

# **Natural**

## **Natural Release Notes for Mainframes**

Version 8.2.7

October 2018

Dieses Dokument gilt für Natural ab Version 8.2.7.

Hierin enthaltene Beschreibungen unterliegen Änderungen und Ergänzungen, die in nachfolgenden Release Notes oder Neuausgaben bekanntgegeben werden.

Copyright © 1979-2018 Software AG, Darmstadt, Deutschland und/oder Software AG USA, Inc., Reston, VA, USA, und/oder ihre Tochtergesellschaften und/oder ihre Lizenzgeber.

Der Name Software AG und die Namen der Software AG Produkte sind Marken der Software AG und/oder Software AG USA Inc., einer ihrer Tochtergesellschaften oder ihrer Lizenzgeber. Namen anderer Gesellschaften oder Produkte können Marken ihrer jeweiligen Schutzrechtsinhaber sein.

Nähere Informationen zu den Patenten und Marken der Software AG und ihrer Tochtergesellschaften befinden sich unter <http://documentation.softwareag.com/legal/>.

Diese Software kann Teile von Software-Produkten Dritter enthalten. Urheberrechtshinweise, Lizenzbestimmungen sowie zusätzliche Rechte und Einschränkungen dieser Drittprodukte können dem Abschnitt "License Texts, Copyright Notices and Disclaimers of Third Party Products" entnommen werden. Diese Dokumente enthalten den von den betreffenden Lizenzgebern oder den Lizenzen wörtlich vorgegebenen Wortlaut und werden daher in der jeweiligen Ursprungssprache wiedergegeben. Für einzelne, spezifische Lizenzbeschränkungen von Drittprodukten siehe PART E der Legal Notices, abrufbar unter dem Abschnitt "License Terms and Conditions for Use of Software AG Products / Copyrights and Trademark Notices of Software AG Products". Diese Dokumente sind Teil der Produktdokumentation, die unter <http://softwareag.com/licenses> oder im Verzeichnis der lizenzierten Produkte zu finden ist.

Die Nutzung dieser Software unterliegt den Lizenzbedingungen der Software AG. Diese Bedingungen sind Bestandteil der Produktdokumentation und befinden sich unter <http://softwareag.com/licenses> und/oder im Wurzelverzeichnis des lizenzierten Produkts.

**Dokument-ID: NATMF-RELNOTES-827-20180523**

## Table of Contents

Preface .....	v
1 Supported Environments .....	1
Operating Systems .....	2
TP Monitors/Online Interfaces .....	2
Database Management Systems .....	2
Authorized Services Manager and Roll Server .....	3
Assemblers .....	3
2 Available and Required Software AG Product Versions .....	5
Product Availability and End of Maintenance .....	6
Overview of New Natural Add-On Product Versions .....	6
Software AG Product Versions Required with Natural .....	8
3 Installation and Compatibility .....	11
License File .....	12
Changes to Installation .....	12
Compatibility .....	13
4 New and Changed Features of Base Natural .....	15
Customer Feature Requests for Base Natural .....	16
Operations and Performance .....	17
Unicode and Code Page Support .....	19
Programming Language .....	20
System Commands .....	21
Terminal Commands .....	22
Utilities .....	23
Application Programming Interfaces .....	25
5 New and Changed Features of Natural Add-On Products .....	27
NaturalONE .....	28
Natural Optimizer Compiler .....	28
Natural RPC (Remote Procedure Call) .....	29
Natural Security .....	31
Natural SQL Gateway .....	32
Natural zIIP Enabler .....	32
6 New and Changed Features of Most Recent Natural Add-On Products .....	35
Natural CICS Interface Version 8.3.4 .....	36
Natural Com-plete/SMARTS Interface Version 8.3.5 .....	36
Natural Development Server Version 8.3.4 .....	37
Natural for DB2 Version 8.4.2 .....	37
Natural Optimizer Compiler Version 8.3.5 .....	37
Natural Web I/O Interface Server Version 8.3.4 .....	38



---

## Preface

---

This document provides a brief summary of the changes and enhancements that have been introduced in Natural Version 8.2.7 for Mainframes and the Natural add-on products released with this version. Revised and updated documentation sets are available with this version.

### Update Information, April 2018:

- The section *Natural zIIP Enabler* has been modified for a **product rename** and **installation updates**.

### Update Information, December 2017:

- *Binding the TIMESHIFT Library* in the section *BS2000 C/C++ Time Overflow* has been modified.
- The section *Terminal Commands* has been added.
- The section *New Terminal Command for Calling Quasi-Reentrant Subprograms* has been added for Natural CICS Interface Version 8.3.4.

Supported Environments	Operating Systems TP Monitors/Online Interfaces Database Management Systems Authorized Services Manager and Roll Server Assemblers
Available and Required Software AG Product Versions	Product Availability and End of Maintenance Overview of New Natural Add-On Product Versions Software AG Product Versions Required with Natural
Installation and Compatibility	Changes to Installation License File Compatibility
New and Changed Features of Base Natural	Customer Feature Requests for Base Natural Operations and Performance Unicode and Code Page Support Programming Language System Commands Terminal Commands Utilities Application Programming Interfaces
New and Changed Features of Natural Add-On Products	NaturalONE Natural Optimizer Compiler Natural RPC (Remote Procedure Call) Natural Security Natural SQL Gateway Natural zIIP Enabler

New and Changed Features of Most Recent Natural Add-On Products	Natural CICS Interface Version 8.3.4 Natural Com-plete/SMARTS Interface Version 8.3.5 Natural Development Server Version 8.3.4 Natural for DB2 Version 8.4.2 Natural Optimizer Compiler Version 8.3.5 Natural Web I/O Interface Server Version 8.3.4
--	---

# 1 Supported Environments

---

■ Operating Systems .....	2
■ TP Monitors/Online Interfaces .....	2
■ Database Management Systems .....	2
■ Authorized Services Manager and Roll Server .....	3
■ Assemblers .....	3

Software AG provides Natural support for the versions of the operating systems, TP monitors, database management systems and assemblers supported by their respective manufacturers. In general, when the provider of an operating system, TP monitor, database management system or assembler, Software AG will stop supporting that version of the operating system, TP monitor, database management system or assembler.



