

# N2O

## Administrator Manual

**Note:** All references to the N2O version in this manual are indicated by *vrs* or *v.r.s.* The current release of N2O is version 5.3.1.

This document is applicable to N2O and N2O/3GL Version 5.3.1. N2O/3GL is a separately-priced, optional feature.

Comments pertaining to this document, N2O, and N2O/3GL are encouraged. Please direct all comments to:

**Treehouse Software, Inc.**  
2605 Nicholson Road, Suite 1230  
Sewickley, PA 15143  
Phone: 724.759.7070  
Fax: 724.759.7067  
E-mail: [support@treehouse.com](mailto:support@treehouse.com)

Worldwide marketing of N2O and other Treehouse products is handled through the Sewickley office.

Reproduction of any portion of this document without the written consent of Treehouse Software, Inc. is prohibited.

Copyright February 2010 by Treehouse Software, Inc. of Sewickley, Pennsylvania.

Last Updated: 12/06/2019

This page intentionally left blank.

## PREFACE

The N2O documentation consists of an Administrator Manual, a User Manual, and an Administrative Guide. The Administrator Manual is designed to be used by the N2O Administrator, the User Manual is geared toward the everyday user of N2O, and the Administrative Setup Guide will assist the N2O Administrator in defining N2O's Environment Subsystem.

The first section of the Administrator Manual is an introduction, which defines Change Management and provides an overview of N2O.

The second section describes the installation procedure for N2O. This section illustrates the procedure for OS, VSE, VM, and Siemens BS2000 environments. Sample JCL is included for each environment. This section also describes conversion from N2O 4.0 to N2O 5.0.

The third section describes the Environment Subsystem. This section illustrates the manner in which site-specific information is provided to N2O. The sub-sections describing the Environment Subsystem are arranged in the order in which installation is performed. This arrangement allows the Environment Subsystem section to be used as a tutorial in addition to serving as a reference.

Security for N2O is administered in the Environment Subsystem, but it is discussed in the fourth section of the Administrator Manual. This section explains the different profiles that determine security for N2O users.

The fifth section describes N2O and N2O/3GL operations. Some of the operations included in this section are: customization options, running batch migrations and remote migrations, and Static SQL support.

N2O and N2O/3GL are products of Treehouse Software, Inc. and are copyright protected. ADABAS, Com-plete, NATURAL, NATURAL DB2, NATURAL SECURITY (NSC), NET-WORK, and PREDICT are products of Software AG. CICS, DOS, Z/OS, OS390, TSO, RACF, VM, and DB2 are products of IBM. CA-LIBRARIAN, CA-PANVALET, CA-ACF2, CA-TOP SECRET and CA-ENDEVOR are products of Computer Associates.\*

\* In this document, CA-LIBRARIAN is referred to as LIBRARIAN, CA-PANVALET is referred to as PANVALET, CA-ACF2 is referred to as ACF2, CA-TOP SECRET is referred to as TOP SECRET, and CA-ENDEVOR is referred to as ENDEVOR.

# TABLE OF CONTENTS

|   |           |
|---|-----------|
| <b>I. INTRODUCTION .....</b>                      | <b>1</b>  |
| I.1 Change Management Using N2O .....             | 1         |
| I.2 N2O Subsystems .....                          | 3         |
| I.3 N2O Features.....                             | 6         |
| I.4 The N2O User Interface .....                  | 8         |
| <b>II. INSTALLATION .....</b>                     | <b>15</b> |
| II.1 Introduction .....                           | 15        |
| II.2 Distribution .....                           | 15        |
| II.2.1 Tape Distribution .....                    | 15        |
| II.2.2 Electronic Distribution.....               | 17        |
| II.4 Converting from N2O 5.x to N2O 5.3.....      | 22        |
| II.5 Autocompile Requirements.....                | 27        |
| II.6 N2OEDIT Installation .....                   | 27        |
| II.7 Verify the N2O Installation .....            | 29        |
| II.8 Verification Failed from N2OVRFY .....       | 33        |
| II.9 Upgrading NATURAL, ADABAS, or PREDICT .....  | 34        |
| II.10 Loading of Official Fixes.....              | 36        |
| <b>III. ENVIRONMENT SUBSYSTEM.....</b>            | <b>37</b> |
| III.1 Introduction .....                          | 37        |
| III.2 Install ParmS .....                         | 39        |
| III.2.1 Inquire on Install ParmS .....            | 40        |
| III.2.2 Modify Install ParmS .....                | 43        |
| III.3 Node Definition .....                       | 44        |
| III.3.1 Add a Node Definition.....                | 46        |
| III.3.2 Copy a Node Definition.....               | 47        |
| III.3.3 Delete a Node Definition.....             | 48        |
| III.3.4 Inquire on a Node Definition .....        | 49        |
| III.3.5 Modify a Node Definition.....             | 49        |
| III.3.6 Select a Node Definition .....            | 50        |
| III.4 Archive Definition .....                    | 51        |
| III.4.1 Add an Archive Definition .....           | 52        |
| III.4.2 Copy an Archive Definition .....          | 54        |
| III.4.3 Delete an Archive Definition .....        | 55        |
| III.4.4 Inquire on an Archive Definition.....     | 55        |
| III.4.5 Modify an Archive Definition .....        | 56        |
| III.4.6 Select an Archive Definition.....         | 57        |
| III.5 Environment Definition .....                | 58        |
| III.5.1 Add an Environment Definition .....       | 59        |
| III.5.1.1 Defining 3GL Environments .....         | 62        |
| III.5.2 Copy an Environment Definition .....      | 64        |
| III.5.3 Delete an Environment Definition .....    | 65        |
| III.5.4 Inquire on an Environment Definition..... | 66        |
| III.5.5 Modify an Environment Definition .....    | 67        |
| III.5.6 Select an Environment Definition.....     | 68        |
| III.6 Migration Profile .....                     | 69        |
| III.6.1 Add a Migration Profile .....             | 71        |
| III.6.2 Copy a Migration Profile .....            | 78        |
| III.6.3 Delete a Migration Profile .....          | 79        |
| III.6.4 Inquire on a Migration Profile.....       | 79        |
| III.6.5 Modify a Migration Profile .....          | 80        |
| III.6.6 Select a Migration Profile.....           | 81        |

|            |   |            |
|------------|---|------------|
| III.7      | Master Event.....                         | 82         |
| III.7.1    | Add a Master Event .....                  | 84         |
| III.7.1.1  | Define Multiple Target Events .....       | 87         |
| III.7.2    | Copy a Master Event .....                 | 89         |
| III.7.3    | Delete a Master Event .....               | 90         |
| III.7.4    | Inquire on a Master Event.....            | 90         |
| III.7.5    | Modify a Master Event .....               | 91         |
| III.7.6    | Select a Master Event.....                | 92         |
| III.8      | Administrative Utilities.....             | 93         |
| III.8.1    | Archive Purge .....                       | 94         |
| III.8.2    | Event Purge .....                         | 100        |
| III.8.3    | Catalog Capture.....                      | 104        |
| III.8.4    | 3GL/OTHER Catalog Capture .....           | 105        |
| III.8.4.1  | PDS Catalog Capture.....                  | 106        |
| III.8.4.2  | LIBRARIAN Catalog Capture .....           | 108        |
| III.8.4.3  | PANVALET Catalog Capture .....            | 109        |
| III.8.4.4  | ENDEVOR Catalog Capture .....             | 110        |
| <b>IV.</b> | <b>SECURITY ADMINISTRATION .....</b>      | <b>111</b> |
| IV.1       | Introduction.....                         | 111        |
| IV.2       | N2O Internal Security .....               | 112        |
| IV.2.1     | Approval Profile .....                    | 113        |
| IV.2.1.1   | Add an Approval Profile .....             | 115        |
| IV.2.1.2   | Copy an Approval Profile .....            | 116        |
| IV.2.1.3   | Delete an Approval Profile .....          | 117        |
| IV.2.1.4   | Inquire on an Approval Profile.....       | 117        |
| IV.2.1.5   | Modify an Approval Profile .....          | 118        |
| IV.2.1.6   | Select an Approval Profile.....           | 119        |
| IV.2.1.7   | View Users with an Approval Profile ..... | 120        |
| IV.2.2     | Function Profile .....                    | 121        |
| IV.2.2.1   | Add a Function Profile.....               | 123        |
| IV.2.2.2   | Copy a Function Profile.....              | 126        |
| IV.2.2.3   | Delete a Function Profile.....            | 127        |
| IV.2.2.4   | Inquire on a Function Profile .....       | 128        |
| IV.2.2.5   | Modify a Function Profile .....           | 129        |
| IV.2.2.6   | Select a Function Profile .....           | 130        |
| IV.2.2.7   | View Users with a Function Profile .....  | 131        |
| IV.2.3     | 3GL/OTHER Profile.....                    | 132        |
| IV.2.3.1   | Add a 3GL/OTHER Profile .....             | 133        |
| IV.2.3.2   | Copy a 3GL/OTHER Profile .....            | 134        |
| IV.2.3.3   | Delete a 3GL/OTHER Profile .....          | 135        |
| IV.2.3.4   | Inquire on a 3GL/OTHER Profile .....      | 136        |
| IV.2.3.5   | Modify a 3GL/OTHER Profile .....          | 137        |
| IV.2.3.6   | Select a 3GL/OTHER Profile .....          | 138        |
| IV.2.3.7   | View Users with a 3GL/OTHER Profile.....  | 139        |
| IV.2.4     | PREDICT Profile .....                     | 140        |
| IV.2.4.1   | Add a PREDICT Profile.....                | 141        |
| IV.2.4.2   | Copy a PREDICT Profile.....               | 143        |
| IV.2.4.3   | Delete a PREDICT Profile.....             | 144        |
| IV.2.4.4   | Inquire on a PREDICT Profile .....        | 144        |
| IV.2.4.5   | Modify a PREDICT Profile .....            | 145        |
| IV.2.4.6   | Select a PREDICT Profile .....            | 146        |
| IV.2.4.7   | View Users with a PREDICT Profile .....   | 147        |
| IV.2.5     | User Definition.....                      | 148        |
| IV.2.5.1   | Add a User Definition .....               | 149        |
| IV.2.5.2   | Copy a User Definition .....              | 151        |
| IV.2.5.3   | Delete a User Definition .....            | 152        |

|           |   |            |
|-----------|---|------------|
| IV.2.5.4  | Inquire on a User Definition .....  | 152        |
| IV.2.5.5  | Modify a User Definition .....  | 153        |
| IV.2.5.6  | Select a User Definition .....  | 154        |
| IV.2.5.7  | Batch User Definition Maintenance.....  | 155        |
| IV.3      | SECURITRE Interface.....  | 156        |
| IV.3.1    | Approval Profile for SECURITRE .....  | 157        |
| IV.3.2    | Function Profile for SECURITRE .....  | 158        |
| IV.3.3    | 3GL/OTHER Profile for SECURITRE.....  | 159        |
| IV.3.4    | PREDICT Profile for SECURITRE .....   | 160        |
| IV.3.5    | User Definition for SECURITRE .....   | 161        |
| IV.3.6    | Group-ID SSF Rules for SECURITRE .....  | 162        |
| IV.3.7    | XREF SSF Rules for SECURITRE.....   | 163        |
| IV.3.8    | PREDICT Views SSF Rules for SECURITRE.....  | 164        |
| <b>V.</b> | <b>OPERATIONS.....</b>  | <b>165</b> |
| V.1       | Introduction.....   | 165        |
| V.2       | N2O Startup Program.....  | 165        |
| V.3       | User-Exits .....  | 166        |
| V.3.1     | User-ID Initialization Exit (N2OUE00N).....   | 166        |
| V.3.2     | N2O Termination Exit (N2OUE99P).....  | 166        |
| V.3.3     | N2O Batch Job Submission Exit (N2OUE0RJE).....                                      | 167        |
| V.3.4     | Event Request Exit (N2OUE01N) .....   | 168        |
| V.3.5     | Object Selection Exit (N2OUE02N).....   | 169        |
| V.3.6     | Event Authorization Exit (N2OUE03N).....  | 170        |
| V.3.7     | Event Completion Exit (N2OUE04N).....   | 171        |
| V.3.8     | Checkout/Checkin/Enrollment Utility Exit (N2OUE05N).....                            | 172        |
| V.3.9     | User-Defined Subsystem Menu Exit (N2OUE06P) .....                                   | 172        |
| V.3.10    | On-line Autocompile Exit (N2OUE07P).....  | 173        |
| V.3.11    | DB2 DBRM JCL Exit (N2OUE08N).....   | 173        |
| V.3.12    | DB2 DBRM Generation Exit (N2OUE09N).....  | 174        |
| V.3.13    | Bind DB2 Plan Exit (N2OUE10N) .....   | 175        |
| V.3.14    | 3GL/OTHER Autocompile Exit (N2OUE11N).....  | 176        |
| V.3.15    | N2O Utilities Exit (N2OUE12N) .....   | 177        |
| V.3.16    | SECURITRE Database Exit (N2OUE13N).....   | 178        |
| V.3.17    | System Product Information Exit (N2OUE14N).....                                     | 178        |
| V.3.18    | Automatic Object Selection Exit (N2OUE15N).....                                     | 180        |
| V.3.19    | Password and Cipher Initialization Exit (N2OUE16N).....                             | 181        |
| V.3.20    | Determination of Node Exit (N2OUE17N) .....   | 181        |
| V.3.21    | Task Update Override Exit (N2OUE20N).....   | 182        |
| V.3.22    | Batch Autocompile Exit (N2OUE21N) .....   | 182        |
| V.3.23    | Batch Parameters Override Exit (N2OUE22N) .....                                     | 183        |
| V.3.24    | Directory Reports Exit (N2OUE23N) .....   | 184        |
| V.3.25    | 3GL/OTHER Autocompile Job Separation Exit (N2OUE24N).....                           | 185        |
| V.3.26    | Autocompile Steplib Support Exit (N2OUE25N).....                                    | 186        |
| V.3.27    | DDM Generation Selection Exit (N2OUE26N) .....                                      | 187        |
| V.3.28    | N2OSEL Exit (N2OUE27N).....   | 187        |
| V.3.29    | Online Autocompile Options Exit (N2OUE28N) .....                                    | 187        |
| V.3.30    | User Definition Exit (N2OUE29N) .....   | 188        |
| V.3.31    | Submit a Migration Profile Exit (N2OUE30N).....                                     | 188        |
| V.3.32    | Default Environment/Library Exit (N2OUE31N) .....                                   | 189        |
| V.3.33    | Event Servicing Exit (N2OUE32N) .....   | 189        |
| V.3.34    | Source only Move Events - Delete Object Code Exit (N2OUEDON).....                   | 190        |
| V.3.35    | N2O Control Override Exits (N2OEDITU, N2OEDITM, N2OEDITG, and N2OEDITS) .....       | 190        |
| V.4       | DDM, METADATA, NATURAL, PREDICT, and SYSERR Batch Event Processing ....             | 191        |
| V.4.1     | Job Steps for Migrating DDM, METADATA, NATURAL, PREDICT,<br>and SYSERR Events ..... | 192        |

Table of Contents

|  |  |            |
|--|--|------------|
| V.4.2  | Migration JCL .....  | 195        |
| V.4.3  | DDM, METADATA, NATURAL, PREDICT, and SYSERR Remote Migrations ....                 | 195        |
| V.4.4  | Job Steps for Deferred Move Processing (NATURAL Migrations Only) .....             | 198        |
| V.4.5  | Deferred Move JCL (NATURAL Migrations Only) .....                                  | 199        |
| V.4.6  | Manual Submission of Batch Events .....  | 199        |
| V.4.6.1  | Manual Submission Select Options for Events .....                                  | 200        |
| V.4.6.2  | Manual Submission Select Options for Deferred Move (NATURAL Migrations Only) ..... | 203        |
| V.5  | N2O/3GL Batch Event Processing .....   | 204        |
| V.5.1  | Overview of 3GL Batch Processing.....  | 204        |
| V.5.2  | Job Steps for Migrating N2O/3GL Events .....                                       | 205        |
| V.5.3  | 3GL Migration JCL .....  | 205        |
| V.5.4  | Manual Submission Select Options for Events .....                                  | 206        |
| V.5.5  | Job Steps for PDS Migrations .....   | 207        |
| V.5.6  | Job Steps for PDS Recovery From Archive .....                                      | 211        |
| V.5.7  | Job Steps for LIBRARIAN Migrations.....  | 213        |
| V.5.8  | Job Steps for PANVALET Migrations.....   | 215        |
| V.5.9  | Job Steps for ENDEVOR Migrations.....  | 217        |
| V.5.10   | 3GL/OTHER Autocompile .....  | 218        |
| V.6  | N2O Static SQL Support .....   | 219        |
| V.6.1  | Processing Steps for Static SQL Support .....                                      | 220        |
| V.6.2  | DBRM Generation .....  | 221        |
| V.6.2.1  | DBRM Generation JCL .....  | 222        |
| V.6.3  | Bind DB2 Application Plan .....  | 226        |
| V.7  | Application Programming Interface.....   | 228        |
| V.7.1  | Checkout Utility API (N2OAPI1N) .....  | 228        |
| V.7.2  | Event Reporting API (N2OAPI2N).....  | 229        |
| V.7.3  | Copy an Event API (N2OAPI3N).....  | 230        |
| V.7.4  | Add/Modify an Event API (N2OAPI4N) .....   | 230        |
| V.7.5  | Add/Delete Object to/from an Event API (N2OAPI5N).....                             | 230        |
| V.7.6  | Submit an Event API (N2OAPI6N).....  | 231        |
| V.7.7  | Directory List API (N2OAPI7N) .....  | 231        |
| V.7.8  | Sample code to use N2O APIs 4-7 to create a user event screen (N2OMETRO) 231       |            |
| V.7.9  | Checkout Status API (N2OAPI8N) .....   | 231        |
| <b>APPENDIX A: Screen Names and Descriptions .....</b> |  | <b>A-1</b> |
| <b>APPENDIX B: SSF Rules .....</b>                     |  | <b>B-1</b> |
| <b>APPENDIX C: &amp; Variables for JCL .....</b>       |  | <b>C-1</b> |
| D.1  | – Base N2O batch functions.....  | D-1        |
| Archive Purge .....                                    |  | D-1        |
| Catalog Capture.....                                   |  | D-7        |
| Object Compare.....                                    |  | D-11       |
| Source Compare - remote environments.....              |  | D-12       |
| Source Compare – local environments.....               |  | D-16       |
| Deferred Moves .....                                   |  | D-18       |
| Emergency Recovery in Batch .....                      |  | D-21       |
| Emergency Recovery Acknowledgement .....               |  | D-22       |
| Event Purge .....                                      |  | D-25       |
| Batch Migration.....                                   |  | D-28       |
| N2OPURGE.....  |  | D-34       |
| Recover from Archive backup (Natural objects) .....    |  | D-38       |
| Recover from archive backup (3GL PDS Objects) .....    |  | D-41       |
| Recover Purged Events.....                             |  | D-42       |
| Reporting .....  |  | D-43       |
| N2OSCAN .....  |  | D-45       |
| N2OSCAN delete specific scan output set .....          |  | D-46       |

|   |            |
|---|------------|
| N2OSCAN Batch Delete by Date and User ID .....                                  | D-47       |
| N2OSCAN Batch source display .....  | D-49       |
| N2OSCAN .....   | D-51       |
| N2OSCAN Standard report .....   | D-53       |
| N2OSCAN String found report.....  | D-54       |
| Batch Update of Environment FUSER/FDIC Information .....                        | D-55       |
| Archive Backup Reporting .....  | D-57       |
| 3GL compile.....  | D-59       |
| 3GL batch submit.....   | D-59       |
| D.2 – 3GL PDS JCL.....  | D-60       |
| PDS archive.....  | D-60       |
| PDS Catalog Capture .....   | D-61       |
| PDS Compile .....   | D-61       |
| PDS Move.....   | D-62       |
| PDS Migration.....  | D-62       |
| PDS archive recovery .....  | D-63       |
| PDS Archive recovery.....   | D-63       |
| 3GL member submit to PREDICT pre-processor .....                                | D-63       |
| D.3 – Panvalet JCL .....  | D-65       |
| Panvalet Catalog Capture.....   | D-65       |
| Panvalet Compile.....   | D-65       |
| Panvalet Migration .....  | D-65       |
| D.4 - Endeavor JCL .....  | D-67       |
| Endeavor Catalog capture .....  | D-67       |
| Endeavor migration.....   | D-67       |
| D.5 - Librarian JCL.....  | D-69       |
| Librarian catalog capture .....   | D-69       |
| Librarian Compile.....  | D-69       |
| Librarian migration .....   | D-70       |
| D.6 - DB2 related JCL .....   | D-72       |
| D.7 - Network Data Mover sample JCL .....                                       | D-78       |
| D.8 – COBOL sample JCL.....   | D-81       |
| <b>APPENDIX E: User-Exit Quick Reference .....</b>                              | <b>E-1</b> |
| <b>APPENDIX F: Relationships of N2O Parameters to Environment Screens .....</b> | <b>F-1</b> |
| <b>APPENDIX G: Frequently Asked Questions .....</b>                             | <b>G-1</b> |
| <b>APPENDIX H: Sample Setup of N2O.....</b>                                     | <b>H-1</b> |
| <b>APPENDIX I: Phasing In PREDICT Upgrades .....</b>                            | <b>I-1</b> |

This page intentionally left blank.

# SECTION I

## INTRODUCTION

### **I.1 Change Management Using N2O**

N2O is an exceptional change management tool for programmers and others involved in application development. It performs many tasks including the following:

- Controls, monitors, and coordinates program changes made to applications
- Quickly and efficiently incorporates program changes into production
- Protects the integrity of production code and program changes
- Ensures that changes are tested and approved before being implemented
- Secures migrations by defining migration paths for users
- Archives and recovers previous versions of programs for an application
- Coordinates programming-related activities of development staff
- Maintains complete audit trails to provide the history of all program changes
- Tracks the status of changes and assists in managing projects
- Compares the differences between two NATURAL source programs, two NATURAL object programs, or two environments
- Documents and prints NATURAL objects, File Layouts, Descriptor X-Ref (Cross-Reference) Information, Object Flow Analysis, and Object X-Ref in local N2O environments
- Scans for strings over the object/library range specified by the user and reports on (and records for future lookup) all matches

These tasks help to minimize paper trails, secure environments, improve programmer productivity, reduce management review time, and add to the integrity of applications.

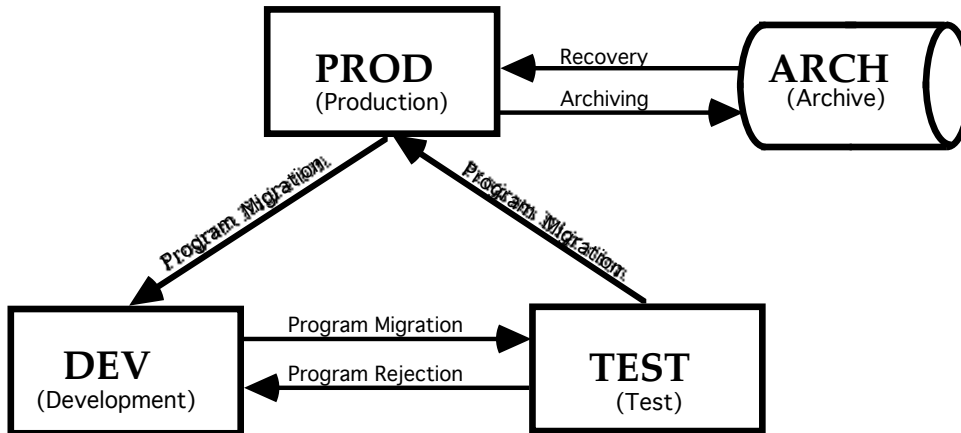
N2O provides Change Management for DDMS, METADATA, NATURAL objects, PREDICT objects, and SYSERR messages.

|                        |  |
|------------------------|--|
| <b>DDM</b>             | Data Definition Modules (DDM)  |
| <b>METADATA</b>        | METADATA for User Defined Entities   |
| <b>NATURAL objects</b> | Any of the following in source and/or object format: programs, subprograms, subroutines, copycode, help routines, maps, global data areas, local data areas, parameter data areas, and text. |
| <b>PREDICT objects</b> | Any of PREDICT's predefined object types. N2O requires PREDICT version 3.1 or later for migrating PREDICT objects.   |
| <b>SYSERR messages</b> | User-supplied messages in short and/or extended form.  |

N2O/3GL, a separately-priced optional feature, provides Change Management for 3GL objects by interfacing with ENDEAVOR, The LIBRARIAN, and PANVALET. N2O/3GL also migrates 3GL objects between OS/390 (MVS) Partitioned Datasets (PDSs) using the IEBCOPY Utility.

**3GL objects** Any of the following categories: Assembler, COBOL, FORTRAN, PL/I, RPG, JCL, DATA, MISC, or OTHER.

The Change Management process begins with a request to correct problems, enhance features, or add new applications. To perform these tasks, programmers may migrate or transfer objects from one environment to another. These migrations define an Application Life Cycle.



**Sample Application Life Cycle**

The diagram above shows a sample Application Life Cycle consisting of three environments: Production (PROD), Development (DEV), and Test (TEST). The diagram also shows an Archive file (ARCH) which contains previous versions of programs.

A programmer migrates objects from the Production environment to the Development environment to initiate a change request. The Production versions of the objects are modified and tested in Development.

After modifying objects in the Development environment, programmers may migrate them to the Test environment where they can be evaluated and tested before being migrated to Production. Typically, a testing or quality assurance group must approve an object for migration to Production. If problem areas are identified during testing, the modified objects may be rejected back to Development. Programmers may then correct these problems and migrate the objects back to Test again. This cycle may be repeated several times. When testing is complete, the objects may be approved to migrate to Production, completing the Change Management process.

**Note:** Individual site Application Life Cycles may vary greatly from the sample.

**N2O Events**

An Event is the process of migrating an object between environments using N2O. Examples of Event names are: GEN-LEDG, PAYROLL, and BENEFITS. All migrations in the N2O system have an Event name and an Event sequence number. Event sequence numbers are internally assigned during the migration process.

Once an Event is created, the objects may be migrated immediately, or they may require authorization for migration. If authorization is required, the specified objects will not be migrated until proper authorization is obtained.

## **I.2 N2O Subsystems**

N2O is divided into six Subsystems, each having a separate responsibility within the Change Management process. These Subsystems are logically arranged so that many similar functions can be executed within the same Subsystem. Information and instructions for the Environment Subsystem are located in this manual, while the other four Subsystems (Migration, Reporting, Project Tracking, Toolbox) are included in the *N2O User Manual*. Because of its importance to the N2O Administrator, the Environment Subsystem will be outlined more extensively in this introduction than the other Subsystems.

### **Environment Subsystem**

After installing N2O, the N2O Administrator must define the site's environment and Change Management requirements using the Environment Subsystem. The environment of a site is established when the Administrator defines the following parameters:

#### Installation Parameters

During installation, N2O assigns default values for Installation Parameters, which define N2O features that are used throughout a site. Administrators may change default values, such as Checkout/Checkin using the Installation Parameters functions (Install Parm).

#### Node Definitions

The Node Definition functions may be used to maintain nodes. A Node Definition identifies a CPU or an ADABAS SVC.

#### Archive Definitions

The Archive Definition functions may be used to create and maintain Archive Definitions, which identify an ADABAS file where archived versions of objects are maintained.

#### Environment Definitions

After defining Node Definitions and Archive Definitions, the Environment Definition functions may be used to create and maintain Environment Definitions. An Environment Definition defines a pair of FUSER and FDIC system files, a 3GL dataset, or both. Multiple Environment Definitions may be created with the same FUSER/FDIC combination.

#### Migration Profiles

The Migration Profile functions may be used to create and maintain Migration Profiles, which identify a path that objects may follow and the options used when migrating objects between two Environments.

#### Master Events

The Master Event functions may be used to create and maintain Master Events, which are used to differentiate migrations. All migration requests in the N2O system are uniquely identified by a Master Event name and an Event sequence number. N2O assigns Event Sequence numbers when the request is created. Examples of Master Events are: PAYOUT and PAYIN.

A special type of Master Event, known as a Program Dependent Master Event (PDME), allows the N2O Administrator to limit the range of objects to be migrated.

## Administrative Utilities

Administrative Utilities include the following functions: Archive Purge, Event Purge, Catalog Capture, and 3GL/OTHER Catalog Capture. These functions enable authorized individuals to remove object versions and Events and to record the status of objects.

## Security Administration

N2O Security consists of several different profiles that define security for a user: Approval Profiles, Function Profiles, PREDICT Profiles, and 3GL/OTHER Profiles. Together, these profiles determine where users may migrate, what menus they may access, and what objects they may migrate.

An Approval Profile defines a set of Migration Profiles for NATURAL Objects and SYSERR messages that a user or a group of users are authorized to use. A Function Profile contains a list of N2O functions and sub-functions that individual users or groups of users may access. A 3GL/OTHER Profile defines a set of Environment Definitions and 3GL Categories that represents valid migration paths for 3GL/OTHER objects. A PREDICT Profile defines a set of Environment Definitions and PREDICT object combinations which represents valid migration paths for DDMS, METADATA and PREDICT objects.

Additional N2O features are made available to a user within User Definition Security. These features include the ability to use XREF when creating an Event, the ability to automatically select Userviews associated with a PREDICT file, and the ability to authorize one's own Event.

As an alternative to N2O internal security, N2O interfaces with SECURITRE to provide ACF2, TOP-SECRET, or RACF security for N2O. The SECURITRE interface replaces the Function Profiles, Approval Profiles, PREDICT Profiles, 3GL/OTHER Profiles, and User Definitions.

For information on SECURITRE, refer to the SECURITRE Manual or contact Treehouse Software.

|  |
|--|
| <b>Note:</b> Security Administration is explained in <b>Section IV Security Administration</b> . |
|--|

## **Migration Subsystem**

The Migration Subsystem initiates the Change Management process by creating and processing Events.

This Subsystem allows users to create Events by selecting objects to migrate. These objects include DDM, METADATA, NATURAL objects, PREDICT objects, 3GL/OTHER programs, and SYSERR messages. N2O verifies authorization for users before processing an Event. If authorization is necessary, N2O holds the Event until the proper authorization is provided. Once authorization occurs, N2O migrates the objects to the specified environment and stores information about the Event.

N2O provides Checkout/Checkin, a feature that controls and monitors changes in an Application Life Cycle. Checkout/Checkin is designed to protect the integrity of objects throughout the Application Life Cycle and to provide an audit trail. N2O limits multiple checkouts for an object and prevents objects from being overwritten.

**Project Tracking Subsystem**

The Project Tracking Subsystem maintains detailed information about projects and associated tasks.

Project Tracking can be used to collect requests for changes to a project from users at all levels. A request for a change then becomes a task for a specific project. A task is documented and its progress can be tracked as it advances from one stage to another.

The Project Tracking Subsystem can be used for NATURAL and non-NATURAL application development, as well as other non-programming projects.

**Reporting Subsystem**

The Reporting Subsystem provides vital information for users, such as administrators, programmers, and auditors. For example, the Checked-out Objects Report assists programmers in identifying objects currently checked out.

**Toolbox Subsystem**

The Toolbox Subsystem supplies application development tools for administrators and programmers. These tools aid in the development, maintenance, and documentation of NATURAL applications.

**User-Defined Subsystem**

The User-Defined Subsystem allows site-specific, customized programs to be accessed from the N2O menu system.

### **I.3 N2O Features**

N2O automates the Change Management process by offering many features, including the following:

#### **Archiving/Recovery**

Archiving/Recovery retains previous versions of NATURAL objects, PDS members, and SYSERR messages for future recovery. Users may access the Archive file to view and to recover these versions.

#### **Audit Trail**

The Audit Trail maintains information about Events and migrated objects.

#### **Autocompile**

Autocompile automates the NATURAL object and 3GL member compile process.

#### **Checkout/Checkin**

Checkout/Checkin controls and monitors object changes and protects the integrity of objects throughout the Application Life Cycle.

#### **Compare Utilities**

Compare utilities provide reports that identify the differences between two NATURAL source programs, two NATURAL object programs, or two environments.

#### **Cross Reference (XREF)**

Cross Reference (XREF) uses PREDICT XREF information to identify all related programs affected or invoked by a object selected to be migrated. XREF is available only for NATURAL objects.

#### **Documentation Toolbox**

Documentation Toolbox function provides utilities to print NATURAL objects, File Layouts, Descriptor X-Ref (Cross-Reference) Information, Object Flow Analysis, Object X-Ref, NATURAL SYSERRs, and Archived 3GL Objects in local N2O environments.

#### **N2OSCAN**

The N2OSCAN utility processes the source of NATURAL objects, scanning for strings over the object/library range specified by the user, and reports on (and records for future lookup) all matches.

#### **On-line Authorization**

On-line authorization ensures integrity and secures applications by allowing only authorized users to migrate objects between environments. This feature provides up to ten levels of authorization, and allows the N2O Administrator to specify the order of authorization. Routine migrations may not require any authorization.

#### **On-line/Batch Migration**

On-line/Batch Migration provides the flexibility of migrating objects on-line or in batch. On-line migrations allow users to migrate objects immediately. Batch migrations allow users to schedule migrations for specific times.

#### **On-line Request System**

The On-line Request System allows a user to select objects to migrate.

#### **Project Tracking**

Project Tracking allows the progress of programming projects and non-programming projects to be assessed quickly through on-line and batch reports.

**Reporting**

Reporting provides reports about Events and objects by accessing information stored as an audit trail within N2O.

**Security**

Security controls the migration of objects and access to N2O menus and functions.

**User-exits**

User-exits provide the flexibility to tailor N2O for site-specific needs, such as additional security and the ability to interface with other software.

### I.4 The N2O User Interface

The N2O interface makes the setup and operation of the product easy and trouble-free. N2O makes use of PF-keys, supports the use of direct commands, has an on-line help facility, and has an error trapping system.

There are several types of screens that are used throughout N2O:

#### Startup Screens

Startup screens display authorization and version information about N2O.

#### Menu Screens

Menu screens display sub-functions and allow the selection of a sub-function.

#### Data Entry Screens

Data entry screens display input fields for entering data necessary to perform N2O functions.

#### Selection Screens

Selection screens display a list of items available for possible processing.

#### Help Screens

Help screens display information about the current function or valid data for the field.

#### Error Message Screens

Error message screens display information about an error that has occurred during the use of N2O.

#### Startup Screens

Entering "N2O" at the NATURAL "Next" prompt or logging on to the library N2OLIB and typing "Menu" displays the N2O startup screen.

```

      NN      NN      0000
      NNN     NN      00  00
      NNNN    NN      00  00
      NN  NN  NN      00  00
      NN  NN  NN  222222  00  00
      NN      NNNN  22    22  00  00
      NN      NNN   22      00  00
      NN      NN    22      0000
                22
                22
                22222222

Authorized for use      N-2-0 Trademark Pending      VERSION : 5.3
by licensee only      (C) COPYRIGHT 1988-2015      SM LVL : 1

Treehouse Software, Inc.
2605 Nicholson Road, Suite 230
Sewickley, Pennsylvania
(724) 759-7070

tsi@treehouse.com      www.treehouse.com      support@treehouse.com

Press ENTER to continue
```

**Menu Screens**

N2O menu screens display only the sub-functions listed in a user's security definition and contain an Enter Code field, a Direct Command line, and PF-keys. Menu screens are labeled in the lower right corner, identifying the Direct Command that accesses the menu screen.

```

01-12-31                      N-2-O MAIN MENU                      TSI0373
11:38:00                                                                TSI1

                                Code  Function
                                -----
                                E    Environment Subsystem
                                M    Migration Subsystem
                                R    Reporting Subsystem
                                T    Toolbox Subsystem
                                U    User-Defined Subsystem
                                .    Terminate N-2-O Session
                                -----

                                Enter Code :  M

Direct Command: _____ N2O MENU
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT

```

The Enter Code field allows users to select a menu sub-function. For example, on the screen above, entering "M" in the Enter Code field accesses the Migration Subsystem Menu.

The Direct Command line allows users to directly access menu screens. For example, entering MIG MENU on the Direct Command line accesses the Migration Subsystem Menu.

The Direct Command line may also be used to update changes made to a user's security during the user's N2O session by entering "REFRESH" on the Direct Command line. NATURAL System commands may be executed using the Direct Command line. Each NATURAL System command must be preceded by SYS. For example, entering SYS FIN exits N2O and NATURAL.

The PF-keys allow users to request help, end the function, access menu screens, or exit N2O. PF-keys 13-24 provide the same functions as PF-keys 1-12. For example, pressing PF1 or PF13 displays on-line help.

N2O screens, except for the startup screens, follow a standard template. The upper left corner of the screen displays the date and time. The upper right corner of the screen displays the User-ID and Terminal-ID. The top middle of the screen displays the name of the current N2O screen.

**Data Entry Screens**

Data entry screens allow users to enter data to perform N2O functions.

```

13-10-04          N-2-O OBJECT REPORTING          TSI0373
14:01:18          HISTORY OF AN OBJECT            SC0TCP06

Object           : _____
Library          : _____
Date Range       : _____ - _____
List Events      : A (All/Closed/Open)
Detailed Report  : N (Batch Only)
Mode             : O

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

For example, the History of an Object report requires an object name and a mode specification to display the history of an object. The Library and Date Range are optional fields that limit the output of the report.

**Selection Screens**

Selection screens display a list of items available for possible processing.

```

Valid Values: C - Copy D - Delete I - Inquire M - Modify
01-12-31          N-2-O SELECT EVENTS FOR PROCESSING          TSI0373
11:38:00          STATUS:O                                    TSI1

S      Event  Seq      From To  Event  ---Added---  ---Task---
-      -----  -----  Env  Env  Type  User-ID Date  Group  Number
-      -----  -----  ---  ---  ---  ---  ---  ---  ---
-      EXTRACT 3311  EXTP EXTM N   TSI1   01-12-31  *****  *****
-      PAYOUT  1245  PAYP PAYD N   TSI1   01-12-31  *****  *****

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

For example, the Select Events for Processing screen displays a list of Events. Entering D, I, or M in the Select field next to an Event identifies the function (Delete, Inquire, or Modify ) to be performed.

**Help Screens**

Help Screens are available on Menu and Data Entry screens. There are two types of help screens: field-level help and screen-level help.

**Field-Level Help**

Pressing PF1 or entering "?" on a field invokes field-level help (if it is available).

```

01-12-31                N-2-O MAIN MENU                TSI0373
11:38:00

                                Code  Function
                                ----  -
                                E   Environment Subsystem
                                M   Migration Subsystem
                                R   Reporting Subsystem
                                T   Toolbox Subsystem
                                U   User-Defined Subsystem
                                .   Terminate N-2-O Session
                                ----  -

                                Enter Code :  _

Direct Command:  ?_____                N2O MENU
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
  
```

For example, entering "?" on the Direct Command line invokes field-level help for direct commands.

After entering "?" on the Direct Command line, the pop-up window below displays a list of Direct Commands.

```

01-12-31                      N-2-O MAIN MENU                      TSI0373
11:38:00                                                                TSI1

                                Code  Function
+-----+-----+-----+
| Please select a screen name |
| X  Command                   | Description |
|-----|-----|-----|
| -  N2O MENU                   | MAIN MENU  |
| -  ENV MENU                   | ENVIRONMENT SUBSYSTEM MENU |
| -  ENV ARCH                   | ARCHIVE DEFINITION MENU |
| -  ENV NODE                   | NODE DEFINITION MENU |
| -  ENV EVNT                   | MASTER EVENT MENU |
| X  ENV PARM                   | INSTALL PARMS MENU |
| -  ENV MIG                   | MIGRATION PROFILE MENU |
| -  ENV DEF                   | ENVIRONMENT DEFINITION MENU |
+-----+-----+-----+

Direct Command:  ?_____ N2O MENU
Enter--PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      HELP  ---- END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
  
```

Users may select a direct command by entering "X" in the Select field next to the command. For example, the screen above indicates "ENV PARM" has been selected. After pressing Enter, "ENV PARM" is then inserted on the Direct Command line.

Pressing Enter without selecting an item displays the next page of the selection list. Pressing Enter on the last page displays the top of the selection list. Pressing PF3 returns to the screen.

Throughout the manual, the availability of field-level help is identified with an infinity character (∞) beside the field in the field description table.

**Screen-Level Help**

Pressing PF1 or entering "?" in a field that does not have field-level help invokes screen-level help.

```

01-12-31                N-2-O HELP SCREEN FOR N2O0000P                11:38:00

N2O Main Menu

Field                    Description                                     *
-----
ENTER CODE               The function to be executed. Valid values
(required)              are as follows:

E   Environment Subsystem
    Defines site standards for Change Management                       *

M   Migration Subsystem
    Migrates programs in a controlled manner using
    information defined in the Environment Subsystem                   *

P   Project Tracking Subsystem
    Maintains detailed information about Projects and
    tracks the progress of changes within those Projects              *

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
-----
      END      TOP    UP    DOWN  BOT  -----
  
```

For example, the screen above displays screen-level help for the N2O Main Menu.

All screen-level help for N2O is stored in the library N2ODOCS and may be modified by editing the program name identified at the top of the Help screen. For example, N2O0000P is the program to be accessed for editing help information for the above screen. Screen-level help displays a maximum of 36 lines of text.

The following PF-keys are provided for screen-level help:

| <u>Key</u> | <u>Function</u> | <u>Description</u>                    |
|------------|-----------------|---------------------------------------|
| PF3        | END             | ends screen-level help                |
| PF6        | TOP             | pages to the top of the text          |
| PF7        | UP              | pages up (back) through the text      |
| PF8        | DOWN            | pages down (forward) through the text |
| PF9        | BOT             | pages to the bottom of the text       |

## **Error Message Screens**

Error Message screens display information about an error and identifies the N2O program that was running when the error occurred.

```
01-12-31          N-2-O FATAL ERROR DETECTED          TSI0373
11:38:00                                               TSI1

      A FATAL ERROR HAS BEEN DETECTED BY N2O ROUTINE:  N2O1380N
THE FOLLOWING ERROR MESSAGE WAS PROVIDED BY THE FAILING ROUTINE:

      PGM: N2O9200N CMD: L9 CID: L9SR RC: 9 TRACK: RSRC

      Please contact your N-2-O System Administrator or
      Treehouse Software, Inc.
      2605 Nicholson Road, Suite 230
      Sewickley, PA 15143 USA
      (724) 759-7070

      tsi@treehouse.com          www.treehouse.com          support@treehouse.com

      THIS N-2-O SESSION WILL BE TERMINATED.

      PRESS ENTER TO PROCEED.
```

For example, the screen above shows that program N2O1380N called the subprogram N2O9200N and received a response code 9. The solution to response code 9 is restarting N2O.

Have the PGM, CMD, CID, RC, and TRACK information available when calling Treehouse Software.

## SECTION II

# INSTALLATION

### **II.1 Introduction**

N2O may be installed and executed on any IBM 390, or compatible mainframe that supports NATURAL 4.1 and above.

N2O requires no zaps to any operating system, teleprocessing system, or to ADABAS, NATURAL, or associated software. N2O should be installed on a development database. However, batch migrations and Autocompile require a subset of N2O programs to be installed on other databases.

Two N2O features, Autocompile and N2OEDIT, require separate installation procedures. For more information about these installation procedures, refer to **Section II.3 Autocompile Installation** and **Section II.6 N2OEDIT Installation**.

If N2O is currently installed, refer to **Section II.4 Converting from N2O 5.x to N2O 5.3**.

### **II.2 Distribution**

N2O is distributed via an electronic distribution (zip file) or 3490 tape.

#### **II.2.1 Tape Distribution**

The N2O tape volume serial number is N2Ovrs.

It is not necessary to copy any of the N2O datasets to DASD as part of the installation process. However, space estimates are provided for sites that choose to copy the datasets to DASD.



## II.2.2 **Electronic Distribution**

### II.2.2.1 **Zip file contents**

The zip file N2OVrs.zip contains the following files:

CONTENTS.TXT - This list of files.  
 N2OVrsADMIN.pdf - N2O Administrator Manual in Acrobat Format.  
 N2OVrsUSER.pdf - N2O User Manual in Acrobat Format.  
 N2OVrsRN.pdf - N2O Release Notes in Acrobat Format.  
 README.TXT - Readme file for the current fix Dataset for N2O.  
 ALLOC.JCL - Sample JCL to allocate N2O XMIT Datasets.  
 FTPN2O.JCL -Sample JCL to FTP the N2O files to the Mainframe.  
 LOADN2O.JCL - Sample JCL to install N2O from the transferred Files.  
 N2OVrs.ADMIN. SYSOBJH - FDT for N2O Administration file.  
 N2OVrs.MIGRATE. SYSOBJH - FDT for N2O Migration file.  
 N2OVrs.ARCHIVE. SYSOBJH - FDT for N2O Archive file.  
 N2OVrs.DDES.SYSOBJH - PREDICT DDES for N2O.

N2OVrs.SYSOBJH – Natural modules and SYSERR messages installed to N2O's main environment.  
 N2OVrs.SYS.SYSOBJH - Natural modules installed to environments accessed by N2O.  
 N2OVrs.SYSOBJH.FIX - Current fix modules installed to N2O's main environment.  
 N2OVrs.SYSOBJH.SYS.FIX - Current fix modules installed to environments accessed by N2O.

### II.2.2.2 **Upload Procedures**

To use this procedure, the site must meet the following qualifications:  
 z/OS Operating System with FTP available in BATCH on the mainframe.  
 FTP server capable of accessing the PC files decompressed from the zip file.

Step 1:

- Transfer the file ALLOC.JCL to the mainframe using FTP, Kermit, etc. Be sure to use a transfer mode of TEXT (ASCII mode in FTP, TEXT mode in Kermit).
- Edit the JOB card to site standards. SET the symbolic parameters PREFIX to your userid or a suitable dataset name prefix.
- Run this job to allocate 9 datasets:  
 PREFIX.N2O.Vvrs.LOADN2O.JCL  
 PREFIX.N2O.Vvrs.ADMIN. SYSOBJH  
 PREFIX.N2O.Vvrs.MIGRATE. SYSOBJH  
 PREFIX.N2O.Vvrs.ARCHIVE. SYSOBJH  
 PREFIX.N2O.Vvrs.DDES PREFIX.N2O.Vvrs.SYSOBJH.  
 PREFIX.N2O.Vvrs.SYSOBJH.SYS PREFIX.N2O.Vvrs.SYSOBJH.FIX  
 PREFIX.N2O.Vvrs.SYSOBJH.SYS.FIX

Step 2:

- Transfer the file FTPN2O.JCL to the mainframe using FTP, Kermit, etc. Be sure to use a transfer mode of TEXT (ASCII mode in FTP, TEXT mode in Kermit).
- Edit the JOB card to site standards.
- Change 192.168.1.1 to the IP address of your FTP server.
- Change USERID and PASSWORD to the userid password with access to the PC files on the FTP server
- Change FTPFILEPATH to the path on the FTP server when the PC files reside.
- Run this job to FTP the PC files to the datasets allocated above.

## II.3 Installation Procedure

**Note:** If N2O is currently installed, refer to **Section II.4 Converting from N2O 5.x to N2O 5.3** sub-section of this section.

The installation procedure for N2O consists of both batch and on-line steps. Sample JCL and EXECs are provided for the batch steps. These samples are provided as references to assist in creating the JCL or EXECs for the N2O installation. Since N2O uses the same installation procedure as NATURAL, it is recommended that the JCL or EXECs used to install NATURAL be used as a model for developing JCL or EXECs to install N2O.

The steps to install N2O are as follows:

1. If NATURAL SECURITY (NSC) is installed, define the following Applications:

N2OLIB  
N2OBATCH  
N2ODOCS  
N2OSCAN

The Applications should be defined with the PREDICT XREF feature set to OFF. The N2O SYSOBJH datasets contains no XREF data. Do not assign MENU as the Startup Transaction for the N2OLIB application until the installation process is complete.

The SYSOBJH process will load Natural modules to the libraries listed above, as well as the SYSTEM library. All programs loaded to the SYSTEM library are prefixed "N2O".

Executing SYSOBJH in a Natural Security environment requires a specific utility security definition for the SYSOBJH utility. Natural Security sites should verify the Natural Security settings before proceeding with the N2O installation.

The electronic distribution of N2O includes sample JCL in the dataset PREFIX.N2O.Vvrs.LOADN2O.JCL that can be executed in place of completing steps 2 thru 5 of this install section.

Sites choosing to run the LOADN2O JCL should do the following:

- Edit the sample JCL in the dataset PREFIX.N2O.Vvrs.LOADN2O.JCL
  - Edit the JOB card to site standards
  - SET the symbolic parameter PREFIX to a suitable dataset name prefix
  - SET the symbolic parameter LOADVOL to the disk pack the N2O Datasets reside on.
  - In the ADAUTIL PROC, change the STEPLIB to the ADABAS load library and DDASSOR1, DDDATAR1, DDTEMPR1, & DDSORTR1 to the appropriate ADABAS dataset for the database to contain the N2O system files.
  - In the N2ONAT PROC, Change PGM= to the NATURAL nucleus where N2O will be installed.
  - If necessary in the N2ONAT PROC, replace the PARM='IM=D,INTENS=1' with the NATURAL parameters required to access the NATURAL nucleus where N2O will be installed.
  - Change to STEPLIBs to the appropriate ADABAS and NATURAL Loadlibs
  - Change all ADARUNs to the proper SVC, DEVICE, & DBID
  - Run the modified LOADN2O JOB.
  - Proceed to Step 6.
2. Execute the NATURAL SYSOBJH Utility to load the N2O programs and SYSERR messages from the first file on the tape to the desired development FUSER file. If N2O is being loaded from an email distribution, the SYSOBJH file from the email distribution should be loaded.

Sample z/OS JCL to load N2O programs using SYSOBJH follows:

```
//N2OIN STL JOB(nnn),'INSTALL N2O',CLASS=A
//*
//SYSOBJH EXEC NATURAL
//*
//CMWKF01 DD DSN=N2O.Vvrs.SYSOBJH,DISP=SHR
// UNIT=TAPE,VOL=SER=N2Ovrs
// LABEL=(1,SL)
//*
//CMSYNIN DD *
SYSOBJH LOAD ALL * REPLACE FIN
//
```

3. Execute the NATURAL SYSOBJH Utility to load the Autocompile and batch migration programs from the sixth file on the tape to the source or target FUSER file(s). If N2O is being loaded from an email distribution, the SYSOBJH.SYS file from the email distribution should be loaded.

A source FUSER file is an FUSER file from which objects are migrated. A target FUSER file is an FUSER file to which objects are migrated. Autocompile and batch migrations will not work in a source or target FUSER unless these programs exist on that FUSER. The SYSOBJH process loads these programs into the NATURAL library SYSTEM.

Sample z/OS JCL to load N2O programs using SYSOBJH follows:

```
//N2OIN STL JOB(nnn),'INSTALL N2O',CLASS=A
//*
//NATLOAD EXEC NATURAL
//*
//CMWKF01 DD DSN=N2O.Vvrs.NSYSOBJH.SYS,DISP=SHR
// UNIT=TAPE,VOL=SER=N2Ovrs
// LABEL=(6,SL)
//*
//CMSYNIN DD *
SYSOBJH
LOAD ALL * REPLACE FIN
//
```

4. N2O may be distributed with cumulative fix datasets. Refer to **Section II.10 Loading of Official Fixes** to install the fixes.
5. Load the three N2O ADABAS files from the fourth through the sixth files on the tape to an ADABAS database that will be accessible to the NATURAL Nucleus that N2O will be executed from. The installation tape contains ADABAS V6 ADACMP compressed format datasets for each N2O file. These datasets may be input directly into the ADABAS ADALOD utility. The files may be loaded empty. The files to be loaded are:

| N2O FILE           | COMMENTS  | SPACE EST.                              |
|--------------------|---|---|
| N2O-ADMINISTRATION | Maintains migration standards and Project Tracking information. | DSSIZE=100B<br>UISIZE=20B<br>NISIZE=50B |
| N2O-MIGRATION      | Maintains the audit trail for all migrations.                   | DSSIZE=15<br>UISIZE=100B<br>NISIZE=2    |
| N2O-ARCHIVE        | Maintains previous versions of objects (optional).              | DSSIZE=20<br>UISIZE=50B<br>NISIZE=2     |

If you are using the Electronic Distribution, the Adabas FDTs are distributed in SYSOBJH format and should be loaded using the SYSOBJH utility. Once the SYSOBJH FDT is loaded, SYSAOS should be used to create the corresponding ADABAS file. The SYSAOS Display FDT option can be used to view the FDT. It will show the FDT and say >>> FILE DELETED, BUT FDT KEPT <<<. Execute the DEFINE NEW FILE function from the SYSAOS File Maintenance screen to define the file.

The space estimates presented are for a system of 10,000 objects managed by N2O. The space required varies based on the number of objects to be maintained, the frequency of migration, and the number of versions of objects to be kept within the N2O-ARCHIVE file. All of the N2O files may be loaded with an initial space of 100 blocks during the testing period.

6. Optional step to load the Predict DDEs.

Execute the PREDICT Load function to load the N2O DDEs from the second file on the tape to PREDICT. The DDEs were unloaded from PREDICT 4.1 and will load into a Predict 4 or higher environment. The DDEs are provided to allow for site-specific reporting and are not required by N2O.

Sample z/OS JCL to load the N2O DDEs follows:

```
//N2OIN STL      JOB (nnn), 'INSTALL N2O', CLASS=A
//*
//PRDDDES      EXEC  NATURAL
//*
//CMWKF01      DD    DSN=N2O.Vvrs.DDES, DISP=SHR,
//              UNIT=TAPE, VOL=SER=N2Ovrs,
//              LABEL=(2, SL)
//*
//CMWKF03      DD    DSN=&&TEMP, DISP=(, PASS),
//              UNIT=SYSDA, SPACE=(TRK, 1)
//*
//CMSYNIN      DD    *
LOGON SYSDICBE
MENU
LOAD ALL, REPLACE=Y
FIN
//
```

If you are using the Electronic Distribution, the N2O ADABAS files definitions are provided as SYSOBJH DDMs. Execute the NATURAL SYSOBJH Utility to load them

7. Edit the NATPARM module for each NATURAL nucleus under which N2O functions execute. The following changes must be applied.

Using the NTDB macro, specify the type of each database that N2O will access. For example, if N2O will access the following version 8 databases: 32, 200, 600 executing in a NATURAL 3.1 environment, the NATPARM entry would look like the following:

```
NTDB ADAV8,(32,200,600)
```

Refer to the NATURAL Installation Manual for more information.

8. Edit the NATPARM module for each NATURAL nucleus under which N2O functions will execute. Insert three NTLFILE (NATURAL 4.x) macro invocations after the last line in the NATPARM macro but before the END statement. Code the invocations as follows:

NATURAL 4.x:

|                     |                    |
|---------------------|--------------------|
| NTLFILE 155,daa,faa | N2O-ADMINISTRATION |
| NTLFILE 156,dmm,frm | N2O-MIGRATION      |
| NTLFILE 157,drr,frf | N2O-ARCHIVE        |

Where:

daa = The ADABAS DBID of the N2O Administration file

faa = The file number of the N2O Administration file

dmm = The ADABAS DBID of the N2O Migration file

frm = The file number of the N2O Migration file

drr = The ADABAS DBID of the N2O Archive file

frf = The file number of the N2O Archive file

**Note:** The File IDs (155,156,157) shown above are used internally by N2O. They do not affect any file on the database that has a file number 155 - 157.

9. If the NATPARM module is modified, assemble it using the standard NATPARM assembly procedure. The assembly should receive a condition code of 0.
10. Relink any modified NATPARM modules. No modifications to the standard JCL used to link NATURAL are required, and no additional INCLUDE statements are needed. If necessary, recycle the CICS or COM-LETE region to load the new NATURAL executable module as resident.
11. N2O requires Software AG supplied user-exits to reside in the SYSTEM library.

Start a NATURAL session, logon to the SYSTEM library, and execute the program N2OUCPY. This program will copy Software AG supplied user-exits from the 'SYSEXT' library on the FNAT file to the SYSTEM library on the FUSER file and to the SYSLIB library on the FNAT. This program must be executed on the FUSER N2O is installed on and every source or target FUSER file (the same FUSERS that step 3 was performed on). The Software AG supplied user-exits that N2O copies are USR0011N, USR0050N, USR0080N, USR1022N, USR1043N, USR2004N, USR2010N and USR2020N.

If a NAT0082 error occurs when N2OUCPY is executed, copy the module 'MAINUSER' from the SYSTEM library on the FNAT file to the SYSTEM library on the FUSER file.

12. By default, \*INIT-USER is used to identify the User-ID of the user accessing N2O. The N2O Initialization Exit, N2OUE00N, may be modified to supply a different value for the N2O User-ID if \*INIT-USER is unacceptable. For more information, refer to **Section V.3 User-Exits**.

Invoke NATURAL and logon to N2OLIB. Type "INITIAL" and press Enter. The program INITIAL creates an Administrator User-ID for the user invoking the program. This User-ID has security to access all N2O menus and sub-functions.

13. N2O is distributed as an "expired trial". To activate N2O, invoke NATURAL, logon to N2OLIB and type N2O0001P and press Enter. Enter the password supplied by TSI and press Enter.
14. Verify the N2O installation is complete by logging on to N2OLIB and typing "N2OVRFY". If the installation is complete, a 'Verification Successful' message will be blinking on the Installation Verification Summary screen. If it is not, the message 'Verification Failed' will be displayed. Refer to **Section II.7 Verify the N2O Installation** for a detailed explanation of the N2OVRFY program.
15. It is necessary to define security for all users. For information about assigning security, refer to **Section IV Security Administration**. Configure the environment by following the progression of the Environment Subsystem.
16. If the N2O Autocompile feature is to be used, refer to **Section II.5 Autocompile Requirements** for additional installation instructions.
17. If N2OEDIT is to be used, refer to **Section II.6 N2OEDIT Installation** for additional installation instructions.
18. Once the N2O environment is set up by the DBA, the system is ready for migrating objects and providing reports. N2O provides user-exits that allow control to be passed to a user-written NATURAL object. User-exits are intended for verifying field values, providing security checks, and interfacing with other software. For more information, refer to **Section V.3 User-Exits**.
19. Execute N2O Catalog Capture for all environments. For more information, refer to **Section III.8.3 Catalog Capture**.

#### **II.4 Converting from N2O 5.x to N2O 5.3**

This section is for sites upgrading from N2Ov5.x to N2Ov5.3. Sites running versions of N2O prior to N2Ov5.x should contact Treehouse Software, Inc. for upgrade instructions.

The following installation instructions apply to z/OS, OS/390, VSE, VM, and BS2000 operating systems. JCL examples are shown only for z/OS in this section. The conversion consists of both batch and on-line steps. Sample JCL and EXECs are provided for the batch steps and are used as references to assist in creating the JCL or EXECs for the N2O conversion. It is recommended that the JCL or EXECs used to install the previous release of N2O be used as a model for developing JCL or EXECs to convert to the latest release.

The steps to upgrade N2O are as follows:

1. Backup previous version of N2O.
  - Perform ADASAV of existing N2O files (N2O-ARCHIVE, N2O-MIGRATION, N2O-ADMINISTRATION).
  - Perform a SYSOBJH backup of N2O v5.x N2OLIB, N2OBATCH, N2ODOCS, and N2OSCAN libraries. Sites that have customized N2O modules in the Natural SYSTEM library

- Sites with customized versions of the N2O modules that reside in the Natural SYSTEM library should perform a SYSOBJH of the N2O\* modules that reside there.
2. The N2OBATCH library contains programs with sample JCL and EXECs for use in the various N2O batch operations. Some sites customize the JCL in this library. Save any custom JCL programs by copying them to another library (e.g., N2OJCL). If N2OBATCH contains custom JCL and it is not copied, loss of custom coding may occur.
  3. Save any modifications made to the N2O, N2OEDIT\*, and N2OUE\* (N2O user-exits) modules in the Natural libraries SYSTEM or N2OLIB by copying them to another library.
  4. Scratch all modules from the N2OLIB, N2OBATCH, and N2ODOCS libraries. Scratch modules prefixed with N2O from all the SYSTEM libraries.
  5. Logon to SYSERR and purge all error messages for the N2OLIB application.
  6. The electronic distribution of N2O includes sample JCL in the dataset PREFIX.N2O.vvrs.LOADN2O.JCL that will execute steps 7, 8, and 10.

Sites choosing to run the LOADN2O JCL should do the following:

- a. Edit the sample JCL in the dataset PREFIX.N2O.Vvrs.LOADN2O.JCL
    - Edit the JOB card to site standards
    - SET the symbolic parameter PREFIX to a suitable dataset name prefix
    - SET the symbolic parameter LOADVOL to the disk pack the N2O Datasets reside on.
    - Delete the ADAUTIL proc and JCL steps LODADM, LODMIG, LODARC
    - In the N2ONAT PROC, Change PGM= to the NATURAL nucleus where N2O will be installed.
    - If necessary in the N2ONAT PROC, replace the PARM='IM=D,INTENS=1' with the NATURAL parameters required to access the NATURAL nucleus where N2O will be installed.
    - Change to STEPLIBs to the appropriate ADABAS and NATURAL Loadlibs
    - Change all ADARUNs to the proper SVC, DEVICE, & DBID
  - b. Run the modified LOADN2O JOB.
  - c. Proceed to Step 11 (also complete step 9 if the N2O DDMS are used).
7. Execute the SYSOBJH Utility to load the N2O programs from the first file on the tape to the desired development FUSER file. If N2O is being loaded from an email distribution, the SYSOBJH file from the email distribution should be loaded.

