Natural

Natural Release Notes

Version 9.1.2

October 2023

ADABAS & NATURAL

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Preface

This document provides a brief summary of the changes and enhancements that have been introduced in Natural Version 9.1.2 for Mainframes and the Natural add-on products released with this version.

Revised and updated documentation sets are available with this version.

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1   About this Documentation

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *folder.subfolder.service*, APIs, Java classes, methods, properties.
Italic	Identifies:
	Variables for which you must supply values specific to your own situation or environment.
	New terms the first time they occur in the text.
	References to other documentation sources.
`Monospace font`	Identifies:
	Text you must type in.
	Messages displayed by the system.
	Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

Product Documentation

You can find the product documentation on our documentation website at **https://documentation.softwareag.com**.

Product Training

You can find helpful product training material on our Learning Portal at **https://learn.softwareag.com**.

Tech Community

You can collaborate with Software GmbH experts on our Tech Community website at **https://techcommunity.softwareag.com**. From here you can, for example:

- Browse through our vast knowledge base.

- Ask questions and find answers in our discussion forums.

- Get the latest Software GmbH news and announcements.

- Explore our communities.

- Go to our public GitHub and Docker repositories at **https://github.com/softwareag** and **https://containers.softwareag.com/products** and discover additional Software GmbH resources.

Product Support

Support for Software GmbH products is provided to licensed customers via our Empower Portal at **https://empower.softwareag.com**. Many services on this portal require that you have an account. If you do not yet have one, you can request it at **https://empower.softwareag.com/register**. Once you have an account, you can, for example:

- Download products, updates and fixes.

- Search the Knowledge Center for technical information and tips.

- Subscribe to early warnings and critical alerts.

- Open and update support incidents.

- Add product feature requests.

Data Protection

Software GmbH products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Supported Environments

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 stops supporting a version 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 the Software AG Empower website at *https://empower.software-ag.com/* (see also *Product Availability and End of Maintenance*).

TP Monitors/Online Interfaces

Natural Version 9.1.2 supports the versions of the TP monitors/online interfaces listed below:

Product	Version
Com-plete	See *Software AG Product Versions Supported by Natural*.
CICS TS for z/OS	5.3, 5.4, 5.5, 5.6
CICS TS for VSE/ESA	2.1
IMS TM	15.1
*open*UTM	6.3, 6.4, 6.5, 7.0
TIAM	13.1, 13.2

Database Management Systems

Natural Version 9.1.2 supports the versions of the database management systems listed below:

Product	Version
Adabas	See *Software AG Product Versions Supported by Natural*.
DB2 for z/OS	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
DFSMStvs	As delivered for the respective VSAM version if transactional VSAM is to be used with Natural for VSAM

Assemblers

Natural Version 9.1.2 requires the following assembler for the assembly of its source modules on z/OS:

- "HL" Assembler Version 1.6

Natural Version 9.1.2 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.

IBM z/OS Authorized Code Scanner (zACS)

All Natural Program Calls (PC) have been validated with the IBM z/OS Authorized Code Scanner (zACS) toolkit. All found vulnerabilities have been fixed, therefore all Natural PCs are vulnerability-free now. For more information about zACS, please refer to the corresponding IBM documentation at **https://www.ibm.com/support/knowledgecenter/SSLTBW_2.4.0/com.ibm.zos.v2r4.bpn/bpn.htm**.

Authorized Services Manager and Roll Server

The Authorized Services Manager (module `NATASM91`) and the Natural Roll Server (module `NATRSM91` or fix NAT911L001) supplied with Natural Version 9.1.2 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.

3 Available and Supported Software AG Product Versions

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 the Software AG Empower website at *https://empower.softwareag.com/*:

1. Log in to Empower.

2. Expand **Products & Documentation** 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.
There are some exceptions to the product availability dates shown below. For details of those exceptions, visit this page.

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

Expand all - Collapse all
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Product Family	Product - Product Version	Version Lifecycle Milestone			
› Operating System and Hardware *	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 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.

The Zap solutions and fixes mentioned in the following table can be downloaded from the **Product Fixes** section of the Software AG Empower website at *https://empower.softwareag.com/*.