**Note:** For information regarding Software AG product compatibility with IBM platforms and any IBM requirements for Software AG products, please review the *Product Compatibility for IBM Platforms* web page at <http://www.softwareag.com/>.

## Operating Systems

---

Software AG provides Natural support for the operating systems and versions listed in the **Product Version Availability** section of Software AG's Empower web site at <https://empower.software-ag.com/> (see also *Product Availability and End of Maintenance*).

## TP Monitors/Online Interfaces

---

Natural Version 8.2.7 supports the versions of the TP monitors/online interfaces listed below:

Product	Version
Com-plete	See <i>Software AG Product Versions Required with Natural</i> .
CICS TS for z/OS	4.2, 5.1, 5.2, 5.3, 5.4
CICS TS for VSE/ESA	1.1., 2.1
IMS TM	13.1, 14.1, 15.1
openUTM	6.1, 6.2, 6.3, 6.4
TIAM	13.1, 13.2

## Database Management Systems

---

Natural Version 8.2.7 supports the versions of the database management systems listed below:



Product	Version
Adabas	See <a href="#">Software AG Product Versions Required with Natural</a> .
DB2 for z/OS	11.1, 12.1
DB2 Server for VSE & VM	7.3, 7.4, 7.5
DL/I	As delivered with the TP monitor IMS TM
VSAM	As delivered with the operating system
DFSMSStvs	As delivered for the respective VSAM version if transactional VSAM is to be used with Natural for VSAM

## Authorized Services Manager and Roll Server

The Authorized Services Manager (NATASM82) and the Natural Roll Server (NATRSM82 and NATRSM83) supplied with Natural Version 8.2 employ machine instructions from the IBM General Instructions Extension Facility. They will not execute successfully on machines for which IBM does not supply this extension facility.

## Assemblers

Natural Version 8.2.7 requires one of the following assemblers for the assembly of its source modules:

- “HL” Assembler Version 1.6 (z/OS and z/VSE operating systems),
- “Assembh” Assembler (BS2000 operating systems).



**Note:** It may be possible to assemble source modules with older assemblers; however, Software AG cannot guarantee this.



## 2 Available and Required Software AG Product Versions

---

■ Product Availability and End of Maintenance .....	6
■ Overview of New Natural Add-On Product Versions .....	6
■ Software AG Product Versions Required with Natural .....	8

## Product Availability and End of Maintenance

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

1. Log in to Empower.
2. Expand **Products** in the left menu of the page and select **Product Version Availability**:

Product Version Availability

General Availability (GA), Platform retirement, End of Maintenance (EOM), and End of Sustained Support (EOSS) dates for your products.  
[View a description of these terms in our Maintenance Policy.](#)

Product Line:  OR Product Family:

Product Name:

Product Version:

Operating System:  Operating System Version:

Show prior Product Versions: ☐

Sort by Product Version: ☒ Descending ☐ Ascending

Rows per Page: 

100

SEARCH

CANCEL

Rows 1 - 100 of 6022 | Rows per page: 100 | Click for Printable Version of below Table:

Product Line   Product - Product Version + Operating System and Hardware +	Version Lifecycle Milestone			
	GA	OS Retirement	EOM	EOSS

3. Select the required filter criteria from the drop-down list boxes and click on the **SEARCH** button.

A list of supported Software AG products that meet the filter criteria is shown. In addition, the end-of-standard-maintenance dates are indicated in the **EOM** column.

If you mark **Show prior Product Versions**, only product versions that are out of maintenance are listed.

## Overview of New Natural Add-On Product Versions

This release of Natural provides new versions of the Natural add-on products (or subcomponents) listed in the following table. These versions contain

- all Zaps,
- INPL updates,
- early warnings and

■ source changes

applied to their respective predecessor versions as error corrections.

Product Name	Product Code	Version
Natural Advanced Facilities	NAF	8.2.7
Natural CICS Interface (*)	NCI	8.2.7
		8.3.4
Natural Com-plete/SMARTS Interface (*)	NCF	8.2.7
		8.3.5
Natural Connection	NTC	8.2.7
Natural Development Server (*)	NDV	8.2.7
		8.3.4
Natural for DB2	NDB	8.2.7
		8.4.2
Natural for DL/I	NDL	8.2.7
Natural for SQL/DS	NSQ	8.2.7
Natural for VSAM	NVS	8.2.7
Natural IMS TM Interface	NII	8.2.7
Natural ISPF	ISP	8.2.7
Natural Japanese Language Pack	NCJ	8.2.7
Natural <i>open</i> UTM Interface	NUT	8.2.7
Natural Optimizer Compiler (*)	NOC	8.2.7
		8.3.5
Natural Review	RNM	8.2.7
Natural RPC (*)	RPC	8.2.7 (RPC is a separate subcomponent of Natural)
Natural SAF Security	NSF	8.2.7
Natural Security (*)	NSC	8.2.7
Natural SQL Gateway (*)	NSB	8.2.7
Natural TIAM Interface	NRT	8.2.7
Natural TSO Interface	NTI	8.2.7
Natural Web I/O Interface (*)	NWO	8.2.7 (server)
		8.3.4 (server)
Super Natural	NSN	8.2.7
Natural zIIP Enabler for Batch	NAZ	8.2.7
Natural zIIP Enabler for CICS (*)	NAZCI	8.3.4
Natural zIIP Enabler for Com-plete (*)	NAZCO	8.3.5

\* Product-specific changes and/or enhancements are described in *New and Changed Features of Natural Add-On Products*.