This process loads programs into the following NATURAL libraries:

N2OLIB  
N2OBATCH  
N2ODOCS

All programs loaded to the SYSTEM library are prefixed with N2O. Sample z/OS JCL to load N2O programs using SYSOBJH follows:

```
//N2OIN STL JOB(nnn),'INSTALL N2O',CLASS=A
//*
//SYSOBJH EXEC NATURAL
//*
//CMWKF01 DD DSN=N2O.Vvrs.SYSOBJH,DISP=SHR
```

```
//          UNIT=TAPE,VOL=SER=N2Ovrs
//          LABEL=(1,SL)
//*
//CMSYNIN  DD      *
SYSOBJH
LOAD ALL * REPLACE
FIN
//
```

8. N2O may be distributed with cumulative fix datasets. Refer to **Section II.10 Loading of Official Fixes** to install the fixes.
9. Execute the PREDICT Load function to load the N2O DDEs from the second file on the tape to PREDICT. The DDEs were unloaded from PREDICT 4.1 and will load into a Predict 4 or higher environment. The DDEs are provided to allow for site-specific reporting and are not required by N2O.

Sample z/OS JCL to load the N2O DDEs follows:

```
//N2OIN STL JOB (nnn), 'INSTALL N2O', CLASS=A
//*
//PRDDDES  EXEC NATURAL
//*
//CMWKF01  DD   DSN=N2O.Vvrs.DDES, DISP=SHR,
//           UNIT=TAPE, VOL=SER=N2Ovrs,
//           LABEL=(2,SL)
//*
//CMWKF03  DD   DSN=&&TEMP, DISP=(, PASS),
//           UNIT=SYSDA, SPACE=(TRK, 1)
//*
//CMSYNIN  DD      *
LOGON SYSDICBE
MENU
LOAD ALL, REPLACE=Y
FIN
//
```

If you are using the Electronic Distribution, the N2O ADABAS files definitions are provided as SYSOBJH DDMs. Execute the NATURAL SYSOBJH Utility to load them

10. Execute the NATURAL SYSOBJH Utility to load the Autocompile and batch migration programs from the seventh file on the tape to the source or target FUSER file(s). If N2O is being loaded from an email distribution, the SYSOBJH.SYS file from the email distribution should be loaded.

A source file is an FUSER file from which objects are migrated. A target FUSER file is an FUSER file to which objects are migrated. Autocompile and batch migration do not work in a source or target FUSER unless these programs exist on that FUSER. The SYSOBJH process loads these programs into the NATURAL library SYSTEM.

Sample z/OS JCL to load N2O programs using SYSOBJH follows:

```
//N2OIN STL JOB (nnn), 'INSTALL N2O', CLASS=A
//*
//SYSOBJH  EXEC NATURAL
//*
//CMWKF01  DD   DSN=N2O.Vvrs.SYSOBJH.SYS, DISP=SHR
//           UNIT=TAPE, VOL=SER=N2Ovrs
//           LABEL=(7,SL)
//*
//CMSYNIN  DD      *
SYSOBJH
LOAD ALL * REPLACE
FIN
//
```

Note any cumulative N2O SYS.FIX datasets should be loaded to these environments. Refer to Section II.10 Loading of Official Fixes step 3 on how to install the SYS fix.

11. Sites that have loaded the N2O DDEs and generated DDMs should regenerate the DDMS to incorporate the file changes documented in Step 12.
12. Apply the following file changes:

N2O v5.1 file changes:

A new Superdescriptor has been added to the N2O-ADMINISTRATION file.

Add the following Superdescriptor using ADAINV:

S8=BB(1,1),C4(1,8),BA(1,8) \* KEY-GROUP-USER

A new Superdescriptor has been added to the N2O-MIGRATION file.

Add the following Superdescriptor using ADAINV:

SI=AA(1,1),CO(1,16) \* KEY-ARCH-DT-COMP

N2O v5.2 file changes:

The Event-Sequence field has been expanded on all files requiring the changes listed below.

N2O-Archive file:

Change the length of the following field using ADADBS CHANGE or SYSAOS:

Field AJ increased from U(5) to U(7)

Modify the following Superdescriptor using ADAINV:

Superdescriptor S2 increased from A(35) to A(37)

S2=AI(1,8),AJ(1,7),AL(1,4),AA(1,8),AB(1,10)

N2O-Migration file:

Change the length of the following field using ADADBS CHANGE or SYSAOS:

Field AD increased from U(5) to U(7)

Field AQ increased from U(5) to U(7)

Field MG increased from U(5) to U(7)

Modify the following Superdescriptor using ADAINV:

S1 increased from A(14) to A(16)

S1=AA(1,1),AC(1,8),AD(1,7)

SD increased from A(48) to A(50)

SD=AC(1,8),AD(1,7),MA(1,1),CA(1,32),CB(1,2)

S3 increased from A(15) to A(17)

S3=AA(1,1),AB(1,1),AC(1,8),AD(1,7)

S6 increased from A(53) to A(55)

S6=AC(1,8),AD(1,7),AI(1,8),CA(1,32)

SA increased from A(25) to A(27)

SA=AC(1,8),AD(1,7),MA(1,1),CB(1,1),CA(1,10)

SH increased from A(23) to A(25)

SH=AA(1,1),AB(1,1),BL(1,8),AC(1,8),AD(1,7)

13. A new Software AG supplied user-exit (USR2010N) is required. Start a NATURAL session, logon to the SYSTEM library, and execute the program N2OUXCPY. This program will copy Software AG supplied user-exits from the 'SYSEXT' library on the FNAT file to the SYSTEM library on the FUSER file and to the SYSLIB library on the FNAT. This program must be executed on the FUSER N2O is installed on and every source or target FUSER file (the same FUSERS that step 3 was performed on). The Software AG supplied user-exits that N2O copies are USR0011N, USR0050N, USR0080N, USR1022N, USR1043N, USR2004N, USR2010N and USR2020N.

If a NAT0082 error occurs when N2OUXCPY is executed, copy the module 'MAINUSER' from the SYSTEM library on the FNAT file to the SYSTEM library on the FUSER file.

14. Edit the NATPARAM module for each NATURAL nucleus under which N2O functions execute. The following changes must be applied (if not already specified).

Using the NTDB macro, specify the type of each database that N2O will access. For example, if N2O will access the following version 8 databases: 32, 200, 600, executing in a NATURAL 3.1 environment, the NATPARAM entry would look like the following:

```
NTDB ADAV8,(32,200,600)
```

Refer to the NATURAL Installation Manual for more information.

15. If the NATPARAM module is modified, assemble it using the standard NATPARAM assembly procedure. The assembly should receive a condition code of 0.
16. Relink any modified NATPARAM modules. No modifications to the standard JCL used to link NATURAL are required, and no additional INCLUDE statements are needed. If necessary, recycle the CICS or COM-LETE region to load the new NATURAL executable module as resident.
17. The release notes detail any changes to the N2O user exits. Adjust any site-specific code that was copied in steps 1 or 2 to utilize the enhanced user-exits, and then copy them back to the originating library and stow them. Note that N2OUE14N is now delivered with BUILD-EXTRACT defaulted to False (older versions defaulted this value to True). As a result, N2O will only submit one batch job for NATURAL and PREDICT Objects (using the JCL Program specified on the Migration Profile). This is the setting that all sites using any version of Predict higher than v3.3 should use.
18. Customized JCL and EXECs impacted by the upgrade must be modified to reflect necessary changes. The sample JCL members listed below have been modified. The changes are documented in each member by a line similar to the following:

```
/** N2OV5.2 CHANGE CMWKF03 LRECL FROM 97 TO 99
```

N2O v5.1 JCL changes

|             |          |
|-------------|----------|
| Event Purge | MVSEVNTP |
|-------------|----------|

N2O v5.2 JCL changes

|                 |                 |
|-----------------|-----------------|
| Archive purge   | MVSARCHP        |
| Deferred move   | MVSDMOVE        |
| Batch migration | MVSMIG, MVSMIGP |
| N2OPURGE        | MVSPURGE        |

19. N2O is distributed as an "expired trial" tape. To activate N2O, invoke NATURAL, logon to N2OLIB, and type N2O0001P. Enter the password supplied by TSI.
20. Verify the N2O installation is complete by logging on to N2OLIB and typing "N2OVRFY". If the installation is complete, a 'Verification Successful' message will be blinking on the Installation Verification Summary screen. If it is not, the message 'Verification Failed' will be displayed. Refer to **Section II.7 Verify the N2O Installation** for a detailed explanation of the N2OVRFY program.

21. Sites using Autocompile and N2OEDIT must reinstall both components.

### **II.5 Autocompile Requirements**

If NATURAL Security (NSC) is installed, the Autocompile users must be able to do the following:

- Issue a LOGON to the library where compilation is to occur
- Execute programs in the SYSTEM library prefixed with N2O
- Access the editors and the catalog commands (e.g., CAT, STOW, SAVE)

If N2OUE00N is used, the changes must be placed in the SYSTEM library of all FUSERS where on-line Autocompile is executed.

#### **Installing Autocompile**

To install N2O Autocompile, execute the following steps:

1. Logon to SYSMAIN for the FNAT on which N2O is installed.
2. Copy N2OCATAL and N2OCATER from the FUSER library N2OLIB or FUSER library SYSTEM to the FNAT library SYSLIB.
3. Rename ACATALL as ACATALL2 in SYSLIB. **DO NOT** replace an existing version of ACATALL2 unless a new version of NATURAL has been installed.
4. Rename N2OCATAL as ACATALL in SYSLIB, replacing any previous versions of ACATALL. This enables the N2O Autocompile programs to be invoked. If the user is requesting a standard CATAL, then ACATALL2 is invoked.

Repeat the steps above for each FNAT where N2O Autocompile is to be executed.

**Note:** Autocompile must be reinstalled every time a new version of NATURAL is installed.

**Note:** To execute Autocompile online, during the regular migration process, without user intervention, activate User-Exit 4 with the sample code supplied. Refer to **Section V.3.7 Event Completion Exit (N2OUE04N)** for details.

Starting with N2O v5.1, a new user exit (N2OUE28N) will allow online autocompiles to automatically execute instead of displaying the EVENTS PENDING AUTOCOMPILE screen.

### **II.6 N2OEDIT Installation**

N2OEDIT is an optional utility, which limits editing of programs. N2OEDIT may only be used with the Checkout/Checkin or Locking features. When Checkout/Checkin is activated, N2OEDIT protects NATURAL objects by allowing users to edit only NATURAL objects they have checked out. Editing must occur in the current checkout location. For more information about activating Checkout/Checkin, refer to **Section III.2 Install Parm.**

When Locking is activated, N2OEDIT prevents users from editing NATURAL objects that are in a request to migrate or NATURAL objects that have been authorized to migrate. For more information about the Locking feature, refer to **Section III.2 Install Parm.**

To install N2OEDIT, execute the following steps:

1. N2OEDIT may be tailored to site requirements using several N2O User Exits. These exits are N2OEDITU, N2OEDITM, N2OEDITG, NDV-UX01 (NDV only). These exits should be modified before proceeding with N2OEDIT installation. For example, these exits may be coded to ignore the verification process when editing in personal libraries or to exclude special libraries and users from N2OEDIT processing. Refer to **Section V.3.31 N2O Control Override Exits** for more detail.

|   |
|---|
| <b>Note:</b> The N2OEDIT User exits must be reinstalled every time a new version of NATURAL is installed. |
|---|

2. Link the N2O Migration and Administration files to the NATPARM(s) of each environment where N2OEDIT will be used to limit editing.
3. Logon to SYSMAIN.
4. Copy N2OEDIT, N2OEDITM and N2OEDITU from the FUSER containing library N2OLIB to library SYSLIB on the FNAT file.
5. Rename AEDIT as OLDEDIT in SYSLIB. **DO NOT** replace an existing version of OLDEDIT unless a new version of NATURAL has been installed.
6. Rename N2OEDITU as AEDIT in SYSLIB. This enables N2OEDIT to be called when the editor is invoked. If the edit request is valid, N2OEDIT then invokes OLDEDIT to allow the program to be modified.
7. Rename SUMINP as OLDSMINP in SYSLIB. **DO NOT** replace an existing version of OLDSMINP unless a new version of NATURAL has been installed.
8. Rename N2OEDITM as SUMINP in SYSLIB. This enables N2OEDIT to be called when the L M command is used to edit a Map. If the edit request is valid, N2OEDIT then invokes SUMINP to allow the program to be modified.
9. If N2OUE00N is to be used in the N2OEDIT user exits, it must be copied from the FUSER containing library N2OLIB to library SYSLIB on the FNAT file. N2OUE00N should only be used by N2OEDIT if it is used by N2O. Repeat the steps above for each FNAT where editing is to be controlled by N2O.

#### **SITES USING CONSTRUCT (COMPLETE STEPS 10, 11, AND 12)**

10. Copy N2OEDIT and N2OEDITG from the FUSER containing library N2OLIB to library SYSCST or library SYSLIBS for Construct 4.5.1 and above on the FNAT file.
11. Rename CSGEDIT as OLDGEDIT in SYSCST or SYSLIBS for Construct 4.5.1 and above. **DO NOT** replace an existing version of OLDGEDIT unless a new version of CONSTRUCT has been installed.
12. Rename N2OEDITG as CSGEDIT in SYSCST or SYSLIBS for Construct 4.5.1 and above. This enables N2OEDIT to be called when the Construct user-exit editor is invoked. If the edit request is valid, N2OEDIT then invokes CSGEDIT to allow the program to be modified.

#### **SITES USING Natural Development Server (NDV) (COMPLETE STEP 13)**

13. A sample user exit named NDV-UX01 is provided in the N2OLIB library. This exit should be customized similar to the N2OEDITU module, then installed by copying the source and object code into the Natural Library SYSLIB. (as documented in the Natural Development Server, User Exit Routine documentation). Copy N2OEDITG from the FUSER containing library N2OLIB to library SYSTEM on the FUSER file. This will enable N2OEDIT to be called in an NDV environment when a user attempts to edit.

**II.7 Verify the N2O Installation**

N2O includes a special program (N2OVRFY), which verifies that N2O is properly installed. N2OVRFY ensures the following:

- NATURAL is properly configured for N2O
- The N2O modules are installed correctly
- The proper files are installed and accessible
- Assists with the troubleshooting of common problems

To verify that N2O is installed correctly, invoke NATURAL and LOGON to N2OLIB. Then type N2OVRFY and press Enter. N2OVRFY checks the installation and displays the following summary screen.

```

10-01-26          N-2-O Installation Verification          TSI073
21:02:11          Summary                                SCOTCP30

Natural User Exits installed in SYSTEM Library on the FUSER : YES
Natural User Exits installed in SYSLIB Library on the FNAT  : YES
Autocompile Installed : NO   N2OEDIT Installed : NO

                                     FDT
Detected Versions  Lfiles           Dbid  Fnr   Compared w/ V5.2  File Query
-----
NATURAL : 8.2.3    FUSER           :    3    9  N/A              N/A
PREDICT  : 8.2.2    FDIC            :    3   11 N/A              N/A
N2O      : 5.3.1    N2O-ADMIN (155):    3   76 ALL IDENTICAL  SUCCESSFUL
                N2O-MIGRATE (156):  3   77 ALL IDENTICAL  SUCCESSFUL
                N2O-ARCHIVE (157):  3   78 ALL IDENTICAL  SUCCESSFUL

N2O Status : Trial to 14-05-01   Verification Successful!

                               Env. Defs.  Archive Defs.
Valid                               2          1
Invalid                             0          0
    
```

If the message, "Verification Successful" is returned, the installation has been completed successfully and N2O is ready to execute.

The following PF-keys are provided for detailed analysis:

| PF-key    | Function | Description  |
|-----------|----------|--|
| PF3/PF15  | END      | Exits N2OVRFY on Summary screen. Returns to Summary screen on other screens.                       |
| PF4/PF16  | A/E      | Shows objects installed for N2O Autocompile and N2OEDIT modules in the SYSLIB library on the FNAT. |
| PF5/PF17  | OBJ      | Shows objects installed for N2O in NATURAL system libraries.                                       |
| PF7/PF19  | ENV      | Scans all local non3GL environment definitions for valid FUSER & FDIC files.                       |
| PF8/PF20  | AENV     | Scans all local Archive definitions for valid N2O Archive files.                                   |
| PF9/PF21  | ADM      | Checks the ADABAS definition of the N2O Administration file.                                       |
| PF10/PF22 | MIG      | Checks the ADABAS definition of the N2O Migration file.  |

| PF-key    | Function | Description  |
|-----------|----------|--|
| PF3/PF15  | END      | Exits N2OVRFY on Summary screen. Returns to Summary screen on other screens. |
| PF4/PF16  | OBJ      | Shows Installed objects for N2O in NATURAL system libraries.                 |
| PF7/PF19  | ENV      | Scans all local non3GL environment definitions for valid FUSER & FDIC files. |
| PF8/PF20  | AENV     | Scans all local Archive definitions for valid N2O Archive files.             |
| PF9/PF21  | ADM      | Checks the ADABAS definition of the N2O Administration file.                 |
| PF10/PF22 | MIG      | Checks the ADABAS definition of the N2O Migration file.                      |
| PF11/PF23 | ARC      | Checks the ADABAS definition of the N2O Archive file.                        |

The OBJ function returns the following screen, showing installed NATURAL User Exits to the SYSTEM library on FUSER and SYSLIB library on FNAT.

```

13-10-04          N-2-O Installation Verification          VLM1
14:57:53          NATURAL USER EXITS (USR Modules)        SC0TCP06

SYSTEM  library on FNAT          SYSLIB  library on FNAT
-----
USR0011N NAT822  11-07-26 12:05:43  USR0011N NAT822  11-07-26 12:05:43
USR0050N NAT822  11-07-26 12:05:43  USR0050N NAT822  11-07-26 12:05:43
USR0080N NAT822  11-07-26 12:05:43  USR0080N NAT822  11-07-26 12:05:43
USR1022N NAT822  11-07-26 12:05:45  USR2004N NAT822  11-07-26 12:05:47
USR1043N NAT823  11-11-21 14:13:45
USR2004N NAT822  11-07-26 12:05:47
USR2010N NAT822  11-07-26 12:05:47
USR2020N NAT822  11-07-26 12:05:47

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12-
-----  ----  END  SUMM  A/E  UEXIT  ENV  AENV  ADM  MIG  ARC  ----
    
```

The following PF-keys are provided for the NATURAL Objects screen:

| PF-key   | Function | Description  |
|----------|----------|--|
| PF4/PF16 | SUMM     | Returns to Summary screen.   |
| PF5/PF17 | A/E      | Shows objects installed for N2O Autocompile and N2OEDIT modules in the SYSLIB library on the FNAT. |
| PF6/PF18 | UEXIT    | Pop up window showing NATURAL Userexits in the library SYSEXT on the FNAT for comparison purposes. |

The A/E function returns the following screen, showing installed N2O Autocompile and N2OEDIT modules in the SYSLIB library on the FNAT are shown.

```

13-10-04          N-2-O Installation Verification          TSI373
15:03:09          Autocompile / N2OEDIT                  SC0TCP06

Autocompile in SYSLIB library on FNAT  Edit in SYSLIB library on FNAT
-----
ACATALL  NAT824   13-01-09 10:05:15  N2OEDIT  N2OV531  10-02-26 21:51:49
ACATALL2 NAT822   11-07-26 12:03:51  N2OUE00N Missing
N2OCATER N2OV531  10-02-26 21:56:46  AEDIT    NAT822   11-07-26 12:03:52
                                OLDEDIT  NAT822   11-07-26 12:03:52
                                SUMINP   NAT823   12-08-01 13:10:04
                                OLDSMINP NAT822   11-07-26 12:07:50
                                Edit in SYSLIBS library on FNAT
-----
                                CSGEDIT  Missing
                                OLDGEDIT Missing

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12-
-----  -----  END  OBJ  SUMM  -----  ENV  AENV  ADM  MIG  ARC  -----

```

The following PF-keys are provided for the NATURAL Objects screen:

| PF-key   | Function | Description  |
|----------|----------|--|
| PF4/PF15 | OBJ      | Shows objects installed for N2O in NATURAL system libraries. |
| PF5/PF17 | SUMM     | Returns to Summary screen.                                   |

The ADM, MIG, and ARC function (PF9, PF10, or PF11 from the Installation Verification Summary screen) checks the ADABAS definition of the appropriate N2O file and returns the following screen for the requested file. The ADM, MIG and ARC functions are disabled if the NATURAL user-exits are not installed or the appropriate N2O file is unavailable.

```

13-10-04          N-2-O Installation Verification          TSI373
15:06:11          N2O-ARCHIVE Dbid: 3          Fnr: 157          SC0TCP06
                   Current FDT          Matches          N2O V5.3 FDT
-----
1 AA   8 A NU PS          YES          1 AA   8 A NU PS
1 AB  32 A NU PS          YES          1 AB  32 A NU PS
1 AC   2 A NU PS          YES          1 AC   2 A NU PS
1 AD  90 A MU NU          YES          1 AD  90 A MU NU
1 AE 250 A MU NU          YES          1 AE 250 A MU NU
1 AF   8 A NU             YES          1 AF   8 A NU
1 AG   8 A NU             YES          1 AG   8 A NU
1 AH  16 A NU PS          YES          1 AH  16 A NU PS
1 AI   8 A NU PS          YES          1 AI   8 A NU PS
1 AJ   7 U NU PS          YES          1 AJ   7 U NU PS
1 AK   2 A NU             YES          1 AK   2 A NU
1 AL   4 A NU PS          YES          1 AL   4 A NU PS
1 AM   4 A NU PS          YES          1 AM   4 A NU PS
1 S1           DE NU          YES          1 S1           DE NU
2 AH           (1:16)          YES          2 AH           (1:16)
2 AB           (1:10)          YES          2 AB           (1:10)
1 S2           DE NU          YES          1 S2           DE NU

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12-
-----  -----  END  TOP  = NO  -----  -----  DOWN  -----  -----

```

The following additional PF-keys are provided for ADABAS file definition analysis screen:

| PF-key   | Function | Description   |
|----------|----------|---|
| PF5/PF16 | = NO/ALL | Toggle between Show fields that do not match / Show all fields. |

The ENV function (PF7 from the Installation Verification Summary screen) queries the N2O Administration file for all local non-3GL environment definitions, checks the NATURAL FUSER and FDIC files to determine if the files are valid ADABAS files by the response code returned and displays the following screen. The ENV function is disabled if the NATURAL user-exits are not installed or the N2O-ADMINISTRATION file is unavailable. Invalid information on this screen does not prevent a successful installation of N2O. It should be used only to validate that the N2O Administrator has defined the local N2O environments correctly.

```

01-12-31          N-2-O Installation Verification          TSI0373
11:38:00          Verify Local Environments              TSI1
  Env
  Def   Node Dbid  Fnr  Vr RC   Node Dbid  Fnr  Vr RC   Env
  ----  - - - - -  - - - - -  - - - - -  - - - - -  - - - - -  - - - - -
  PROD  CPUL  200   12   6  0   CPUL   200  10   6  0   Available
  TEST  CPUL  201   12   5  0   CPUL   201  10   5  0   Available
  QA    CPUL  202   12   5  0   CPUL   202  10   5  0   Available
  Y2K   CPUL  203   12   5  0   CPUL   203  10   5  0   Available
  DEV   CPUL  204   12   5  0   CPUL   204  10   5  0   Available
  DEV1  CPUL  205   12   5  0   CPUL   205  10   5  17  FDIC Invalid
  DEV2  CPUL  206   12   5 148  CPUL   206  10   5 148  FUSER/FDIC Invalid
  DEV3  CPUL  207   12   5  17  CPUL   207  10   5  0   FUSER Invalid
  BETA  CPUL  208   12   5  17  CPUL   208  10   5  17  FUSER/FDIC Invalid
  SECR  CPUL  100   12   5 200  CPUL   100  10   5 200  FUSER/FDIC Invalid

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

The AENV function (PF8 from the Installation Verification Summary screen) queries the N2O Administration file for all local archive definitions, checks the Archive files to determine if the files are valid ADABAS files, the FDTs are properly defined and by the response code returned and displays the following screen. The AENV function is disabled if the NATURAL user-exits are not installed or the N2O-ADMINISTRATION file is unavailable. Invalid information on this screen does not prevent a successful installation of N2O. It should be used only to validate that the N2O Administrator has defined the local N2O Archive environment correctly.

```

01-12-31          N-2-O Installation Verification          TSI0373
11:38:00          Verify Local Archive Environments      TSI1
  S Def   Node Dbid  Fnr  Vr RC   Status
  - - - - -  - - - - -  - - - - -  - - - - -  - - - - -
  _ ARC1  CPUL  200   14   5  0   Archive Valid
  _ ARC2  CPUL  201   14   5  0   Archive Valid
  _ ARC3  CPUL  202   14   5  17  Archive Invalid - RC: 17
  _ ARC4  CPUL  203   14   5  0   Archive Invalid - 35 DIFFERENT
  _ ARC5  CPUL  204   14   5  0   Archive Valid

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

| Field | Description  |
|-------|--|
| S     | "X" in the Select field displays the ARCH function screen for the selected archive file. |

## II.8 **Verification Failed from N2OVRFY**

In the event of a “Verification Failed” message, the following list should be checked.

### Problems Encountered by N2OVRFY

- 1) NATURAL user-exits installed in SYSTEM Library on the FUSER; NO or NATURAL user-exits installed in SYSLIB Library on the FUSER; NO or Detected NATURAL or PREDICT Version is ‘NUE’ or All LFILES have value of 0.

Solution:

- a) Use PF4 (OBJ) to determine which USR Objects are missing. The message “Miss V23” indicates that USR0050N and USR2004N are missing. USR0050N is used to determine what level of NATURAL a site is running. USR2004N is required when running NATURAL version 2.3 and above. “Miss V31” indicates that USR0050N and USR2020N are missing. USR2020N is required when running NATURAL version 3.1 and above with ADABAS version 7.x and above.
- b) Execute N2OUXCPY. If N2OUXCPY has been previously executed, execute with the REPLACE option = ‘Y’.
- c) Perform a SYSMAIN COPY of the listed objects from the SYSEXT library on the FNAT to the SYSLIB library on the FNAT and the SYSTEM library on the FUSER.
- d) In the case of the customer wanting to copy the NATURAL user-exits in the SYSTEM library, user-exit checking can be bypassed by executing N2OVRFY as follows:

```
N2OVRFY X
```

This option should be used only if the user-exits are available in a steplib to N2OLIB.

- 2) Autocompile Installed: NO.

Solution:

- a) If Autocompile is not to be used, ignore this Error.
- b) Use PF4 (OBJ) to determine which Autocompile Objects are missing.
- c) Reinstall Autocompile.

- 3) N2OEDIT Installed: NO.

Solution:

- a) If N2OEDIT is not to be used, ignore this Error.
- b) Use PF4 (OBJ) to determine which N2OEDIT Objects are missing.
- c) Reinstall N2OEDIT.

- 4) Detected N2O version is ‘?.?.?’ or ‘?????’.

Solution:

- a) If N2O Status is 'No Password', apply N2O password from TSI by executing N2O0001P.
- b) If N2O Status is 'MENU missing' and N2OVRFY is being executed in the environment where N2O is installed, redo the N2O SYSOBJH.
- c) If N2O Status is 'MENU missing' and N2OVRFY is being executed in the environment where only N2O system objects (SYSOBJH.SYS) are installed, ignore the error.

- 5) One or more N2O LFILES have a value of 0.  
Solution:
- 6) One or more of the N2O LFILES are undefined. Check the environment's NATPARMs for the LFILE definition using the NTFILE (or NTLFILE) macro or 'LFILE=(' parameter and insure the LFILE definitions are defined.
- 7) 1 or more different fields detected by comparison with N2O Vvrs FDT.  
Solution:
  - a) Use the PF-key PF9-PF11 (ADM, MIG, & ARC) for the appropriate file.
  - b) Use PF5 (= NO) to display the differences between the current N2O FDT with Contact a site DBA to update the appropriate ADABAS files.
- 8) Comparison with any N2O Vvrs FDT returns 'MATCHES XXXXXXXX' XXXXXX=ADMIN, MIGRATE or ARCHIVE.  
Solution:
  - a) The LFILES of one or more N2O files has been switched. Check the environment's NATPARMs for the LFILE definition using the NTLFILE macro or 'LFILE=(' parameter and insure the LFILE definitions are pointing to the correct files.
- 9) File query to any of the N2O files Failed: RC=9999.  
Solution:
  - a) A read of the queried file received a NATURAL error equal to the return code. Check the error using the NATURAL help facility and apply the recommended action to the file returning the error.
- 10) File query to any of the N2O files returns "NO RECORDS".  
Solution:
  - a) This is only a warning that the file contains no records and is normal for a new installation of N2O.

## **II.9 Upgrading NATURAL, ADABAS, or PREDICT**

Upgrading Natural, Adabas, and/or Predict will require modifications to N2O.

### **Upgrading Adabas:**

1. Modify the NTDB macro in NATPARM module for each NATURAL nucleus under which N2O functions execute to reflect the new ADABAS version (refer to Section II.3 Installation Procedure Step 8).

### **Upgrading Natural:**

1. Run N2OUCPY with the replace option (refer to Section II.3 Installation Procedure step 12).
2. If Autocompile is used, re-install it (refer to Section II.5 Autocompile Requirements).
3. If N2OEDIT is used, re-install it (refer to Section II.6 N2OEDIT Installation).
4. If N2OUE14N is customized to set product versions for NATURAL, modify the code to set the correct version of Natural. (refer to Section V.3.17 System Product Information Exit (N2OUE14N))

Note – it is possible to comment out the version coding in N2OUE14N, as of N2Ovvr, N2O will automatically detect the product versions).

**Upgrading Predict:**

N2OUE14N may require modification if:

1. N2OUE14N is customized to set product versions for Predict, modify the code to set the correct version of Predict (refer to Section V.3.17 System Product Information Exit (N2OUE14N)).

**Note:** It is possible to comment out the version coding in N2OUE14N to allow N2O to automatically detect the product versions.

2. If N2O is being used to migrate Predict objects and all environments can not be upgraded to the same version of PREDICT, modify the PREDICT-TARGET-VER-REL variable. It should be set to the earliest version of Predict being used in 99 (numeric) format.

**If N2O is not being used to migrate Predict objects, modifying the PREDICT-TARGET-VER-REL is not necessary.**

Examples of PREDICT related functions include PREDICT migrations or the use of PREDICT Cross-Reference (X-REF) data.

**Note:** Setting the PREDICT-TARGET-VER-REL will cause any Predict changes specific to the new version to NOT be processed to the target Predict environment. This is normal, since the earlier release of Predict would not be designed to handle features added to later versions.

3. An upgrade to PREDICT Version 4 requires the N2O PREDICT profiles to be modified. Invoke a batch NATURAL session where N2O is installed and execute the conversion program CONV400P using the 'N4P4' option. The following CMSYNIN statements show how to invoke this option for the conversion program.

```
//CMSYNIN DD *  
LOGON N2OLIB  
CONV400P  
N4P4  
FIN  
/*
```

## II.10 **Loading of Official Fixes**

Refer to the README dataset for details on the official fixes.

**Note:** The Readme dataset details any user exit and/or JCL changes that require sites to copy existing customized modules before installing the fix datasets. Be sure to review the Readme dataset.

The steps to load the Official Fixes are as follows:

1. If loading from an electronic distribution sites must FTP the files from the distribution zip file as follows:
  - Transfer the file FTPN2OFIX.JCL to the mainframe using FTP, Kermit, etc. Be sure to use a transfer mode of TEXT (ASCII mode in FTP, TEXT mode in Kermit).
  - Run this job to allocate and FTP the PC FIX files to the mainframe.
2. Execute the NATURAL SYSOBJH utility to load the official fixes SYSOBJH file to the FUSER where N2O is installed (REPLACE = 'Y'). The SYSOBJH process loads programs into the N2OLIB library:

```
//N2OFIX JOB (ACCOUNTING), 'APPLY N2O FIXES', CLASS=A
//*
//SYSOBJH EXEC NATURAL
//*
//CMWKF01 DD DSN=N2O.Vvrs.SYSOBJH.FIX, DISP=OLD
//*
//CMSYNIN DD *
SYSOBJH
LOAD ALL * REPLACE
FIN
//
```

3. Execute the NATURAL SYSOBJH utility to load the official fixes SYSOBJH SYSTEM file to all source and target FUSERS (REPLACE='Y'). The SYSOBJH process loads programs into the SYSTEM library:

```
//N2OFIXS JOB (ACCOUNTING), 'APPLY N2O FIXES', CLASS=A
//*
//SYSOBJH EXEC NATURAL
//*
//CMWKF01 DD DSN=N2O.Vvrs.SYSOBJH.SYS.FIX, DISP=OLD
//*
//CMSYNIN DD *
SYSOBJH
LOAD ALL * REPLACE
FIN
//
```

The above JCL assumes a cataloged procedure named "NATURAL" exists in the system to invoke NATURAL. This JCL does not run "as is" and is provided for reference only.

**Note:** The on-line SYSOBJH utility or SYSOBJH using Direct Commands may also be used to load the N2O programs to the desired FUSER file.

Please refer to the NATURAL Utilities Manual for more information on the SYSOBJH utility.

4. Logon to the Natural library N2OLIB and execute N2OVFIX. N2OVFIX will delete NF\* objects from N2OLIB as well as display any current fixes that are applied. Executing it as part of the fix install process cleans up any obsolete modules that previous unofficial fixes may have placed in N2OLIB

## SECTION III

### ENVIRONMENT SUBSYSTEM

#### III.1 Introduction

After installing N2O, an administrator can define the environment and Change Management requirements of a site through the Environment Subsystem. N2O offers many optional features that can be defined using the Environment Subsystem. This section presents topics in the order necessary to define the environment of a site. The following topics are discussed:

- Install ParmS
- Node Definition
- Archive Definition
- Environment Definition
- Migration Profile
- Master Event
- Administrative Utilities

**Note:** Security Administration is explained in **Section IV Security Administration**.

To access the Environment Subsystem menu, enter "E" on the N2O Main menu or enter the direct command ENV MENU or press PF4 on any menu.

```
01-12-31          N-2-O MAIN MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
E     Environment Subsystem
M     Migration Subsystem
P     Project Tracking Subsystem
R     Reporting Subsystem
T     Toolbox Subsystem
U     User-Defined Subsystem
.     Terminate N-2-O Session
-----

Enter Code:  E

Direct Command: _____ N2O MENU
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
```

```

01-12-31          N-2-O ENVIRONMENT SUBSYSTEM MENU          TSI0373
11:38:00                                               TSI1

Code  Function
-----
I    Install ParmS
D    Node Definition
A    Archive Definition
N    Environment Definition
M    Migration Profile
E    Master Event
S    Security Administration
U    Administrative Utilities
.    Terminate Environment Subsystem
-----

Enter Code:  _

Direct Command _____ ENV MENU
Enter--PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      HELP  ----  END  ----  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT

```

| Field                 | Description  |
|-----------------------|--|
| Enter Code (required) | The function to be executed. Valid values are as follows:  |
|                       | <p><b>I Install ParmS</b><br/>Defines N2O features used throughout a site.</p> <p><b>D Node Definition</b><br/>Defines a site's ADABAS SVCs and CPUs.</p> <p><b>A Archive Definition</b><br/>Defines a site's Archive files.</p> <p><b>N Environment Definition</b><br/>Defines the FUSER and FDIC System File information and 3GL repositories.</p> <p><b>M Migration Profile</b><br/>Defines the paths available for migrating objects throughout a site's Application Life Cycle.</p> <p><b>E Master Event</b><br/>Defines names for creating Events to migrate objects. These names represent parameters necessary to migrate objects.</p> <p><b>S Security Administration</b> (Discussed in <b>Section IV Security Administration</b>)<br/>Defines security for N2O User Definitions, Approval Profiles, PREDICT profiles, and 3GL/OTHER members.</p> <p><b>U Administrative Utilities</b><br/>Submit JCL to execute Archive Purge, Event Purge, and Catalog Capture.</p> |

**III.2 Install Parms**

This section describes the functions available to maintain the Installation Parameters. Administrators may assign values to site parameters, such as Checkout/Checkin level using the Install Parms functions.

To access the Install Parms menu, enter "I" on the Environment Subsystem menu or enter the direct command ENV PARM on any menu.

```

01-12-31          N-2-O INSTALL PARMS MENU          TSI0373
11:38:00

Code  Function
----  -
I    Inquire on Install Parms
M    Modify Install Parms
.    Terminate Install Parms
----  -

Enter Code:  _

Direct Command: _____ ENV PARM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                    | Description  |
|--------------------------|--|
| ENTER CODE<br>(required) | The function to be executed. Valid values are as follows:  |
|                          | <p><b>I Inquire on Install Parms</b><br/>Displays the site's current Installation Parameters.</p> <p><b>M Modify Install Parms</b><br/>Updates the site's current Installation Parameters.</p> |

### III.2.1 Inquire on Install Parms

The Inquire on Install Parm's function displays a site's current Installation Parameters.

To inquire on Installation Parameters, enter "I" on the Install Parm's menu.

```

13-10-04          N-2-O INQUIRE INSTALL PARMS          TSI0373
11:38:00                                     TSI1

      Updated                : TREE04      13-06-01      10:40:00

      Checkout/Checkin       : 1

      Locking                 : REQ

      Event Purge Days       : 15

      JCL Library            : N2OJCL

      SECURITRE              : NO

      Batch Event Submission : B

      Help and JCL FUSER DBID: 0          FNR: 0
      (DBID and FNR of 0 to use FUSER defined to current NATURAL session)
      Password: _____ Cipher: _____

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

The following Field Descriptions apply to both Install Parm's functions (Inquire on and Modify).

| Field                          | Description  |
|--------------------------------|--|
| Updated<br>(supplied)          | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.   |
| Checkout/Checkin<br>(required) | Controls and monitors object changes throughout the Application Life Cycle. At the time that Checkout/Checkin is activated, objects that are currently being modified must be integrated into the N2O Application Life Cycle using the N2O Checkout utility. Valid values are as follows: <ul style="list-style-type: none"> <li>0 Indicates checkout/checkin is inactive.</li> <li>1 Activates checkout/checkin and allows one checkout of an object.</li> <li>2-15 Activates checkout/checkin and allows the checkout/checkin value of concurrent checkouts of objects. Warning messages are provided for concurrent checkouts.</li> </ul> |

(continued from previous page)

| Field                                | Description  |
|--------------------------------------|--|
| Locking<br>(required)                | <p>An optional feature that prevents editing of NATURAL objects until they are migrated.</p> <p>N2OEDIT must be installed for program locking to occur. Valid values are as follows:</p> <p>NONE Indicates locking is inactive.</p> <p>REQ Indicates locking is activated after objects are selected to be migrated (added to an Event). Locking remains active until the Event Completes.</p> <p>AUTH Indicates locking is activated for objects after an Event containing the objects has been authorized. Locking remains active until the Event Completes.</p> |
| Event Purge Days<br>(required)       | <p>The default number of days N2O maintains closed Events and utility records. This number can be modified for a specific Master Event on the Master Event screens. The Event Purge Utility must be run to remove Events and utility records exceeding the retention value.</p>  |
| JCL Library<br>(optional)            | <p>The NATURAL library containing JCL to perform batch Event processing and batch reporting.</p> <p>N2O provides sample JCL in the NATURAL library N2OBATCH.</p>   |
| SECURITRE<br>(required)              | <p>An optional feature to activate SECURITRE security.</p> <p>To secure N2O using SECURITRE, modify User-Exit 13 to identify the database where SECURITRE is installed. Valid values are as follows:</p> <p>NO Indicates security is provided by N2O internal security.</p> <p>YES Indicates security is provided through the SECURITRE interface to RACF, ACF2, or TOP SECRET.</p>  |
| Batch Event Submission<br>(required) | <p>Allows batch event submissions to be restricted to immediate submission, delayed submission, or both. Valid values are as follows:</p> <p>I Indicates batch migration job is submitted immediately.</p> <p>D Indicates batch migration job is delayed.</p> <p>B Allows immediate or delayed batch migrations, and the user is prompted with the two choices above.</p>  |

---

(continued from previous page)

| <b>Field</b>                              | <b>Description</b>  |
|---|---|
| Help and JCL FUSER DBID<br>(required)     | <p>The ADABAS Database ID of the FUSER file where the NATURAL libraries containing the Help objects and JCL to perform batch processing are located.</p> <p>A database id of 0 indicates the current Database contains the FUSER file to be used for JCL and Help objects.</p>  |
| Help and JCL FUSER FNR<br>(required)      | <p>The ADABAS file number of the FUSER file where the NATURAL libraries containing the Help objects and JCL to perform batch processing are located.</p> <p>An FUSER file number of 0 indicates the current FUSER is to be used for JCL and Help objects.</p> <p>Sample JCL and help objects are installed into Natural Libraries named N2OBATCH and N2ODOCS.</p> |
| Help and JCL FUSER<br>Password (required) | <p>The password of the FUSER file where the NATURAL libraries containing the Help objects and JCL to perform batch processing are located.</p>  |
| Help and JCL FUSER<br>Cipher (required)   | <p>The cipher code of the FUSER file where the NATURAL libraries containing the Help objects and JCL to perform batch processing are located.</p>   |

**Note:** The 4 fields described above allow specification of the Database and FUSER file containing the JCL templates and help objects used by N2O. This will allow sites with multiple development environments to use a unique FUSER, allowing one installation of N2O to be accessed from many environments. Previously, the JCL and help objects had to be located on the current sessions FUSER file.

**III.2.2 Modify Install Parms**

The Modify Install Parms function updates a site's current Installation Parameters.

To modify Install Parms, enter "M" on the Install Parms menu.

```

13-10-04          N-2-O MODIFY INSTALL PARMS          TSI0373
11:38:00                                     TSI1

      Updated                : TREE04      13-10-05    10:40:00

      Checkout/Checkin       : 1

      Locking                 : REQ

      Event Purge Days       : 15

      JCL Library            : N2OJCL

      SECURITRE              : NO

      Batch Event Submission  : B

      Help and JCL FUSER DBID: 0____ FNR: 0____
      (DBID and FNR of 0 to use FUSER defined to current NATURAL session)
      Password: _____ Cipher: _____

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

**Note:** Checkout/Checkin controls and monitors object changes throughout the Application Life Cycle. When activating Checkout/Checkin, objects currently being modified must be integrated into the N2O Application Life Cycle using the N2O Checkout utility.

## III.3 **Node Definition**

After defining the Installation Parameters, the Node Definition functions may be used to maintain nodes. This section describes the functions available to create and maintain Node Definitions.

A Node Definition identifies a CPU or an ADABAS SVC and may be local or remote. To decide if a node is local or remote, determine if an ADABAS call may be issued to the node being defined from the node where N2O is installed. A node is local if an ADABAS call may be issued. A node is remote if an ADABAS call cannot be issued. Some example installations and the Node Definitions required are as follows:

Company A has a single computer system that uses a single ADABAS SVC to support four ADABAS databases. Company A must define one local node to N2O.

Company B has a single computer system that uses two ADABAS SVCs: one for the Test database and one for the Production database. Company B must define one local and one remote node to N2O.

Company C has two computer systems that run the Test database on the one system and the Production database on the other. Company C has the NET-WORK product from Software AG. Company C must define two local nodes to N2O.

Company D has two computer systems that run the Test database on the one system and the Production database on the other. Company D does not have the NET-WORK product from Software AG. Company D must define one local and one remote node to N2O.

|   |
|---|
| <b>Note:</b> The node where N2O is installed should always be defined as local. |
|---|

To access the Node Definition menu, enter "D" on the Environment Subsystem menu or enter the direct command ENV NODE on any menu.

```

01-12-31          N-2-O NODE DEFINITION MENU          TSI0373
11:38:00

Code  Function
-----
A    Add a Node Definition
C    Copy a Node Definition
D    Delete a Node Definition
I    Inquire on a Node Definition
M    Modify a Node Definition
S    Select a Node Definition
.    Terminate Node Definition
-----

Enter Code:  _   Node   :  ____

Direct Command:          ENV NODE
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT

```

| Field                    | Description  |
|--------------------------|--|
| ENTER CODE<br>(required) | The function to be executed. Valid values are as follows:<br><br><b>A Add a Node Definition</b><br>Creates a Node Definition.<br><br><b>C Copy a Node Definition</b><br>Creates a Node Definition by copying an existing Node Definition.<br><br><b>D Delete a Node Definition</b><br>Removes a Node Definition.<br><br><b>I Inquire on a Node Definition</b><br>Displays information about a Node Definition.<br><br><b>M Modify a Node Definition</b><br>Updates a Node Definition.<br><br><b>S Select a Node Definition</b><br>Provides a list of Node Definitions that may be deleted, inquired on, or modified. |
| ∞ NODE<br>(required)     | The Node Definition to be added, copied, or maintained.  |

∞ indicates field-level help is available.

**III.3.1 Add a Node Definition**

The Add a Node Definition function creates a Node Definition.

To add a Node Definition, enter "A" in the Enter Code field and the Node Definition to be added in the Node field on the Node Definition menu.

```

01-12-31          N-2-O ADD A NODE DEFINITION          TSI0373
11:38:00                                     TSI1

Node           :    CPUL
Updated        :    TSI0373    01-12-31    11:38:00
Desc           :    _____

ADABAS Remote  :    ____

Network-ID     :    _____

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

The following Field Descriptions apply to all Node Definition functions (Add, Copy, Delete, Inquire, Modify, and Select).

| Field                       | Description  |
|-----------------------------|--|
| Node<br>(required)          | A name that identifies a CPU or an ADABAS SVC.   |
| Updated<br>(supplied)       | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.   |
| Desc<br>(required)          | A brief description of the Node Definition.  |
| ADABAS Remote<br>(required) | Valid values are as follows:<br><br>NO     Indicates this node is local to N2O.<br>YES    Indicates the Node is on a CPU or ADABAS SVC different than the node where N2O is installed. |
| Network-ID<br>(optional)    | The identifier used by network products that automatically transmit information to remote machines.  |

### III.3.2 Copy a Node Definition

The Copy a Node Definition function creates a Node Definition by copying an existing Node Definition. All information from an existing Node Definition is copied to a new Node Definition. This information may be changed if necessary.

To copy a Node Definition, enter "C" in the Enter Code field and the existing Node Definition to be copied in the Node field or leave the Node field blank.

```

01-12-31          N-2-O NODE DEFINITION MENU          TSI0373
11:38:00

Code  Function
-----
A    Add a Node Definition
C    Copy a Node Definition
D    Delete a Node Definition
I    Inquire on a Node Definition
M    Modify a Node Definition
S    Select a Node Definition
.    Terminate
-    -----
Enter Code: C    Node:  C | Copy Node:  CPU1
                        | To   Node:  _____
                        +-----+

Direct Command: _____ ENV NODE
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new node name.

```

01-12-31          N-2-O COPY A NODE DEFINITION          TSI3073
11:38:00

Node           : CPU1
Updated        : TSI0373  01-12-31  11:38:00
Desc           : THIS IS A LOCAL NODE - CPU1_____

ADABAS Remote  : NO_
Network-ID     : _____

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

### III.3.3 Delete a Node Definition

The Delete a Node Definition function removes a Node Definition.

To delete a Node Definition, enter "D" in the Enter Code field and the Node Definition to be deleted in the Node field on the Node Definition menu.

```
01-12-31          N-2-O DELETE A NODE DEFINITION          TSI0373
11:38:00                                               TSI1

Node              :   CPU1
Updated           :   TSI0373   01-12-31   11:38:00
Desc              :   THIS IS A LOCAL NODE - CPU1_____

ADABAS Remote    :   NO_

Network-ID       :   _____

+-----+
| Do you want to Delete? N (Y/N) |
+-----+

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

When deleting a Node Definition, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A Node Definition cannot be deleted if an Environment Definition or an Archive Definition uses it.

### III.3.4 Inquire on a Node Definition

The Inquire on a Node Definition function displays information about a Node Definition.

To inquire on a Node Definition, enter "I" in the Enter Code field and the Node Definition to be displayed in the Node field on the Node Definition menu.

```

01-12-31                N-2-O INQUIRE ON A NODE DEFINITION                TSI0373
11:38:00                                                         TSI1

      Node              :   CPUL
      Updated           :   TSI0373   01-12-31   11:38:00
      Desc              :   THIS IS A LOCAL NODE - CPUL_____

      ADABAS Remote    :   NO_

      Network-ID       :   _____

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

```

### III.3.5 Modify a Node Definition

The Modify a Node Definition function updates a Node Definition.

To modify a Node Definition, enter "M" in the Enter Code field and the Node Definition to be modified in the Node field on the Node Definition menu.

```

01-12-31                N-2-O MODIFY A NODE DEFINITION                TSI0373
11:38:00                                                         TSI1

      Node              :   CPUL
      Updated           :   TSI0373   01-12-31   11:38:00
      Desc              :   THIS IS A LOCAL NODE - CPUL_____

      ADABAS Remote    :   NO_

      Network-ID       :   _____

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

```

**III.3.6 Select a Node Definition**

The Select a Node Definition function provides a list of Node Definitions that may be deleted, inquired on, or modified.

To select a Node Definition, enter "S" in the Enter Code field on the Node Definition menu. A starting value may be entered in the Node field on the Node Definition menu.

```

Valid Values:  D-Delete I-Inquire M-Modify
01-12-31      N-2-O SELECT A NODE DEFINITION      TSI0373
11:38:00                                           TSI1

      S      Node      Description      ADABAS      Network-ID
      -      -      -      -      -
      -      CPUL      THIS IS A LOCAL NODE - CPUL      NO      NDM.A123
      M      CPUR      THIS IS A REMOTE NODE - CPUR      YES     NDM.A124

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

| Field           | Description  |
|-----------------|--|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, or M (Delete, Inquire, or Modify). |

A Node Definition may be selected and processed according to the function entered. In the example above, Node Definition CPUR is to be modified.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

### III.4 Archive Definition

After defining Node Definitions, the Archive Definition functions may be used to create and maintain Archive Definitions. This section describes the functions available to create and maintain Archive Definitions. An Archive Definition identifies an ADABAS file that maintains archived versions of objects. Archiving is an optional N2O feature. If archiving is not required, this section may be ignored.

To access the Archive Definition menu, enter "A" on the Environment Subsystem menu or enter the direct command ENV ARCH on any menu.

```

01-12-31          N-2-O ARCHIVE DEFINITION MENU          TSI0373
11:38:00                                               TSI1

Code  Function
-----
A    Add an Archive Definition
C    Copy an Archive Definition
D    Delete an Archive Definition
I    Inquire on an Archive Definition
M    Modify an Archive Definition
S    Select an Archive Definition
.    Terminate Archive Definition
-----

Enter Code:  _   Archive   :  ____

Direct Command                               ENV ARCH
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                    | Description  |
|--------------------------|--|
| Enter Code<br>(required) | The function to be executed. Valid values are as follows:<br><br><b>A      Add an Archive Definition</b><br>Creates an Archive Definition.<br><br><b>C      Copy an Archive Definition</b><br>Creates an Archive Definition by copying an existing Archive Definition.<br><br><b>D      Delete an Archive Definition</b><br>Removes an Archive Definition.<br><br><b>I      Inquire on an Archive Definition</b><br>Displays information about an Archive Definition.<br><br><b>M      Modify an Archive Definition</b><br>Updates an Archive Definition.<br><br><b>S      Select an Archive Definition</b><br>Provides a list of Archive Definitions that may be deleted, inquired on, or modified. |
| ∞ ARCHIVE<br>(required)  | The Archive Definition to be added, copied, or maintained.   |

∞ indicates field-level help is available.

### III.4.1 Add an Archive Definition

The Add an Archive Definition function creates an Archive Definition.

To add an Archive Definition, enter "A" in the Enter Code field and the Archive Definition to be added in the Archive field on the Archive Definition menu.

```

01-12-31          N-2-O ADD AN ARCHIVE DEFINITION          TSI0373
11:38:00                                               TSI1

Archive   :   ARCO
Updated   :   TSI0373   01-12-31   11:38:00
Desc      :   _____

Archive Purge Retention Values
Versions:  ___   Days:  ___

Node      DBID      FNR      Password      Cipher Code
----      ----      ---      -----      -----
_____

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

The following Field Descriptions apply to all Archive Definition functions (Add, Copy, Delete, Inquire, Modify, and Select).

| Field  | Description  |
|--|--|
| Archive<br>(supplied)                        | The Archive Definition.  |
| Updated<br>(supplied)                        | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.   |
| Desc<br>(required)                           | A brief description of the Archive Definition.   |
| Archive Purge Retention Values<br>(required) | Either versions or days must have a value greater than zero. If both are specified, then a version will not be purged from the Archive file until both values are exceeded. To remove versions from the Archive file, execute the Archive Purge utility. |
| Versions<br>(required)                       | The number of object versions maintained in the Archive file.  |
| Days<br>(required)                           | The number of days an object should remain in the Archive file.  |
| ∞ Node<br>(required)                         | The Node where the N2O Archive file is located. This Node must be the same as the Node of the Environment to be archived.  |

∞ indicates field-level help is available.

---

(continued from previous page)

---

| <b>Field</b>              | <b>Description</b>   |
|---------------------------|--|
| DBID<br>(required)        | The ADABAS Database ID of the N2O Archive file.  |
| FNR<br>(required)         | The ADABAS file number of the N2O Archive file.  |
| Password<br>(optional)    | The ADABAS password of the N2O Archive file.<br>The password does not display on the screen.       |
| Cipher Code<br>(optional) | The ADABAS cipher code of the N2O Archive file.<br>The cipher code does not display on the screen. |

**III.4.2 Copy an Archive Definition**

The Copy an Archive Definition function creates an Archive Definition by copying an existing Archive Definition. All information from the existing Archive Definition is copied to the new Archive Definition. This information may be changed if necessary.

To copy an Archive Definition, enter "C" in the Enter Code field and the Archive Definition to be copied in the Archive field or leave the Archive field blank.

```

01-12-31          N-2-O ARCHIVE DEFINITION MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add an Archive Definition
C    Copy an Archive Definition
D    Delete an Archive Definition
I    Inquire on an Archive Definition
M    Modify an Archive Definition
S    Select an Archive Definition
.    Terminate
-    -----
Enter Code: C      Arch | Copy Archive:  ARCP
                       | To  Archive:  _____
                       +-----+

Direct Command: _____ ENV ARCH
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new archive name.

```

01-12-31          N-2-O COPY AN ARCHIVE DEFINITION      TSI0373
11:38:00                                     TSI1

Archive  :  ARC1

Updated  :  TSI0373   01-12-31   11:38:00

Desc    :  THIS IS A LOCAL ARCHIVE DEF_

Archive Purge Retention Values
Versions: 3           Days: 180

Node   DBID   FNR   Password   Cipher Code
-----
CPUL   150    204   _____

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

### III.4.3 Delete an Archive Definition

The Delete an Archive Definition function removes an Archive Definition.

To delete an Archive Definition, enter "D" in the Enter Code field and the Archive Definition to be deleted in the Archive field on the Archive Definition menu.

```

01-12-31          N-2-O DELETE AN ARCHIVE DEFINITION          TSI0373
11:38:00                                               TSI1

Archive   :   ARC1
Updated   :   TSI0373   01-12-31   11:38:00
Desc      :   THIS IS A LOCAL ARCHIVE DEF_

Archive Purge Retention Values
Versions: 3           Days: 180

Node      DBID      FNR+-----+
----      ----      ---|-----|
CPUL      150      204| Do you want to Delete? N (Y/N) |
          |                               |
          +-----+

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

When deleting an Archive Definition, a pop-up window is displayed to confirm the delete request. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** An Archive Definition cannot be deleted if an Environment Definition or a Migration Profile uses it.

### III.4.4 Inquire on an Archive Definition

The Inquire on an Archive Definition function displays information about an Archive Definition.

To inquire on an Archive Definition, enter "I" in the Enter Code field and the Archive Definition to be displayed in the Archive field on the Archive Definition menu.

```

01-12-31          N-2-O INQUIRE ON AN ARCHIVE DEFINITION      TSI0373
11:38:00                                               TSI1

Archive   :   ARC0
Updated   :   TSI0373   01-12-31   11:38:00
Desc      :   THIS IS A LOCAL ARCHIVE DEF_

Archive Purge Retention Values
Versions: 3           Days: 180

Node      DBID      FNR      Password      Cipher Code
----      ----      ---      -----      -----
CPUL      150      204      _____      _____

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

### III.4.5 Modify an Archive Definition

The Modify an Archive Definition function updates an Archive Definition.

To modify an Archive Definition, enter "M" in the Enter Code field and the Archive Definition to be modified in the Archive field on the Archive Definition menu.

```

01-12-31          N-2-O MODIFY AN ARCHIVE DEFINITION          TSI0373
11:38:00                                               TSI1

Archive   :   ARCO
Updated   :   TSI0373   01-12-31   11:38:00
Desc      :   THIS IS A LOCAL ARCHIVE DEF_

Archive Purge Retention Values
Versions:  3           Days:  180

Node      DBID      FNR      Password      Cipher Code
-----
CPUL      150      204      _____      _____

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

### III.4.6 Select an Archive Definition

The Select an Archive Definition function provides a list of Archive Definitions that may be deleted, inquired on, or modified.

To select an Archive Definition, enter "S" in the Enter Code field on the Archive Definition menu. A starting value may be entered in the Archive field on the Archive Definition menu.

```

Valid Values:  D-Delete I-Inquire M-Modify
01-12-31          N-2-O SELECT AN ARCHIVE DEFINITION          TSI0373
11:38:00                                               TSI1

S   Archive  Description                                     Versions  Days
-   -
M   ARCO     THIS IS A LOCAL ARCHIVE DEF                               3          180
_   ARCR     THIS IS A REMOTE ARCHIVE DEF                               3           0

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

| Field           | Description   |
|-----------------|---|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, or M (Delete, Inquire on, or Modify). |

An Archive Definition may be selected and processed according to the function entered. In the example above, the Archive Definition ARCL is to be modified.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

### III.5 Environment Definition

After defining Node Definitions and Archive Definitions, the Environment Definition functions may be used to create and maintain Environment Definitions. This section describes the functions available to create and maintain Environment Definitions. An Environment Definition defines a pair of FUSER and FDIC system files, a 3GL dataset, or both. Multiple Environment Definitions may be created with the same FUSER/FDIC combination.

To access the Environment Definition menu, enter "N" on the Environment Subsystem menu or enter the direct command ENV DEF on any menu.

```

01-12-31          N-2-O ENVIRONMENT DEFINITION MENU          TSI0373
11:38:00

Code  Function
-----
A    Add an Environment Definition
C    Copy an Environment Definition
D    Delete an Environment Definition
I    Inquire on an Environment Definition
M    Modify an Environment Definition
S    Select an Environment Definition
.    Terminate Environment Definition
-----

Enter Code:  _   Environment Def :____

Direct Command: _____ ENV DEF
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP ---- END  ENV  MIG  REP  TOL  USR  PRJ  ---- ---- EXIT
    
```

| Field                           | Description  |
|---------------------------------|--|
| Enter Code<br>(required)        | The function to be executed. Valid values are as follows:<br><br><b>A Add an Environment Definition</b><br>Creates an Environment Definition.<br><br><b>C Copy an Environment Definition</b><br>Creates an Environment Definition by copying an existing Environment Definition.<br><br><b>D Delete an Environment Definition</b><br>Removes an Environment Definition.<br><br><b>I Inquire on an Environment Definition</b><br>Displays information about an Environment Definition.<br><br><b>M Modify an Environment Definition</b><br>Updates an Environment Definition.<br><br><b>S Select an Environment Definition</b><br>Provides a list of Environment Definitions that may be deleted, inquired on, or modified. |
| ∞ Environment Def<br>(required) | The Environment Definition to be added, copied, or maintained.<br><br>If the Environment will contain 3GL definitions, it must start with an alphabetic character.   |

∞ indicates field-level help is available.

### III.5.1 Add an Environment Definition

The Add an Environment Definition function creates an Environment Definition.

