

What's New in Natural Version 5.1.1 for Windows function sized_window_gloss(win_url)

What's New in Natural Version 5.1.1 for Windows

This document covers the following topics:

- New Features
 - Changes and Enhancements
 - Natural and Tamino
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New Features

This section covers the following topics:

- Natural's Single Point of Development
- XML Toolkit
- New Features in the Natural Studio User Interface
- Natural Studio Plug-ins and the Plug-In Manager
- New Features in the User Interface for Natural Applications
- Portable Generated Programs - GPs
- Entire System Server Interface
- New Parameters
- New Statements
- New System Commands
- New User Exits

Natural's Single Point of Development - for users of both Natural for Windows and Natural for Mainframes

Natural's Single Point of Development connects Natural for Windows to Natural for mainframes via the new Natural Development Server plug-in (NDV). This infrastructure enables the developer to create and maintain Natural applications for the mainframe using Natural Studio on the Windows desktop. The following core features are offered:

- **Remote file manipulation**
In the Natural Studio views, developers can manipulate (move, copy) program objects, wherever those objects are located.
- **Remote editing**
Natural source files and DDMs are transparently retrieved from and stored to the target environment, and edited in the Natural Studio.
- **Remote compiling**
Compiles are initiated from Natural Studio by submitting commands to the target environment.
- **Remote debugging**
The application executes on the target environment, with debugging controlled from Natural Studio. For further information, see the Debugger documentation.
- **Object locking**
Natural Studio provides a locking mechanism that prevents concurrent updating of Natural objects. These can be local Natural objects or objects accessed on a remote development server. For further information, see the section Object Locking in the Remote Development documentation.

- **XRef GUI Client**

The XRef GUI Client Plug-In is used to navigate through cross-reference information created during CAT or STOW commands in the development server file. The information is displayed in a tree view in Natural Studio. Both types of references - active and passive (i.e. referencing and referenced) can be displayed. Navigating through the hierarchies of active and passive references is possible within the tree-view. For further information, see the section XRef GUI Client - Overview in your Remote Development documentation.

- **Terminal Emulation**

If input or output from a mainframe screen is required, a terminal emulation window displaying the appropriate screen appears.

- **Application Concept**

An application is a logical view of a collection of interconnected programming elements. Together, they form a functional unit which covers the business logic for a particular business problem. An application consists of a set of references to libraries and their Natural objects and/or sub-applications (business objects). The contents of a library (Natural objects, resources, etc.) can belong to different applications. Information concerning an application (the application description) is held in the development server file which is accessible from all platforms. Applications are displayed and manipulated in the application workspace (AWS). For further information, see the section Application Concept in the Natural's Single Point of Development documentation. See also the entries in the Glossary starting with the entry Application.

For further information, see the Natural's Single Point of Development documentation and the section Remote Development in the Natural Programming documentation.

Request for Customer Feedback on Application Workspace

With Natural 5.1.1 for Windows we have introduced the concept of the application and the application workspace as described above. The aim is to offer customers, in addition to the library workspace, an application-specific perspective. It is planned that the application workspace will support all operations concerning Natural objects.

We are very interested in customer reaction to the current version of the application workspace and to our future plans. We would like to proceed with development of the application workspace according to customer requirements. If you have suggestions or comments, we would greatly appreciate your feedback at the following address:

<http://www.softwareag.com/natural/contact.htm>

XML Toolkit

The XML Toolkit enables developers to process XML documents within Natural. The toolkit includes a wizard which generates Natural source code that provides the following features:

- Mapping Natural data definitions to DTDs;
- Serializing a Natural data structure and assigning its contents to an XML file;
- Mapping DTDs to Natural data definitions;
- Parsing an XML file and assigning its contents to a Natural data structure.

New Features in the Natural Studio User Interface

Dialog Wizard

The Dialog Wizard is a tool for creating dialogs for specific purposes. There are three types of dialogs which can be adapted to your requirements:

- Frame Dialog, applicable in an application frame.
- Selection Dialog, applicable for reading, saving or opening objects.
- Tab Dialog, applicable in a help dialog or for option settings.

Properties for Natural Objects

A Properties dialog displaying statistical information is available via context menu in the application workspace and the library workspace for every node.