## Software AG Product Versions Required with Natural

---

The following minimum product versions/fixes (or higher) are required to use Natural Version 8.2.7 and the add-on products released with this version with the Software AG products listed below:

Product Name	Product Code	Minimum Version
Adabas	ADA	8.3  8.3.4 with Zap AO834004 (ADALCO) if Natural zIIP Enabler is installed under Com-plete
Adabas CICS Interface	ACI	8.3  8.4.1 LX if Natural zIIP Enabler is installed under CICS
Adabas IMS/TM Interface	AII	8.3
Adabas Online System	AOS	8.3
Adabas Review	REV	4.7.2
Adabas Text Retrieval	TRS	2.1.4
Com-plete	COM	6.8.1 Cumulative Fix 10 with SMARTS Version 3.3.1 Cumulative Fix 25
Con-form	CMF	3.4.3
Con-nect	CNT	3.4.3
ConnecX SQL Engine	CXX	12.0.1
Entire Connection	PCC	4.5.3
Entire Event Management	NCL	2.2.1 (2.1.2 for z/VSE)
Entire Net-Work	WCP	6.3.2 (This product is required if you are using Natural Security in a heterogeneous environment.)
Entire Operations	NOP	5.4.3
Entire Output Management	NOM	3.4.3
Entire System Server	NPR	3.6.1
Entire Transaction Propagator	ETP	1.5.2  Apply Zaps ET52001 and ET52003 (for ETP) to use ETP with Adabas Version 8. If you are also using the additional Entire Transaction Propagator CICS Interface (ETC), in addition, apply Zap EZ52005 (for ETC).

International Components for Unicode for Software AG	ICS	2.1.2, 2.2.1
Mainframe License Check	MLC	1.3.2
Natural Business Services	NBS	8.2.2
Natural Construct	CST	8.2.2
Natural Document Management	NDM	1.6.3 with Service Pack I001 applied
Natural Engineer	NEE	8.3.2
Natural Web I/O Interface	NWO	1.3.18 (client)
Predict	PRD	8.2.3
Predict Application Control	PAC	2.6.1
SMARTS	APS	2.7.2 Cumulative Fix 21 for BS2000  <b>Note:</b> See <a href="#">SMARTS BS2000 Issues Resolved with APS Version 2.7.2 PL 21</a> in <a href="#">BS2000 C/C++ Time Overflow</a> .  3.3.1 Cumulative Fix 25 for z/OS and z/VSE
System Automation Tools	SAT	3.4.3
System Maintenance Aid	SMA	2.1.2 Cumulative Fix 4
webMethods EntireX (before: EntireX Communicator)	EXX	9.5.1 for z/OS 9.6.0 for z/VSE 8.1.1 for BS2000

Although it may be technically possible to run versions of other Software AG products which are older than the ones listed above with a new version of Natural, this is not recommended because, for legal reasons, Software AG cannot continue to support such combinations and cannot make any statements about whether it is technically possible to run a new version of Natural with versions of other Software AG products which are older than the ones listed above.





# 3

## Installation and Compatibility

---

■ License File .....	12
■ Changes to Installation .....	12
■ Compatibility .....	13

## License File

---

A product license file for Natural is required.

If the Natural zIIP Enabler is installed in a Natural z/OS environment, an additional license file is required for each environment in which Natural zIIP Enabler is installed (batch/TSO, CICS and Com-plete).

For information on Software AG's mainframe product licensing, see the *Software AG Mainframe Product Licensing* documentation.

## Changes to Installation

---

This section describes the changes in the installation process of base Natural and the Natural add-on products released with this Natural version.

The sections indicated for more information are contained in the Natural *Installation* documentation, unless otherwise noted.

- [System Maintenance Aid: Readme File](#)
- [Changes to ICU Data Libraries](#)

### System Maintenance Aid: Readme File

For installation guidance and information on new or changed System Maintenance Aid (SMA) parameters and Natural features, you can view the product-specific Readme files by using the appropriate SMA function.

#### ➤ To view a product-specific Readme

- From the product list on an SMA **Maintenance** screen, execute the RM (**Show Readme File**) command for the required product(s).

## Changes to ICU Data Libraries

The ICU data libraries provided as Natural load modules with ICS (International Components for Unicode for Software AG) have changed due to the new ICU version (see also *ICU Version Upgrade*):

Library Name for ICS Version 2.1	Library Name for ICS Version 2.2
ICS54E	ICS58E
ICS54J	ICS58J
ICS54X (not for z/VSE and BS2000)	ICS58X (not for z/VSE and BS2000)



**Note:** ICS54X and ICS58X are not supplied for BS2000. However, you can create a user-defined ICU data library (see *Customizing the ICU Data Library*) or use single ICU data items as described in the *Unicode and Code Page Support* documentation.

For details on ICU data libraries, see the relevant section in the *Unicode and Code Page Support* documentation.

For the changes in installation steps, see the *Installation Procedure* for z/OS, z/VSE and BS2000 in *Installing International Components for Unicode for Software AG* in the *Installation* documentation.

## Compatibility

This section provides the latest information for this Natural release regarding compatibility with earlier versions of Natural for Mainframes as well as with Natural on other platforms.



**Note:** For information regarding Software AG product compatibility with IBM platforms and any IBM requirements for Software AG products, please review the *Product Compatibility for IBM Platforms* web page at <http://www.softwareag.com/>.

## Special-Purpose Zaps

The following table lists Natural Version 8.2.6 Zaps and the special purposes they support:

Zap	Special Purpose	
NA93189	Suppress NAT3145 error information	<p>Suppress extra L2 calls to Adabas after a NAT3145 error has occurred.</p> <p>If this Zap is applied, the application programming interface USR8202N no longer provides extended information on the NAT3145 error message.</p>

Zap	Special Purpose	
NA93228	Migrate old maps	Provide option to migrate Natural Version 4 maps that contain erroneous numeric field definitions to Natural Version 8.2.
NA94121	Process RDC exit in zIIP mode	Process the RDC exit in zIIP mode.
NA95017, NA95018, NA95019, NA95020, NA95021 and NA95022	Support for the Arabic shaped format	Keeps the shaped format of Arabic characters produced in a previous Natural version.
NA95038	<b>Resolve problems (RSP=46) during Natural mainframe calls to Adabas LUW</b>	Resolve problems that can arise when Natural calls Adabas on Linux, UNIX or Windows from a mainframe platform: an unexpected RSP=46 can occur if a READ loop at the level 1 (*LEVEL=1) ends with an End-of-File (RSP=3) and is executed multiple times. This occurs because Natural on the mainframe does not send a final RC command to release the Adabas Format Buffer if the READ receives RSP=3.