To add an Environment Definition, enter "A" in the Enter Code field and the Environment Definition to be added in the Environment Def field on the Environment Definition menu.

```

01-12-31          N-2-O ADD AN ENVIRONMENT DEFINITION          TSI0373
11:38:00                                               TSI1

Env Def  : TEST
Updated  : TSI0373      01-12-31   11:38:00
Desc     : _____

Base Env : ___          Auth Required: ___

Archive  : ___

3GL Node : ___          3GL Interface: _____

          Node  DBID   FNR   Password  Cipher Code
          ----  ----   ---   -
FUSER    : ___   ___   ___   _____  _____
FDIC     : ___   ___   ___   _____  _____

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

The following Field Descriptions apply to all Environment Definition functions (Add, Copy, Delete, Inquire on, Modify, and Select).

| Field                  | Description  |
|------------------------|--|
| Env Def<br>(supplied)  | The Environment Definition.  |
| Updated<br>(supplied)  | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.   |
| Desc<br>(required)     | A brief description of the Environment Definition.   |
| Base Env<br>(required) | Valid values are as follows:<br><br>YES    Indicates this environment is to be used as a repository, or BASE, for source code when Checkout is active.<br><br>NO     Indicates this environment is not to be used as a repository for source code when Checkout is active.<br><br>Environment Definitions that are non-BASE environments are referred to as "development" environments for Checkout/Checkin. |

(continued from previous page)

| Field   | Description   |
|---|---|
| Auth Required<br>(required)   | Valid values are as follows:<br><br>YES Indicates migrations to this environment should require authorization.<br><br>NO Indicates migrations to this environment do not require authorization.   |
| <p><b>Note:</b> Setting this field to 'Yes' and a defining a Migration Profile that does not require authorization will cause an Event to contain a message of "Override". This indicates that the Event was executed without Authorization. User-Exit 1 can then be coded to allow limited use of this Environment for migrations. This is one way to setup an Emergency Migration path.</p> |   |
| ∞ Archive<br>(optional)   | An Archive Definition that indicates where archived versions of the objects are stored. It indicates archiving will be performed before NATURAL objects, PDS members, or SYSERR messages are replaced by migrations to this environment.  |
| 3GL Node<br>(optional)  | A local Node identifying where the 3GL environment is located.  |
| 3GL Interface<br>(required for 3GL)   | Valid values are as follows:<br><br>PDS Indicates this Environment represents one or more OS/390 (MVS) Partitioned Datasets.<br><br>LIBRARIAN Indicates this Environment represents a LIBRARIAN Master File.<br><br>ENDEVOR Indicates this Environment represents an ENDEVOR Stage.<br><br>PANVALET Indicates this Environment represents a PANVALET library. |
| ∞ FUSER Node<br>(required for NATURAL)  | The Node where the FUSER file is located.   |
| FUSER DBID<br>(required for NATURAL)  | The ADABAS DBID of the FUSER file.  |
| FUSER FNR<br>(required for NATURAL)   | The ADABAS file number of the FUSER file.   |
| FUSER Password<br>(optional for NATURAL)  | The ADABAS password of the FUSER file. The password does not display on this screen.  |
| FUSER Cipher Code<br>(optional for NATURAL)   | The ADABAS cipher code of the FUSER file. The cipher code does not display on this screen.  |
| ∞ FDIC Node<br>(optional)   | The Node where the FDIC file is located.  |
| ∞ indicates field-level help is available.  |   |

---

(continued from previous page)

---

| <b>Field</b>                               | <b>Description</b>  |
|--|---|
| FDIC DBID<br>(optional)                    | The ADABAS DBID of the FDIC file.   |
| FDIC FNR<br>(required for NATURAL)         | The ADABAS file number of the FDIC file.  |
| FDIC Password<br>(optional for NATURAL)    | The ADABAS password of the FDIC file. The password does not display on this screen.       |
| FDIC Cipher Code<br>(optional for NATURAL) | The ADABAS cipher code of the FDIC file. The cipher code does not display on this screen. |

|   |
|---|
| <b>Note:</b> Catalog Capture must be executed for all base environments. For more information on Catalog Capture, refer to the Administrative Utilities subsection. |
|---|

**III.5.1.1 Defining 3GL Environments**

3GL environments may be defined for any of the following: up to 10 OS/390 (MVS) Partitioned Datasets (PDSs), a LIBRARIAN Master File, an ENDEVOR Stage, or a PANVALET Library.

To display the 3GL Environment Definition screen, enter a 3GL Interface on the preceding screen. The screen below is for defining PDSs. Only one Dataset Name is required to define a LIBRARIAN Master File or a PANVALET Library.

```

01-12-31          N-2-O 3GL ENVIRONMENT DEFINITION          TSI0373
11:38:00          Env Def: TEST                              TSI1
                  Interface: PDS

      Dataset Name          Category
-----
1.  PAY.DSN.PAYJCL          JCL
2.  PAY.DSN.PAYMACRO        ASMB
3.  PAY.DSN.PAYCOBOL        COBOL
4.  _____
5.  _____
6.  _____
7.  _____
8.  _____
9.  _____
10. _____

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

| Field                      | Description  |
|----------------------------|--|
| Env Def<br>(supplied)      | The Environment Definition.  |
| Interface<br>(supplied)    | Valid values are as follows:<br><br>PDS                    Indicates this Environment represents one or more OS/390 (MVS) Partitioned Datasets.<br><br>LIBRARIAN            Indicates this Environment represents a LIBRARIAN Master File.<br><br>ENDEVOR              Indicates this Environment represents an ENDEVOR Stage.<br><br>PANVALET             Indicates this Environment represents a PANVALET library. |
| Dataset Name<br>(required) | A PDS, a LIBRARIAN Master File, or a PANVALET Library. For PDS Environments, the order and category of the datasets must correspond in all environments within a development cycle. For example, if the first dataset name contains a JCL PDS, then the first dataset of any environment that those JCL members migrate to should also be a JCL PDS.   |

(continued from previous page)

| Field                  | Description  |
|------------------------|--|
| Category<br>(required) | <p>The type of members contained in the specified PDS.</p> <p>Valid values are as follows:</p> <p>ASMB            Indicates all types of Assembler.</p> <p>COBOL           Indicates all types of COBOL.</p> <p>FORT             Indicates all types of FORTRAN.</p> <p>PL/I             Indicates all types of PL/I.</p> <p>RPG              Indicates RPG.</p> <p>DATA            Indicates DATA FILES.</p> <p>JCL              Indicates JCL, CLIST, CNTL.</p> <p>OTHER           Indicates all other types.</p> <p>MISC             Indicates mixed types.</p> <p>OTHER should be specified for a PDS that contains members of a category not listed above.</p> <p>MISC should be specified for an Environment that has a single PDS that contains members of many categories.</p> |

The screen below is for defining ENDEVOR Stages. The Stage is associated with an ENDEVOR environment and is designated as Stage 1 or 2 within that Environment. The Stage ID is required by ENDEVOR to process migrations.

```

01-12-31          N-2-O ENDEVOR STAGE DEFINITION          TSI0373
11:38:00                Env Def: TEST                      TSI1

      Stage      :   UNITEST
      Stage Id   :   D
      Stage Nbr  :   1
      Environment :   DEV_____

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

Within ENDEVOR, Systems of each Stage and Subsystems of each System must be defined. N2O does not maintain a table of Systems and associated Subsystems. Instead, the user designates the System and Subsystem at the time an Event is requested. N2O verifies that members exist within that System and Subsystem, and creates a selection list of the members.

### III.5.2 Copy an Environment Definition

The Copy an Environment Definition function creates an Environment Definition by copying an existing Environment Definition. All information from the existing Environment Definition is copied to the new Environment Definition. This information may be changed if necessary.

To copy an Environment Definition, enter "C" in the Enter Code field, and the Environment Definition to be copied in the Environment Def field or leave the Environment Def field blank.

```

01-12-31          N-2-O ENVIRONMENT DEFINITION MENU          TSI0373
11:38:00                                               TSI1

Code  Function
-----
A    Add an Environment Definition
C    Copy an Environment Definition
D    Delete an Environment Definition
I    Inquire on an Environment Definition
M    Modify an Environment Definition
S    Select an Environment Definition
.    Terminate
-    -----
Enter Code: C    Environme

Copy Environment Def:  PROD
To Environment Def:  ____

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new Environment Def name.

```

01-12-31          N-2-O COPY AN ENVIRONMENT DEFINITION        TSI0373
11:38:00                                               TSI1

Env Def  :  QA
Updated  :  TSI0373    01-12-31    11:38:00
Desc     :  QUALITY ASSURANCE

Base Env :  NO          Auth Required:  NO

Archive  :  ARC1

3GL Node :  CPUL          3GL Interface:  PDS

Node  DBID  FNR  Password  Cipher Code
----  ----  ---  -
FUSER :  CPUL  150  204
FDIC  :  CPUL  150   55

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

**Note:** Catalog Capture must be executed for all base environments. For more information on Catalog Capture, refer to **Section III.8 Administrative Utilities**.

**III.5.3 Delete an Environment Definition**

The Delete an Environment Definition function removes Environment Definitions.

To delete an Environment Definition, enter "D" in the Enter Code field and the Environment Definition to be deleted in the Environment Def field on the Environment Definition menu.

```

01-12-31          N-2-O DELETE ENVIRONMENT DEFINITION          TSI0373
11:38:00                                               TSI1

Env Def   :   QA
Updated  +-----+
Desc     | ENTER to continue, PF3 to escape                    |
        | |                                                    |
        | | The ENV DEFS below are also defined with          |
        | | FDIC Node: CPUL DBID: 1 and FNR: 204              |
        | | and may require modifications.                    |
BASE Env | |                                                    |
Archive  | | DB03                                             |
        | |                                                    |
3GL Node | |                                                    |
        +-----+
        Node   DBID   F +-----+
        ----   ----   - | |
FUSER   :   CPUL   150   2 | Do you want to Delete? N (Y/N) | |
        | |                                                    |
FDIC    :   CPUL   150   5 +-----+
        | |                                                    |

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

N2O reviews Environment Definitions to determine if the same node, DBID, and FNR combination for the FUSER or FDIC are shared by other Environment Definitions. This information is displayed in a pop-up window for the user to consider before the Environment Definition is deleted. A similar pop-up window is displayed for 3GL Environment Definitions.

When deleting an Environment Definition, a pop-up window is displayed to confirm the delete request. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** An Environment Definition cannot be deleted if a Migration Profile uses it.

**III.5.4 Inquire on an Environment Definition**

The Inquire on an Environment Definition function displays information about an Environment Definition.

To inquire on an Environment Definition, enter "I" in the Enter Code field and the Environment Definition to be displayed in the Environment Def field on the Environment Definition menu.

```

01-12-31          N-2-O INQUIRE ON AN ENVIRONMENT DEFINITION          TSI0373
11:38:00                                               TSI1

      Env Def : TEST
      Updated : TSIO373          01-12-31    11:38:00
      Desc   : UNIT TESTING_____

      Base Env : NO              Auth Required: NO

      Archive : ARC1

      3GL Node : CPUL           3GL Interface: PDS

              Node  DBID  FNR  Password  Cipher Code
              ----  ----  ---  -
      FUSER  : CPUL   150   204  _____  _____
      FDIC   : CPUL   150   55   _____  _____

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

```

To display a second screen containing the 3GL information, press Enter.

**III.5.5 Modify an Environment Definition**

The Modify an Environment Definition function updates an Environment Definition.

To modify an Environment Definition, enter "M" in the Enter Code field and the Environment Definition to be modified in the Environment Def field on the Environment Definition menu.

```

01-12-31          N-2-O MODIFY AN ENVIRONMENT DEFINITION          TSI0373
11:38:00                                               TSI1

      Env Def  :  TEST
      Updated  :  TSI0373      01-12-31      11:38:00
      Desc    :  UNIT TESTING _____

      Base Env :  NO          Auth Required:  NO

      Archive  :  ARC1

      3GL Node :  CPUL          3GL Interface:  PDS

              Node  DBID  FNR  Password  Cipher Code
              ----  ----  ---  -
      FUSER   :  CPUL  150   204  _____  _____
      FDIC    :  CPUL  150   55   _____  _____

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

To modify LIBRARIAN, ENDEVOR, or PANVALET information press Enter. The dataset information for PDS Environment Definitions cannot be modified.

If any of the FUSER/FDIC Node, DBID, or FNR information is modified, a pop-up screen warning that all Master Records in the Environment will be updated appears. This process may be time consuming. Pressing Enter from the pop-up window will cause N2O to modify all of the Master Records instantly. PF5 will submit a batch job to perform the updates (sample JCL is provided in the MVSUML, VMUML, BSUML and VSEUML members located in the Natural library N2OBATCH). PF3 will cancel the update. This will modify all existing checkouts to point to the new FUSER/FDIC information.

**III.5.6 Select an Environment Definition**

The Select an Environment Definition function provides a list of Environment Definitions that may be deleted, inquired on, or modified.

To select an Environment Definition, enter "S" in the Enter Code field on the Environment Definition menu. A starting value may be entered in the Environment Def field on the Environment Definition menu.

```

Valid Values:  D-Delete I-Inquire M-Modify
01-12-31      N-2-O SELECT AN ENVIRONMENT DEFINITION      TSI0373
11:38:00                                           TSI1

   S   Env Def  Description                               BASE   Auth   Arch   3GL
   -   - - - -  - - - - - - - - - - - - - - - - - - - - - - - - - - -
   -   QA      QUALITY ASSURANCE                       NO     NO     ****  PDS
   -   PROD    PRODUCTION                               YES    YES    ****  PDS
   D   TEST    UNIT TESTING                               NO     NO     ARCL  PDS

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

| Field           | Description   |
|-----------------|---|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, or M (Delete, Inquire on, or Modify). |

An Environment Definition may be selected and processed according to the function entered. In the example above, the Environment Definition TEST is to be deleted.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

### III.6 Migration Profile

After defining Archive Definitions and Environment Definitions, the Migration Profile functions may be used to create and maintain Migration Profiles. This section describes the functions available to create and maintain Migration Profiles. A Migration Profile is required to migrate objects. It identifies a path that objects may follow and the options used when migrating objects along that path.

**Note:** As described in previous sections, an Archive Definition is used in conjunction with an Environment Definition. When setting up an Environment Definition, an Archive Definition is selected for the environment to indicate that archiving will be performed to the selected archive. The migration of objects through the archive process does not require a migration profile to be established. However, in order to recover an object from an archive, a migration profile between the archive and the environment must be defined. Additionally in order to archive objects without migrating them to another environment, a migration profile between that environment and the archive must be defined.

To access the Migration Profile menu, enter "M" in the Enter Code field on the Environment Subsystem menu or enter the direct command ENV MIG on any menu.

```

01-12-31          N-2-O MIGRATION PROFILE MENU          TSI0373
11:38:00

                                Code  Function
                                ----  -
                                A    Add a Migration Profile
                                C    Copy a Migration Profile
                                D    Delete a Migration Profile
                                I    Inquire on a Migration Profile
                                M    Modify a Migration Profile
                                S    Select a Migration Profile
                                .    Terminate Migration Profile
                                ----  -

Enter Code:  _   From Env   :   ___   To Env   :   ___

Direct Command:  _____          ENV MIG
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                 | Description  |
|-----------------------|--|
| Enter Code (required) | The function to be executed. Valid values are as follows:  |
|                       | <b>A Add a Migration Profile</b><br>Creates a Migration Profile.   |
|                       | <b>C Copy a Migration Profile</b><br>Creates a Migration Profile by copying an existing Migration Profile. |
|                       | <b>D Delete a Migration Profile</b><br>Removes a Migration Profile.  |
|                       | <b>I Inquire on a Migration Profile</b><br>Displays information about a Migration Profile.                 |

(continued from previous page)

| <b>Field</b>                                      | <b>Description</b>  |
|---|---|
|   | <p><b>M</b>      <b>Modify a Migration Profile</b><br/>Updates a Migration Profile.</p>   |
|   | <p><b>S</b>      <b>Select a Migration Profile</b><br/>Provides a list of Migration Profiles that may be deleted, inquired on, or modified.</p> |
| <p>∞ From Env<br/>(required)</p>                  | <p>The source Environment Definition of the Migration Profile to be added, copied, deleted, or maintained.</p>                                  |
| <p>∞ To Env<br/>(required)</p>                    | <p>The target Environment Definition of the Migration Profile to be added, copied, deleted, or maintained.</p>                                  |
| <p>∞ indicates field-level help is available.</p> |   |

### III.6.1 Add a Migration Profile

The Add a Migration Profile function creates a Migration Profile.

To add a Migration Profile, enter "A" in the Enter Code field and the Profile to be added in the From Env and To Env fields on the Migration Profile menu.

```

01-12-31          N-2-O ADD A MIGRATION PROFILE          TSI0373
11:38:00                                     TSI1

      From Env   : TEST          To Env           : PROD
      Updated   : TSI1          01-12-31      11:38:00
      Desc      : _____

      Mode      : _____    DB2 Processing  : N
      Type      : _____    Verify Object  : NO_
      Migrate XREF: N           Program Doc   : NO_

      Autocompile : NO_         Migration Method: COPY
      Auto Rec   : N            Deferred Time  : 0__ hrs.
      XREF Target : _____

      Delay     : AUTH          Levels of Auth : 3_

      JCL Library : _____    3GL JCL Lib   : _____
      JCL Program : _____    3GL JCL Pgm  : _____
      PREDICT JCL Pgm : _____ 3GL JCL Arch : _____

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

The following Field Descriptions apply to all Migration Profile functions (Add, Copy, Delete, Inquire on, Modify, and Select).

| Field                            | Description  |
|----------------------------------|--|
| From Env<br>To Env<br>(supplied) | The Migration Profile.   |
| Updated<br>(supplied)            | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.   |
| Desc<br>(required)               | A brief description of the Migration Profile.  |
| Mode<br>(required)               | Valid values are as follows: <ul style="list-style-type: none"> <li>ONLINE     Indicates the migration will be performed on-line.</li> <li>BATCH      Indicates the migration will be performed by a batch job.</li> <li>BOTH       Indicates ONLINE or BATCH may be specified by the user at migration time.</li> </ul> |

(continued from previous page)

| Field                        | Description  |
|------------------------------|--|
| DB2 Processing<br>(required) | Valid values are as follows:   |
|                              | Y Indicates the Event will be marked as DBRM-ready after the migration of NATURAL objects is complete. |
|                              | N Indicates DB2 processing will not occur for the Event.   |
| Type<br>(required)           | Valid values are as follows:   |
|                              | SOURCE Indicates source code will be migrated.   |
|                              | OBJECT Indicates object code will be migrated.   |
|                              | BOTH Indicates both source and object code will be migrated.   |

**Note:** If AUTOCOMPILE is set to **STOW** or **CAT**, Type can only be set to SOURCE.

|                             |   |
|-----------------------------|---|
| Verify Object<br>(required) | Valid values are as follows:  |
|                             | YES Indicates NATURAL compiled code with a timestamp greater than the source code must exist for the object to be migrated. A message of 'Obj Fail' will appear on the Object Selection screen if the object fails this test.                             |
|                             | NO Indicates NATURAL compiled code will not be verified before the object migrates (defaults to NO). <b>NO is required for remote nodes.</b>  |
| Migrate XREF<br>(required)  | Valid values are as follows:  |
|                             | Y Indicates PREDICT Cross-Reference data will be migrated, and that it must exist for a NATURAL object before the object may be selected to be migrated. A message of 'No XREF' will appear on the Object Selection Screen if the object fails this test. |
|                             | S Indicates PREDICT Cross-Reference data will be migrated if it exists.   |
|                             | N Indicates PREDICT Cross-Reference data will not be verified or migrated (defaults to N).  |

(continued from previous page)

| Field                     | Description   |
|---------------------------|---|
| Program Doc<br>(required) | <p>Valid values are as follows:</p> <p>YES Indicates PREDICT object documentation must exist in the From Environment before a NATURAL object may be selected to be migrated. A message of 'No Doc' will appear on the Object Selection screen if the object fails this test.</p> <p>NO Indicates PREDICT object documentation will not be verified or migrated (defaults to NO).</p>  |
| Autocompile<br>(required) | <p>Valid values are as follows:</p> <p>CAT Indicates Autocompile will occur for Events that migrate NATURAL objects or 3GL members. NATURAL objects will be CATALOGed at the target.</p> <p>STOW Indicates Autocompile will occur for Events that migrate NATURAL objects or 3GL members. NATURAL objects will be STOWed at the target.</p> <p>NO Indicates Autocompile will not occur for Events using this Migration Profile (defaults to NO).</p> <p>When migrating source code, and both archiving and Autocompile are requested, the object code is also archived.</p> |

**Note:** When migrating **FROM** the FUSER on which N2O is installed, to another FUSER, a batch migration is required to execute Autocompile. When migrating **TO** the FUSER on which N2O is installed, an on-line or batch migration will execute Autocompile. For Autocompile installation, refer to **Section II.5 Autocompile Requirements**.

(continued from previous page)

| Field                          | Description  |
|--------------------------------|--|
| Migration Method<br>(required) | <p>Valid values are as follows:</p> <p>COPY Indicates an object at the source of a migration will be placed at the target (defaults to COPY).</p> <p>MOVE Indicates an object at the source of a migration will be placed at the target and then deleted from the source of the migration.</p> <p>BOTH Indicates the user may specify COPY or MOVE at migration time.</p> <p>MVSR Indicates the source and object code at the source of the migration will be placed at the target and the source will be deleted from the From Environment (object code is left). This option may only be specified if BOTH is specified for TYPE.</p> <p>MVOB Indicates the source and object code at the source of the migration will be placed at the target and the object code will be deleted from the From Environment (source code is left). This option may only be specified if BOTH is specified for TYPE.</p> |

**Note:** Events that migrate SYSERR messages or PREDICT objects will force the Migrate Method to COPY.

(continued from previous page)

| Field                       | Description   |
|-----------------------------|---|
| Auto Rec<br>(required)      | <p>Valid values are as follows:</p> <p>Y Indicates all NATURAL objects in an Event will be automatically recovered when an object receives a compile error during the Autocompile process. (AUTO REC requires the use of Autocompile and archiving).</p> <p>N Indicates the automatic recovery feature is not active (defaults to N).</p>   |
| Deferred Time<br>(required) | <p>Indicates the minimum number of hours between the migration process and the deletion process of a MOVE. This field must be 0 when COPY is specified for the Method (defaults to 0). The delete portion of a Deferred Move Event is not completed until a Process Deferred Move Event job is submitted. Refer to the Migration Utilities for more detail.</p>   |
| XREF Target<br>(optional)   | <p>This field is used in conjunction with the Autocompile field. If the object type being migrated is specified in the value of this field, PREDICT Cross-Reference information will be used to determine all NATURAL objects affected by the migrated object(s). These affected objects and the objects being migrated will be autocompiled in the target Environment.</p> <p>A Indicates Parameter data<br/>Any object that contains a 'PARAMETER USING' clause for the selected Parameter Data Area.</p> <p>C Indicates Copycode<br/>Any object that contains an 'INCLUDE' clause for the selected Copycode.</p> <p>G Indicates Global data<br/>Any object that contains a 'GLOBAL USING' clause for the selected Global Data area.</p> <p>H Indicates Helproutine<br/>Any object that contains an 'HE=' clause for the selected Helproutine.</p> <p>L Indicates Local data<br/>Any object that contains a 'LOCAL USING' clause for the selected Local Data Area.</p> <p>M Indicates Map<br/>Any object that contains a 'WRITE USING' or 'INPUT USING' clause for the selected Map.</p> <p>N Indicates Subprogram<br/>Any object that contains a 'CALLNAT' to the selected Subprogram.</p> |

(continued from previous page)

| Field  | Description  |
|--|--|
| <p>P</p> <p>S</p> <p>T</p> <p>4</p> <p>Delay<br/>(required)</p>  | <p>Indicates Program<br/>Any object that issues a 'FETCH', 'FETCH RETURN', 'STACK', or 'CALL' to the selected program.</p> <p>Indicates Subroutine<br/>Any object that issues a 'PERFORM' to the selected subroutine.</p> <p>Indicates Text<br/>No objects are affected by the selection of Text objects.</p> <p>Indicates Class<br/>No objects are affected by the selection of Class Objects.</p>  |
| <p>Valid values are as follows:</p> <p>AUTH</p> <p>SERV</p> <p>NONE</p>  | <p>Indicates the migration must be authorized using the Authorize an Event function.</p> <p>Indicates the migration must be authorized using the Authorize an Event function and serviced using the Service an Event function.</p> <p>Indicates the migration may proceed immediately without authorization (defaults to NONE).</p>  |
| <p>Levels of Auth<br/>(required)</p> <p>JCL Library<br/>(optional)</p> <p>3GL JCL Lib<br/>(optional)</p> <p>JCL Program<br/>(optional)</p> | <p>If the Delay field is specified as NONE, and the To Environment Definition has the Auth Required field specified as YES, the migration is processed without authorization, but the Event is marked with a warning of OVERRIDE. This override feature allows programs to be migrated without authorization in an emergency.</p> <p>The number of authorizations required when AUTH or SERV is specified in the Delay field.</p> <p>Identifies the NATURAL library that contains JCL to migrate NATURAL objects, SYSERR messages, and PREDICT objects.</p> <p>Identifies the NATURAL library that contains JCL to migrate 3GL members.</p> <p>Identifies the NATURAL object that contains JCL to migrate NATURAL objects and SYSERR messages. It will be used to migrate PREDICT objects if N2OUE14N sets the Build Extract field to 'False'.</p> |
| <p>PREDICT JCL Pgm<br/>(optional)</p>  | <p>Identifies the NATURAL object that contains JCL to migrate PREDICT objects if N2OUE14N sets the Build Extract field to 'True'.</p>  |

(continued from previous page)

| Field                             | Description  |
|-----------------------------------|--|
| 3GL JCL Pgm<br>(optional)         | Identifies the NATURAL object that contains JCL to migrate 3GL members.  |
| 3GL JCL Arch<br>(optional)        | Identifies the NATURAL object that contains the JCL used to archive PDS members. N2O automatically replaces the &INCLUDE ARCHIVE with this JCL.  |
| 3GL JCL Job Card<br>(optional)    | Identifies the NATURAL object that contains the JCL to perform a 3GL PDS archive recovery. N2O contains sample JCL in PDSRJOB. Refer to <b>Section V.5.6 Job Steps for PDS Recovery From Archive.</b>              |
| 3GL JCL Recover Pgm<br>(optional) | Identifies the NATURAL object that contains the JCL to execute N2ORECP for a 3GL PDS archive recovery. N2O contains sample JCL in PDSRMIGR. Refer to <b>Section V.5.6 Job Steps for PDS Recovery From Archive.</b> |

When authorization is required, a pop-up window is displayed, allowing the order of authorization to be specified.

```

01-12-31          N-2-O ADD A MIGRATION PROFILE          TSI0373
11:38:00                                               TSI1

      From Env   : TEST          To Env   : PROD
      Updated   +-----+-----+-----+-----+-----+-----+-----+-----+
      Desc      | Authorization Order |-----|
      Mode      |                      |ng   : N
      Type      |                      |t   : NO_
      Migrate X |          1          *   |   : NO_
                |          2          PAY  |
                |          3          USER01 |thod: COPY
      Autocompi |                      |e   : 0__ hrs.
      Auto Rec  |                      |
      XREF Targ |                      |
      Delay     |                      |th   : 3_
      JCL Libra |                      |
      JCL Progr |                      |
      PREDICT J +-----+-----+-----+-----+
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
----- END -----
    
```

| Field                    | Description  |
|--------------------------|--|
| Auth Level<br>(supplied) | The number of authorizations required.   |
| Auth-ID<br>(required)    | Valid values are as follows:<br><br>USER-ID      Identifies the User-ID required for authorization at the specified level.<br><br>GROUP-ID     Identifies the Group-ID required for authorization at the specified level.<br><br>*                Indicates users assigned an Approval Profile that contains this Migration Profile may authorize at the specified level. (AUTH-ID defaults to "*"). |

### III.6.2 Copy a Migration Profile

The Copy a Migration Profile function creates a Migration Profile by copying an existing Migration Profile. All information from the existing Migration Profile is copied to the new Migration Profile. This information may be changed if necessary.

To copy a Migration Profile, enter "C" in the Enter Code field and the Migration Profile to be copied in the From Env and To Env fields or leave these fields blank.

```

01-12-31          N-2-O MIGRATION PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a Migration Profile
C    Copy a Migration Profile
D    Delete a Migration Profile
I    Inquire on a Migration Profile
M    Modify a Migration Profile
S    Select a Migration Profile
.    Terminate +-----+
-    -----+-----+

Enter Code: C      From | Copy From Env:  PROD  To Env:  DEVL  |
                    | To   From Env:  ____  To Env:  ____  |
                    +-----+

Direct Command: _____ ENV MIG
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END   ENV   MIG   REP   TOL   ----  PRJ   ----  ----  EXIT

```

A pop-up window is displayed for the user to enter the new migration profile name.

```

01-12-31          N-2-O COPY A MIGRATION PROFILE          TSI0373
11:38:00                                     TSI1

From Env   :  PROD          To Env      :  DEV
Updated    :  TSI1         01-05-01   10:51:40
Desc       :  MIGRATE FROM PROD TO DEV. _____

Mode       :  ONLINE__     DB2 Processing :  N
Type       :  SOURCE__     Verify Object  :  NO_
Migrate XREF:  N           Program Doc    :  NO_

Autocompile :  NO__       Method         :  COPY
Auto Rec   :  N           Deferred Time  :  0__ hrs.
XREF Target :  _____

Delay      :  NONE         Levels of Auth :  0_

JCL Library :  _____ 3GL JCL Lib   :  _____
JCL Program :  _____ 3GL JCL Pgm   :  _____
PREDICT JCL Pgm :  _____ 3GL JCL Arch  :  _____

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

```

### III.6.3 Delete a Migration Profile

The Delete a Migration Profile function removes a Migration Profile.

To delete a Migration Profile Definition, enter "D" in the Enter Code field and the Migration Profile to be deleted in the From Env and To Env fields on the Migration Profile menu.

```

01-12-31          N-2-O DELETE A MIGRATION PROFILE          TSI0373
11:38:00                                     TSI1

      From Env   :  DEV           To Env           :  PROD
      Updated   :  TSI0373       01-05-16         11:44:19
      Desc      :  MIGRATE FROM DEV TO PROD._____

      Mode       :  ONLINE__     DB2 Processing :  N
      Type       :  SOURCE__     Verify Object  :  NO_
      Migrate XREF:  N           Program Doc    :  NO_

      Autocompile :  NO__        Method          :  COPY
      Auto Rec   :  N           Deferred Time   :  0__ hrs.
      XREF Target :  _____

      Delay      :  NONE         Le +-----+
                                   |               |
      JCL Library :  _____  3G | Do you want to Delete? N (Y/N) |
      JCL Program :  _____  3G |               |
      PREDICT JCL Pgm :  _____ 3G +-----+

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

When deleting a Migration Profile, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A Migration Profile cannot be deleted if a pending Event or a Master Event uses it.

### III.6.4 Inquire on a Migration Profile

The Inquire on a Migration Profile function displays information about a Migration Profile.

To inquire on a Migration Profile Definition, enter "I" in the Enter Code field and the Migration Profile to be displayed in the From Env and To Env fields on the Migration Profile menu.

```

01-12-31          N-2-O INQUIRE ON A MIGRATION PROFILE      TSI0373
11:38:00                                     TSI1

      From Env   :  DEV           To Env           :  TEST
      Updated   :  TSI1         01-05-01         10:49:40
      Desc      :  MIGRATE FROM DEV TO TEST._____

      Mode       :  ONLINE__     DB2 Processing :  N
      Type       :  SOURCE__     Verify Object  :  NO_
      Migrate XREF:  N           Program Doc    :  NO_

      Autocompile :  CAT__       Method          :  COPY
      Auto Rec   :  N           Deferred Time   :  0__ hrs.
      XREF Target :  _____

      Delay      :  NONE         Levels of Auth :  0_

      JCL Library :  _____  3GL JCL Lib    :  _____
      JCL Program :  _____  3GL JCL Pgm   :  _____
      PREDICT JCL Pgm :  _____ 3GL JCL Arch :  _____

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

### III.6.5 Modify a Migration Profile

The Modify a Migration Profile function updates a Migration Profile.

To modify a Migration Profile Definition, enter "M" in the Enter Code field and the Migration Profile to be modified in the From Env and To Env fields on the Migration Profile menu.

```

01-12-31          N-2-O MODIFY A MIGRATION PROFILE          TSI0373
11:38:00                                     TSI1

      From Env   : TEST          To Env       : PROD
      Updated   : TSI1          01-05-01    10:55:16
      Desc      : MIGRATE FROM TEST TO PROD._____

      Mode      : ONLINE__      DB2 Processing : N
      Type      : BOTH__        Verify Object  : YES_
      Migrate XREF: Y           Program Doc   : NO_

      Autocompile : NO__        Method        : COPY
      Auto Rec   : N            Deferred Time  : 0__ hrs.
      XREF Target : _____

      Delay     : AUTH          Levels of Auth : 2_

      JCL Library : _____  3GL JCL Lib   : _____
      JCL Program : _____  3GL JCL Pgm  : _____
      PREDICT JCL Pgm : _____ 3GL JCL Arch : _____

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

**Note:** Modifications to a Migration Profile do not affect Open Events.

**III.6.6 Select a Migration Profile**

The Select a Migration Profile function provides a list of Migration Profiles that may be deleted, inquired on, or modified.

To select a Migration Profile, enter "S" in the Enter Code field on the Migration Profile menu. A starting value may be entered in the From Env field and the To Env field on the Migration Profile menu.

```

Valid Values: D - Delete I - Inquire M - Modify
01-12-31          N-2-O SELECT A MIGRATION PROFILE          TSI0373
11:38:00                                     TSI1

   From To
S  Env  Env  Mode   Type   Delay  Migration  Autocompile  Mig  Pgm  Ver
-  -    -    -    -    -    -    -    -    -    -
-  ARC1 PROD BATCH   BOTH   AUTH   COPY     NO           N   NO  NO
-  DEV  TEST ONLINE  SOURCE NONE   COPY     CAT          N   NO  NO
-  PROD DEV ONLINE  SOURCE NONE   COPY     CAT          N   NO  NO
I  TEST PROD ONLINE  BOTH   AUTH   COPY     NO           Y   NO  YES

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

| Field           | Description   |
|-----------------|---|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, or M (Delete, Inquire on, or Modify). |

A Migration Profile may be selected and processed according to the function entered. In the example above, the Migration Profile TEST PROD is to be inquired on.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

### III.7 Master Event

After defining Migration Profiles, the Master Event functions may be used to create and maintain Master Events. This section describes Master Events. A Master Event is used as a template Event that user's will request to migrate objects. N2O will assign each user's request a unique sequence number. The combination of Master Event name and the sequence number will be used to execute the migration and view any reports. All migration requests in the N2O system are uniquely identified by a Master Event name and an Event Sequence number.

A special type of Master Event, known as a Program Dependent Master Event (PDME), allows the N2O Administrator to limit the range of objects that can be selected for migration. For example, a Master Event may be defined to migrate tax-related objects. In the example, the starting and ending objects can be set to TAXA and TAX99999 respectively. When this PDME is used to create a migration request, only NATURAL objects within this range will be displayed for selection.

To access the Master Event menu, enter "E" in the Enter Code field on the Environment Subsystem menu or enter the direct command ENV EVNT on any menu.

```

01-12-31          N-2-O MASTER EVENT MENU          TSI0373
11:38:00

Code  Function
-----
A    Add a Master Event
C    Copy a Master Event
D    Delete a Master Event
I    Inquire on a Master Event
M    Modify a Master Event
S    Select a Master Event
.    Terminate Master Event
-----

Enter Code:  _   Event   :  _____

Direct Command:  _____          ENV EVNT
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                    | Description   |
|--------------------------|---|
| Enter Code<br>(required) | The function to be executed. Valid values are as follows:                                 |
| <b>A</b>                 | <b>Add a Master Event</b><br>Creates a Master Event.                                      |
| <b>C</b>                 | <b>Copy a Master Event</b><br>Creates a Master Event by copying an existing Master Event. |
| <b>D</b>                 | <b>Delete a Master Event</b><br>Removes a Master Event.                                   |
| <b>I</b>                 | <b>Inquire on a Master Event</b><br>Displays information about a Master Event.            |

(continued from previous page)

---

| <b>Field</b>          | <b>Description</b>   |
|-----------------------|--|
|                       | <b>M</b> <b>Modify a Master Event</b><br>Updates a Master Event.   |
|                       | <b>S</b> <b>Select a Master Event</b><br>Provides a list of Master Events that may be deleted, inquired on, or modified. |
| ∞ Event<br>(required) | The Master Event to be added, copied, or maintained.   |

∞ indicates field-level help is available.

### III.7.1 Add a Master Event

The Add a Master Event function creates a Master Event.

To add a Master Event, enter "A" in the Enter Code field and the Master Event to be added in the Event field on the Master Event menu.

```

01-12-31          N-2-O ADD A MASTER EVENT          TSI0373
11:38:00                                     TSI1

Event           : CHECKOUT
Updated         : TSI0373   01-12-31   11:38:00
Desc           : _____

From Env       : _____   From Library   : _____

To Env        : _____   To Library    : _____

Starting Pgm  : _____   Ending Pgm    : _____

Change Cntl  : N           Project Tracking: N

Lock Event    : NO_        Extract Event : NO_

Comments     : NO_        Extract Rename : NO_

Event Purge   : 180

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

The following Field Descriptions apply to all Master Event functions (Add, Copy, Delete, Inquire on, Modify, and Select).

| Field                      | Description   |
|----------------------------|---|
| Event<br>(supplied)        | The Master Event.   |
| Updated<br>(supplied)      | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.  |
| Desc<br>(required)         | A brief description of the Master Event.  |
| ∞ From Env<br>(required)   | The source Environment Definition of the Event.   |
| From Library<br>(optional) | The NATURAL library from which the NATURAL objects/SYSERR messages are migrated.  |
| ∞ To Env<br>(required)     | The target Environment Definition of the Event. An "*" indicates the Event is a Multiple Target Event (refer to <b>Section III.7.1.1 Define Multiple Target Events</b> ). |
| TO LIBRARY<br>(optional)   | The NATURAL library where the NATURAL objects/SYSERR messages are placed by the migration. An "*" indicates the Event is a Multiple Target Event.                         |

∞ indicates field-level help is available.

(continued from previous page)

| Field                                    | Description  |
|--|--|
| Starting Pgm<br>Ending Pgm<br>(optional) | These values create a Program Dependent Master Event (PDME). A PDME may be established by entering the first/last NATURAL object (or character string) to display in the object selection list. PDMEs are only available when migrating NATURAL objects.   |
| Change Cntl<br>(required)                | Valid values are as follows:<br><br>Y Indicates a change control value is required when adding or copying an Event.<br><br>N Indicates a change control value is not required when adding or copying an Event (defaults to N).   |
| Project Tracking<br>(required)           | Valid values are as follows:<br><br>Y Indicates an N2O Project Tracking task group/number is required when adding or copying an Event.<br><br>N Indicates an N2O Project Tracking task group/number is not required when adding or copying an Event (defaults to N).   |
| Lock Event<br>(required)                 | Valid values are as follows:<br><br>ENV Indicates only the Environment fields will be locked and cannot be modified by the user when adding or copying an Event.<br><br>LIB Indicates only the Library fields will be locked and cannot be modified by the user when adding or copying an Event.<br><br>ALL Indicates all four fields (all of the From/To fields) will be Locked and cannot be modified by the user when adding or copying an Event.<br><br>NO Indicates no fields are locked. |
| Extract Event<br>(required)              | Valid values are as follows:<br><br>YES Indicates NATURAL objects, PREDICT objects, and 3GL members are copied to a development environment without modifying the checkout status.<br><br>NO Indicates the checkout status is updated when objects are selected for migration (defaults to NO).  |

**Note:** This field is modifiable only if the Checkout/Checkin level on the Install Params screen is greater than 0.

(continued from previous page)

| <b>Field</b>                 | <b>Description</b>  |
|------------------------------|---|
| Extract Rename<br>(required) | <p>Valid values are as follows:</p> <p>YES Indicates NATURAL objects can be renamed when using an Extract Event (Extract Event=YES).</p> <p>NO Indicates NATURAL objects cannot be renamed when using an Extract Event (Extract Event=YES). (defaults to NO).</p> |
| Comments<br>(required)       | <p>Valid values are as follows:</p> <p>YES Master event comments are default comments for each requested event. Another screen will be presented to add comments to the Master Event.</p> <p>NO There are no comments associated with this Master Event.</p>      |
| Event Purge<br>(required)    | <p>The number of days N2O maintains closed Events for this Master Event. This field defaults to the Event Purge value specified in the Install Parns.</p>   |

**Note:** To remove Events exceeding this retention value, execute the Event Purge utility.

### III.7.1.1 Define Multiple Target Events

A Multiple Target Event is a Master Event defined for one FROM environment and up to ten TO environments. Each From/To path in the Event must have a Migration Profile. The rules for the migration are as follows:

- The first path of the Event determines the Mode, Type, Delay, Method, Deferred Time, and Checkout/Checkin features
- Verify object, DB2 Processing, Autocompile, Auto Rec, Target XREF, Migrate XREF, Program Doc, and Archiving features are path-specific

To define a Multiple Target Event, enter an "\*" in the To Env field on the Add a Master Event screen. The targets of the Event are entered on the Multiple Target Migration screen.

If Checkout/Checkin is active, the first path is the Checkout/Checkin path. Objects are verified against Checkout/Checkin rules for this path. All other paths are extractions from the source environment to the target and are verified against Extract rules.

If the From Environment is an Archive Definition, the objects are recovered to all targets.

```

01-12-31          N-2-O MULTIPLE TARGET MIGRATION          TSI0373
11:38:00          Event: MULTIPLE                          TSI1

From Env   : DEV          From Library: DEV001
To  Env   : TEST         To   Library: TEST001___

Additional Extract Targets:

                TST1          TST1PAY_
                TST2          TST2PAY_
                TST3          TST3PAY_
                _____
                _____
                _____
                _____
                _____

JCL Library : PAYJCL___   JCL Program : PAYMULT_
Predict JCL Pgm : PAYMULTP
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP ---- END -----
    
```

| Field                   | Description  |
|-------------------------|--|
| ∞ From Env (required)   | The source Environment Definition of the Event.  |
| From Library (optional) | The NATURAL library from which the NATURAL objects/SYSERR messages are migrated.   |
| ∞ To Env (required)     | The target Environment Definition of the Event used to verify checkout/checkin rules.  |
| To Library (optional)   | The NATURAL library where the NATURAL objects/SYSERR messages are placed by the migration used to verify checkout/checkin rules. |

∞ indicates field-level help is available.

(continued from previous page)

| <b>Field</b>                             | <b>Description</b>  |
|--|---|
| Additional Extract Targets<br>(optional) | The additional target Environments/Libraries (up to 9) where the NATURAL objects/SYSERR messages are placed by the migration.   |
| JCL Library<br>(optional)                | Identifies the NATURAL library that contains JCL to migrate NATURAL objects, SYSERR messages, and PREDICT objects (for Multiple Target Events).   |
| JCL Program<br>(optional)                | Identifies the NATURAL object that contains JCL to migrate NATURAL objects and SYSERR messages to multiple targets. It will be used to migrate PREDICT objects if N2OUE14N sets the Build Extract field to 'False'. |
| PREDICT JCL Program<br>(optional)        | Identifies the NATURAL object that contains JCL to migrate PREDICT Objects to multiple targets. It will be used to migrate PREDICT objects if N2OUE14N sets the Build Extract field to 'True'.                      |

**III.7.2 Copy a Master Event**

The Copy a Master Event function creates a Master Event by copying an existing Master Event. All information from the existing Master Event is copied to the new Master Event. This information may be changed if necessary.

To copy a Master Event, enter "C" in the Enter Code field and the Master Event to be copied in the Event field or leave the Event field blank.

```

01-12-31          N-2-O MASTER EVENT MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a Master Event
C    Copy a Master Event
D    Delete a Master Event
I    Inquire on a Master Event
M    Modify a Master Event
S    Select a Master Event
.    Terminate
-    -----
Enter Code: C   Event: | Copy Event:  PRODTEST |
                    | To   Event:  _____ |
                    +-----+

Direct Command:                               ENV EVNT
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END   ENV   MIG   REP   TOL   ----  PRJ   ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new Event name.

```

01-12-31          N-2-O COPY A MASTER EVENT          TSI0373
11:38:00                                     TSI1

Event           :  PAY-OUT
Updated          :  TSI0373   01-12-31   11:38:00
Desc            :  MIGRATE FROM PROD TO DEV

From Env        :  PROD           From Library   :  PAY-PROD
To Env          :  DEV           To Library    :  PAY-DEV

Starting Pgm    :  _____   Ending Pgm     :  _____

Change Cntl    :  N             Project Tracking:  N

Lock Event     :  YES          Extract Event   :  NO

Comments       :  NO          Extract Rename  :  NO

Event Purge    :  180

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

### III.7.3 Delete a Master Event

The Delete a Master Event function removes a Master Event.

To delete a Master Event, enter "D" in the Enter Code field and the Master Event to be deleted in the Event field on the Master Event menu.

```

01-12-31          N-2-O DELETE A MASTER EVENT          TSI0373
11:38:00                                     TSI1

Event      :  PAY
Updated    :  TSI1          20011231      11:08:49
Desc       :  EMERGENCY MIGRATION

From Env   :  DEV          From Library   :  PAY-DEV_
To Env     :  TEST        To Library   :  PAY-TEST__

Starting Pgm:  _____ Ending Pgm    :  _____

Change Cntl :  N          Project Tracking:  N

Lock Event  :  NO          Ex|
                               | Do you want to Delete?  N  (Y/N) |
Comments    :  NO          Ex|
                               +-----+
Event Purge :  100

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

When deleting a Master Event, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A Master Event cannot be deleted if it is used by a pending Event.

### III.7.4 Inquire on a Master Event

The Inquire on a Master Event function displays information about a Master Event.

To inquire on a Master Event, enter "I" in the Enter Code field and the Master Event to be displayed in the Event field on the Master Event menu.

```

01-12-31          N-2-O INQUIRE ON A MASTER EVENT      TSI0373
11:38:00                                     TSI1

Event      :  PAY-QA
Updated    :  TSI0373      01-12-31      11:38:00
Desc       :  MIGRATE FROM DEV TO TEST

From Env   :  DEV          From Library   :  PAY-DEV
To Env     :  TEST        To Library   :  PAYTEST

Starting Pgm:  _____ Ending Pgm    :  _____

Change Cntl :  N          Project Tracking:  N

Lock Event  :  YES          Extract Event   :  NO
Comments    :  NO          Extract Rename  :  NO

Event Purge :  180

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

### III.7.5 **Modify a Master Event**

The Modify a Master Event function updates a Master Event.

To modify a Master Event, enter "M" in the Enter Code field and the Master Event to be modified in the Event field on the Master Event menu.

```
01-12-31          N-2-O MODIFY A MASTER EVENT          TSI0373
11:38:00                                               TSI1

      Event      :   PAY-IN
      Updated    :   TSI0373   01-12-31   11:38:00
      Desc       :   MIGRATE FROM TEST TO PROD_____

      From Env   :   TEST           From Library   :   PAY-TEST
      To Env     :   PROD           To Library   :   PAY-PROD

      Starting Pgm :   _____   Ending Pgm     :   _____
      Change Cntl :   N             Project Tracking: N
      Lock Event  :   NO_           Extract Event   :   NO_
      Comments   :   NO_           Extract Rename  :   NO_
      Event Purge :   15_

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

**III.7.6 Select a Master Event**

The Select a Master Event function provides a list of Master Events that may be deleted, inquired on, or modified.

To select a Master Event, enter "S" in the Enter Code field. A starting value may be entered in the Event field on the Master Event menu.

```

Valid Values: D - Delete I - Inquire M - Modify
01-12-31          N-2-O SELECT A MASTER EVENT          TSI0373
11:38:00                                     TSI1
S      Event      Env Library      Env Library      Lock  Extr      CC  PT  Event
-      -          -  -          -  -          -    -    -  -  -
M      PAY-IN     TEST PAY-TEST   PROD PAY-PROD   NO   NO   N   N   15
-      PAY-OUT    PROD PAY-PROD   DEV  PAY-DEV   YES  NO   N   N   180
-      PAY-QA     DEV  PAY-DEV   TEST PAYTEST   YES  NO   N   N   180

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

| Field           | Description   |
|-----------------|---|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, or M (Delete, Inquire on, or Modify). |

A Master Event may be processed according to the function entered. In the example above, the Master Event PAY-OUT is to be modified.

Pressing Enter scrolls forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

### III.8 Administrative Utilities

The Administrative Utilities section describes utilities that maintain the N2O files.

To access the Administrative Utilities menu, enter "U" in the Enter Code field on the Environment Subsystem menu or enter the direct command ENV UTIL on any menu.

```

01-12-31          N-2-O ADMINISTRATIVE UTILITIES MENU          TSI0373
11:38:00                                               TSI1

                Code  Function
                ----  -
                A    Archive Purge
                B    Event Purge
                C    Catalog Capture
                D    3GL/Other Catalog Capture
                .    Terminate Administrative Utilities
                ----  -

                Enter Code:  _

Direct Command:  _____          ENV UTIL
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
                HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                    | Description   |
|--------------------------|---|
| Enter Code<br>(required) | The function to be executed. Valid values are as follows:   |
| <b>A</b>                 | <b>Archive Purge</b><br>Submits JCL to remove object versions exceeding the retention values specified in the Archive Definition.   |
| <b>B</b>                 | <b>Event Purge</b><br>Submits JCL to remove Events exceeding the retention value specified on the Install Parms screen or the Master Event.   |
| <b>C</b>                 | <b>Catalog Capture</b><br>Submits JCL to read source and compiled objects on an FUSER/FDIC, and updates the N2O Migration File with the list of NATURAL objects, PREDICT objects, and SYSERR messages found.  |
| <b>D</b>                 | <b>3GL/OTHER Catalog Capture</b><br>Submits JCL to read 3GL members from a LIBRARIAN Master file, PANVALET library, PDS, or ENDEVOR Stage, and updates the N2O Migration File with the list of members found. |

### III.8.1 Archive Purge

The Archive Purge function submits JCL or an EXEC to remove object versions exceeding the retention values specified in the Archive Definition.

To submit Archive Purge JCL or an EXEC to an internal reader, enter "A" in the Enter Code field on the Administrative Utilities menu.

```

01-12-31                N-2-O ARCHIVE PURGE                TSI0373
11:38:00                                     TSI1

Arch Def : _____
Library:  _____
Backup Dataset Name: _____
Source/Object:  _ (Natural only)

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

| Field                                   | Description   |
|---|---|
| ∞ Arc Def (required)                    | The Archive Definition that represents the Archive file to be purged<br><br>A wildcard can be used for purging multiple Archive Definitions defined to a single Archive file. If wildcarding is used, an additional pop-up window will appear, requiring the Database ID and File number of the archive file that the purge is to be processed against. |
| ∞ Arc Def (required)                    | The Archive Definition that represents the Archive file to be purged.   |
| Library (optional)                      | Limits the purge process to only NATURAL objects archived from the specified library.   |
| Backup Dataset Name (required)          | The name of the dataset that will store the purged versions.  |
| Source/Object (required – Natural only) | Limits the purge process of NATURAL Objects to source or object code.<br><br>Valid values are:<br>S Purge only NATURAL source code<br>C Purge only NATURAL object code<br>Blank Purge NATURAL source and object code (default)  |

∞ indicates field-level help is available.

The Archive Purge process is a four-step batch job that removes versions exceeding the retention value(s) specified on the Archive Definition. The Archive Purge process may retain a specified number of object versions, number of days, or a combination of versions and days. The steps communicate using NATURAL workfiles.

### **N2OPARC1**

N2OPARC1 is a NATURAL program that performs the first step of the Archive Purge utility. This step must be executed from a NATURAL FUSER that is local to the N2O installation.

N2OPARC1 needs a control card from CMWKF01. The control card specifies which Archive file is to be purged. If a user submits the Archive Purge through a system internal reader, N2O replaces &INPUT in CMWKF01 with the correct control card. If a user submits the Archive Purge manually, the user must create the control card CMWKF01.

N2OPARC1 locates the Archive Definition and determines the purge retention values. This information is written to CMWKF02. A control report is written to CMPRT02.

### **N2OPARC2**

N2OPARC2 is a NATURAL program that performs the second step of the Archive Purge utility. This step must be executed from a NATURAL FUSER that is local to the Archive File.

N2OPARC2 reads the information from N2OPARC1 as CMWKF01. N2OPARC2 then reads the Archive file to locate objects that exceed the retention values, and writes these objects to CMWKF03. A control report is written to CMPRT02.

### **N2OPARC3**

N2OPARC3 is a NATURAL program that performs the third step of the Archive Purge utility. This step must be executed from a NATURAL FUSER that is local to the Archive file.

N2OPARC3 reads the information from N2OPARC1 as CMWKF01. N2OPARC3 reads the objects that N2OPARC2 has selected to purge as CMWKF04. Each object is located in the Archive file and written to CMWKF06, which is the backup dataset. The source code of these objects is also written to CMPRT06.

A control report is written to CMPRT02. A detail list of objects purged is written to CMPRT04. A message at the far right of each detail line will contain 'Purge Successful' or **\*\*\*err msg\*\*\*** to identify objects not purged.

If a user submits the Archive Purge through a system internal reader, N2O replaces &BACKUP with the name of the backup dataset. If a user submits the Archive Purge manually, the name of the backup dataset must be placed in the JCL. For more information on the use of this backup dataset, refer to **Section V Toolbox Subsystem** of the **N2O User Manual**.

### **N2OPARC4**

N2OPARC4 can only be executed if N2OPARC3 was completed successfully.

N2OPARC4 is a NATURAL program that performs the last step of the Archive Purge utility. This step must be executed from a NATURAL FUSER that is local to the N2O installation.

N2OPARC4 reads the backup dataset name from CMWKF03. If a user submits the Archive Purge through an internal reader, N2O replaces &BACKUP with the backup dataset name. If a user submits the Archive Purge manually, the dataset name must be placed in CMWKF03.

N2OPARC4 reads from CMWKF05 the objects that N2OPARC3 has selected to purge. Each object is located in the N2O Migration file and updated to a purge status. The backup dataset name is stored for each object that is purged.

A control report is written to CMPRT02.

**N2OPARC5 (optional)**

N2OPARC5 can be executed in place of N2OPARC2 In the Archive Purge JCL, to allow the deletion of individual objects and libraries from the archive (including writing archive purge dataset).

N2OPARC5 is a NATURAL program that performs the second step of the Archive Purge process. This step must be executed from a NATURAL FUSER that is local to the Archive File.

N2OPARC5 reads the information from N2OPARC1 as CMWKF01. N2OPARC5 then reads the Archive file to locate objects that meet the criteria to the input to N2OPARC5 , and writes these objects to CMWKF03. A control report is written to CMPRT02.

When submitting the JCL manually, provide the input Parameters: EVENT EVENT-SEQUENCE ORIGINAL-ENV APPLICATION KEY KEY-TYPE as input to N2OPARC5 (separated by ' '). Multiple records may be specified when manually submitted. "9999" must be specified for the Event Name to terminate input.

**N2OPARC5 Select Options**

When N2OPARC5 is used in the Archive Purge process

Sample N2OPARC5 INPUT parameters are defined below:

Delete Archived Source and Object code of all Objects in Library PAYTEST for all Events:

PARAMETERS: EVENT EVENT-SEQUENCE ORIGINAL-ENV APPLICATION KEY KEY-TYPE

EXAMPLE: //CMSYNIN DD \*

N2OPARC5

\*\*\* PAYTEST \*\*9999

Delete Archived Source and Object code of all Objects in all Libraries for Event PAYEVENT:

PARAMETERS: EVENT EVENT-SEQUENCE ORIGINAL-ENV APPLICATION KEY KEY-TYPE

EXAMPLE: //CMSYNIN DD \*

N2OPARC5

PAYEVENT \* \* \* \* \*

9999

Delete Archived Source and Object code of PAY0100P for Event: PAYEVENT 1 Original Environment: PROD :

PARAMETERS: EVENT EVENT-SEQUENCE ORIGINAL-ENV APPLICATION KEY KEY-TYPE

EXAMPLE: //CMSYNIN DD \*

N2OPARC5

PAYEVENT 1 PROD PAYTEST PAY0100P \*9999

Delete Source code of PAY0100P for Event: PAYEVENT 1 Original Environment: PROD :

PARAMETERS: EVENT EVENT-SEQUENCE ORIGINAL-ENV APPLICATION KEY KEY-TYPE

EXAMPLE: //CMSYNIN DD \*

N2OPARC5

PAYEVENT 1 PROD PAYTEST PAY0100P S

9999

Delete Object Code of PAY0100P for Event: PAYEVENT 1 Original Environment: PROD :

PARAMETERS: EVENT EVENT-SEQUENCE ORIGINAL-ENV APPLICATION KEY KEY-TYPE

EXAMPLE: //CMSYNIN DD \*

N2OPARC5

PAYEVENT 1 PROD PAYTEST PAY0100P S

9999

**Starting Archive Purge**

Archive Purge sample JCL is provided in the MVSARCHP, VMARCHP, BSARCHP and VSEARCHP members located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below.

| & Variable | Description   |
|------------|---|
| &BACKUP    | The name of the dataset that will store the purged versions.  |
| &INPUT     | Automatically generated by N2O, when the batch process is submitted using the N2O on-line screen.<br><br>Contains the Archive definition to be purged (wildcarding permitted), the specific library to be purged (optional), purge source or object only, archive DBID (required if wildcarding is used), Archive file number (required if wildcarding is used) |
| &USERID    | User-ID.  |

**Output from Archive Purge**

For each step in the sample Archive Purge job, the following output is produced:

Step 1 output:

```
01-12-31          N-2-O ARCHIVE PURGE - STEP 1          PAGE   :    1
11:38:00          CONTROL REPORT                       PROGRAM: PAYPARC1

Archive Definition : A175 selected for purge
Library : N2OTST selected for purge
N-2-0 Archive file : A175 Maintains : 2 Versions
```

Step 2 output:

```
01-12-31          N-2-O ARCHIVE PURGE - STEP 2          PAGE   :    1
11:38:00          CONTROL REPORT                       PROGRAM: PAYPARC2

N-2-0 will retain : 2 versions within Archive A175

A total of :      6 Source programs are eligible for purge
A total of :      6 Object programs are eligible for purge
A total of :      0 Short messages are eligible for purge
A total of :      0 Long messages are eligible for purge
A total of :      0 PDS members are eligible for purge
```

Step 3 output:

```

01-12-31          N-2-O ARCHIVE PURGE - STEP 3          PAGE   :    1
11:38:00          CONTROL REPORT                       PROGRAM: PAYPARC3

                Total number of source programs purged :    6
                Total number of object programs purged :    6
                Total number of short messages purged   :    0
                Total number of long  messages purged   :    0
                Total number of PDS  members purged     :    0
    
```

Step 3 output (continued):

```

01-12-31          N-2-O ARCHIVE PURGE - STEP 3          PAGE   :    1
11:38:00          SUMMARY REPORT                       PROGRAM: PAYPARC3

FROM      FROM      OBJ  EVENT  EVENT  ARCHIVE  ARCHIVE  MESSAGE
ENV      LIBRARY  OBJECT TYPE   SEQ    DATE    TIME
-----
PROD N2OTEST  PROG01 S   PAYIN      7 01-08-11 01:16:22 PURGE SUCCESSFUL
PROD N2OTEST  E-OFF  O   PAYIN     32 01-08-25 02:17:46 PURGE SUCCESSFUL
PROD N2OTEST  E-OFF  O   PAYIN     31 01-08-25 02:17:14 PURGE SUCCESSFUL
PROD N2OTEST  E-OFF  O   PAYOUT     6 01-08-24 18:51:44 PURGE SUCCESSFUL
PROD N2OTEST  E-OFF  O   PAYOUT     3 01-08-24 18:26:48 PURGE SUCCESSFUL
PROD N2OTEST  ET      S   PAYOUT     6 01-08-24 18:51:44 PURGE SUCCESSFUL
PROD N2OTEST  ET      S   PAYOUT     3 01-08-24 18:26:49 PURGE SUCCESSFUL
PROD N2OTEST  ETA     O   PAYOUT     6 01-08-24 18:51:45 PURGE SUCCESSFUL
PROD N2OTEST  EV      S   PAYOUT     6 01-08-24 18:51:45 PURGE SUCCESSFUL
PROD N2OTEST  EV      S   PAYOUT     3 01-08-24 18:26:50 PURGE SUCCESSFUL
PROD N2OTEST  PROG01 S   PAYIN     6 01-08-12 01:25:22 PURGE SUCCESSFUL
    
```

Step 4 output:

```

01-12-31          N-2-O ARCHIVE PURGE - STEP 4          PAGE   :    1
11:38:00          CONTROL REPORT                       PROGRAM: PAYPARC4

                N2O Migration File has been updated with Purged Archive Information

                Total source programs updated :    6
                Total object programs updated :    6
                Total short messages updated   :    0
                Total long  messages updated   :    0
                Total PDS  members updated     :    0
    
```

### III.8.2 Event Purge

The Event Purge function submits JCL or an EXEC to remove Events exceeding the retention values specified on the Install Parms screen.

