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N2O User

Reference Card

This Reference Card is applicable to **Users** of the NATURAL Organizer (N2O) Version 5.x software package. This version of N2O incorporates support for NATURAL 3.1, ADABAS 7, and PREDICT 4.

N2O is a Change Management tool used to control the maintenance and migration of DDMs, NATURAL objects, SYSERR messages, and PREDICT Metadata and objects throughout an Application Life Cycle.

N2O/3GL supports the migration of 3GL objects by interfacing with LIBRARIAN, PANVALET, ENDEVOR, and the IEBCOPY utility for MVS PDS.

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N2O Migrations

1. Enter “N2O” on the Command line of the NATURAL Main Menu or enter "N2O MIG REQ" and proceed to step 5.
2. Press Enter to display the N2O Main Menu.
3. Enter code “M” and press Enter to invoke the Migration Subsystem.
4. Enter code “R” and press Enter to invoke the Request Events Menu.
5. Enter "A" in the Enter Code field, the Master Event of the Event to be added in the Event field, and "D" (DDMs), "N" (NATURAL objects), "S" (SYSERR messages), "P" (PREDICT objects), "M" (PREDICT Metadata), and/or "O" (3GL/Other objects) in the Type field on the Request Events menu.
6. Press Enter to display the Add an Event screen.

```
01-12-31                N-2-O ADD AN EVENT                          TSI0373
11:38:00                Event: A-TEST     Sequence: 1              TSI1

          From Env         :  PROD       From Library     : N2OLIB__
          To Env           :  TEST       To Library       : N2OTEST_
          Process Date     :  01-12-31   Process Time      : 11:38:00
          Migrate Method   :  COPY       Change Control   : ________
          Starting Program :  ________   Starting Message  : 0001
          SYSERR Type      :  US         SYSERR Language  : E

          C  ____________________________________________________
          o  ____________________________________________________
          m  ____________________________________________________
          m  ____________________________________________________
          e  ____________________________________________________
          n  ____________________________________________________
          t  ____________________________________________________
          s  ____________________________________________________
             ____________________________________________________

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END   ----  ----  ----  ----  ----  ----  ----  ----  ----
```

7. Press Enter to display the object selection list.
8. Enter “A” to add or “D” to delete objects from the selection list.
9. Press Enter. The Message field displays the appropriate message for each object selected.
10. Press PF12 when object selection is complete, or press Enter on the last page to complete the selection process.
11. The remaining screens are dependent upon the Administrative set-up. Please refer to the *N2O User Manual* for more information.

Object Selection Screen Messages

FAILED - Checkout/Checkin is active and the selected object violates Checkout/Checkin rules.

WARNING - Checkout/Checkin is active and the selected object is checked out to another user or to another location.**NO XREF** - Migrate XREF is active and PREDICT Cross-reference data does not exist for the selected NATURAL program.

NO DOC - Program documentation is active and PREDICT documentation does not exist for a selected NATURAL program.

OBJ FAIL - Verify Object is active and object code does not exist or does not match source code for the selected NATURAL program.

DENIED - An object selected for migrating does not pass User-Exit 2 rules.

NO SHORT - Only the long text of a SYSERR message is selected for migrating and no short text exists at the target.

NO SRC - Source code does not exist for the selected NATURAL program when creating a Multiple Target Event.

NO OBJ - Object code does not exist for the selected NATURAL program when creating a Multiple Target Event.

MULTIPLE - A NATURAL object, SYSERR message, or PREDICT object is selected to migrate to multiple targets.

NO SPACES - A PREDICT object whose name contains one or more spaces is selected for migrating to a target and the object is not included inthe Event.

MISC DUP - A 3GL object with a category of MISC and a name identical to an obvject in a different category is selcted for migrating and the 3GL object is not included in the Event.

Checkout/Checkin & Related Utilities

Checkout/Checkin controls and monitors changes in an Application Life Cycle. N2O will automatically checkout an object when it is migrated from a Base Environment. The Checkout/Checkin Utilities can be used to update the Checkout status of an object. The utilities are:

Cancel - Removes the Checkout status of an object.

Transfer - Transfers responsibility for a checked-out object to another user.