# 4

## New and Changed Features of Base Natural

---

■ Customer Feature Requests for Base Natural .....	16
■ Operations and Performance .....	17
■ Unicode and Code Page Support .....	19
■ Programming Language .....	20
■ System Commands .....	21
■ Terminal Commands .....	22
■ Utilities .....	23
■ Application Programming Interfaces .....	25



**Note:** The SYSEXV utility gives you access to examples of new features available in the current and in some earlier versions of Natural. SYSEXV is described in the *Utilities* documentation.

## Customer Feature Requests for Base Natural

This is an overview of the customer feature requests submitted in the **Brainstorm** portal of Software AG's Empower web site at <https://empower.softwareag.com/> and the enhancement proposals that have been implemented in base Natural:

Request Number	Feature Request
00333	Provide more precise completion messages for the CATAL command: see the section <a href="#">CATALL System Command</a> .
00614	Provide option to ignore conditions returned for global buffer pool commands: see the section <a href="#">New Condition Code Option for Global Buffer Pool Commands on z/OS or z/VSE</a> .
01400	Provide a system variable that holds the library name of a called program: see the section <a href="#">System Variables</a> .  Return the name of steplib library in *LIBRARY-ID system variable: see the new API USR8217N in <a href="#">Application Programming Interfaces</a> .
02861	Provide an API to display the name of a z/OS data set: see the new API USR8223N in <a href="#">Application Programming Interfaces</a> .
03192	Provide an API to display single or multiple Adabas file names: see the new API USR8224N in <a href="#">Application Programming Interfaces</a> .
03753	Support the HTTP request methods DELETE and PATCH for the REQUEST DOCUMENT statement: see the section <a href="#">REQUEST DOCUMENT Statement</a> .
04006	Provide an ignore case option for the SCAN command: see the section <a href="#">SCAN System Command</a> .
04277	Provide option to check whether a Software AG Editor session exists: see the enhanced APIs USR1035N and USR2014N in <a href="#">Application Programming Interfaces</a> .
04330	Provide an ignore comments option for the SCAN command: see the section <a href="#">SCAN System Command</a> .
04403	Provide the option to write Object Handler reports to a dedicated report library: see <a href="#">New Options for Report Library Specification</a> in the section <i>Object Handler</i> .
04416	Provide the option to store Workplan library values in the Object Handler profile: see <a href="#">Storage of Workplan and Report Library Specifications in the Object Handler Profile</a> in the section <i>Object Handler</i> .
04626	Provide a user exit to write dynamic parts of error messages: see the new API USR8401N in <a href="#">Application Programming Interfaces</a> .

## Operations and Performance

- [New Condition Code Option for Global Buffer Pool Commands on z/OS or z/VSE](#)
- [BS2000 C/C++ Time Overflow](#)

### New Condition Code Option for Global Buffer Pool Commands on z/OS or z/VSE

In a z/OS or z/VSE environment, the new `CC` function parameter provides the option to ignore a condition code returned by a command executed by the global buffer pool manager.

When `CC=N` is specified for a command, the condition code returned by the command is not considered for the response code returned by the respective job.

For more information, see *CC - Count Condition Code* in the *Operations* documentation.

### BS2000 C/C++ Time Overflow

Software AG products on BS2000 platforms are affected by the BS2000 C/C++ time overflow problem which can occur after January 19, 2018. For details, see the appropriate White Paper about BS2000 Time Functions published by Fujitsu.

The Software AG product versions and fixes listed in the following table must be installed to ensure that all Software AG products using C/C++ time functions on BS2000 will run properly after this date.

Products not listed in the table are BS2000 C/C++ time overflow compliant.

Product Name	Product Code	Required Version	Required Fix
Entire Net-Work	WCP	6.3.2	Fix not yet available
	WTC		
	WCA		
Entire System Server	NPR	3.6.2	None
		3.6.1	NPR361L003
webMethods EntireX	EXX	8.1.1	EXX811L047
webMethods EntireX Remote Procedure Call	EXP	8.1.1	EXP811L050
Natural	NAT	8.2.6 and 8.2.7	See <sup>2</sup>
Natural TIAM Interface	NRT		
Natural <i>open</i> UTM Interface	NUT		
Natural Development Server	NDV	8.3.3 and 8.3.4	See <sup>1</sup> and <sup>2</sup>
		8.2.6 and 8.2.7	See <sup>1</sup>

Product Name	Product Code	Required Version	Required Fix
Natural Web I/O Interface	NWO	8.3.3 and 8.3.4	See <sup>1</sup>
		8.2.6 and 8.2.7	
SMARTS Application Server	APS	2.7.2	APS272L021

### SMARTS BS2000 Issues Resolved with APS 2.7.2 CF 21

- Abend during start of an Adabas nucleus with UES codepage support is fixed.
- Start failure of the server sockets task after January 19, 2018 on account of the overflow of the C function time() is fixed.
- TLB2TIME: The accidental mix up of day and month from the GTIME macro call is fixed.

### <sup>1</sup> SMARTS Application Server: APS Version 2.7.2 CF 21 Required

Use the fix APS272P021 (library APS272.L021) in your startup procedures for:

- Natural Development Server (NDV)
- Natural Web I/O Interface

You can also copy the library by using the delivered procedure P.MERGELIB, for example:

```
/CALL-PROC P.MERGELIB, (PROD-LIB=APS272.LIB, PATCH-LIB=APS272.L021)
```

### <sup>2</sup> Affected Natural Modules NAT2TCP and NATAD<sub>vrs</sub>

If you use one of the following Natural modules, the Natural environment-dependent nuclei (front parts) have to be re-linked with the BS2000 TIMESHIFT bind library:

Module	Function	Product Code	Product Version
NAT2TCP	REQUEST DOCUMENT and PARSE XML Statements	NAT	8.2.6
NATAD833 and NATAD834	Debug Attach Server for NaturalONE	NDV	8.3.3 and 8.3.4

**Note:** The module NAT2TCP of Natural Version 8.2.7 already uses the new BS2000 64-bit time function provided by Fujitsu and is not affected.

