

NOMAD

Release Overview NOMAD 2005

(NOMAD 7.52
IUT 0509)

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Select Business Solutions

Select Business Solutions provides a number of software products that specialize in reporting and application development for S/390 data sources.

NOMAD 2005 is Select Business Solutions' latest NOMAD release. It contains several new features to provide additional functionality, plus NOMAD maintenance, Version 7.52, 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 S/390 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 the S/390 platform.

Introduction to This Document

Audience

This document is for all UltraQuest and NOMAD users on the z/OS¹ and z/VM¹ operating systems.

Goals

This document provides an overview of the new features and enhancements introduced with NOMAD 2005.

A brief description to each new feature and enhancement is presented in this Release Overview. More detailed information is provided in the *NOMAD Documentation Updates Addendum*, Version 7.52, and in the *UltraQuest and NOMAD Reference Manual*² or the appropriate supplemental guide.

1. All references to z/OS also apply to OS/390. All references to z/VM also apply to VM/ESA.

2. Version 7.52 of the *UltraQuest and NOMAD Reference Manual* and other guides are provided on the *UltraQuest and NOMAD Online Library* CD-ROM.

Installation Enhancements

Specify a Prefix for Pre-allocated Sortwork Data Sets (*z/OS Only*)

Prior to Version 7.52, pre-allocated SORTWK data sets were required to be allocated using the prefix specified in N2SHARE. This required users to have update access to N2SHARE, which, for most sites, was not desirable.

The new SORTPFX option in \$NOMOPTS allows a site to specify a prefix to be used for pre-allocated SORTWK data sets.

Reporting

Formatted Output Facility—PDF Output

The new PDF output facility allows you to produce:

- simple plain text PDF output
- formatted PDF output using templates

PDF documents can be viewed and printed from the Adobe® Reader®. The PDF can also be sent as an e-mail attachment.

Simple Plain Text PDF Output

Plain text reports can be rendered as PDF output using a fixed non-proportional font. For enhanced readability, greenbars can be added to mimic classic printer output.

The process of creating a simple formatted output report by converting plain text output to PDF is very straightforward. This is the simplest way to obtain a formatted report:

1. Produce a LISTING file by running a regular (non-XML) report request (a LIST command).
2. Run a post-processing command, TRANSFORM, to convert the LISTING file to a PDF file.

Simple formatted output reports can be produced with new or existing 4GL report procedures. No modifications are needed to the existing LIST request to use this feature.

The 4GL TRANSFORM command has been enhanced to generate a PDF file from a LISTING file produced by a regular LIST command.

This style of conversion is known as *Text to PDF*. It does not use templates.

Course Revenue					
Course	Month	BOS	CHI	NY	TOTAL
QUALITY CIRCLES	May	1,200	0	0	1,200
	Jun	0	0	400	400
Total across Location		1,200	0	400	1,600
SITUATIONAL MANAGEMENT	Jan	0	0	7,000	7,000
	Feb	0	0	10,797	10,797
	Apr	0	8,400	0	8,400
Total across Location		0	8,400	17,797	26,197
SKILLS FOR THE NINETIES	Jan	0	0	9,000	9,000
	Mar	0	9,030	0	9,030
	Apr	0	0	8,970	8,970
	May	0	0	2,400	2,400
Total across Location		0	9,030	20,370	29,400
THEORY Z	Jan	0	0	10,000	10,000
	Apr	0	5,000	0	5,000
Total across Location		0	5,000	10,000	15,000

Formatted PDF Output Using Templates

Fully formatted reports, using templates to specify style settings for each structural element of the report output, can be rendered as either HTML or PDF. Because proportional fonts, font sizes, font weight, colors, and borders are supported, the appearance of the output is much improved over plain text.

The process of creating formatted output using templates is very straightforward:

1. An XML file containing the report data is produced by a report request (a LIST command).
2. A post-processing command, TRANSFORM, combines template style information and the XML file to produce the formatted output, which can be either an HTML or a PDF file.

The Formatted Output facility can be used with new or existing 4GL procedures. Existing reports can be adapted to run as formatted output through simple modifications to procedures. Note that reports that use special formatting techniques for mainframe printing may need to be modified to produce output that is visually pleasing when viewed through a browser or Adobe Reader.

A simple template, applied to the previous request, can produce a report in PDF format. This conversion is known as *LISTXML to PDF*.

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RUN2PDF Utility

The RUN2PDF utility is a front-end to the PDF transform process that allows a 4GL procedure to be called to produce PDF output. This utility offers a convenient way to adapt existing report procedures for use with formatted output.

The TRANSFORM command, templates, and the RUN2HTML utility are described in the *UltraQuest and NOMAD Formatted Output Guide*, which is provided as a PDF file on the *UltraQuest and NOMAD Online Library* CD-ROM.

Building and Using a Database

Mapping External Repeating Groups as 4GL Segments

Repeating groups in external files can be mapped as 4GL child segments, allowing them to maintain their natural structure, which, in turn, makes it possible to support nested repeating groups and re-definitions within repeating groups.

To support *repeating segments*, the SEGMENT statement has been enhanced to include a dimension. Repeating segments can be either fixed or varying. The new ENDSEGMENT statement indicates the end of the repeating segment definition in the 4GL schema.

With this new feature, there are now two ways to represent repeating groups in external files in a 4GL schema—REPEATGROUP and repeating SEGMENT. REPEATGROUP represents the items in the group as arrays, whereas the repeating SEGMENT statement represents them as items in dependent child segments. The repeating SEGMENT statement is more flexible, in that it supports nested repeating groups as well as item re-definitions.

Manipulating and Transferring Data

E-mailing Other Than Plain Text Data

The 4GL has been enhanced to simplify e-mailing information that is not in plain text format (7-bit ASCII).

