OPEN NIAKWA DATA MANAGER
(OPEN NDM)
RELEASE V ADDENDUM

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CHAPTER 1

OPEN NDM ENHANCEMENTS

1.1   Overview

The Open Niakwa Data Manager (Open NDM) is the data management engine of the Niakwa Integrated Development Environment, or IDE. This new release of the Open Niakwa Data Manager (formerly the Niakwa Data Manager), represents an evolving product.

This chapter discusses the enhancements made to Open NDM since the release of NDM Revision 1.20.

Section 1.2 outlines the contents of Open NDM.

Section 1.3 discusses implementing the new MS-Windows 32-bit API.

Section 1.4 discusses product changes and bug corrections.

Section 1.5 discusses new additions to the Open NDM API library.

1.2   Contents

The Open Niakwa Data Manager introduces 32-bit support for the new NPL MS-Windows 32-bit RunTime product. In addition, this release introduces two new function calls to the API Library to better facilitate Year 2000 support and provides updated versions of both the Open NDM API libraries and the Open NDM Utilities. In its final form it will provide developers with a fully graphical data management facility, integrated within the Niakwa Workbench. In addition, new data access methods will be introduced in the form of NDM for ODBC/SQL and NDM for TCP/IP, further opening NPL's access to today's third party databases.

With the introduction of NPL Release V, Open NDM is now distributed as a standard component of the Niakwa IDE CD-ROM in the following directory.

   G:\NPLV_IDE\OPEN_NDM

The Niakwa CD-ROM includes a complete set of all Open NDM development files. The following files have been added or updated on this release.

NDMBTR32.DLL	New NDM MS-Windows 32-bit Btrieve Support Library
NDMPCK32.DLL	New NDM MS-Windows 32-bit Pack/Unpack Support Library
NDMBTRV.DLL	Updated NDM MS-Windows 16-bit Btrieve Support Library
NDMBTRV.QLB	Updated NDM MS-DOS 16-bit Btrieve Support Library
DND43009.ZIP	Updated NDM 386/DOS-Extender with linked Btrieve Support Library
NDMUTIL.BS2	Updated NDM Utilities
DOS12013.ZIP	Updated NDM MS-DOS BESDK
WIN12013.ZIP	Updated NDM MS-Windows BESDK
D3X12013.ZIP	Updated NDM 386/DOS-Extender BESDK

NOTE: The new NDM 32-bit MS-Windows API Libraries are distributed on all NPL Release V RunTimes.

Refer to the appropriate NDM platform specific addendum included with the Niakwa Data Manger Programmer's Guide for complete NDM installation instructions. For your convenience these manuals have been provided as PDF files on the Niakwa IDE CD-ROM in the following directory.

        G:\MANUALS\PDF_Files\NDM_Docs

The above directory contains the following documents:

NDMGUIDE.PDF	NDM Developers Guide
NDM2DOS.PDF	NDM MS/DOS/Btrieve Addendum (Rev 1.20)
NDM2UNIX.PDF	NDM SCO UNIX/C-ISAM Addendum (Rev 1.20)
NDM2AIX.PDF	NDM IBM AIX Addendum (Rev 1.20)
NDM2AS4.PDF	NDM IBM AS/400 Addendum (Rev 1.20)
NDM2ADD.PDF	NDM Revision 1.20 Addendum
NDM2NOTE.PDF	NDM Revision 1.20 Release Notes
NDM5ADD.PDF	NDM Revision 5.0 Addendum (This document)

The above PDF files may be viewed with the Adobe Acrobat Reader which is also provided on the Niakwa IDE CD-ROM. Refer to "Quick Start" instructions provided with the Niakwa IDE for details on installing the Adobe Acrobat Reader.

1.3   Open NDM 32-bit Implementation

This section discusses specific product notes related to implementing the new Open NDM 32-bit MS-Windows API library.

1.3.1   32-bit Library Configuration

For NPL Release V RunTimes (32-bit Windows), the new corresponding 32-bit external library for Open NDM must be loaded. The following libraries are now shipped on all NPL Release V RunTimes.

> NDMBTR32.DLL   New NDM MS-Windows 32-bit Btrieve Support Library
> NDMPCK32.DLL   New NDM MS-Windows 32-bit Pack/Unpack Support Library

NOTE: Only the NDMBTR32.DLL library is required to be loaded at startup. The 32-bit NDMPCK32.DLL library provides $PACK and $UNPACK functionality required by Open NDM is statically linked when NDMBTR32.DLL is loaded.

The 32-bit Open NDM library must be loaded by specifying it with the /X command line option or by using the ExternalLibraryx setting in the RTIWIN.INI file. For example:

> C:\NPL5\RTIWIN32 /XNDMBTR32.DLL NDMUTIL

or

> [General]
> ExternalLibrary1=C:\NPLV\NDMBTR32.DLL

1.3.2   Combining 32-bit and 16-bit Library Support

In many instances, it may be necessary to deploy both the open NDM 32-bit and 16-bit libraries on different workstation across a network. This section describes the configuration requirements of enabling both 16-bit and 32-bit Open NDM libraries to co-exist on a single network.

NOTE: The 16-bit and libraries are not interchangeable. The 16-bit RunTime will not support a 32-bit library, and the 32-bit RunTime will not support a 16-bit library.