### Binding the TIMESHIFT Library

1. Pay attention to the correct bind order of the BS2000 TIMESHIFT bind library. It must be defined before the general CRTE library as indicated in the following example:



BS2000 Binder Procedure	Binder Statements
Old procedure	// RESOLVE-BY-AUTOLINK LIBRARY = \$SAG.ADA $nnn$ .MOD // RESOLVE-BY-AUTOLINK LIBRARY = \$.SYSLNK.CRTE
With BS2000 TIMESHIFT option	// RESOLVE-BY-AUTOLINK LIBRARY = \$SAG.ADA $nnn$ .MOD // RESOLVE-BY-AUTOLINK - // LIBRARY = (\$.SYSLNK.CRTE.TIMESHIFT,\$.SYSLNK.CRTE)

where  $nnn$  is the three-digit Adabas version.

- When using System Maintenance Aid (SMA), set the new parameter TIMESHIFT to Y. If this parameter is not yet available in your environment, please go to Empower and get the latest GLOBAL SMA tables.
- Generate the JCL and submit the generated Jobs I060 and I080.

List of job steps:

Product Name	Product Code	Description	Job	Step
Natural	NAT	Link the environment-dependent nucleus LNATFRNT.	I060	3801
Natural TIAM Interface	NRT	Link the environment-dependent nucleus LNRTFRNT.	I080	0110
Natural <i>open</i> UTM Interface	NUT	Link the environment-dependent nucleus LNUTFRNT.	I080	0210

## Unicode and Code Page Support

- [ICU Version Upgrade](#)
- [New Names for Data Item Modules](#)
- [Caution with ICU Data Items](#)

### ICU Version Upgrade

The ICU (International Components for Unicode) version has been upgraded to ICU Version 58.2 which supports Unicode Version 9.0.

ICU Version 58.2 enhancements include improvements in performance and robustness.

For a summary of all changes in ICU Version 58.2 and Unicode Version 9.0, see the Download ICU 58 website at <http://site.icu-project.org/download/58> and the Unicode 9.0.0 website at <http://www.unicode.org/versions/Unicode9.0.0/>, respectively.

See also [Changes to ICU Data Libraries](#).

## New Names for Data Item Modules

The naming conventions for data item modules have been changed to reflect the ICU version in the names of the data items.

For more information, see *Naming Conventions for Data Item Modules* in the section *ICU Data Items* in the *Unicode and Code Page Support* documentation.

## Caution with ICU Data Items

ICS (International Components for Unicode for Software AG) Version 2.2.1 supports dynamic loading of single ICU data items during runtime.

Since the naming conventions for data items have changed, make sure to use a data set with ICU data item modules delivered with ICS Version 2.2.1. Attempting to use a data set with data item modules of an older ICS version results in errors.

## Programming Language

---

- [Statements](#)
- [System Variables](#)

### Statements

#### REQUEST DOCUMENT Statement

The `REQUEST DOCUMENT` statement now provides the option to use the request methods `DELETE`, `PATCH`, `OPTIONS` and `TRACE` in a `REQUEST-METHOD` header specified by the user.

See also the section *REQUEST DOCUMENT* in the *Programming Guide*.

### System Variables

#### \*LOAD-LIBRARY-ID

The `*LOAD-LIBRARY-ID` system variable is now also supported in a Natural mainframe environment for compatibility with Natural for UNIX and Natural for Windows. `*LOAD-LIBRARY-ID` returns the name of the library from where an executing object was loaded.

For more information, see the *System Variables* documentation.

## System Commands

---

- [CATALL System Command](#)
- [LIST System Command](#)
- [NOCSTAT System Command](#)
- [SCAN System Command](#)
- [SYSRPC System Command](#)
- [ZIIP System Command](#)



**Note:** The sections indicated for more information are contained in the *System Commands* documentation, unless otherwise noted.

### CATALL System Command

The messages returned after executing a CATALL have been enhanced. They now indicate the exact action performed on the objects: checked, saved, cataloged or stowed (saved and cataloged).

### LIST System Command

#### New Time Stamp Option for Catalog Date/Time

The LIST command now provides the option to view the original time stamp (store clock) value actually returned when cataloging an object.

For more information, see the new SHOW-CAT-TIMESTAMP-VALUES parameter of the LIST profile and the new USE-TIMESTAMP subcommand for selection lists.

### NOCSTAT System Command

For the new features provided with the NOCSTAT system command, see [New PC Download Option for NOCSTAT Reports](#) and [Statement Category and Type Improved in NOCSTAT Reports](#) in the section *Natural Optimizer Compiler*.

### SCAN System Command

The SCAN system command provides the following enhancements:

#### New Ignore Case Option

If the new **Ignore Case** option is set to Y (Yes), the SCAN system command processes all lines where the entered value is found independent of the use of upper and lower case characters. For more information, see the section *Menu Options*.

#### New Ingore Comments Option

If the new **Ingore Comments** option is set to Y (Yes), the SCAN system command excludes commentary text from the search. For more information, see the section *Menu Options*.

## SCAN Profile

The `SCAN` system command now provides the option to define an individual scan profile. For more information, see *Defining an Individual SCAN Profile*.

## SYSRPC System Command

The following options are new in the `SYSRPC` system command:

### SYSRPC PING - Ping Server

Pings an RPC server in online or batch mode. For more information, see *Pinging an RPC Server* and *Using the SYSRPC PING Direct Command* in *SYSRPC Utility* in the *Utilities* documentation.

### SYSRPC SRVLIST - Show Server Information

Provides information on Natural RPC servers registered on EntireX Broker. For more information, see *Listing Servers Registered on EntireX Broker* in *SYSRPC Utility* in the *Utilities* documentation.

## ZIIP System Command

The **zIIP Component Switch Statistics** report produced by the `ZIIP` system command now lists the product to which a component belongs, the percentage of component switches and an indicator (P) set for component switches that can be influenced by a parameter. The report list can be sorted by product. Additionally, you can filter the list by specifying a product range and/or selecting only components for which the new P indicator is set.

