Interface* documentation). The XSLT files of the previous versions are no longer supported.



Note: As of version 6.3.7, the above chapter is no longer available.

Natural for Ajax is delivered with a number of predefined style sheets. You can edit the predefined style sheets or create your own style sheets. See *Using Style Sheets* in the *Natural Web I/O Interface* documentation.

The new URL parameter `natparamext` extends an existing Natural parameter definition in the configuration file. The extension works in the following way: the Natural parameters defined in the configuration file come first. Then, the Natural parameters defined in the URL parameter `natparamext` are added, separated by a space character. If you want to overrule the definition in the configuration file, use the URL parameter `natparam` instead. See *Starting a Natural Application with a URL* in the *Natural Web I/O Interface* documentation.

It is now possible to define the following new settings in the configuration file for the sessions. The headings below correspond to the options that are used in the new configuration tool (see *Overview of Session Options* in the *Natural Web I/O Interface* documentation). These new options are only available for Java EE-based servers, not for IIS.

Show style sheet selector

Natural for Ajax only.

By default, the users can switch to another style sheet during a running session. You can disable this feature.

Corresponds to the `styleselect` attribute of the screen element in *sessions.xml*.

Style sheet

Natural for Ajax only.

When the name for a style sheet is specified, a fixed style sheet is used. In this case, the corresponding field does not appear on the logon page and the user is thus not able to select a different style sheet.

Corresponds to the `style_sheet` element in *sessions.xml*.

Use SSL

You can enable SSL. A secure connection is then established between the Natural Web I/O Interface client or Natural for Ajax on the application server and the Natural Web I/O Interface server.

Corresponds to the `ssl` attribute of the `session` element in *sessions.xml*.

Save user credentials

Natural for Ajax only. Applies only to applications that are designed as Application Designer workplaces.

By default, the default behavior of the option **Share session user** applies. You can change this default so that the user credentials (user ID and password) are not saved in the Application Designer session and are therefore not available for an Application Designer subsession.

Corresponds to the `savesessionuser` attribute of the `session` element in *sessions.xml*.

Share session user

Natural for Ajax only. Applies only to applications that are designed as Application Designer workplaces.

By default, the user credentials of the main Application Designer session are automatically used in an Application Designer subsession if the server and port of the subsession is the same as in the main session. If the server and port are not the same, the user has to specify the user ID and password in a logon dialog. You can change this default so that the user credentials of the Application Designer main session are always used for all Application Designer subsessions on all involved servers - even if the server and port are different.

Corresponds to the `sharesessionuser` attribute of the `session` element in *sessions.xml*.

Show function key numbers

You can determine whether the PF key numbers are shown next to the PF keys.

Corresponds to the `showfkeynumbers` attribute of the `screen` element in *sessions.xml*.

It is now possible to specify a trust file in the configuration file for the sessions. Trust files are used for a secure connection between the Natural Web I/O Interface server and the Natural Web I/O Interface client or Natural for Ajax. The headings below correspond to the options that are used in the new configuration tool (see *Global Settings* in the *Natural Web I/O Interface* documentation). These new options are only available for Java EE-based servers, not for IIS.

SSL trust file path

The path to your trust file. For further information, see *Trust Files* in the *Natural Web I/O Interface* documentation.

Corresponds to the `trustfile_name` element of the `global` section in *sessions.xml*.

SSL trust file password

If your trust file is password-protected, the appropriate password is required.

Corresponds to the `trustfile_password` element of the `global` section in *sessions.xml*.

Natural Remote Procedure Call

Natural Remote Procedure Call (RPC) 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 6.3.5, an enhanced Natural Remote Procedure Call Version 6.3.2 is delivered that replaces the existing Natural RPC Version 6.3.1.

As of Version 6.3 of Natural Remote Procedure Call (RPC), the following changes, enhancements and new features are provided:

- [Profile Parameters](#)
- [Reliable RPC](#)
- [Support Logging and Accounting of RPC Program and RPC Library within the EntireX Broker](#)
- [Availability of *SERVER-TYPE=RPC Enhanced](#)
- [Dynamic Resize of Buffer \(MAXBUFF\)](#)
- [New RPC-Specific Application Programming Interfaces](#)

Profile Parameters

The following new profile parameters are available:

- `SRVCMIT` - Server Commit Time
- `SRVTERM` - Server Termination Event
- `RPCSDIR` - Library for Service Directory

The following profile parameter has been changed:

- `MAXBUFF` - Maximum Buffer Size

For further information, see [Dynamic Resize of Buffer](#) and the corresponding parameter description in the *Parameter Reference*.

Reliable RPC

Reliable RPC is the Natural RPC implementation of a reliable messaging system. It combines the Natural RPC technology and persistence, which is implemented by means of units of work that are offered by the EntireX Broker. Reliable RPC is characterized by following features:

- The Natural RPC client executes a `CALLNAT` statement without waiting for a reply from the server (the RPC message is sent in asynchronous mode).
- An RPC server needs not be active at the time the `CALLNAT` is executed.
- The reliable RPC message is stored in the Broker's persistent store until an RPC server is available.
- The Natural RPC server executes the reliable RPC by calling the requested subprogram but does not send a reply to the RPC client.
- A Natural RPC client may ask the status of the sent reliable RPC messages.
- A Natural RPC client may send a reliable RPC message to an EntireX RPC server.
- A Natural RPC server may receive a reliable RPC message from an EntireX RPC client.

For further information, see *Reliable RPC* in the *Natural Remote Procedure Call (RPC)* documentation.

Support Logging and Accounting of RPC Program and RPC Library within the EntireX Broker

The Natural RPC client provides the name of the subprogram that is to be executed and the name of the library from which the subprogram is to be executed to the EntireX Broker.

The Natural RPC server returns the name of the subprogram that has been executed and the name of the library from which the subprogram has actually been executed.

For further information, see *EntireX Broker Support* in the *Natural Remote Procedure Call (RPC)* documentation.

Availability of *SERVER-TYPE=RPC Enhanced

The Natural RPC server shows the system variable content `*SERVER-TYPE=RPC` already during the processing of the commands that have been placed on the Natural stack with the Natural profile parameter `STACK`. With this enhancement, all Natural objects that are executed by the Natural RPC server can check the system variable `*SERVER-TYPE` for RPC.

In previous versions, `*SERVER-TYPE=RPC` was only available during the execution of an RPC request.

Dynamic Resize of Buffer (MAXBUFF)

The size of the buffer which is used to exchange data between client and server will be dynamically increased on demand. The size specified with the profile parameter `MAXBUFF` is used as default value.

This measure will avoid most Natural errors that are reported with Natural error message NAT6964 and reason codes 4, 5 and 7.

New RPC-Specific Application Programming Interfaces

The following RPC-specific application programming interfaces have been added:

API	Purpose
USR6304N	Set/get reliable state for RPC execution This API is used to set the reliable RPC mode.
USR6305N	Commit/rollback reliable RPC message(s) This API is required if the reliable RPC state has been set to "client commit".
USR6306N	Status of UOWs of current EntireX Broker user This API retrieves the status of all reliable RPC messages of the user who is currently logged on to the EntireX Broker.