Product Name	Product Code	Version
Natural Advanced Facilities	NAF	8.2.8
Natural CICS Interface	NCI	8.2.8
		8.3.5 (z/OS only)
Natural Com-plete/SMARTS Interface	NCF	8.2.8
		8.3.6 (z/OS only) if Com-plete Version 6.8.1 Cumulative Fix 16 and SMARTS Version 3.3.1 Cumulative Fix 31 are installed
Natural Connection	NTC	8.2.8
Natural Development Server	NDV	9.1.2
Natural for DB2	NDB	8.4.3
Natural for DL/I	NDL	8.2.8 (z/OS only)
Natural for VSAM	NVS	8.2.8
Natural IMS TM Interface	NII	8.2.8
		8.3.5
Natural ISPF	ISP	8.2.8
Natural *open*UTM Interface	NUT	8.2.8
Natural Optimizer Compiler (*)	NOC	8.3.6
		8.4.1 (z/OS only)
Natural Review	RNM	8.2.8
Natural RPC (*)	RPC	8.2.8 (RPC is a separate subcomponent of Natural)
Natural SAF Security	NSF	8.2.8
Natural Security	NSC	9.1.2

Natural TIAM Interface	NRT	8.2.8
Natural TSO Interface	NTI	8.2.8
Natural Web I/O Interface	NWO	9.1.2 (server)
Super Natural	NSN	8.2.8
Natural Batch for zIIP (*)	NAZBT	8.2.8
Natural for CICS for zIIP (*)	NAZCI	8.3.5
Natural for Com-plete for zIIP (*)	NAZCO	8.3.6
Natural for IMS for zIIP (*)	NAZNI	8.3.5

* Product-specific changes and/or enhancements are described in *New and Changed Features of Natural Version 9.1.2 Add-On Products*.

Software AG Product Versions Supported by Natural

Natural Version 9.1.2 and the add-on products released with this version support the minimum versions and fixes (or higher) of the optional Software AG products listed in the following table. In general, Software AG recommends using the latest product versions supported by Natural to take advantage of new features and enhancements provided by these products.

The Zap solutions, fixes and service packs mentioned in the following table can be downloaded from the **Product Fixes** section of the Software AG Empower website at *https://empower.software-ag.com/*.

Product Name	Product Code	Minimum Version
Adabas	ADA	8.3 8.3.4 with Zap AO834004 (`ADALCO`) if Natural for Com-plete for zIIP is installed
Adabas CICS Interface	ACI	8.3 8.4.2 if Natural for CICS for zIIP is installed
Adabas IMS/TM Interface	AII	8.3 8.4.3 if Natural for IMS for zIIP is installed
Adabas Limited Load Library	WAL	8.3 if Natural SAF Security is to be used WAL843L001 if Natural SAF Security with password phrases is to be used
Adabas Online System	AOS	8.3
Adabas Review	REV	4.8.2

Adabas System Coordinator	COR	8.2.2 COR822P003 if Natural for CICS for zIIP is installed
Adabas Text Retrieval	TRS	2.1.4
Com-plete	COM	6.8.1 Cumulative Fix 12 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	9.1.2
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	3.6.2
International Components for Unicode for Software AG	ICS	2.2.2
International Components for Unicode for Software AG	ICS	3.1.1
Mainframe License Check	MLC	1.3.6
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	9.1.1
NaturalONE (*)	ONE	9.1.2
Natural Web I/O Interface (Client)	NWO	1.3.18
Predict	PRD	8.4.1
Predict Application Control	PAC	2.6.1
SMARTS	APS	2.7.2 Cumulative Fix 22 for BS2000 3.3.1 Cumulative Fix 28 for z/OS 3.3.1 Cumulative Fix 27 for z/VSE
System Automation Tools	SAT	3.4.3
webMethods EntireX	EXX	9.12 for z/OS 10.5 for z/OS to use the zIIP-eligible EntireX Broker stub NATETBZ 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.

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 the Software AG Empower website at *https://empower.softwareag.com/*.

4 Installation and Compatibility

License File

A product license file for Natural is required. In addition, product license files are required for Natural Batch for zIIP, Natural for CICS for zIIP, Natural for Com-plete for zIIP and Natural for IMS for zIIP, if installed.

For information on product licensing, see the *Software AG Mainframe Product Licensing* document-ation.

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.

- System Maintenance Aid: Readme File
- Changes to ICU Data Libraries

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

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 Up-grade*):

ICS 2.2.1 / ICS 2.2.2 Library Name	ICS 3.1.1 does not support Data Libraries
ICSDT58E	- - -
ICSDT58J	- - -
ICSDT58X (not for z/VSE and BS2000)	- - -

> **Note:** ICSDT58X is not supplied for z/VSE, nor 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/*.