The `ZIIPUX01` user exit (`ZIIPUS01` source object in the SYSEXT system library) for the `ZIIP` system command has been adapted for the new `ZIIP` command functions.

The new `ZIIP` command functions have also been implemented in the `USR8204N` application programming interface.

## Terminal Commands

---

### %P=SQ - Standard Linkage for Call of Quasi-Reentrant Subprograms

If Natural CICS Interface Version 8.3.4 is installed, on z/OS, the new `%P=SQ` terminal command can be used in a Natural CICS running in the CICS OTE environment (threadsafe) to call quasi-reentrant user programs.

See also [New Terminal Command for Calling Quasi-Reentrant Subprograms](#) under *Natural CICS Interface Version 8.3.4*.

## Utilities

---

- NATRJE Utility
- Object Handler
- Profiler Utility
- SYSERR Utility
- SYSPARM Utility
- SYSRPC Utility
- SYSTP Utility



**Note:** The sections indicated for more information are contained in the *Utilities* documentation, unless otherwise noted.

### NATRJE Utility

#### BS2000: Support for ENTER-JOB and ENTER-PROCEDURE Commands

Under BS2000, the NATRJE utility provides the option to submit a job with the `ENTER-JOB` or `ENTER-PROCEDURE` command. Moreover, you can supply multiple parameters with a command by using the new *parm5* option of the NATRJE `CALL` statement.

*parm5* is described in *Invoking NATRJE* in the section *NATRJE Utility - Natural Remote Job Entry*.

### Object Handler

#### New Options for Report Library Specification

The Object Handler provides the following options to specify the library into which an Object Handler report is written:

- The new **Change the Report library** function on the **Administration** or **Options** screen,
- The new `REPORT-LIBRARY` parameters of an Object Handler direct command: see the *option-option-clause* of *option-setting*, and
- The new `Report-Library` parameters of the Object Handler profile: see *Profile Settings*.

#### Storage of Workplan and Report Library Specifications in the Object Handler Profile

The Object Handler provides the new **Store values in profile** option to directly store the values (such as library name, DBID, FNR) specified on a Workplan or report library screen as `Workplan-Library` and `Report-Library` parameter settings in the Object Handler profile.

For more information, see *Change the Workplan Library* and *Change the Report Library*.

## Profiler Utility

### Data Input for Profiler from Natural text objects

In batch mode, the Profiler utility now provides the option to retrieve data from Natural text objects and include them in the input data for the Profiler.

For more information, see *Including Profiler Input from Natural Text Objects* in the section *Using the Profiler Utility in Batch Mode*.

### Code Coverage of Natural Applications

In batch mode, the Profiler utility now provides options to retrieve and evaluate code coverage information of Natural applications. For more information, see *Natural Profiler* in the *Utilities* documentation.

## SYSERR Utility

The SYSERR utility is now case-sensitive and no longer translates the input from lower to upper case by default. See also *Adding Messages* and *Modifying Messages* in the section *SYSERR Utility*.

## SYSPARM Utility

The SYSPARM utility now provides the option to terminate a Natural session when a SYSPARM error or warning is encountered during batch processing. In addition, you can specify the return code to be used for the termination.

For more information, see the new `TERM1ST` option of the SYSPARM command described in *Direct Commands and Batch Processing* in the section *SYSPARM Utility*.

## SYSRPC Utility

The SYSRPC utility is a subcomponent of Natural RPC: see [SYSRPC Utility](#) in the section *Natural RPC*.

## SYSTP Utility

The **Natural License Information** function of the SYSTP utility now provides the option to display the product license file for Natural zIIP Enabler as an alternative to the product license file for Natural. This function corresponds to the `LIC` option of the `ZIIP` system command (see the *System Commands* documentation).

## Application Programming Interfaces

The following Natural application programming interfaces (APIs) are new in the SYSEXT system library or have changed:

API	Task	Enhancement
USR0620N	Convert string into ASCII or EBCDIC code.	The new functions "1" and "2" provide the same functionality as the functions "E" and "A", respectively. They have been introduced for compatibility with UNIX and Windows.
USR1035N	Maintain objects using the Software AG Editor engine	These APIs have been enhanced to check whether a given Software AG Editor session exists.
USR2014N		
USR8204N	Perform ZIIP command.	This API has been enhanced to provide the <b>new functions of the ZIIP command</b> .
USR8221N	Generate code page translation table.	This new API generates a translation table which maps all code points of the source code page to the corresponding value of the target code page. The delivered sample program USR8221P generates the translation tables used by the API USR0620N for ASCII/EBCDIC translation.
USR8223N	Get z/OS data set name.	This new API returns the data set name assigned to a given DDNAME under z/OS.
USR8224N	Get Adabas file name.	This new API returns the name of a single Adabas file or the names of all Adabas files for a given DBID.
USR8401N	Read/write dynamic error message parts.	This new API reads or writes the dynamic parts (:1:, :2:, ...) of a Natural system or user-defined error message.

See also the changes to [Natural Security APIs](#).





# 5

## New and Changed Features of Natural Add-On Products

---

■ NaturalONE .....	28
■ Natural Optimizer Compiler .....	28
■ Natural RPC (Remote Procedure Call) .....	29
■ Natural Security .....	31
■ Natural SQL Gateway .....	32
■ Natural zIIP Enabler .....	32



**Note:** For an overview of all Natural add-on products and the new product versions available, see [Overview of New Natural Add-On Product Versions](#).

## NaturalONE

---

For information on changes, enhancements and new features available with NaturalONE, see the *Release Notes* in the *NaturalONE* documentation in the **Documentation** section of Software AG's Empower web site at <https://empower.softwareag.com/>.

## Natural Optimizer Compiler

---

This section describes the new features provided with Natural Optimizer Compiler Version 8.2.7.



**Note:** The new features provided with [Natural Optimizer Compiler Version 8.3.5](#) are described in a separate section of these release notes.