Common Status Bar for Natural Studio

There is now one status bar common to all Natural editors. The old status bars may still be used if desired.

Results Interface

The Results Interface enables programmers to display data within the Results window. The design and the usage of tabs can be determined via user exits. The Results Interface and the Results window are both accessed from Natural Studio. For further information, see the topic Results Interface in the Natural Studio documentation.

Natural Studio Plug-ins and the Plug-In Manager

The Natural Studio user interface is extensible by plug-ins. Plug-ins can be activated and deactivated with the Plug-In Manager. Part of the Natural Studio functionality itself is delivered in the form of plug-ins (for example, the XRef GUI Client). A sample plug-in is delivered in source code in the library SYSEXPLG. For further information about Natural Studio Plug-ins and the Plug-In Manager, see the section Plug-In Manager in the Natural User's Guide.

Note:

With the current version of Natural Studio the plug-in interface is not released for external use. The interface will be further extended and possibly modified in upcoming versions. It is therefore not recommended that you implement your own plug-ins with the current version.

New Features in the User Interface for Natural Applications

Common Controls

The standard windows toolbar and status bar controls are now supported. Multiple toolbar controls can be defined per dialog, which can be dockable and/or floatable and can contain child controls. The status bar control can contain multiple panes, each of which may be independently modified (e.g. disabled) and can contain an icon.

Signals

User interface commands can now be independently-defined as "signals", and referenced by any number of toolbar or menu items. This minimizes program maintenance overhead in situations where the same command needs to be accessible from several places (e.g. from a menu bar submenu item, a toolbar item and a context menu item).

Cool Menus

Bitmaps can now be defined for menu items, which are displayed if the containing submenu or context menu is marked as a "cool menu".

Portable Generated Programs - GPs

GPs which are cataloged with Natural Version 5 are now portable across any Natural-supported UNIX, OpenVMS and Windows platform. This means that GPs which are cataloged with Natural Version 5 are now executable with Natural Version 5 on these platforms without recompilation. This feature simplifies the deployment of applications across open systems (UNIX, OpenVMS and Windows) platforms.

Natural applications generated with Natural Version 4 or Natural Version 3 can be executed with Natural Version 5 without cataloging the applications again (upward compatibility). In this case, the portable GP functionality is not available. To make use of the portable GP and other improvements, cataloging with Natural Version 5 is required.

Command processor GPs are not portable.

The portable GP feature is not available for mainframe platforms. This means that Natural GPs which are generated on mainframe computers are not executable on UNIX, OpenVMS and Windows platforms without recompilation and vice versa.

For further information, see the section Portable Natural Generated Programs in the Programming Guide.

Entire System Server Interface

With Natural Version 5.1.1 for Windows, you can access Entire System Server (ESY) on the mainframe via the Entire System Server Interface (ESX) using the PROCESS statement. Entire System Server is a Software AG product that makes mainframe operating system information and system services available to the user, whether it be an application developer, systems programmer, or computer operator. Entire System Server provides a logical view of the operating system in much the same way as a database management system such as Adabas.

For demonstration purposes, an example application SYSNPE is available with Natural Version 5.1.1.. SYSNPE contains sample Natural programs to illustrate the usage of operating system resources for the supported mainframe platforms OS/390, VSE/ESA and BS2000/OSD.

For further information on Entire System Server functionality, see the Entire System Server Overview in your mainframe documentation, the section PROCESS in your Natural Statements documentation and the section ESXDB in your reference documentation for parameters.

Prerequisites and installation instructions are documented in the section Setting Up the Entire System Server Interface in Installing Natural Version 5.1.1 for Windows.

New Parameters

ENDIAN

The ENDIAN parameter is used to increase the execution performance of portable GPs. The ENDIAN parameter determines the endian mode in which a portable GP is generated during compilation. There are three possible settings of the parameter:

DEFAULT	The endian mode of the machine on which the GP is generated.
BIG	Big endian mode: the high-order byte of the number is stored in memory at the lowest address, and the low-order byte at the highest address (the big end comes first).
LITTLE	Little endian mode: the low-order byte of the number is stored in memory at the lowest address, and the high-order byte at the highest address (the little end comes first).

For further information, see the section Portable Natural Generated Programs in the Programming Guide and the section ENDIAN in your reference documentation for parameters.