- Using Natural Objects Created in Previous Natural Versions
- Special-Purpose Zaps
- Using ICS Version 3.1.1 with the Natural Development Server on z/OS (Batch)

Using Natural Objects Created in Previous Natural Versions

Natural objects that were created with Natural Version 2.3, 3.1, 4.1, 4.2 or 8.2 for Mainframes can be executed with Natural Version 9.1 without any adjustments to the objects or any conversion or migration procedure being required. This also applies to objects that have been cataloged with the Natural Optimizer Compiler.

> **Important:** Objects cataloged with a Natural Version prior to 2.3 must be recataloged before execution with Version 9.1. This also applies to data areas that are used by these objects.

Software AG strongly recommends that any existing objects be recataloged with Natural Version 9.1 to take advantage of improved runtime handling.

Special-Purpose Zaps

The following table lists Natural Version 9.1.2 Zaps and the special purposes they support:

Zap	Special Purpose	
NA17122	Allow index range of 1:9999 for MU/PE fields of VSAM files.	Increase upper limit for MU and PE fields. When a MU or PE field is defined, the permitted index range is 1:191 for VSAM files. This Zap increases the upper limit to 9999.
NA93189	Suppress NAT3145 error information	Suppress extra L2 calls to Adabas after a NAT3145 error has occurred. If this Zap is applied, the application programming interface USR8202N no longer provides extended information on the NAT3145 error message.
NA93228	Migrate old maps	Provide option to migrate Natural Version 4 maps that contain erroneous numeric field definitions to Natural Version 8.2.
NA95038	Resolve problems (RSP=46) during Natural mainframe calls to Adabas LUW	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.
NA96036	Define Arabic comma as special character	The Arabic comma is not defined as a special character in Natural. If this Zap is applied, the Arabic comma is treated as a special character.

Using ICS Version 3.1.1 with the Natural Development Server on z/OS (Batch)

If ICS Version 3.1.1 is used with a Natural Development Server on z/OS in batch mode the ICS load library must be added to the STEPLIB concatenation in the NDV startup job.

Additionally, if the Natural Development Server is configured to impersonate the NDV clients (SECURITY_MODE=IMPERSONATE or SECURITY_MODE=LOCAL) the ICS load library must be added to the `Sdefined` to the program class "`**`" of `RACF`

```
ralt program ** addmem('ICS311 load library'//NOPADCHK) uacc(read)
```

5 New and Changed Features of Base Natural

This section describes all changes and enhancements provided with Natural Version 9.1.2.

> **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.

Operations and Performance

- New Selectable Units Not Yet Available
- Roll Server Support for VSAM
- Roll Server Start with Parameter File
- New Authorized Services Manager Features for NATASM91

New Selectable Units Not Yet Available

All features previously supplied as selectable units are integrated in Natural Version 9.1.2. Selectable units are not yet available.

As a result, the setting of the SELUNIT profile parameter is ignored and appropriate messages occur for the SHOWSU system command and the SU line command of the SYSPROD system command.

Roll Server Support for VSAM

The Natural Roll Server now also supports roll files for VSAM.

For more information, see *Natural Roll Server Operation* and *Formatting the Roll File* in the *Operations* documentation.

Roll Server Start with Parameter File

The Roll Server can now also be started with a parameter file as an alternative to a JCL EXEC statement.

For more information, see *Starting the Roll Server* and in the *Operations* documentation.

New Authorized Services Manager Features for NATASM91

Support for SECURITY_CACHING of NDV Server
To support the new SECURITY_CACHING feature of the Natural Development Server, the Authorized Services Manager NATASM91 has been enhanced to verify an NDV client with user ID and password against the z/OS Security Server (RACF or any other compliant external security product) and to link the created ACEE to the NDV client request.

New Parameters in the ASMPARM Parameter File
The following parameters have been added to the `ASMPARM` parameter file:

- `TIMEOUTREPEAT`: Specifies the interval between two timeout checks.
- `FSSMxxxx`: Defines parameters for the Shared Memory Objects File Server (FSSM) of Natural for DB2.

For more information, see *Parameters in the Parameter File* in the *Operations* documentation.

New Option to Control Timeout Processing
The Authorized Services Manager (`NATASM91`) now offers a timeout service for the Session Information Pool (SIP) to control timeout settings through startup parameters and operator commands similar to the Natural Roll Server.

For more information, see the new `TIMEOUT` command described in *ASM Operator Commands* and the `TIMEOUTCHECK` parameter described in *Parameters in the Parameter File* in the *Operations* documentation.

New Parameter File
Parameters for the Authorized Services Manager can now be supplied through a keyword parameter file instead of the positional parameters specified with the JCL `EXEC` statement.

For more information, see *Starting the ASM* in the *Operations* documentation.