Purpose and use of these application programming interfaces are described in detail in the section *Reliable RPC* in the *Natural Remote Procedure Call (RPC)* documentation.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.5:

- [Administrator Services](#)
- [Libraries](#)
- [DDMs](#)
- [Utilities](#)

- [Other Enhancements](#)

Administrator Services

The following enhancements are provided in Administrator Services:

- [Logging of Maintenance Functions](#)
- [Maintenance Log Records](#)
- [Module Protection Mode](#)
- [Definition of Undefined Libraries](#)
- [Disable Rename and Delete of Library Node](#)

Logging of Maintenance Functions

The general option **Logging of Maintenance Functions** has been enhanced: When you activate the logging for user and library security profiles, you have the option to log the following additional data (extended logging):

- When the functions Copy User and Copy Library are used with the **with links** option, any relationship which the copying has established between the user/library and other objects is logged.
- When the Delete User function is used, any relationship which existed between the user and other objects and which was removed by the deletion is logged.
- When a link between a group and a library is maintained, a list of the group's members is logged.
- When the Disallow/Allow Modules section of a library (or special link) profile is maintained, information on the changed status of any module is logged.

A new **Log File Maintenance** function, **List Log Records Extended**, is available to view the additional data.

The modifications which are logged for a type of security profiles now also include the transfer of security profiles of this type via the Natural Security data transfer programs SECULD2 and SECLoad.

Maintenance Log Records

With the **Maintenance Log Records** functions you can display for each log record the screen which was modified. These screens now also show the Natural Security version and the FSEC system file with/on which the modification was performed.



Note: This information is not shown for log records which were written with Natural Security versions prior to 4.2.5 on mainframes and 6.3.5 on non-mainframes.

Module Protection Mode

The new option **Module Protection Mode** affects how the **Disallow/Allow Modules** settings in library security profiles are evaluated: You can set it so that they are evaluated in the same way on mainframes and non-mainframe platforms. This may be useful if you transfer a Natural application from a mainframe to a non-mainframe platform and wish to keep your module protection unchanged.

For details, see *Module Protection Mode* under *Library and User Preset Values* in the *Administrator Services* section of the *Natural Security* documentation.

Definition of Undefined Libraries

The new Administrator Services function **Definition of Undefined Libraries** serves the same purpose as the library maintenance enhancement described under *Undefined Libraries* below.

Disable Rename and Delete of Library Node

The new option **Disable Rename and Delete of Library Node** allows you to prevent the inadvertent deletion/renaming of a library in the mapped environment of the Natural Development Server. If it is set, the actions Rename and Delete cannot be selected from the context menu of the library node.

For details, see *Disable Rename and Delete of Library Node* under *Library and User Preset Values* in the *Administrator Services* section of the *Natural Security* documentation.

Libraries

The following enhancements are provided for libraries:

- [Source Locking](#)
- [Undefined Libraries](#)

Source Locking

Source locking in the case of concurrent updates of Natural source members - as controlled for the Natural session by the Natural profile parameter `SLOCK` - can now also be controlled for individual libraries by a corresponding setting in the *Session Parameters* section of library profiles.

Undefined Libraries

Library maintenance has been enhanced allowing you to search for undefined libraries - that is, libraries which exist on the system file, but for which no security profiles have been created in Natural Security: You can expand the Library Maintenance selection list to list either all (defined and undefined) libraries or only the undefined ones. You can apply the search for undefined libraries to the current FUSER system file or to another system file of your choice.

For details, see *Listing Undefined Libraries* in the *Library Maintenance* section of the *Natural Security* documentation.

DDMs

The following enhancement is provided for DDMs:

- [Support of FDDM Profile Parameter on Non-Mainframes](#)

Support of FDDM Profile Parameter on Non-Mainframes

If a central system file for non-mainframe DDM storage (outside of libraries) is specified with the Natural profile parameter FDDM, the protection of non-mainframe DDMs and the maintenance of their security profiles is performed in the same way as with mainframe DDMs (as described in the section *Protecting DDMs On Mainframes* of the *Natural Security* documentation).

Utilities

The following enhancements are provided for utilities:

- [All Utility Profiles](#)
- [SYSDDM](#)
- [SYSMAIN](#)
- [SYSOBJH - Object Handler](#)

All Utility Profiles

In a utility profile, you allow or disallow each option by marking it with "A" or "D" respectively. For ease of maintenance, you can now set all options in a utility profile simultaneously to "A" or "D" by pressing PF16 or PF17 respectively.

SYSDDM

A new `SYSDDM` function **SQL Services (NSB)** for Natural SQL Gateway support is provided with this Natural version. Its use can also be controlled in `SYSDDM` utility profiles.

SYSMAIN

In the default utility profile of the `SYSMAIN` utility, a new **Additional Option** named **Utilities Option** is available. With it, you can make the **Utilities** option in library profiles apply to `SYSMAIN`.

SYSOBJH - Object Handler

Several new Object Handler functions are provided with this Natural version. Their use can also be controlled in `SYSOBJH` utility profiles.

Other Enhancements

The following other enhancements are provided:

- Selection Criterion for Link Functions
- Control Use of TEST Command in Environments
- Application Programming Interface NSCLI Enhanced
- New User Exit for LOGOFF

Selection Criterion for Link Functions

Whenever you invoke a link function, a window appears before the list of objects to be linked is displayed. This window, which also allows you to specify a start value for the list to be displayed, used to provide an option **Select only defined ones**. This option has been enhanced and is now called **Selection Criterion**: It allows you to select whether the list is to contain:

- all objects (linked and not linked),
- only objects which are already linked,
- only objects which are not yet linked.

This enhancement is provided for all Natural Security maintenance functions available to link users to libraries, users to applications, users to external objects, and libraries to files.

Control Use of TEST Command in Environments

A new option in the security profiles of environments allows you to control the use of the Natural system command `TEST` in an environment. You can allow or disallow it altogether, or restrict the use of the debugger. For details, see *Components of an Environment Profile* in the section *Protecting Environments* of the *Natural Security* documentation.

This option only applies to environments on mainframe computers.

Application Programming Interface NSCLI Enhanced

The application programming interface (API) `NSCLI` has been enhanced: It allows you to list library profiles (and special link profiles) which contain a specific Adabas password, and you can then change the password. For details, see example program `PGMLI006` and text member `TXTLI006` in the library `SYSSEC`.

New User Exit for LOGOFF

A new user exit, `LOGONEX5`, is available; it is invoked by the Natural Security logon program whenever the `LOGOFF` system command is executed.

Documentation

Editors

The documentation for the program editor and for the data area editor has been revised. See *Program Editor* and *Data Area Editor* in the *Editors* documentation.

Natural Web I/O Interface

The documentation for the Natural Web I/O Interface has been revised.

An introduction to the Natural Web I/O Interface is now available.

In addition to the information about the new configuration tool, the installation and configuration information for the Natural Web I/O Interface daemon has been moved to the *Natural Web I/O Interface* documentation. This information was previously available in the *Installation* documentation.

The general term “Natural Web I/O Interface server” is now used instead of “Natural Web I/O Interface daemon”.

Natural for Ajax is also a client of the Natural Web I/O Interface server. Therefore, more information about Natural for Ajax documentation is now available the new *Configuring the Client* section of the *Natural Web I/O Interface* documentation.

Known Incompatibilities

As of Natural Version 6.3.5, Natural for Ajax Version 1.2.1 or above is required. Natural Version 6.3.5 is not compatible with Natural for Ajax Version 1.1.

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New Features

Natural for Ajax

Natural for Ajax is now delivered in the Version 1.2.3 and is based on Application Designer Version 2.4.