The following is a sample portion of RTIWIN.INI and shows how to configure all applications to start the appropriate Open NDM library automatically:

```
[General,16]
; options apply to all apps. when running RTIWIN.EXE
ExternalLibrary1=C:\NPL\NDMBTRV.DLL

[General,32]
; options apply to all apps. when running RTIWIN32.EXE
ExternalLibrary1=C:\NPL\NDMBTR32.DLL
```

As shown, the General section can be segregated between 16-bit and 32-bit options by appending a ",16" or ",32" to the "General" section header.

Of course as before, the library may still be specified on the command line with the /X parameter as noted above.

NOTE: You are only required to specify the NDMBTR32.DLL external library in your startup routines. This statically links to the NDMPCK32.DLL library.

1.3.3   Btrieve Support

In order to use 32-bit Open NDM, a Btrieve client (version 6.15 or later) for Windows 95/98 or Windows NT must be installed on the target machine. This usually also requires adding the directory containing the Btrieve library files to the PATH specification. In particular, the Btrieve support library WBTRV32.DLL must be available in the path.

Niakwa has tested and certified the use of Open NDM with Pervasive Software Btrieve 7.0 for all available platforms, including MS-DOS, 16-bit and 32-bit Windows and Windows clients, connected to both Novell NetWare and Windows NT fileservers.

1.4   Additions to the API

Release V of Open NDM introduces two new API calls to help facilitate Year 2000 compliance. Both API functions are used in conjunction with NDM_CONVERT to allow year conversion from 2-byte to 4-byte year values, placing the proper century digits, based on an "OLDEST_YEAR" threshold value.

For example, if OLDEST_YEAR is set to 1950, then:

> a 2 digit year value of 62 would be converted to 1962, and
> a 2 digit year value of 45 would be converted to 2045.

1.4.1   NDM_GET_SHORT_DATE_CONVERSION_ERA

```
'31300 NDM_ GET_SHORT_DATE_CONVERSION_ERA
        (OLDEST_YEAR,
         CHECK_FLAG,
         RETURN_CODE)
```

Input Parameters:
None.

Output Parameters:

OLDEST_YEAR	oldest valid year in era
CHECK_FLAG	contains one of the following values:

0	date checking should not be performed
1	date checking should be performed

Description:
This function obtains the current values as set by
31418 NDM_SET_SHORT_DATE_CONVERSION_ERA.

Pre-Requisites:
None.

Currency Changes:
None.

Toolbox Features:
None.

Possible Errors:
None.

See Also:
31030   NDM_CONVERT
31418   NDM_SET_SHORT_DATE_CONVERSION_ERA

1.4.2   NDM_SET_SHORT_DATE_CONVERSION_ERA

```
'31418 NDM_ SET_SHORT_DATE_CONVERSION_ERA
      (OLDEST_YEAR,
       CHECK_FLAG,
       RETURN_CODE)
```

Input Parameters:

OLDEST_YEAR   oldest valid year in era. Must be greater than or equal to 1900.

CHECK_FLAG   contains one of the following values:

    0   date checking should not be performed
    1   date checking should be performed

Output Parameters:
None.

Description:
This function sets an 'era' for converting 2 digit years to 4 digit years when calling NDM_CONVERT. The supplied 4 digit year is the year in the range from OLDEST_YEAR to OLDEST_YEAR+99 for which the last 2 digits are the same as the 2 digit year.

If the 2 digit year being converted is greater than or equal to the value specified in OLDEST_YEAR modulo 100, then the 4 digit date would be equal to: <2 digit date> + INT(OLDEST_YEAR / 100) * 100.

For example, if OLDEST_YEAR is set to 1950, then:
   the 2 digit year 62 would be converted to 1962, and
   the 2 digit year 45 would be converted to 2045.

CHECK_FLAG is used to indicate whether checking should be performed when converting 4 digit dates to 2 digit dates when calling NDM_CONVERT. If CHECK_FLAG is set to 1 and the 4 digit year is not in the range OLDEST_YEAR to OLDEST_YEAR+99, an error is returned. For example, if OLDEST_YEAR is set to 1950, valid 4 digit years should be in the range 1950 to 2049. If CHECK_FLAG = 1, and a 4 digit native year outside this range (e.g. 2123) needs to be converted to a 2 digit year during a call to NDM_CONVERT, an error would be generated.

<u>**Conversion of special high and low values**</u>
Special values in a 2-digit year date are treated specially when converting to 4-digit:

When converting date fields, non-numeric high-values (eg HEX(FFFF)) in the 2 digit year are converted to a high-value in the 4-digit year. When converting date fields, low-values (eg "00" or less) in each of the 2-digit year, month, and day fields are converted to a low-value in the 4-digit year.

Special values in a 4-digit year date are treated specially when converting to 2-digit:

If each of the year, month and day fields are zero, a zero value is returned for the year, and if checking is enabled an error is generated. If the year exceeds the era's maximum legal value, the year of the end of the era is returned, and if checking is enabled an error is generated.

The default values are:

OLDEST_YEAR = 1900
CHECK_FLAG = 0.

Pre-Requisites:
None.

Currency Changes:
None.

Toolbox Features:
None.

Possible Errors:
107   Status must be 0 or 1

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CHAPTER 2

OPEN NDM UTILITY UPDATES

2.1   Overview

Changes to the Open NDM Utility involve using the new API calls to set a "conversion date era" (see section 1.4 for details.) Specifically, the "Set NDMUTIL Options" utility has been modified to allow the user to specify the appropriate "conversion date era" to use.