To submit Event Purge JCL or an EXEC to an internal reader, enter "B" in the Enter Code field on the Administrative Utilities menu.

```

01-12-31                N-2-O EVENT PURGE                TSI0373
11:38:00                TSI1

Event Purge retains all Events migrated in the last 150 days.
Some Master Events may have overriding retention values.

Exclude Events that last migrated an object
to a Base Environment      : N
to any Environment        : N
Do not exclude any events: Y

Backup Dataset Name: _____

Press ENTER to continue

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

The Event Purge process is a two-step batch job that removes Events exceeding the retention values specified on the Install Parms or the Master Event. All information pertaining to the closed Events is deleted from the N2O Migration file. An Event cannot be purged if objects associated with the Event exist in the Archive file.

The Event Purge process will remove N2O Utility Records (Cancel, Reject, etc.) exceeding the retention value specified on the Install Parms. A Utility Record cannot be purged if the object associated with the Utility Record was checked out before the record was created.

In previous releases of N2O, executing the Event Purge, purged all Events that met the retention requirements a site specified. This resulted in all history being purged for objects that are infrequently modified. In order to comply with the requests of Sarbanes-Oxley audits two additional options have been added.

1. Option to retain the events that last migrated an object to any environment.
2. Option to retain the events that last migrated an object to a base environment.

Sites may create an Event Purge backup dataset, similar to the Archive Purge backup dataset. This will allow sites to maintain a backup of Events that have been purged. If the Event Purge Backup dataset is specified, a site may also restore Event details (History) from the Event purge backup dataset.

#### **N2OPEVT1**

N2OPEVT1 is a NATURAL program that performs the first step of the Event Purge utility. This step must be executed from a NATURAL FUSER that is local to the N2O installation.

N2OPEVT1 requires control card input from CMSYNIN. The control card specifies which events should be excluded from the Event Purge process. If a user submits the Event Purge through a system internal reader, N2O replaces &INPUT in CMSYNIN with the correct control card. If a user submits the Event Purge manually, the user must create the control card.

N2OPEVT1 reads the N2O Migration file and selects closed Events that exceed the retention values specified on the Install Parms or the Master Event. If any objects archived by the Event still exist in the Archive file, the Event is bypassed. If the objects no longer exist in the Archive file, the Event is written to CMWKF01.

N2OPEVT1 reads the N2O Migration file and selects Utility Records that exceed the retention value specified on the Install Parms. If the object is not checked out or the Utility Record's date is older than the current checkout date, the Utility Record is written to CMWKF01.

In both Cases, a control report is written to CMPRT02.

**N2OPEVT2**

N2OPEVT2 is a NATURAL program that performs the second step of the Event Purge utility. This step must execute from a NATURAL FUSER that is local to the N2O installation.

N2OPEVT2 reads the Events and Utility Records selected by N2OPEVT1 (CMWKF01) as CMWKF02. N2OPEVT2 locates the Event or Utility Record in the N2O Migration file and deletes it. Each event is written to CMWKF03, which is the backup dataset. A control report is written to CMPRT02, and a summary report is written to CMPRT04.

If a user submits the Event Purge through a system internal reader, N2O replaces &BACKUP with the name of the backup dataset. If a user submits the Event Purge manually, the name of the backup dataset must be placed in the JCL.

**N2OPEVT3 (optional)**

N2OPEVT3 can only be executed in place of N2OPEVT1 In the Event Purge JCL, to allow the deletion of all records for a specific Event.

N2OPEVT3 is a NATURAL program that performs the first step of the Event Purge process. This step must be executed from a NATURAL FUSER that is local to the N2O Migration File.

N2OPEVT3 reads the N2O Migration file and selects all Events for the input Event If any objects archived by the Event still exist in the Archive file, the Event is bypassed. If the objects no longer exist in the Archive file, the Event is written to CMWKF01.

When submitting the JCL manually, provide the input Parameters: EVENT as input to N2OPEVT3. &BACKUP will have to be replaced for CMWKF03 in the N2OPEVT2 step.

**N2OPEVT3 Select Options**

When N2OPEVT3 is used in the Archive Purge process

Sample N2OPEVT3 INPUT parameters are defined below:

Purge all instances of the Event PAYEVENT:

PARAMETERS: EVENT

EXAMPLE: //CMSYNIN DD \*

N2OPEVT3

PAYEVENT

**Starting Event Purge**

Event Purge sample JCL is provided in the MVSEVNTP, VMEVNTP, BSEVNTP and VSEEVNTP members located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below

| & Variable | Description   |
|------------|---|
| &BACKUP    | The name of the dataset that will store the purged events.  |
| &INPUT     | <p>ANY – Do not purge Events that last migrated an object to any Environment.</p> <p>BASE - Do not purge Events that last migrated an object to a Base Environment.</p> <p>NONE - Purge all events that met purge criteria.</p> |

**Output from Event Purge**

For each step in the Sample Purge Event job, the following output is produced:

**Note:** The column, "Recent Events Not Purged", not purged totals events not purged because of input value.

Step 1 output:

```

01-12-31          N-2-O EVENT PURGE - STEP 1          PAGE   :    1
11:38:00          CONTROL REPORT                     PROGRAM: N2OPEVT1

EVENT PURGE RETAINS ALL EVENTS MIGRATED IN THE LAST 150 DAYS.
EVENTS MARKED WITH AN * HAVE OVERRIDING RETENTION VALUES.

* MASTER EVENT   DAYS RETAINED   EVENTS TO PURGE   ARCHIVE EVENTS   RECENT EVENTS
                  150                1                 NOT PURGED       NOT PURGED
ACCTPT            150                1                 0                0
ACCTTP            150                5                 2                0
BRESTORE          150                9                 0                0
ORESTORE          150                1                 0                0
* PAYROLDT        240                0                 0                0
* PAYROLPD        240                0                 0                0
* PAYROLTP        240                0                 15               1
TAXESDT           150                1                 0                0
TAXESPD           150                4                 0                0

Event Purge retains all Utility records created in the last 150 days
* UTILITY        DAYS RETAINED   NUMBER TO PURGE   CHECKED OUT
                  150                170              NOT PURGED
CANCEL            150                10               0
CHECKOUT          150                0                0
TRANSFER          150                0                0
REJECT            150                0                0
    
```

Step 2 output:

```

01-12-31          N-2-O EVENT PURGE - STEP 2          PAGE   :    1
11:38:00          CONTROL REPORT                     PROGRAM: N2OPEVT2

TOTAL NUMBER OF EVENTS PURGED FOR EACH MASTER EVENT

MASTER EVENT     PURGED
ACCTPT            1
ACCTTP            5
BRESTORE          9
ORESTORE          1
TAXESDT           1
TAXESPD           4
UTILITY RECORDS  PURGED
CANCEL            170
CHECKOUT          10
TRANSFER          0
REJECT            0
    
```

Step 2 output (continued):

| 01-12-31<br>11:38:00 |              | N-2-O EVENT PURGE - STEP 2<br>SUMMARY REPORT |               |             |                 | PAGE : 1<br>PROGRAM: N2OPEVT2 |               |
|----------------------|--------------|--|---------------|-------------|-----------------|-------------------------------|---------------|
| EVENT                | EVENT<br>SEQ | EVENT<br>DATE                                | EVENT<br>TIME | FROM<br>ENV | FROM<br>LIBRARY | TO<br>ENV                     | TO<br>LIBRARY |
| ACCTPT               | 5            | 01-02-20                                     | 16:50:54      | PRDR        | PAYLIB          | TEST                          | PAYTEST       |
| ACCTTP               | 1            | 01-02-14                                     | 20:53:51      | TST2        | PAYTEST         | PRDR                          | PAYLIB        |
| ACCTTP               | 3            | 01-02-20                                     | 16:02:48      | TST2        | PAYTEST         | PRDR                          | PAYLIB        |
| ACCTTP               | 4            | 01-02-20                                     | 16:26:47      | TST2        | PAYTEST         | PRDR                          | PAYLIB        |
| ACCTTP               | 6            | 01-02-20                                     | 17:26:41      | TST2        | PAYTEST         | PRDR                          | PAYLIB        |
| ACCTTP               | 7            | 01-02-20                                     | 17:27:38      | TST2        | PAYTEST         | PRDR                          | PAYLIB        |
| BRESTORE             | 1            | 01-02-14                                     | 14:08:39      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 3            | 01-02-26                                     | 11:02:58      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 10           | 01-03-01                                     | 09:56:58      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 11           | 01-03-01                                     | 10:00:05      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 13           | 01-03-01                                     | 11:50:12      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 14           | 01-03-01                                     | 12:00:03      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 16           | 01-03-05                                     | 17:13:42      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 17           | 01-03-05                                     | 17:14:07      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| BRESTORE             | 18           | 01-03-06                                     | 08:40:21      | ARC1        | PAYLIB          | PRD4                          | PAYLIB        |
| ORESTORE             | 1            | 01-02-26                                     | 09:06:40      | ARC1        | PAYLIB          | PRD5                          | PAYLIB        |
| TAXESDT              | 1            | 01-02-14                                     | 14:43:40      | DEV1        | PAYDEV          | TEST                          | PAYTEST       |
| TAXESPD              | 1            | 01-02-14                                     | 13:47:22      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| TAXESPD              | 2            | 01-02-14                                     | 16:30:36      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| TAXESPD              | 3            | 01-02-14                                     | 16:32:38      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| TAXESPD              | 4            | 01-02-14                                     | 16:34:57      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CANCEL               | UTIL         | 01-01-10                                     | 13:32:13      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CANCEL               | UTIL         | 01-01-10                                     | 13:30:54      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CHECKOUT             | UTIL         | 01-01-04                                     | 11:54:00      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CANCEL               | UTIL         | 01-01-04                                     | 11:52:42      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CANCEL               | UTIL         | 01-01-10                                     | 13:32:13      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CHECKOUT             | UTIL         | 01-01-04                                     | 11:54:00      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |
| CANCEL               | UTIL         | 01-01-04                                     | 11:52:43      | PROD        | PAYLIB          | DEV1                          | PAYDEV        |

### III.8.3 Catalog Capture

The Catalog Capture function submits JCL or an EXEC to read source and compiled objects on an FUSER/FDIC, and update the N2O Migration File with the list of DDMS, NATURAL objects, PREDICT objects, and SYSERR messages found.

This function can be executed for a single library or a range of libraries. It can also be limited to capture PREDICT objects, SYSERR objects, NATURAL objects or DDMS only. This will allow sites to gradually phase in N2O, or add a new library to an environment without capturing the entire FUSER.

To submit Catalog Capture JCL or an EXEC to an internal reader, enter "C" in the Enter Code field on the Administrative Utilities menu.

```

01-12-31                N-2-O CATALOG CAPTURE                TSI0373
11:38:00                                                         TSI1

                               Env Def : _____
                               Starting Library: _____
                               Ending Library:  _____
                               Object Type:   NSPD _____

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

| Field                          | Description  |
|--------------------------------|--|
| ∞ Env Def<br>(required)        | Identifies the FUSER/FDIC to be captured.  |
| Starting Library<br>(optional) | Starting value for the range of libraries to be captured. If blank, the entire FUSER is captured.  |
| Ending Library<br>(optional)   | Ending value for the range of libraries to be captured. If blank, Starting library is the only library to be captured.                                     |
| Object Type<br>(required)      | The type of objects to be captured. Valid values are:<br>N Indicates Natural Objects.<br>S Indicates SYSERRS.<br>P Indicates PREDICT.<br>D Indicates DDMS. |

∞ indicates field-level help is available.

**DDM, NATURAL, PREDICT, and SYSERR Catalog Capture**

The DDM, NATURAL, PREDICT, and SYSERR Catalog Capture process consists of two steps.

**N2OCAPT1**

The first step reads through the FUSER and FDIC specified by the NATURAL PROC in the JCL or EXEC and creates a work file containing information about each NATURAL object, PREDICT object, and SYSERR message found in the environment. This step should run on the Environment being captured by N2O.

**N2OCAPT2**

The second step of the process reads the work file created by the first step and stores the necessary information in the N2O Migration file. This step should run on the Environment where N2O is installed.

**N2OCAPT1 (new with N2O v531 fix A)**

The step will read the work file created by N2OCAPT1 and generate a report of all objects captured. This report can be used as a baseline report for audit purposes. This step should run on the Environment where N2O is installed.

Sample report:

```

15-12-17                N2O CATALOG CAPTURE REPORT                PAGE
21:04:30                OBJECT TYPES:  NATURAL  SYSERR  PREDICT  DDM                1
ENV: PROD FUSER: 6 FDIC: 6 START LIB: PAYPROD END LIB: PAYPR

LIBRARY  OBJECT  TYPE      SRC/OBJ SOURCE DATE/TIME  USER ID  OBJECT DATE/TIME  USER ID
-----
--
PAYPROD  A        PROGRAM   S/C    20130124 17:54:10 PDL1     20130124 17:54:10 PDL1
PAYPROD  ACOMMON  PROGRAM   S/C    20130124 17:54:11 PDL1     20130124 17:54:11 PDL1
PAYPROD  AC08P340 PROGRAM   S       20030414 09:35:34 PDL1
PAYPROD  A1        PROGRAM   S/C    20130124 17:54:12 PDL1     20130124 17:54:12 PDL1
PAYPROD  A2        PROGRAM   S/C    20130124 17:54:13 PDL1     20130124 17:54:13 PDL1
PAYPROD  A3        PROGRAM   S/C    20130124 17:54:13 PDL1     20130124 17:54:13 PDL1
PAYPROD  A4        PROGRAM   S/C    20130124 17:54:14 PDL1     20130124 17:54:14 PDL1
PAYPROD  A5        PROGRAM   S/C    20150413 16:04:27 PDL1     20130124 17:54:14 PDL1
PAYPROD  A6        PROGRAM   S/C    20130124 17:54:15 PDL1     20130124 17:54:15 PDL1
PAYPROD  A7        PROGRAM   S/C    20130124 17:54:15 PDL1     20130124 17:54:15 PDL1
PAYPROD  A8        PROGRAM   S/C    20130124 17:54:16 PDL1     20130124 17:54:16 PDL1
    
```

**Starting Catalog Capture**

Catalog Capture sample JCL is provided in the MVSCAPT, VMCAPT, BSCATP and VSECATP members located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below.

| & Variable | Description  |
|------------|--|
| &INPUT     | Environment Definition being captured, FUSER-DBID,FDIC-DBID,STARTING-LIBRARY, ENDING-LIBRARY,OBJECT-TYPE |
| &USERID    | User-ID.   |

The &INPUT parameter list by default is delimited by commas with no spaces following the commas. To override the default delimiter, modify the value of the jcl-delimiter field in User-Exit-22 (N2OUE22N).

### III.8.4 3GL/OTHER Catalog Capture

The 3GL/OTHER Catalog Capture function submits JCL or an EXEC to read 3GL members for a LIBRARIAN Master file, PANVALET library, PDS, or ENDEVOR stages and updates the N2O Migration File with the list of members found.

To submit 3GL/OTHER Catalog Capture JCL or an EXEC to an internal reader, enter "D" in the Enter Code field on the Administrative Utilities menu.

```

01-12-31          N-2-O 3GL/OTHER CATALOG CAPTURE          TSI0373
11:38:00                                               TSI1

                               Env Def : _____

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  ----  ----  ----  ----  EXIT
    
```

| Field                | Description  |
|----------------------|--|
| ∞ Env Def (required) | Identifies the 3GL/OTHER environment to be captured. |

∞ indicates field-level help is available.

### III.8.4.1 PDS Catalog Capture

PDS Catalog Capture must be executed for PDS Environment Definitions to provide N2O with a current listing of members in each PDS. The Environment Definition allows the PDS to be categorized with a general object type, such as COBOL, FORT, ASMB, PL/I, RPG, DATA FILES, CLIST, JCL, or CNTL. Catalog Capture allows N2O to store more specific object types. For example, a PDS identified on the Environment Definition as COBOL may be captured to identify the members as COBOL-72 members. PDSs that are categorized as MISC datasets cannot be captured.

```

01-12-31          N-2-O 3GL/OTHER CATALOG CAPTURE          TSI0373
11:38:00                                     TSI1

+-----+
|          Dataset Name          Object          Update |
|                                Category  Type      Type |
+-----+-----+-----+-----+
| PAY.DSN.PAYJCL                COBOL          _____ N |
+-----+-----+-----+-----+

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

```

| Field                         | Description   |
|-------------------------------|---|
| Dataset Name<br>(required)    | Identifies the PDSs in the order they were entered on the Environment Definition Screen.  |
| Object Category<br>(optional) | Identifies the Category of the PDS as defined on the Environment Definition Screen.   |
| Object Type<br>(required)     | A site-specific description of the members within each PDS. This field is often used to identify compile requirements of members. |
| Update Type<br>(required)     | Instructs N2O to update the value of Object Type for all members of a PDS.  |
|                               | Valid Values:   |
|                               | YES    Modify the Object Type on all members within the specified PDS to the value listed under Object Type.                      |
|                               | NO     Only modify members with a blank object type to the value listed under Object Type.  |

The PDS Catalog Capture process consists of the following two steps:

**IEHLIST**

The first step of the PDS Catalog Capture process writes a directory of 3GL members contained in each PDS to a workfile.

**N2OCAPT3**

The second step of the PDS Catalog Capture process reads the workfile created in the first step and stores the necessary information in the N2O Migration file.

**Starting PDS Catalog Capture**

PDS Catalog Capture sample JCL is provided in the PDSCAPT member located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below.

| & Variable | Description  |
|------------|--|
| &INPUT     | The Environment Definition captured.<br>-----<br>Object Type,Update Type |
| &USERID    | User-ID.   |

**Note:** ----- indicates that inputs are on separate lines.

The &INPUT parameter list by default is delimited by commas with no spaces following the commas. To override the default delimiter, modify the value of the jcl-delimiter field in User-Exit-22 (N2OUE22N).

**III.8.4.2 LIBRARIAN Catalog Capture**

The LIBRARIAN Catalog Capture process consists of two steps.

**LIBPRT**

The first step of the LIBRARIAN Catalog Capture process writes a directory of 3GL members contained in the LIBRARIAN Master file to a workfile.

**N2OCAPT3**

The second step of the LIBRARIAN Catalog Capture process reads the workfile created by the first step and stores the necessary information in the N2O Migration file.

The second step also assigns an N2O Category to each member, depending on the language. The following is a set of standard LIBRARIAN languages that the LIBRARIAN Catalog Capture process recognizes: ASM, MAC, COB, FOR, FRG, FRH, GOF, PLI, PLF, RPG, DAT, JCL, and CMD. Additional languages are assigned to the N2O Category OTHER, unless otherwise specified. Up to 20 non-standard LIBRARIAN languages may be assigned an N2O Category in CMWKF01.

**Starting LIBRARIAN Catalog Capture**

Librarian Catalog Capture sample JCL is provided in the LIBRCAPT member located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below.

| & Variable | Description                          |
|------------|--------------------------------------|
| &INPUT     | The Environment Definition captured. |
| &USERID    | User-ID.                             |

**III.8.4.3 PANVALET Catalog Capture**

The PANVALET Catalog Capture process consists of two steps.

**PANPRT**

The first step of the PANVALET Catalog Capture process writes a directory of 3GL members contained in the PANVALET library to a workfile.

**N2OCAPT3**

The second step of the PANVALET Catalog Capture process reads the workfile created by the first step and stores the necessary information in the N2O Migration file.

The second step also assigns an N2O Category to each member, depending on the language. The following is a set of standard PANVALET languages that the PANVALET Catalog Capture process recognizes: ASMB, ANSCB, COBOL, COB72, FORT, PL/1, RPG, DATA, and JCL. Additional languages are assigned to the N2O Category OTHER, unless otherwise specified. Up to 20 non-standard PANVALET languages may be assigned an N2O Category in CMWKF01.

**Starting PANVALET Catalog Capture**

Panvalet Catalog Capture sample JCL is provided in the PANVCAPT member located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below.

| & Variable | Description                          |
|------------|--------------------------------------|
| &INPUT     | The Environment Definition captured. |
| &USERID    | User-ID.                             |

**III.8.4.4 ENDEVOR Catalog Capture**

The ENDEVOR Catalog Capture process consists of two steps.

**CAPTURE1**

The first step of the ENDEVOR Catalog Capture process creates a directory of ENDEVOR elements from the ENDEVOR stage and writes the directory to a workfile.

**N2OCAPT3**

The second step of the ENDEVOR Catalog Capture process reads the workfile created by the first step and stores the necessary information in the N2O Migration file.

The second step also assigns an N2O Category to each member, depending on the language. The categories include the following: ASMB, COBOL, FORT, PL/I, RPG, DATA, JCL, and OTHER. N2O automatically categorizes the following ENDEVOR Types: COBOL, COPYBOOK, PL/I, ASSEMBLER, MACRO, JCL, DATA, FORTRAN, and RPG. Additional languages are assigned to the N2O Category OTHER, unless otherwise specified. Up to 20 non-standard ENDEVOR languages may be assigned an N2O Category in CMWKF01.

**Starting ENDEVOR Catalog Capture**

Use the JCL below as a sample. Modify the job card and dataset names to conform to installation standards.

The N2O installation tape contains sample JCL in the library N2OBATCH for the program name specified.

Endevor Catalog Capture sample JCL is provided in the ENDVCAPT member located in the Natural library N2OBATCH). The & variables used in the sample JCL, which are dynamically updated when using N2O to submit the batch job are listed in the table below.

| & Variable | Description                          |
|------------|--------------------------------------|
| &INPUT     | The Environment Definition captured. |
| &USERID    | User-ID.                             |

## SECTION IV

### SECURITY ADMINISTRATION

#### **IV.1 Introduction**

This section describes the N2O Security Administration function. N2O Security consists of several different profiles that define security for a user. Together the profiles determine where users may migrate objects, what menus they may access, and what objects they may migrate.

The Security Administration section presents topics in the following order:

#### N2O Internal Security

- Approval Profile
- Function Profile
- PREDICT Profile
- 3GL/OTHER Profile
- User Definition

#### SECURITRE Interface

- Approval Profile
- Function Profile
- PREDICT Profile
- 3GL/OTHER Profile
- User Definition

Reporting of the N2O Security definitions is possible using option E - Security Reporting from the N2O Reporting subsystem.

**IV.2 N2O Internal Security**

To access the Security Administration menu, enter "S" on the Environment Subsystem menu or enter the direct command ENV SEC on any menu.

```

01-12-31          N-2-O SECURITY ADMINISTRATION MENU          TSI0373
11:38:00                                               TSI1

                Code  Function
                ----  -
                A    Approval Profile
                F    Function Profile
                O    3GL/Other Profile
                P    PREDICT Profile
                U    User Definition
                .    Terminate Security Administration
                ----  -

Enter Code:  _

Direct Command:  _____          ENV SEC
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                    | Description  |
|--------------------------|--|
| Enter Code<br>(required) | The function to be executed. Valid values are as follows: <ul style="list-style-type: none"> <li><b>A      Approval Profile</b><br/>Maintain N2O Approval Profiles.</li> <li><b>F      Function Profile</b><br/>Maintain N2O Function Profiles.</li> <li><b>O      3GL/OTHER Profile</b><br/>Maintain 3GL/OTHER Profiles.</li> <li><b>P      PREDICT Profile</b><br/>Maintain N2O PREDICT Profiles.</li> <li><b>U      User Definition</b><br/>Maintain N2O User Definitions.</li> </ul> |

**IV.2.1 Approval Profile**

An Approval Profile identifies up to 40 From Env Def/From Library, To Env Def/To Library combinations. These combinations define which migration Profiles a user (or group of users) is authorized to use to migrate NATURAL objects and/or SYSERR messages. An Approval Profile is assigned to User Definitions to provide migration security based on user-ID.

A user may request an Event for any valid migration path that is contained in an Approval Profile assigned to his/her user-ID. If the Migration Profile does not require authorization, the user can execute the Event to complete the migration of the objects.

Any user may request an Event for a Migration profile that requires authorization or servicing. The Event will not execute until it is authorized/serviced by a user with the requested migration path in an Approval Profile assigned to his/her user-ID on the User Definition Screen.

To access the Approval Profile menu, enter "A" on the Security Administration menu or enter the direct command ENV APPR on any menu.

```

01-12-31          N-2-O APPROVAL PROFILE MENU          TSI0373
11:38:00

Code  Function
-----
A    Add an Approval Profile
C    Copy an Approval Profile
D    Delete an Approval Profile
I    Inquire on an Approval Profile
M    Modify an Approval Profile
S    Select an Approval Profile
V    View Users with an Approval Profile
.    Terminate Approval Profile
-----

Enter Code:  _   Approval Profile   :   _____

Direct Command: _____          ENV APPR
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                 | Description  |
|-----------------------|--|
| Enter Code (required) | The function to be executed. Valid values are as follows: <ul style="list-style-type: none"> <li><b>A Add an Approval Profile</b><br/>Creates an Approval Profile.</li> <li><b>C Copy an Approval Profile</b><br/>Creates an Approval Profile by copying an existing Approval Profile.</li> <li><b>D Delete an Approval Profile</b><br/>Removes an Approval Profile.</li> <li><b>I Inquire on an Approval Profile</b><br/>Displays information about an Approval Profile.</li> <li><b>M Modify an Approval Profile</b><br/>Updates an Approval Profile.</li> </ul> |

(continued from previous page)

---

| <b>Field</b>                  | <b>Description</b>   |
|-------------------------------|--|
|                               | <b>S    Select an Approval Profile</b><br>Lists Approval Profiles that may be deleted, inquired on, or viewed. |
|                               | <b>V    View Users with an Approval Profile</b><br>Lists users of an Approval Profile.                         |
| ∞ Approval Profile (required) | The Approval Profile to be added, copied, or maintained.   |

∞ indicates field-level help is available.

**IV.2.1.1 Add an Approval Profile**

The Add an Approval Profile function creates an Approval Profile.

To add an Approval Profile, enter "A" in the Enter Code field and the Approval Profile to be added in the Approval Profile field on the Approval Profile menu. Press Enter to display the Add an Approval Profile screen.

```

01-12-31          N-2-O ADD AN APPROVAL PROFILE          TSI0373
11:38:00

Profile : ALL-APPR
Updated : TSI0373  01-12-31  10:40:45
Desc   : _____

          ----- From -----          ----- To -----
          Nbr      Env      Library      Env      Library
          ---      ---      ---          ---      ---
          1         _____          _____          _____
          2         _____          _____          _____
          3         _____          _____          _____
          4         _____          _____          _____
          5         _____          _____          _____
          6         _____          _____          _____
          7         _____          _____          _____
          8         _____          _____          _____
          9         _____          _____          _____
          10        _____          _____          _____

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

Approval Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition or library. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

The following Field Descriptions apply to all Approval Profile functions (Add, Copy, Delete, Inquire on, Modify, and View Users).

| Field                      | Description  |
|----------------------------|--|
| Profile<br>(supplied)      | The name of the Approval Profile.  |
| Updated<br>(supplied)      | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred. |
| Desc<br>(required)         | A brief description of the Approval Profile.   |
| ∞ From Env<br>(required)   | The source Environment Definition of the migration for NATURAL objects/SYSERR messages.                          |
| From Library<br>(required) | The source library of the migration for NATURAL objects/SYSERR messages.   |
| ∞ To Env<br>(required)     | The target Environment Definition of the migration for NATURAL objects/SYSERR messages.                          |
| To Library<br>(required)   | The target library of the migration for NATURAL objects/SYSERR messages.   |

∞ indicates field-level help is available.

### IV.2.1.2 Copy an Approval Profile

The Copy an Approval Profile function creates an Approval Profile by copying an existing Approval Profile. All information from the existing Approval Profile is copied to the new Approval Profile. This information may be changed if necessary.

To copy an Approval Profile, enter "C" in the Enter Code field and the Approval Profile to be copied in the Approval Profile field or leave the Approval Profile field blank.

```

01-12-31          N-2-O APPROVAL PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add an Approval Profile
C    Copy an Approval Profile
D    Delete an Approval Profile
I    Inquire on an Approval Profile
M    Modify an Approval Profile
S    Select an Approval Profile
V    View User
.    Terminate
-    -----
Code: c          Appr  Copy Approval Profile:  ALL-APPR
                                     To Approval Profile:  _____

Direct Command:  _____          ENV APPR
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new Approval Profile name.

```

01-12-31          N-2-O COPY AN APPROVAL PROFILE          TSI0373
11:38:00                                     TSI1

Profile :  SYSAPP
Updated  :  TSI0373  01-12-31  10:40:45
Desc     :  SYSTEMS PROGRAMMER APPROVAL___

          ----- From -----          To -----
          Env      Library          Env      Library
-----
1      T??T      PAY*_____          PRD0      PAY*_____
2      ARC*      PAY*_____          T??T      PAY*_____
3      PRD0      PAY*_____          T??T      PAY*_____
4      _____          _____          _____
5      _____          _____          _____
6      _____          _____          _____
7      _____          _____          _____
8      _____          _____          _____
9      _____          _____          _____
10     _____          _____          _____

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

Approval Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition or library. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

**IV.2.1.3 Delete an Approval Profile**

The Delete an Approval Profile function removes an Approval Profile.

To delete an Approval Profile, enter "D" in the Enter Code field and the Approval Profile to be deleted in the Approval Profile field on the Approval Profile menu.

```

01-12-31          N-2-O DELETE AN APPROVAL PROFILE          TSI0373
11:38:00                                               TSI1

Profile : SYSAPP
Updated  : TSI0373  01-12-31  10:00:43
Desc    : System Approval _____

      ----- From -----      ----- To -----
      Nbr  Env   Library      Env   Library
      ---  ---  ---          ---  ---
1      1  PROD  PAYPROD_      TEST  PAYTEST_
2      2  _____          _____
3      3  _____          _____
4      4  _____          _____
5      5  _____          _____
6      6  _____          _____
7      7  _____          _____
8      8  _____          _____
9      9  _____          _____
10     10 _____          _____

+-----+
| Do you want to Delete? N (Y/N) |
+-----+

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

When deleting an Approval Profile, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** An Approval Profile cannot be deleted if a User Definition uses it.

**IV.2.1.4 Inquire on an Approval Profile**

The Inquire on an Approval Profile function displays information about an Approval Profile.

To inquire on an Approval Profile, enter "I" in the Enter Code field and the Approval Profile to be displayed in the Approval Profile field on the Approval Profile menu.

```

01-12-31          N-2-O INQUIRE ON AN APPROVAL PROFILE      TSI0373
11:38:00                                               TSI1

Profile : SYSAPP
Updated  : TSI0373  01-12-31  10:40:45
Desc    : SYSTEMS PROGRAMMER APPROVAL____

      ----- From -----      ----- To -----
      Nbr  Env   Library      Env   Library
      ---  ---  ---          ---  ---
1      1  T??T  PAY*_____  PRD0  PAY*_____
2      2  ARC*  PAY*_____  T??T  PAY*_____
3      3  PRD0  PAY*_____  T??T  PAY*_____
4      4  _____          _____
5      5  _____          _____
6      6  _____          _____
7      7  _____          _____
8      8  _____          _____
9      9  _____          _____
10     10 _____          _____

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

**IV.2.1.5 Modify an Approval Profile**

The Modify an Approval Profile function updates an Approval Profile.

To modify an Approval Profile, enter "M" in the Enter Code field and the Approval Profile to be modified in the Approval Profile field on the Approval Profile menu.

```

01-12-31          N-2-O MODIFY AN APPROVAL PROFILE          TSI0373
11:38:00                                               TSI1

      Profile :   SYSAPP
      Updated  :   TSI0373   01-12-31   10:40:45
      Desc    :   SYSTEMS PROGRAMMER APPROVAL___

              ----- From -----          ----- To -----
              Nbr   Env   Library           Env   Library
              ---   ---   ---             ---   ---
              1     T??T   PAY*_____   PRD0   PAY*_____
              2     ARC*   PAY*_____   T??T   PAY*_____
              3     PRD0   PAY*_____   T??T   PAY*_____
              4     _____   _____   _____   _____
              5     _____   _____   _____   _____
              6     _____   _____   _____   _____
              7     _____   _____   _____   _____
              8     _____   _____   _____   _____
              9     _____   _____   _____   _____
              10    _____   _____   _____   _____

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

Approval Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition or library. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

**IV.2.1.6 Select an Approval Profile**

The Select an Approval Profile function provides a list of Approval Profiles that may be deleted, inquired on, modified, or viewed.

To select an Approval Profile, enter "S" on the Approval Profile menu. A starting value may be entered in the Approval Profile field on the Approval Profile menu.

```

Valid Values:  D-Delete I-Inquire M-Modify V-View
01-12-31      N-2-O SELECT AN APPROVAL PROFILE      TSI0373
11:38:00                                           TSI1

      S Profile      Description      Date      Time      User-ID
      - - - - -      - - - - -      - - - - -      - - - - -      - - - - -
      D SYSAPP      SYSTEM APPLICATION      01-12-31  10:03:37  TSI0373
      _ SYSPROG     SYSTEM PROGRAM      01-12-31  09:56:37  TSI0373

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

| Field           | Description  |
|-----------------|--|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, M, or V (Delete, Inquire on, Modify, or View). |

An Approval Profile may be selected and processed according to the function entered. In the example above, the Approval Profile SYSAPP is to be deleted.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

**IV.2.1.7 View Users with an Approval Profile**

The View Users with an Approval Profile function lists users of Approval Profiles.

To view users with an Approval Profile, enter "V" in the Enter Code field and the Approval Profile to be viewed in the Approval Profile field on the Approval Profile menu.

```
Type X to view user definition
01-12-31          N-2-O PROFILE REPORT          TSI0373
11:38:00          APPROVAL PROFILE - SYSAPP      TSI1
                                                    Page: 1
X  User-ID  Description
-  -
-  TSI0373  JOHN DOE
-  TSI0375  JANE SMITH

                2 Users assigned this profile
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12--
-
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  VIEW  ----  EXIT
```

This function may be used to view users assigned to Approval Profile SYSAPP.

Selecting one or more users displays the User Definition of that user. For more information, refer to **Section IV.2.5 User Definition**.

**IV.2.2 Function Profile**

Function Profiles contain a list of available N2O functions and sub-functions that individual users or groups of users may access.

To access the Function Profile menu, enter "F" on the Security Administration menu or enter the direct command ENV FUNC on any menu.

```

01-12-31          N-2-O FUNCTION PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a Function Profile
C    Copy a Function Profile
D    Delete a Function Profile
I    Inquire on a Function Profile
M    Modify a Function Profile
S    Select a Function Profile
V    View Users with a Function Profile
.    Terminate Function Profile
-    -----

Enter Code: _   Function Profile : _____

Direct Command: _____          ENV FUNC
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  EXIT
    
```

All N2O menus are created based on the sub-functions defined in a user's Function Profile. Each function selected in a Function Profile allows direct access to the corresponding menu using the direct command line. If a user does not have a sub-function defined in a Function Profile, that function is not displayed on the menu.

The sub-functions below are recommended for authorized users. Certain functions may be accessible to all users (e.g., Inquire on), while others should be secured (e.g., Delete).

- All ENV screens
- MIG AUTH
- MIG SERV
- MIG COCI
- REP ADM
- TOL MAIN

| Field                 | Description   |
|-----------------------|---|
| Enter Code (required) | The function to be executed. Valid values are as follows:   |
|                       | <b>A Add a Function Profile</b><br>Creates a Function Profile.  |
|                       | <b>C Copy a Function Profile</b><br>Creates a Function Profile by copying an existing Function Profile. |
|                       | <b>D Delete a Function Profile</b><br>Removes a Function Profile.                                       |
|                       | <b>I Inquire on a Function Profile</b><br>Displays a Function Profile.                                  |

(continued from previous page)

---

| <b>Field</b>                  | <b>Description</b>   |
|-------------------------------|--|
|                               | <b>M</b> <b>Modify a Function Profile</b><br>Updates information about a Function Profile.                                   |
|                               | <b>S</b> <b>Select a Function Profile</b><br>Lists Function Profiles which may be deleted, inquired on, modified, or viewed. |
|                               | <b>V</b> <b>View Users with a Function Profile</b><br>Lists users of a Function Profile.                                     |
| ∞ Function Profile (required) | The Function Profile to be added, copied, or maintained.   |

∞ indicates field-level help is available.

**IV.2.2.1 Add a Function Profile**

The Add a Function Profile function creates a Function Profile.

To add a Function Profile, enter "A" in the Enter Code field and the Function Profile to be added in the Function Profile field on the Function Profile menu.

```

Type S to Select or A to Add All Sub-functions
01-12-31          N-2-O ADD A FUNCTION PROFILE          TSIO373
11:38:00                                     TS11

      Profile : ALL-FUNC
      Updated : TSIO373 01-12-31 11:38:00
      Desc   : ALL FUNCTIONS ALLOWED

      S   Function   Sub-functions   Description
-----
      X   ENV ARCH   ACDIMS       ARCHIVE DEFINITION MENU
      X   ENV NODE   ACDIMS       NODE DEFINITION MENU
      X   ENV EVNT   ACDIMS       MASTER EVENT MENU
      X   ENV PARM   IM           INSTALL PARMS MENU
      X   ENV MIG    ACDIMS       MIGRATION PROFILE MENU
      X   ENV DEF    ACDIMS       ENVIRONMENT DEFINITION MENU
      X   ENV APPR   ACDIMSV      APPROVAL PROFILE MENU
      X   ENV FUNC   ACDIMSV      FUNCTION PROFILE MENU
      X   ENV PRED   ACDIMSV      PREDICT PROFILE MENU
      X   ENV USER   ACDIMS       USER DEFINITION MENU

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

The default Function Profile includes all available functions.

The Function Profile screen does not fit on a single display. PF6, PF7, PF8, and PF9 may be used to scroll through the list of functions.

**Note:** To add a new Function Profile, be sure to page thru the entire function profile using 'Enter' or PF8.

The following Field Descriptions apply to all Function Profile functions (Add, Copy, Delete, Inquire on, Modify and View Users).

| Field                 | Description  |
|-----------------------|--|
| Profile<br>(supplied) | The Function Profile.  |
| Updated<br>(supplied) | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred. |
| Desc<br>(required)    | A brief description of the Function Profile.   |

---

(continued from previous page)

---

| <b>Field</b>                | <b>Description</b>  |
|-----------------------------|---|
| S<br>(optional)             | The Selection code indicates the action to be taken on the function. Valid values are as follows:<br><br>A Adds all sub-functions for the function.<br>S Selects specific sub-functions for the function.<br>X Indicates the function is included in the Function Profile. N2O supplies this value.<br><br>A blank space removes the function and all sub-functions from the profile. |
| Function<br>(supplied)      | The direct command used to access the N2O menu. The first three characters represent the N2O subsystem (e.g., MIGration). The other characters represent a specific function in a subsystem (e.g., REQuest an Event).   |
| Sub-functions<br>(supplied) | The available functions on a menu.  |
| Description<br>(supplied)   | The screen name of the function.  |

After entering an "S" in the Selection field for the ENV NODE function on the previous screen, a pop-up window is displayed. To add sub-functions for the function, enter "X" in the selection field next to the sub-function. To remove sub-functions, enter a blank in the Selection field next to the sub-function.

```

Select S to Select of A to Add A Sub-functions
01-12-31          N-2-O ADD A FUNCTION PROFILE          TSI0373
11:38:00                                               TSI1

-----+-----
                N-2-O NODE DEFINITION MENU
-----+-----
S      S      Code      Description
-----+-----
-      -      A          Add a Node Definition
S      -      C          Copy a Node Definition
-      -      D          Delete a Node Definition
-      X      I          Inquire on a Node Definition
-      -      M          Modify a Node Definition
-      X      S          Select a Node Definition
-----+-----
-      ENV PRED  ACDIMSV      PREDICT PROFILE MENU
-      ENV USER  ACDIMS       USER DEFINITION MENU

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END   ----  ----  TOP  UP    DOWN  BOT  ----  ----  ----

```

To return to the Function Selection screen, press Enter in the pop-up window on the preceding screen. "I" and "S" have been selected as sub-functions for the ENV NODE function. The sub-functions displayed are the functions assigned to the specific function profile.

```

Type S to Select or A to Add all Sub-Functions
01-12-31          N-2-O ADD A FUNCTION PROFILE          TSI0373
11:38:00                                               TSI1

                Profile   :   CP-TEST
                Updated   :   TSI0373      01-12-31   11:28:31
                Desc      :   _____

S      Function  Sub-functions  Description
-----+-----
X      ENV ARCH  ACDIMS        ARCHIVE DEFINITION MENU
X      ENV NODE  IS            NODE DEFINITION MENU
X      ENV EVNT  ACDIMS        MASTER EVENT MENU
X      ENV PARM  IM            INSTALL PARMS MENU
X      ENV MIG   ACDIMS        MIGRATION PROFILE MENU
X      ENV DEF   ACDIMS        ENVIRONMENT DEFINITION MENU
X      ENV APPR  ACDIMSV       APPROVAL PROFILE MENU
X      ENV FUNC  ACDIMSV       FUNCTION PROFILE MENU
X      ENV OTHR  ACDIMSV       3GL/OTHER PROFILE MENU
X      ENV PRED  ACDIMSV       PREDICT PROFILE MENU
X      ENV USER  ACDIMS        USER DEFINITION MENU

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END   ----  ----  TOP  UP    DOWN  BOT  ----  ----  ----

```

### IV.2.2.2 Copy a Function Profile

The Copy a Function Profile function creates a Function Profile by copying an existing Function Profile. All information from the existing Function Profile is copied to the new Function Profile. This information may be changed if necessary.

To copy a Function Profile, enter "C" in the Enter Code field and the Function Profile to be copied in the Function Profile field or leave the Function Profile field blank.

```

01-12-31          N-2-O FUNCTION PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a Function Profile
C    Copy a Function Profile
D    Delete a Function Profile
I    Inquire on a Function Profile
M    Modify a Function Profile
S    Select a Function Profile
V    View User
.    Terminate
-    -----
                                Copy Function Profile:  ALL-FUNC
Enter Code: c  Function  To  Function Profile:  _____

Direct Command: _____ ENV FUNC
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new Function Profile name.

```

Type S to Select or A to Add all Sub-Functions
01-12-31          N-2-O COPY A FUNCTION PROFILE          TSI0373
11:38:00                                     TSI1

Profile : P-TEST
Updated : TSI0373          01-12-31  10:16:53
Desc    : TEST,_____

S  Function  Sub-functions  Description
---
X  ENV ARCH  ACDIMS        ARCHIVE DEFINITION MENU
X  ENV NODE  IS            NODE DEFINITION MENU
X  ENV EVNT  ACDIMS        MASTER EVENT MENU
X  ENV PARM  IM            INSTALL PARMS MENU
X  ENV MIG   ACDIMS        MIGRATION PROFILE MENU
X  ENV DEF   ACDIMS        ENVIRONMENT DEFINITION MENU
X  ENV APPR  ACDIMSV       APPROVAL PROFILE MENU
X  ENV FUNC  ACDIMSV       FUNCTION PROFILE MENU
X  ENV OTHR  ACDIMSV       3GL/OTHER PROFILE MENU
X  ENV PRED  ACDIMSV       PREDICT PROFILE MENU
X  ENV USER  ACDIMS        USER DEFINITION MENU

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

The Function Profile screen does not fit on a single display. PF6, PF7, PF8, and PF9 may be used to scroll through the list of functions.

**Note:** To copy an existing Function Profile be sure to page thru the entire function profile using 'Enter' or PF8. Changes are not applied until the entire Function Profile has been reviewed.

**Note:** If a user is currently in N2O when a function profile assigned to that user is modified, then the user must type "REFRESH" at the N2O Direct Command line to update their security with the changes.

**IV.2.2.3 Delete a Function Profile**

The Delete a Function Profile function removes a Function Profile.

To delete a Function Profile, enter "D" in the Enter Code field and the Function Profile to be deleted in the Function Profile field on the Function Profile menu.

```

01-12-31          N-2-0 DELETE A FUNCTION PROFILE          TSI0373
11:38:00                                     TSI1

          Profile   :   C-TEST
          Updated   :   TSI0373      01-12-31   10:16:09
          Desc     :   TEST,_____

      S  Function  Sub-functions  Description
-----
X  ENV ARCH    ACDIMS          ARCHIVE DEFINITION MENU
X  ENV NODE    ACDIMS          NODE DEFINITION MENU
X  ENV EVNT    ACDIMS          MASTER EVENT MENU
X  ENV PARM    IM              INSTALL PARMS MENU
X  ENV MIG     ACDIMS          MIGRATION PROFILE MENU
X  ENV DEF     ACDIMS          ENVIRONMENT DEFINITION MENU
X  ENV APPR    ACDIMSV         +-----+
X  ENV FUNC    ACDIMSV         | Do you want to Delete? N (Y/N) |
X  ENV OTHR    ACDIMSV         +-----+
X  ENV PRED    ACDIMSV
X  ENV USER    ACDIMS

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

When deleting a Function Profile, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A Function Profile cannot be deleted if a User Definition uses it.

**IV.2.2.4 Inquire on a Function Profile**

The Inquire on a Function Profile function displays information about a Function Profile.

To inquire on a Function Profile, enter "I" in the Enter Code field and the Function Profile to be displayed in the Function Profile field on the Function Profile menu.

```

01-12-31          N-2-O INQUIRE A FUNCTION PROFILE          TSI0373
11:38:00                                               TSI1

          Profile   :   CP-TEST
          Updated   :   TSI0373          01-12-31   10:14:27
          Desc      :   TEST_____

      S  Function   Sub-functions   Description
      ---  -----  -
      X  ENV ARCH   ACDIMS          ARCHIVE DEFINITION MAINTENANCE
      X  ENV NODE   ACDIMS          NODE DEFINITION MAINTENANCE
      X  ENV EVNT   ACDIMS          MASTER EVENT MAINTENANCE
      X  ENV PARM   IM              INSTALL PARMS MAINTENANCE
      X  ENV MIG    ACDIMS          MIGRATION PROFILE MAINTENANCE
      X  ENV DEF    ACDIMS          ENVIRONMENT DEFINITION MAINTENANCE
      X  ENV APPR   ACDIMSV        APPROVAL PROFILE MAINTENANCE
      X  ENV FUNC   ACDIMSV        FUNCTION PROFILE MAINTENANCE
      X  ENV OTHR   ACDIMSV        3GL/OTHER PROFILE MAINTENANCE
      X  ENV PRED   ACDIMSV        PREDICT PROFILE MAINTENANCE
      X  ENV USER   ACDIMS          USER DEFINITION MAINTENANCE

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
-----  -----  END  -----  TOP  UP  DOWN  BOT  -----  -----
    
```

The Function Profile screen does not fit on a single display. PF6, PF7, PF8, and PF9 may be used to scroll through the list of functions.

**IV.2.2.5 Modify a Function Profile**

The Modify a Function Profile function updates information about a Function Profile.

To modify a Function Profile, enter "M" in the Enter Code field and the Function Profile to be modified in the Function Profile field on the Function Profile menu.

```

Type S to Select or A to Add all Sub-Functions
01-12-31          N-2-O MODIFY A FUNCTION PROFILE          TSI0373
11:38:00                                     TSI1

Profile   : CP-TEST
Updated   : TSI0373      01-12-31   10:21:25
Desc      : TEST_____

S   Function      Sub-functions      Description
---  -----
X   ENV ARCH      ACDIMS              ARCHIVE DEFINITION MENU
X   ENV NODE      ACDIMS              NODE DEFINITION MENU
X   ENV EVNT      ACDIMS              MASTER EVENT MENU
X   ENV PARM      IM                  INSTALL PARMS MENU
X   ENV MIG      ACDIMS              MIGRATION PROFILE MENU
X   ENV DEF      ACDIMS              ENVIRONMENT DEFINITION MENU
X   ENV APPR      ACDIMSV             APPROVAL PROFILE MENU
X   ENV FUNC      ACDIMSV             FUNCTION PROFILE MENU
X   ENV OTHR      ACDIMSV             3GL/OTHER PROFILE MENU
X   ENV PRED      ACDIMSV             PREDICT PROFILE MENU
X   ENV USER      ACDIMS              USER DEFINITION MENU

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

The Function Profile screen does not fit on a single display. PF6, PF7, PF8, and PF9 may be used to scroll through the list of functions.

**Note:** To modify an existing Function Profile be sure to page thru the entire function profile using 'Enter' or PF8. Changes are not applied until the entire Function Profile has been reviewed.

**Note:** If a user is currently in N2O when a Function profile assigned to that user is modified, then the user must type "REFRESH" at the N2O Direct Command line to update their security with the changes.

### IV.2.2.6 Select a Function Profile

The Select a Function Profile function provides a list of Function Profiles that may be deleted, inquired on, modified, or viewed.

To select a Function Profile, enter "S" on the Function Profile menu. A starting value may be entered in the Function Profile field on the Function Profile menu.

```

Valid Values: D - Delete I - Inquire M - Modify V - View
01-12-31          N-2-O SELECT  A FUNCTION PROFILE          TSI0373
11:38:00                               TS11

  S  Profile  Description          Date      Time  User-ID
  -  - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  -  ALL-FUNC ALL FUNCTIONS ALLOWED  01-12-31  06:18:57 TREE06
  -  CP-TEST  TEST                   01-12-31  08:14:27 TSI0373
  -  C-TEST  TEST                   01-12-31  10:03:30 TREE04
  D  SYSPROG SYSTEM PROGRAM          01-12-31  10:18:32 TREE06

Direct Command: _____ ENV FUNC
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  VIEW  ----  EXIT
    
```

| Field           | Description  |
|-----------------|--|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, M, or V (Delete, Inquire on, Modify, or View). |

A Function Profile may be selected and processed according to the function entered. In the example above, the Function Profile SYSPROG is to be deleted.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

**IV.2.2.7 View Users with a Function Profile**

The View Users with a Function Profile function lists users for a Function Profile.

To view Users with a Function Profile, enter "V" in the Enter Code field and the Function Profile to be viewed in the Function Profile field on the Function Profile menu.

```

Type X to view user definition
01-12-31          N-2-O PROFILE REPORT          TSI0373
11:38:00          FUNCTION PROFILE - SYSPROG     TSI1
                                                    Page: 1
      X  User-ID  Description
      -  -----  -
      -  TSI0377  JOHN BROWN
      -  TSI0378  JANE DOE

                2 Users assigned this profile
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  VIEW  ----  EXIT
    
```

The example above shows users assigned to Function Profile SYSPROG.

Selecting one or more users displays the User Definition of that user. For more information, refer to **Section IV.2.5 User Definition**.

### IV.2.3 3GL/OTHER Profile

A 3GL/OTHER Profile is a list of up to 40 From Env Def, To Env Def, and 3GL category combinations. These combinations are migration profiles for 3GL/OTHER members. A 3GL/OTHER Profile is assigned to a User Definition to provide migration security for a user. A user migrating an Event must have a 3GL/OTHER Profile that contains the Migration Profile of the Event. Migration Profiles with authorization require an authorizer to have a 3GL/OTHER Profile for the migration. Migration Profiles with servicing require a servicer to have a 3GL/OTHER Profile for the migration.

To access the 3GL/OTHER Profile menu, enter "O" on the Security Administration menu or enter the direct command ENV OTHR on any menu.

```

01-12-31          N-2-O 3GL/OTHER PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a 3GL/Other Profile
C    Copy a 3GL/Other Profile
D    Delete a 3GL/Other Profile
I    Inquire on a 3GL/Other Profile
M    Modify a 3GL/Other Profile
S    Select a 3GL/Other Profile
V    View Users with a 3GL/Other Profile
.    Terminate 3GL/Other Profile
-----

Enter Code:  A    3GL/Other Profile    :  OTHPRO___

Direct Command:  _____          ENV OTHR
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                             | Description   |
|-----------------------------------|---|
| Enter Code<br>(required)          | The function to be executed. Valid values are as follows:<br><b>A Add a 3GL/OTHER Profile</b><br>Creates a 3GL/OTHER Profile.<br><b>C Copy a 3GL/OTHER Profile</b><br>Creates a 3GL/OTHER Profile by copying an existing 3GL/OTHER Profile.<br><b>D Delete a 3GL/OTHER Profile</b><br>Removes a 3GL/OTHER Profile.<br><b>I Inquire on a 3GL/OTHER Profile</b><br>Displays information about a 3GL/ OTHER Profile.<br><b>M Modify a 3GL/OTHER Profile</b><br>Updates a 3GL/OTHER Profile.<br><b>S Select a 3GL/OTHER Profile</b><br>Lists 3GL/OTHER Profiles that may be deleted, inquired on, modified, or viewed.<br><b>V View Users with a 3GL/OTHER Profile</b><br>Lists users of a 3GL/OTHER Profile. |
| ∞ 3GL/Other Profile<br>(required) | The 3GL/OTHER Profile to be added or maintained.  |

∞ indicates field-level help is available.

**IV.2.3.1 Add a 3GL/OTHER Profile**

The Add a 3GL/OTHER Profile function creates a 3GL/OTHER Profile.

To add a 3GL/OTHER Profile, enter "A" in the Enter Code field and the 3GL/OTHER Profile to be added in the 3GL/OTHER Profile field on the 3GL/OTHER Profile menu.

```

01-12-31          N-2-O ADD A 3GL/OTHER PROFILE          TSI0373
11:38:00                                               TSI1

Profile : OTHPRO
Updated : TSI1      01-12-31   11:24:45
Desc   : _____

                C          O
                A  O  F  P      D      O
                S  B  O  L  R  A  J  H
Nbr  From To  M  O  R  /  P  T  C  E
    Env Env  B  L  T  I  G  A  L  R
---  ---  ---  -  -  -  -  -  -  -
  1  _____  _____  -  -  -  -  -  -  -
  2  _____  _____  -  -  -  -  -  -  -
  3  _____  _____  -  -  -  -  -  -  -
  4  _____  _____  -  -  -  -  -  -  -
  5  _____  _____  -  -  -  -  -  -  -
  6  _____  _____  -  -  -  -  -  -  -
  7  _____  _____  -  -  -  -  -  -  -

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

3GL/OTHER Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition or library. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

The following Field Descriptions apply to all 3GL/OTHER Profile functions (Add, Copy, Delete, Inquire on, Modify, and View Users).

| Field                    | Description  |
|--------------------------|--|
| Profile<br>(supplied)    | The name of the 3GL/OTHER Profile.   |
| Updated<br>(supplied)    | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.   |
| Desc<br>(required)       | A brief description of the 3GL/OTHER Profile.  |
| ∞ From Env<br>(required) | The source Environment Definition of the migration for 3GL/OTHER members.  |
| ∞ To Env<br>(required)   | The target Environment Definition of the migration for 3GL/OTHER members.  |
|                          | ASMB            Marking these fields with an "X" allows members to be migrated within the specified category between the associated From and To Environment Definitions. |
|                          | COBOL  |
|                          | FORT   |
|                          | PL/I   |
|                          | RPG  |
|                          | DATA   |
|                          | JCL  |
|                          | OTHER  |

∞ indicates field-level help is available.

**IV.2.3.2 Copy a 3GL/OTHER Profile**

The Copy a 3GL/OTHER Profile function creates a 3GL/OTHER Profile by copying an existing 3GL/OTHER Profile. All information from the existing 3GL/OTHER Profile is copied to the new 3GL/OTHER Profile. This information may be changed if necessary.

To copy a 3GL/OTHER Profile, enter "C" in the Enter Code field and the Profile to be copied in the 3GL/OTHER Profile field or leave the 3GL/OTHER Profile field blank.

```

01-12-31          N-2-O 3GL/OTHER PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a 3GL/Other Profile
C    Copy a 3GL/Other Profile
D    Delete a 3GL/Other Profile
I    Inquire on a 3GL/Other Profile
M    Modify a 3GL/Other Profile
S    Select a 3GL/Other Profile
V    View User
.    Terminate
-    -----
Code: C          3GL/

Copy 3GL Profile:  ALL-3GL_
To   3GL Profile:  _____

Direct Command:  _____          ENV OTHR

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new 3GL Profile name.

```

01-12-31          N-2-O COPY A 3GL/OTHER PROFILE          TSI0373
11:38:00                                     TSI1

Profile : TEST1
Updated : TSI1          01-12-31  11:28:32
Desc    : TEST_____

          C          O
          A O F P    D T
          S B O L R A J H
          M O R / P T C E
Nbr   From To   B L T I G A L R
----  --- --
1     LIBP LIBD X X  - - - - -
2     _____ - - - - -
3     _____ - - - - -
4     _____ - - - - -
5     _____ - - - - -
6     _____ - - - - -
7     _____ - - - - -

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

3GL/OTHER Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition or library. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

**IV.2.3.3 Delete a 3GL/OTHER Profile**

The Delete a 3GL/OTHER Profile function removes a 3GL/OTHER Profile.

To delete a 3GL/OTHER Profile, enter "D" in the Enter Code field and the Profile to be deleted in the 3GL/OTHER Profile field on the 3GL/OTHER Profile menu.

```

01-12-31          N-2-O DELETE A 3GL/OTHER PROFILE          TSI0373
11:38:00                                               TSI1

      Profile : TEST1
      Updated : TSI1          01-12-31   11:28:32
      Desc   : TEST_____

                                C          O
                                A O F P   D   T
                                S B O L R A J H
      Nbr  From To  M O R / P T C E
      ---  --- ---  - - - - - - - - -
      1  LIBP LIBD X X - - - - - - -
      2  _____ - - - - - - -
      3  _____ - - - - - - -
      4  _____ - - - - - - -
      5  _____ - - - - - - -
      6  _____ - - - - - - -
      7  _____ - - - - - - -

      +-----+
      | Do you want to Delete? N (Y/N) |
      +-----+

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

When deleting a 3GL/OTHER Profile, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A 3GL/OTHER Profile cannot be deleted if a User Definition uses it.

**IV.2.3.4 Inquire on a 3GL/OTHER Profile**

The Inquire on a 3GL/OTHER Profile function displays information about a 3GL/OTHER Profile.

To inquire on a 3GL/OTHER Profile, enter "I" in the Enter Code field and the Profile to be displayed in the 3GL/OTHER Profile field on the 3GL/OTHER Profile menu.

```

01-12-31          N-2-O INQUIRE ON A 3GL/OTHER PROFILE          TSI0373
11:38:00                                               TSI1

Profile : TEST
Updated : TSI1      01-12-31   11:24:45
Desc    : TEST_____

                C          O
                A O F P   D   T
                S B O L R A J H
Nbr  From To  M O R / P T C E
     Env Env  B L T I G A L R
-----
1    LIBP LIBD X X - - - - -
2    _____ - - - - -
3    _____ - - - - -
4    _____ - - - - -
5    _____ - - - - -
6    _____ - - - - -
7    _____ - - - - -

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
-----  END  -----  TOP  UP    DOWN  BOT  -----

```

**IV.2.3.5 Modify a 3GL/OTHER Profile**

The Modify a 3GL/OTHER Profile function updates a 3GL/OTHER Profile.

To modify a 3GL/OTHER Profile, enter "M" in the Enter Code field and the Profile to be modified in the 3GL/OTHER Profile field on the 3GL/OTHER Profile menu.

```

01-12-31          N-2-O MODIFY A 3GL/OTHER PROFILE          TSI0373
11:38:00                                               TSI1

Profile:  TEST
Updated:  TSI1      01-12-31   11:32:46
Desc    :  TEST_____

                                C          O
                                A  O  F  P      D      T
                                S  B  O  L  R  A  J  H
                                M  O  R  /  P  T  C  E
Nbr   From  To   B  L  T  I  G  A  L  R
----  ----  ---  -  -  -  -  -  -  -  -
  1   PRD*  TST*  X  X  -  -  -  -  X  -
  2   _____  -  -  -  -  -  -  -  -
  3   _____  -  -  -  -  -  -  -  -
  4   _____  -  -  -  -  -  -  -  -
  5   _____  -  -  -  -  -  -  -  -
  6   _____  -  -  -  -  -  -  -  -
  7   _____  -  -  -  -  -  -  -  -

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

3GL/OTHER Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition or library. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

**Note:** If a user is currently in N2O when a 3GL/OTHER profile assigned to that user is modified, then the user must type "REFRESH" at the N2O Direct Command line to update their security with the changes.

**IV.2.3.6 Select a 3GL/OTHER Profile**

The Select a 3GL/OTHER Profile function provides a list of 3GL/OTHER Profiles which may be deleted, inquired on, modified, or viewed.

To select a 3GL/OTHER Profile, enter "S" on the 3GL/OTHER Profile menu. A starting value may be entered in the 3GL/OTHER Profile field on the 3GL/OTHER Profile menu.

```

Valid Values: D - Delete I - Inquire M - Modify V - View
01-12-31          N-2-O SELECT A 3GL/OTHER PROFILE          TSI0373
11:38:00                                     TSI1

  S  Profile  Description          Date      Time  User-ID
  -  - - - -  - - - - - - - - - - - - - - - - - - - - - - -
  -  ALL-3GL  ALL 3GL MIGRATIONS    01-12-31  10:52:53  TSI2
  D  TEST     TEST                   01-12-31  11:24:45  TSI1
  -  OTHPRO   3GL OTHER PROFILE      01-12-31  11:30:26  TSI2

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

| Field           | Description  |
|-----------------|--|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, M, or V (Delete, Inquire on, Modify, or View). |

A 3GL/OTHER Profile may be selected and processed according to the function entered. In the example above, the 3GL/OTHER Profile TEST is to be deleted.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

**IV.2.3.7 View Users with a 3GL/OTHER Profile**

The View Users with a 3GL/OTHER Profile function lists users of 3GL/OTHER Profiles.

To view users with a 3GL/OTHER Profile, enter "V" in the Enter Code field and the Profile to be viewed in the 3GL/OTHER Profile field on the 3GL/OTHER Profile menu.

```

Type X to view user definition
01-12-31          N-2-O PROFILE REPORT          TSI0373
11:38:00          3GL/OTHER PROFILE - SYSAPP    TSI1
                                                    Page: 1
      X  User-ID  Description
      -  - - - -  - - - - -
      -  TSI0374  JOHN BROWN
      -  TSI0375  HELEN SMITH

                2 Users assigned this profile
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
----- END ----- STOP
    
```

This function may be used to view users with a 3GL/OTHER Profile SYSAPP.

Selecting one or more users displays the User Definition of that user. For more information, refer to **Section IV.2.5 User Definition**.

### IV.2.4 PREDICT Profile

A PREDICT Profile is a list of up to 40 From Env Def, To Env Def, and PREDICT object type combinations. These combinations define paths for migrating PREDICT objects. A PREDICT Profile is assigned to a User Definition to provide migration security for a user. A user migrating an Event must have a PREDICT Profile that contains the Migration Profile of the Event. Migration profiles with authorization require an authorizer to have a PREDICT Profile for the migration. Migration Profiles with servicing require a servicer to have a PREDICT Profile for the migration.

To access the PREDICT Profile menu, enter "P" on the Security Administration menu or enter the direct command ENV PRED.