Support is now provided for the following:

- Applications that organize multiple pages in so-called workplaces. See *Working with Workplaces* in the Natural for Ajax documentation.
- Numeric edit mask concept of Natural. See *Usage of Edit Masks* in the Natural for Ajax documentation.
- Project-specific online help popups. See *Online Help Management* in the Application Designer documentation (this is not part of the Natural documentation).
- Application-controlled sorting of multiple columns in TEXTGRIDSS2 and ROWTABLEAREA2. See *Data Structures for Server-Side Scrolling and Sorting* in the Natural for Ajax documentation.
- Automatic style sheet selection for different screen models. See *Modifying the Font Size* in the *Natural Web I/O Interface* documentation.

Changes and Enhancements

Utilities

Object Handler

The Object Handler now provides the commands NATUNLD, NATLOAD and SYSTRANS, which are used to migrate the old utilities NATUNLD, NATLOAD and SYSTRANS to the Object Handler. For details, see *Migration from NATUNLD/NATLOAD and SYSTRANS to the Object Handler* in the *Object Handler* section of the *Utilities* documentation.

The Object Handler now provides the UNDELI command to process delete instructions with the unload function. For details, see *Basic Command Syntax* in the *Object Handler* section of the *Utilities* documentation.

Natural Web I/O Interface Client

Support is now provided for automatic style sheet selection for different screen models. See *Modifying the Font Size* in the *Natural Web I/O Interface* documentation.

On IIS, you can now determine whether the PF key numbers are shown next to the PF keys. This is done with the `showfkeynumbers` attribute of the `screen` element in *sessions.xml*. (This feature is already available for Java EE-based servers.)

Natural Remote Procedure Call

Natural Remote Procedure Call (RPC) 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 6.3.6, an enhanced Natural Remote Procedure Call Version 6.3.3 is delivered that replaces the existing Natural RPC Version 6.3.2.

As of Version 6.3 of Natural Remote Procedure Call (RPC), the following changes, enhancements and new features are provided.

Trace Enhancement

In case of a conversion error, which is reported with Natural error number NAT6974 and reason codes 2 and 3, the position of the erroneous data in the buffer is indicated. This will help you to identify which application data is causing the conversion error.

For further information, see *Using the Server Trace Facility* in the *Natural Remote Procedure Call (RPC)* documentation.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.6.

Logon Records Enhanced

The information stored in the logon records has been expanded: now it also includes the user type and system-file information (FUSER, FNAT, FDIC). With this Natural Security version, this information can only be retrieved via the application programming interface NSCXR; see the example program PGMXR006 in the library SYSSEC.

Notice of Future Changes

The following changes are planned for future versions of Natural.

Change in Return Code Handling

With a future version of Natural, the return code handling of batch Natural processing will be changed:

- A `TERMINATE nnn` statement will cause `nnn` to be always set as the return code of a Natural run.
- The return code set by a `TERMINATE` statement will override the return code 61 which is set due to a runtime error. Currently, return code 61 overrides the return code set by a `TERMINATE` statement.
- Error message NAT9987 will appear in the file identified by Natural parameter `CMPRINT` if a Natural run was stopped by a `TERMINATE` statement. Currently, the message NAT9978 is displayed if either a runtime error occurred or the session was terminated by executing a `TERMINATE` statement.

Review your batch procedures and check whether there are dependencies related to the above mentioned changes.

External Sort Program

With a future version of Natural, the external sort program SyncSort will no longer be supported.

Natural Web I/O Interface Client on IIS

With a future version of Natural, it will no longer be possible to use the Natural Web I/O Interface client with Microsoft Internet Information Services (IIS). IIS will no longer be supported.

Linux in 32-Bit Mode

With a future version of Natural, Linux in 32-bit mode will no longer be supported.

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New Features

Application Programming Interfaces

The utility SYSEXT provides the following new application programming interfaces (APIs):

API	Description
USR4215N	Return a list of resources (short object and long resource name) of a Natural library according to the forwarded range parameters.

Natural for Ajax

Natural for Ajax is now delivered in the Version 1.2.4. It is based on Application Designer Version 8.0.

Support is provided for the following:

- Certain controls can be bound to Natural control variables so that the modification status of a Natural operand that represents the value of the control can be checked with `IF control-variable MODIFIED`. See *XCIDATADEF - Data Definition* in the Natural for Ajax documentation.
- The Natural system variable `*CURS-FIELD` can be used in Natural for Ajax applications to identify the operand that represents the value of the control that has the input focus. When the Natural system function `POS` is applied to a Natural operand that represents the value of a control, it yields the identifier of that operand. See also *Natural Parameters and System Variables* in the Natural for Ajax documentation.
- The `statusprop` property for input controls such as `FIELD` has been split into two separate properties: `statusprop` and `displayprop`. See *Dynamically Controlling the Visibility and the Display Status of Controls* in the Natural for Ajax documentation.
- It is now possible to define a Natural for Ajax application as a servlet in the file `web.xml`. This makes the definition of security constraints for individual applications easier.

The following new features apply only to Natural maps, not to rich GUI pages:

- With the configuration tool, it is now possible to configure the behavior of a double-click. The double-click can be assigned to a function key or can be disabled.
- With the configuration tool, it is now possible to define that all function keys are to be shown, including those which do not have names. This makes sure that the function keys are always displayed at the same position.

Natural Web I/O Interface Client

The Natural Web I/O Interface is now delivered in the Version 1.3.5.

Support is provided for the following:

- It is now possible to define different styles for output fields which are based on variables and output fields which are based on literals (Java EE-based servers only). See *Defining Different Styles for Output Fields in Configuring the Client* which is part of the *Natural Web I/O Interface* documentation.

Changes and Enhancements

Support of Processing Rules in Objects of Type Adapter

Processing rules (inline rules and Predict free rules) are now supported in Natural adapters in the same way as in Natural maps.

PROCESS PAGE Statement Enhanced

A field in a `PROCESS PAGE` statement can now be associated with a control variable. When the value returned for that field is not equal to the value sent, the field is regarded as modified and the control variable is set to modified.

Compiler Option PCHECK Enhanced

The compiler option `PCHECK` has been enhanced for use in conjunction with objects of type adapter. With `PCHECK` set to `ON`, the `PROCESS PAGE USING` statement now checks the parameter number, format, length and array index boundaries not only at execution time, but already at compile time.

In addition, the parameter check at compile time has been expanded to other invoking statements, such as `PERFORM` (external subroutine), `INPUT USING MAP`, and to the calling of help routines.

Result Format and Length of an Exponentiation with an Exponent of Format Numeric (N) or Packed (P)

The precision of the result field in an exponentiation with an exponent of format numeric (N) or packed (P) has changed in Natural Version 6.3.7 in order to achieve a result which is more precise.

In case of an exponentiation where the exponent is a numeric or packed operand with one or more digits after the decimal point (for example, `N1 . 1` or `P1 . 1`), a result field of format float (F8) instead of format packed (P) is now generated.

The change is effective after a RUN, CATALOG or STOW in Natural Version 6.3.7. An EXECUTE of programs which are compiled under a previous version (Natural Version 6.3.6 or below) has no effect.

Example:

```
DEFINE DATA LOCAL
1 #F8 (F8)
END-DEFINE
COMPUTE ROUNDED #F8 = 1 + 5 ** 0.5
/* The result field of the exponentiation 5 ** 0.5 is now F8 instead of P15.0
PRINT #F8
/* After CATALOG, the result in Natural Version 6.3.7 is +3.236067977499789E+00
/* Result in Natural Version 6.3.6 is +3.000000000000000E+00
END
```

The documentation has been adapted accordingly. See *Performance Considerations for Mixed Format Expressions* in the *Programming Guide*.