ESXDB - Natural Configuration Utility

The ESXDB parameter specifies the database ID used for Entire System Server's DDMs.

For further information, see the section ESXDB in your reference documentation for parameters.

REMOVE_USER_DOMAIN for .ini Files - Natural Web Adapter Server Extension

The parameter REMOVE_USER_DOMAIN is used to remove the domain name from an IIS user ID so that it can be passed to any server running Natural Security. For further information, see the topic Natural Web Server Extension Settings in the section Natural Web Server Extension - Initialization File in the Natural Web Adapter Server documentation.

New Natural Statements

REQUEST DOCUMENT

The REQUEST DOCUMENT statement gives you the means to access a document in an external system/on an external HTTP server. See the section REQUEST DOCUMENT in your Natural Statements documentation.

PROCESS

The PROCESS statement is used in conjunction with Entire System Server (mainframe only) via the Entire System Server Interface. See the section PROCESS in your Natural Statements documentation and the section Getting Started in the Entire System Server User's Guide (part of your mainframe documentation).

New System Commands

MAP and UNMAP Commands

These commands are used for remote development only.

The MAP command enables you to establish a connection to a development server using the command line.

You can use the UNMAP command to disconnect a session on a mainframe development server. When issued in the command line, the UNMAP command disconnects the currently active remote environment.

For further information, see the sections MAP and UNMAP in the command reference documentation.

UNLOCK Command

This command is used for remote development only. It enables you to view locked objects and unlock them if required.

Although this command is recommended for use by the Natural administrator only, he can enable its use for selected user profiles in Natural Security.

For further information, see the section UNLOCK in the command reference documentation.

New User Exits

NATRPC01

You can now use the new user exit NATRPC01 (described in the Natural Remote Procedure Call documentation) instead of using error transactions. Natural RPC does not offer the use of error transactions on the server side. Although it is possible to define an error transaction, control will never be passed in the event of an error.

USR2032N

With the new user exit USR2032N, Natural provides the same functionality as an EntireX client, that is, the commit option is set for the next CLOSE CONVERSATION statement. This means that an implicit END TRANSACTION is issued on the server side when the conversation is closed.

This enables you to write an application on the server without using explicit END TRANSACTION statements, this

application being callable from a Natural client as well as from an EntireX client.
The user exit has to be called before the next CLOSE CONVERSATION statement is executed.

USR5001N - USR5016N

The user exits USR5001N - USR5016N for the Results Interface can be found in the library SYSEXT. An example of the various functions is available in USR5001P with the command handles in USR5001A and USR5001B.

Changes and Enhancements

This section covers the following topics:

- General Enhancements
- Natural Studio User Interface Enhancements
- User Interface Enhancements for Natural Applications
- Parameter Enhancements
- Statement Enhancements
- Utility Enhancements
- Nat Web Interface

General Enhancements

Steplibs

*STEPLIB is only considered as a steplib when the user is in a FUSER library. The location of the library given as LSTEP is derived from its name. Apart from the library SYSTEM, libraries SYSxxx are assumed to be in FNAT and other libraries are assumed to be in FUSER.

Natural Studio User Interface Enhancements

Extended Options Dialog

Now all options for Natural editors, the Output window and the workspace can be set and centrally administered in the Options dialog (accessible from the Tools menu).

Extended Profiling

Now the following information is saved at logout and restored at login:

- Map Environment information
- Applications mapped in the application workspace
- Breakpoints, watchpoints and watch variables in the Debugger.

Library Workspace

The library workspace has been modified to include the Remote Development capability introduced with Natural's Single Point of Development. For further information, see the topic Library Workspace under Main Components in the Natural Studio documentation.

User Interface Enhancements for Natural Applications

Enhanced Bitmap Handling

Bitmaps can now be defined as transparent, implying that pixels in the specified background color are not drawn. Transparent bitmaps are supported for bitmap controls, toolbar items and cool menu items. In addition, improvements have been made in the image quality and redraw speed of scaled bitmaps.

Accelerators

The range of possible accelerators definable for dialog elements has been extended. Examples of accelerator keys which are now possible are "Ctrl+Alt+S", "Shift+Enter" and "Delete".

Removed Restrictions

It is now generally possible to send an event to a dialog when another event for the same dialog is already in progress, without a NAT6140 error occurring.