```

01-12-31          N-2-O PREDICT PROFILE MENU          TSI0373
11:38:00                                     TSI1

Code  Function
-----
A    Add a PREDICT Profile
C    Copy a PREDICT Profile
D    Delete a PREDICT Profile
I    Inquire on a PREDICT Profile
M    Modify a PREDICT Profile
S    Select a PREDICT Profile
V    View Users with a PREDICT Profile
.    Terminate PREDICT Profile
-----

Enter Code:  _      PREDICT Profile : _____

Direct Command: _____ ENV PRED
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                 | Description  |
|-----------------------|--|
| Enter Code (required) | The function to be executed. Valid values are as follows:<br><b>A Add a PREDICT Profile</b><br>Creates a PREDICT Profile.<br><b>C Copy a PREDICT Profile</b><br>Creates a PREDICT Profile by copying an existing PREDICT Profile.<br><b>D Delete a PREDICT Profile</b><br>Removes a PREDICT Profile.<br><b>I Inquire on a PREDICT Profile</b><br>Displays a PREDICT Profile.<br><b>M Modify a PREDICT Profile</b><br>Updates information about a PREDICT Profile.<br><b>S Select a PREDICT Profile</b><br>Lists PREDICT Profiles that may be deleted, inquired on, modified, or viewed.<br><b>V View Users with a PREDICT Profile</b><br>Lists users of a PREDICT Profile. |

∞ PREDICT Profile (required) The PREDICT Profile to be added or maintained.

∞ indicates field-level help is available.

**IV.2.4.1 Add a PREDICT Profile**

The Add a PREDICT Profile function creates a PREDICT Profile.

To add a PREDICT Profile, enter "A" in the Enter Code field and the PREDICT Profile to be added in the PREDICT Profile field on the PREDICT Profile menu.

```

03-01-21          N-2-O ADD A PREDICT PROFILE          TSI1
13:27:41                                     TERM

          Profile: TEST
          Updated: TSI1          03-01-21   13:27:41
          Desc   : THIS IS A TEST _____

From To ----- Predefined PREDICT Object Types -----
Nbr  Env  Env  DA DC ET FI KY LS MO NO NW PG PR RL RP RT SC SV SY US VE VM UDE
-----
1    _____
2    _____
3    _____
4    _____
5    _____
6    _____
7    _____
8    _____
9    _____
10   _____

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

PREDICT Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

**Note:** When PREDICT V4.1 and above is defined in N2O User-Exit 14 (N2OUE14N). The PREDICT Profiles Screen will appear as below.

```

01-12-31          N-2-O ADD A PREDICT PROFILE          TSI1
12:12:51                                     TERM

          Profile: TEST
          Updated: TSI1          01-12-31   12:12:51
          Desc   : THIS IS A TEST _____

----- Predefined PREDICT Object Types ----- U
From To D D E F I K L M N N P P P R R S S S U V V D
Nbr  Env  Env A C T I E Y S D O W G R Y L T C V Y S E M E
-----
1    _____
2    _____
3    _____
4    _____
5    _____
6    _____
7    _____
8    _____
9    _____
10   _____

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

The following Field Descriptions apply to all PREDICT Profile functions (Add, Copy, Delete, Inquire on, Modify and View Users).

| Field                    | Description   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
|--------------------------|---|------------------|-----------|-----------------|----|----------|--|----|-----------|--|----|---------|--|----|--|--|----|-----------|------------------|----|---------|--|----|-------------------|--|----|--------|------------------|----|--------|------------------|----|------|--|----|---------|--|----|-------------|--|----|---------|--|----|----------|------------------|----|--------------|--|----|--------|------------------|----|----------------|--|----|--------------|--|----|--------|--|----|--------|--|----|------|--|----|--------------|--|----|-----------------|--|-----|--|--|
| Profile<br>(supplied)    | The name of the PREDICT Profile.  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| Updated<br>(supplied)    | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| Desc<br>(required)       | A brief description of the PREDICT Profile.   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| ∞ From Env<br>(required) | The source Environment Definition of the migration for PREDICT objects.   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| ∞ To Env<br>(required)   | The target Environment Definition of the migration for PREDICT objects.   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| ∞ Objects<br>(required)  | <p>Marking a PREDICT object type with an "X" allows the specified PREDICT object to be migrated between the associated From and To Environment Definitions.</p> <p>The types of PREDICT objects which may be migrated are:</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Indicates</th> <th>Predict Version</th> </tr> </thead> <tbody> <tr> <td>DA</td> <td>Database</td> <td></td> </tr> <tr> <td>DC</td> <td>Dataspace</td> <td></td> </tr> <tr> <td>ET</td> <td>Extract</td> <td></td> </tr> <tr> <td>FI</td> <td>File and DDM migrations (Event Type D)</td> <td></td> </tr> <tr> <td>IE</td> <td>Interface</td> <td>V4.1.2 and above</td> </tr> <tr> <td>KY</td> <td>Keyword</td> <td></td> </tr> <tr> <td>LS</td> <td>Library Structure</td> <td></td> </tr> <tr> <td>MD</td> <td>Method</td> <td>V4.1.2 and above</td> </tr> <tr> <td>MO</td> <td>Module</td> <td>V3.4.2 and below</td> </tr> <tr> <td>NO</td> <td>Node</td> <td></td> </tr> <tr> <td>NW</td> <td>Network</td> <td></td> </tr> <tr> <td>PG</td> <td>PackageList</td> <td></td> </tr> <tr> <td>PR</td> <td>Program</td> <td></td> </tr> <tr> <td>PY</td> <td>Property</td> <td>V4.1.2 and above</td> </tr> <tr> <td>RL</td> <td>Relationship</td> <td></td> </tr> <tr> <td>RP</td> <td>Report</td> <td>V3.4.2 and below</td> </tr> <tr> <td>RT</td> <td>Report Listing</td> <td></td> </tr> <tr> <td>SC</td> <td>Storagespace</td> <td></td> </tr> <tr> <td>SV</td> <td>Server</td> <td></td> </tr> <tr> <td>SY</td> <td>System</td> <td></td> </tr> <tr> <td>US</td> <td>User</td> <td></td> </tr> <tr> <td>VE</td> <td>Verification</td> <td></td> </tr> <tr> <td>VM</td> <td>Virtual Machine</td> <td></td> </tr> <tr> <td>UDE</td> <td>User Defined Entities and METADATA migrations (Event Type M)</td> <td></td> </tr> </tbody> </table> | Type             | Indicates | Predict Version | DA | Database |  | DC | Dataspace |  | ET | Extract |  | FI | File and DDM migrations (Event Type D) |  | IE | Interface | V4.1.2 and above | KY | Keyword |  | LS | Library Structure |  | MD | Method | V4.1.2 and above | MO | Module | V3.4.2 and below | NO | Node |  | NW | Network |  | PG | PackageList |  | PR | Program |  | PY | Property | V4.1.2 and above | RL | Relationship |  | RP | Report | V3.4.2 and below | RT | Report Listing |  | SC | Storagespace |  | SV | Server |  | SY | System |  | US | User |  | VE | Verification |  | VM | Virtual Machine |  | UDE | User Defined Entities and METADATA migrations (Event Type M) |  |
| Type                     | Indicates   | Predict Version  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| DA                       | Database  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| DC                       | Dataspace   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| ET                       | Extract   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| FI                       | File and DDM migrations (Event Type D)  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| IE                       | Interface   | V4.1.2 and above |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| KY                       | Keyword   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| LS                       | Library Structure   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| MD                       | Method  | V4.1.2 and above |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| MO                       | Module  | V3.4.2 and below |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| NO                       | Node  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| NW                       | Network   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| PG                       | PackageList   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| PR                       | Program   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| PY                       | Property  | V4.1.2 and above |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| RL                       | Relationship  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| RP                       | Report  | V3.4.2 and below |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| RT                       | Report Listing  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| SC                       | Storagespace  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| SV                       | Server  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| SY                       | System  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| US                       | User  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| VE                       | Verification  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| VM                       | Virtual Machine   |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |
| UDE                      | User Defined Entities and METADATA migrations (Event Type M)  |                  |           |                 |    |          |  |    |           |  |    |         |  |    |  |  |    |           |                  |    |         |  |    |                   |  |    |        |                  |    |        |                  |    |      |  |    |         |  |    |             |  |    |         |  |    |          |                  |    |              |  |    |        |                  |    |                |  |    |              |  |    |        |  |    |        |  |    |      |  |    |              |  |    |                 |  |     |  |  |

∞ indicates field-level help is available.

**IV.2.4.2 Copy a PREDICT Profile**

The Copy a PREDICT Profile function creates a PREDICT Profile by copying an existing PREDICT Profile. All information from the existing PREDICT Profile is copied to the new PREDICT profile. This information may be changed if necessary.

To copy a PREDICT Profile, enter "C" in the Enter Code field, and the Profile to be copied in the PREDICT Profile field or leave the PREDICT Profile field blank.

```

01-12-31          N-2-O PREDICT PROFILE MENU          TSI0373
11:38:00

Code  Function
-----
A    Add a PREDICT Profile
C    Copy a PREDICT Profile
D    Delete a PREDICT Profile
I    Inquire on a PREDICT Profile
M    Modify a PREDICT Profile
S    Select a PREDICT Profile
V    View User
.    Terminate
-    -----
Code: c          PRED  Copy Predict Profile:  ALL-PRED
                                     To Predict Profile:  _____

Direct Command:  _____          ENV PRED
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window is displayed for the user to enter the new PREDICT Profile name.

```

01-12-31          N-2-O COPY A PREDICT PROFILE          TSI1
12:12:51

Profile:  TEST
Updated:  TSI1          01-12-31  12:12:51
Desc :   THIS IS A TEST _____
-----
Predefined PREDICT Object Types ----- U
From To D D E F I K L M N N P P P R R S S S U V V D
Nbr Env Env A C T I E Y S D O W G R Y L T C V Y S E M E
-----
1  *__ *__ X X X X X X X X X X X X X X X X X X X X X X X
2  _____
3  _____
4  _____
5  _____
6  _____
7  _____
8  _____
9  _____
10 _____

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

PREDICT Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

### IV.2.4.3 Delete a PREDICT Profile

The Delete a PREDICT Profile function removes a PREDICT Profile.

To delete a PREDICT Profile, enter "D" in the Enter Code field and the Profile to be deleted in the PREDICT Profile field on the PREDICT Profile menu.

```

01-12-31          N-2-O DELETE A PREDICT PROFILE          TS11
13:46:40                                               TERM

          Profile: TEST
          Updated: TS11          01-12-31  13:46:17
          Desc   : THIS IS A TEST
-----
          Predefined PREDICT Object Types ----- U
From  To  D D E F I K L M N N P P P R R S S S U V V D
Nbr  Env  Env A C T I E Y S D O W G R Y L T C V Y S E M E
-----
1  *__ *__ X X X X X X X X X X X X X X X X X X X X X X
2  _____
3  _____
4  _____
5  _____
6  _____
7  _____
8  _____
9  _____
10 _____

          Do you want to Delete? N (Y/N)

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

When deleting a PREDICT Profile, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A PREDICT Profile cannot be deleted if it is used by a User Definition.

### IV.2.4.4 Inquire on a PREDICT Profile

The Inquire on a PREDICT Profile function displays information about a PREDICT Profile.

To inquire on a PREDICT Profile, enter "I" in the Enter Code field and the Profile to be displayed in the PREDICT Profile field on the PREDICT Profile menu.

```

01-12-31          N-2-O INQUIRE A PREDICT PROFILE          TS11
13:48:53                                               TERM

          Profile: TEST
          Updated: TS11          01-12-31  13:46:17
          Desc   : THIS IS A TEST
-----
          Predefined PREDICT Object Types ----- U
From  To  D D E F I K L M N N P P P R R S S S U V V D
Nbr  Env  Env A C T I E Y S D O W G R Y L T C V Y S E M E
-----
1  *__ *__ X X X X X X X X X X X X X X X X X X X X X X
2  _____
3  _____
4  _____
5  _____
6  _____
7  _____
8  _____
9  _____
10 _____

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

**IV.2.4.5 Modify a PREDICT Profile**

The Modify a PREDICT Profile function updates a PREDICT Profile.

To modify a PREDICT Profile, enter "M" in the Enter Code field and the Profile to be modified in the PREDICT Profile field on the PREDICT Profile menu.

```

01-12-31          N-2-O MODIFY A PREDICT PROFILE          TSU1
13:50:35                                               TERM

          Profile: TEST
          Updated: TSI1          01-12-31  13:50:34
          Desc   : THIS IS A TEST
-----
          Predefined PREDICT Object Types ----- U
From  To  D D E F I K L M N N P P P R R S S S U V V D
Nbr  Env Env A C T I E Y S D O W G R Y L T C V Y S E M E
-----
1  *__ *__ X X X X X X X X X X X X X X X X X X X X X X X
2  _____
3  _____
4  _____
5  _____
6  _____
7  _____
8  _____
9  _____
10 _____

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

PREDICT Profiles allow both single and multiple-character wildcarding when specifying an Environment Definition. A question mark (?) can be used to match any single character, and an asterisk (\*) can be used to match all remaining characters.

**Note:** If a user is currently in N2O when a function profile assigned to that user is modified, then the user must type "REFRESH" at the N2O Direct Command line to update their security with the changes.

**IV.2.4.6 Select a PREDICT Profile**

The Select a PREDICT Profile function provides a list of PREDICT Profiles which may be deleted, inquired on, modified, or viewed.

To select a PREDICT Profile, enter "S" on the PREDICT Profile menu. A starting value may be entered in the PREDICT Profile field on the PREDICT Profile menu.

```

Valid Values: D - Delete I - Inquire M - Modify V - View
01-12-31          N-2-O SELECT A PREDICT PROFILE          TSI0373
11:38:00                                     TSI1

  S  Profile  Description                               Date    Time  User-ID
  -  - - - -  - - - - - - - - - - - - - - - - - - - - - -
  D  TEST    THIS IS A TEST.                          01-12-31 11:36:45 TSI1

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP  ----  END   ENV   MIG   REP   TOL   USR   PRJ   ----  ----  EXIT
    
```

| Field           | Description  |
|-----------------|--|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, M, or V (Delete, Inquire on, Modify, or View). |

A PREDICT Profile may be selected and processed according to the function entered. In the example above, the PREDICT Profile TEST is to be deleted.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

**IV.2.4.7 View Users with a PREDICT Profile**

The View Users with a PREDICT Profile function lists users of PREDICT Profiles.

To view users with a PREDICT Profile, enter "V" in the Enter Code field and the Profile to be viewed in the PREDICT Profile field on the PREDICT Profile menu.

```

Type X to view user definition
01-12-31          N-2-O PROFILE REPORT          TSI01373
11:38:00          PREDICT PROFILE - TEST        TSI1
                                                    Page: 1
      X  User-ID  Description
      -  - - - - - - - - - - - - - - - - - - -
      -  TSI0374  JOHN BROWN
      -  TSI0375  HELEN SMITH

                2 Users assigned this profile
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
-----END-----STOP
    
```

This function may be used to view users assigned to PREDICT Profile SYSPRE.

Selecting one or more users displays the User Definition of that user. For more information, refer to **Section IV.2.5 User Definition**.

**IV.2.5 User Definition**

A User Definition identifies a user to N2O. It also associates a user with a previously defined Function, Approval, PREDICT, and 3GL/OTHER profile.

To access the User Definition menu, enter "U" on the Security Administration menu or enter the direct command ENV USER on any menu.

```

01-12-31          N-2-O USER DEFINITION MENU          TSI0373
11:38:00                                               TSI1

                Code  Function
                -----
                A    Add a User Definition
                C    Copy a User Definition
                D    Delete a User Definition
                I    Inquire on a User Definition
                M    Modify a User Definition
                S    Select a User Definition
                .    Terminate User Definition
                -----

                Enter Code:  _   User-ID : _____

Direct Command:  _____          ENV USER
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  USR  PRJ  ----  ----  EXIT
    
```

| Field                    | Description  |
|--------------------------|--|
| Enter Code<br>(required) | The function to be executed. Valid values are as follows:<br><br><b>A Add a User Definition</b><br>Creates a User Definition.<br><br><b>C Copy a User Definition</b><br>Creates a User Definition by copying an existing User Definition.<br><br><b>D Delete a User Definition</b><br>Removes a User Definition.<br><br><b>I Inquire on a User Definition</b><br>Displays information about a User Definition.<br><br><b>M Modify a User Definition</b><br>Updates a User Definition.<br><br><b>S Select a User Definition</b><br>Provides a list of User Definitions that may be deleted, inquired on, or modified. |
| User-ID<br>(required)    | The user to be added or maintained.  |

**IV.2.5.1 Add a User Definition**

The Add a User Definition function creates a User Definition.

To add a User Definition, enter "A" in the Enter Code field and the User-ID of the user to be added in the User field on the User Definition menu.

```

01-12-31          N-2-0 ADD A USER DEFINITION          TSI0373
11:38:00                                     TSI1
User       : TREE55
Updated    : TSI1      01-12-31  10:48:22
Desc      : _____
Group-ID   : _____ Approval Status: NO_
XREF      : NONE      PREDICT Views  : NONE

      Nbr      Function      Approval      PREDICT      3GL
      ---      -
      1      _____      _____      _____      _____
      2      _____      _____      _____      _____
      3      _____      _____      _____      _____
      4      _____      _____      _____      _____
      5      _____      _____      _____      _____
      6      _____      _____      _____      _____
      7      _____      _____      _____      _____
      8      _____      _____      _____      _____
      9      _____      _____      _____      _____
     10      _____      _____      _____      _____

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

The following Field Descriptions apply to all User Definition functions (Add, Copy, Delete, Inquire on and Service).

| Field                         | Description   |
|-------------------------------|---|
| User<br>(supplied)            | The User-ID of the User Definition.   |
| Updated<br>(supplied)         | Lists the User-ID of the user who created or last updated the record and the date and time that action occurred.  |
| Desc<br>(required)            | A description of the User.  |
| Group-ID<br>(optional)        | A value that relates multiple users.<br><br>This value may link a group of users for authorization purposes. It may be specified for the authorization portion of a migration profile.  |
| Approval Status<br>(required) | Valid values are as follows:<br><br>YES Indicates authorization of a user's own Event is allowed. Specifying YES does not grant immediate authorization privileges. The user must also have access to the appropriate menus (MIG AUTH and MIG SERV) through a Function Profile and access to the migration path through an Approval Profile.<br><br>NO Indicates authorization of a user's own Event is not allowed (defaults to NO). |

(continued from previous page)

| Field                       | Description  |
|-----------------------------|--|
| ∞ XREF<br>(required)        | Valid values are as follows:<br><br>LIST Indicates XREF selection list is presented to the user when requesting a migration.<br><br>NONE Indicates XREF is not selected during migration (defaults to NONE).<br><br>BOTH Indicates LIST and NONE options are available to the user when requesting a migration.                        |
| PREDICT Views<br>(required) | Valid values are as follows:<br><br>LIST Indicates PREDICT userview selection list is presented to the user when requesting a migration.<br><br>NONE Indicates PREDICT userviews are not selected during migration (defaults NONE).<br><br>BOTH Indicates LIST and NONE options are available to the user when requesting a migration. |
| ∞ Function<br>(required)    | A Function Profile list. Up to 40 Function Profiles may be assigned.   |
| ∞ Approval<br>(optional)    | An Approval Profile list. Up to 40 Approval Profiles may be assigned.<br><br>If a Migration Profile requires Authorization or Servicing, an Approval Profile is not needed to add an Event using the Migration Profile. However, the user authorizing/servicing the Event must have an Approval Profile for the Migration Profile.     |
| ∞ PREDICT<br>(optional)     | A PREDICT Profile list. Up to 40 PREDICT Profiles may be assigned.<br><br>If a Migration Profile requires Authorization or Servicing, a PREDICT Profile is not needed to add an Event using the Migration Profile. However, the user authorizing/servicing the Event must have a PREDICT Profile for the Migration Profile.            |
| ∞ 3GL<br>(optional)         | A 3GL Profile list. Up to 40 3GL Profiles may be assigned.<br><br>If a Migration Profile requires Authorization or Servicing, a 3GL/OTHER Profile is not needed to add an Event using the Migration Profile. However, the user authorizing/servicing the Event must have a 3GL/OTHER Profile for the Migration Profile.                |

∞ indicates field-level help is available.

**IV.2.5.2 Copy a User Definition**

The Copy a User Definition function creates a User Definition by copying an existing User Definition. All information from the existing User Definition Profile is copied to the new User Definition profile. This information may be changed if necessary.

To copy a User Definition, enter "C" in the Enter Code field, and the Definition to be copied in the User field or leave the User field blank.

```

01-12-31          N-2-O USER DEFINITION MENU          TSI0373
11:38:00

Code  Function
-----
A    Add a User Definition
C    Copy a User Definition
D    Delete a User Definition
I    Inquire on a User Definition
M    Modify a User Definition
S    Select a User Definition
.    Terminate
-    -----+-----+
Enter Code: c    User:  k    Copy User:  TREE55__
                                     To User:  _____
                                     +-----+

Direct Command: _____          ENV USER
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP  ----  END  ENV  MIG  REP  TOL  ----  PRJ  ----  ----  EXIT
    
```

A pop-up window will be displayed for the user to enter the new User name.

```

01-12-31          N-2-O COPY A USER DEFINITION          TSI0373
11:38:00

User       :  TREE33
Updated    :  TSI1      01-12-31  10:51:21
Desc       :  THIS IS A TEST_____
Group-ID   :  _____ Approval Status: NO_
XREF       :  NONE      PREDICT Views  : NONE

Nbr        Function      Approval      PREDICT      3GL
-----
1          ALL-FUNC      _____
2          _____
3          _____
4          _____
5          _____
6          _____
7          _____
8          _____
9          _____
10         _____

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

### IV.2.5.3 Delete a User Definition

The Delete a User Definition function removes a User Definition.

To delete a User Definition, enter "D" in the Enter Code field and the Definition to be deleted in the User field on the User Definition menu.

```

01-12-31          N-2-O DELETE A USER DEFINITION          TSI0373
11:38:00                                     TSI1
User           : TREE33
Updated        : TSI1          01-12-31  10:52:29
Desc           : THIS IS A TEST
Group-ID      :                Approval Status: NO_
XREF          : NONE          PREDICT Views  : NONE

      Nbr      Function      Approval      PREDICT      3GL
      ---      -
      1      ALL-FUNC      _____      _____      _____
      2      _____      _____      _____      _____
      3      _____      _____      _____      _____
      4      _____      _____      _____      _____
      5      _____      _____      _____      _____
      6      _____      _____      _____      _____
      7      _____      _____      _____      _____
      8      _____      _____      _____      _____
      9      _____      _____      _____      _____
     10      _____      _____      _____      _____
                                     +-----+
                                     | Do you want to Delete? N (Y/N) |
                                     +-----+

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

When deleting a User Definition, a pop-up window is displayed to confirm the deletion. To confirm the delete request, enter "Y" in the pop-up window. To cancel the delete request, enter "N" in the pop-up window or press PF3.

**Note:** A User Definition cannot be deleted if checkout records exist for the user.

### IV.2.5.4 Inquire on a User Definition

The Inquire on a User Definition function displays information about a User Definition.

To inquire on a User Definition, enter "I" in the Enter Code field and the Definition to be displayed in the User field on the User Definition menu.

```

01-12-31          N-2-O INQUIRE ON A USER DEFINITION      TSI0373
11:38:00                                     TSI1
User           : TREE55
Updated        : TSI1          01-12-31  10:48:22
Desc           : THIS IS A TEST
Group-ID      :                Approval Status: NO_
XREF          : NONE          PREDICT Views  : NONE

      Nbr      Function      Approval      PREDICT      3GL
      ---      -
      1      ALL-FUNC      _____      _____      _____
      2      _____      _____      _____      _____
      3      _____      _____      _____      _____
      4      _____      _____      _____      _____
      5      _____      _____      _____      _____
      6      _____      _____      _____      _____
      7      _____      _____      _____      _____
      8      _____      _____      _____      _____
      9      _____      _____      _____      _____
     10      _____      _____      _____      _____

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
-----
                                END      TOP      UP      DOWN      BOT
    
```

**IV.2.5.5 Modify a User Definition**

The Modify a User Definition function updates a User Definition.

To modify a User Definition, enter "M" in the Enter Code field and the Definition to be modified in the User field on the User Definition menu.

```

01-12-31          N-2-0 MODIFY A USER DEFINITION          TSI0373
11:38:00                                     TSI1
User      : TREE55
Updated   : TSI1          01-12-31  10:55:56
Desc     : THIS IS A TEST
Group-ID: _____ Approval Status: NO_
XREF     : NONE          PREDICT Views : NONE

      Nbr  Function      Approval      PREDICT      3GL
      ---  -
      1  ALL-FUNC      _____      _____      _____
      2  _____      _____      _____      _____
      3  _____      _____      _____      _____
      4  _____      _____      _____      _____
      5  _____      _____      _____      _____
      6  _____      _____      _____      _____
      7  _____      _____      _____      _____
      8  _____      _____      _____      _____
      9  _____      _____      _____      _____
     10  _____      _____      _____      _____

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

**Note:** If a user is currently in N2O when their User Definition is modified, then the user must type "REFRESH" at the N2O Direct Command line to update their security with the changes.

**IV.2.5.6 Select a User Definition**

The Select a User Definition function provides a list of User Definitions that may be deleted, inquired on, or modified.

To select a User Definition, enter "S" on the User Definition menu. A starting value may be entered in the User field on the User Definition menu.

```

Valid Values: D - Delete I - Inquire M - Modify
01-12-31          N-2-O SELECT A USER DEFINITION          TSI0373
11:38:00                                TSI1

  S      User   Description                               Date   Time   User-ID
  -      -     -     -     -     -     -     -     -     -
  M      TREE55 THIS IS A TEST                          01-12-31 10:48:22 TSI1

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

| Field           | Description   |
|-----------------|---|
| S<br>(optional) | The function to be executed. Each user's Function Profile security determines the user's valid values. Valid values are D, I, or M (Delete, Inquire on, or Modify). |

A User Definition may be selected and processed according to the function entered. In the example above, user TREE55 is to be modified.

Pressing Enter pages forward on all screens until the last screen is displayed. Pressing Enter on the last screen displays the first screen again.

**IV.2.5.7 Batch User Definition Maintenance**

Batch initialization and modification of User Definitions may be performed. This process allows the creation of new users or the modification of existing users based on an existing N2O User Definition.

The User Definition below is used to create new users TSI0374, TSI0375, and TSI0376.

```

01-12-31          N-2-O ADD A USER DEFINITION          TSI0373
11:38:00                                     TSI1

      User      : ANALYST
      Updated   : TSI0371  01-12-01  10:37:09
      Desc      : ANALYST USER BASIS
      Auth Group: _____ Approval Status: NO
      XREF      : BOTH          Pred Views   : BOTH

Nbr      Function      Approval      PREDICT      3GL
----      -
1      ENV-FUNC      ALL-APPR      ALL-PRED      ALL-3GL
2      MIG-FUNC      _____
3      REPFUNC      _____
4      TOL-FUNC      _____
5      _____
6      _____
7      _____
8      _____
9      _____
10     _____

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
HELP ---- END ---- TOP UP DOWN BOT ----

```

The parameters for this process are shown below:

PARAMETERS: BASE USER,NEW USER,DESCRIPTION

```

EXAMPLE : //CMWKF01 DD *
          ANALYST,TSI0374,JOHN DOE
          ANALYST,TSI0375,JANE BROWN
          ANALYST,TSI0376,

```

The input to CMWKF01 must be separated by commas. The Description field is optional. If it is excluded for a new user, the Description from the base User Definition is copied to the new User Definition.

Sample JCL for Batch User Definition maintenance is shown below:

```

//N2OUSR EXEC PGM=NATBATCH
//CMWKF01 DD *
ANALYST,TSI0374,JOHN DOE
//
//
//CMPRINT DD SYSOUT=*
//CMSYNIN DD *
LOGON N2OLIB
N2OUSERS
FIN
//*

```

## **IV.3 SECURITRE Interface**

If SECURITRE is installed at the user's site, N2O interfaces with SECURITRE to provide ACF2, TOP SECRET, or RACF security for N2O as an alternative to N2O internal security. The SECURITRE interface replaces the Function Profiles, Approval Profiles, PREDICT Profiles, 3GL/OTHER Profiles, and User Definitions.

The SECURITRE interface is activated from the Install Parmas screen. If the SECURITRE field is set to YES, then N2O security is provided through SECURITRE. If the SECURITRE field is set to NO, then N2O security is provided through N2O internal security. When using the SECURITRE interface, N2O User-Exit 13 must be modified to identify the database where SECURITRE is installed.

N2O interfaces with SECURITRE by passing information to SECURITRE in the form of a pseudo-dataset name (DSN). SECURITRE then passes the DSN to the site's System Security Facility (SSF), such as ACF2, TOP SECRET, or RACF. A response is passed back through SECURITRE to N2O that indicates acceptance or rejection of the access. Read access is assumed for all security requests passed to SECURITRE. The interface uses the no-logging option when verifying Function Profiles. All other security checks will be logged.

Version 3.3.1 or higher of SECURITRE is required for the interface.

SECURITRE must be installed to interface with N2O. For information on SECURITRE, refer to the SECURITRE Manual or contact Treehouse Software.

**IV.3.1 Approval Profile for SECURITRE**

An Approval Profile defines a set of Environment Definition and library combinations that represent valid migration profiles for NATURAL objects and SYSERR messages.

N2O verifies a user's Approval Profile security when a user attempts to migrate NATURAL objects and/or SYSERR messages.

**Approval Profile SSF Rules**

A rule, in the form of a DSN, must be coded for each migration path of NATURAL objects and SYSERR messages.

**Rule Format:**

n2opref.N.fenv.flib.tenv.tlib

| Parameter | Description   |
|-----------|---|
| n2opref   | An STRDEF parameter defined in SECURITRE, which is limited to 15 characters.            |
| N         | Indicates the SSF rule is an Approval Profile SSF rule.                                 |
| fenv      | The source Environment Definition of the migration for NATURAL objects/SYSERR messages. |
| flib      | The source library of the migration for NATURAL objects/SYSERR messages.                |
| tenv      | The target Environment Definition of the migration for NATURAL objects/SYSERR messages. |
| tlib      | The target library of the migration for NATURAL objects/SYSERR messages.                |

**Example:**

N2O passes the following parameter to SECURITRE:

N.TEST.PAYTEST.PROD.PAYPROD

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.N.TEST.PAYTEST.PROD.PAYPROD

Approved access to this DSN allows the user to migrate NATURAL objects and/or SYSERR messages from the Environment Definition TEST, library PAYTEST to Environment Definition PROD, library PAYPROD.

### **IV.3.2 Function Profile for SECURITRE**

A Function Profile defines a set of N2O functions and sub-functions that may be accessed.

N2O verifies a user's Function Profile security before a menu is created. All N2O menus are created based on the functions assigned to a user. If a user does not have access to a function, then the function is not displayed on the menu.

To avoid violations being logged for every option on a menu that the user does not have authority to access, the no logging feature of the SSF is used.

#### **Function Profile SSF Rules**

A rule, in the form of a DSN, must be coded in the SSF for each N2O Subsystem, menu, and Function.

#### **Rule Format:**

n2opref.F.sub.menu.a

| <b>Parameter</b> | <b>Description</b>   |
|------------------|--|
| n2opref          | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters. |
| F                | Indicates the SSF rule is a Function Profile SSF rule.   |
| sub              | The N2O subsystem. Valid values are: ENV, MIG, REP, TOL, and PRJ.  |
| menu             | The menu name. For more information, refer to <b>Appendix A Screen Names and Descriptions</b> .                  |
| a                | The menu function.   |

#### **Example:**

N2O passes the following parameter to SECURITRE:

F.MIG.REQ.A

Assuming N2OPREF is assigned a value of CMN20STR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN20STR.F.MIG.REQ.A

Approved access to this DSN allows the user to select function "A" on the Migration Request menu (MIG REQ).

**Note:** Access to a sub-menu (e.g., MIG REQ) does not automatically allow access to the calling menu (e.g., MIG MENU). A rule must be coded for each menu to be accessed by a user. For more information about valid Function Profile SSF rules, refer to **Appendix B Function SSF Rules**.

**IV.3.3 3GL/OTHER Profile for SECURITRE**

A 3GL/OTHER Profile defines a set of Environment Definitions and 3GL Categories that represent valid migration profiles.

N2O verifies a user's 3GL/OTHER security when a user attempts to migrate 3GL/OTHER members.

**3GL/OTHER Profile SSF Rules**

A rule, in the form of a DSN, must be coded for each Migration Profile and 3GL category to be migrated by a user.

**Rule Format:**

n2opref.O.fenv.tenv.cat

| Parameter | Description  |
|-----------|--|
| n2opref   | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters. |
| O         | Indicates the SSF rule is a 3GL/OTHER Profile SSF rule.  |
| fenv      | The source Environment Definition of the migration for 3GL/OTHER members.  |
| tenv      | The target Environment Definition of the migration for 3GL/OTHER members.  |
| cat       | The 3GL Category that may be migrated. Valid values are: ASMB, COBOL, FORT, PL/I, RPG, DATA, JCL, and OTHER.     |

**Example:**

N2O passes the following parameter to SECURITRE:

O.TEST.PROD.COBOL

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.O.TEST.PROD.COBOL

Approved access to this DSN allows the user to migrate 3GL members from the COBOL category from the Environment Definition TEST to Environment Definition PROD.

**IV.3.4 PREDICT Profile for SECURITRE**

A PREDICT Profile defines a set of Environment Definitions and PREDICT object combinations which represent valid migration profiles.

N2O verifies a user's PREDICT security when a user attempts to migrate PREDICT objects.

**PREDICT Profile SSF Rules**

A rule, in the form of a DSN, must be coded for each Migration Profile and PREDICT object type to be migrated by a user.

**Rule Format:**

n2opref.P.fenv.tenv.pt

| <b>Parameter</b> | <b>Description</b>  |
|------------------|---|
| n2opref          | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters.  |
| P                | Indicates the SSF rule is a PREDICT Profile SSF rule.   |
| fenv             | The source Environment Definition of the migration for PREDICT objects.   |
| tenv             | The target Environment Definition of the migration for PREDICT objects.   |
| pt               | The PREDICT object type that may be migrated. Valid values for all PREDICT versions are: DA, DC, ET, FI, KY, LS, NO, NW, PG, PR, RL,RT, SC, SV, SY, US, VE and VM.<br><br>Valid values for PREDICT version 3.4.2 and below are: MO and RP.<br><br>Valid values for PREDICT version 4.1.1 and above are: IE, MD, and PY. |

**Example:**

N2O passes the following parameter to SECURITRE:

P.TEST.PROD.FI

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.P.TEST.PROD.FI

Approved access to this DSN allows the user to migrate PREDICT files from the Environment Definition TEST to Environment Definition PROD.

**IV.3.5 User Definition for SECURITRE**

Additional N2O features are made available to a user within User Definition Security. These features include the ability to use XREF when creating an Event, the ability to automatically select userviews associated with a PREDICT file, and the ability to approve one's own Event.

**Approval Status SSF Rules**

A rule, in the form of a DSN, must be coded for users to be allowed to approve their own Events.

**Rule Format:**

n2opref.U.APPR

| Parameter | Description  |
|-----------|--|
| n2opref   | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters. |
| U         | Indicates the SSF rule is a User Definition SSF rule.  |
| APPR      | Indicates authorization of a user's own Event is allowed.  |

**Example:**

N2O passes the following parameter to SECURITRE:

U.APPR

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.U.APPR

Approved access to this DSN allows the user to authorize their own Events.

**IV.3.6 Group-ID SSF Rules for SECURITRE**

A rule, in the form of a DSN, must be coded to authorize Events with the specified Group-ID.

**Rule Format:**

n2opref.U.G-ID.group-id

---

| <b>Parameter</b> | <b>Description</b>   |
|------------------|--|
| n2opref          | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters. |
| U                | Indicates the SSF rule is a user definition SSF rule.  |
| G-ID             | Indicates the SSF rule is a GROUP-ID.  |
| group-id         | Identifies the Group-ID for authorizing an Event.  |

**Example:**

N2O passes the following parameter to SECURITRE:

U.G-ID.group-id

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.U.G-ID.group-id

Approved access to this DSN allows the user to authorize an Event with the specified Group-ID.

**IV.3.7 XREF SSF Rules for SECURITRE**

A rule, in the form of a DSN, must be coded for a user to select related NATURAL objects.

**Rule Format:**

n2opref.U.XREF.option

| Parameter | Description  |
|-----------|--|
| n2opref   | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters.   |
| U         | Indicates the SSF rule is a user definition SSF rule.  |
| XREF      | Indicates the SSF rule is an XREF selection SSF rule.  |
| option    | The XREF value. Valid values are:<br>NONE Indicates user does not see XREF pop-up window when requesting an Event.<br>LIST Indicates user gets XREF selection screen of related programs when requesting an Event.<br>BOTH Indicates user has option to not include XREF programs, or to select the related programs when requesting an Event. |

**Example:**

N2O passes the following parameter to SECURITRE:

U.XREF.BOTH

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.U.XREF.BOTH

Approved access to this DSN provides the user with the XREF option BOTH.

**IV.3.8 PREDICT Views SSF Rules for SECURITRE**

A rule, in the form of a DSN, must be coded for a user to be allowed to select userviews related to selected PREDICT files.

**Rule Format:**

n2opref.U.PRED.option

| Parameter | Description  |
|-----------|--|
| N2OPREF   | A SECURITRE STRDEF parameter that identifies N2O security calls to SECURITRE, which is limited to 15 characters.   |
| U         | Indicates the SSF rule is a user definition SSF rule.  |
| PRED      | Indicates the SSF rule is a PREDICT Views SSF rule.  |
| option    | The PREDICT userview value. Valid values are:<br>NONE Indicates user does not see PREDICT userview pop-up window when requesting an Event.<br>LIST Indicates user gets PREDICT userview selection screen when requesting an Event.<br>BOTH Indicates user has option to select the related PREDICT userviews when requesting an Event. |

**Example:**

N2O passes the following parameter to SECURITRE:

U.PRED.BOTH

Assuming N2OPREF is assigned a value of CMN2OSTR, SECURITRE then passes the following pseudo-dataset name to the SSF:

CMN2OSTR.U.PRED.BOTH

Approved access to this DSN provides the user with the PREDICT Views option BOTH.

# SECTION V

## OPERATIONS

### **V.1 Introduction**

This section discusses customizing N2O to meet site requirements and processing N2O functions in batch. Explanations for all user-exits are provided, as well as sample JCL for batch functions. JCL examples are loaded into the Natural library N2OBATCH as part of the installation process. The sample JCL and EXECs provided are references only, and require site modifications before they can be executed. Topics in this section include:

- N2O Startup Program
- User-exits
- NATURAL, PREDICT, and SYSERR Batch Event Processing
- N2O/3GL Batch Event Processing
- Static SQL Support

### **V.2 N2O Startup Program**

Program N2O in the library SYSTEM allows users to customize the startup of N2O. This program issues a SETUP command to specify the application to return to after exiting N2O. Using the NATURAL STACK, the program issues a LOGON command to N2OLIB and runs MENU. If NATURAL SECURITY (NSC) is installed and MENU is the startup program for the application, this program may be modified to remove the STACK command to invoke MENU. In addition, any other site-dependent code that is needed prior to startup may be placed in this program.

**V.3 User-Exits**

N2O provides user-exits to allow users to interface with N2O functions using NATURAL objects. User-exits can verify field values, provide additional security, and interface with other software. User-exits are not intended to modify N2O files.

Each user-exit is assigned a program name that corresponds to the number or type of that user-exit. The Parameter Data Area and implementation steps are provided for each user-exit. The Parameter Data Area contains the list of parameters that N2O uses to communicate with the user-exit subprogram.

Source code for the user-exits may be found in the N2OLIB library.

**V.3.1 User-ID Initialization Exit (N2OUE00N)**

N2O invokes this user-exit subprogram to identify the User-ID of the user accessing N2O. The user-exit informs N2O of the User-ID of the user who is logged on. N2O defaults to the NATURAL User-ID, \*INIT-USER. However, sites that do not use \*INIT-USER may use this user-exit to supply N2O with the correct User-ID (e.g., \*USER for NATURAL Security sites).

Parameter Data Area: N2OUE00A

|                 |      |
|-----------------|------|
| SECURITY-USERID | (A8) |
|-----------------|------|

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE00N to site requirements and STOW. N2OUE00N contains sample code for this user-exit.
- Migrate the object code to the SYSTEM library of all FUSERS where on-line Autocompile is executed.

**V.3.2 N2O Termination Exit (N2OUE99P)**

N2O invokes this user-exit program when a user exits N2O. When a user presses PF12 from any menu or PF3 from the N2O Main menu to exit, N2O issues a RETURN command. This user-exit may be modified to provide alternative exit procedures.

The following step implements the user-exit:

- Logon to N2OLIB. Modify N2OUE99P to site requirements and STOW.

**V.3.3 N2O Batch Job Submission Exit (N2OUERJE)**

N2O invokes this user-exit subprogram when users submit N2O batch jobs. This user-exit may be used to submit JCL or EXECs for N2O to a system internal reader. This exit is also used to change the default messages for an event submission. To accomplish this, modify #MESSAGE.

N2OBATCH contains the following sample programs for this user-exit.

|         |   |
|---------|---|
| N2ORJE  | Submits JCL or EXECs to the internal reader when using Software AG's NATRJE.              |
| N2ORJE2 | Submits entire JCL or EXECs to the internal reader when the last line of the JCL is read. |
| N2ORJE3 | Submits JCL or EXECs to the internal reader one line at a time.                           |

Parameter Data Area

|            |       |
|------------|-------|
| #RET-CODE  | (A4)  |
| #JCL       | (A80) |
| #LAST-CARD | (L)   |
| #MESSAGE   | (A60) |

The following steps implement the user-exit:

- Migrate N2ORJE, N2ORJE2, or N2ORJE3 from N2OBATCH to N2OLIB.
- After migrating the appropriate program, rename it as N2OUERJE in N2OLIB.
- Modify N2OUERJE to site requirements and STOW.
- Migrate the object code to the SYSTEM library of each source or target FUSER.

**Note:** Refer to **Section V.4.6 Manual Submission of Batch Events** for more information on Manual Batch Submission.

**V.3.4 Event Request Exit (N2OUE01N)**

N2O invokes User-Exit 1 when an Event is added, modified, copied, deleted, authorized, or serviced. This user-exit subprogram may override the Approval, PREDICT, or 3GL/OTHER Profile Security of N2O. User-Exit 1 may also be used to verify Change Control values, check the Process Date and Time for an acceptable batch submission, limit the migration path for Events, or interface to N2O Project Tracking.

Parameter Data Area: N2OUE01A

|                     |       |   |
|---------------------|-------|---|
| FUNCTION            | (A10) | Add, Modify, Copy, Delete, Recovery, Authorize, Service |
| FROM-ENV            | (A4)  |   |
| FROM-LIBRARY        | (A8)  |   |
| TO-ENV              | (A4)  | (1:10) Multiple targets                                 |
| TO-LIBRARY          | (A8)  | (1:10) Multiple targets                                 |
| EVENT               | (A8)  |   |
| EVENT-SEQUENCE      | (N7)  |   |
| COPY-EVENT          | (A8)  | Only available with COPY function                       |
| COPY-EVENT-SEQUENCE | (N5)  | Only available with COPY function                       |
| PROCESS-DATE        | (A8)  | YYYYMMDD  |
| PROCESS-TIME        | (A8)  | HH:MM:SS  |
| MIGRATION-METHOD    | (A4)  | TYPE OF MIGRATION (COPY OR MOVE)                        |
| CHANGE-CONTROL      | (A8)  | If change control is required                           |
| TASK-GROUP          | (A8)  | If N2O Project Tracking is required                     |
| TASK-NUMBER         | (N6)  | If N2O Project Tracking is required                     |
| UEX1-USERID         | (A8)  | User-ID accessing the function                          |
| AUTH-USERID         | (A8)  | (1:10)  |
| AUTH-DATE           | (A8)  | (1:10)  |
| AUTH-TIME           | (A8)  | (1:10)  |
| EXTRACT-FLAG        | (A1)  | Y or N  |
| NATURAL-TYPE        | (A8)  | (1:10) SOURCE, OBJECT, or BOTH                          |
| SYSERR-TYPE         | (A2)  | US, UL, or U  |
| SYSERR-LANGUAGE     | (A1)  | 1-9, A-Z, a-y or *                                      |
| PREDICT-OBJECT      | (A2)  | (1:20) DA, FI, PR, etc.                                 |
| CATEGORY            | (A5)  | (1:8) COBOL, ASMB, JCL, etc.                            |
| COMMENTS            | (50)  | (1:10) Event Comments                                   |
| CALL-UEX15          | (A1)  | Call User Exit 15                                       |
| MIGRATION-ALLOWED   | (L)   | TRUE or FALSE   |
| REJECT-MESSAGE      | (A50) | Reason for Rejecting the function                       |

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE01N to site requirements and STOW. Assign the value FALSE to the MIGRATION-ALLOWED parameter to reject an Event Request. An N2O Administrator may provide a message in the REJECT-MESSAGE parameter. COMMENTS(1:10) for the Event Request may be updated. N2OUE01N contains sample code for this user-exit.

**V.3.5 Object Selection Exit (N2OUE02N)**

N2O invokes User-Exit 2 for each object that is added to or deleted from an Event. A Multiple Target Event invokes this exit once for each object in each target environment. This user-exit subprogram may be used to enforce standards for naming objects. User-Exit 2 allows the N2O Administrator to accept or reject object selections.

Parameter Data Area: N2OUE02A

|                   |       |   |
|-------------------|-------|---|
| OBJECT-NAME       | (A32) | Object being migrated                                       |
| OBJECT-TYPE       | (A8)  | MAP, VE, COBOL, or SYSERR                                   |
| SOURCE-OBJECT     | (A3)  | S, C, or S/C  |
| CATEGORY          | (A1)  | N, P, S, or O<br>(Natural, Predict, Syserr, or Other (3GL)) |
| FROM-ENV          | (A4)  |   |
| FROM-LIBRARY      | (A8)  |   |
| TO-ENV            | (A4)  |   |
| TO-LIBRARY        | (A8)  |   |
| TASK-GROUP        | (A8)  |   |
| TASK-NUMBER       | (N6)  |   |
| EVENT             | (A8)  |   |
| EVENT-SEQUENCE    | (N7)  |   |
| EVENT-TYPE        | (A8)  | SOURCE, OBJECT, or BOTH                                     |
| CHANGE-CONTROL    | (A8)  |   |
| EXTRACT-FLAG      | (A1)  | Y or N  |
| RENAMED-OBJECT    | (A8)  | Object renamed in a extract                                 |
| DDM-DBID          | (N5)  |   |
| DDM-FNR           | (N5)  |   |
| ACTION            | (A3)  | ADD or DEL  |
| MIGRATION-ALLOWED | (L)   | TRUE or FALSE   |

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE02N to site requirements and STOW. Assign the value FALSE to the MIGRATION-ALLOWED parameter to reject an object. When an object is rejected, the message DENIED appears on the selection screen beside the object name. N2OUE02N contains sample code for this user-exit.

**V.3.6 Event Authorization Exit (N2OUE03N)**

N2O invokes User-Exit 3 when an Event requires authorization. This user-exit subprogram may send a message through an electronic mail system indicating to the authorizer that an Event requires authorization.

Parameter Data Area: N2OUE03A

|                        |      |  |
|------------------------|------|--|
| FROM-ENV               | (A4) |  |
| FROM-LIBRARY           | (A8) |  |
| TO-ENV                 | (A4) | (1:10) Multiple targets                                    |
| TO-LIBRARY             | (A8) | (1:10) Multiple targets                                    |
| EVENT                  | (A8) |  |
| EVENT-SEQUENCE         | (N7) |  |
| CHANGE-CONTROL         | (A8) |  |
| TASK-GROUP             | (A8) |  |
| TASK-NUMBER            | (N6) |  |
| CREATE-USERID          | (A8) |  |
| CURR-AUTH-USERID-INDEX | (N2) | Occurrence of authorizer table current authorizer ID is in |
| AUTH-ID-LIST           | (A8) | (1:10) List of all authorizers                             |

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE03N to site requirements and STOW. N2OUE03N contains sample code for this user-exit.

**V.3.7 Event Completion Exit (N2OUE04N)**

N2O invokes User-Exit 4 when an Event completes the migration process. This user-exit subprogram may send a message through an electronic mail system indicating that an Event has completed. User-Exit 4 can also be used to initiate the Autocompile process for on-line Events.

To specify that the online autocompile process should be executed after an Event migrates objects, activate the sample code in this exit. This will cause the Events Pending autocompile list to be presented to the user during the on-line migration process.

Starting with N2O v5.1, a new user exit (N2OUE28N) will allow online autocompiles to immediately execute instead of displaying the EVENTS PENDING AUTOCOMPILE screen.

Parameter Data Area: N2OUE04A

|                        |      |  |
|------------------------|------|--|
| FROM-ENV               | (A4) |  |
| FROM-LIBRARY           | (A8) |  |
| TO-ENV                 | (A4) | (1:10) Multiple targets  |
| TO-LIBRARY             | (A8) | (1:10) Multiple targets  |
| EVENT                  | (A8) |  |
| EVENT-SEQUENCE         | (N7) |  |
| CHANGE-CONTROL         | (A8) |  |
| TASK-GROUP             | (A8) |  |
| TASK-NUMBER            | (N6) |  |
| CREATE-USERID          | (A8) |  |
| AUTH-USERID            | (A8) |  |
| CURR-AUTH-USERID-INDEX | (N2) | Occurrence of Auth-User-ID-List that is the current authorizer |
| AUTH-USERID-LIST       | (A8) | (1:10) List of all authorizers                                 |
| Warning                | (A8) | 'AC-ERROR' if the autocompile is not successful                |

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE04N to site requirements and STOW. N2OUE04N contains sample code for this user-exit.
- For batch Events, migrate N2OUE04N to the SYSTEM library.

**V.3.8 Checkout/Checkin/Enrollment Utility Exit (N2OUE05N)**

N2O invokes User-Exit 5 for each object affected by the Checkout, Cancel, Transfer, Transfer by Event, Reject Utility, or the Enrollment Facility. This user-exit subprogram may be used to provide additional security for these utilities.

Parameter Data Area: N2OUE05A

|                  |       |   |
|------------------|-------|---|
| UTILITY-NAME     | (A8)  | CHECKOUT, CANCEL, TRANSFER, REJECT, TBY EVENT, ENROLL                     |
| UTILITY-TYPE     | (A1)  | N, P, S, O, D, M<br>(Natural, Predict, Syserr, Other (3GL),DDM, Metadata) |
| UTILITY-USERID   | (A8)  | User taking action  |
| OBJECT-NAME      | (A32) |   |
| OBJECT-TYPE      | (A8)  | Valid for NATURAL and PREDICT   |
| CATEGORY         | (A8)  | 3GL: COBOL, JCL   |
| MEMBER-TYPE      | (A8)  | 3GL: COBOL, ASMB, MACRO...  |
| BASE-ENV         | (A4)  |   |
| BASE-LIBRARY     | (A8)  |   |
| CURRENT-ENV      | (A4)  |   |
| CURRENT-LIBRARY  | (A8)  |   |
| PREVIOUS-ENV     | (A4)  | Valid for Reject Utility  |
| PREVIOUS-LIBRARY | (A8)  | Valid for Reject Utility  |
| CURRENT-USERID   | (A8)  | Not valid for Enrollment Utility  |
| NEW-USERID       | (A8)  | Valid for Transfer Utility and Transfer by Event Utility                  |
| OBJECT-ALLOWED   | (L)   | TRUE, FALSE   |
| REJECT-MESSAGE   | (A50) | Reason for rejecting the function   |

The following step implements the user-exit:

- Logon to N2OLIB. Modify N2OUE05N to site requirements and STOW. Assign the value FALSE to the OBJECT-ALLOWED parameter to reject an object. An N2O Administrator may provide a message in the REJECT-MESSAGE parameter. N2OUE05N contains sample code for this user-exit.

**V.3.9 User-Defined Subsystem Menu Exit (N2OUE06P)**

N2O invokes User-Exit 6 when the User-Defined Subsystem is available from the N2O Main menu. This user-exit program returns control to the N2O Main menu.

The following step implements the user-exit:

- Logon to N2OLIB. Modify N2OUE06P to site requirements and STOW.

**V.3.10 On-line Autocompile Exit (N2OUE07P)**

N2O invokes User-Exit 7 when an Event completes the on-line Autocompile process. This user-exit program may be used to return to the N2O Main menu after completing the Autocompile for a library on the same FUSER as N2O. User-Exit 7 may also be used to exit NATURAL after completing the Autocompile process.

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE07P to site requirements and STOW.
- Migrate the object code to the SYSTEM library of all FUSERS where on-line Autocompile is to be executed.

**V.3.11 DB2 DBRM JCL Exit (N2OUE08N)**

N2O invokes User-Exit 8 when a user generates a DBRM. This user-exit subprogram (N2OUE08N) may be used to identify JCL for generating a DBRM in a specified environment.

Parameter Data Area: N2OUE08A

|                     |      |                              |
|---------------------|------|------------------------------|
| EVENT               | (A8) |                              |
| EVENT-SEQUENCE      | (N7) |                              |
| ENV-DEF             | (A4) |                              |
| LIBRARY-NAME        | (A8) |                              |
| JOB CARD-SKELETON   | (A8) | Must be provided by the user |
| DBRM-SKELETON       | (A8) | Must be provided by the user |
| PRECOMPILE-SKELETON | (A8) | Must be provided by the user |
| ASSEMBLE-SKELETON   | (A8) | Must be provided by the user |
| LINK-SKELETON       | (A8) | Must be provided by the user |
| PACKAGE-SKELETON    | (A8) | Must be provided by the user |

The following steps implement the user-exit:

- LOGON to N2OLIB. Modify N2OUE08N to provide the JCL names to N2O.
- Migrate the object code to the SYSTEM library of all FUSERS where DBRM generation is to be executed.

**V.3.12 DB2 DBRM Generation Exit (N2OUE09N)**

N2O invokes User-Exit 9 for each object in an Event when a user generates a DBRM. This user-exit subprogram may be used to reject any program that is to be executed by DB2 in dynamic mode. User-Exit 9 may be used to review the object list and reject or accept objects, based on Autocompile errors.

The user-exit may identify a single DBRM name for all programs in the Event. Otherwise, the DBRM name defaults to the program name.

Parameter Data Area: N2OUE09A

|                 |       |                               |
|-----------------|-------|-------------------------------|
| EVENT           | (A8)  |                               |
| EVENT-SEQUENCE  | (N7)  |                               |
| ENV-DEF         | (A4)  |                               |
| LIBRARY-NAME    | (A8)  |                               |
| PROGRAM-NAME    | (A8)  |                               |
| PACKAGE NAME    | (A16) |                               |
| DBRM-NAME       | (A8)  |                               |
| COMPILED-DATE   | (A8)  |                               |
| COMPILED-TIME   | (A8)  |                               |
| COMPILED-USERID | (A8)  |                               |
| SINGLE-DBRM     | (L)   | TRUE = one DBRM for the Event |
| STATIC-PROGRAM  | (L)   | TRUE = include in DBRM        |

The following steps implement the user-exit:

- LOGON to N2OLIB. Modify N2OUE09N to site requirements and STOW.
- Migrate the object code to the SYSTEM library of all FUSERS where DBRM generation is to be executed.

**V.3.13 Bind DB2 Plan Exit (N2OUE10N)**

N2O invokes User-Exit 10 when a user submits a request to Bind a DB2 Plan. This user-exit subprogram identifies JCL for binding the DB2 Plan in a specified environment. User-Exit 10 may associate the DB2 Plan with a DBRM.

Parameter Data Area: N2OUE10A

|                |       |                               |
|----------------|-------|-------------------------------|
| EVENT          | (A8)  |                               |
| EVENT-SEQUENCE | (N7)  |                               |
| ENV-DEF        | (A4)  | Target Environment Definition |
| LIBRARY-NAME   | (A8)  | Target Library                |
| BIND-JCL       | (A8)  |                               |
| PACKAGE NAME   | (A16) |                               |
| DBRM-NAME      | (A8)  |                               |
| PLAN-NAME      | (A8)  |                               |
| SUBSYS-NAME    | (A8)  |                               |

The following steps implement the user-exit:

- LOGON to N2OLIB. Modify N2OUE10EN to provide the JCL names to N2O and STOW.
- Migrate the object code to the SYSTEM library of all FUSERS where DB2 Plans Binds will be executed.

**V.3.14 3GL/OTHER Autocompile Exit (N2OUE11N)**

N2O invokes User-Exit 11 when an Event requires Autocompile for 3GL/OTHER members. This user-exit subprogram identifies the JCL program to compile a 3GL/OTHER member. This JCL program must reside in the JCL library defined on the Install Parms screen. For more information about JCL for User-Exit 11, refer to **Section V.5.10 3GL/OTHER Autocompile Exit (N2OUE11N)**.

Each JCL program may contain user-defined variables, which N2O replaces when the user submits the JCL on-line, using the Batch Submission Utilities. Users may specify these variables in USER-VARIABLE and should prefix the variables with &U. Users must specify a replacement value for user-defined variables in USER-REPLACEMENT. N2O replaces the user-defined variables with the replacement values.

Parameter Data Area: N2OUE11A

|                  |       |  |
|------------------|-------|--|
| EVENT            | (A8)  |  |
| EVENT-SEQUENCE   | (N7)  |  |
| INTERFACE        | (A10) | 3GL Interface type                         |
| FROM-ENV         | (A4)  |  |
| FROM-PDS-NAME    | (A44) |  |
| TO-ENV           | (A4)  |  |
| TO-PDS-NAME      | (A44) |  |
| MEMBER           | (A10) |  |
| OBJECT-TYPE      | (A8)  |  |
| CATEGORY         | (A8)  | N2O Category (COBOL, ASMB, etc.)           |
| COMPILE-JCL      | (A8)  | Compile JCL program name                   |
| LKED-JCL         | (A8)  | Link edit JCL program name                 |
| USER-DEF-JCL     | (A8)  | User-defined JCL program name              |
| USER-VARIABLE    | (A8)  | (1:50) &U user variables                   |
| USER-REPLACEMENT | (A44) | (1:50) &U user variables replacement value |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE11N to site requirements and STOW.

**V.3.15 N2O Utilities Exit (N2OUE12N)**

N2O invokes User-Exit 12 for each object affected by an N2O Utility\*. This user-exit subprogram may be used to limit the use of the following N2O functions:

- Source Compare
- Object Compare
- Process Deferred Move Events
- N2OPURGE Utility
- N2OSCAN Environment Scan Function\*
- N2OSCAN Library Scan Function\*
- N-2-O Documentation Tools

Parameter Data Area: N2OUE12A

|                      |       |  |
|----------------------|-------|--|
| UTILITY-NAME         | (A8)  | COMPARE, DEF-MOVE, N2OPURGE, SCAN-ENV, SCAN-LIB, or DOCUTILS |
| UTILITY-USERID       | (A8)  | User taking action   |
| ENV-DEF              | (A4)  |  |
| LIBRARY              | (A8)  |  |
| OBJECT-NAME          | (A32) |  |
| ARCHIVE              | (A1)  | Y or N (N2OPURGE only)                                       |
| MODE                 | (A1)  | B or O (Compare Utility and N2OSCAN)                         |
| IGNORE-COMMENTS      | (A1)  | Y or N (Compare Utility)                                     |
| IGNORE-SPACING       | (A1)  | Y or N (Compare Utility)                                     |
| SHOW-STATS-ONLY      | (A1)  | Y or N (Compare Utility)                                     |
| SHOW-SOURCE-ONLY     | (A1)  | Y or N (Compare Utility)                                     |
| EXPAND-MATCHING-CODE | (A1)  | Y or N (Compare Utility)                                     |
| IGNORE-POSITIONS     | (A8)  | 1 - 8 (Compare Utility)                                      |
| IGNORE-IDENT-OBJS    | (A1)  | Y or N (Compare Utility)                                     |
| SHOW-RANGE-STATS     | (A1)  | Y or N (Compare Utility)                                     |
| SHOW-MISSING-OBJS    | (A1)  | Y or N (Compare Utility)                                     |
| MIN-LINES-MATCH      | (N1)  | 1 - 9 (Compare Utility)                                      |
| MAX-LINES-COMPARED   | (N4)  | 0 – 9999 (Compare Utility)                                   |
| UTILITY-ALLOWED      | (L)   |  |
| REJECT-MESSAGE       | (A50) |  |

The following steps must be performed to implement the user-exit:

- LOGON to N2OLIB. Modify N2OUE12N to site requirements and STOW.
- Migrate the cataloged object to the NATURAL library SYSTEM.
- Migrate the object code to the SYSTEM library of each source or target FUSER.

\* Prior to execution of an N2OSCAN Environment Scan or Library Scan, User-Exit 12 is invoked with LIBRARY set equal to the Scan Parm Set library, OBJECT-NAME set equal to the Scan Parm Set name, and ENV-DEF set equal to the environment to be scanned.

**V.3.16 SECURITRE Database Exit (N2OUE13N)**

N2O invokes User-Exit 13 for each security call made when the SECURITRE interface is activated. This user-exit subprogram identifies the database where SECURITRE is installed. The database-ID defaults to the current database.

Parameter Data Area: N2OUE13A

|                       |      |
|-----------------------|------|
| SECURITRE-DATABASE-ID | (N3) |
|-----------------------|------|

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE13N to identify the DBID where SECURITRE is installed and STOW.

**V.3.17 System Product Information Exit (N2OUE14N)**

N2O invokes User-Exit 14 prior to any PREDICT related functions. Examples of PREDICT related functions include PREDICT migrations or the use of PREDICT Cross-Reference (X-REF) data. This user-exit subprogram identifies the version and release of NATURAL and PREDICT. This User-exit should be used to override the PREDICT version of the current NATURAL session.

Previous versions of N2O required sites to modify N2O User Exit 14 (N2OUE14N) to permit any migrations if the source/target environments had different Predict versions installed. This is not necessary with this release of N2O.

