

NOMAD

Release Overview NOMAD 2008

(NOMAD 7.53
IUT 0803)

Printed: April 2008
Order Number: N2RO-753



© 2008 by Select Business Solutions, Inc. All Rights Reserved.

Information in this document is subject to change without notice. This document may not, in whole or part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form without prior written consent of Select Business Solutions, Inc.

NOMAD is a registered trademark of Select Business Solutions, Inc. Assistant, Collection, Front & Center, NAPA, One Pass, QLIST, Reporter, RP/Server, RP/Web, Run-Time, Select Business Solutions, Session Manager, Toolkit, UltraQuest and Viewtool are trademarks of Select Business Solutions, Inc.

Because of the nature of the material, numerous hardware and software products are mentioned by their trade names in the publication. In most, if not all, cases these designations are claimed as trademarks by their respective companies. It is not the publisher's intent to use any of these names generically, and the reader is cautioned to investigate all claimed trademark rights before using any of these names other than to refer to the product described.

Select Business Solutions

Select Business Solutions provides a number of software products that specialize in reporting and application development for mainframe data sources.

NOMAD 2008 is Select Business Solutions' latest NOMAD release. It contains several new features to provide additional functionality, plus NOMAD maintenance Version 7.53, for the base NOMAD Version 7.50.

NOMAD® is Select's flagship, fourth generation language (*4GL*) and data management system used by companies worldwide through a Windows 3270-style interface.

NOMAD Reporter™ is Select's 4GL-based product for reporting-only access to a variety of mainframe data sources.

UltraQuest™ provides a Web-based interface to the mainframe for reporting, as well as for application development and delivery. An integral component of UltraQuest is the UltraQuest 4GL, which is also available in the NOMAD product.

Through many years of experience dealing with mainframe environments and its data, Select provides a comprehensive suite of products to maximize your investment in this platform.

Introduction to This Document

Audience

This document is for all UltraQuest and NOMAD users on the z/OS and z/VM operating systems.

Goals

This document provides an overview of the new features and enhancements introduced with NOMAD 2008.

A brief description of each new feature and enhancement is presented in this Release Overview. More detailed information is provided in the *NOMAD Documentation Updates Addendum*, Version 7.53, and in the *UltraQuest and NOMAD Reference Manual*¹ or the appropriate supplemental guide.

1. Version 7.53 of the *UltraQuest and NOMAD Reference Manual* and other guides are provided on the *UltraQuest and NOMAD Online Library* CD-ROM.

Installation Enhancements

IUT 7.53 Media

Select Business Solutions offers the IUT on tape cartridge, CD-ROM, and electronically from the Select Business Solutions Web site.

Refer to the *NOMAD Interim Update Tape Getting Started* for instructions on preparing the media for installation.

\$NOMOPTS Changes (z/OS Only)

In order to simplify setting up the UltraQuest and NOMAD Java and JDBC Interfaces, the Java-specific options JNIVERS, JHEAPI, JHEAPM, CLSPATH, and LIBPATH have been removed from \$NOMOPTS. All of these options may be specified with the 4GL JAVASYSTEM command.

Controlling the Environment

OPTION LISTOUTPUTFIXTO Command

The OPTION LISTOUTPUTFIXTO command allows you to specify a character to display in place of unprintable characters, such as binary zeroes, in LIST output.

OPTION SORTTEMPALLOC Command (z/OS Only)

The OPTION SORTTEMPALLOC command allows you to specify allocation parameters for temporary sortwork data sets. This is especially useful for large sorting needs. Supported allocation keywords are:

BLOCK	TRACKS
CYLINDERS	UNIT
SPACE	VOLUME
STORCLAS	

OPTION SORTPERM Command (z/OS Only)

The OPTION SORTPERM command allows you to disable or re-enable use of pre-allocated sortwork data sets, if the use of pre-allocated sortwork data sets has been enabled with the \$NOMOPTS SORTWORK=YES installation option.

Use OPTION SORTPERM OFF to bypass the use of pre-allocated sortwork data sets and use only temporary dynamically allocated sortwork data sets if more disk sortwork space is needed than is available in any currently active, writable database.

OPTION SORTWORKDETAIL Command (z/OS Only)

The OPTION SORTWORKDETAIL command allows you to display informational messages about the sortwork data sets being allocated.