### New PC Download Option for NOCSTAT Reports

The `NOCSTAT` command now provides the option to download a report on a PC if Entire Connection is installed.

This works for all report types and output destinations.

For more information, see *Generating Reports* in the *Natural Optimizer Compiler* documentation.

### Statement Category and Type Improved in NOCSTAT Reports

The values displayed for the reports **Statement Category** and **Statement Type** have been corrected for programs cataloged with the Natural Optimizer Compiler. Now, the sum of all values corresponds to the total number of statements.

For more information, see the relevant sections in the *Natural Optimizer Compiler* documentation.

## Natural RPC (Remote Procedure Call)

With Natural Version 8.2.7, an enhanced Natural RPC Version 8.2.7 is delivered which introduces the following changes and enhancements:

- Automatic Character Conversion
- Application Programming Interfaces (APIs)
- SYSRPC Utility

### Automatic Character Conversion

webMethods EntireX Broker has a reworked mechanism for character conversion. This mechanism detects incorrect configurations such as RPC communication without configured character conversion. In these cases, the configuration defined in the EntireX Broker attribute file is not used and a warning message is written to the EntireX Broker log file. Adapt your EntireX Broker attribute file to avoid the message.

For details, see the section *Broker's Mechanism for Choosing the Character Conversion Approach* in *Introduction to Internationalization* in the *webMethods EntireX* documentation.

The mechanism is active if the version of the RPC server component is the following (or above):

- EntireX RPC Server (z/OS CICS, z/OS Batch, z/OS IMS, Micro Focus, C, .NET) 9.10
- EntireX RPC Server (Java, CICS ECI, IMS Connect, XML/SOAP, RPC-ACI, IBM MQ) 9.9
- EntireX Adapter 9.9
- Natural RPC Server (Natural Version 8.2.7 for Mainframes, Natural Version 8.4.1 for UNIX, Natural Version 8.4.1 for Windows)

### Application Programming Interfaces (APIs)

The following Natural RPC-specific APIs are new in the SYSEXT system library or have changed:

API	Task
USR2075N	<b>Terminate EntireX Broker service</b>
USR8208N	
	This API now also supports the reserved password *TRUSTED instead of a user-specific password if EntireX Broker security uses the trusted user ID mechanism.
	For more information, see <i>Using Application Programming Interface USR2075N</i> in the <i>Natural RPC (Remote Procedure Call)</i> documentation.
	See also <i>Trusted Password allowed in Terminate Command</i> in the section <i>SYSRPC Utility</i> .

API	Task
USR8213N	<b>Shut down a server on an EntireX Broker node</b>  This API now also supports the reserved password *TRUSTED instead of a user-specific password if EntireX Broker security uses the trusted user ID mechanism.  See also <i>Trusted Password allowed in Terminate Command</i> in the section <i>SYSRPC Utility</i> .

## SYSRPC Utility

The new features provided with the SYSRPC utility are announced in this section.

For detailed information on these features, refer to the indicated chapters in the *Utilities* documentation.

### Direct Command for Pinging a Server

The new direct command `SYSRPC PING` provides the option to ping a Natural RPC server in online or batch mode.

For more information, see *Using the SYSRPC PING Direct Command*.

### Direct Command for Server Information from EntireX Broker

The new direct command `SYSRPC SRVLIST` provides the option to obtain information on all Natural RPC servers registered on the EntireX Broker in online or batch mode. For the kind of information provided and further instructions, see *Viewing a Server List*.

In addition, you can obtain further information on a single Natural RPC server as shown and explained in *Viewing Additional Server Information*.

For all information on `SYSRPC SRVLIST`, see *Listing Servers Registered on EntireXBroker*.

### New Line Commands for Server Command Execution

New line commands are provided on the **Server Command Execution** screen to ping or terminate an EntireX Broker service or a server and view information on Natural RPC servers registered on EntireX Broker (alternatively, you can use the new `SRVLIST` direct command).

For more information, see *Line Commands: Server Command Execution*.

### Trusted Password allowed in Terminate Command

If EntireX Broker security uses the trusted user ID mechanism, you can now specify the reserved password \*TRUSTED instead of your own password when terminating an EntireX Broker Service with the `TS` (Terminate EntireX Broker Service) line command of the **Server Command Execution** function.

`TS` is described in *Terminating an RPC Server*.

### Service Directory now always Shows Nodes and Servers

When scrolling down in a **Service Directory** screen, the **Node** and **Server** names are now displayed on all pages of the service directory.

## Natural Security

---

The following enhancements are provided with Natural Security Version 8.2.7:

- [Logon Records](#)
- [Logon Error Records](#)
- [Maintenance Log Records](#)
- [Application Programming Interfaces \(APIs\)](#)



**Note:** The sections indicated for more information are contained in the *Natural Security* documentation, unless otherwise noted.

### Logon Records

The **Logon Records Menu** provides a new selection criterion, **FUSER DBID/FNR**. It allows you to list only logon records of logons to a specific FUSER system file.

### Logon Error Records

The **Logon/Countersign Errors Menu** provides a new selection criterion, **FUSER DBID/FNR**. It allows you to list only records of logon errors which occurred in conjunction with logon attempts to a specific FUSER system file.

### Maintenance Log Records

The **Maintenance Log Records** functions **List Administrator Services Maintenance Logs** and **List Security Profile Maintenance Logs** provide a new selection criterion, **Modifier**. It allows you to list only the modifications performed by a specific administrator.

### Application Programming Interfaces (APIs)

The new application programming interface NSCONE allows you to display the Natural Server view and Eclipse Navigator view options and actions allowed/disallowed for a specific library and user.

## Natural SQL Gateway

---

### New Timeout Parameter and Cleanup Functions for Inactive Sessions

The new `SESSION_TIMEOUT` parameter provides the option to set a time limit for inactive sessions. If set, you can now immediately cancel an inactive session by using either the new **Cleanup** command button from the HTML Monitor Client or the new `-cCleanup` command from the NATMOPI Monitor Client.

For more information, see the sections `SESSION_TIMEOUT`, *Server Monitor* and *Direct Commands* in the *Natural SQL Gateway Server* documentation.