Unicode and Code Page Support

- ICU Version Upgrade
- Localization Data in Newer ICU Releases

- New ICS Load Modules with Minimum Collation Data

ICU Version Upgrade

The ICS (International Components for Unicode) version 3.1.1 has been upgraded to ICU Version 65.1 which supports Unicode Version 12.0.

ICU Version 65.1 enhancements include improvements in performance and robustness.

For a summary of all changes in ICU Version 65.1 and Unicode Version 12, see the Download ICU 65 website at **http://site.icu-project.org/download/65** and the Unicode 12.0.0 website at **http://www.unicode.org/versions/Unicode12.0.0/**, respectively.

The ICS version 3.1.1 is delivered in addition to the ICS version 2.2.2

See also **Changes to ICU Data Libraries**.

Localization Data in Newer ICU Releases

Due to significant changes in the method of compiling and loading localization data in newer ICU releases, an ICS Transition Version 222 is provided in addition to ICS 311. Data libraries provided by Software AG are not supported with ICS 311. However, they will still be supported as part of the ICS Transition Version 222.

For more information on using localization data based on ICS Transition Version 222 see *Unicode and Code Page Support*.

For more information on using localization data based on ICS 311 see *Unicode and Code Page Support*.

New ICS Load Modules with Minimum Collation Data

Starting with ICS Version 2.2, the additional load modules `SAGICUM` and `SAGICUM9` are delivered to provide the option to include only the bare minimum of collation data in the module build. This enables a light-weight configuration and better performance for particular use cases.

System Commands

- ZIIP System Command
- LIST System Command
- TECH System Command

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

ZIIP System Command

RESET Functions
The new RESET function can be used to reset the various counters and CPU times to zero.

zIIP Report Adapted to PROJECTCPU Setting
The ZIIP system command now considers the z/OS system parameter PROJECTCPU and provides an adapted **zIIP Processing Information** report if PROJECTCPU is set to YES and no zIIPs are configured to the current logical partition. This is indicated on the first line of the zIIP Processing Information display.

For more information, see the *zIIP Processing Information* reports and the syntax of `PRINT INFO`.

New zIIP Statistics about Roll Server
The `ZIIP` system command now provides the new `ROLL` option to view zIIP statistics information about the Roll Server.

For more information, see the **Roll Server zIIP Information** report and the syntax of `PRINT ROLL`.

LIST System Command

The `LIST` profile of the `LIST` system command now provides the option to specify a step increment for scrolling right or left in a list: see the new `LIST-SHIFT-INCREMENT` parameter described in *LIST Profile Parameters*.

TECH System Command

The `TECH` system command now provides information on the architecture level supported by the IBM processor on which your z/OS or z/VSE system runs.

Editors

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

- Disabled Editors

Disabled Editors

Since Natural Version 9.1, the following Natural editors have been disabled (deactivated) by default in a local z/OS mainframe and UNIX environment:

■ Program editor

■ Data area editor

■ Map editor

With Natural version 9 on Mainframe, Unix and Linux, NaturalONE and the Natural Development Server are integrated into Natural. The Natural editors (program editor, data editor and map editor) are disabled. As NaturalONE and Natural Development Server licenses are integrated with Natural, they can be activated with the Natural (NAT) license key. This does not apply to Natural for Windows.

However, an environment with Natural ISPF, as well as (at minimum) *Natural Mainframe 9.1.2 Cumulative Fix 01* installed, allows for using all Natural editors.

For more information on this, see section *Editors > Disabled Editors*.

DDM Editor: SQL and DL/I Services Discontinued on z/VSE

The DDM editor (SYSDDM utility) no longer supports SQL services for Natural for SQL (NSQ) and the DL/I services for DL/I on z/VSE platforms.

See also *Features Dropped with this Natural Version*.

Utilities

■ DBLOG Utility
■ Object Handler
■ SYSCP Utility
■ SYSPARM Utility
■ SYSRPC Utility
■ SYSTP Utility
■ Natural Profiler Utility

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

DBLOG Utility

The DBLOG utility now also supports VSAM calls.

For more information, see the section *DBLOG Utility - Logging Database Calls*.

Object Handler

The `FIND` direct command of the Object Handler now also considers the save and catalog date of a Natural object in an object search operation with specified date/time range.

For more information, see the new `DATECHECK` option of the *select-clause* described in *Syntax of Natural Library Object and DDM Selection*.

SYSCP Utility

The new function **Loaded Code Pages** lists the already loaded code pages in the current Natural environment. For more information, see *Loaded Code Pages* in section *SYSCP utility* of the Utilities documentation and the *Unicode and Code Page Support* documentation.