The SYS2203 message displays the size, unit type, volume serial number, and data set name of each sortwork data set as it is allocated. The message is displayed for both installation pre-defined sortwork data sets and temporary sortwork data sets. This information is useful for determining and tuning the amount of DASD sortwork space needed for a particular job or report.

Performing Calculations

CHANGECP Function

Numerics and upper- and lower-case Roman characters share the same EBCDIC value for most European and U.S. code pages. However, accented characters and punctuation marks, e.g. !, <, and], do not. If your application will be generating strings that contain such characters (e.g. JavaScript), and it will be run on other mainframes using a code page that is different than the development machine, the CHANGECP function can be used to generate the correct EBCDIC value of the code string for that machine.

CONFORM Function Requires Two Arguments

Behavior Change

Prior to Version 7.53, NOMAD did not verify that the CONFORM function contained two arguments, resulting in unpredictable results. This has been corrected in Version 7.53. Now, if you run an application that uses CONFORM with only one argument, you will see the error message “EVA0119: CONFORM not enough parameters.”

**DDQUERY Function—
New Attributes**

The DDQUERY function can be used to determine if an item uses the UNSIGNED parameter.

With the JDBC Interface, the DDQUERY function can be used to determine the remote name used to access a remote SQL table or view, and the SQL catalog and schema for a remote SQL master.

**DSNAME Function—
Building a Data Set Name
(z/OS Only)**

The DSNAME function takes file naming parameters and returns a data set name based on your site's file naming standards as specified in \$NOMOPTS.

**QUERY Function—New
Attributes**

The QUERY('LISTOUTPUTFIXTO') function returns the current value of the OPTION LISTOUTPUTFIXTO command, which sets the character to display in place of unprintable characters in LIST output.

On z/OS, the QUERY('SORTTEMPALLOC') function returns the current value of the OPTION SORTTEMPALLOC command, which specifies allocation parameters for temporary sortwork data sets.

On z/OS, the QUERY('SORTWORKDETAIL') function returns the current value of the OPTION SORTWORKDETAIL command, which allows you to display information about sortwork data sets being allocated.

On z/OS, the QUERY('SORTPERM') function returns the current value of the OPTION SORTPERM command, which allows you to disable or enable use of pre-allocated sortwork data sets, if they are enabled with the \$NOMOPTS SORTWORK=YES installation option.

The QUERY('TIMEZONE') function returns the offset of the mainframe's time zone from UTC (Coordinated Universal Time, often referred to as Greenwich Mean Time.) The value returned is in TIME format (i.e. in milliseconds).

Building and Using a Database

DBCONCAT Command with VSAM Data

The DBCONCAT command can be used to join the data from two or more VSAM data sets (z/OS) or files (z/VM) with the same logical structure for reporting.

To specify that VSAM files are being concatenated with this command, the DDNAME parameter has been added for use with the DBEXTENTS parameter. This parameter allows you to specify the VSAM data sets to be concatenated.

The new SORTED parameter indicates that VSAM data sets are concatenated in key order. This parameter is required to enable the EXTRACT function to work against concatenated VSAM files.

The system &variable &DBC COMPONENT contains the name of the currently accessed STANDARD/BTREE component of a concatenated database, or the *file-id* of a the currently accessed VSAM component of a concatenated database. This &variable is set only when used in a segment DEFINE.

For more information, refer to the *NOMAD Documentation Updates*.

DBCONCAT Command with Databases

Behavior Change

To specify that STANDARD or BTREE files are being concatenated with the DBCONCAT command, the DATABASE parameter has been added for use with the DBEXTENTS parameter. This parameter is optional, so no changes need be made to existing STANDARD or BTREE database concatenations.

For more information, refer to the *NOMAD Documentation Updates*.

PROFILE Statement— LIBRARY ANY Parameter (z/OS Only)

Prior to Version 7.53, the 4GL required an unscrambled database profile to be under the same prefix as the database data set.

The PROFILE statement has a new LIBRARY ANY parameter that allows an unscrambled database profile to be under a different prefix than the database data set.

MASTER Statement— TYPE BTREE

Documentation Clarification

The maximum record length for a BTREE data record is 21,842 bytes, because of internal components needed for BTREE structures.