New DDM for EMPLOYEES File

With Natural Version 6.3.7, the new DDM EMPLOYEES-V2009 is delivered. This DDM is used by the new sample programs supplied with the SYSEXV utility. This DDM makes use of new Adabas data types introduced with Adabas Version 6. The respective EMPLOYEES data requires Adabas Version 6.1.6 or higher.

Enhanced Application Programming Interfaces

The following application programming interfaces (API) in the library SYSEXT have been enhanced:

USR0330N

The complete timestamp value for Natural objects is now returned.

USR0360N, USR0421N and USR1020N

A new optional parameter named LAYOUT-CHECK is available. The layout definition is checked when a value other than blank is specified for this parameter. Error messages that do not fit into the ranges are not processed.

Natural Remote Procedure Call (RPC)

Natural Remote Procedure Call (RPC) 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 6.3.7, an enhanced Natural Remote Procedure Call Version 6.3.3.1 is delivered that replaces the existing Natural RPC Version 6.3.3.

As of Version 6.3 of Natural Remote Procedure Call (RPC), the following changes and enhancements are available:

- [System Command RPCERR Enhanced](#)
- [RPCINFO/RPCINFOL Enhanced](#)
- [SYSRPC Stub Generation](#)
- [Documentation](#)

System Command RPCERR Enhanced

The system command `RPCERR` has been enhanced to show the full error message text returned by an EntireX RPC server.

RPCINFO/RPCINFOL Enhanced

The following enhancements have been applied to the user application programming interface `RPCINFO` and the parameter data area `RPCINFOL`:

- `RPCINFO` has been enhanced to retrieve the error message text returned by an EntireX RPC server.
- The fields `S-NODE`, `S-NAME`, `C-NODE`, `C-NAME` have been enlarged from A8 to A32 to be more compliant with EntireX.
- `RPCINFO` is loaded to the library `SYSTEM` on system file `FNAT` and is immediately available to all user applications.

All enhancements are compatible with existing applications.



Notes:

1. If you recatalog an existing application that references `RPCINFOL`, you may be concerned if the enlarged fields are displayed. Either adapt your output layout accordingly or add the session parameter `AL=8` where appropriate.
2. You are strongly recommended to remove any copies of `RPCINFO` from the `FUSER` system file.

SYSRPC Stub Generation

The **Stub Generation** function of the `SYSRPC` utility has been enhanced by the direct command `COMPAT IDL` in order to optionally generate stub subprograms that are more compliant with EntireX RPC servers and the reliable RPC. If `COMPAT IDL` is specified and an EntireX RPC server is called by a Natural client, the parameter definitions on the **Stub Generation** screen must correspond to the IDL definition for the EntireX RPC server.

With the next version of Natural, `COMPAT IDL` will be the default. For compatibility reasons, an option will be provided to generate stub subprograms as in previous Natural versions.

Documentation

Please note that the term “stub subprogram”, which in earlier versions of EntireX was also used to refer to application-dependent, Workbench-generated pieces of code for issuing and receiving remote procedure calls, will no longer be used. In the EntireX documentation, these objects are now referred to as “interface objects”. In the Natural Remote Procedure Call documentation, however, the term “stub subprogram” is still prevailing. It will be replaced in one of the next versions of Natural RPC.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.7:

- Users
- Libraries
- Utilities
- Application Programming Interfaces
- Other Enhancements

Users

The following enhancements are provided for users:

- Copying a User
- New User Exit NSCUSEX2

Copying a User

The function **Copy User** has been enhanced: You can enter the name of the new user not only in the new profile but already in the window which is displayed when you invoke the **Copy** function. This name is then written into the new profile (where you can still change it, of course).

New User Exit NSCUSEX2

A new user exit, NSCUSEX2, is provided in the library SYSSEC. It allows you to review the changes you have made to a list of group members. It is invoked when you use the user-maintenance function **Edit Group Members** and CATALOG the changes to the group. It displays a list of the group's members, indicating which members have been added to the group and which have been removed from it.

Libraries

The following enhancements are provided for libraries:

- [Copying a Library](#)
- [Use of UNIX Shell Commands](#)

Copying a Library

The function **Copy Library** has been enhanced: You can enter the name of the new library not only in the new profile but already in the window which is displayed when you invoke the **Copy** function. This name is then written into the new profile (where you can still change it, of course).

Use of UNIX Shell Commands

UNIX shell commands can be executed from within a Natural program by invoking the Natural user exit SHCMD via the statement `CALL SHCMD`. With Natural Security you can now control for each library the execution of UNIX shell commands from within Natural programs by allowing/disallowing the execution of the `CALL SHCMD` statement in the **Command Restrictions** section of library profiles.

Utilities

The following enhancements are provided for utilities:

- [SYSERR - Direct Commands](#)
- [SYSMAIN and SYSOBJH - Exclude Library Profiles With Co-Owners](#)

SYSERR - Direct Commands

In the security profiles for the `SYSERR` utility, you can now control the use of `SYSERR` direct commands. You can allow or disallow each command for all users, or allow it for Natural Security administrators only.

SYSMAIN and SYSOBJH - Exclude Library Profiles With Co-Owners

The session option **Utilities option** in the default profiles of utilities `SYSMAIN` and `SYSOBJH` has been enhanced: In addition to the existing values `Y` and `N`, you can specify the new value `0`: This is identical to `Y`, but has the following additional effect:

If you use `SYSMAIN` or `SYSOBJH` to process the contents of a library in whose library profile the general option **Utilities** is set to `0` (= processing permitted for owners), and you as an owner require a countersignature, the countersignature prompt will be suppressed; instead, the library will be excluded from `SYSMAIN/SYSOBJH` processing.

This enhancement is only relevant online, because in batch mode countersignatures cannot be processed anyhow.

Application Programming Interfaces

The following application programming interfaces (APIs) have been enhanced:

- [NSCADM](#)
- [NSCXR](#)

NSCADM

The API NSCADM has been enhanced. It allows you to compare a preset value (as set in the **Library and User Preset Values**) with the the corresponding actual value in user profiles, and provides a list of all user profiles in which the value differs from the preset value. For details, see example program PGMADM04 and text member TXTADM04 in the library SYSSEC.

NSCXR

The API NSCXR has been enhanced. It allows you to retrieve information about the access rights to an individual module in a library, for all users who have access to the library. For details, see example program PGMXR018 and text member TXTXR018 in the library SYSSEC.

Other Enhancements

The following other enhancements are provided:

- [Suppress Startup Transaction in NDV Mapped Environment](#)
- [Copying a Mailbox](#)

Suppress Startup Transaction in NDV Mapped Environment

If a startup transaction is specified in a Natural Security library profile, it will be executed after a successful logon to the library. In a Natural Development Server environment, however, when a library is selected from the tree view in the mapped environment, the execution of a startup transaction may not be desired. A new Administrator Services option **NDV Startup Inactive**, which can be set in the **Library And User Preset Values**, allows you to suppress the execution of startup transactions in a mapped environment.

Copying a Mailbox

The function **Copy Mailbox** has been enhanced: You can enter the name of the new mailbox not only in the new profile but already in the window which is displayed when you invoke the **Copy** function. This name is then written into the new profile (where you can still change it, of course).

Known Incompatibilities

This section provides additional information that you should be aware of after having installed Natural.

Canceling File Transfer with Entire Connection

The following information applies when using Entire Connection Version 4.5.2 or above.