SYSPARM Utility

Enhanced SYSPARM TERM1ST Option
The `TERM1ST` option of the `SYSPARM` direct command now also allows resetting a warning counter for `SYSPARM` commands that output return codes.

For more information, see `TERM1ST` in the *basic command syntax* of the `SYSPARM` command in the section *SYSPARM Utility*.

New SYSPARM LOWER Option for Lowercase Conversion
The `SYSPARM` direct command now provides the `LOWER` option to specify whether lowercase letters are converted to uppercase.

For more information, see `LOWER` in the *basic command syntax* and the *with-clause* of the `SYSPARM` command in the section *SYSPARM Utility*.

SYSRPC Utility

The SYSRPC utility is a subcomponent of Natural RPC: see *SYSRPC Utility* in section *Utilities*.

SYSTP Utility

New Permanent Storage Segments Function
The new function **Permanent Storage Segments** displays permanently allocated storage segments. For more information, see *Permanent Storage Segments* in section *SYSTP Utility* of the *Utilities* documentation.

Enhanced Natural Sub-Systems and Roll Server Information
The display of **Natural Sub-Systems and Roll Server Information** has been completely revised to provide an overview as well as detailed information screens. The new line command E displays the ECSAD storage. For more information, see *Natural Sub-Systems and Roll Server Information* in section *SYSTP Utility* of the *Utilities* documentation.

Natural Profiler Utility

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

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

New Rich GUI Interface for the Natural Profiler
The Natural Tools and Utilities in NaturalONE offers a new rich GUI interface for the Natural Profiler. The Natural Profiler page lists all Profiler resources of a given library. For a selected Profiler resource, the properties and statistics of the profiling are displayed. Functions are available to consolidate or evaluate Profiler data, to analyze monitored programs, or to delete a resource file.

For more information, see *NaturalONE > Using NaturalONE > Using Natural Tools and Utilities > Rich GUI Interface of the Natural Profiler*.

Profile and Session Parameters

- New Profile and Session Parameters
- Changed/Enhanced Profile Parameters

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

New Profile and Session Parameters

Parameter	Corresponding Macro	Task	Description
THPINIT	NTPRM	Name of Pre-initialized Storage Thread Model	This new profile parameter is used to save the contents of the Natural storage thread after static session initialization and to reuse it for other sessions in order to improve performance.
SHAPED	NTPRM	Character representation in terms of language direction (left-to-right / bidirectional)	This Natural profile and session parameter determines whether base characters in their basic forms (unshaped) are converted to their shaped forms before they are stored or the other way around when they are read out and displayed on screen.
STEPLIB	NTCFICU	ICS 3.1.1 Initialization options.	New ICS 3.1.1 initialization option. Name of the dataset containing the ICU 3.1.1 data items to be dynamically allocated.

Changed/Enhanced Profile Parameters

Parameter	Corresponding Macro	Task	Change/Enhancement
PGP	NTPGP	Properties for External Programs	**New Property for Standard Linkage under CICS** The new STDLQ property shows whether standard linkage on QR TCB under CICS is used.
ZIIP	NTZIIP	zIIP Processing (z/OS Only)	**Disable Caching for Print and Work Files** The new PWCXAM keyword subparameter disables caching for print and work files for single or multiple file access methods.

> **Note:** The ZIIP keyword subparameter IMSG replaces functionality introduced with the special purpose Zap NA95083. This Zap is no longer required when using IMSG.

Application Programming Interfaces

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

API	Task	Enhancement
USR2026N	Get TECH information.	This API now also returns IBM architecture level information as supplied by the TECH **system command** (see the relevant section).
USR3004N	Improved usage of bufferpool fast locate	Reduces the time spent in the bufferpool and increases the overall performance.
USR8204N	Create a new zIIP Report for PROJECTCPU PoVs	

6 New and Changed Features of Natural Version 9.1.2 Add-On

Products

This section describes all changes and enhancements provided with the add-on products available with Natural Version 9.1.2.

> **Note:** For an overview of all Natural add-on products and the new product versions available, see *Overview of Natural Add-On Product Versions*.

Natural Development Server

The changes and enhancements provided with Natural Development Server Version 9.1.2 are described in the following section.

Natural Development Server Version 9.1.2 includes all changes of Natural Development Server Version 8.3. provided in previous Natural releases.