Parameter Data Area: N2OUE14A

|                        |      |  |
|------------------------|------|--|
| NATURAL-VER-REL        | (A4) |  |
| PREDICT-VER-REL        | (A4) | Defaults to the version of PREDICT detected from the current NATURAL session.  |
| PREDICT-TARGET-VER-REL | (N2) | Migration format of the PREDICT migration Unload. Should be used when migrating between different versions of PREDICT. |
| PREDICT-FDIC-DBID      | (N5) |  |
| PREDICT-FDIC-FNR       | (N5) |  |
| BUILD-EXTRACT          | (L)  | Build and use an Extract to unload PREDICT objects for PREDICT migrations  |
| INTERNAL-ID-YES        | (L)  | Unload PREDICT objects with the Internal ID  |

The following steps implement the user-exit:

- LOGON to N2OLIB. Modify N2OUE14N to identify the version of NATURAL and PREDICT, and STOW.
- Migrate the object code to the SYSTEM library for each FUSER involved with a batch migration.

Events that contain NATURAL and PREDICT objects will be handled differently based on the version of PREDICT and the values assigned to the BUILD-EXTRACT and INTERNAL-ID-YES fields.

**NOTE - Support for the BUILD-EXTRACT option in N2OUE14N will be dropped as part of the next N2O release. Sites utilizing this feature should modify N2OUE14N, setting BUILD-EXTRACT to FALSE (the default setting) and confirm that Migration Profiles that migrate PREDICT objects have a JCL PROGRAM specified (BUILD-EXTRACT=FALSE allows sites to use the same JCL to migrate Natural and Predict objects).**

Prior to N2Ov5.1.1, BUILD-EXTRACT defaulted to True, it now defaults to FALSE. As a result, N2O will only submit one batch job for NATURAL and PREDICT Objects (using the JCL Program specified on the Migration Profile). This is the setting that all sites using any version of Predict higher than v3.3 should use. New sites SHOULD NOT modify the BUILD-EXTRACT setting, existing sites should migrate to BUILD-EXTRACT=FALSE as soon as possible (see note above)

PREDICT 3.3: Objects are migrated using the PREDICT BUILD EXTRACT command. This requires N2O to submit two batch jobs. One to migrate the NATURAL objects (using the JCL Program specified on the Migration Profile) and one to migrate the PREDICT Objects (using the PREDICT JCL PROGRAM specified on the Migration Profile).

PREDICT 3.4 and above: Objects should be migrated using the LOAD/UNLOAD commands (BUILD-EXTRACT=FALSE) N2O will use one batch job for NATURAL and PREDICT Objects (using the JCL Program specified on the Migration Profile).

**V.3.18 Automatic Object Selection Exit (N2OUE15N)**

N2O invokes User-Exit 15 when a user enters "Y" in the Include objects from the UEX15 field on the Add, Copy, or Modify an Event screen. This user-exit subprogram may be used to automatically include a list of objects in an Event. The list of objects may be from Project Tracking or any external source. N2OUE15N contains the code necessary to retrieve a list of objects from the N2O Project Tracking Subsystem.

Parameter Data Area: N2OUE15A

|                  |       |   |
|------------------|-------|---|
| EVENT            | (A8)  |   |
| EVENT-SEQUENCE   | (N7)  |   |
| FROM-ENV         | (A4)  |   |
| FROM-LIBRARY     | (A8)  |   |
| TO-ENV           | (A4)  | (1:10)  |
| TO-LIBRARY       | (A8)  | (1:10)  |
| CATALOG-TYPE     | (A1)  | N,P, S,O,D,M<br>(Natural, Predict, Syserr, Other (3GL),DDM, Metadata) |
| CHANGE-CONTROL   | (A8)  |   |
| TASK-GROUP       | (A8)  |   |
| TASK-NUMBER      | (N6)  |   |
| COMMENTS         | (A50) | (1:10)  |
| STARTING-OBJECT  | (A32) |   |
| OBJECT-NAME      | (A32) | (1:29) Object list  |
| PREDICT-TYPE     | (A2)  | (1:29) PREDICT object types (e.g., DA, FI, ...)                       |
| CATEGORY         | (A5)  | (1:29) 3GL category (e.g., COBOL, ASMP, ...)                          |
| DDM-DBID         | (N5)  | (1:29) Dbid of the DDM  |
| DDM-FNR          | (N5)  | (1:29) Fnr of the DDM   |
| DDM-ADA6-SUPPORT | (L)   | (1:29) DDM supports Dbid and/or Fnr greater than 255                  |
| END-OF-LIST      | (L)   | TRUE or FALSE for current catalog-type                                |

The following step implements the user-exit:

- Logon to N2OLIB. Modify N2OUE15N to identify the list of objects to be included in an Event, and STOW.

**V.3.19 Password and Cipher Initialization Exit (N2OUE16N)**

N2O invokes User-Exit 16 in the Catalog Capture function. This user-exit subprogram assigns a password and cipher code for a given DBID and File Number.

Parameter Data Area: N2OUE16A

|                 |      |
|-----------------|------|
| DBID            | (N5) |
| FNR             | (N5) |
| ADABAS-PASSWORD | (A8) |
| ADABAS-CIPHER   | (A8) |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE16N to assign a password and cipher code, and STOW

**V.3.20 Determination of Node Exit (N2OUE17N)**

N2O invokes User-Exit-17 during the execution of the Catalog Capture function in batch. This user-exit subprogram assigns a node name for each remote environment. User-Exit-17 can also be used to terminate the NATURAL session when an invalid environment is detected by N2ODELT, N2ORECV, or N2OSEND.

Parameter Data Area: N2OUE17A

|                       |      |   |
|-----------------------|------|---|
| NODE                  | (A4) |   |
| TERMINATE-INVALID-ENV | (L)  | Enable / Disable the terminating of the NATURAL session when an invalid environment is detected by N2ODELT, N2ORECV, or N2OSEND |
| TERMINATE-RETURN-CODE | (N3) | Valid Values: 0 to 255 (Default: 0)   |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE17N to site requirements and STOW.
- Migrate the object code to the SYSTEM library of each source or target FUSER.

**V.3.21 Task Update Override Exit (N2OUE20N)**

N2O Project Tracking invokes User-Exit 20 when a user updates the stage of a task, cancels a task, or rejects a task. This user-exit allows the site to override the order of stages defined on a Project Definition for a task. User-Exit 20 can also be used to provide security for the Update Stage for a Task utility, Cancel a Task utility, or Reject a Task utility.

Parameter Data Area: N2OUE20A

|                    |       |  |
|--------------------|-------|--|
| FUNCTION           | (A8)  | UPDATE, CANCEL, REJECT                   |
| PROJECT            | (A20) | Project to which task belongs            |
| TASK-GROUP         | (A8)  | Identifies task                          |
| TASK-NUMBER        | (N6)  | Uniquely identifies task                 |
| CURRENT-STAGE      | (A10) | Stage that task is currently in          |
| NEW-STAGE          | (A10) | Stage that task is being updated to      |
| PROJECT-NEXT-STAGE | (A10) | Next stage defined on Project Definition |
| UPDATE-USERID      | (A8)  | User-ID processing the function          |
| UPDATE-ALLOWED     | (L)   | Allow=TRUE; Reject=FALSE                 |
| REJECT-MESSAGE     | (A50) | Reason for reject                        |

The following step implements the user-exit:

- Logon to N2OLIB. Modify N2OUE20N and STOW. N2OUE20N contains sample code for this user-exit.

**V.3.22 Batch Autocompile Exit (N2OUE21N)**

N2O invokes User-Exit 21 when a Batch Event completes the Batch Autocompile process. This user-exit program allows the customization of the condition code returned from NATURAL when one or more NATURAL objects fails compilation.

User-Exit-22 can also be used to change the order that NATURAL libraries are autocompiled by N2OBCOMP. N2OBCOMP can cycle through the libraries pending autocompile alphabetically or in the order that the events were processed.

Parameter Data Area: N2OUE21A

|                         |          |  |
|-------------------------|----------|--|
| AUTOCOMPILE-RET-CODE    | (N3)     | Valid Values: 0 to 255   |
| AUTOCOMPILE-EVENT-ORDER | (L)      | Compile libraries alphabetically or in event order. (Default FALSE - compile alphabetically) |
| COMPILE-FIRST-LIBRARY   | A8 (1:9) | Compile libraries to be processed before any other libraries.                                |

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE21N to site requirements and STOW.
- Migrate the object code to the SYSTEM library of all FUSERS where Batch Autocompile is to be executed.

**V.3.23 Batch Parameters Override Exit (N2OUE22N)**

N2O invokes User-Exit 22 when the submission of N2O batch jobs begins. This user-exit may be used to perform the following:

- Override the Library/Object containing the BATCH JCL
- Prevent the display of a popup window allowing the modification of the JCL Library, JCL Program, and JCL Exit when a batch job is submitted
- Prevent the submission of a Batch job
- Use a character other than ',' in the N2O replacement variable &INPUT replacement
- Replace N2O & variables if they are contained in a JCL comment

Parameter Data Area: N2OUE22A

|                           |           |   |
|---------------------------|-----------|---|
| JCL-ID                    | (A10)     | See example code in N2OUE22P for a full list of possible values   |
| JCL-ENV-DEF               | (A4/1:11) | 1 = From 2-11 = TO  |
| JCL-EVENT                 | (A8/1:2)  | 1 = From 2 = TO   |
| JCL-EVENT-SEQ             | (N5/1:2)  | 1 = From 2 = TO   |
| JCL-SECURITY-USER         | (A8)      |   |
| JCL-LIBRARY               | (A8)      | Modifiable – Library containing the NATURAL object containing the JCL.  |
| JCL-MEMBER                | (A8)      | Modifiable –NATURAL object containing the JCL.  |
| JCL-DISPLAY-POPUP         | (L)       | Modifiable – Determine whether to display a popup to allow the modification of the JCL Library, JCL Program and JCL Exit. |
| REJECT-JCL-SUBMIT-MESSAGE | (A60)     | Modifiable – Message displayed if the JCL is rejected using the REJECT-JCL-SUBMIT variable.                               |
| REJECT-JCL-SUBMIT         | (L)       | Modifiable - Rejects the submission of JCL (Default FALSE)  |
| JCL-DELIMITER             | (A1)      | Modifiable - Allows the N2O & variable &INPUT to use of a character other than ',' as the input delimiter. (Default ',')  |
| REPLACE-IN-COMMENTS       | (L)       | Modifiable - Allows N2O & variables to be replaced if they are contained in a JCL comment. (Default FALSE)                |

The following steps implement the user-exit:

- Logon to N2OLIB. Modify N2OUE22N to site requirements and STOW.

**V.3.24 Directory Reports Exit (N2OUE23N)**

N2O invokes User-Exit 23 for each object affected by the N2O Directory Reports. This user-exit subprogram may be used to limit the use of the following N2O functions:

- Directory Compare
- Directory List

Parameter Data Area: N2OUE23A

|                  |          |  |
|------------------|----------|--|
| UTILITY-NAME     | (A8)     | LIST or COMPARE  |
| UTILITY-USERID   | (A8)     |  |
| UTILITY-TYPE     | (A1)     | N,P, S,or O<br>(Natural, Predict, Syserr, or Other (3GL) |
| ENV-DEF          | (A4)     |  |
| ENV-DEF-COMPARE  | (A4)     | Compare only   |
| LIBRARY          | (A8)     | NATURAL/SYSERR   |
| LIBRARY-COMPARE  | (A8)     | NATURAL/SYSERR Compare only                              |
| CATEGORY         | (A5)     | 3GL only   |
| OBJECT-TYPE      | (A2)     | PREDICT TYPE   |
| STARTING-VALUE   | (A32)    | PROGRAM, OBJECT, MEMBER                                  |
| ENDING-VALUE     | (A32)    | PROGRAM, OBJECT, MEMBER                                  |
| SOURCE-OBJECT    | (A1/1:2) | Compare only   |
| UTILITY-OPTIONS  | (A3)     |  |
| MODE             | (A1)     | O or B   |
| VERIFY-TIMESTAMP | (A1)     | Y or N Compare NATURAL/PREDICT                           |
| VERIFY-EXISTENCE | (A1)     | Y or N Compare   |
| UTILITY-ALLOWED  | (L)      | ALLOW=TRUE; REJECT=FALSE                                 |
| REJECT-MESSAGE   | (A50)    | Reason For Reject  |

The following steps must be performed to implement the user-exit:

- LOGON to N2OLIB. Modify N2OUE12N to site requirements and STOW.
- Migrate the cataloged object to the NATURAL library SYSTEM.
- Migrate the object code to the SYSTEM library of each source or target FUSER.

**V.3.25 3GL/OTHER Autocompile Job Separation Exit (N2OUE24N)**

N2O invokes User-Exit 24 in the program N2OSELT when generating JCL for Autocompiling and/or Recovering 3GL/OTHER Objects. This user-exit subprogram identifies when a new JOB card gets inserted into the generated job stream.

The number in the variable OBJECT-NUMBER-LIMIT is the number of objects that will be processed before inserting a JOB card into the generated job stream. For 3GL Autocompile events, this will correspond to the number of step(s) in the JCL members defined by the variables COMPILE-JCL, LKED-JCL, and USER-DEF-JCL in the 3GL/OTHER Autocompile Exit (N2OUE11N). For 3GL recovery event, this will correspond to the number of step(s) in the JCL member defined to the migration profile field "3GL Recover Pgm".

**Note:** If additional JOB cards are inserted into the generated job stream (OBJECT-NUMBER-LIMIT>0), the N2OACKNP step must be before the & VARIABLE FOR JCL "&INCLUDE COMPILE" in the 3GL migration JCL.

Placing a zero (0) in the field OBJECT-NUMBER-LIMIT means that no additional JOB cards will be inserted into the generated job stream.

Parameter Data Area: N2OUE24A

|                     |           |  |
|---------------------|-----------|--|
| STEP-TYPE           | (A4)      | 'REC'=Recovery 'AUTO'=Autocompile  |
| EVENT               | (A8)      |  |
| EVENT-SEQUENCE      | (N7)      |  |
| OBJECT-NUMBER-LIMIT | (N3)      | Number of Autocompiling/Recovering 3GL/OTHER Objects to be processed before inserting a new JOB Card |
| JOBCARD             | (A79/1:4) | JOB Card to be inserted (Can be up to 4 lines)   |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE24N to site requirements and STOW.

**V.3.26 Autocompile Steplib Support Exit (N2OUE25N)**

N2O invokes User-Exit 25 when migrating objects to a library using the autocompile and Target XREF options. This user-exit subprogram will return the name of all Library Structures (up to 20) that have as a child the PREDICT SYSTEM object with a name identical to the target library. The PREDICT Library Structure object gets selected by putting its number into the field USE-LS-FOR-AUTOCOMPILE. Otherwise the default is the first Library Structure found. Putting a 99 into the field USE-LS-FOR-AUTOCOMPILE will generate a list of libraries (up to 199 in number) built from the first library of all the Library Structures that contain the target library. This list will be used to autocompile for any object that is affected by the migrated object whose type is defined in the TARGET XREF field of the migration profile.

Note: the following must be true for Autocompiling to work correctly across Steplibs.

- The PREDICT object SYSTEM defined to all the target/step libraries must have the same name as the library they are defined for.
- In the Migration Profile, Migrate XREF must be set to N.
- In the PREDICT Library Structures, the first entry in the link list is the main library, the following entries are steplibs. This is stated in the PREDICT Predefined Object Types manual as how SYSTEMs should be linked into a Library Structure.
- For BATCH, the field AUTOCOMPILE-EVENT-ORDER in the **Batch Autocompile Exit (N2OUE21N)** must be set to TRUE to autocompile the libraries in the proper order of
  - A) Target Library
  - B) Step library 1
  - ...
  - C) Step Library N
 Instead of alphabetically

Parameter Data Area: N2OUE25A

|                             |      |  |
|-----------------------------|------|--|
| AUTOCOMPILE-STEPLIBS        | (L)  | Enable / Disable Autocompile Steplib support (Default: False - Disable Steplib support)  |
| TO-ENV                      | (A4) | Target environment   |
| TO-LIBRARY                  | (A8) | Target library   |
| EVENT                       | (A8) |  |
| EVENT-SEQUENCE              | (N7) |  |
| USERID                      | (A8) |  |
| NUMBER-OF-LIBRARY-STRUCTURE | (N2) | Number of the Library Structures that reference the target environment   |
| LIBRARY-STRUCTURE-NAMES     | (A8) | Library Structure names  |
| USE-LS-FOR-AUTOCOMPILE      | (N2) | Number of the Library Structure to be used for the autocompile. Values:1-20 and 99. 99 will scan all Library Structures and generates a list of libraries to check. (Default: 1) |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE25N to site requirements and STOW.
- Migrate the object code to the SYSTEM library of each source or target FUSER.

**V.3.27 DDM Generation Selection Exit (N2OUE26N)**

N2ORDDM invokes User-Exit 26 for each PREDICT type FI OBJECT migrated by N2O. User-Exit 26 allows the N2O Administrator to decide whether to generate a DDM for each PREDICT type FI OBJECT migrated.

Parameter Data Area: N2OUE26A

|                    |       |                            |
|--------------------|-------|----------------------------|
| PREDICT-OBJECT     | (A32) | DDM to regenerate          |
| FILE-TYPE          | (A2)  | Type of file to regenerate |
| FROM-ENV           | (A4)  | Source environment         |
| TO-ENV             | (A4)  | Target environment         |
| EVENT              | (A8)  |                            |
| EVENT-SEQUENCE     | (N7)  |                            |
| GENERATION-ALLOWED | (L)   | (Default: True)            |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE26N to site requirements and STOW.

Migrate the object code to the SYSTEM library of each source or target FUSER.

**V.3.28 N2OSEL Exit (N2OUE27N)**

N2O invokes User-Exit 27 when an event is not processed during a batch migration. This user-exit program allows the customization of the condition code returned from NATURAL when an event is not processed in the selection step of the migration (N2O program N2OSEL). If this exit is not customized, the default return code is 0.

Parameter Data Area: N2OUE27A

|                 |      |  |
|-----------------|------|--|
| N2OSEL-RET-CODE | (N3) | Define the condition code to be issued by N2OSEL when an event is not processed. |
|-----------------|------|--|

The following step implements the user-exit:

- LOGON to N2OLIB. modify N2OUE27N to site requirements and STOW.

**V.3.29 Online Autocompile Options Exit (N2OUE28N)**

N2O invokes User-Exit 28 when N2OUE04N is customized to execute online autocompile.

At the completion of the migration of objects when a Migration Profile specifies Autocompile and an Event is processed on line. This user exit will cause the autocompile process to start immediately after the migration of object is complete. If this exit is not customized, N2O will present the user with a list of Events pending autocompile, and the user must select the Event to process the compile portion.

Parameter Data Area: N2OUE28A

|                       |      |   |
|-----------------------|------|---|
| SKIP-AUTOCOMPILE-LIST | (A1) | Immediately start online autocompile instead of displaying the EVENTS PENDING AUTOCOMPILE screen ( Y or N ) |
|-----------------------|------|---|

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE28N to site requirements and STOW.

Migrate the object code to the SYSTEM library of each source or target FUSER.

**V.3.30 User Definition Exit (N2OUE29N)**

N2O invokes User-Exit 29 when a User Definition is Added, Copied, Deleted or Modified. User-Exit 29 allows the N2O Administrator to accept or reject changes to N2O User Definitions. This will permit sites to allow managers to maintain the user access to N2O without permitting full access to the Environment Subsystem. This exit can be coded to insure that DBA function and approval profile assignment is restricted.

Parameter Data Area: N2OUE29A

|                   |           |   |
|-------------------|-----------|---|
| USER-DEFINITION   | (N3)      | User Definition being changed.                          |
| FUNCTION          | (A1)      | A, C, D or M<br><b>(Add, Change, Delete, or Modify)</b> |
| FUNCTION-USERID   | (A8)      | Userid changing the User Definition.                    |
| FUNCTION-PROFILES | (A8/1:40) |   |
| APPROVAL-PROFILES | (A8/1:40) |   |
| PREDICT-PROFILES  | (A8/1:40) |   |
| N2O-3GL-PROFILES  | (A8/1:40) |   |
| FUNCTION-ALLOWED  | (L)       |   |
| REJECT-MESSAGE    | (A50)     |   |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE29N to site requirements and STOW.

**V.3.31 Submit a Migration Profile Exit (N2OUE30N)**

N2O invokes User-Exit 30 when a Submit Migration Profiles function is used to submit or delete JCL. User-Exit 30 allows the N2O Administrator to allow or deny the user from using the Submit, Submit by Change Control or Delete options of the N2O Submit Migration Profiles function.

Parameter Data Area: N2OUE30A

|                  |       |   |
|------------------|-------|---|
| SELECTION-OPTION | (A1)  | X, C, or D<br>(Submit, Change Control, or Delete) |
| FROM-ENV         | (A4)  | Source Environment                                |
| TO-ENV           | (A4)  | Target Environment                                |
| USERID           | (A8)  |   |
| SUBMIT-ALLOWED   | (L)   |   |
| REJECT-MESSAGE   | (A50) |   |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE30N to site requirements and STOW.

**V.3.32 Default Environment/Library Exit (N2OUE31N)**

N2O invokes User-Exit 31 when N2O starts and defines the default Event, Environments and Libraries. User-Exit 31 allows the N2O Administrator to specify the default values for Event, Environments and Libraries on N2O input screens.

Parameter Data Area: N2OUE31A

|                    |      |                         |
|--------------------|------|-------------------------|
| USERID             | (A8) |                         |
| EVENT              | (A8) |                         |
| BASE-FROM-ENV      | (A4) | Source/From Environment |
| BASE-FROM-LIBRARY  | (A8) | Source/From Library     |
| CURRENT-TO-ENV     | (A4) | Target/From Environment |
| CURRENT-TO-LIBRARY | (A8) | Target/From Library     |

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUE31N to site requirements and STOW.

**V.3.33 Event Servicing Exit (N2OUE32N)**

N2O invokes User-Exit 32 when an Event requires servicing. This user-exit subprogram may send a message through an electronic mail system indicating to the servicer that an Event requires servicing.

Parameter Data Area: N2OUE32A

|                        |      |  |
|------------------------|------|--|
| FROM-ENV               | (A4) |  |
| FROM-LIBRARY           | (A8) |  |
| TO-ENV                 | (A4) | (1:10) Multiple targets                                    |
| TO-LIBRARY             | (A8) | (1:10) Multiple targets                                    |
| EVENT                  | (A8) |  |
| EVENT-SEQUENCE         | (N7) |  |
| CHANGE-CONTROL         | (A8) |  |
| TASK-GROUP             | (A8) |  |
| TASK-NUMBER            | (N6) |  |
| CREATE-USERID          | (A8) |  |
| CURR-AUTH-USERID-INDEX | (N2) | Occurrence of authorizer table current authorizer ID is in |
| AUTH-ID-LIST           | (A8) | (1:10) List of all authorizers                             |

The following steps implement the user-exit:

**Logon to N2OLIB. Modify N2OUE32N to site requirements and STOW. N2OUE32N contains sample code for this user-exit.**

**V.3.34 Source only Move Events - Delete Object Code Exit (N2OUEDON)**

NOTE – this exit is now obsolete. Sites should take advantage of the new Migration Profile, Migration Method options to move source and object/delete object OR move source and object/delete source (MVSR/MVOB). This exit will be discontinued in the next release of N2O.

N2OUEDON applies only to Events using a Migration Profile with TYPE=SOURCE and MIGRATION METHOD=MOVE.

This exit allows sites to specify if both source and object code should be deleted from the source environment. This feature is controlled by the variable #DELETE-OBJECT. As delivered, #DELETE-OBJECT is defaulted to FALSE, indicating object code will not be deleted when only source code is moved into an environment. A site must modify N2OUEDON and set #DELETE-OBJECT to TRUE to instruct N2O to delete both source and object code from the source environment. This modification should be made on every source environment (FUSER) that has a Migration Method of Move assigned to it.

Parameter Data Area: N2OUEDON

|                |     |                  |
|----------------|-----|------------------|
| #DELETE-OBJECT | (L) | (Default: False) |
|----------------|-----|------------------|

The following step implements the user-exit:

- LOGON to N2OLIB. Modify N2OUEDON to site requirements and STOW.
- Migrate the object code to the SYSTEM library of each source or target FUSER.

**V.3.35 N2O Control Override Exits (N2OEDITU, N2OEDITM, N2OEDITG, and N2OEDITS)**

These user-exits may be used to limit the control that N2O has over specific libraries or users.

Refer to the NATURAL module for a detailed explanation of this user-exit. These exits are called when N2OEDIT is installed to control Edit functions. The N2OEDIT\* exits should be modified before installing N2OEDIT.

Typically a site will make the same changes to all of the applicable N2OEDIT\* exits.

- N2OEDITU – controls the editing of all Natural Objects except for Maps
- N2OEDITM – controls the editing of Natural Map objects
- N2OEDITG – CONSTRUCT only - controls the editing of Natural objects when a CONSTRUCT User Exit is invoked
- N2OEDITS – NDV Only - controls the editing of Natural objects in an NDV (SPoD) environment

The functions of the N2OEDIT\* modules are fully documented in the supplied source code of the modules. These modules are located in the library N2OLIB.

To implement these user-exits, refer to **Section II.6 N2OEDIT Installation**.

**V.4 DDM, METADATA, NATURAL, PREDICT, and SYSERR Batch Event Processing**

Batch Event Processing is a method of migrating objects that does not require user interaction. Batch processing may be preferred when migrating large groups of objects, when scheduling groups of Events, or when users need to post-date batch Events to delay processing. Events must be processed in batch when migrating to remote nodes or when migrating METADATA and PREDICT objects.

Users may post date batch Events to delay processing or to allow batch scheduling of Events.

Batch Events may be submitted manually or through a system internal reader. For more information about manual submission, refer to **Section V.4.6 Manual Submission of Batch Events**. For more information about submitting Events through a system internal reader, refer to **Section V.3.3 N2O Batch Job Submission Exit (N2OUE14N)**.

**Note:** N2O provides return codes when errors occur during batch processing. If a NATURAL error occurs in any N2O batch program, N2O terminates the process and issues a Return Code 100. N2O traps the error and writes a message to the output file.

**Note:** Events with NATURAL Objects and PREDICT Objects.

Events that contain NATURAL and PREDICT objects will be handled differently based on the version of PREDICT and the values assigned to the BUILD-EXTRACT and INTERNAL-ID-YES fields in User-Exit-14 (N2OUE14N).

PREDICT 3.3: Objects are migrated using the PREDICT BUILD EXTRACT command. This requires N2O to submit two batch jobs. One to migrate the NATURAL objects (using the JCL Program specified on the Migration Profile) and one to migrate the PREDICT Objects (using the PREDICT JCL PROGRAM specified on the Migration Profile).

PREDICT 3.4 and above: Objects may be migrated using the PREDICT BUILD EXTRACT Command or the LOAD/UNLOAD commands. If BUILD-EXTRACT in N2OUE14N is set to 'TRUE', two batch jobs will be submitted as described in the PREDICT 3.3 explanation (see above). If BUILD-EXTRACT in N2OUE14N is set to 'FALSE', one batch job will be submitted for NATURAL and PREDICT Objects (using the JCL Program specified on the Migration Profile).

**V.4.1 Job Steps for Migrating DDM, METADATA, NATURAL, PREDICT, and SYSERR Events****N2OSEL (All DDM, NATURAL and SYSERR Events; PREDICT and METADATA Events with BUILD-EXTRACT set to FALSE)**

N2OSEL is a NATURAL step that performs the first step of batch Event processing. This step must be executed from the NATURAL FUSER that is local to the N2O installation.

N2OSEL reads control cards from the input workfile CMWKF01. These control cards specify which Events are to be migrated.

If a user submits Events through a system internal reader, N2O replaces &INPUT in CMWKF01 with the correct control cards. If a user submits Events manually, the user must create the control card CMWKF01. For more information, refer to **Section V.5.4 Manual Submission Select Options for Events**.

N2OSEL selects Events that meet the criteria defined in the control cards, have a status of Batch-Ready (B) or In-Progress (I), and have reached their process date and time. N2OSEL updates Events with a "B" status to an "I" status and writes an output record for each object in the Event to workfile CMWKF02.

**N2OSEL (METADATA and PREDICT Events using BUILD EXTRACT Command)**

N2OSEL is a NATURAL step that performs the first step of batch Event processing. This step must be executed from the NATURAL FUSER that is local to the N2O installation. N2OSEL reads control cards from the input workfile CMWKF01. These control cards specify the NATURAL Security (if installed) parameters and the Events that are to be migrated. Since CMWKF01 must contain all of the NATURAL Security parameters (including the password), the site may wish to use the same ID for all PREDICT 3.3.x and PREDICT 3.4 migrations and not use the &USERID replacement variable. If NATURAL Security is not installed or AUTO=ON is specified in the NAT PARMs, these parameters should not be used.

CMWKF01 of this step may contain NATURAL Security Information. The first line contains the NATURAL library to initially logon to (N2OLIB) and the logon User-ID. Since a password is required, the site may wish to use the AUTO=ON feature of NATURAL or have a single ID/Password for all N2O batch submissions. These parameters are optional.

&LOGONLIB indicates which library N2O will logon to during the N2OSEND and N2ORECV steps of the migration. This parameter is optional and will default to SYSTEM if not specified. The site may wish to change this value if logon to the system library is not permitted.

If a user submits Events through a system internal reader, N2O replaces &INPUT in CMWKF01 with the correct control cards. If a user submits Events manually, the user must create these control cards. For more information, refer to the **Section V.4.6 Manual Submission of Batch Events**.

N2OSEL selects Events that meet the criteria defined in the control cards, have a status of Batch-Ready (B) or In-Progress (I), and have reached their process date and time. N2OSEL updates Events with a "B" status to an "I" status.

**N2OSEND (All DDM, NATURAL and SYSERR Events; METADATA and PREDICT Events with BUILD-EXTRACT set to FALSE)**

N2OSEND is a NATURAL step that performs the second step of batch Event processing. This step must be executed from the NATURAL FUSER, which is the source of the migration. N2OSEND reads the N2OSEL output records from CMWKF03 and unloads the NATURAL objects, PREDICT objects, and SYSERR messages from the appropriate FUSER and FDIC to sequential workfiles (CMWKF01 for PREDICT objects and CMWKF02 NATURAL objects, SYSERR messages, and PREDICT Cross-Reference data).

**N2OSEND (METADATA and PREDICT Events using BUILD EXTRACT Command)**

N2OSEND is a NATURAL step that performs the second step of batch Event processing. This step must be executed from the NATURAL FUSER, which is the source of the migration. N2OSEND reads the N2OSEL output records from CMWKF03 and CMWKF05, and unloads the PREDICT objects from the appropriate FDIC to CMWKF01 and CMWKF02.

**(METADATA and PREDICT Events using BUILD EXTRACT Command)**

**Note:** If a migration ABENDs during the Send step (N2OSEND), an Extract ID for the migration will remain on the from FDIC. Before this event may be re-submitted, the Extract ID must be purged using the PREDICT purge utility (refer to the Software AG PREDICT manuals for information on SYSDIC). The format of the Extract ID is as follows (without spaces):

*N2O event event-sequence*

For example, if the Event migrating PREDICT 3.3 objects is PROD2DEV, and the sequence for this Event is 153. The resulting Extract ID will be the following:

N2OPROD2DEV153

If any of the following characters are used in the event name, they will be replaced with a dash (-):

!,@,#,\$,%^,&\*,(,),<,>,/

If an apostrophe is used in the event name, PREDICT will truncate the Extract ID name at the apostrophe. For example, BOB'SMIG sequence 99 will be added to PREDICT as N2OBOB.

**N2ORECV (All DDM, NATURAL, SYSERR, METADATA and PREDICT Events)**

N2ORECV is a NATURAL step that performs the third step of batch Event processing. This step must be executed from the target FUSER of the migration. When processing a Multiple Target Event, N2ORECV must be executed on each target FUSER.

N2ORECV reads CMWKF01 and CMWKF02, which contain the PREDICT objects exported by N2OSEND. N2ORECV stores these in the target environment and writes acknowledgment records to CMWKF03.

**(METADATA and PREDICT Events using BUILD EXTRACT Command)**

**Note:** If a migration ABENDs during the Receive step (N2ORECV), the site must refresh the coordinator FDIC on the To Environment. For more information on the refresh function, refer to the Software AG PREDICT manual.

**N2OBCOMP (NATURAL Events Only)**

N2OBCOMP must be executed after N2ORECV if Autocompile is activated. N2OBCOMP is a NATURAL program that processes Autocompile and writes Autocompile acknowledgment records to CMWKF04. If any program fails to compile, the job step terminates with a Return Code 55 (User-Exit-22 can change this action code) after Autocompile is completed.

When using the Automatic Recovery feature, CMWKF05 must be defined. This workfile contains acknowledgment records for the Automatic Recovery process. Automatic Recovery is invoked when an object receives an Autocompile error. It restores the NATURAL FUSER to its original state. For more information about Automatic Recovery, refer to **Section III.6 Migration Profile**.

To automatically refresh the global buffer pool during a batch Autocompile, execute the N2OBCOMP step under a batch NATURAL assembled for a 31-bit addressing environment. Setting &OPSYS to a value of "XA" causes NATOS to be assembled for a 31-bit addressing environment. In addition, when executing N2ORECV, the global buffer pool must be specified. Under Natural 228, this is performed using the BPID NATPARM or NTBPI Macro. Under Natural 23x and above, this is performed using the NTBPI macro or BPI NATPARM with the name option. See your NATURAL administrator for more information on global buffer pools.

**Note:** Batch Autocompile compiles Events that N2ORECV migrates. Autocompile for other Events in the same library (e.g., on-line Events) is ignored.

**N2ORDDM (PREDICT Events that migrate File objects with generated DDMS Only)**

N2ORDDM must be executed after N2ORECV. N2ORDDM issues a REGENERATE DDM command for the each PREDICT file object migrated.

**N2ODELT (NATURAL Events Only)**

N2ODELT is a NATURAL program that performs the MOVE step of batch Event processing. This step must be executed on the same NATURAL FUSER where N2OSEND executed. N2ODELT reads CMWKF01, which contains the list of objects migrated by N2ORECV. If MOVE has been requested for the Events, N2ODELT deletes the objects from the original FUSER and writes acknowledgment records to CMWKF02.

This step is not used for the Deferred Move. For more information, refer to **Section V.4.4 Job Steps for Deferred Move Processing (NATURAL Migrations Only)**.

**N2OACKN (All DDM, NATURAL, SYSERR, METADATA and PREDICT Events)**

N2OACKN is a NATURAL program that performs the final step of batch Event processing. This step must be executed from a NATURAL FUSER that is local to the N2O installation. When processing a Multiple Target Event, N2OACKN must be executed each time N2ORECV is executed.

N2OACKN reads the N2ORECV or N2ODELT output records from CMWKF01 and updates the N2O Migration file with the migration results. N2OACKN updates Events to a Closed status (C).

N2OACKN also reads the Autocompile acknowledgment records created by N2ORECV. N2OACKN updates the N2O Migration file with the Autocompile results.

When using the Automatic Recovery feature, CMWKF03 must be defined. N2OACKN reads acknowledgment records created by Automatic Recovery from CMWKF03 and updates the N2O Migration File.

**V.4.2 Migration JCL**

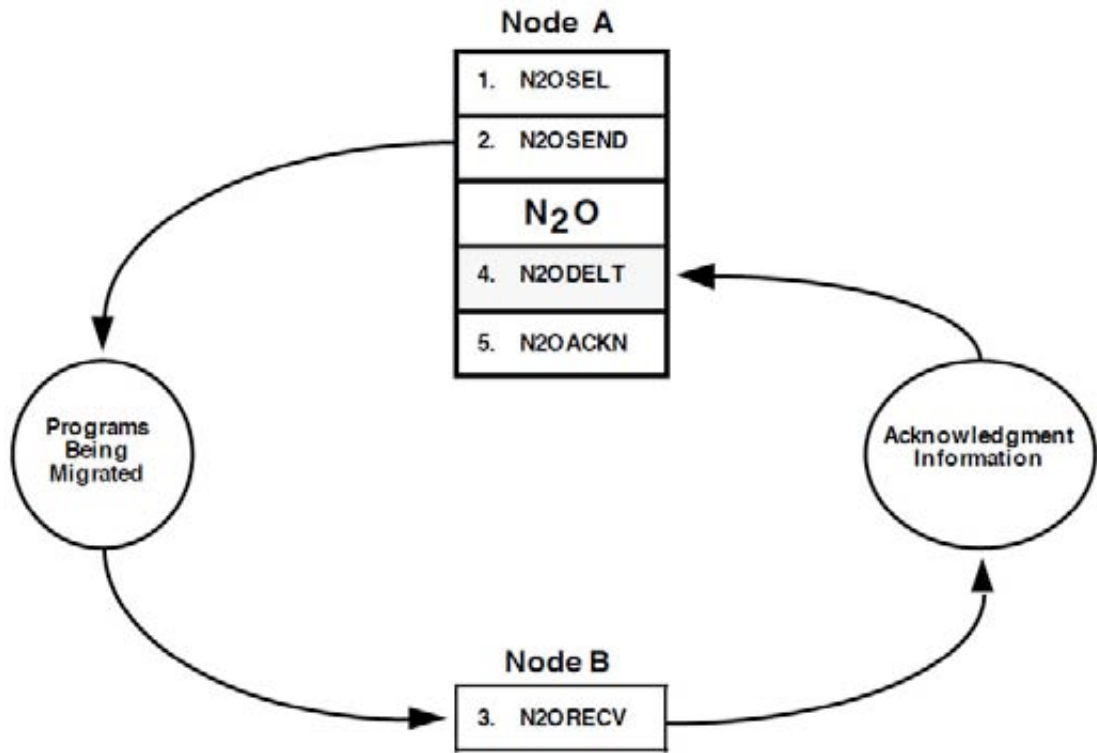
Sample Migration JCL for use with the N2OUE14N variable BUILD-EXTRACT set to False (default), is provided in the MVSMIG, VMMIG, BSMIG and VSEMIG members located in the Natural library N2OBATCH).

Sample Migration JCL for use with the N2OUE14N variable BUILD-EXTRACT set to True, is provided in the MVSMIGP, VMMIGP, BSMIGP and VSEMIGP members located in the Natural library N2OBATCH). It is mandatory that sites running Predict v3.3 set BUILD-EXTRACT to True, all other sites should leave BUILD-EXTRACT set to FALSE.

**V.4.3 DDM, METADATA, NATURAL, PREDICT, and SYSERR Remote Migrations**

N2O batch processing can migrate NATURAL objects, PREDICT objects, and SYSERR messages between ADABAS SVCs or different CPUs. Users define ADABAS SVCs and CPUs to N2O using Node Definitions. Nodes on different ADABAS SVCs or CPUs are considered remote. For more information about defining nodes, refer to **Section III.3 Node Definition**.

The diagram below illustrates a migration that may occur to remote node B with N2O installed on Node A.



**N2O Remote Batch Processing**

Remote migrations may require a series of batch jobs. The following are the steps required to complete a migration from Node A to Node B with N2O installed on Node A:

1. A batch job executes N2OSEL on Node A to select the objects to be migrated for the Event. N2OSEL stores information about the objects in a workfile.

2. A batch job executes N2OSEND on Node A to copy the objects selected by N2OSEL to a workfile.
3. A batch job executes N2ORECV on Node B to unload the objects from the workfile and place them into the appropriate libraries on Node B. N2ORECV creates a workfile to record information about the migration.
4. A batch job must execute N2ODELT on Node A if MOVE is the migration method for the Event. N2ODELT deletes the objects for the Event to complete the MOVE (This step applies to NATURAL migrations only).
5. A batch job executes N2OACKN on Node A to read the information created on the workfile created in Step 3.

For specific information on the steps required for Batch Event Processing, refer to **Section V.4 DDM, METADATA, NATURAL, PREDICT, and SYSERR Batch Event Processing**.

The table below shows the possibilities for migrating between remote nodes. Each column represents a node and contains the names of the N2O batch migration programs that must execute on that node. The batch migration programs are numbered in the order in which they must execute.

| <b>Migrating Between Remote Nodes</b> |  |   |                          |
|---------------------------------------|--|---|--------------------------|
| <b>Migration</b>                      | <b>Node A<br/>N2O Installed</b>                          | <b>Node B<br/>Remote</b>                | <b>Node C<br/>Remote</b> |
| B to B<br>(remote to itself)          | 1. N2OSEL<br><br>5. N2OACKN                              | 2. N2OSEND<br>3. N2ORECV<br>4. N2ODELT* |                          |
| B to A<br>(remote to local)           | 1. N2OSEL<br>3. N2ORECV<br>5. N2OACKN                    | 2. N2OSEND<br>4. N2ODELT*               |                          |
| B to C<br>(remote to remote)          | 1. N2OSEL<br><br>5. N2OACKN                              | 2. N2OSEND<br>4. N2ODELT*               | 3. N2ORECV               |
| A to B<br>(local to remote)           | 1. N2OSEL<br>2. N2OSEND<br><br>4. N2ODELT*<br>5. N2OACKN | 3. N2ORECV                              |                          |

\* This step applies to NATURAL migrations only

**Transmission of Events to Remote Machines**

N2O provides the option to automatically transmit migration data to remote machines using products such as Network Data Mover (NDM). N2O creates flat files that may be transmitted to remote machines. The remote machines must have N2O programs installed to load the flat files into the appropriate NATURAL libraries.

The JCL to transmit the migration data to remote machines may include &VARIABLES that N2O replaces with the correct node and network information. The JCL to transmit the data follows the N2OSEND step in the existing N2O migration JCL. To complete the acknowledgment of the Event, a transmit step must also follow the N2ORECV step in the migration JCL to transmit information to the N2OACKN step.

The following excerpt of batch migration JCL automatically distributes an N2O Event to remote machines using NDM. This migration JCL may be found in library N2OBATCH as program N2OTRAN.

Sample JCL for executing NDM is provided in the NDMTRANT or NDMTRANF members located in the Natural library N2OBATCH.

**V.4.4 Job Steps for Deferred Move Processing (NATURAL Migrations Only)****N2ODSEL**

N2ODSEL is a NATURAL program that performs the first step of the Deferred Move process. This step must be executed from a NATURAL FUSER that is local to the N2O Installation. N2ODSEL reads control cards from the input workfile CMWKF01. These control cards specify which Events are to be processed. For more detail on the format of the control cards, see **Section V.4.6.2 Manual Submission Select Options for Deferred Move (NATURAL Migrations Only)**.

N2ODSEL selects Events that meet the criteria defined in the control cards, as Deferred Moves, and have reached their deferred date and time. N2ODSEL writes an output record for each object in the Event to workfile CMWKF02.

**N2ODELT**

N2ODELT is a NATURAL program that performs the MOVE step of the Deferred Move process. This step must be executed on the NATURAL FUSER represented by the FROM Environment Definition for the Event. N2ODELT reads CMWKF01, which contains the list of objects selected by N2ODSEL. N2ODELT deletes each object and writes acknowledgment records to CMWKF02.

**N2ODACKN**

N2ODACKN is a NATURAL program that performs the final step of the Deferred Move process. This step must be executed from a NATURAL FUSER that is local to the N2O installation. N2ODACKN reads the acknowledgment records written by N2ODELT and updates the N2O Migration file with the results of the deletion process.

**V.4.5 Deferred Move JCL (NATURAL Migrations Only)**

Sample Deferred Move JCL is provided in the MVSDMOVE, VMDMOVE, BSDMOVE and VSEDMOVE members located in the Natural library N2OBATCH.

**V.4.6 Manual Submission of Batch Events**

The submission of batch Event processing may be accomplished by manual procedures. For installations without an internal reader defined to the TP monitor, this is the only available method for processing batch Events. Users may choose to submit migration JCL manually to conform with shop standards or for other site-specific reasons.

The JCL used for manual submission of batch Event processing may be stored in a NATURAL library or in a dataset external to NATURAL. Each method is described below.

- Storing JCL in a NATURAL Library  
The Migration Profile specifies the name of a NATURAL library and program that contain the JCL used for processing batch Events. The N2OUEJJE user-exit program may be modified by the user to write the JCL to a dataset. Once the JCL is written to a dataset, it may be submitted by whatever methods are available at the user site. Using this method, N2O will replace any &VARIABLES in the JCL with the correct information.
- Storing JCL in a Dataset External to NATURAL  
The JCL resides in a dataset that must be edited to include the control cards to process the Events. The JCL may be submitted at any time after the Event has been created.

|  |
|--|
| <b>Note:</b> The procedures outlined above can also be used to store VM EXECs in a NATURAL library or in a file external to NATURAL. |
|--|

**V.4.6.1 Manual Submission Select Options for Events**

When using manual submission, the control cards for the N2OSEL step must be created in CMWKF01. The control card formats that N2OSEL accepts as input are shown below. Each parameter in the list must be separated by at least one space. To tailor the NATURAL, PREDICT, and SYSERR migration JCL or EXEC for manual submission, replace the &INPUT card with the parameters defined below:

**All DDM, NATURAL, SYSERR, METADATA, and PREDICT with BUILD EXTRACT set to FALSE Events**

To migrate ALL Events with a "B" or "I" status:

PARAMETERS: N2OSEL ALL  
EXAMPLE: //CMWKF01 DD \*  
N2OSEL ALL

**Note:** The "ALL" option is unavailable when processing PREDICT Events.

To migrate all Events for a Migration Profile with a "B" or "I" status:

PARAMETERS: N2OSEL PRO FROM-ENV TO-ENV  
EXAMPLE: //CMWKF01 DD \*  
N2OSEL PRO TST1 PRD1

**Note:** The Migration Profile option is unavailable when processing Multiple Target Events.

To migrate a single Event with a "B" or "I" status:

PARAMETERS: N2OSEL ONE EVENT SEQUENCE  
EXAMPLE: //CMWKF01 DD \*  
N2OSEL ONE PAYTEST 123

To migrate several Events with a "B" or "I" status:

PARAMETERS: N2OSEL ONE EVENT SEQUENCE  
EXAMPLE: //CMWKF01 DD \*  
N2OSEL ONE TTP 123  
N2OSEL ONE TTP 126  
N2OSEL ONE PAYROLL 211

To migrate all Sequences with a "B" or an "I" status for an Event:

PARAMETERS: N2OSEL ONE EVENT \*  
EXAMPLE: \* (Identifies all sequences for above Event)  
//CMWKF01 DD \*  
N2OSEL ONE PAYROLL \*

To migrate all Sequences for an event for a Migration Profile with a "B" or "I" status:

PARAMETERS: N2OSEL PRO FROM-ENV TO-ENV EVENT  
EXAMPLE: //CMWKF01 DD \*  
N2OSEL PRO TST1 PRD1 PAYTEST

To migrate all Sequences with a specific Change Control for a Migration Profile with a "B" or "I" status:

PARAMETERS: N2OSEL PRO FROM-ENV TO-ENV CC=CHANGE-CONTROL  
EXAMPLE: //CMWKF01 DD \*  
N2OSEL PRO TST1 PRD1 CC=CHNGCNTL

**Note:** The Migration Profile option is unavailable when processing Multiple Target Events.

**PREDICT 3.3 and PREDICT 3.4 using BUILD EXTRACT command Events Only**

**Note:** When a single event migrates PREDICT objects along with NATURAL/SYSERR/3GL objects, two jobs must be submitted. The second job that migrates PREDICT objects requires the addition of the keyword PREDICT at the end of the N2OSEL parameters.

**Example:**

N2OSEL ONE PAYTEST 123 PREDICT

This is not required if an Event migrates only PREDICT objects.

To migrate ALL Events with a "B" or "I" status:

PARAMETERS: N2OSEL ALL  
 EXAMPLE: //CMWKF01 DD \*  
*natural-security-library,natural-security-id natural-security-password*  
 &LOGONLIB=*library*  
 N2OSEL ALL

**Note:** The "ALL" option is unavailable when processing PREDICT Events.

To migrate all Events for a Migration Profile with a "B" or "I" status:

PARAMETERS: N2OSEL PRO FROM-ENV TO-ENV [PREDICT]  
 EXAMPLE: //CMWKF01 DD \*  
*natural-security-library,natural-security-id*  
*natural-security-password*  
 &LOGONLIB=*library*  
 N2OSEL PRO TST1 PRD1

**Note:** The Migration Profile option is unavailable when processing Multiple Target Events.

To migrate a single Event with a "B" or "I" status:

PARAMETERS: N2OSEL ONE EVENT SEQUENCE [PREDICT]  
EXAMPLE: //CMWKF01 DD \*  
*natural-security-library,natural-security-id*  
*natural-security-password*  
&LOGONLIB=*library*  
N2OSEL ONE PAYTEST 123

To migrate several Events with a "B" or "I" status:

PARAMETERS: N2OSEL ONE EVENT SEQUENCE [PREDICT]  
EXAMPLE: //CMWKF01 DD \*  
*natural-security-library,natural-security-id*  
*natural-security-password*  
&LOGONLIB=*library*  
N2OSEL ONE TTP 123  
N2OSEL ONE TTP 126  
N2OSEL ONE PAYROLL 211

To migrate all Sequences with a "B" or an "I" status for an Event:

PARAMETERS: N2OSEL ONE EVENT \* [PREDICT  
EXAMPLE: \* (Identifies all sequences for above Event)  
//CMWKF01 DD \*  
*natural-security-library,natural-security-id*  
*natural-security-password*  
&LOGONLIB=*library*  
N2OSEL ONE PAYROLL \*

To migrate all Sequences for an Event for a Migration Profile with a "B" or "I" status:

PARAMETERS: N2OSEL PRO FROM-ENV TO-ENV EVENT [PREDICT]  
EXAMPLE: //CMWKF01 DD \*  
*natural-security-library,natural-security-id*  
*natural-security-password*  
&LOGONLIB=*library*  
N2OSEL PRO TST1 PRD1 PAYTEST

PARAMETERS: N2OSEL PRO FROM-ENV TO-ENV CC=CHANGE-CONTROL  
[PREDICT]  
EXAMPLE: //CMWKF01 DD \*  
*natural-security-library,natural-security-id*  
*natural-security-password*  
&LOGONLIB=*library*  
N2OSEL PRO TST1 PRD1 CC=CHNGCNTL

|  |
|--|
| <b>Note:</b> The Migration Profile option is unavailable when processing Multiple Target Events. |
|--|

**V.4.6.2 Manual Submission Select Options for Deferred Move (NATURAL Migrations Only)**

When using manual submission, the control cards for the N2ODSEL step must be created in CMWKF01. The control card formats that N2ODSEL accepts as input are shown below. Each parameter in the list must be separated by at least one space. To adjust the Deferred Move JCL or EXEC for manual submission, replace the &INPUT card with the parameters defined below:

To begin the deletion process for ALL Deferred Move Events:

```
PARAMETERS:  N2ODSEL ALL
EXAMPLE:     //CMWKF01 *
             N2ODSEL ALL
```

To begin the deletion process for all Deferred Move Events for a Migration Profile:

```
PARAMETERS:  N2ODSEL PRO FROM ENV TO ENV
              PRO (FOR ALL EVENTS WITHIN A PROFILE)
EXAMPLE:     //CMWKF01 *
             N2ODSEL PRO DEV1 TST1
```

**Note:** The Migration Profile option is unavailable when processing Multiple Target Events.

To begin the deletion process for a single Event:

```
PARAMETERS:  N2ODSEL ONE EVENT SEQUENCE
EXAMPLE:     //CMWKF01 DD *
             N2ODSEL ONE TTP 125
```

To begin the deletion process for several Events:

The following parameters are repeated for each Sequence.

```
PARAMETERS:  N2ODSEL ONE EVENT SEQUENCE
EXAMPLE:     //CMWKF01 DD *
             N2ODSEL ONE TTP 123
             N2ODSEL ONE TTP 126
             N2ODSEL ONE PAYROLL 211
```

To begin the deletion process for all Sequences of an Event:

```
PARAMETERS:  N2ODSEL ONE EVENT *
              * (Identifies all sequences for above Event)
EXAMPLE:     //CMWKF01 DD *
             N2ODSEL ONE TTP *
```

**V.5 N2O/3GL Batch Event Processing**

The N2O/3GL Event Processing is a method of migrating 3GL members between Partitioned Data Sets (PDSs), LIBRARIAN Master Files, PANVALET libraries, or ENDEVOR stages.

N2O/3GL Events may be submitted through a system internal reader or by a manual submission process. For more information about Manual Submission, refer to **Section V.5.3 3GL Manual Submission**. For more information on submitting Events to a system internal reader, refer to **Section V.3.3 Batch Job Submission Exit (N2OUEJJE)**.

N2O generates JCL for IEBCOPY, LIBRARIAN, PANVALET, or ENDEVOR to perform the 3GL migration. The 3GL JCL Library and Programs on the Migration Profile identify JCL that N2O uses when creating the 3GL migration JCL.

**V.5.1 Overview of 3GL Batch Processing**

N2O accomplishes a 3GL migration by submitting two separate batch jobs.

The first job uses the JCL that is contained in a member called N2O3GL. A sample member is supplied in the N2OBATCH library. This member in the JCL library must be called N2O3GL. This job contains two steps. The first step runs N2OSELT. This program reads the JCL from the member specified in the Migration Profile (3GL JCL Lib and 3GL JCL Pgm entries). It writes this JCL to a workfile, replacing any generic variables with the N2O Replacement values.

The second step sends the JCL (workfile 2 from first step) to the internal reader. This submits the second batch job that is required to perform a 3GL migration.

The second job executes the JCL that is named in the Migration Profile (3GL JCL PGM). The samples are in N2OBATCH named PDSMIGR (PDS migrations), LIBRMIGR (LIBRARIAN Migrations), PANVMIGR (PANVALET migrations), and ENDVMIGR (ENDEVOR migrations).

If the JCL template contains &INCLUDE ARCHIVE statement and archiving is specified for the target environment, it will be replaced by the member named on the migration profile in the 3GL JCL ARCH field. If the JCL template contains &INCLUDE COMPILE N2O will check User-Exit 11 for the name of the compile JCL template. The &INCLUDE COMPILE will be replaced by the member name specified in the user-exit. If the JCL contains any &U variables (user replacement variables), N2O will replace them with the values the users code in User-Exit 11.

All of the various 3GL products have sample JCL in the N2OBATCH library and are discussed in the manual. It is imperative that the Acknowledgement step of each migration takes place whether the migration is successful or a failure. This step updates the N2O files with the information about the migration. It is the only way to keep N2O updated on the status of 3GL members.

### **V.5.2 Job Steps for Migrating N2O/3GL Events**

#### **N2OSELT**

N2OSELT is a NATURAL program that generates the migration JCL for N2O/3GL Events. This step must be executed from a NATURAL FUSER that is local to the N2O installation. N2OSELT reads control cards from the input workfile CMWKF01. These control cards specify which Events are to be migrated. N2OSELT reads the Migration Profile to determine which JCL library and JCL programs to use when creating the JCL. The JCL programs are read, variables are replaced, and the JCL is written to CMWKF02.

#### **N2O3GL2**

N2O3GL2 executes the IEBGENER utility to send the JCL generated by N2OSELT to the system internal reader. When this step is complete, the JCL is executed to process the N2O/3GL Events.

### **V.5.3 3GL Migration JCL**

Sample 3GL Migration JCL is provided in the N2O3GL member located in the Natural library N2OBATCH.

The N2O3GL Job executes the NATURAL program N2OSELT and sends the output 3GL migration JCL to the system internal reader. **THE NAME OF THE JCL PROGRAM IS MANDATORY AND CANNOT BE CHANGED.** To submit from a batch scheduler, replace the &&TEMP in CMWKF02 with the name of the file to be submitted by the scheduler, and eliminate the N2O3GL2 step from this job.

**V.5.4 Manual Submission Select Options for Events**

When using manual submission, the control cards for the N2OSELT step must be created in CMWKF01. The control card formats that N2OSELT accepts as input are shown below. Each parameter in the list must be separated by at least one space. To adjust the N2O/3GL migration JCL for manual submission, replace the &INPUT card with the parameters as defined below:

To migrate ALL Events with a "B" status:

PARAMETERS: N2OSELT ALL  
ALL (FOR ALL EVENTS IN ALL PROFILES)  
EXAMPLE: //CMWKF01 DD \*  
N2OSELT ALL

To migrate all Events for a Migration Profile:

PARAMETERS: N2OSELT PRO FROM ENV TO ENV  
EXAMPLE: //CMWKF01 DD \*  
N2OSELT PRO TST1 PRD1

To migrate a single Event:

PARAMETERS: N2OSELT ONE EVENT SEQUENCE  
EXAMPLE: //CMWKF01 DD \*  
N2OSELT ONE TTP 123

To migrate several Events:

PARAMETERS: N2OSELT ONE EVENT SEQUENCE  
EXAMPLE: //CMWKF01 DD \*  
N2OSELT ONE TTP 123  
N2OSELT ONE TTP 126  
N2OSELT ONE PAYROLL 211

To migrate all Sequences with a "B" status for an Event:

PARAMETERS: N2OSELT ONE EVENT \*  
\* (Identifies all sequences for above Event)  
EXAMPLE: //CMWKF01 DD \*  
N2OSELT ONE TTP \*

To compile a completed 3GL Event:

PARAMETERS: N2OSELT CMP EVENT SEQUENCE  
EXAMPLE: //CMWKF01 DD \*  
N2OSELT CMP TTP 7

**V.5.5 Job Steps for PDS Migrations**

The job steps for PDS migrations are described below. N2OSELT automatically generates these job steps when an Event is selected for processing. The JCL is generated in a single job stream and written to CMWKF02.

**&INCLUDE ARCHIVE**

PDS migrations provide the option to archive members to the N2O Archive file before they are migrated. If an Archive Definition is specified on the Environment Definition of the target environment, N2O includes this step. &INCLUDE ARCHIVE should be included in the JCL regardless of the archiving specification. The Archive process executes program IEBTPCH to punch the members to a workfile. From this workfile, the members are stored in the N2O Archive file. N2O maintains a complete audit trail for the archiving process.

**PDSCOPY**

PDS migrations are performed using IEBCOPY. &INCLUDE PDS is replaced with INDD and OUTDD cards representing the source PDS and target PDS of the migration path. &INCLUDE COPY is replaced with the COPY and SELECT statements necessary to migrate each member in the Event.

**N2OACKNP**

The Acknowledgment step updates the N2O Migration file with the results of the migration. N2OACKNP is a NATURAL program that performs the acknowledgment. This step must be executed from a NATURAL FUSER that is local to the N2O installation.

**&INCLUDE COMPILE**

The Autocompile process performs a compile, link-edit, and user-defined JCL step for each member migrated with a specified Event. &INCLUDE COMPILE is replaced with the JCL necessary to perform Autocompile.

**PDSMOVE**

If MOVE is specified as the migration method, additional steps must be added to the job. The first step is to delete the programs in the Master File representing the source of the migration. The second step acknowledges the deletion process.

**N2OACKND**

This step acknowledges the deletion process when using MOVE for PDS Events.

## **PDS Migration JCL**

Sample PDS Migration JCL is provided in the PDSMIGR member located in the Natural library N2OBATCH. If a MOVE migration is desired, the PDSDMOV member contains sample JCL.

A copy of the PDSMIGR and PDSDMOV JCL is shown below.

### **PDSMIGR**

```
//PDSMIGR JOB(nnn),'PDS MIGRATION',CLASS=A,NOTIFY=&USERID
/*
/* The Archive JCL exists in program PDSARCH in library N2OBATCH.
/* Archiving will be performed if specified on the TO ENV DEF.
/*
&INCLUDE ARCHIVE
/*
/* &INCLUDE PDS will automatically be replaced with the names of
/* the FROM and TO PDS identified on the Environment Definitions.
/* This information will be formulated into the INDD and OUTDD
/* cards.
/*
//PDSCOPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=N2O.COPYOUT,SPACE=(CYL,(2,1)),
// DCB=(RECFM=FB,LRECL=120,BLKSIZE=120)
&INCLUDE PDS
/*
//SYSUT3 DD UNIT=SYSDA,SPACE=(TRK,(1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(TRK,(1))
/*
/* &INCLUDE COPY will be replaced automatically by N2O with the
/* COPY and SELECT control statements necessary to migrate the
/* selected numbers.
/*
//SYSIN DD *
&INCLUDE COPY
/*
/*
//N2OACKNP EXEC PGM=NATBATCH
/*
//CMWKF01 DD DSN=N2O.COPYOUT,DISP=OLD
/*
//CMWKF02 DD *
&EVENT
/*
//CMPRINT DD SYSOUT=*
//CMSYNIN DD *
LOGON N2OLIB
N2OACKNP
FIN
/*
/*
/* &INCLUDE COMPILE will be replaced automatically by N2O
/* with compile JCL for each member migrated
/* if Autocompile is specified for the Migration Profile.
/*
&INCLUDE COMPILE
```

**Delete Steps for PDS MOVE - PDSDMOVE**

```
/** Steps below required only for 3GL MOVE events.
/**
/** &INCLUDE DELETE will be replaced automatically by N2O with
/**     IDCAMS cards to delete each member that was migrated
/**     if MOVE is specified for the Migration Profile.
/**
//PDSDEL  EXEC PGM=IDCAMS,COND=(8,LT)
//SYSPRINT DD DSN=N2O.DELOUT,
//          DCB=(RECFM=VB,LRECL=125,BLKSIZE=129),
//          DISP=(NEW,PASS,DELETE)
//SYSIN   DD *
&INCLUDE DELETE
/*
/**
//PDSACKN2 EXEC NATBATCH
//CMWKF01 DD DSN=N2O.DELOUT,DISP=OLD
//CMWKF02 DD *
&EVENT
/*
//CMPRINT DD SYSOUT=*
//CMSYNIN DD *
LOGON N2OLIB
N2OACKND
FIN
/*
/**
```

If an Archive is specified on the TO environment, N2O will replace the &INCLUDE ARCHIVE statement in the PDS migration JCL with the JCL contained in the program member specified in the 3GL JCL ARCH field of the Migration Profile .