A different error message is now issued when the user cancels a file transfer that has been started with the Natural statement `DOWNLOAD PC FILE` or `UPLOAD PC FILE`. As of Natural Version 6.3.7, the error message NAT1016 is issued.

Up to Natural Version 6.3.6, one of the following error messages was issued: NAT1500, NAT6220, NAT6221.

This change may affect existing Natural applications which handle the error situation inside an `ON ERROR` statement.

Old X Servers

The execution of the Natural installation on an older X server (for example, eXcursion) may cause problems with the user interface (character set etc.).

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New Features

Natural Functions for URL and Base64 Encoding

Natural now provides functions for encoding or decoding URL addresses, and for converting binary data into printable, network-compatible data (or vice versa) using Base64 encoding. For further information, see *Natural Functions* in the *System Functions* documentation.

Application Programming Interfaces

The utility SYSEXT provides the following new application programming interfaces (APIs):

API	Description
USR4217N	Send data to the webMethods Optimize for Infrastructure Data Collector.
USR4218N	Provide information on the context in which the Natural Development Server runs, for example, the version of the client.

Natural for Ajax

Natural for Ajax is now delivered in the Version 1.2.5. It is based on Application Designer Version 8.0.

Natural Web I/O Interface Client

The Natural Web I/O Interface is now delivered in the Version 1.3.6.

Support is provided for the following:

- It is now possible to define underlined, blinking, italic and bold text using style sheets. XSLT files are no longer used for this purpose (Java EE-based servers only). See *Using Style Sheets* in *Configuring the Client* which is part of the *Natural Web I/O Interface* documentation.

Changes and Enhancements

Assigning a Floating Point Operand (Format F) to a Numeric or Packed Operand (Format N or P)

When a floating point operand (format F) is assigned to a numeric or packed operand (format N or P), the result as compared to Natural Version 6.3.7 may be different. As of Natural Version 6.3.8, the result of the `COMPUTE` statement will not be rounded any more if the `ROUNDED` option is not used. This applies regardless of whether the operand has been explicitly defined by the user or implicitly created by Natural to hold intermediate results (see example 2 below). This change has been made in the runtime and is therefore effective when executing programs with Natural Version 6.3.8. It is not necessary to recatalog the programs.

Example 1:

```
DEFINE DATA
  LOCAL
  1 #SRC (F8)
  1 #TAR (N2.6)
END-DEFINE
#SRC := 14.9999999
COMPUTE #TAR := #SRC
PRINT #TAR
COMPUTE ROUNDED #TAR := #SRC
PRINT #TAR
END
```

Results in Natural Version 6.3.7:

```
15.000000
15.000000
```

Results in Natural Version 6.3.8:

```
14.999999
15.000000
```

Example 2:

```
DEFINE DATA
  LOCAL
  1 #SRC (N11.7)
  1 #TAR (N2.7)
END-DEFINE
#SRC := 224.9999999
COMPUTE #TAR = SQRT(#SRC) /* INTERMEDIATE F8 FIELD
PRINT #TAR
```

```
COMPUTE  ROUNDED #TAR = SQRT(#SRC)
PRINT #TAR
END
```

Results in Natural Version 6.3.7:

```
15.0000000
15.0000000
```

Results in Natural Version 6.3.8:

```
14.9999999
15.0000000
```

Natural Remote Procedure Call (RPC)

Natural Remote Procedure Call (RPC) 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 6.3.8, an enhanced Natural Remote Procedure Call Version 6.3.3.3 is delivered that replaces the existing Natural RPC Versions 6.3.3.1 and 6.3.3.2.

As of Version 6.3 of Natural Remote Procedure Call (RPC), the following changes and enhancements are available.

Stub Subprograms from IDL File

If you have generated a stub subprogram from an IDL file using the **Generate Natural from Software AG IDL** command of NaturalONE or EntireX Workbench, program and library name of the IDL file are incorporated into the generated stub subprogram and passed to the RPC server. This means especially that the name of the program that is executed on the RPC server may be different to the name of the stub subprogram.

Note for Natural RPC servers:

If the Natural client calls a Natural RPC server, the library name of the IDL file is only evaluated by the Natural RPC server if the Natural client has set the **Logon** option.

Notice of Future Changes

The following changes are planned for future versions of Natural.

Adabas Records no Longer in Hold Status when Database Update is not Permitted

With a future version of Natural, Adabas records will no longer be put in hold status if the Natural profile parameter `DBUPD` is set to `OFF` (that is, when a database update is not permitted). When set to `OFF`, the Adabas calls `L1`, `L2`, `L3`, `S1`, `S2`, `S3` will be generated instead of `L4`, `L5`, `L6`, `S4`, `S5`, `S6`.

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Release Information for Natural Version 6.3.9

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Installation

To speed up the INPL step of the Natural for UNIX installation, all libraries are now loaded with one batch Natural session, using a library list as input.

New Features

Parameters

The following new Natural parameter is provided in this version:

Parameter	Description
SRVRTRY	Specifies the number of attempts for an RPC server to connect/reconnect (REGISTER) to an EntireX Broker that is not active, and the wait time between two successive attempts.

Changes and Enhancements

Configuration Utility

The new parameter SRVRTRY can also be specified in the Configuration Utility. See *Remote Procedure Call* in the *Configuration Utility* documentation.

Natural Termcap Utility

It is now possible to specify the following capabilities: RTLM (set RTL input mode) and LTRM (set LTR input mode). See *Right-To-Left Support* in *Natural Termcap (NATTERMCP) Utility* in the *Utilities* documentation.

SYSRPC Utility

Toggle Keys for Server Command Execution Views

PF11 can now be used to toggle between the standard and the extended views of Server Command Execution. See also *Server Command Execution* in *SYSRPC Utility* in the *Utilities* documentation.

Session Configuration for Natural for Ajax

Forward Java EE credentials

If the access to Natural for Ajax applications is protected on JBoss Application Server, it is now possible to forward the security credentials to the Natural Web I/O Interface server, thus sparing the user a second logon. In the configuration tool, the new session option **Forward Java EE credentials** is available for this purpose.

Disconnect behavior

It is now possible to disconnect from Natural without showing the disconnect page. In the configuration tool, the new session option **Disconnect behavior** is available for this purpose. You can define whether the disconnect page is to be shown when a Natural program ends (default), or whether the current browser tab is to be closed.

Blank after EM= in MOVE EDITED

In previous versions, a blank after the equal sign (=) of the EM parameter in the MOVE EDITED statement was illegally accepted during compilation. This has been corrected. Error NAT0023 is now returned.

Example:

```
MOVE EDITED #N (EM= 999) TO ... /* NAT0023 is now returned
MOVE EDITED ... TO #A (EM= XXX) /* NAT0023 is now returned
```

Rounding of Floating-Point Numbers

As of Natural Version 6.3.9, floating-point numbers that are displayed due to Natural I/O will be rounded to the floating-point mantissa length used for display. This also affects the display when the FL parameter is used and when a floating-point number is assigned to an alphanumeric field.

Example:

```
DEFINE DATA
  LOCAL
  1 #F8 (F8)
  1 #A (A30)
END-DEFINE
*
MOVE 5.1234567892345678E00 TO #F8
WRITE #F8
*
WRITE #F8 (FL=7)
*
MOVE #F8 TO #A
WRITE #A
*
END
```

Results in Natural Version 6.3.8:

```
+5.123456789234567E+00  
+5.123456E+00  
+5.123456789234567E+00
```

Results in Natural Version 6.3.9:

```
+5.123456789234568E+00  
+5.123457E+00  
+5.123456789234568E+00
```

See also *Arithmetic Operations with Floating-Point Numbers* in the *Programming Guide*.