## Natural zIIP Enabler

---

### Natural zIIP Enabler Renamed

Natural zIIP Enabler products have been renamed as follows:

Old Name	New Name
Natural zIIP Enabler for Batch	Natural Batch for zIIP
Natural zIIP Enabler for CICS	Natural for CICS for zIIP
Natural zIIP Enabler for Com-plete	Natural for Com-plete for zIIP

### Natural for zIIP Installation Changes

The installation documentation for Natural for zIIP (before: *Installing Natural zIIP Enabler*) has been updated: see *Installing Natural for zIIP* in the *Installation for z/OS* documentation.

Natural zIIP Enabler has been replaced by the new Natural for zIIP names in *Installing Natural Com-plete/SMARTS Interface Version 8.3.5* and *Installing Natural CICS Interface Version 8.3.4* in the *Installation for z/OS* documentation

## **zIIP Processing Report at Shutdown**

This new feature is available with the Natural CICS Interface Version 8.3.4 and Natural Complete/SMARTS Interface Version 8.3.5.

When your CICS or Com-plete environment is shut down, a report is now printed containing general zIIP information and component switch statistics. This report is similar to the report produced by the `PRINT` option of the `ZIIP` system command (see the *System Commands* documentation).

For a CICS environment, the required program definitions are described in the section *Natural zIIP Shutdown Statistics* in *Installing Natural CICS Interface Version 8.3.4 on z/OS*.





# 6      **New and Changed Features of Most Recent Natural Add-On**

## **Products**

---

■ Natural CICS Interface Version 8.3.4 .....	36
■ Natural Com-plete/SMARTS Interface Version 8.3.5 .....	36
■ Natural Development Server Version 8.3.4 .....	37
■ Natural for DB2 Version 8.4.2 .....	37
■ Natural Optimizer Compiler Version 8.3.5 .....	37
■ Natural Web I/O Interface Server Version 8.3.4 .....	38

## Natural CICS Interface Version 8.3.4

---

CICS Interface Version 8.3.4 is available from Natural Version 8.2.7 onwards.

This section describes the new features of Natural CICS Interface Version 8.3.4.

- [New Terminal Command for Calling Quasi-Reentrant Subprograms](#)
- [zIIP Processing Report at Shutdown](#)

### New Terminal Command for Calling Quasi-Reentrant Subprograms

On z/OS, the new `%P=SQ` **terminal command** can be used in a Natural CICS running in the CICS OTE environment (threadsafe) to call quasi-reentrant user programs.

For this purpose, the supplied assembler program `NCILINKQ` must be installed in CICS as quasi-reentrant. See the relevant installation instructions described in *Installing Natural CICS Interface Version 8.3.4 on z/OS* in the *Installation* documentation.

### zIIP Processing Report at Shutdown

When you shut down a CICS environment where Natural zIIP Enabler is installed, a report is now printed containing general zIIP information and component switch statistics.

For more information, see *zIIP Processing Reports Available* in the *Natural zIIP Enabler* documentation.

## Natural Com-plete/SMARTS Interface Version 8.3.5

---

Natural Com-plete/SMARTS Interface Version 8.3.5 is available from Natural Version 8.2.7 onwards.

This section describes the new features of Natural Com-plete/SMARTS Interface Version 8.3.5.

### zIIP Processing Report at Shutdown

When you shut down a Com-plete environment where Natural zIIP Enabler is installed, a report is now printed containing general zIIP information and component switch statistics.

For more information, see *zIIP Processing Reports Available* in the *Natural zIIP Enabler* documentation.

## Natural Development Server Version 8.3.4

---

Natural Development Server Version 8.3.4 is available from Natural Version 8.2.7 onwards.

This section describes the new features of Natural Development Server Version 8.3.4:

### New Parameter for Server Data for Optimize for Infrastructure

Natural Development Server Version 8.3.4 introduces the 04I configuration parameter which can be set to collect server data for Optimize for Infrastructure.

For more information on 04I, see the appropriate *Natural Development Server* documentation in the **Documentation** section of Software AG's Empower web site at <https://empower.softwareag.com/>.

### New Timeout Parameter and Cleanup Functions for Inactive Sessions

The new SESSION\_TIMEOUT parameter provides the option to set a time limit for inactive sessions. If set, you can now immediately cancel an inactive session by using either the new **Cleanup** command button from the HTML Monitor Client or the new -cCleanup command from the NATMOPI Monitor Client.

For more information, see the appropriate *Natural Development Server* documentation in the **Documentation** section of Software AG's Empower web site at <https://empower.software-ag.com/>.

## Natural for DB2 Version 8.4.2

---

Natural for DB2 Version 8.4.2 is available from Natural Version 8.2.7 onwards.

Natural for DB2 Version 8.4.2 provides maintenance updates and program fixes.

## Natural Optimizer Compiler Version 8.3.5

---

Natural Optimizer Compiler Version 8.3.5 is available from Natural Version 8.2.7 onwards.

Natural Optimizer Compiler Version 8.3.5 provides maintenance updates and program fixes.

## Natural Web I/O Interface Server Version 8.3.4

---

Natural Web I/O Interface Server Version 8.3.4 is available from Natural for Mainframes Version 8.2.7 onwards.

This section describes the new features of Natural Web I/O Interface Server Version 8.3.4:

### **New Parameter for Server Data for Optimize for Infrastructure**

Natural Web I/O Interface Server Version 8.3.4 introduces the `O4I` configuration parameter which can be set to collect server data for Optimize for Infrastructure.

For more information, see *O4I* in the *Natural Web I/O Interface* documentation.

### **New Timeout Parameter and Cleanup Functions for Inactive Sessions**

The new `SESSION_TIMEOUT` parameter provides the option to set a time limit for inactive sessions. If set, you can now immediately cancel an inactive session by using either the new **Cleanup** command button from the HTML Monitor Client or the new `-cCleanup` command from the NATMOPI Monitor Client.

For more information, see the sections `SESSION_TIMEOUT`, *Server Monitor* and *Direct Commands* in the *Natural Web I/O Interface* documentation.