Sample PDS Archive JCL is provided in the PDSARCH member located in the Natural library N2OBATCH. The PDSARCH member is also shown below.

### **PDSARCH**

```
/*
/* * &INCLUDE PRTPCH will be automatically replaced with the IEBPTPCH
/* * commands necessary to punch the members to a workfile.
/* *
/*&STEP1      EXEC PGM=IEBPTPCH
/* *
//SYSPRINT   DD  SYSOUT=A
//SYSUT1     DD  DSNAME=&PDS,DISP=(OLD,KEEP),UNIT=SYSDA
//SYSUT2     DD  DSNAME=&&TEMP,DISP=(NEW,PASS,DELETE)
//SYSIN      DD  *
&INCLUDE PRTPCH
/*
/*&STEP2      EXEC PGM=NATBATCH
//CMWKF01    DD  *
&EVENT
/*
//CMWKF02    DD  DSN=&&TEMP,DISP=SHR
/* *
//CMPRINT    DD  SYSOUT=*
/* *
//CMSYNIN    DD  *
LOGON N2OLIB
N2OARCP
FIN
/*
```

&STEP1 and &STEP2 are replaced with unique step labels by N2O. &PDS is replaced with the name of the PDS that contains the members to be archived. SYSUT2 should indicate a temporary dataset that is read into the second step as CMWKF02. &INCLUDE PRTPCH is replaced with commands necessary to punch the members to a temporary dataset using IEBPTPCH.

The JCL below replaces &INCLUDE PDS in the PDS migration JCL. This JCL is automatically generated by N2O.

```
//INDD1      DD  DSNAME=INPDS.DATASET1,DISP=SHR
//OUTDD1     DD  DSNAME=OUTPDS.DATASET1,DISP=SHR
//INDD2      DD  DSNAME=INPDS.DATASET2,DISP=SHR
//OUTDD2     DD  DSNAME=OUTPDS.DATASET2,DISP=SHR
//INDD3      DD  DSNAME=INPDS.DATASET3,DISP=SHR
//OUTDD3     DD  DSNAME=OUTPDS.DATASET3,DISP=SHR
...
//INDD10     DD  DSNAME=INPDS.DATASET10,DISP=SHR
//OUTDD10    DD  DSNAME=OUTPDS.DATASET10,DISP=SHR
```

The JCL below replaces &INCLUDE COPY in the PDS migration JCL. This JCL is automatically generated by N2O.

```
COPY          OUTDD=OUTDD1,INDD=((INDD1,R))
SELECT MEMBER=(member1)
SELECT MEMBER=(member2)
...
```

### V.5.6 Job Steps for PDS Recovery From Archive

The job steps for a PDS Recovery from Archive are described below. N2O automatically generates these job steps when the Event is selected for processing from the on-line migration system.

#### **&INCLUDE RECOVERY**

This step must execute on a NATURAL FUSER local to the N2O Installation. Program N2ORECP reads the N2O Archive file and writes the member to the target PDS. This step updates the N2O Migration file with the results of the recovery process.

#### **PDS Recovery JCL**

The following JCL is an example of JCL used to process PDS recovery Events. JCL must be tailored to accommodate site-specific needs. The N2O installation tape contains sample PDS recovery JCL in the library N2OBATCH as programs PDSRJOB and PDSRMIGR.

#### **PDSRJOB**

```
//*
//PDSRMIGR JOB (nnn),'PDS RECOVERY',CLASS=A,NOTIFY=&USERID
//*
//* &INCLUDE RECOVERY will be replaced by the JCL step (PDSRMIGR)
//* for each member to be recovered.
//*
&INCLUDE RECOVERY
//*
//* &INCLUDE COMPILE will be replaced automatically by N2O with
//* compile JCL for each member migrated if Autocompile is
//* specified for the Migration Profile.
//*
&INCLUDE COMPILE
//*
```

#### **PDSRMIGR**

```
//*
//&STEPNUM      EXEC PGM=NATBATCH
//CMWKF01      DD *
&MEMBER
&EVENT
/*
//*
//CMPRINT      DD SYSOUT=*
//CMWKF02      DD DSN=&PDS,DISP=SHR
/*
//SYSIN        DD *
//CMSYNIN      DD *
LOGON N2OLIB
N2ORECP
FIN
//*
```

&STEPNUM is replaced with a unique step label for each member. &MEMBER is replaced with the member name and &EVENT is replaced with the Event and Sequence associated with the recovery. &PDS is replaced with the target PDS of the recovery.

## **N2ORECPE**

If the target PDS is defined with a DCB LRECL greater than 80 N2ORECPE should be used in place of N2ORECP in the 3GL Recovery JCL. N2ORECPE allows the user to specify the LRECL to concatenate the 80 character blocks from the output of IBM IEBTPCH program stored on the N2O-ARCHIVE file by N2OARCP. N2ORECPE requires a input Parameter: for the FILESIZE (80-250) that must contain the LRECL of the target dataset .

```
//CMSYNIN      DD *  
LOGON N2OLIB  
N2ORECPE  
250  
FIN  
/*
```

**V.5.7 Job Steps for LIBRARIAN Migrations**

The job steps for processing LIBRARIAN Events are described below. N2O automatically generates these job steps when the Event is selected for processing. The JCL is generated in a single job stream and submitted to the system internal reader.

**LIBCOPY1**

LIBRARIAN migrations are performed using the LIBRARIAN COPY command. &INCLUDE COPY is replaced with the statements necessary to migrate each member in the Event. The output print file, SYSPRINT, must be written to an output dataset. This dataset contains the results of the LIBRARIAN verification process, and is used to update the N2O Migration file.

**LIBCOPY2**

The output print file, SYSPRINT, must be written to an output dataset. This dataset contains the results of the migration and is used to update the N2O Migration file.

**LIBACKN1**

This step updates the N2O Migration file with information from the output print file, SYSPRINT, from the previous two steps. N2OACKNL inputs this information as CMWKF01 and CMWKF03 to update the N2O Migration file. CMWKF02 contains the name of the Event that was processed.

This step must be executed from a NATURAL FUSER local to the N2O installation.

**&INCLUDE COMPILE**

The Autocompile process performs a compile, link-edit, and user-defined JCL step for each member migrated with a specified Event. &INCLUDE COMPILE is replaced with the JCL necessary to perform the Autocompile.

**LIBMOVE**

If MOVE is specified as the migration method, additional steps must be added to the job. The first step is to delete the programs in the Master File representing the source of the migration. The second step acknowledges the deletion process.

**LIBACKN2**

This step acknowledges the deletion process when using MOVE for LIBRARIAN Events.

**LIBRARIAN Migration JCL**

Sample Librarian Migration JCL is provided in the LIBMIGR member located in the Natural library N2OBATCH.

**V.5.8 Job Steps for PANVALET Migrations**

The job steps for processing PANVALET Events are described below. N2O automatically generates these job steps when the Event is selected for processing. The JCL is generated in a single job stream and submitted to the system internal reader.

**PANTRAN**

PANVALET migrations are performed using the PANVALET TRANSFER command. &INCLUDE TRANSFER is replaced with the statements necessary to migrate each member in the Event. The output print file, SYSPRINT, must be written to an output dataset. This dataset contains the results of the migration, and is used to update the N2O Migration file.

**N2OACKNP**

This step updates the N2O Migration file with information from the output print file, SYSPRINT, in the previous step. N2OACKNP inputs this information as CMWKF01 and update the N2O Migration file. CMWKF02 contains the name of the Event that was processed.

This step must be executed from a NATURAL FUSER local to the N2O installation.

**&INCLUDE COMPILE**

The Autocompile process performs a compile, link-edit, and user-defined JCL step for each member migrated with a specified Event. &INCLUDE COMPILE is replaced with the JCL necessary to perform the Autocompile.

**PANMOVE**

If MOVE is specified as the migration method, additional steps must be added to the job. The first step is to delete the programs in the PANVALET Library representing the source of the migration. The second step acknowledges the deletion process.

**N2ODACKNP**

This step acknowledges the deletion process when using MOVE for PANVALET Events.

**PANVALET Migration JCL**

Sample Panvalet Migration JCL is provided in the PANVMIGR member located in the Natural library N2OBATCH).

**V.5.9 Job Steps for ENDEVOR Migrations**

The job steps for processing ENDEVOR Events are described below. N2O automatically generates these job steps when the Event is selected for processing. The JCL is generated in a single job stream and submitted to the system internal reader.

**ENDV001**

ENDEVOR migrations are performed using the ENDEVOR ADD, MOVE, or RETRIEVE command. &INCLUDE COPY is replaced with the statements necessary to migrate each member in the Event. The output print file, SYSPRINT, must be written to an output dataset. This dataset contains the results of the migration, and is used to update the N2O Migration file.

**N2OACKNE**

This step updates the N2O Migration file with information from the output print file, SYSPRINT, in the previous step. N2OACKNE inputs this information as CMWKF01 and updates the N2O Migration file. CMWKF02 contains the name of the Event that was processed.

This step must be executed from a NATURAL FUSER local to the N2O installation.

**&INCLUDE COMPILE**

The Autocompile process performs a compile, link-edit, and user-defined JCL step for each member migrated with a specified Event. &INCLUDE COMPILE is replaced with the JCL necessary to perform the Autocompile.

**ENDEVOR Migration JCL**

Sample Endevor Migration JCL is provided in the ENDVMIGR member located in the Natural library N2OBATCH).

**V.5.10 3GL/OTHER Autocompile**

N2O 3GL/OTHER Autocompile automates the compile process for 3GL/OTHER members. The Autocompile field value on the Migration Profile must be set to "CAT" or "STOW" for 3GL/OTHER Autocompile to be processed. The Autocompile process may be initiated in two ways:

- &INCLUDE COMPILE may be specified in the 3GL/OTHER migration JCL to compile during migration. When the migration JCL is generated, &INCLUDE COMPILE is automatically replaced with JCL supplied from N2O User-Exit 11 to compile each member.
- 3GL/OTHER Autocompile may be initiated from the Batch JCL Submission menu as a separate job after an Event has successfully completed. &INCLUDE COMPILE must be included in JCL program MVS3GLAC located in the JCL library identified on Install Parms screen. When the compile JCL is generated, &INCLUDE COMPILE is automatically replaced with JCL supplied from N2O User-Exit 11 to compile each member.

N2O User-Exit-11 allows users to specify the appropriate program JCL with the steps required to compile a 3GL/OTHER member. This user-exit may also specify user-defined variables and replacement values for these variables when submitting the JCL to a system internal reader.

The following JCL is used to compile 3GL/OTHER members after an Event has completed. The sample JCL to compile 3GL/Other members after an Event has completed is supplied in the MVS3GLAC member located in the Natural library N2OBATCH.

The following members located in the Natural library N2OBATCH are samples for use with N2O User-Exit 11 when compiling COBOL Programs:

Compiling COBOL Sample JCL – N2OBATCH member MVSCOBAC

Link-editing a COBOL Program – N2OBATCH member MVSCOBLK

Compiling a COBOL program using a PROC – N2OBATCH member MVSCOBUS

Submitting 3GL members to the Predict pre-processor – N2OBATCH member PREPROCS

Two programs are provided to update the N2O Migration file with the results of the 3GL compile.

N2O3GLAC - Updates the object detail record in the event with a successful 3GL compile. This program should be executed if the compile step is successful (RC=0).

N2O3GLER - Updates the object detail record in the event with a 3GL compile error. This program should be executed if the compile step is unsuccessful (RC=4).

**V.6 N2O Static SQL Support**

N2O provides Static SQL Support by creating Database Request Modules (DBRM) for all the NATURAL programs of an Event, and then by binding these DBRMs as a Package or into a DB2 Application Plan.

Dynamic SQL mode is used during application development because it enables application programs to be executed and changed interactively. All SQL statements required to execute an application request are generated dynamically and may be executed immediately. To avoid performance overhead in a production environment, NATURAL for DB2 provides Static SQL Support. NATURAL programs are input to a batch utility that generates an assembler program containing all appropriate static SQL statements. This assembler program is then prepared as a normal DB2 application program (i.e., compiled, linked, bound). The resulting load module and static application plan enable NATURAL programs to take advantage of precompiled DB2 queries.

The following steps are performed by N2O to create Static SQL programs for an Event:

- Step 1.     Generation of a Static Assembler Program  
The database access statements generated in NATURAL programs are extracted and transformed to a static assembler program (DBRM).
- Step 2.     Precompilation  
In this step, the generated static assembler program is sent through the DB2 Precompiler. The output consists of the precompiled DBRM containing the SQL statements, and an assembler program that contains all the database access statements transformed from SQL into assembler statements.
- Step 3.     Assemble and Link  
The Assembler program is then assembled and linked creating an executable load module.
- Step 4.     Bind  
Using the DBRMs, the DB2 Catalog, and the BIND parameters as input, the bind process validates the SQL statements, determines an access strategy, and creates a Package or Plan. In version 2.3 of DB2, a single DBRM may be bound as a Package. One or more DBRMs and one or more Packages may be bound into a Plan.

**V.6.1 Processing Steps for Static SQL Support**

Static SQL Support is specified on the Migration Profile. The Migration Profile used by an Event must have the DB2 Processing field set to "Y". This value marks the Event as ready for DBRM Generation after a migration is complete.

The generation of DBRMs for an Event is a batch process. JCL is submitted from the Batch Submission menu to execute the Create DBRM command, execute the DB2 Precompile, assemble the assembler program, link it into a load module, and optionally bind the DBRM as a Package. Sample JCL is provided for each of the Generate DBRM steps and must be modified for site requirements. The library containing the DBRM JCL is identified on the Install Parms screen.

The DBRM generation program calls two user-exit subprograms. The first user-exit subprogram (N2OUE08N) determines the appropriate JCL program to be used for the target Environment. The second user-exit subprogram (N2OUE09N) is called for each of the NATURAL objects migrated by an Event. The user-exit may be used to reject any NATURAL object that is to be executed in dynamic mode. NATURAL objects with compilation errors may be reviewed by the user-exit for acceptable errors such as "Program too large for Optimization" and then may be included in the Generate DBRM process. The name of the DBRM to be created for each NATURAL object defaults to the NATURAL object name. However, the user-exit may be modified to identify a single DBRM name to be used for all NATURAL objects in the Event.

The Bind of DBRMs and/or Packages into a DB2 Application Plan for an Event is also a batch process. JCL is submitted from the Batch Submission menu to perform the Bind. Sample JCL is provided for the Bind Step, and must be modified for site requirements. The library containing the Bind JCL is identified on the Install Parms screen.

A user-exit subprogram (N2OUE10N) is called when a request to Bind a DB2 Application Plan is submitted. The user-exit should be used to determine the appropriate JCL program for the target environment. If a single DBRM was used for all NATURAL objects in an Event, it is identified to the user-exit. The user-exit may also associate the DBRM or Package with a Plan and a DB2 Subsystem. Also, the user may run in-house programs to check the timestamp of DBRMs.

**V.6.2 DBRM Generation**

The generation of DBRMs for an Event is a batch process. JCL may be submitted from the Batch Submission menu, or the JCL may be manually submitted after substituting &INPUT with the Event and Sequence to be processed. The N2ODBRM program executed in this batch job reads a JCL program for each of the Generate DBRM steps (Create DBRM, DB2 Precompile, Assemble, Link and Create a Package) and generates a second batch job to execute these steps for the NATURAL objects in an Event.

The following JCL is an example of JCL used to support the generation of DBRMs for an Event. JCL should be tailored to accommodate site-specific needs. This JCL may be found in library N2OBATCH as program N2ODBRM.

The JCL program name of DB2DBRM is mandatory for DBRM Generation JCL.

**DB2DBRM**

```
//N2ODBRM JOB (nnn), 'SUBMIT DBRM', CLASS=A, NOTIFY=&USERID
//*
//*
//JOBLIB DD DSN=NATURAL.NAT21X.LOADLIB,
DISP=(SHR,KEEP,KEEP)
DD DSN=ADABAS.ADA52X.LOADLIB,
DISP=(SHR,KEEP,KEEP)
//*
//N2ODBRM EXEC PGM=NATBATCH
//*
//DDCARD DD *
ADARUN DBID=xxx, SVC=yyy, DEVICE=zzzz, MODE=MULTI, PROGRAM=USER
/*
//CMPRINT DD SYSOUT=*
//CMSYNIN DD *
LOGON N2OLIB
N2ODBRM
FIN
/*
//CMWKF01 DD *
&INPUT
/*
//CMWKF03 DD DSN=&&TEMP,
DISP=(NEW,PASS,DELETE),
UNIT=WORK,
SPACE=(TRK,(1,1),RLSE),
DCB=(RECFM=FB,LRECL=80,BLKSIZE=80)
/*
//* COPY JCL TO GENERATE DBRM TO THE INTERNAL READER
/*
//N2ODBRM2 EXEC PGM=IEBGENER, COND=(4,LT,N2ODBRM)
//SYSUT1 DD DSN=&&TEMP,
// DISP=(OLD,DELETE)
//SYSUT2 DD SYSOUT=(A,INTRDR)
//SYSIN DD DUMMY
```

## V.6.2.1 **DBRM Generation JCL**

The following JCL is an example of JCL used to support the Generate DBRM steps (Create DBRM, DB2 Precompile, Assemble and Link). JCL should be tailored to accommodate site-specific needs. This JCL may be found in library N2OBATCH.

### **Job Card JCL (DB2JOB)**

```
//NSTATIC JOB (nnn), 'GENERATE DBRM', CLASS=A, MSGCLASS=X, NOTIFY=&USERID
/*
/*
/* The following JOBLIB statements can be used instead of specifying
/* LOADLIBS in each step.
/*
/*JOBPARM S=CPU1
/*ROUTE PRINT SYSPT
/*
//JOBLIB      DD  DSN=NATURAL.NAT21X.LOADLIB,
                DISP=(SHR,KEEP,KEEP)
                DD  DSN=NATURAL.NDB21X.LOADLIB,
                DISP=(SHR,KEEP,KEEP)
                DD  DSN=ADABAS.ADA51X.LOADLIB,
                DISP=(SHR,KEEP,KEEP)
                DD  DSN=DB2.DSNLOAD.LOADLIB,
                DISP=(SHR,KEEP,KEEP)
```

### **Create DBRM JCL (DB2DBRMA)**

```
/*
/* The NATURAL DB/2 Batch Nucleus must be used for this job.
/*
/* &DBRM will be replaced automatically by N2O with the name
/* of the DBRM to be created.
/*
/* &LIBRARY will be replaced automatically by N2O with the name
/* of the library containing the programs included in the DBRM.
/*
/* &PROGRAM will be replaced automatically by N2O with the name
/* of the program(s) to be included in the DBRM.
/*
//&DBRM      EXEC PGM=NATDEMO, REGION=2000K, TIME=1400
/*
//STEPLIB   DDX  DSN=NDB21X.LOAD, DISP=SHR
//          DD   DSN=ADA51X.LOAD, DISP=SHR
//          DD   DSN=NAT21X.LOAD, DISP=SHR
//DDKARTE   DD   DUMMY
//DDDRUCK   DD   SYSOUT=*
//DDPRINT   DD   SYSOUT=*
//DDCARD    DD   *
ADARUN DBID=xxx, SVC=yyy, DEVICE=zzzz, MODE=MULTI, PROGRAM=USER
/*
//***** OUTPUT DECKS
//CMWKF01   DD   DSN=&&TMP1,
//          DISP=(,PASS), UNIT=SYSDA, SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
//CMWKF02   DD   DSN=&&TMP2,
//          DISP=(,PASS), UNIT=SYSDA, SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
//CMWKF03   DD   DSN=&&TMP3,
//          DISP=(,PASS), UNIT=SYSDA, SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
//CMWKF04   DD   DSN=&&TMP4,
//          DISP=(,PASS), UNIT=SYSDA, SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
//CMWKF05   DD   DSN=&&TMP5,
//          DISP=(,PASS), UNIT=SYSDA, SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
```

(Continued on next page)

**DB2DBRMA (continued)**

```
//CMWKF06 DD DSN=&&TMP,
//          DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=3120)
//CMWKF07 DD DSN=&&TMP7,
//          DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(5,5)),
//          DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=3120)
//*
//CMPRINT DD SYSOUT=*
//CMSYNIN DD *
LOGON SYSDB2
CMD CREATE DBRM &DBRM USING INPUT DATA WITH XREF NO
&LIBRARY,&PROGRAM
.
FIN
/*
```

**DB2 Precompile JCL (DB2PC)**

```
/*
/* &PCNUM will generate the next available step name for the
/* Precompile step (e.g. PC1, PC22).
/*
/* &DBRM will be replaced automatically by N2O with the name
/* of the DBRM specified in the generate step above.
/*
/*&PCNUM EXEC PGM=DSNHPC,REGION=2048K,PARM='HOST(ASM)',
//          COND=(4,LT,&DBRM)
/*
//DBRMLIB DD DSN=NDB21X.DBRMLIB(&DBRM),
//          DISP=SHR
//SYSIN DD DSN=&&TMP,
//          DISP=(OLD,DELETE)
//SYSUT1 DD UNIT=SYSDA,SPACE=(800,(500,500),,,ROUND)
//SYSCIN DD DSN=&&DSNHOUT,
//          DISP=(NEW,PASS),UNIT=SYSDA,SPACE=(800,(500,500))
//SYSPRINT DD SYSOUT=*
//SYSTEM DD SYSOUT=*
/*
/* * * * * *
/*          OUTPUT PRE-COMPILE
/* * * * * *
/*
//PRINT1 EXEC PGM=IEBGENER
//SYSUT1 DD DSN=&&DSNHOUT,DISP=(OLD,PASS)
//SYSUT2 DD SYSOUT=*
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=*
/*
```

## Assemble JCL (DB2ASM)

```

/*
/* &ASMNUM will generate the next available step name for the
/* Assemble step (e.g. ASM1, ASM2).
/*
/*&ASMNUM EXEC PGM=IEV90,REGION=1M,PARM='NODECK,OBJECT'
/*
//SYSLIB DD DISP=SHR,DSN=NDB21X.SRCE
// DD DISP=SHR,DSN=NAT21X.SRCE
// DD DISP=SHR,DSN=DSNXXX.DSNMACS
// DD DISP=SHR,DSN=SYS1.MACLIB
//SYSIN DD DSN=&DSNHOUT,
// DISP=(OLD,DELETE)
//SYSLIN DD DSN=&LOADSET,
// DISP=(NEW,PASS),UNIT=SYSDA,SPACE=(800,(500,500)),
// DCB=(RECFM=FBS,LRECL=80,BLKSIZE=800,BUFNO=1)
//SYSTEM DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSUT1 DD SPACE=(TRK,(50,5)),UNIT=SYSDA,DISP=(,DELETE)
//SYSUT2 DD SPACE=(TRK,(36,5)),UNIT=SYSDA,DISP=(,DELETE)
//SYSUT3 DD SPACE=(TRK,(36,5)),UNIT=SYSDA,DISP=(,DELETE)
/*

```

## Link JCL (DB2LINK)

```

/*
/* &LKONUM will generate the next available step name for the
/* On-line Link step (e.g. LK01, LK02).
/*
/* &LKBNUM will generate the next available step name for the
/* Batch Link step (e.g. LKB1, LKB2).
/*
/* Note: Link JCL shown below.
/*
/* &DBRM will be replaced automatically by N2O with the name
/* of the DBRM specified in the generate step above.
/*
/*&LKONUM EXEC PGM=IEWL,PARM='REUS,XREF',
// COND=((4,LT,&ASMNUM),(4,LT,&PCNUM))
/*
//SYSLIB DD DISP=SHR,DSN=NDB21X.LOAD,DCB=BLKSIZE=20000
// DD DISP=SHR,DSN=DSNXXX.DSNLOAD
/* DD DISP=SHR,DSN=IMSVS.RESLIB >--- IMS
/* DD DISP=SHR,DSN=CICS.LOADLIB >--- CICS
//SYSLIN DD DSN=&LOADSET,
// DISP=(OLD,DELETE)
// DD DDNAME=SYSIN
/*
/* INCLUDE THE APPROPRIATE LANGUAGE INTERFACE
/*
//SYSIN DD *
INCLUDE SYSLIB(DSNCLI) <--- CICS
NAME &DBRM(R)
/* INCLUDE SYSLIB(DSNELI) <--- TSO
/* INCLUDE SYSLIB(DSNALI) <--- CAF
/* INCLUDE SYSLIB(DFSLI000) <--- IMS/DC
/*
//SYSUT1 DD UNIT=SYSDA,SPACE=(1024,(50,50))
//SYSLMOD DD DISP=SHR,DSN=NDB21X.LOAD(&DBRM)
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
/*

```

**Create a Package (DB2PKG)**

```

/*
/* &PKANUM will generate the next available step name for the
/* Bind Package Add step (e.g. PKA1, PKA2).
/*
/* &PKRNUM will generate the next available step name for the
/* Bind Package Add step (e.g. PKA1, PKA2).
/*
/* &DBRM will be replaced automatically by N2O with the name
/* of the DBRM specified in the generate step above.
/*
/*&PKANMU      EXEC PGM=IKJEFT-1,DYNAMNBR=20,
/*              COND=( (4,LT,&ASNUM), (4,LT,&PCNUM) )
/*
/*STEPLIB      DD DISP=SHR,DSN=NDB23X.LOADLIB
/*SYSTSPRT     DD SYSOUT=*
/*SYSPRINT     DD SYSOUT=*
/*SYSUDUMP     DD SYSOUT=*
/*SYSTSIN      DD *
              DSN
                BIND PACKAGE (Location) -
                MEMBER (&DBRM) -
                LIBRARY ('PROD.DBRMLIB') -
                ISOLATION (CS) -
                RELEASE (COMMIT) -
                ACTION (ADD) -
                ENABLE (*) -
              END
/*
/*&PKRNUM      EXEC PGM=IKJEFT01,DYNAMNBR=20,
/*              COND=( (4,LT,&PCNUM), (8,NE,&PKANUM), )
/*
/*STEPLIB      DD DISP=SHR,DSN=NDB23X.LOADLIB
/*SYSTSPRT     DD SYSOUT=*
/*SYSPRINT     DD SYSOUT=*
/*SYSUDUMP     DD SYSOUT=*
/*SYSTSIN      DD *
              DSN
                BIND PACKAGE (Location) -
                MEMBER (&DBRM) -
                LIBRARY ('PROD.DBRMLIB') -
                ISOLATION (CS) -
                RELEASE (COMMIT) -
                ACTION (REPLACE) -
                ENABLE (*)
              END
/*

```

### V.6.3 Bind DB2 Application Plan

The binding of DBRMs or Packages into a DB2 Application Plan for an Event is a batch process. JCL may be submitted from the Batch Submission menu, or the JCL may be manually submitted after substituting &INPUT with the Event and Sequence to be processed. The N2OBIND program executed in this batch job reads the JCL program for the Bind Step and generates a second batch job to execute this step for the DBRMs generated for the Event.

The following JCL is an example of JCL used to support the binding of DBRMs or Packages into a DB2 Application Plan for an Event. JCL should be tailored to accommodate site-specific needs. The JCL program DB2BIND may be found in library N2OBATCH.

The JCL program name of DB2BIND is mandatory for Bind DB2 Plan JCL.

#### **DB2BIND**

```
//N2OBIND JOB (nnn), 'SUBMIT BIND', CLASS=A, NOTIFY=&USERID
//*
//*
//JOB LIB DD DSN=NATURAL.NAT31X.LOADLIB,
// DISP=(SHR,KEEP,KEEP)
// DD DSN=ADABAS.ADA71X.LOADLIB,
// DISP=(SHR,KEEP,KEEP)
//*
//N2OBIND EXEC PGM=NATBATCH
//*
//DDCARD DD *
ADARUN DBID=xxx, SVC=yyy, DEVICE=zzzz, MODE=MULTI, PROGRAM=USER
/*
//CMPRINT DD SYSOUT=*
//CMSYNIN DD *
LOGON N2OLIB
N2OBIND
FIN
/*
//CMWKF01 DD *
&INPUT
/*
//CMWKF02 DD DSN=SYSTSIN.INPUT.N2O
//CMWKF03 DD DSN=&&TEMP,
DISP=(NEW,PASS,DELETE),
UNIT=WORK,
SPACE=(TRK,(1,1)),RLSE),
DCB=(RECFM=FB,LRECL=80,BLKSIZE=15440)

/*
/**COPY JCL TO BIND DB2 PLAN TO THE INTERNAL READER
/*
//N2OBIND2 EXEC PGM=IEBGENER, COND=(4,LT,N2OBIND)
//SYSUT1 DD DSN=&&TEMP,
DISP=(OLD,DELETE)
//SYSUT2 DD SYSOUT=(A,INTRDR)
//SYSIN DD DUMMY
```

**Bind DB2 Application Plan JCL**

The following JCL is an example of JCL used to support the BIND DB2 Application Plan step. JCL should be tailored to accommodate site-specific needs. The JCL program DB2BINDP for the Bind step may be found in library N2OBATCH.

**DB2BINDP**

```
//NBIND JOB (nnn), 'BIND DB2 PLAN', CLASS=A, NOTIFY=&USERID
/*
/*
/* &PLAN will be replaced automatically by N2O with the name
/* of the Plan to be bound (set in User Exit 10).
/*
/* &SUBSYS will be replaced automatically by N2O with the name
/* of the DB2 Subsystem (set in User Exit 10).
/*
/* &INPUT will be replaced automatically by N2O with the SYSTSIN
/* statements necessary to perform the bind. The statements will
/* be written to work file 2 in N2OUE10N and then included with the
/* remainder of the JCL.
/*
/* &DBRM will be replaced automatically by N2O with the name(s)
/* of the DBRM(s) to be bound. The list is written to work file 2
/* in N2OUE10N and then included with the remainder of the JCL.
/*
//BIND EXEC PGM=IKJEFT01, DYNAMNBR=20, REGION=4096K, TIME=200
/*
//STEPLIB DD DISP=SHR, DSN=DSNXXX.DSNLOAD
//DBRMLIB DD DISP=SHR, DSN=NDB21X.DBRMLIB
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSTSIN DD *
&INPUT
or
DSN SYSTEM(&SUBSYS)
BIND PLAN(&PLAN) -
MEM( -
&DBRM
) -
RETAIN -
ISOLATION(CS) -
RELEASE(COMMIT) -
ACTION(REPLACE) -
END
/*
```

## V.7 Application Programming Interface

### V.7.1 Checkout Utility API (N2OAPI1N)

The subprogram N2OAPI1N is an Application Programming Interface (API) to allow a site to perform Checkouts without executing N2O. An example program N2OAPI1P (provided in source form in library N2OLIB) shows how to invoke the subprogram N2OAPI1N.

Note - N2OAPI1N requires various objects in N2OLIB. Any program, that invokes N2OAPI1N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI1N is invoked as follows:

```
CALLNAT 'N2OAPI1N' N2OAPI1N-PARMS
```

The sample program N2OAPI1P shows how to invoke subprogram N2OAPI1N. Parameter data area N2OAPI1A is provided in source form in the library N2OLIB.

The subprogram N2OAPI1N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* 0 - 'CHECKOUT was successful'
* 1 - 'API unavailable - Checkout/Checkin is not active'
* 2 - 'Invalid type. Valid values: N, S, P, O, D, M'
* 3 - 'Value required for Base Env Def'
* 4 - 'Base Env Def not found'
* 5 - 'Please enter a BASE Env Def'
* 6 - 'BASE Env does not define a NATURAL environment'
* 7 - 'Value required for Base Library'
* 8 - 'Base Library not required for PREDICT'
* 9 - 'Base Env Def must be a 3GL Environment'
* 10 - 'Base Library not required for 3GL'
* 11 - 'Value required for Current Env Def'
* 12 - 'Current Env Def not found'
* 13 - 'Current Env Def cannot be a BASE Environment'
* 14 - 'Current Env does not define a NATURAL Env'
* 15 - 'Current Env must be a 3GL Env'
* 16 - 'BASE Env and CURRENT Env must have same 3GL Interface'
* 17 - 'Value required for Current Library'
* 18 - 'Cannot checkout from/to same FUSER and LIBRARY'
* 19 - 'Cannot checkout from/to same FDIC'
* 20 - 'Current Library not required for PREDICT'
* 21 - 'Cannot checkout from/to same PDS'
* 22 - 'Current Library not required for 3GL'
* 23 - 'Wildcard not Valid'
* 24 - 'Value required for Object'
* 25 - 'Object Type not required'
* 26 - 'Value required for Object Type'
* 27 - 'Object must be 8 characters or less'
* 28 - 'Value required for NATURAL Object Type'
* 29 - 'Valid NATURAL Object Types: M, G, L, A, P, N, S, H, C, T'
* 30 - 'SYSERRs must be numeric'
* 31 - 'SYSERRs Valid values: 0001 - 9999'
* 32 - 'Not a valid PREDICT Object Type'
* 33 - 'Librarian Object Types are limited to 3 characters'
* 34 - 'Panvalet Object Types are limited to 5 characters'
* 35 - 'Invalid Checkout User-ID specified'
* 36 - 'Value required for File Type'
* 37 - 'Invalid PREDICT file Type'
* 38 - 'Valid Values DDM-GENERATED: * or Blank'
* 39 - 'File Type required only for PREDICT Type FI'
* 40 - 'DDM Generated required only for PREDICT Type FI'
* 41 - 'Category values: ASMB, COBOL, FORT, PL/I, RPG, DATA, JCL, OTHER'
* 42 - 'Please enter a valid category for the BASE Env'
* 43 - 'Category not available in both environments' TO
* 44 - 'Category only required for 3GL environments'
```

```
* 45 - 'Value required for ENDEVOR-SYSTEM'
* 46 - 'Value required for ENDEVOR-SUBSYSTEM'
* 47 - 'Value required only for ENDEVOR'
* 48 - 'VALID VALUES 1-65535 FOR DDM-DBID'
* 49 - 'VALID VALUES 1-65535 FOR DDM-FNR'
* 50 - 'ADA6 support required for DDM Dbid/Fnr GT 255'
* 51 - 'CHECKOUT Failed' or message with reason for checkout failure
```

### V.7.2 Event Reporting API (N2OAPI2N)

The subprogram N2OAPI2N is an Application Programming Interface (API) to allow a site to perform retrieval functions for an Event's Details and its Object Details without executing N2O.

Note - N2OAPI2N requires various objects in N2OLIB. Any program, that invokes N2OAPI2N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI2N is invoked as follows:

```
CALLNAT 'N2OAPI2N' #N2OAPI2N-PARMS
```

The sample program N2OAPI2P shows how to invoke subprogram N2OAPI2N. Parameter data area N2OAPI2A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI2P and N2OAPI2A.

The first parameter (#REPORT-TYPE) should contain the function code for the desired function. The following functions are available:

```
Code Function
'E' = Event Details
'O' = Object Details
```

The second parameter (#EVENT) should contain the appropriate event name.

The third parameter (#EVENT-SEQUENCE) should contain the appropriate event sequence number.

The subprogram N2OAPI2N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* 0 - 'Event Details Function Complete' 'Object Details Function Complete'
* 1 - 'Invalid report type:' #REPORT-TYPE '(E and O only)'
* 2 - 'EVENT:' EVENT 'Seq:' EVENT-SEQUENCE 'not found'
```

**V.7.3 Copy an Event API (N2OAPI3N)**

The subprogram N2OAPI3N is an Application Programming Interface (API) to allow a site to copy an event without executing N2O.

Note - N2OAPI3N requires various objects in N2OLIB. Any program, that invokes N2OAPI3N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI3N is invoked as follows:

```
CALLNAT 'N2OAPI3N' #N2OAPI3N-PARMS
```

The sample program N2OAPI3P shows how to invoke subprogram N2OAPI3N. Parameter data area N2OAPI3A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI3P and N2OAPI3A.

The subprogram N2OAPI3N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* -1 - 'ARCHIVE SEQ DEFAULTS TO 1 WHEN N2OPURGE IS SPECIFIED'  
* 0 - 'Event: EVENT Seq: 99999 copied to Event: EVENT Seq: 99999'  
* 1 - 'Type cannot be blank'  
* 2 - 'Please select a valid type'  
* 3 - 'Type can only be specified once'  
* 4 - 'Value required for event'  
* 5 - 'Value required for Event Sequence'  
* 6 - 'Event/Sequence not found'  
* 7 - 'COPY TO Event/Sequence not found'  
* 8 - 'Migration type(s) not copied'  
* 9 - 'Record is currently on hold - Please try later.'  
* 10 - 'Base Event Header Error'  
* 11 - 'Request to migrate NATURAL and/or SYSERR denied by security'  
* 12 - 'Request denied by User-Exit-1'  
* 13 - 'N2OPURGE NOT AVAILABLE FOR SYSERR MESSAGES'  
* 14 - 'N2OPURGE NOT AVAILABLE FOR PREDICT OBJECTS'  
* 14 - 'N2OPURGE NOT AVAILABLE FOR DDMS'  
* 15 - 'N2OPURGE NOT AVAILABLE FOR 3GL MEMBERS'  
* 16 - 'MULTIPLE TARGET EVENT NOT PERMITTED FOR 3GL'  
* 17 - 'MASTER EVENT IS NOT A MULTIPLE TARGET'  
* 18 - 'SYSERR Type must be US, UL, or U'  
* 19 - 'SYSERR Lang must 1-9,A-Z,a-z OR *'  
* 20 - 'From Env not valid'  
* 21 - 'To Env not valid'  
* 21 - 'PROCESS DATE must be YYYYMMDD'  
* 22 - 'PROCESS TIME must be HHMMII'  
* 23 - 'Predict Object(s) not in From Env.'  
* 24 - '3GL Object(s) not in From Env.'  
* 25 - 'Natural Object(s) not in From Env.'  
* 26 - 'Types P and M cannot be used together'  
* 27 - 'N2OPURGE NOT AVAILABLE FOR METADATA'  
* 28 - 'Event Status must be B or O'
```

**V.7.4 Add/Modify an Event API (N2OAPI4N)**

The subprogram N2OAPI4N is an Application Programming Interface (API) to allow a site to Add or Modify an event without executing N2O.

Note - N2OAPI4N requires various objects in N2OLIB. Any program, that invokes N2OAPI4N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI4N is invoked as follows:

CALLNAT 'N2OAPI4N' #N2OAPI4N-PARMS

The sample program N2OAPI4P shows how to invoke subprogram N2OAPI4N. Parameter data area N2OAPI4A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI4P and N2OAPI4A.

The subprogram N2OAPI4N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* -1 - 'ARCHIVE SEQ DEFAULTS TO 1 WHEN N2OPURGE IS SPECIFIED'
* 0 - 'Event: EVENT Seq: 99999 Added/Modified'
* 1 - 'Event Type cannot be blank'
* 2 - 'Please select a valid type'
* 3 - 'Type can only be specified once'
* 4 - 'Value required for event'
* 5 - 'Value required for Event Sequence'
* 6 - 'Function cannot be blank'
* 7 - 'Event/Sequence not found'
* 8 - 'Record is currently on hold - Please try later.'
* 9 - 'Base Event Header Error'
* 10 - 'Request to migrate NATURAL and/or SYSERR denied by security'
* 11 - 'Request denied by User-Exit-1'
* 12 - 'N2OPURGE NOT AVAILABLE FOR SYSERR MESSAGES'
* 13 - 'N2OPURGE NOT AVAILABLE FOR PREDICT OBJECTS'
* 14 - 'N2OPURGE NOT AVAILABLE FOR DDMS'
* 15 - 'N2OPURGE NOT AVAILABLE FOR 3GL MEMBERS'
* 16 - 'MULTIPLE TARGET EVENT NOT PERMITTED FOR 3GL'
* 17 - 'MASTER EVENT IS NOT A MULTIPLE TARGET'
* 18 - 'SYSERR Type must be US, UL, or U'
* 19 - 'SYSERR Lang must 1-9,A-Z,a-z OR *'
* 20 - 'From Env can not be Blank'
* 21 - 'To Env not valid'
* 21 - 'Process Date must be formatted YYYYMMDD'
* 22 - 'Process Time must be formatted HH:MM:SS'
* 23 - 'Predict Object(s) not in From Env.'
* 24 - '3GL Object(s) not in From Env.'
* 25 - 'Natural Object(s) not in From Env.'
* 26 - 'Types P and M cannot be used together'
* 27 - 'N2OPURGE NOT AVAILABLE FOR METADATA'
* 28 - 'Event Status must be B or O'
* 29 - 'Function must be A or M'
* 30 - 'Event Locked'
* 31 - 'From Env must be blank for Function M'
* 32 - 'From Library must be blank for Function M'
* 33 - 'To Env must be blank for Function M'
* 34 - 'To Library must be blank for Function M'
* 35 - 'SYSERR Type must be blank for Function M'
* 36 - 'SYSERR Lang must be blank for Function M'
* 37 - 'Master Event not found'
* 38 - 'Event Sequence not required for ADD'
* 39 - 'Event does not contain Natural objects'
* 40 - 'Event does not contain Syserrs'
* 41 - 'Event does not contain Predict objects'
* 42 - 'Event does not contain Metadata'
* 43 - 'Event does not contain 3GL members'
* 44 - 'Event does not contain DDMs'
* 45 - 'From Env must be Blank for a Locked Event'
* 46 - 'From Library must be Blank for a Locked Event'
* 47 - 'To Env must be Blank for a Locked Event'
* 48 - 'To Library must be Blank for a Locked Event'
```

- \* 49 - 'Value Required - From Env'
- \* 50 - 'Value Required - To Env'
- \* 51 - 'Value Required - From Lib'
- \* 52 - 'Value Required - To Lib'
- \* 53 - 'Change Control Required'
- \* 54 - 'Task Group/Number Required'
- \* 55 - 'Change Control not Required'
- \* 56 - 'Task Group/Number not Required'

### **V.7.5 Add/Delete Object to/from an Event API (N2OAPI5N)**

The subprogram N2OAPI5N is an Application Programming Interface (API) to allow a site to Add or Delete Objects to/from an event without executing N2O.

Note - N2OAPI5N requires various objects in N2OLIB. Any program, that invokes N2OAPI5N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI5N is invoked as follows:

```
CALLNAT 'N2OAPI5N' #N2OAPI5N-PARMS
```

The sample program N2OAPI5P shows how to invoke subprogram N2OAPI5N. Parameter data area N2OAPI5A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI5P and N2OAPI5A.

The subprogram N2OAPI5N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

- \* 0 - 'Objects added to/deleted from 'Event: EVENT Seq: 99999'
- \* 1 - 'Install Parms must be defined'
- \* 2 - 'EVENT/SEQUENCE NOT FOUND'
- \* 2 - 'Master Event not found'
- \* 3 - 'Catalog Type: Invalid'
- \* 4 - 'Unknown Node location'
- \* 5 - 'Catalog Type: Invalid'
- \* 6 - 'Unknown Node location'
- \* 7 - 'Invalid Predict Type'
- \* 8 - 'Invalid 3GL Type'

### **V.7.6 Submit an Event API (N2OAPI6N)**

The subprogram N2OAPI6N is an Application Programming Interface (API) to allow a site to submit an event without executing N2O.

Note - N2OAPI6N requires various objects in N2OLIB. Any program, that invokes N2OAPI6N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI6N is invoked as follows:

```
CALLNAT 'N2OAPI6N' #N2OAPI6N-PARMS
```

The sample program N2OAPI6P shows how to invoke subprogram N2OAPI6N. Parameter data area N2OAPI6A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI6P and N2OAPI6A.

The subprogram N2OAPI6N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* 0 - 'Event: EVENT Seq: 99999 Submitted'
* 1 - 'Install ParmS must be defined'
* 2 - 'Event not found'
* 3 - 'Event Status must be B or I'
* 4 - 'Process Date/Time not reached'
```

### V.7.7 Directory List API (N2OAPI7N)

The subprogram N2OAPI7N is an Application Programming Interface (API) to allow a site to retrieve a list of Objects as the Directory Listing report without executing N2O.

Note - N2OAPI7N requires various objects in N2OLIB. Any program, that invokes N2OAPI7N, should be executed in or have as a STEPLIB the N2OLIB library.

N2OAPI7N is invoked as follows:

```
CALLNAT 'N2OAPI7N' #N2OAPI7N-PARMS
```

The sample program N2OAPI7P shows how to invoke subprogram N2OAPI7N. Parameter data area N2OAPI7A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI7P and N2OAPI7A.

The subprogram N2OAPI7N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* 0 - 'Env: XXXX Library:XXXXXXXXX Objects Retrieved'
* 1 - 'Install ParmS must be defined'
* 2 - 'Invalid Environment Definition:'
* 3 - 'Checked out objects require Non-Base Env Def'
* 4 - 'Checked out objects require Checkin/Checkout'
* 5 - 'Please specify a NATURAL Env Def'
* 5 - 'Please specify a PREDICT Env Def'
* 6 - 'Library not required'
* 7 - 'Invalid Category'
* 8 - 'Invalid Catalog Type:'
* 9 - 'Objects requested must be 1 - 99'
* 10 - 'Nothing found to retrieve' '
```

### V.7.8 Sample code to use N2O APIs 4-7 to create a user event screen (N2OMETRO)

The sample program N2OMETRO shows how to invoke subprograms N2OAPI4N, N2OAPI5N, N2OAPI6N and N2OAPI7N to create a user event screen. N2OMETRO is provided in source form in the library N2OLIB.

### V.7.9 Checkout Status API (N2OAPI8N)

The subprogram N2OAPI8N is an Application Programming Interface (API) to allow a site to retrieve the checkout/checkin status and the checkout-userid(s) from the input of an Environment Definition, Userid and Object Name without executing N2O.

N2OAPI8N is invoked as follows:

```
CALLNAT 'N2OAPI8N' #N2OAPI8N-PARMS
```

The sample program N2OAPI8P shows how to invoke subprogram N2OAPI8N. Parameter data area N2OAPI8A is provided in source form in the library N2OLIB.

The individual CALLNAT parameters are explained in the source codes of N2OAPI8P and N2OAPI8A.

The subprogram N2OAPI8N returns a value in the field 'ERROR-NO' according to how status of the checkout and the correctness of the input passed into it. The field 'ERROR-MESSAGE' contains short information about the error code and all possible values are displayed below.

```
* 0 - 'Checkout Retrieved For XXXXXXXX'  
* 1 - 'Checkout/Checkin not Active'  
* 2 - 'Catalog Type must be D,M,N,O or P'  
* 3 - 'Environment Definition not Found'  
* 4 - 'Library should not be Blank'  
* 5 - 'Please specify a NATURAL Env Def'  
* 5 - '3GL Type should not be Blank'  
* 6 - 'Predict Type should not be Blank'  
* 7 - 'Object should not be Blank'  
* 8 - 'Userid should not be Blank'  
* 9 - 'Object not in N2O Master Catalog'
```

#### **V.7.10 Security Definitions Reporting(N2OREPI)**

The following modules are supplied to enable sites to create custom reports of the N2O Security definitions.

LAPPINQ, LFUNINQ, LMIGPINQ, LPREDINQ, L3GLINQ, N2OAPPIN, N2OFUNIN, N2OMIGIN, N2OPREIN, N2O3GLIN, N2OUSRIN, AND N2OREPI.

N2OREPI is a sample report program that will display the N2O Security definitions by User ID.

The supplied subprograms can be used to report details of:

##### **N2OAPPIN - Approval Profiles**

This subprogram inputs an Approval Profile name and returns the from/to environment/library information

##### **N2OFUNIN – Function Profiles**

This subprogram inputs a Function Profile name, and a 4 character field to limit the returned information to a specific N2O major function (ENV, MIG, REP, TOL, PRJ) and returns the Functions and sub-functions assigned to that profile. The limit function field allows a site to limit the reporting to see only users that can migrate objects, change environment information, etc.)

##### **N2OMIGIN – Migration Profiles**

This subprogram inputs a Migration Profile and returns the authorization and migration settings for that profile.

##### **N2OPREIN – Predict Profiles**

This subprogram inputs a Predict Profile and returns the authorization and migration settings for that profile.

##### **N2O3GLIN – 3GL Profiles**

This subprogram inputs a 3GL Profile and returns the authorization and migration settings for that profile.

## APPENDIX A

### SCREEN NAMES AND DESCRIPTIONS

The following is a list of screen names (direct commands) and their descriptions.

| SCREEN NAME | DESCRIPTION                        |
|-------------|------------------------------------|
| ENV MENU    | ENVIRONMENT SUBSYSTEM MENU         |
| ENV ARCH    | • ARCHIVE DEFINITION MENU          |
| ENV NODE    | • NODE DEFINITION MENU             |
| ENV EVNT    | • MASTER EVENT MENU                |
| ENV PARM    | • INSTALL PARMS MENU               |
| ENV MIG     | • MIGRATION PROFILE MENU           |
| ENV DEF     | • ENVIRONMENT DEFINITION MENU      |
| ENV SEC     | • SECURITY SUBSYSTEM MENU          |
| ENV APPR    | • APPROVAL PROFILE MENU            |
| ENV FUNC    | • FUNCTION PROFILE MENU            |
| ENV OTHR    | •3GL/OTHER PROFILE MENU            |
| ENV PRED    | • PREDICT PROFILE MENU             |
| ENV USER    | • USER DEFINITION MENU             |
| ENV UTIL    | • ADMINISTRATIVE UTILITIES 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              |
|             |                                    |
| 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    | • UTILITY TOOLS MENU               |
|             |                                    |
| TOL SCAN    | N2OSCAN Utility Menu               |
| TOL SCEN    | •N2OSCAN Environment Function Menu |
| TOL SCLI    | •N2OSCAN Library Function Menu     |

| <b>SCREEN NAME</b> | <b>DESCRIPTION</b>              |
|--------------------|---------------------------------|
| 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  |
|                    |                                 |
| SYS                | (NATURAL SYSTEM COMMAND)        |

## APPENDIX B

### FUNCTION PROFILE RULES FOR SECURITRE INTERFACE

The following is a list of all Functions and Sub-Functions for N2O, as well as the pseudo-dataset names that may be coded in the SSF (ACF2, TOP-SECRET, or RACF). The pseudo-dataset name provided assumes that the N2OPREF value defined in SECURITRE is CMN2OSTR.

#### ENVIRONMENT SUBSYSTEM

| Function              | Pseudo-dataset Name   |
|-----------------------|-----------------------|
| Environment Subsystem | CMN2OSTR.F.N2O.MENU.E |

| Function           | Pseudo-dataset Name   |
|--------------------|-----------------------|
| Archive Definition | CMN2OSTR.F.ENV.MENU.A |

| Sub-Functions                    | Pseudo-dataset Name   |
|----------------------------------|-----------------------|
| Add an Archive Definition        | CMN2OSTR.F.ENV.ARCH.A |
| Copy an Archive Definition       | CMN2OSTR.F.ENV.ARCH.C |
| Delete an Archive Definition     | CMN2OSTR.F.ENV.ARCH.D |
| Inquire on an Archive Definition | CMN2OSTR.F.ENV.ARCH.I |
| Modify an Archive Definition     | CMN2OSTR.F.ENV.ARCH.M |
| Select an Archive Definition     | CMN2OSTR.F.ENV.ARCH.S |

| Function        | Pseudo-dataset Name   |
|-----------------|-----------------------|
| Node Definition | CMN2OSTR.F.ENV.MENU.D |

| Sub-Functions                | Pseudo-dataset Name   |
|------------------------------|-----------------------|
| Add a Node Definition        | CMN2OSTR.F.ENV.NODE.A |
| Copy a Node Definition       | CMN2OSTR.F.ENV.NODE.C |
| Delete a Node Definition     | CMN2OSTR.F.ENV.NODE.D |
| Inquire on a Node Definition | CMN2OSTR.F.ENV.NODE.I |
| Modify a Node Definition     | CMN2OSTR.F.ENV.NODE.M |
| Select a Node Definition     | CMN2OSTR.F.ENV.NODE.S |

| Function     | Pseudo-dataset Name   |
|--------------|-----------------------|
| Master Event | CMN2OSTR.F.ENV.MENU.E |

| Sub-Functions             | Pseudo-dataset Name   |
|---------------------------|-----------------------|
| Add a Master Event        | CMN2OSTR.F.ENV.EVNT.A |
| Copy a Master Event       | CMN2OSTR.F.ENV.EVNT.C |
| Delete a Master Event     | CMN2OSTR.F.ENV.EVNT.D |
| Inquire on a Master Event | CMN2OSTR.F.ENV.EVNT.I |
| Modify a Master Event     | CMN2OSTR.F.ENV.EVNT.M |
| Select a Master Event     | CMN2OSTR.F.ENV.EVNT.S |

| <b>Function</b> | <b>Pseudo-dataset Name</b> |
|-----------------|----------------------------|
| Install Parms   | CMN2OSTR.F.ENV.MENU.I      |

| <b>Sub-Functions</b>     | <b>Pseudo-dataset Name</b> |
|--------------------------|----------------------------|
| Inquire on Install Parms | CMN2OSTR.F.ENV.PARM.I      |
| Modify Install Parms     | CMN2OSTR.F.ENV.PARM.M      |

| <b>Function</b>   | <b>Pseudo-dataset Name</b> |
|-------------------|----------------------------|
| Migration Profile | CMN2OSTR.F.ENV.MENU.M      |

| <b>Sub-Functions</b>           | <b>Pseudo-dataset Name</b> |
|--------------------------------|----------------------------|
| Add a Migration Profile        | CMN2OSTR.F.ENV.MIG.A       |
| Copy a Migration Profile       | CMN2OSTR.F.ENV.MIG.C       |
| Delete a Migration Profile     | CMN2OSTR.F.ENV.MIG.D       |
| Inquire on a Migration Profile | CMN2OSTR.F.ENV.MIG.I       |
| Modify a Migration Profile     | CMN2OSTR.F.ENV.MIG.M       |
| Select a Migration Profile     | CMN2OSTR.F.ENV.MIG.S       |

| <b>Function</b>        | <b>Pseudo-dataset Name</b> |
|------------------------|----------------------------|
| Environment Definition | CMN2OSTR.F.ENV.MENU.N      |

| <b>Sub-Functions</b>                 | <b>Pseudo-dataset Name</b> |
|--------------------------------------|----------------------------|
| Add an Environment Definition        | CMN2OSTR.F.ENV.DEF.A       |
| Copy an Environment Definition       | CMN2OSTR.F.ENV.DEF.C       |
| Delete an Environment Definition     | CMN2OSTR.F.ENV.DEF.D       |
| Inquire on an Environment Definition | CMN2OSTR.F.ENV.DEF.I       |
| Modify an Environment Definition     | CMN2OSTR.F.ENV.DEF.M       |
| Select an Environment Definition     | CMN2OSTR.F.ENV.DEF.S       |

| <b>Function</b>          | <b>Pseudo-dataset Name</b> |
|--------------------------|----------------------------|
| Administrative Utilities | CMN2OSTR.F.ENV.MENU.U      |

| <b>Sub-Functions</b>      | <b>Pseudo-dataset Name</b> |
|---------------------------|----------------------------|
| Archive Purge             | CMN2OSTR.F.ENV.UTIL.A      |
| Event Purge               | CMN2OSTR.F.ENV.UTIL.B      |
| Catalog Capture           | CMN2OSTR.F.ENV.UTIL.C      |
| 3GL/Other Catalog Capture | CMN2OSTR.F.ENV.UTIL.D      |

**MIGRATION SUBSYSTEM**

| <b>Function</b>     | <b>Pseudo-dataset Name</b> |
|---------------------|----------------------------|
| Migration Subsystem | CMN2OSTR.F.N2O.MENU.M      |

| <b>Function</b>  | <b>Pseudo-dataset Name</b> |
|------------------|----------------------------|
| Authorize Events | CMN2OSTR.F.MIG.MENU.A      |

| <b>Sub-Functions</b>         | <b>Pseudo-dataset Name</b> |
|------------------------------|----------------------------|
| Authorize an Event           | CMN2OSTR.F.MIG.AUTH.A      |
| Delete an Event              | CMN2OSTR.F.MIG.AUTH.D      |
| Inquire on an Event          | CMN2OSTR.F.MIG.AUTH.I      |
| Select Events for Processing | CMN2OSTR.F.MIG.AUTH.S      |

| <b>Function</b>      | <b>Pseudo-dataset Name</b> |
|----------------------|----------------------------|
| Batch JCL Submission | CMN2OSTR.F.MIG.MENU.B      |

| <b>Sub-Functions</b>      | <b>Pseudo-dataset Name</b> |
|---------------------------|----------------------------|
| Submit an Event           | CMN2OSTR.F.MIG.SUB.A       |
| Submit a Master Event     | CMN2OSTR.F.MIG.SUB.B       |
| Submit Migration Profiles | CMN2OSTR.F.MIG.SUB.C       |
| Submit All Pending Events | CMN2OSTR.F.MIG.SUB.D       |
| View JCL for a Profile    | CMN2OSTR.F.MIG.SUB.E       |
| 3GL/Other Autocompile     | CMN2OSTR.F.MIG.SUB.F       |
| DB2 DBRM Generation       | CMN2OSTR.F.MIG.SUB.G       |
| DB2 Plan Bind             | CMN2OSTR.F.MIG.SUB.H       |

| <b>Function</b>            | <b>Pseudo-dataset Name</b> |
|----------------------------|----------------------------|
| Checkout/Checkin Utilities | CMN2OSTR.F.MIG.MENU.C      |

| <b>Sub-Functions</b>      | <b>Pseudo-dataset Name</b> |
|---------------------------|----------------------------|
| Cancel Utility            | CMN2OSTR.F.MIG.COCI.A      |
| Transfer Utility          | CMN2OSTR.F.MIG.COCI.B      |
| Transfer by Event Utility | CMN2OSTR.F.MIG.COCI.C      |
| Checkout Utility          | CMN2OSTR.F.MIG.COCI.D      |
| Reject Utility            | CMN2OSTR.F.MIG.COCI.E      |
| Enrollment Utility        | CMN2OSTR.F.MIG.COCI.F      |

| <b>Function</b>     | <b>Pseudo-dataset Name</b> |
|---------------------|----------------------------|
| Migration Utilities | CMN2OSTR.F.MIG.MENU.M      |

| <b>Sub-Functions</b>              | <b>Pseudo-dataset Name</b> |
|-----------------------------------|----------------------------|
| 3GL/Other Autocompile             | CMN2OSTR.F.MIG.UTIL.A      |
| Deletion of Deferred Move Objects | CMN2OSTR.F.MIG.UTIL.B      |
| Cancel Delete for Deferred Moves  | CMN2OSTR.F.MIG.UTIL.C      |
| 3GL/Other PDS Member Type Update  | CMN2OSTR.F.MIG.UTIL.D      |

| <b>Function</b> | <b>Pseudo-dataset Name</b> |
|-----------------|----------------------------|
| Request Events  | CMN2OSTR.F.MIG.MENU.R      |

| <b>Sub-Functions</b>         | <b>Pseudo-dataset Name</b> |
|------------------------------|----------------------------|
| Add an Event                 | CMN2OSTR.F.MIG.REQ.A       |
| Copy an Event                | CMN2OSTR.F.MIG.REQ.C       |
| Delete an Event              | CMN2OSTR.F.MIG.REQ.D       |
| Inquire on an Event          | CMN2OSTR.F.MIG.REQ.I       |
| Modify an Event              | CMN2OSTR.F.MIG.REQ.M       |
| Recovery from Archive        | CMN2OSTR.F.MIG.REQ.R       |
| Select Events for Processing | CMN2OSTR.F.MIG.REQ.S       |

| <b>Function</b> | <b>Pseudo-dataset Name</b> |
|-----------------|----------------------------|
| Service Events  | CMN2OSTR.F.MIG.MENU.S      |

| <b>Sub-Functions</b>         | <b>Pseudo-dataset Name</b> |
|------------------------------|----------------------------|
| Inquire on an Event          | CMN2OSTR.F.MIG.SERV.I      |
| Service an Event             | CMN2OSTR.F.MIG.SERV.P      |
| Select Events for Processing | CMN2OSTR.F.MIG.SERV.S      |