Additional Information for Using the New EMPLOYEES File

With Natural Version 6.3.7, the SYSEXV utility provided new sample programs for the new DDM EMPLOYEES-V2009 (Adabas 6.1.6 support).

As of Natural Version 6.3.9, the new program V637INFO (Readme Information) is also available, providing detailed information on how to get the data from the new EMPLOYEES file. This program can be found in the **Version 6.3.7** menu of the SYSEXV utility.

It is now recommended that you use Adabas 6.1.8 or higher.

Natural Remote Procedure Call (RPC)

Natural Remote Procedure Call (RPC) 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 6.3.9, an enhanced Natural Remote Procedure Call Version 6.3.4 is delivered that replaces the existing Natural RPC Version 6.3.3.3.

The following changes and enhancements are available.

Support New Features of EntireX RPC Clients of Version 8.2

The Natural RPC Server has been extended to support EntireX RPC clients (EntireX 8.2.0) using Natural redefinitions (`REDEFINE` statement) and other features introduced with the IDL Extractor for Natural (EntireX 8.2.0). The IDL Extractor for Natural has been extended with a graphical user interface to complete the extraction process with user decisions. This allows modeling of the Natural server to an IDL and enables selection of the appropriate (Natural to IDL) mapping where multiple possibilities exist and where automatic decision taking can lead to incorrect or suboptimal IDL.



Note: The Natural RPC server still supports EntireX RPC clients built with previous EntireX versions.

Documentation

MP Parameter

The documentation for the `MP` parameter has been corrected. Other than documented with previous versions, it is not possible to use `MP` as a dynamic parameter when invoking Natural.

Natural for Ajax

The Natural for Ajax documentation which is included in this Natural documentation now pertains to Version 8.1.2. It is based on Application Designer Version 8.0.

The Release Notes for Natural for Ajax Version 8.1.2 can be found in Empower, Software AG's global extranet, at <https://empower.softwareag.com/>

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Release Information for Natural Version 6.3.10

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Changes and Enhancements

New Option for PROCESS PAGE UPDATE Statement

The new option `DATA` is now available for the `PROCESS PAGE UPDATE` statement. This option behaves like the `FULL` option, with the exception that the `MODIFIED` status of the control variables is not reset.

Natural Web I/O Interface Client

The Natural Web I/O Interface is now delivered in the Version 1.3.8.

Using the new session option **Check for numeric input**, you can now decide whether numeric input fields are to be validated or not. See *Overview of Session Options in Configuring the Client* which is part of the *Natural Web I/O Interface* documentation.

It is now possible to set the cursor (caret) to output fields. The Natural system variables `*CURS-LINE`, `*CURS-COL` and `*CURSOR` are now set correctly when placed on an output field. It is no longer required to enable caret browsing in the web browser.

With the XSLT files that are used for the conversion of the Natural Web I/O Interface screens from the internal XML format to HTML, the output fields are now generated as HTML read-only `<input>` elements instead of `` elements.

It is now possible to use your own XSLT files with Internet Explorer and Firefox (Java EE-based servers only). These files must have special names. See *XSLT Files in Configuring the Client* which is part of the *Natural Web I/O Interface* documentation.

Documentation

Natural for Ajax

The Natural for Ajax documentation has been removed from this Natural documentation. The most up-to-date Natural for Ajax documentation is always available at <http://documentation.softwareag.com/>.

Natural Web I/O Interface

The *Natural Web I/O Interface* documentation has been changed in such a way that it now only contains the configuration information for the Natural Web I/O Interface client. All information concerning the client configuration for Natural for Ajax is now available in the above mentioned Natural for Ajax documentation.

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Release Information for Natural Version 6.3.11

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New Features

Parameters

The following new Natural parameter is provided in this version:

Parameter	Description
RQTOUT	Specifies the timeout value for the REQUEST DOCUMENT statement.

Application Programming Interfaces

The utility SYSEXT provides the following new application programming interface (API):

API	Description
USR6307N	Get and set the timeout value of the new RQTOUT parameter.

Changes and Enhancements

Configuration Utility

The new parameter RQTOUT can also be specified in the Configuration Utility. See *HTTP Parameters* in the *Configuration Utility* documentation.

New Work File Attributes

New attributes are available for the work file assignments in the Configuration Utility and for the DEFINE WORK FILE statement: REMOVECR (default) and KEEPCCR. Using these attributes, you can decide whether to remove or keep carriage return characters when reading ASCII work files. See *Work File Assignments* in the *Configuration Utility* documentation and the description of DEFINE WORK FILE in the *Statements* documentation.

Natural Web I/O Interface Client

The Natural Web I/O Interface is now delivered in the Version 1.3.9. This version now also supports Firefox 4, 5 and 6. On Windows, it also supports Safari 5.1.

Oracle GlassFish Server 3.1 is now supported. See *Installing the Natural Web I/O Interface Client on Oracle GlassFish Server* in the *Natural Web I/O Interface* documentation.

Apache Ant 1.8.1 or above is now required to perform the deployment on JBoss Application Server. This tool is freely available on <http://ant.apache.org/>.

Effects on Buffer Pool Behavior Due to Changes in a Previous Version

With Natural Version 6.3.5 (which has already been released some time ago), internal functions returning data about Natural objects have been enhanced. Amongst others, functions retrieving the long name of an object (such as Natural subroutines) require more sections of file *FILEDIR.SAG* to be present in the buffer pool. This change will be noticed in an environment where the parameter *BPSFI* is set to *OFF* and where a large number of Natural subroutines, Natural functions and Natural classes is heavily used.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.11:

- [Administrator Services - Logon Records](#)
- [Support of NaturalONE Development Mode](#)

Administrator Services - Logon Records

The user interface of the Logon Records functions has been enhanced and now provides more and improved selection options. At the same time, the performance of these functions has been enhanced.

Support of NaturalONE Development Mode

Natural Security's protection mechanisms for Eclipse Navigator view actions have been enhanced and now support the NaturalONE development mode. For details, see the section *Protecting the Navigator View* in the *Natural Security* documentation.

Documentation

A revised and updated *Natural Remote Procedure Call (RPC)* documentation is available with this version.

Please note that the term *stub subprogram*, which in earlier versions of EntireX was also used to refer to application-dependent, Workbench-generated pieces of code for issuing and receiving remote procedure calls, is no longer used. In the EntireX documentation and in the *Natural Remote Procedure Call (RPC)* documentation, these objects are now referred to as *interface objects*.

Notice of Future Changes

The following changes are planned for future versions of Natural.

Natural Web I/O Interface Client

Natural Web I/O Interface Version 1.3.9 is the last version which supports the following:

- Internet Explorer 6
- Mozilla Firefox 3
- Sun Java System Application Server 8.1 and 8.2
- JBoss Application Server 4.0

As already announced in the Release Information for Natural Version 6.3.6, Microsoft Internet Information Services (IIS) will no longer be supported with a future version. A migration path will then be offered.

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Installation

When the Adabas client (ACL) is installed, the *adabas.o* file is now taken from the Adabas client directory when linking the Natural nucleus.