**ITEM Statement—
UNSIGNED Parameter for
Packed Items**
(Non-SQL External Files Only)

The UNSIGNED parameter of the ITEM statement can be used on a packed (*Pn.m* or *EPn.m*) item in a non-SQL external file (e.g. VSAM) to specify that it is an unsigned packed item. Specifying UNSIGNED allows smart SELECT and RKEY to operate on unsigned packed keys.

Updating a Database

**DBCHK Command
Displays VTREE Index
File Name (z/VM Only)*****Behavior Change***

When a DBCHK is run against a database that contains a varying-length array or TEXT item, the information displayed includes the filename, file type, and file mode of the VTREE data file. With Version 7.53, the information now includes the filename, file type, and file mode of the VTREE index file.

Database Utilities

**DBREORG Command—
Database VTREE Files*****Behavior Change***

The DBREORG command now recreates the index files for varying-length arrays and TEXT items.

Note that, for database containing VTREE items, a DBREORG of a database that is done in place, e.g. without a MOVE, TODISK, or NOMTEMP parameter, will require more space in Version 7.53.

Manipulating and Transferring Data

CREATE FOR CHART Facility

Behavior Change

Greenpoint, Inc. significantly changed the WebCharts3D product in its Version 5.1 release. Earlier versions of WebCharts3D are no longer supported by NOMAD and UltraQuest.

Existing 4GL procedures that create charts must be modified to work with WebCharts3D Version 5.1.

The *UltraQuest and NOMAD CREATE FOR CHART Guide* has been updated for use with WebCharts3D Version 5.1.

CREATE FOR SAS Command

Item names generated with the CREATE FOR SAS command can now be up to 15 characters long, to match the length of a NOMAD item name. Prior to SAS Version 7, item names were limited to eight characters.

Writing Procedures

SLIST QUERY Command—New Attributes

The SLIST QUERY command can be used to determine if an item uses the UNSIGNED parameter.

With the JDBC Interface, the SLIST QUERY command can be used to determine the remote name used to access a remote SQL table or view, and the SQL catalog and schema for a remote SQL master.

TRACE FILE Command— To an Open File (z/VM)

You can now issue a TRACE FILE command to a file that has already been written to. In this situation, the attributes will be set as of the first WRITE, and will not be overridden by the TRACE command. If the file has not been written to when the TRACE FILE command is issued, the TRACE FILE command may override its attributes.

z/OS Considerations

JPG Supported as a Library Type (*z/OS Only*)

As of Version 7.53, JPG is a supported library type, manageable with the 4GL LIBRARY command. This allows the 4GL to find JPG files used as images in PDF files.

System & Variables

&CODE_PAGE

&CODE_PAGE contains the number of the EBCDIC code page to be used by the TRANSFORM command when writing a PDF or HTML file.

If the value is not *notavailable* and the CODEPAGE parameter of the TRANSFORM command is not specified, the value of &CODE_PAGE is used by the TRANSFORM command.

&CODE_PAGE is also used with the EMAIL command to generate the correct form of the default FROM e-mail address if no FROM e-mail address is provided in the code.

&DBC COMPONENT

&DBC COMPONENT contains the name of the currently accessed STANDARD/BTREE component of a concatenated database, or the *file-id* of the currently accessed VSAM component of a VSAM concatenated database.

NOMAD Session Manager

GMTO Displays UltraQuest User and Transaction Information (*z/OS Only*)

UltraQuest Sites

From the GMTO panels, a user can now toggle to see UltraQuest session information (the UltraQuest remote user, UltraQuest transaction names, and the start date and time of the transactions) on the primary display panel. This information can also be viewed from the detail panel and is available for Sort, Find, and similar operations.

This makes it easier to identify which NSM session a particular user's transaction is assigned to. This is particularly useful when UltraQuest has been implemented as a shared server.

Sample GMTO panels showing UltraQuest session information are shown in the section "Troubleshooting" in Chapter 5 in the *UltraQuest Administrators Guide*.

Formatted Output Facility

Images in Formatted PDF Output

Formatted PDF requests can contain one or more graphical images, such as a company logo, that appear on every page of the request, giving the appearance of stationery with a logo or watermark. An image can be used to enhance the appearance of the request. An image provides a method of ensuring the validity and security of the data. This is accomplished by adding an image that cannot be extracted from the PDF and prohibiting modification of the PDF. The PDF can only be viewed or printed, so the appearance of the image guarantees the source of the data.