- New Session Parameters SECURITY_CACHING and SECURITY_TIMEOUT for z/OS (Batch)
- Delete Documentation with Deletion of Natural Member

> **Note:** The sections indicated for more information are contained in the *Natural Development Server* documentation in the **Documentation** section of the Software AG Empower website at *https://empower.softwareag.com/*, unless otherwise noted.

New Session Parameters SECURITY_CACHING and SECURITY_TIMEOUT for z/OS (Batch)

The following two new session parameters have been added to the Natural Development Server for z/OS (Batch).

SECURITY_CACHING
    enables a client directory that stores user information for subsequent actions

SECURITY_TIMEOUT
    manages the life time of clients

These parameters are available via two additional buttons in the HTML Monitor Client that list or cancel clients and their respective sessions.

Delete Documentation with Deletion of Natural Member

The documentation of a Predict Program object, with the object's implementation pointer completely filled (i.e. Natural member name, library name, user system file number, and user system file database id), is deleted when the Natural member is deleted in an NDV environment.

By default, the switch "**Delete documentation with deletion of Natural member**" is initialized with "Y", i.e. deleting the existing documentation.

If you wish to keep the documentation set this new switch to "N".

Start a Predict session and go into the defaults settings, **Protection**.

```
07:38:48                    *****   P R E D I C T   *****                2021-10-08
                                    - Protection -
                                                      Modified 2021-08-05 at 13:07
                                                             by Biden, Joe

SYSDDM utility ..................* A   Allowed
AOS ............................* C   Connected
SYSDB2 utility .................* A   Allowed
Rule in map editor .............* N   No check is performed
Rule in SYSDIC .................* N   No check is performed
Scan texts allowed .............* A   All allowed
PC text modifiable on Mainframe .. N (Y,N)
Protect current Predict file ..... N (Y,N)
   DBnr of NSC file ...............
   Fnr of NSC file ................
   Password .......................
   Cipher .........................
Delete Documentation with deletion
   of Natural member in NDV ....... Y (Y,N)


For HELP enter '?' in the first field.
```

Natural ISPF

- File Version Backup Option for BS2000 File Maintenance

File Version Backup Option for BS2000 File Maintenance

The BS2000 file maintenance facility now also provides the option to display and set the file attribute #BACK-VERS for the number of file versions to be saved in a backup archive. For details, refer to the section *BS2000 File*s in the *User's Guide* of the *Natural ISPF* documentation on Software AG's documentation web site at *https://documentation.softwareag.com/*.

NaturalONE

List Natural Mainframe Objects in the Natural Server View

When a huge number of objects are contained in a library, the listing of these objects in the Natural Server view or the Natural Studio views can take a long time. With Natural for Mainframes Version 9.1.2 on z/OS, a new hyperdescriptor is provided that can significantly improve the database access required for this purpose. The installation of the hyperdescriptor is described in the NaturalONE documentation.

See: *NaturalONE in a Nutshell > Performance Aspects*.

Natural RPC (Remote Procedure Call)

With Natural Version 9.1.2, an enhanced Natural RPC Version 9.1.2 is delivered which introduces the following changes and enhancements:

■ Application Programming Interfaces (APIs)

Application Programming Interfaces (APIs)

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

API	Task
USR2071N	Support long passphrases for Broker (ACI). Natural Security checks if the Natural user ID used for the access to the RPC server (for example, via user exit USR1071) is identical to the EntireX user ID (supplied, for example, via user exit USR2071). See: *NAT1692: User :1: is not authorized* in *Messages and Codes > Natural System Error Messages 1650-1699*
USR2072N	Support long passphrases for Broker (ACI) Enables you to specify a password which is used for the LOGON. Usage - See: *Using Application Programming Interface USR2072N to Specify a Password*
USR8225N	Provide access to message ID and correlation ID in Natural RPC clients.
USR9171N	Set credentials for RPC server. Enhanced version of USR1071N with the capability of using longer passwords.
USR9175N	Ping or terminate a Natural RPC server. Enhanced version of USR2073N with the capability of using longer passwords.
USR9176N	Terminate an EntireX Broker service. Enhanced version of USR8208N with the capability of using longer passwords.
USR9177N	Terminate an EntireX Broker service. Enhanced version of USR8213N with the capability of using longer passwords.

Natural Security

The following enhancements are provided with Natural Security Version 9.1.2:

- Maximum Number of Logon Attempts
- Lock User Option
- User Preset Values
- Library Profiles - FDIC DBID Zero
- File/DDM Profiles - Copying With Links
- Application Programming Interfaces (APIs)
- SECLOAD
- Natural Development Environment - DDMs in Natural Server View

■ Natural Development Environment - Support of SYSLSO Command

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

Maximum Number of Logon Attempts

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

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

Lock User Option

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

User Preset Values

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

Library Profiles - FDIC DBID Zero

In the Library File section of library profile, you can now specify 0 (zero) as the FDIC database ID: this means that the DBID value of the FDIC profile parameter will apply.