Changes and Enhancements

Object Handler

Reporting from an Object's Target Environment

For the UNLOAD command, the Object Handler provides a new type of report: In addition to reporting from the source environment where the object has been unloaded, which is the default case, the Object Handler can now also report from the target environment where the object is to be loaded, for example, a change within a parameter such as the library name. You can select a reporting type using the option REPORT-FORMAT.

New Return Codes

The Object Handler provides two new return codes for the load function:

Return Code	Explanation
9995	Function completed successfully, but object(s) could not be replaced.
1115	Function completed successfully, but Natural Security errors have occurred and object(s) could not be replaced.

When objects are to be replaced using the load function, return code 9995 is issued in one of the following situations:

- a Natural source to be loaded is locked,
- a replacement has been rejected by Natural Security,
- a subroutine, resource, class name or class GUID exists,
- a DDM to be loaded is locked,
- an extended error message to be loaded has no corresponding short error message.



Note: In batch mode, the Natural session terminates with condition code 50 unless Object Handler user exit OBJHEX01 is activated.

In case of additional Natural Security errors, return code 1115 is issued instead.

SYSRPC Utility

Change in Terminology

The term *Stub Generation* has been changed to the term *Interface Object Generation*. See *Generating Interface Objects* in *SYSRPC Utility* in the *Tools and Utilities* documentation.

See also [Documentation](#) in the Release Notes for Version 6.3.11.

Discontinued Support of Remote Directory Maintenance Function

The Remote Directory Maintenance function has been removed from the SYSRPC utility. The directory for a remote server can now be created and maintained with the Service Directory Maintenance function of the SYSRPC utility. For detailed information, see the section *Service Directory Maintenance* in *SYSRPC Utility* in the *Tools and Utilities* documentation.

Natural Web I/O Interface Client

The Natural Web I/O Interface client is now delivered in the Version 1.3.10. This version now also supports Safari 5.1 on Mac OS X, Internet Explorer 9, and Firefox 9 and 10.



Note: Mozilla Firefox 10 (Extended Support Release) is supported. In future versions, only the Extended Support Releases of Mozilla Firefox will be explicitly supported.

Apache Tomcat 6 is now supported. See *Installing the Natural Web I/O Interface Client on Apache Tomcat* in the *Natural Web I/O Interface* documentation.

As of Version 1.3.11 of the Natural Web I/O Interface client, Microsoft Internet Information Services (IIS) will no longer be supported (this has already been announced previously). If you are currently using the Natural Web I/O Interface client on IIS, you will have to move to another supported server platform. This may be JBoss Application Server, Oracle GlassFish Server or Apache Tomcat. The most simple solution is to migrate the Natural Web I/O Interface client from IIS to Apache Tomcat. For detailed information, see *Migrating the Natural Web I/O Interface Client from IIS to Apache Tomcat* in the *Natural Web I/O Interface* documentation.

Natural Remote Procedure Call (RPC)

Natural Remote Procedure Call (RPC) 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 6.3.12, an enhanced Natural Remote Procedure Call Version 6.3.4.5 is delivered that replaces the existing Natural RPC Version 6.3.4.4.

The following changes and enhancements are available.

Support New EntireX IDL Extractor Features for Natural RPC Clients

The Natural RPC has been extended to support Natural RPC clients using Natural redefinitions (`REDEFINE` statement) and other features introduced with the IDL Extractor for Natural. The IDL Extractor for Natural has been extended with a graphical user interface to complete the extraction process with user decisions. This allows modeling of the IDL for a Natural client which differs from the RPC server interface and enables selection of the appropriate (Natural to IDL) mapping where multiple possibilities exist and where automatic decision taking can lead to incorrect or suboptimal IDL.

For the IDL extraction and wrapping of Natural RPC clients with the EntireX workbench, the use of the latest supported EntireX workbench and the use of latest supported Natural on the RPC server side is recommended to reach best results.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.12:

- Access to Administrator Services
- Utility Profiles - SYSOBJH (Natural Object Handler)
- RPC Servers - Domain Separator
- Deferred Countersigning
- New User Exits
- Application Programming Interface NSCADM Enhanced

Access to Administrator Services

Access control to the Administrator Services subsystem of Natural Security has been revised. With previous versions, it was only possible to allow or disallow access to Administrator Services as a whole. As of this version, you can allow/disallow individual functions of Administrator Services. For this purpose, the command processor `NSCCMD01` has been enhanced. For details, see the section *Access to Administrator Services* in the *Natural Security* documentation.

Utility Profiles - SYSOBJH (Natural Object Handler)

The options `Del` and `Par` in `SYSOBJH` profiles can now be allowed for a user, even if the respective function is disallowed for all object types. Both options can only be set in user-specific profiles; but their settings in the user-specific profiles also apply to the library-specific and user-library-specific profiles.

RPC Servers - Domain Separator

In some cases, the checking of logon data for an access to a library via a Natural RPC service request includes a check if the Natural RPC user ID is identical to the EntireX user ID. If your external security system uses a so-called “domain separator” to separate the domain name from the user ID, this check may be applied to the wrong data, thus leading to incorrect results. To avoid this, a new field is provided in RPC server profiles in which you specify the domain character. This ensures a correct user ID evaluation. For details, see the **Domain Separator** description in the section *Components of an RPC Server Profile* of the *Natural Security* documentation.

Deferred Countersigning

Deferred countersigning allows you to perform a maintenance function, and obtain the required countersignature later. This is possible for the functions **Add**, **Modify**, **Rename** and **Delete** of user profiles and library profiles, and if only *one* countersignature is required.

When you attempt to maintain a security profile and the **Countersignatures** screen is invoked, but none of the other owners of the security profile is available to supply his/her password, you may defer the countersigning. This means that you can proceed with your intended maintenance function and obtain the other owner's countersignature afterwards. For details on how this works, see the section *Deferred Countersigning* in the *Natural Security* documentation.

With the current version of Natural Security, deferred countersigning is available for the functions mentioned above. With subsequent versions, it is planned to make it available for further functions.

New User Exits

New user exits NSCXXEX3 (where *XX* is the object type) are provided. They are invoked when a maintenance function has been invoked and after data have been entered - but before these data are validated and processed by Natural Security. For details, see the section *Other User Exits* in the *Natural Security* documentation.

Application Programming Interface NSCADM Enhanced

The application programming interface (API) NSCADM has been enhanced: It allows you to process logon records with time-stamp-related ETIDs. For details, see the example program PGMADM05 and text member TXTADM05 in the library SYSSEC.

Documentation

Migrating Non-Portable Message Files to 64-Bit Platforms

The section *Portable Natural System Files* in the *Operations* documentation has been updated so that it now contains the information below. See also *Migrating Non-Portable Message Files to 64-Bit Platforms* in the *Operations* documentation.

Message files which have been created with a Natural version older than 6.2 are not automatically converted to the portable format. In addition, they are not converted to the portable format by simply changing and saving them with a newer version of Natural. This does not cause difficulties on 32-bit platforms. On 64-bit platforms, however, message files in the old, non-portable format which have not been created on a 64-bit platform are not readable.

If you want to migrate your applications from a 32-bit platform to a 64-bit platform, you must first convert your old message files to the portable format. You do this by using the export and import functions of the SYSERR utility. First, you export the message file to a text file, and then you generate a new message file by importing the text file into Natural. This creates a portable message file which is readable on Windows, UNIX and OpenVMS. For detailed information on the export and import functions, see *Generating Message and Text Files* in the *Tools and Utilities* documentation.