The SMTP e-mail transmission protocol supports only 7-bit ASCII characters. This effectively limits Internet e-mail messages, when transmitted, to include only English language characters.

MIME defines methods to send other kinds of information in e-mail, including non-English languages and 8-bit binary data. MIME defines a set of e-mail headers for specifying attributes of a message, including the content type, and defines a set of transfer encoding protocols that can be used to represent 8-bit binary data using characters from the 7-bit ASCII character set. The MIME Content-Transfer-Encoding header specifies the encoding method used to represent binary data as ASCII characters.

One method of encoding binary data into 7-bit format for e-mail transmission is *base64*, which encodes an arbitrary sequence of bytes into a sequence of printable ASCII characters.

Note that although there are several transfer encoding protocols, *base64*, the most common protocol, is currently the only one supported by the 4GL.

4GL Enhancements

The 4GL EMAIL commands for input and output can use the CTRANSENCODING opcode to specify how the object within the e-mail body is encoded so that it can be included in the message in a form that allows proper transmission through e-mail.

The 4GL FILE COPY command has ENCODE and DECODE parameters that allow you to send and receive e-mail messages containing data encoded using base64 protocol. FILE COPY ENCODE is used to convert a binary file using base64 encoding into plain ASCII text to be transmitted via e-mail. FILE COPY DECODE is used to decode an e-mail message that was encoded using base64 back to binary data.

Writing Procedures

SLEEP Command

The SLEEP command can be used in procedures to set up a *wait* cycle for a specified period of time. For example, the SLEEP command can be used in a NOMAD batch job to monitor when all users have disconnected from a shared database server after issuing a SHARE QUIESCE command.

The intended use of the SLEEP command is in non-interactive situations, such as batch jobs and started tasks, where there is no requirement to prematurely awaken SLEEP before its time interval is up and cancellation is deemed as an acceptable method for terminating the job or started task.

Enhancements to the UltraQuest and NOMAD Collection

COPYBOOK Utility

COPYBOOK Enhancements

The COPYBOOK utility and documentation has undergone significant enhancements in this release.

This section is an overview of the enhancements. Refer to the COPYBOOK documentation in Chapter 3 of the *UltraQuest and NOMAD Collection Reference Manual, Version 7.52*, which is provided on the *UltraQuest and NOMAD Online Library CD-ROM* delivered with Version 7.52.

Configuring COPYBOOK

COPYBOOK now has a configuration file that allows you to set site-specific or user-specific default settings for COPYBOOK behaviors. Some of these settings can be overridden when translating a COBOL FD and when building the 4GL schema.

In the CBCONFIG configuration file, you can configure the following features:

- Mapping COBOL date fields to 4GL date items. Refer to “Mapping Identifiable Date Fields.”
- Whether the prefix to be removed is from the beginning of the record name or field name up to and including the value, or from the exact location of the value in the record name or field name.
- Whether a PERSPECT statement should be added to the 4GL schema so the external data file can be viewed and modified with the 4GL DBEDIT facility.
- Whether all COBOL level 88 records should be included in the 4GL schema as comments.

In the CBCONFIG configuration file, you can set the default values for the following features:

- The access method of the external file or data set used by the 4GL master. This is the default value for the *Type of file* field on the Transformation Options form.
- The OCCURS type used when converting COBOL tables into 4GL entities. In COPYBOOK, the OCCURS type can be specified for a one-dimensional table element or for all lowest level table elements in a nested table. Refer to “Mapping COBOL Tables.”

Both of these features can be overridden while using COPYBOOK.

Mapping Identifiable Date Fields

You can configure COPYBOOK to automatically convert COBOL date fields into 4GL date items based on a common field name identifier, thus eliminating the need to edit the schema to change the format of date items. Using three configuration variables, you can describe how COPYBOOK should identify COBOL date fields based on common literals used in field names, how COPYBOOK should map COBOL PICTURE formats to 4GL DATE formats, and what the default 4GL DATE display format should be. Use this feature if you want to be able to use the 4GL's date manipulation features.

Mapping COBOL Tables

When translating a COBOL table (OCCURS clause), the table elements can be converted to either 4GL *repeating groups* or *repeating segments*.

A *repeating group* represents the items in the table as arrays, whereas a *repeating segment* represents them as items in dependent child segments. The SEGMENT statement is more flexible, supporting both nested tables and item re-definitions.

You can specify whether a one-dimensional table is converted to a repeating group or a repeating segment.

With nested tables, COPYBOOK converts all but the lowest level table elements to repeating segments. You can specify whether the lowest level table elements should be repeating segments or repeating groups.

Table elements containing a REDEFINES clause automatically generate repeating segments.

A REDEFINES section with a table element (OCCURS clause) at the same or lower level automatically generates a repeating segment.

A table element with only one dependent data item is automatically converted to a 4GL array.

Notes to UltraQuest Sites Upgrading to NOMAD 7.52

UltraQuest Reporter Version 4.5 Requires a Patch

If your site is using UltraQuest Version 4.5 and you are upgrading to Version 7.52 of the 4GL, be aware of the following requirement:

If your UltraQuest Reporter users have large held output requests (greater than 8000 pages), your site must obtain and apply UltraQuest patch C32749 in order to access these requests. Contact UltraQuest and NOMAD Support for this patch.

UltraQuest Version 4.0 Requires a Patch (z/OS and ICOM Server Only)

If your site is using UltraQuest Version 4.0 and you are planning to upgrade to Version 7.52 of the 4GL, be aware of the following requirement:

Prior to testing UltraQuest 4.0 with Version 7.52, contact UltraQuest and NOMAD Support and request the patch for C32656.