File/DDM Profiles - Copying With Links

The file/DDM maintenance functions *Copy File* and *Copy DDM Profile* provide the new option **With Links**. It allows you to also copy the links of libraries from the "old" file/DDM profile to the "new" one. Both functions allow you to select which links you wish to copy and which not.

Application Programming Interfaces (APIs)

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

SECLOAD

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

Natural Development Environment - DDMs in Natural Server View

The display of DDMs in the Natural Server view in an Eclipse environment under Natural Security has been changed: DDMs are no longer represented as a separate node, but are now displayed as a group node under the library node. See *Protecting the Natural Server View* under *Protecting the Natural Development Environment in Eclipse*.

Natural Development Environment - Support of SYSLSO Command

The use of the NaturalONE command SYSLSO, which determines the library search order for private-mode libraries, can now be controlled by Natural Security. See *Protecting the Navigator View* under *Protecting the Natural Development Environment in Eclipse*.

Natural for zIIP

- Natural zIIP Enabler Renamed
- zIIP Support for Natural for IMS TM
- CPU Time Limit in SRB Mode

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

zIIP Support for Natural for IMS TM

Natural for IMS for zIIP (product code NAZNI) is now available to support IBM's System z Integrated Information Processors (zIIPs) in an IMS TM environment on z/OS if Natural IMS TM Interface Version 8.3.5 is installed. For more information, see the *Natural for zIIP* documentation.

Note that Natural for IMS for zIIP requires a license file.

CPU Time Limit in SRB Mode

When running zIIP-enabled under z/OS, the `MT` profile parameter applies separately to both TCB and SRB (zIIP) processing modes. If `MT=0` is set in SRB mode, Natural uses the existing z/OS TCB time limit to avoid endless loops because there is no z/OS CPU time limit (for example, the JCL TIME parameter) for SRBs.

7 Enhancements of Natural Add-on Products for Special Natural Version 9.1.2 Features

This section describes changes and enhancements provided by Natural add-on products to support special features of Natural Version 9.1.2.

Natural CICS Interface

Natural CICS Interface Version 8.3.5 is available on z/OS platforms, from Natural Version 8.2.8 onwards.

If you are upgrading from Natural CICS Interface Version 8.2, it is recommended that you also read the sections related to Natural CICS Interface Version 8.3 in the release notes for previous versions of Natural for Mainframes, starting with Natural Version 8.2.6.

This section describes the new features and changes of Natural CICS Interface Version 8.3.5.

- Discontinued Support for Swap Pool
- New Terminal Command for Calling Quasi-Reentrant Subprograms
- Enhanced NTCICSP Macro Functionality

Discontinued Support for Swap Pool

Natural CICS Interface Version 8.3.5 is available on z/OS platforms, from Natural Version 8.2.8 onwards.

This section describes the changes of Natural CICS Interface Version 8.3.5.

From Natural CICS Interface Version 8.3.5 onwards, the Natural swap pool is no longer supported on z/OS when running in the CICS OTE environment (threadsafe). The roll server must be used instead. The new error message NS56 indicates the error situation (see the *Messages and Codes* documentation).

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 on z/OS* in the *Installation* documentation.

Enhanced NTCICSP Macro Functionality

The maximum value for the tolerance value of the STORVIO parameter has been increased from 255 to 16777215. See also STORVIO in the *Parameter Reference* documentation for further details.

Natural Com-plete/SMARTS Interface

Natural Com-plete/SMARTS Interface 8.3.6 is available on z/OS platforms, from Natural Version 8.2.8 onwards. This section describes the changes of Natural Com-plete/SMARTS Interface Version 8.3.6.

Support of the zIIP-enabled Natural Roll Server

Natural Com-plete/SMARTS Interface Version 8.3 supports the Natural Roll Server. With Natural for zIIP under Com-plete the compression and decompression of the Natural thread is executed on a zIIP.

The use of the zIIP-enabled Natural Roll Server is controlled by the TPF parameter.

Natural Optimizer Compiler Version 8.4.1

Natural Optimizer Compiler Version 8.4.1 is available on z/OS platforms, from Natural Version 9.1.2 onwards.

Natural Optimizer Compiler Version 8.4.1 provides maintenance updates and program fixes.