Transfer by Event - Transfers responsibility for all checked-out objects in an Event to another user.

Checkout - Checks out newly-created objects in a development environment.

Reject - Updates the checkout location to the previous development environment.

N2O Reports

Following is a list of some of the most frequently used reports available in N2O. For a complete list, see the Reporting Subsystem section of the N2O *User* Manual.

Checked-out Objects - Displays objects checked out from a specific BASE environment.

Cross-reference - Displays objects related to an object.

Directory Compare - Displays the differences between two environments.

Directory List - Displays a list of objects in an environment.

Event Details - Displays all Events created using N2O.

Events Pending Autocompile - Displays Events that contain programs to be compiled.

Events Pending Move - Displays deferred move Events.

Events Processed by Date - Displays Events migrated within a specific date range.

Events Related by Change Control - Displays Events associated with a specific change request.

Events Requiring Further Authorization - Displays Events that require authorization or servicing.

Events with Warning Messages - Displays Events that received warning messages.

History of an Object - Displays the complete audit trail of an object.

N2O Toolbox Options

The N2O Toolbox provides options to assist in the Application Life Cycle.

- **Documentation Tools** - Print NATURAL Objects, FileLayouts,Descriptor X-REF Information, Object Flow Analysis, and Object X-REF Information.
- **Maintenance Tools** - Delete objects using N2OPURGE and recover from Archive backups.
- **Programmer Tools** - Perform NATURAL Object and Source Compare, View Archived Objects, and access the N2OSCAN Utility.
- **Utility Tools** - Provide facilities to assist in resolving exception situations that may arise when using N2O.

User Direct Commands

N2O MENU	Main Menu
MIG MENU	Migration Subsystem Menu
MIG AUTH	Authorize Events Menu
MIG SUB	Batch JCL Submission Menu
MIG COCI	Checkout/Checkin Utilities Menu
MIG UTIL	Migration Utilities Menu
MIG REQ	Request Events Menu
MIG SERV	Service Events Menu
PRJ MENU	Project Tracking Subsystem Menu
PRJ PROJ	Project Definition Menu
PRJ TASK	Task List Menu
PRJ SUGG	Suggestion Box Menu
PRJ TUTL	Task Utilities Menu
PRJ REP	Project Tracking Reports Menu
REP MENU	Reporting Subsystem Menu
REP ENV	Environment Reporting Menu
REP EVNT	Event Reporting Menu
REP OBJ	Object Reporting Menu
REP STAT	Statistical Reporting Menu
TOL MENU	Toolbox Subsystem Menu
TOL DOC	Documentation Tools Menu
TOL MAIN	Maintenance Tools Menu
TOL PROG	Programmer Tools Menu
TOL UTIL	N2OSCAN Utility Tools Menu
SYS	<NATURAL System Command>

Entering N2O and a direct command enters N2O at the specified direct command.

N2OSCAN Reference

Sample Scan Parm Set

0010 **ENV=**PROD,**START-LIB=**LIB01,**END-LIB=**LIB99
0020 **START-OBJ=**PGM1000P,**END-OBJ**=PGM1999P,
0030 **DELIM=**< >
0040 I,Y,DATE
0050 E,N,UPDATE

Header Parms *(lines 10 thru 30 in the example above)*

- *ENV*= The local N2O Environment to be scanned (required)
- *START-LIB*=Starting value of the library range to be scanned
- *END-LIB*=Ending value of the library range to be scanned
- *START-OBJ*=Starting value of the object range to be scanned
- *END-OBJ*=Ending value of the object range to be scanned
- *DELIM*=Delimeter override (default is all characters with a hexadecimal value less than lowercase 'a')

Detail Lines (*lines 40 and 50 in the example above*)
A non-comment line in a Scan Parm Set which follows the header. Format is:
x,y,zzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz

- x = Include/Exclude Indicator (I or E)
- y - Absolute Scan Indicator
  - Y - indicates the scan process will examine target source lines for the associated scan string value, ignoring delimiter.
  - N - indicates the scan process will examine target source lines for the associated scan string value surrounded by delimiter.
- zzzz = Scan String (up to 32 characters)