The position of the image is defined in a template (UQ Style Sheet) and appears in the same location on every page of the request. A user can specify the initial placement and repetition across and down the page in the template. The image is placed in the background and the text is written in the foreground.

Following is a sample of PDF output using the SELECT JPG centered at the top of the page:



The image shows a sample PDF output. At the top, there is a logo for "Select Business Solutions" with a stylized 'S' icon. Below the logo, the text "Created using UltraQuest PDF Support" is visible. The main content is a table titled "Employees" with the following data:

DEPARTMENT	EMPLOYEE	ID	TITLE	HIRED
CUSTOMER SERVICE	SANFORD YOUNG	1103	SENIOR SUPERVIS	17JUN94
	MICHAEL KRESSNER	1106	MANAGER	01OCT91
HUMAN RESOURCES	NANCY HAGGERTY	1107	DIRECTOR	01MAR86
LEGAL	ERIC RICHARDS	1105	SENIOR COUNCIL	17MAY80
	CHARIS JAMISON	1109	MANAGER	08JUL83
MARKETING	NANCY MANN	1104	PRODUCT MANAGER	14MAR91
	DANA DOONEY	1110	PRODUCT CONSULT	28AUG90
PRODUCT DEVELOPMENT	HARVEY SABEL	1101	MANAGER	26FEB85
	NORMAN BASS	1108	SR. PROGRAMMER	21SEP91
	CRAIG JOHNSON	1111	N/A	30APR87

**TRANSFORM Command
Translates Unprintable
Characters to Tildes*****Behavior Change***

The TRANSFORM command translates unprintable LIST...XML output, such as binary zeroes, to tildes (~), using the OPTION LISTOUTPUTFIXTO command.

**TRANSFORM LISTXML
TO HTML Command
Supports Different Code
Pages**

The CODEPAGE parameter has been added to the TRANSFORM LISTXML TO HTML command. Previously, CODEPAGE was only allowed with PDF. The code page is honored when generating the JavaScript that is part of the generated page.

Enhancements to the UltraQuest and NOMAD Collection

COPYBOOK Utility

COPYBOOK Enhancements

You can now edit the configuration file, CBCONFIG, and view the generated schema from within the COPYBOOK environment. This allows you to generate a schema, view the schema, modify the configuration settings, and re-generate the schema within the same COPYBOOK session. This eliminates the need to reload and re-analyze the COPYBOOK source.

The method of removing and replacing prefixes in master and item names has been changed in Version 7.53. In CBCONFIG, the *Prefix_Removal* variable, which specified how COPYBOOK should handle the prefix that is entered in the *Prefix to remove* field of the Transformation Options form, has been replaced by a *Name options* section. The *Name options* section allows multiple occurrences of string conversion and string removal. Conversion can be of delimited words only, prefixes starting in the first column, or any occurrence of the string. Using the *String* option is more flexible than using the *Prefixes to remove* option on the Transformation Options form.

The processing COPYBOOK performs to translate COBOL table and field names that are more than 15 characters in length into shorter 4GL names has been enhanced in Version 7.53 so that the generated names may be more meaningful.

While translating the schema, you may select one or more key items for each master. For external masters, keys specify the manner in which records are ordered. If the external master is to be used for table look-ups, the key items are essential for matching purposes.

For an unsigned packed COBOL field, COPYBOOK includes the new UNSIGNED parameter on the ITEM statement in the generated schema. If you make this item a key item, it can be used in smart SELECT and RKEY operations.

For more detailed information on behavior changes and enhancements to the COPYBOOK utility, refer to the *NOMAD Documentation Updates Addendum*.

Enhancements to the UltraQuest and NOMAD Java Interface (z/OS Only)

Java Interface Requires Java 2 SDK Version 1.4 or Higher

Behavior Change

As of Version 7.53, the UltraQuest and NOMAD Java Interface requires Java 2 at SDK Version 1.4 or higher. This includes Java 5 and Java 6. With this requirement, you should ensure that your Java applications use the JNIVERSION parameter of the 4GL JAVASYSTEM command to set the JNI version to *1.4*. For example:

```
javasystem base jniversion 1.4 ;
```

Java Environment Options Removed from \$NOMOPTS (*Existing NOMAD Sites Only*)

Behavior Change

In Version 7.53, the JNIVERS, JHEAPI, JHEAPM, CLSPATH, and LIBPATH options have been removed from \$NOMOPTS. All of these options may have been specified with the 4GL JAVASYSTEM command.