This section describes the new features of Natural Optimizer Compiler Version 8.4.1.

- Support for Architecture Level 12
- Additional Updates

Support for Architecture Level 12

Architecture levels are used to employ new instructions available with IBM hardware facilities in order to enhance the performance of generated code (see the related literature from IBM).

The ARCH option of Natural Optimizer Compiler Version 8.4.1 now also supports IBM Architecture Level 12 on z/OS platforms.

When using Architecture Level 12, you can generate machine instructions introduced with the Vector Packed-Decimal Facility in the z14 hardware class. This can improve the execution speed for assignments, comparisons and calculations if at least one packed operand is used.

For more information, see Architecture Level 12 in the section *ARCH Option* in *Natural Optimizer Compiler Version 8.3/8.4 - Documentation Updates* in the *Natural Optimizer Compiler* documentation.

Additional Updates

The optimization capabilities in NOC84 are significantly improved in comparison to former versions. This includes:

- Support variables with starting offset > 64MB and with a field length > 16MB
- Improved optimization for the EXAMINE, MOVE ALL, MOVE <scalar> TO <array> and RESET statements
- Optimized numeric sign translation
- Optimized Unicode MOVE operations
- Improvements on the NOCSHOW command
- Additional improvements of performance and runtime stability of the generated code.

Natural for DB2

Please refer to *Overview of Natural Add-On Product Versions* for the Zap solutions required for this version.

Natural SAF Security

The enhancement provided with Natural SAF Security Version 9.1.2 is described in the following section.

Please refer to *Overview of Natural Add-On Product Versions* for the Zap solution required for this version.

SAF Error Recording

The **NSF Options** of Administrator Services provide a new option **SAF error recording**: Logon errors caused by an invalid user ID or invalid password specification are always logged by the external security system. This new option determines whether they are also logged by Natural Security, which means that corresponding Natural Security logon error records will be written.

8 Dropped Features

Features Dropped with this Natural Version

The following features or Natural add-on products are discontinued and no longer supported in
Natural Version 9.1.2:

- Discontinued Support for Natural for SQL/DS
- Discontinued Support for Natural for DL/I on z/VSE
- Discontinued Support for Natural Profiler MashApps

Discontinued Support for Natural for SQL/DS

Natural for SQL/DS is no longer delivered and supported.

Discontinued Support for Natural for DL/I on z/VSE

Natural for DL/I is no longer delivered and supported for z/VSE operating systems.

Discontinued Support for Natural Profiler MashApps

The classic MashZone which was used by the Profiler MashApps, is no longer supported by
Software AG. Therefore, the Profiler MashApps and the corresponding interfaces are no longer
delivered and supported.

The new **Profiler Rich GUI** can be used to visualize the Profiler data in a graphical, interactive
browser interface in a similar way as the previous Profiler MashApps. For more information, see
the documentation of *NaturalONE*, available at **documentation.softwareag.com**. See section *Using
NaturalONE > Using Natural Tools and Utilities > Rich GUI Interface of the Natural Profiler*.

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Features Dropped with a Future Natural Version

The following features will be discontinued and no longer supported in a future version of Natural:

- Discontinued Support for Natural Telex Driver NATTLX
- Discontinued Support for Natural Swap Pool on z/OS
- Discontinued Support for Natural Net Data Driver NATNETTO
- Discontinued Support for z/VSE and BS/2000
- Discontinued Support for Optimize for Infrastructure (O4I)

- Discontinued Support for Compiler Option LUWCOMP

Discontinued Support for Natural Telex Driver NATTLX

The Natural Telex Diver NATTLX will no longer be available in a future version of Natural.

Discontinued Support for Natural Swap Pool on z/OS

The Natural swap pool will no longer be available on z/OS in a future version of Natural. The Natural Roll Server can be used instead.

Discontinued Support for Natural Net Data Driver NATNETTO

The Natural Net Data Driver NATNETTO will no longer be available in a future version of Natural.

Discontinued Support for z/VSE and BS/2000

Natural and Natural add-on products will no longer be supported on z/VSE and BS/2000 operating systems in a future version of Natural.

Discontinued Support for Optimize for Infrastructure (O4I)

Starting with Natural and Natural add-on products Version 9.2.x, Optimize for Infrastructure (O4I) will no longer be supported.

A roadmap how Software AG will pursue infrastructure monitoring on mainframe (and Linux/UNIX/Windows) in the future will be provided in 2021.

Discontinued Support for Compiler Option LUWCOMP

Starting with Natural Version 9.2.x, the Compiler Option `LUWCOMP` will no longer be available.