Edit areas can now contain more than 30000 characters. The actual limit now depends on the operating system and memory configuration.

Parameter Enhancements

USIZE

USIZE minimum and default size have changed from 1 MB to 10 MB. You can leave the USIZE parameter set to 1MB, but the next time you change the setting in any way, Natural will only accept 10MB as a minimum value. If USIZE is set to zero, memory capacity is unrestricted.

Statement Enhancements

INTERFACE

The new EXTERNAL clause is used to mark an interface as implementation of an interface that is declared in a different class. The new ID clause in the METHOD and PROPERTY definitions can be used to explicitly assign specific Dispatch IDs to methods and properties, where this might be required. Both enhancements support the re-implementation of externally defined COM interfaces in a NaturalX class. See the sections INTERFACE and DEFINE CLASS in the Natural Statements documentation.

Utility Enhancements

Interaction with a Remote Development Server

Most of the Natural Studio graphical utilities and system commands are enabled to interact with a remote development server. Some Natural for Mainframes specific utilities for which Natural Studio does not offer a graphical user interface are made available by the terminal emulation.

SYSRPC

The SYSRPC user interface has been completely revised. Data is now arranged in a tree view from which actions such as modifying data or pinging servers can be executed. The Service Directory is saved as XML formatted Natural text, the previous format (as subprogram NATCLTGS) is still supported and needed by RPC runtime, when using stubs. The service directory can now be generated in the user's current library.

When mapped to a Remote Development server, you can generate both the Service Directory and stubs in your current user library. The number of entries that can be handled remotely is restricted to 280 for the Service Directory and 182 for stubs.

For further information, see the SYSRPC documentation.

Natural Configuration Utility

The following changes have been applied to the Natural Configuration Utility:

1. There is a new parameter ESXDB at the following location:
Natural Parameter Files/NATPARAM/Product Configuration/Entire System Server
2. The tree view node
Natural Parameter Files/NATPARAM/Product Configuration/ETP
has been renamed to
Natural Parameter Files/NATPARAM/Product Configuration/Entire Transaction Propagator
3. The tree view node
Natural Parameter Files/NATPARAM/Client Server/Remote Debugging
has been moved to
Natural Parameter Files/NATPARAM/Natural Development Environment/Remote Debugging

Natural Web Interface

HTML to Natural Conversion Program - HTML2NAT

The conversion program HTML2NAT has been integrated into Natural and is no longer a stand-alone program. The HTML to Natural utility can now be accessed via the new dialog (program HTML2NAT) in the Natural library SYSWEB (Windows NT only). This means that you do not have to import the generated programs into Natural as they are saved and stowed directly in a Natural library.

The utility includes Class Update for DCOM access and access to the new Natural Web Online Test Utility, the output of which can be displayed with a browser.

Now, not only the <Natural> </Natural> Tags can be used but also ASP-like script commands which are differentiated from text by the <% and %> delimiters.

For further information, see the Natural Web Interface documentation .

Renamed Programs in Library SYSWEB

Programs starting with NAT-* in the library SYSWEB have been renamed to WEB-* for improved consistency.

Now the only elements in the library SYSWEB starting with NAT-* are subprograms which can be called from the Internet.

All elements in the library SYSWEB starting with WEB-* are online utilities which are called from the command line.

Natural and Tamino

This section covers the following topics:

- Example SYSEXINO
- Tamino Server Extensions

Example SYSEXINO

The example at library SYSEXINO has been extended to work together with the Tamino Server Extension example delivered in the library SYSEXSXS. It is now possible to change the name of the Tamino Collection used. For further information about the Tamino Server Extension example see the following paragraph.

Tamino Server Extensions

Tamino Server Extensions based on COM can be developed with Natural. This requires Tamino version 3.1. An example of a Natural based Tamino Server Extension is contained in the library SYSEXSXS. This library also contains modules that support the development of your own Tamino Server Extensions. The sample Tamino Server Extension in SYSEXSXS can be driven comfortably using the Tamino DOM Demo application contained in the sample library SYSEXINO. See the section Tamino Server Extensions in the Natural User's Guide for information on how to run the example and how to develop your own Tamino Server Extensions with Natural. See the Tamino documentation for general information about Tamino Server Extensions.