- ❖ ***Important:*** In Version 7.53, you may continue to use these options in \$NOMOPTS and they will be honored. However, since these options are being phased out in the next release of NOMAD, it is recommended that you remove them from \$NOMOPTS and code them in the 4GL secure system profile, @SYSTEM.

During the installation of the Java Interface, a new sample procedure, N2@SYS, is provided, which contains sample JAVASYSTEM commands and instructions on how to code them for use at your site. N2@SYS is then merged into your site's secure system profile.

Select-supplied Class Libraries

Behavior Change

With Version 7.53, the selectbsBase.jar and selectbsICOM.jar libraries are required to use the Java Interface. Also, the names of the Select-supplied class libraries have been changed. Refer the *NOMAD Documentation Updates Addendum* for more information.

JAVASYSTEM Command

The JAVASYSTEM command has been enhanced to specify a directory for JVM initialization errors.

There is also a JAVASYSTEM CORE command, with the same syntax as the JAVASYSTEM USER command. JAVASYSTEM CORE controls the CORE JVM, which is used internally by NOMAD for Java-based features such as the JDBC Interface. For more information about the JDBC Interface, refer to “New UltraQuest and NOMAD JDBC Interface.”

In addition, the JAVASYSTEM BASE command should now be used instead of \$NOMOPTS. For more information, refer to the earlier section “Java Environment Options Removed from \$NOMOPTS.”

New UltraQuest and NOMAD JDBC Interface (z/OS Only)

Introduction to the JDBC Interface

The JDBC Interface uses the NOMAD Java Interface and the standard Java Database Connectivity (*JDBC*) method to access remote SQL data on a mid-tier server. The JDBC Interface currently provides read-only access via 4GL commands to Microsoft SQL Server tables and Oracle tables. The JDBC Interface enables you to perform the following activities with remote SQL tables and views:

- Use the 4GL LIST and CREATE commands directly against remote SQL tables.
- Combine UltraQuest or NOMAD masters and SQL tables into one set of output data, such as a report or database.
- Query which remote schemas and tables are available to a specific user.

Users need not be aware that some portions of the data they are reporting from actually reside in a mid-tier database.

The JDBC Interface is available in the z/OS environment and runs under NOMAD Session Manager, TSO, and batch².

The JDBC Interface uses a Java Virtual Machine named CORE, which is configured with the JAVASYSTEM command.

For more information, refer to the new *UltraQuest and NOMAD Interface Guide For JDBC*, which is provided on the *UltraQuest and NOMAD Online Library* CD-ROM.

2. The ability to run interactively from TSO or NSM depends upon the region size of these interactive sessions.

Enhancements to Systematics Interface

Systematics Interface

The UltraQuest and NOMAD Systematics Interface provides the ability to use NOMAD or UltraQuest to access data in the Systematics suite of retail banking applications from Fidelity National Information Services, Inc. It consists of the following two components:

- the Loan Customers product, which provides access to the ALS-SM (*Advanced Lending Solutions*) and RM (*Relationship Management*) master files
- the Deposits and Collections product, which provides access to the IMPACS (*Integrated Monetary Processing Account System*), KO (*Collections*), ST (*Savings Time*), and ST Plan files

Access to FMS (*Financial Management System*) files is provided with either of the above components.

The following new features are described in the latest version of the *UltraQuest and NOMAD Systematics Interface and Install Guide*.

Deposits and Collections Enhancements

Version 7.53 includes the following enhancements to the Deposits and Collections product:

- a new, more efficient method of associating 4GL masters with the appropriate exit routine
- a new command to assist in resolving configuration problems with the *expansion* exit routines
- the ability to access QSAM extracts of the original VSAM files
- the ability to have multiple 4GL masters access the same Systematics file
- the ability to write your own *expansion* routines³

Loan Customers Enhancements

Version 7.53 includes the following enhancements to the Loan Customers product:

- support for repeating segments
- support for the ALS Accumulated Transactions (History) file³

3. These are add-on features that must be requested from your account representative.