RPC-CNTX and API Overview

The new section *APIs for Providing an RPC Context from the Natural Client Side* in the *Natural Remote Procedure Call (RPC)* documentation provides an overview of the Application Programming Interfaces (APIs) available to set up an RPC environment. The section also provides details on RPC-CNTX, an API used to test programs generated by the Natural Wrapper of EntireX.

SYSRPC Utility Documentation Update

PF4 is no longer available in the standard view of the Server Command Execution. Since Natural Version 6.3.9, you can use PF11 to toggle between the standard and the extended views of Server Command Execution. See also *Server Command Execution* in *SYSRPC Utility* in the *Tools and Utilities* documentation.

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New Features

Parameters

The following new Natural parameter is provided in this version:

Parameter	Description
DBGAT	This Natural profile parameter is intended for use with NaturalONE. It can be used to activate the debug attach mechanism of NaturalONE, to define the name and port of the debug attach server, and to define a client ID which identifies the NaturalONE project to be debugged.

System Variables

The following new Natural system variable is provided in this version:

System Variable	Description
*REINPUT-TYPE	Indicates whether the application is in a state allowing to execute a REINPUT or PROCESS PAGE UPDATE statement.

Changes and Enhancements

SYSEXT Utility

New Selection Criteria and Search Options

The SYSEXT utility menu has been redesigned: it now provides input fields to filter APIs (application programming interfaces) according to names, short descriptions, product codes, categories and keywords.

In addition, all available keywords and categories can be listed and selected as search criteria to filter APIs.

New Preference Settings and Navigation Options

It is now possible to set display preferences for the SYSEXT utility menu: you can show or hide the product code or category column, change the sort order of the API list, or display only the most recent (current) APIs.

Additional PF keys are provided to scroll through the API list.

Enhanced USR* Text Objects

The USR $nnnn$ T text objects have been enhanced:

- All user API descriptions have been revised and standardized.

- All user APIs of the same purpose but with different parameters are now listed as interface versions.
- A category now indicates the functional area or purpose of an API, for example, `SYSTEM COMMANDS` or `ERROR HANDLING`.

New List of Natural APIs in the Documentation

The documentation for the `SYSEXT` utility now contains the new section *List of Natural APIs*.

For further information, see *SYSEXT Utility* in the *Tools and Utilities* documentation.

Natural Buffer Pool

The maximum size of a Natural buffer pool has been increased from 512 MB to 1024 MB. The maximum number of directory entries has been increased from 51200 to 102400. See also *Buffer Pool Assignments* in the *Configuration Utility*.

Natural Web I/O Interface Client

The Natural Web I/O Interface client is now delivered in the Version 1.3.11. This version now also supports Google Chrome.



Note: The Google Chrome support is based on Google Chrome Version 19. Due to frequent version upgrades of Google Chrome, compatibility of the Natural Web I/O Interface client Version 1.3.11 with future versions of Google Chrome cannot be fully guaranteed. Possible incompatibilities will be removed during the regular maintenance process of the Natural Web I/O Interface client.

The following keys can now be simulated for all platforms (see also *Differences between the Natural Web I/O Interface Client and Terminal Emulation* in the *Natural Web I/O Interface* documentation):

- The program attention keys (PA1, PA2 and PA3) are simulated by the key combinations `CTRL+SHIFT+F1`, `CTRL+SHIFT+F2`, `CTRL+SHIFT+F3`.
- The clear key is simulated by `CTRL+SHIFT+F4`.

As of this version, Microsoft Internet Information Services (IIS) is no longer supported. All information on how to install and configure IIS has been removed from the *Natural Web I/O Interface* documentation.

If you are currently using the Natural Web I/O Interface client on IIS, you have to move to another supported server platform. This may be JBoss Application Server, Oracle GlassFish Server or Apache Tomcat. The most simple solution is to migrate the Natural Web I/O Interface client from IIS to Apache Tomcat. For detailed information, see *Migrating the Natural Web I/O Interface Client from IIS to Apache Tomcat* in the *Natural Web I/O Interface* documentation.

Natural Remote Procedure Call (RPC)

Natural Remote Procedure Call (RPC) 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 6.3.13, an enhanced Natural Remote Procedure Call Version 6.3.4.6 is delivered that replaces the existing Natural RPC Version 6.3.4.5.

The following changes and enhancements are available.

NATRPC99 Used for All Normal Server Terminations

The Natural RPC server termination exit NATRPC99 is now called for all kinds of normal Natural RPC server terminations. It is not called in the case of abnormal terminations. See also *User Exit NATRPC99* in the *Natural Remote Procedure Call (RPC)* documentation.

Natural Security

The following enhancements are provided with Natural Security Version 6.3.13:

- Administrator Services - Authentication Options
- Administrator Services - Logon Records
- Library Profiles - Statement Restrictions
- Utility Profiles - NATLOAD, NATUNLD and SYSTRANS
- Support for LDAP

Administrator Services - Authentication Options

The Administrator Services subsystem of Natural Security provides a new function **Authentication Options** (invoked with function code "B" on the **Administrator Services Menu 1**). It is used to define security profiles for IAF servers and LDAP (see below). The functionality for the definition of IAF server profiles, which with previous versions used to be invoked with PF10 on the **Administrator Services > General Options** screen, has also been incorporated in this new function.

Administrator Services - Logon Records

The Administrator Services function **Logon Records** has been enhanced to facilitate the page-by-page deletion of logon records as performed by the functions Delete Logon Records and Delete Logon Records But Last. Instead of invoking these functions from the **Logon Records Menu** with ENTER, you can invoke them with PF4 (Del+): Pressing PF4 on the logon records list itself will then delete the current page of logon records and immediately scroll to the next page, without your having to press PF8. This reduction of keystrokes will be helpful when you delete a large number of logon records.

Library Profiles - Statement Restrictions

The **Statement Restrictions** section of library security profiles has been revised and the layout of the corresponding screen has been made more consistent. In addition, it is now possible to allow or disallow individual clauses of the PROCESS statement.

Utility Profiles - NATLOAD, NATUNLD and SYSTRANS

This is the last Natural Security version to support utility profiles for the obsolete Natural utilities NATLOAD, NATUNLD and SYSTRANS. These utilities are no longer supported. Their utility profiles have continued to be available for compatibility reasons only. If you still have utility profiles for these utilities, you have to convert them into corresponding SYSOBJH utility profiles before the next release of Natural Security. For detailed instructions, see *Conversion of Utility Profiles* in the *Natural Security* documentation.

Support for LDAP

It is now possible to perform user authentication via an LDAP server (that is, a server which uses the Light Directory Authentication Protocol) instead of via Natural Security itself. This is possible for online and batch sessions which are started with the Natural profile parameter AUTO=OFF being set. To define the LDAP to Natural Security, you use the new function **Authentication Options** (see above). For more information, see *Authentication Options* in the *Natural Security* documentation.

For the use with the authentication type LDAP, a new logon-related user exit routine LOGONSX1 is provided which is invoked instead of LOGONEX1. In conjunction with this user exit routine, a different logon screen is also available. For more information, see the following sections in the *Natural Security* documentation:

- *Logon-Related User Exits*
- *Logon Customization in Logon Procedure.*

Notice of Future Changes

The following changes are planned for future versions of Natural.

Natural Development Server

The file *NDVSERVER.LOG* (located in *\$NATDIR/\$NATVERS/prof*), which is used to terminate the started Natural development servers, will be renamed to *NDVSERVER.PRU*. Existing entries inside the *NDVSERVER.LOG* file will not be migrated to *NDVSERVER.PRU*.