**PROJECT TRACKING SUBSYSTEM**

| <b>Function</b>            | <b>Pseudo-dataset Name</b> |
|----------------------------|----------------------------|
| Project Tracking Subsystem | CMN2OSTR.F.N2O.MENU.P      |

| <b>Function</b>    | <b>Pseudo-dataset Name</b> |
|--------------------|----------------------------|
| Project Definition | CMN2OSTR.F.PRJ.MENU.A      |

| <b>Function</b>                 | <b>Pseudo-dataset Name</b> |
|---------------------------------|----------------------------|
| Add a Project Definition        | CMN2OSTR.F.PRJ.PROJ.A      |
| Copy a Project Definition       | CMN2OSTR.F.PRJ.PROJ.C      |
| Delete a Project Definition     | CMN2OSTR.F.PRJ.PROJ.D      |
| Inquire on a Project Definition | CMN2OSTR.F.PRJ.PROJ.I      |
| Modify a Project Definition     | CMN2OSTR.F.PRJ.PROJ.M      |
| Select a Project Definition     | CMN2OSTR.F.PRJ.PROJ.S      |

| <b>Function</b> | <b>Pseudo-dataset Name</b> |
|-----------------|----------------------------|
| Task List       | CMN2OSTR.F.PRJ.MENU.B      |

| <b>Function</b>   | <b>Pseudo-dataset Name</b> |
|-------------------|----------------------------|
| Add a Task        | CMN2OSTR.F.PRJ.TASK.A      |
| Copy a Task       | CMN2OSTR.F.PRJ.TASK.C      |
| Delete a Task     | CMN2OSTR.F.PRJ.TASK.D      |
| Inquire on a Task | CMN2OSTR.F.PRJ.TASK.I      |
| Modify a Task     | CMN2OSTR.F.PRJ.TASK.M      |
| Select a Task     | CMN2OSTR.F.PRJ.TASK.S      |

| <b>Function</b> | <b>Pseudo-dataset Name</b> |
|-----------------|----------------------------|
| Suggestion Box  | CMN2OSTR.F.PRJ.MENU.C      |

| <b>Function</b>         | <b>Pseudo-dataset Name</b> |
|-------------------------|----------------------------|
| Add a Suggestion        | CMN2OSTR.F.PRJ.SUGG.A      |
| Copy a Suggestion       | CMN2OSTR.F.PRJ.SUGG.C      |
| Delete a Suggestion     | CMN2OSTR.F.PRJ.SUGG.D      |
| Inquire on a Suggestion | CMN2OSTR.F.PRJ.SUGG.I      |
| Modify a Suggestion     | CMN2OSTR.F.PRJ.SUGG.M      |
| Select a Suggestion     | CMN2OSTR.F.PRJ.SUGG.S      |

| <b>Function</b> | <b>Pseudo-dataset Name</b> |
|-----------------|----------------------------|
| Task Utilities  | CMN2OSTR.F.PRJ.MENU.D      |

| <b>Function</b>            | <b>Pseudo-dataset Name</b> |
|----------------------------|----------------------------|
| Update Stage for a Task    | CMN2OSTR.F.PRJ.TUTL.A      |
| Cancel a Task              | CMN2OSTR.F.PRJ.TUTL.B      |
| Reject a Task              | CMN2OSTR.F.PRJ.TUTL.C      |
| Link Objects to a Task     | CMN2OSTR.F.PRJ.TUTL.D      |
| Link Suggestions to a Task | CMN2OSTR.F.PRJ.TUTL.E      |
| Link Tasks to a Task       | CMN2OSTR.F.PRJ.TUTL.F      |

| Function                 | Pseudo-dataset Name   |
|--------------------------|-----------------------|
| Project Tracking Reports | CMN2OSTR.F.PRJ.MENU.E |

| Function                 | Pseudo-dataset Name  |
|--------------------------|----------------------|
| History of a Task        | CMN2OSTR.F.PRJ.REP.A |
| Task Details             | CMN2OSTR.F.PRJ.REP.B |
| Project Status           | CMN2OSTR.F.PRJ.REP.C |
| User Status              | CMN2OSTR.F.PRJ.REP.D |
| Events Related to a Task | CMN2OSTR.F.PRJ.REP.E |
| Suggestion Details       | CMN2OSTR.F.PRJ.REP.F |

### REPORTING SUBSYSTEM

| Function            | Pseudo-dataset Name   |
|---------------------|-----------------------|
| Reporting Subsystem | CMN2OSTR.F.N2O.MENU.R |

| Function              | Pseudo-dataset Name   |
|-----------------------|-----------------------|
| Environment Reporting | CMN2OSTR.F.REP.MENU.A |

| Sub-Functions                      | Pseudo-dataset Name  |
|------------------------------------|----------------------|
| Authorized Users to an Environment | CMN2OSTR.F.REP.ENV.A |
| Node Definition Usage              | CMN2OSTR.F.REP.ENV.B |
| Archive Definition Usage           | CMN2OSTR.F.REP.ENV.C |
| Environment Definition Usage       | CMN2OSTR.F.REP.ENV.D |
| Users Related to a Group-ID        | CMN2OSTR.F.REP.ENV.E |

| Function        | Pseudo-dataset Name   |
|-----------------|-----------------------|
| Event Reporting | CMN2OSTR.F.REP.MENU.B |

| Sub-Functions                          | Pseudo-dataset Name   |
|--|-----------------------|
| Events Requiring Further Authorization | CMN2OSTR.F.REP.EVNT.A |
| Chronology of Events                   | CMN2OSTR.F.REP.EVNT.B |
| Events Related by Change Control       | CMN2OSTR.F.REP.EVNT.C |
| Event Details                          | CMN2OSTR.F.REP.EVNT.D |
| Events Processed by Date               | CMN2OSTR.F.REP.EVNT.E |
| Events with Warning Messages           | CMN2OSTR.F.REP.EVNT.F |
| Events Pending Move                    | CMN2OSTR.F.REP.EVNT.G |
| 3GL/Other Autocompile                  | CMN2OSTR.F.REP.EVNT.H |
| 3GL/Other Autocompile                  | CMN2OSTR.F.REP.EVNT.I |

| <b>Function</b>  | <b>Pseudo-dataset Name</b> |
|------------------|----------------------------|
| Object Reporting | CMN2OSTR.F.REP.MENU.C      |

| <b>Sub-Functions</b>         | <b>Pseudo-dataset Name</b> |
|------------------------------|----------------------------|
| History of an Environment    | CMN2OSTR.F.REP.OBJ.A       |
| History of an Object         | CMN2OSTR.F.REP.OBJ.B       |
| Directory List               | CMN2OSTR.F.REP.OBJ.C       |
| Directory Compare            | CMN2OSTR.F.REP.OBJ.D       |
| Cross Reference              | CMN2OSTR.F.REP.OBJ.E       |
| Checked-out Objects          | CMN2OSTR.F.REP.OBJ.F       |
| Objects Archived by N2OPURGE | CMN2OSTR.F.REP.OBJ.G       |
| Archive Version Summary      | CMN2OSTR.F.REP.OBJ.H       |
| Events Pending for an Object | CMN2OSTR.F.REP.OBJ.I       |

| <b>Function</b>       | <b>Pseudo-dataset Name</b> |
|-----------------------|----------------------------|
| Statistical Reporting | CMN2OSTR.F.REP.MENU.D      |

| <b>Sub-Functions</b>              | <b>Pseudo-dataset Name</b> |
|-----------------------------------|----------------------------|
| 3GL/Other Autocompile             | CMN2OSTR.F.REP.STAT.A      |
| Events Pending for an Environment | CMN2OSTR.F.REP.STAT.B      |
| Objects Migrated                  | CMN2OSTR.F.REP.STAT.C      |
| Objects Migrated by a User        | CMN2OSTR.F.REP.STAT.D      |
| Objects Migrated for an Event     | CMN2OSTR.F.REP.STAT.E      |

## TOOLBOX SUBSYSTEM

| Function          | Pseudo-dataset Name   |
|-------------------|-----------------------|
| Toolbox Subsystem | CMN2OSTR.F.N2O.MENU.T |

| Function          | Pseudo-dataset Name   |
|-------------------|-----------------------|
| Maintenance Tools | CMN2OSTR.F.TOL.MENU.M |

| Sub-Functions                  | Pseudo-dataset Name   |
|--------------------------------|-----------------------|
| N2OPURGE Utility               | CMN2OSTR.F.TOL.MAIN.A |
| Recover from an Archive Backup | CMN2OSTR.F.TOL.MAIN.B |

| Function         | Pseudo-dataset Name   |
|------------------|-----------------------|
| Programmer Tools | CMN2OSTR.F.TOL.MENU.P |

| Sub-Functions   | Pseudo-dataset Name   |
|-----------------|-----------------------|
| Object Compare  | CMN2OSTR.F.TOL.PROG.C |
| Source Compare  | CMN2OSTR.F.TOL.PROG.D |
| N2OSCAN Utility | CMN2OSTR.F.TOL.PROG.S |

| N2OSCAN Utility Functions             | Pseudo-dataset Name   |
|---------------------------------------|-----------------------|
| Environment Scan Functions Tools      | CMN2OSTR.F.TOL.SCAN.A |
| Library Scan Functions                | CMN2OSTR.F.TOL.SCAN.B |
| Select Scan Output Set                | CMN2OSTR.F.TOL.SCAN.C |
| Delete Scan Output Set                | CMN2OSTR.F.TOL.SCAN.D |
| Administrative Delete Scan Output Set | CMN2OSTR.F.TOL.SCAN.E |
| Environment Scan Inquire              | CMN2OSTR.F.TOL.SCEN.I |
| Environment Scan Select               | CMN2OSTR.F.TOL.SCEN.S |
| Environment Scan Execute              | CMN2OSTR.F.TOL.SCEN.X |
| Library Scan Inquire                  | CMN2OSTR.F.TOL.SCLI.I |
| Library Scan Select                   | CMN2OSTR.F.TOL.SCLI.S |
| Library Scan Execute                  | CMN2OSTR.F.TOL.SCLI.X |

| <b>Function</b>     | <b>Pseudo-dataset Name</b> |
|---------------------|----------------------------|
| Documentation Tools | CMN2OSTR.F.TOL.MENU.D      |

| <b>Sub-Functions</b>         | <b>Pseudo-dataset Name</b> |
|------------------------------|----------------------------|
| Natural Object Listing       | CMN2OSTR.F.TOL.DOC.A       |
| Map Listing                  | CMN2OSTR.F.TOL.DOC.B       |
| Data Area Listing            | CMN2OSTR.F.TOL.DOC.C       |
| File Layouts                 | CMN2OSTR.F.TOL.DOC.D       |
| Descriptor X-Ref Information | CMN2OSTR.F.TOL.DOC.E       |
| Object Flow Analysis         | CMN2OSTR.F.TOL.DOC.F       |
| Object X-Ref                 | CMN2OSTR.F.TOL.DOC.G       |
| Syserr Message Listing       | CMN2OSTR.F.TOL.DOC.H       |
| Archived 3GL Object Listing  | CMN2OSTR.F.TOL.DOC.I       |

### USER-DEFINED SUBSYSTEM

| <b>Function</b>        | <b>Pseudo-dataset Name</b> |
|------------------------|----------------------------|
| User-Defined Subsystem | CMN2OSTR.F.N2O.MENU.U      |

This page intentionally left blank.

## APPENDIX C

### & VARIABLES FOR JCL

The following variables are automatically replaced by N2O in the specified JCL when submitted on-line.

| <b>&amp; VARIABLE</b>             | <b>JCL</b>                              | <b>REPLACEMENT VALUE</b>                 |
|-----------------------------------|---|--|
| &BACKUP                           | Purge Archive                           | Dataset that Contains Purged Records     |
| &DATE                             | All                                     | *DATN (YYYYMMDD)                         |
| &ENDEVOR-ENV                      | Catalog Capture                         | ENDEVOR Environment Definition           |
| &EVENT                            | 3GL Migrations                          | Event and Sequence                       |
| &FROMDBID                         | All                                     | From DBID                                |
| &FROMFDIC                         | NATURAL, PREDICT, and SYSERR Migrations | DBID, FNR, PASSWORD, CIPHER (From FDIC)  |
| &FROMFUSER                        | NATURAL, PREDICT, and SYSERR Migrations | DBID, FNR, PASSWORD, CIPHER (From FUSER) |
| &INPUT                            | All                                     |  |
| &MASTER1                          | Catalog Capture<br>LIBRARIAN Migrations | LIBRARIAN Master file (From)             |
| &MASTER2                          | LIBRARIAN Migrations                    | LIBRARIAN Master file (To)               |
| &MEMBER                           | 3GL Recoversies<br>3GL Autocompile      | 3GL Member Name                          |
| &PANDD1                           | Catalog Capture<br>PANVALET Migrations  | PANVALET Library (From)                  |
| &PANDD2                           | PANVALET Migrations                     | PANVALET Library (To)                    |
| &PDS                              | PDS Recoversies                         | Dataset Name for Recovery                |
| &PFDICNETID                       | All                                     | Primary FDIC Network ID (From)           |
| &PFUSERNETID                      | All                                     | Primary FUSER Network ID (From)          |
| &REPORT                           | Reporting                               | Report Program Name                      |
| &SFDICNETID1 -<br>&SFDICNETID10   | All                                     | Secondary FDIC Network ID (To)           |
| &SFUSERNETID1 -<br>&SFUSERNETID10 | All                                     | Secondary FUSER Network ID (To)          |
| &SLIB                             | 3GL Autocompile                         |  |
| &STAGE-ID                         | Catalog Capture                         | ENDEVOR Stage ID                         |
| &STEPNUM                          | 3GL Recoversies<br>3GL Autocompile      | Unique Step Name                         |
| &STEP1                            | PDS Archiving                           | Generates a Job Step                     |
| &STEP2                            | PDS Archiving                           | Generates a Job Step                     |

| <b>&amp; VARIABLE</b>  | <b>JCL</b>                                 | <b>REPLACEMENT VALUE</b>                   |
|------------------------|--|--|
| &TIME                  | ALL  | *TIMN (HHMMSSST)                           |
| &TODBID1 - &TODBID10   | All  | Target DBID(s)                             |
| &TOFDIC1 - &TOFDIC10   | NATURAL, PREDICT, and<br>SYSERR Migrations | DBID, FNR, PASSWORD,<br>CIPHER ( To FDIC)  |
| &TOFUSER1 - &TOFUSER10 | NATURAL, PREDICT, and<br>SYSERR Migrations | DBID, FNR, PASSWORD,<br>CIPHER ( To FUSER) |
| &USERID                | ALL  | USERID                                     |

| <b>&amp;INCLUDE VARIABLE</b> | <b>JCL</b>                             | <b>REPLACEMENT VALUE</b>   |
|------------------------------|--|--|
| &INCLUDE ARCHIVE             | PDS Migrations                         | JCL specified on the<br>Migration Profile as<br>3GL ARCHIVE  |
| &INCLUDE COMPILE             | 3GL Migrations                         | Commands to compile<br>and link-edit each<br>member  |
| &INCLUDE COPY                | LIBRARIAN Migrations<br>PDS Migrations | COPY Commands for<br>migrating LIBRARIAN<br>members or SELECT<br>Commands for migrating<br>PDS members |
| &INCLUDE DELETE              | 3GL Migrations                         | Commands to delete<br>member at source<br>environment for a MOVE                                       |
| &INCLUDE PDS                 | PDS Recoveries                         | From/To dataset names<br>used in PDS migrations  |
| &INCLUDE PRTPCH              | PDS Archiving                          | Commands necessary to<br>punch member to a<br>workfile and archive                                     |
| &INCLUDE RECOVERY            | PDS Recoveries                         | JCL specified on the<br>Migration Profile as<br>3GL RECOVER PGM  |
| &INCLUDE TRANSFER            | PANVALET Migrations                    | TRANSFER Commands<br>for migrating PANVALET<br>members   |

\* The Replacement Values are automatically replaced by N2O when JCL is submitted to an internal reader.

## APPENDIX D

### JCL samples

All JCL samples are included as part of the base N2O installation. The samples are loaded into the Natural library N2OBATCH.

#### D.1 – Base N2O batch functions

##### Archive Purge

```

Program      MVSARCHP Library N2OBATCH
0010 //ARCHPURG JOB (ACCOUNTING), 'ARCHIVE PURGE', CLASS=A, NOTIFY=&USERID
0020 //*****
0030 //* THIS IS SAMPLE ARCHIVE PURGE JCL
0040 //* THIS JOB SHOULD BE RENAMED TO N2OPUARC
0050 //*****
0060 //* ARCHP1 RUNS WHERE N2O IS INSTALLED
0070 //*
0080 //ARCHP1 EXEC PGM=NATBATCH
0090 //CMWKF02 DD DSN=LIST.PARMS, DISP=(NEW, PASS, DELETE),
0100 //          SPACE=(TRK, (1, 1), RLSE), UNIT=SYSDA,
0110 //          DCB=(RECFM=FB, BLKSIZE=84, LRECL=80)
0120 //CMPRINT DD SYSOUT=*
0130 //CMPRT02 DD SYSOUT=*
0140 //CMSYNIN DD *
0150 LOGON N2OLIB
0160 N2OPARC1
0170 FIN
0180 /*
0190 //CMWKF01 DD *
0200 &INPUT
0210 /*
0220 //****
0230 //* ARCHP2 RUNS ON AN FUSER THAT IS LOCAL TO THE ARCHIVE FILE
0240 //****
0250 /** N2OV5.2 CHANGE CMWKF03 LRECL FROM 97 TO 99
0260 //****
0270 //ARCHP2 EXEC PGM=NATBATCH, COND=(9, LT)
0280 /*
0290 //CMWKF01 DD DSN=LIST.PARMS, DISP=(OLD, PASS, CATLG)
0300 //CMWKF03 DD DSN=ARCHIVE.LIST, DISP=(NEW, PASS, CATLG),
0310 //          SPACE=(TRK, (900, 900), RLSE), UNIT=SYSDA,
0320 //          DCB=(RECFM=FB, BLKSIZE=103, LRECL=99)
0330 //CMPRINT DD SYSOUT=*
0340 //CMPRT02 DD SYSOUT=*
0350 //CMSYNIN DD *
0360 LOGON SYSTEM
0370 N2OPARC2
0380 FIN
0390 /*
0400 //****
0410 //* ARCHP3 RUNS ON AN FUSER THAT IS LOCAL TO THE ARCHIVE FILE
0420 //****
0430 /** N2OV5.2 CHANGE CMWKF05 LRECL FROM 97 TO 99
0440 //****
0450 //ARCHP3 EXEC PGM=NATBATCH, COND=(9, LT)
0460 /*
0470 //CMWKF01 DD DSN=LIST.PARMS, DISP=(OLD, DELETE, CATLG)
0480 //CMWKF04 DD DSN=ARCHIVE.LIST, DISP=(OLD, PASS, CATLG)
0490 //CMWKF05 DD DSN=ARCHIVE.PURGE, DISP=(NEW, CATLG, CATLG),
0500 //          SPACE=(TRK, (900, 900), RLSE), UNIT=SYSDA,
0510 //          DCB=(RECFM=FB, BLKSIZE=103, LRECL=99)

```

```
0520 //CMWKF06 DD DSN=&BACKUP,DISP=(NEW,CATLG,CATLG),
0530 //          SPACE=(CYL,(15,15),RLSE),UNIT=SYSDA,
0540 //          DCB=(RECFM=VB,BLKSIZE=6110,LRECL=6106)
0550 //CMPRINT DD SYSOUT=*
0560 //CMPRT02 DD SYSOUT=*
0570 //CMPRT04 DD SYSOUT=*
0580 //CMPRT06 DD SYSOUT=*
0590 //CMSYNIN DD *
0600 LOGON SYSTEM
0610 N2OPARC3
0620 FIN
0630 /*
0640 /****
0650 /* ARCHP4 RUNS WHERE N2O IS INSTALLED
0660 /****
0670 //ARCHP4 EXEC PGM=NATBATCH,COND=(9,LT)
0680 /*
0690 //CMWKF05 DD DSN=ARCHIVE.PURGE,DISP=(OLD,DELETE,CATLG)
0700 /*
0710 //CMPRINT DD SYSOUT=*
0720 //CMPRT02 DD SYSOUT=*
0730 //CMSYNIN DD *
0740 LOGON N2OLIB
0750 N2OPARC4
0760 FIN
0770 /*
0780 //CMWKF03 DD *
0790 &BACKUP
0800 /*
0810 /*
***** End of list *****
```

```

Program      BSARCHP  Library N2OBATCH
0010 / .N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2OPARC1 ***
0060 /SET-FILE-LINK LINK-NAME=W01, FILE-NAME=PURGE.PARMS
0070 /FILE LIST.PARMS, LINK=W02, RECFORM=FB, RECSIZE=80, BLKSIZE=84
0080 /FILE MASTER.LIST, LINK=P02
0090 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0100 /MODIFY-JOB-SWITCHES ON=(4,5)
0110 /START-PROGRAM FROM-FILE=$EDT
0120 LS=132, PS=60, MENU=OFF
0130 @WRITE 'N2O.PURGE.IPT.BATCH' OVERWRITE
0140 @HALT
0150 /MODIFY-JOB-SWITCHES OFF=(4,5)
0160 /ASSIGN-SYSIPT TO-FILE=N2O.PURGE.IPT.BATCH
0170 /MODIFY-JOB-SWITCHES ON=(2)
0180 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0190 LOGON N2OLIB
0200 N2OPARC1
0210 FIN
0220 /REMARK *** EXECUTE N2OPARC2 ***
0230 /REMARK *****
0240 /REMARK N2OV5.2 CHANGE W03 LRECL FROM 97 TO 99 BLKSIZE 101 TO 103
0250 /REMARK *****
0260 /FILE LIST.PARMS, LINK=W01
0270 /FILE ARCHIVE.LIST, LINK=W03, RECFORM=FB, RECSIZE=99, BLKSIZE=103
0280 /FILE CONTROL.LIST, LINK=P02
0290 /SET-JOB-STEP
0300 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0310 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0320 LOGON SYSTEM
0330 N2OPARC2
0340 FIN
0350 /REMARK *** EXECUTE N2OPARC3 ***
0360 /REMARK *****
0370 /REMARK N2OV5.2 CHANGE W05 LRECL FROM 97 TO 99 BLKSIZE 101 TO 103
      /REMARK N2OV5.2 CHANGE W05 LRECL FROM 6104 TO 6106 BLKSIZE 6108 TO 6110
0380 /REMARK *****
0390 /FILE LIST.PARMS, LINK=W01
0400 /FILE ARCHIVE.LIST, LINK=W04
0410 /FILE ARCHIVE.PURGE, LINK=W05, RECFORM=FB, RECSIZE=99, BLKSIZE=103
0420 /FILE &BACKUP, LINK=W06, RECFORM=VB, RECSIZE=6106, BLKSIZE=6110
0430 /FILE CONTROL.LIST, LINK=P02
0440 /FILE SUMMARY.LIST, LINK=P04
0450 /FILE SOURCE.LIST, LINK=P06
0460 /SET-JOB-STEP
0470 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0480 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0490 LOGON SYSTEM
0500 N2OPARC3
0510 FIN
0520 /REMARK *** EXECUTE N2OPARC4 ***
0530 /SET-FILE-LINK LINK-NAME=W03, FILE-NAME=BACKUP.DSN
0540 /FILE ARCHIVE.PURGE, LINK=W05
0550 /FILE CONTROL.LIST, LINK=P02
0560 /SET-JOB-STEP
0570 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0580 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0590 LOGON N2OLIB
0600 N2OPARC4
0610 FIN
0620 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0630 /DELETE-FILE FILE-NAME=N2O.TRANSFER.IPT.BATCH,
0640 /OPTION=DESTROY-ALL
0650 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMARHP  Library N2OBATCH
0010 /* Execute N2OPARC1 */
0020 ADDRESS 'COMMAND'
0030 'ERASE N2OPARC1 CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OPARC1 CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OPARC1 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OPARC1 CMSYNIN A 2 F 80 (STRING N2OPARC1'
0080 'EXECIO 1 DISKW N2OPARC1 CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2OPARC1 CMWKF01 A'
0110 'FILEDEF CMWKF02 DISK N2OPARC1 LISTPARM A',
0120 ' RECFM FB LRECL 80 BLKSIZE 84'
0130 'FILEDEF CMSYNIN DISK N2OPARC1 CMSYNIN A'
0140 'FILEDEF CMPRINT PRINTER'
0150 'FILEDEF CMPRT02 PRINTER'
0160 'EXEC NAT BATCH'
0170 /* Execute N2OPARC2 */
0180 /*
0190 /* N2OV5.2 CHANGE CMWKF03 LRECL FROM 97 TO 99 BLKSIZE FROM 101 TO 103
0200 /*
0210 'ERASE N2OPARC2 CMSYNIN A'
0220 'EXECIO 1 DISKW N2OPARC2 CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0230 'EXECIO 1 DISKW N2OPARC2 CMSYNIN A 2 F 80 (STRING N2OPARC2'
0240 'EXECIO 1 DISKW N2OPARC2 CMSYNIN A 3 F 80 (STRING FIN'
0250 'FILEDEF * CLEAR'
0260 'FILEDEF CMWKF01 DISK N2OPARC1 LISTPARM A'
0270 'FILEDEF CMWKF03 DISK N2OPARC2 ARCHLIST A',
0280 ' RECFM FB LRECL 99 BLKSIZE 103'
0290 'FILEDEF CMSYNIN DISK N2OPARC2 CMSYNIN A'
0300 'FILEDEF CMPRINT PRINTER'
0310 'FILEDEF CMPRT02 PRINTER'
0320 'EXEC NAT BATCH'
0330 'ERASE N2OPARC2 CMSYNIN A'
0340 /* Execute N2OPARC3 */
0350 /*
0360 /* N2OV5.2 CHANGE CMWKF05 LRECL FROM 97 TO 99 BLKSIZE FROM 101 TO 103
0370 /* N2OV5.2 CHANGE CMWKF06 LRECL FROM 6104 TO 6106 BLKSIZE FROM 6108 TO 6110
0380 /*
0380 'ERASE N2OPARC3 CMSYNIN A'
0390 'EXECIO 1 DISKW N2OPARC3 CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0400 'EXECIO 1 DISKW N2OPARC3 CMSYNIN A 2 F 80 (STRING N2OPARC3'
0410 'EXECIO 1 DISKW N2OPARC3 CMSYNIN A 3 F 80 (STRING FIN'
0420 'FILEDEF * CLEAR'
0430 'FILEDEF CMWKF01 DISK N2OPARC1 LISTPARM A'
0440 'FILEDEF CMWKF04 DISK N2OPARC2 ARCHLIST A'
0450 'FILEDEF CMWKF05 DISK N2OPARC3 ARCHPURG A',
0460 ' RECFM FB LRECL 99 BLKSIZE 103'
0470 'FILEDEF CMWKF06 DISK &BACKUP RECFM VB LRECL 6106 BLKSIZE 6110'
0480 'FILEDEF CMSYNIN DISK N2OPARC3 CMSYNIN A'
0490 'FILEDEF CMPRINT PRINTER'
0500 'FILEDEF CMPRT02 PRINTER'
0510 'FILEDEF CMPRT04 PRINTER'
0520 'FILEDEF CMPRT06 PRINTER'
0530 'EXEC NAT BATCH'
0540 'ERASE N2OPARC3 CMSYNIN A'
0550 /* Execute N2OPARC4 */
0560 'ERASE N2OPARC4 CMSYNIN A'
0570 'EXECIO 1 DISKW N2OPARC4 CMWKF03 A 1 F 80 (STRING &BACKUP'
0580 'EXECIO 1 DISKW N2OPARC4 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0590 'EXECIO 1 DISKW N2OPARC4 CMSYNIN A 2 F 80 (STRING N2OPARC4'
0600 'EXECIO 1 DISKW N2OPARC4 CMSYNIN A 3 F 80 (STRING FIN'
0610 'FILEDEF * CLEAR'
0620 'FILEDEF CMWKF03 DISK &BACKUP'
0630 'FILEDEF CMWKF05 DISK N2OPARC3 ARCHPURG A'
0640 'FILEDEF CMSYNIN DISK N2OPARC4 CMSYNIN A'
0650 'FILEDEF CMPRINT PRINTER'
0660 'FILEDEF CMPRT02 PRINTER'
0670 'EXEC NAT BATCH'
0680 'ERASE N2OPARC4 CMSYNIN A'
0690 exit
***** End of list *****

```

```

Program      VSEARCHP Library N2OBATCH
0010 * $$ JOB JNM=ARCHPURG,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 * $$ LST CLASS=A,LST=02E,DISP=K,JSEP=0
0040 // JOB ARCHPURG
0050 // DLBL CMWKF01,'PURGE.INPUT.PARMS'
0060 // EXTENT SYS001,,,,nnnnn,nnnnn
0070 // EXEC IDCAMS,SIZE=AUTO
0080 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0090         OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(84)))
0100 &INPUT
0110 /*
0120 * N2OPARC1 - FIND ARCHIVE PURGE PARAMETERS.
0130 // ASSGN SYSIPT,SYSRDR
0140 // ASSGN SYS001,DISK,SHR
0150 // ASSGN SYS002,DISK,SHR
0160 // ASSGN SYS009,SYSLIST
0170 // ASSGN SYS042,02E
0180 // DLBL CMWKF01,'PURGE.INPUT.PARMS'
0190 // EXTENT SYS001,,,,nnnnn,nnnnn
0200 // DLBL CMWKF02,'LIST.PARMS'
0210 // EXTENT SYS002,,,,nnnnn,nnnnn
0220 // EXEC NATBATC
0230 BWORKD=(1,1,80,FB,2,2,80,FB)
0240 /*
0250 ADARUN DB=xxx,SVC=yyy,DEVICE=zxxx
0260 /*
0270 LOGON N2OLIB
0280 N2OPARC1
0290 FIN
0300 /*
0310 * N2OPARC2 - CREATE LIST OF OBJECTS TO BE PURGED
0320 *
0330 *     N2OV5.2 CHANGE CMWKF03 LRECL FROM 97 TO 99
0340 *
0350 // ASSGN SYS001,DISK,SHR
0360 // ASSGN SYS003,DISK,SHR
0370 // ASSGN SYS009,SYSLST
0380 // ASSGN SYS042,02E
0390 // DLBL CMWKF01,'LIST.PARMS'
0400 // EXTENT SYS001,,,,nnnnn,nnnnn
0410 // DLBL CMWKF03,'ARCHIVE.LIST'
0420 // EXTENT SYS003,,,,nnnnn,nnnnn
0430 // EXEC NATBATC
0440 /BWORKD=(1,1,80,FB,3,3,99,FB)
0450 /*
0460 ADARUN DB=XXX,SVC=YYY,DEVICE=ZZZZ
0470 /*
0480 LOGON SYSTEM
0490 N2OPARC2
0500 FIN
0510 /*
0520 * $$ LST CLASS=A,LST=04E,DISP=K,JSEP=0
0530 * $$ LST CLASS=A,LST=06E,DISP=K,JSEP=0
0540 * N2OPARC3 - PURGE PROGRAMS FROM ARCHIVE FILE
0550 *
0560 *     N2OV5.2 CHANGE CMWKF05 LRECL FROM 97 TO 99
0570 *
0580 // ASSGN SYS001,DISK,SHR
0590 // ASSGN SYS004,DISK,SHR
0600 // ASSGN SYS005,DISK,SHR
0610 // ASSGN SYS006,DISK,SHR
0620 // ASSGN SYS009,SYSLST
0630 // ASSGN SYS042,02E
0640 // ASSGN SYS044,04E
0650 // ASSGN SYS046,06E
0660 // DLBL CMWKF01,'LIST.PARMS'
0670 // EXTENT SYS001,,,,nnnnn,nnnnn
0680 // DLBL CMWKF04,'ARCHIVE.LIST'
0690 // EXTENT SYS004,,,,nnnnn,nnnnn
0700 // DLBL CMWKF05,'ARCHIVE.PURGE'

```

```
0710 // EXTENT SYS005,,,,nnnnn,nnnnn
0720 // DLBL CMWKF06,'&BACKUP'
0730 // EXTENT SYS006,,,,nnnnn,nnnnn
0740 // EXEC NATBATCH
0750 BWORKD=(1,1,80,FB,4,4,97,FB,5,5,99,FB,6,6,6106,VB)
0760 /*
0770 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0780 /*
0790 LOGON SYSTEM
0800 N2OPARC3
0810 FIN
0820 /*
0830 * N2OPARC4 - UPDATE MIGRATION FILE
0840 // DLBL CMWKF03,'DSNAME.INPUT'
0850 // EXTENT SYS003,,,,nnnnn,nnnnn
0860 // EXEC IDCAMS,SIZE=AUTO
0870 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0880 OUTFILE(CMWKF03 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0890 &BACKUP
0900 /*
0910 // ASSGN SYSIPT,SYSRDR
0920 // ASSGN SYS003,DISK,SHR
0930 // ASSGN SYS004,DISK,SHR
0940 // ASSGN SYS009,SYSLST
0950 // ASSGN SYS042,02E
0960 // DLBL CMWKF03,'DSNAME.INPUT'
0970 // EXTENT SYS003,,,,nnnnn,nnnnn
0980 // DLBL CMWKF05,'ARCHIVE.PURGE'
0990 // EXTENT SYS005,,,,nnnnn,nnnnn
1000 // EXEC NATBATCH
1010 BWORKD=(3,3,80,FB,5,5,97,FB)
1020 /*
1030 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
1040 /*
1050 LOGON N2OLIB
1060 N2OPARC4
1070 FIN
1080 /*
1090 /&
1100 * $$ EOJ
***** End of list *****
```

## Catalog Capture

```

Program      MVSCAPT  Library N2OBATCH
0010 //NATCAPT JOB (ACCOUNTING),'CATALOG CAPTURE',CLASS=A,NOTIFY=&USERID
0020 //*****
0030 /* THIS IS SAMPLE CATALOG CAPTURE JCL
0040 /* THIS JOB SHOULD BE RENAMED TO NATCAPT
0050 //*****
0060 /* CATRPT STEP NEW WITH N2OV531 FIX A
0070 //*****
0080 /* THE FIRST STEP (CAPTURE1) SHOULD RUN ON THE FUSER THAT
0090 /* IS BEING CAPTURED
0100 //CAPTURE1 EXEC PGM=NATBATCH
0110 //CMWKF02 DD DSN=N2O.CAPTURE.DATA,DISP=(,CATLG,DELETE),
0120 //          UNIT=SYSDA,SPACE=(CYL,(100,100),RLSE),
0130 //          DCB=(RECFM=VB,LRECL=127,BLKSIZE=131)
0140 //*
0150 //CMPRINT DD SYSOUT=*
0160 //CMPRT01 DD SYSOUT=*
0170 //CMSYNIN DD *
0180 LOGON SYSTEM
0190 N2OCAPT1
0200 FIN
0210 /*
0220 //CMWKF01 DD *
0230 &INPUT
0240 /*
0250 /* THE CAPTURE2 STEP SHOULD BE RUN WHERE N2O IS INSTALLED
0260 //CAPTURE2 EXEC PGM=NATBATCH
0270 /* N2OV531 FIX A DISP CHANGED TO OLD
0280 //CMWKF02 DD DSN=N2O.CAPTURE.DATA,DISP=OLD /* V531 FIX A
0290 //CMPRINT DD SYSOUT=*
0300 //CMSYNIN DD *
0310 LOGON N2OLIB
0320 N2OCAPT2
0330 FIN
0340 /*
0350 //CMWKF01 DD *
0360 &INPUT
0370 /*
0380 //*
0390 /* THIS STEP ADDED AS PART OF N2O V531 FIX A
0400 //*
0410 /* THE CATRPT STEP SHOULD BE RUN WHERE N2O IS INSTALLED
0420 //CATRPT EXEC NATBATCH
0430 /*
0440 //CMWKF02 DD DSN=N2O.CAPTURE.DATA,
0450 //          DISP=(OLD,KEEP,DELETE)
0460 //CMPRINT DD SYSOUT=*
0470 /* CMPRT01 IS CATALOG CAPTURE BASELINE REPORT
0480 //CMPRT01 DD SYSOUT=*
0490 //CMSYNIN DD *
0500 LOGON N2OLIB
0510 N2OCAPTL
0520 FIN
0530 /*
0540 //CMWKF01 DD *
0550 &INPUT
0560 /*

```

```
Program      BSCAPT      Library N2OBATCH
0010 / .N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2OCAPT1 ***
0060 /FILE CAPTURE.DATA, LINK=W02, RECFORM=VB, RECSIZE=127, BLKSIZE=131
0070 /FILE CAPT1.INPUT, LINK=W01
0080 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0090 /MODIFY-JOB-SWITCHES ON=(4,5)
0100 /START-PROGRAM FROM-FILE=$EDT
0110 LS=132, PS=60, MENU=OFF
0120 @WRITE 'N2O.CAPTURE.IPT.BATCH' OVERWRITE
0130 @HALT
0140 /MODIFY-JOB-SWITCHES OFF=(4,5)
0150 /ASSIGN-SYSIPT TO-FILE=N2O.CAPTURE.IPT.BATCH
0160 /MODIFY-JOB-SWITCHES ON=(2)
0170 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0180 LOGON SYSTEM
0190 N2OCAPT1
0200 FIN
0210 /REMARK *** EXECUTE N2OCAPT2 ***
0220 /SET-FILE-LINK LINK-NAME=W01, FILE-NAME=N2O.ENV.DEF
0230 /FILE CAPTURE.DATA, LINK=W02
0240 /SET-JOB-STEP
0250 /ASSIGN-SYSIPT TO-FILE=N2O.CAPTURE.IPT.BATCH
0260 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0270 LOGON N2OLIB
0280 N2OCAPT2
0290 FIN
0300 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0310 /DELETE-FILE FILE-NAME=N2O.CAPTURE.IPT.BATCH,
0320 /OPTION=DESTROY-ALL
0330 /LOGOFF NOSPOOL
***** End of list *****
```

```

Program      VMCAPT   Library N2OBATCH
0010 /* Execute N2OCAPT1 */
0020 address 'COMMAND'
0030 'ERASE N2OCAPT1 CMSYNIN A'
0040 'ERASE CAPTURE DATA A'
0050 'ERASE N2OCAPT1 CMWKF01 A'
0060 'EXECIO 1 DISKW N2OCAPT1 CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0070 'EXECIO 1 DISKW N2OCAPT1 CMSYNIN A 2 F 80 (STRING N2OCAPT1'
0080 'EXECIO 1 DISKW N2OCAPT1 CMSYNIN A 3 F 80 (STRING FIN'
0090 'EXECIO 1 DISKW N2OCAPT1 CMWKF01 A 1 F 80 (STRING &INPUT'
0100 'FILEDEF * CLEAR'
0110 'FILEDEF CMWKF02 DISK CAPTURE DATA A RECFM VB LRECL 127 BLKSIZE 131'
0120 'FILEDEF CMSYNIN DISK N2OCAPT1 CMSYNIN A'
0130 'FILEDEF CMWKF01 DISK N2OCAPT1 CMWKF01 A'
0140 'FILEDEF CMPRINT PRINTER'
0150 'EXEC NAT BATCH'
0160 'ERASE N2OCAPT1 CMSYNIN A'
0170 /* Execute N2OCAPT2 */
0180 'ERASE N2OCAPT2 CMSYNIN A'
0190 'ERASE N2O CMWKF01 A'
0200 'EXECIO 1 DISKW N2O CMWKF01 A 1 F 80 (STRING &INPUT'
0210 'EXECIO 1 DISKW N2OCAPT2 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0220 'EXECIO 1 DISKW N2OCAPT2 CMSYNIN A 2 F 80 (STRING N2OCAPT2'
0230 'EXECIO 1 DISKW N2OCAPT2 CMSYNIN A 3 F 80 (STRING FIN'
0240 'FILEDEF * CLEAR'
0250 'FILEDEF CMWKF01 DISK N2O CMWKF01 A'
0260 'FILEDEF CMWKF02 DISK CAPTURE DATA A'
0270 'FILEDEF CMSYNIN DISK N2OCAPT2 CMSYNIN A'
0280 'FILEDEF CMPRINT PRINTER'
0290 'EXEC NAT BATCH'
0300 'ERASE N2OCAPT2 CMSYNIN A'
0310 'ERASE N2O CMWKF01 A'
0320 'ERASE CAPTURE DATA A'
0330 exit
***** End of list *****

```

```

Program      VSECAPT   Library N2OBATCH
0010 * $$ JOB JNM=N2OCAPT1,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB N2OCAPT1
0040 /*
0050 * N2OCAPT1 - CAPTURE FUSER AND FDIC
0060 // DLBL CMWKF01,'N2O.CAPT1.INPUT'
0070 // EXTENT SYS001,,,,nnnnn,nnnnn
0080 // EXEC IDCAMS,SIZE=AUTO
0090 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0100          OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0110 &INPUT
0120 /*
0130 // ASSGN SYSIPT,SYSRDR
0140 // ASSGN SYS001,DISK,SHR
0150 // ASSGN SYS002,DISK,SHR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF02,'N2O.CAPTURE.DATA'
0190 // EXTENT SYS002,,,,NNNNN,NNNNN
0200 // DLBL CMWKF01,'N2O.CAPT1.INPUT'
0210 // EXTENT SYS001,,,,nnnnn,nnnnn
0220 // EXEC NATBATCH
0230 BWORKD=(1,1,80,FB,2,2,131,VB)
0240 /*
0250 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0260 /*
0270 LOGON SYSTEM
0280 N2OCAPT1
0290 FIN
0300 /*
0310 * N2OCAPT2 - UPDATE MIGRATION FILE
0320 // DLBL CMWKF01,'N2O.CAPT2.INPUT'
0330 // EXTENT SYS001,,,,nnnnn,nnnnn

```

```
0340 // EXEC IDCAMS,SIZE=AUTO
0350   REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0360       OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0370 &INPUT
0380 /*
0390 // ASSGN SYSIPT,SYSRDR
0400 // ASSGN SYS001,DISK,SHR
0410 // ASSGN SYS002,DISK,SHR
0420 // ASSGN SYS009,SYSLST
0430 // DLBL CMWKF01,'N2O.CAPT2.INPUT'
0440 // EXTENT SYS001,,,,nnnnn,nnnnn
0450 // DLBL CMWKF02,'N2O.CAPTURE.DATA'
0460 // EXTENT SYS002,,,,nnnnn,nnnnn
0470 // EXEC NATBATCH
0480 BWORKD=(1,1,80,FB,2,2,131,VB)
0490 /*
0500 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0510 /*
0520 LOGON SYSTEM
0530 N2OCAPT2
0540 FIN
0550 /*
0560 /&
0570 * $$ EOJ
***** End of list *****
```

## Object Compare

### Program MVSCOMPO Library N2OBATCH

```

0010 //N2OCOMPO JOB (ACCOUNTING), 'COMP OBJECT', CLASS=A, TIME=40, NOTIFY=&USERID
0020 //***
0030 //* THIS IS SAMPLE JCL FOR THE TOOLBOX OPTION FOR OBJECT COMPARE
0040 //* THIS JOB SHOULD BE RENAMED N2OCOMPO
0050 //***
0060 //* N2OCOMPO RUNS WHERE N2O IS INSTALLED
0070 //***
0080 //N2OCOMPO EXEC PGM=NATBATCH
0090 //*
0100 //CMPRINT DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2O3120B
0150 &INPUT
0160 FIN
0170 /*
0180 /*
***** End of list *****

```

### Program BSCOMPO Library N2OBATCH

```

0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE SOURCE COMPARE ***
0060 /FILE N2O.COMPARE, LINK=P01
0070 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0080 /MODIFY-JOB-SWITCHES ON=(4,5)
0090 /START-PROGRAM FROM-FILE=$EDT
0100 LS=132, PS=60, MENU=OFF
0110 @WRITE 'N2O.COMPARE.IPT.BATCH' OVERWRITE
0120 @HALT
0130 /MODIFY-JOB-SWITCHES OFF=(4,5)
0140 /ASSIGN-SYSIPT TO-FILE=N2O.COMPARE.IPT.BATCH
0150 /MODIFY-JOB-SWITCHES ON=(2)
0160 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0170 LOGON N2OLIB
0180 N2O3110B
0190 &INPUT
0200 FIN
0210 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0220 /DELETE-FILE FILE-NAME=N2O.COMPARE.IPT.BATCH,
0230 /OPTION=DESTROY-ALL
0240 /LOGOFF NOSPOOL
***** End of list *****

```

### Program VMCOMPO Library N2OBATCH

```

0010 /* Execute Object compare */
0020 address 'COMMAND'
0030 'ERASE COMPOBJ CMSYNIN A'
0040 'EXECIO 1 DISKW COMPOBJ CMSYNIN A 1 F 80 (STRING LOGON N2OLIB)'
0050 'EXECIO 1 DISKW COMPOBJ CMSYNIN A 2 F 80 (STRING N2O3120B)'
0060 'EXECIO 1 DISKW COMPOBJ CMSYNIN A 3 F 80 (STRING &INPUT)'
0070 'EXECIO 1 DISKW COMPOBJ CMSYNIN A 4 F 80 (STRING FIN)'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMSYNIN DISK COMPOBJ CMSYNIN A'
0100 'FILEDEF CMPRINT PRINTER'
0110 'FILEDEF CMPRT01 PRINTER'
0120 'EXEC NAT BATCH'
0130 'ERASE COMPOBJ CMSYNIN A'
0140 exit
***** End of list *****

```

```

Program VSECOMPO Library N2OBATCH
0010 * $$ JOB JNM=N2OCOMPO,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 * $$ LST CLASS=A,LST=02E,DISP=K,JSEP=0
0040 // JOB N2OCOMPO
0050 * N2OCOMPO - COMPARE NATURAL OBJECT CODE
0060 // ASSGN SYSIPT,SYSRDR
0070 // ASSGN SYS001,01E
0080 // ASSGN SYS002,02E
0090 // EXEC NATBATCH
0100 /*
0110 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0120 /*
0130 LOGON N2OLIB
0140 N2O3120B
0150 &INPUT
0160 FIN
0170 /*
0180 /&
0190 * $$ EOJ
***** End of list *****

```

### Source Compare - remote environments

```

Program MVSCOMPR Library N2OBATCH
0010 //N2OCMPR JOB 'REMOTE SOURCE COMPARE' MSGLEVEL=1,
0020 // CLASS=C,MSGCLASS=X,REGION=4M,NOTIFY=&SYSUID
0030 /*
0040 /***
0050 /* THIS IS SAMPLE JCL FOR N2O SOURCE COMPARE BETWEEN TWO REMOTE
0060 /* ENVIRONMENTS
0070 /* This step must be executed where N2O is installed
0080 /***
0090 //GCPARM EXEC PGM=NATBATCH
0100 //CMPRINT DD SYSOUT=*
0110 //CMPRT01 DD SYSOUT=*
0120 //CMPRT02 DD SYSOUT=*
0130 //CMWKF01 DD DSN=N2O.SRCCR.PARMA1,DISP=(NEW,PASS,DELETE),
0140 // DCB=(RECFM=FB,LRECL=80,BLKSIZE=80),
0150 // UNIT=SYSDA,SPACE=(TRK,(1,1))
0160 //CMWKF02 DD DSN=N2O.SRCCR.PARMA2,DISP=(NEW,PASS,DELETE),
0170 // DCB=(RECFM=FB,LRECL=80,BLKSIZE=80),
0180 // UNIT=SYSDA,SPACE=(TRK,(1,1))
0190 //CMSYNIN DD *
0200 LOGON N2OLIB
0210 N2O3110B
0220 &INPUT
0230 FIN
0240 /*
0250 /*
0260 /* This step must be executed on base environment
0270 /*
0280 //RRTM1 EXEC PGM=NATBATCH
0290 //CMPRINT DD SYSOUT=*
0300 //CMPRT01 DD SYSOUT=*
0310 //CMPRT02 DD SYSOUT=*
0320 //CMWKF01 DD DSN=N2O.SRCCR.PARMA1,DISP=(OLD,DELETE,DELETE)
0330 //CMWKF02 DD DSN=N2O.SRCCR.PARMB1,DISP=(NEW,PASS,DELETE),
0340 // DCB=(RECFM=FB,LRECL=189,BLKSIZE=189),
0350 // UNIT=SYSDA,SPACE=(TRK,(1,1))
0360 //CMWKF03 DD DSN=N2O.SRCCR.OUTPT1,DISP=(NEW,PASS,DELETE),
0370 // DCB=(RECFM=FB,LRECL=133,BLKSIZE=133),
0380 // UNIT=SYSDA,SPACE=(TRK,(1,1))
0390 //CMSYNIN DD *
0400 LOGON SYSTEM
0410 N2O3110C
0420 FIN
0430 /*
0440 /*

```

```

0450 /** This step must be executed on compare environment
0460 /**
0470 //RRTM2 EXEC PGM=NATBATCH
0480 //CMPRINT DD SYSOUT=*
0490 //CMPRT01 DD SYSOUT=*
0500 //CMPRT02 DD SYSOUT=*
0510 //CMWKF01 DD DSN=N2O.SRCCR.PARMA2,DISP=(OLD,DELETE,DELETE)
0520 //CMWKF02 DD DSN=N2O.SRCCR.PARMB2,DISP=(NEW,PASS,DELETE),
0530 // DCB=(RECFM=FB,LRECL=189,BLKSIZE=189),
0540 // UNIT=SYSDA,SPACE=(TRK,(1,1))
0550 //CMWKF03 DD DSN=N2O.SRCCR.OUTPT2,DISP=(NEW,PASS,DELETE),
0560 // DCB=(RECFM=FB,LRECL=133,BLKSIZE=133),
0570 // UNIT=SYSDA,SPACE=(TRK,(1,1))
0580 //CMSYNIN DD *
0590 LOGON SYSTEM
0600 N2O3110C
0610 FIN
0620 /*
0630 /**
0640 /** This step must be executed where N2O is installed
0650 /**
0660 //COMPW EXEC PGM=NATBATCH
0670 //CMPRINT DD SYSOUT=*
0680 //CMPRT01 DD SYSOUT=*
0690 //CMPRT02 DD SYSOUT=*
0700 //CMWKF01 DD DSN=N2O.SRCCR.PARMB1,DISP=(OLD,DELETE,DELETE)
0710 //CMWKF02 DD DSN=N2O.SRCCR.OUTPT1,DISP=(OLD,DELETE,DELETE)
0720 //CMWKF03 DD DSN=N2O.SRCCR.PARMB2,DISP=(OLD,DELETE,DELETE)
0730 //CMWKF04 DD DSN=N2O.SRCCR.OUTPT2,DISP=(OLD,DELETE,DELETE)
0740 //CMSYNIN DD *
0750 LOGON N2OLIB
0760 N2O3110D
0770 FIN
0780 /*
0790 /*******
***** End of list *****

```

**Program BSCOMPR Library N2OBATCH**

```

0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME= TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS(LISTING=YES)
0050 /REMARK *** EXECUTE SOURCE COMPARE ***
0060 /FILE N2O.COMPARE,LINK=P01
0070 /FILE N2OCOMPA.PARM,LINK=W01,RECFORM=FB,RECSIZE=80,BLKSIZE=80
0080 /FILE N2OCOMP.B.PARM,LINK=W02,RECFORM=FB,RECSIZE=80,BLKSIZE=80
0090 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0100 /MODIFY-JOB-SWITCHES ON=(4,5)
0110 /START-PROGRAM FROM-FILE=$EDT
0120 LS=132,PS=60,MENU=OFF
0130 @WRITE 'N2O.COMPARE.IPT.BATCH' OVERWRITE
0140 @HALT
0150 /MODIFY-JOB-SWITCHES OFF=(4,5)
0160 /ASSIGN-SYSIPT TO FILE=N2O.COMPARE.IPT.BATCH
0170 /MODIFY-JOB-SWITCHES ON=(2)
0180 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0190 LOGON N2OLIB
0200 N2O3110B
0210 &INPUT
0220 FIN
0230 REMARK *** READ BASE ENVIRONMENT ***
0240 /FILE N2OCOMPA.PARM,LINK=W01
0250 /FILE N2OCOMPA.PARM2,LINK=W02,RECFROM=FB,RECSIZE=189,BLKSIZE=189
0260 /FILE N2OCOMPA.OUT,LINK=W03,RECFROM=FB,RECSIZE=133,BLKSIZE=133
0270 /SET-JOB-STEP
0280 /ASSIGN-SYSIPT TO-FILE=N2O.COMPARE.IPT.BATCH
0290 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0300 LOGON SYSTEM
0310 N2O3110C
0320 FIN

```

```

0330 REMARK *** READ COMPARE ENVIRONMENT ***
0340 /FILE N2OCOMP.B.PARM, LINK=W01
0350 /FILE N2OCOMP.B.PARM2, LINK=W02, RECFROM=FB, RECSIZE=189, BLKSIZE=189
0360 /FILE N2OCOMP.B.OUT, LINK=W03, RECFROM=FB, RECSIZE=133, BLKSIZE=133
0370 /SET-JOB-STEP
0380 /ASSIGN-SYSIPT TO-FILE=N2O.COMPARE.IPT.BATCH
0390 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0400 LOGON SYSTEM
0410 N2O3110C
0420 FIN
0430 REMARK *** COMPARE BASE AND COMPARE ENVIRONMENTS ***
0440 /FILE N2OCOMP.A.PARM2, LINK=W01
0450 /FILE N2OCOMP.A.OUT, LINK=W02
0460 /FILE N2OCOMP.B.PARM2, LINK=W03
0470 /FILE N2OCOMP.B.OUT, LINK=W04
0480 /SET-JOB-STEP
0490 /ASSIGN-SYSIPT TO-FILE=N2O.COMPARE.IPT.BATCH
0500 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0510 LOGON N2OLIB
0520 N2O3110D
0530 FIN
0540 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0550 /DELETE-FILE FILE-NAME=N2O.COMPARE.IPT.BATCH,
0560 /OPTION=DESTROY-ALL
0570 /LOGOFF NOSPOOL
***** End of list *****

```

**Program VMCOMPR Library N2OBATCH**

```

0010 /* Execute Remote Source compare */
0020 address 'COMMAND'
0030 'ERASE COMPSRCA CMSYNIN A'
0040 'EXECIO 1 DISKW COMPSRC CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0050 'EXECIO 1 DISKW COMPSRC CMSYNIN A 2 F 80 (STRING N2O3110B'
0060 'EXECIO 1 DISKW COMPSRC CMSYNIN A 3 F 80 (STRING &INPUT'
0070 'EXECIO 1 DISKW COMPSRC CMSYNIN A 4 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMWKF01 COMP PARMA A RECFM VB LRECL 80 BLKSIZE 80'
0100 'FILEDEF CMWKF02 COMP PARMB A RECFM VB LRECL 80 BLKSIZE 80'
0110 'FILEDEF CMSYNIN DISK COMPSRCA CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'EXEC NAT BATCH'
0150 'ERASE COMPSRCA CMSYNIN A'
0160 /* Execute read BASE Environment */
0170 'ERASE COMPSRCB CMSYNIN A'
0180 'EXECIO 1 DISKW COMPSRCB CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0190 'EXECIO 1 DISKW COMPSRCB CMSYNIN A 2 F 80 (STRING N2O3110C'
0200 'EXECIO 1 DISKW COMPSRCB CMSYNIN A 3 F 80 (STRING FIN'
0210 'FILEDEF * CLEAR'
0220 'FILEDEF CMWKF01 COMP PARMA A'
0230 'FILEDEF CMWKF02 COMP PARMA2 A RECFM VB LRECL 189 BLKSIZE 189'
0240 'FILEDEF CMWKF03 COMP OUTPUTA A RECFM VB LRECL 133 BLKSIZE 133'
0250 'FILEDEF CMSYNIN DISK COMPSRCB CMSYNIN A'
0260 'FILEDEF CMPRINT PRINTER'
0270 'FILEDEF CMPRT01 PRINTER'
0280 'EXEC NAT BATCH'
0290 'ERASE COMPSRCB CMSYNIN A'
0300 'ERASE COMP PARMA A'
0310 /* Execute read COMPARE Environment */
0320 'ERASE COMPSRCC CMSYNIN A'
0330 'EXECIO 1 DISKW COMPSRCC CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0340 'EXECIO 1 DISKW COMPSRCC CMSYNIN A 2 F 80 (STRING N2O3110C'
0350 'EXECIO 1 DISKW COMPSRCC CMSYNIN A 3 F 80 (STRING FIN'
0360 'FILEDEF * CLEAR'
0370 'FILEDEF CMWKF01 COMP PARMB A'
0380 'FILEDEF CMWKF02 COMP PARMB2 A RECFM VB LRECL 189 BLKSIZE 189'
0390 'FILEDEF CMWKF03 COMP OUTPUTB A RECFM VB LRECL 133 BLKSIZE 133'
0400 'FILEDEF CMSYNIN DISK COMPSRCC CMSYNIN A'
0410 'FILEDEF CMPRINT PRINTER'
0420 'FILEDEF CMPRT01 PRINTER'

```

```

0430 'EXEC NAT BATCH'
0440 'ERASE COMPSRCC CMSYNIN A'
0450 'ERASE COMP PARMB A'
0460 /* Execute compare BASE and COMPARE Environment */
0470 'ERASE COMPSRCD CMSYNIN A'
0480 'EXECIO 1 DISKW COMPSRCD CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0490 'EXECIO 1 DISKW COMPSRCD CMSYNIN A 2 F 80 (STRING N2O3110D'
0500 'EXECIO 1 DISKW COMPSRCD CMSYNIN A 3 F 80 (STRING FIN'
0510 'FILEDEF * CLEAR'
0520 'FILEDEF CMWKF01 COMP PARMA2 A'
0530 'FILEDEF CMWKF02 COMP OUTPUTA A'
0540 'FILEDEF CMWKF03 COMP PARMB2 A'
0550 'FILEDEF CMWKF04 COMP OUTPUTB A'
0560 'FILEDEF CMSYNIN DISK COMPSRCD CMSYNIN A'
0570 'FILEDEF CMPRINT PRINTER'
0580 'FILEDEF CMPRT01 PRINTER'
0590 'EXEC NAT BATCH'
0600 'ERASE COMPSRCD CMSYNIN A'
0610 'ERASE CMWKF01 COMP PARMA2 A'
0620 'ERASE CMWKF02 COMP OUTPUTA A'
0630 'ERASE CMWKF03 COMP PARMB2 A'
0640 'ERASE CMWKF04 COMP OUTPUTB A'
0650 exit
***** End of list *****

```

**Program VSECOMPR Library N2OBATCH**

```

0010 * JOB JNM=N2OCOMPR,CLASS=A,USER=&USERID
0020 * LST CLASS=A,LST=SYSLST
0030 // JOB N2OCOMPR
0040 * N2O3110B - VERIFY INPUT PARMS
0050 // ASSGN SYS001,DISK,SHR
0060 // ASSGN SYS002,DISK,SHR
0070 // ASSGN SYS009,SYSLST
0080 // DLBL CMWKF01,'N2OCOMPA.PARM'
0090 // EXTENT SYS001,, , ,nnnnn,nnnnn
0100 // DLBL CMWKF02,'N2OCOMP.B.PARM'
0110 // EXTENT SYS002,, , ,nnnnn,nnnnn
0120 // EXEC NATBATCH
0130 BWORKD=(1,1,80,FB,2,2,80,FB)
0140 /*
0150 ADARUN DB=XXX,SVC=YYY,DEVICE=ZZZZ
0160 /*
0170 N2OLIB,BATCH,BATCH
0180 N2O3110B
0190 &INPUT
0200 FIN
0210 /*
0220 * N2O3110C - READ BASE ENVIRONMENT
0230 // ASSGN SYS001,DISK,SHR
0240 // ASSGN SYS002,DISK,SHR
0250 // ASSGN SYS003,DISK,SHR
0260 // ASSGN SYS009,SYSLST
0270 // DLBL CMWKF01,'N2OCOMPA.PARM'
0280 // EXTENT SYS001,, , ,nnnnn,nnnnn
0290 // DLBL CMWKF02,'N2OCOMPA.PARM2'
0300 // EXTENT SYS002,, , ,nnnnn,nnnnn
0310 // DLBL CMWKF03,'N2OCOMPA.OUTP'
0320 // EXTENT SYS003,, , ,nnnnn,nnnnn
0330 // EXEC NATBATCH
0340 BWORKD=(1,1,80,FB,2,2,189,FB,3,3,133,FB)
0350 /*
0360 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0370 /*
0380 SYSTEM,BATCH,BATCH
0390 N2O3110C
0400 FIN
0410 /*
0420 * N2O3110C - READ COMPARE ENVIRONMENT
0430 // ASSGN SYS001,DISK,SHR
0440 // ASSGN SYS002,DISK,SHR

```

```

0450 // ASSGN SYS003,DISK,SHR
0460 // ASSGN SYS009,SYSLST
0470 // DLBL CMWKF01,'N2OCOMP.B.PARM'
0480 // EXTENT SYS001,, ,nnnnn,nnnnn
0490 // DLBL CMWKF02,'N2OCOMP.B.PARM2'
0500 // EXTENT SYS002,, ,nnnnn,nnnnn
0510 // DLBL CMWKF03,'N2OCOMP.OUTPUT'
0520 // EXTENT SYS003,, ,nnnnn,nnnnn
0530 // EXEC NATBATCH
0540 BWORKD=(1,1,80,FB,2,2,189,FB,3,3,133,FB)
0550 /*
0560 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0570 /*
0580 SYSTEM,BATCH,BATCH
0590 N2O3110C
0600 FIN
0610 /*
0620 * N2O3110D - COMPARE BASE AND COMPARE ENVIRONMENT
0630 // ASSGN SYS001,DISK,SHR
0640 // ASSGN SYS002,DISK,SHR
0650 // ASSGN SYS003,DISK,SHR
0660 // ASSGN SYS004,DISK,SHR
0670 // ASSGN SYS009,SYSLST
0680 // DLBL CMWKF02,'N2OCOMP.A.PARM2'
0690 // EXTENT SYS002,, ,nnnnn,nnnnn
0700 // DLBL CMWKF03,'N2OCOMP.OUTPUT'
0710 // EXTENT SYS003,, ,nnnnn,nnnnn
0720 // DLBL CMWKF02,'N2OCOMP.B.PARM2'
0730 // EXTENT SYS002,, ,nnnnn,nnnnn
0740 // DLBL CMWKF03,'N2OCOMP.OUTPUT'
0750 // EXTENT SYS003,, ,nnnnn,nnnnn
0760 // EXEC NATBATCH
0770 BWORKD=(1,1,189,FB,2,2,133,FB,3,3,189,FB,4,4,133,FB)
0780 /*
0790 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0800 /*
0810 N2OLIB,BATCH,BATCH
0820 N2O3110D
0830 FIN
0840 /*
0850 /&
0860 * EOJ
***** End of list *****

```

### Source Compare – local environments

```

Program      MVSCOMPS Library N2OBATCH
0010 //N2OCOMPS JOB (ACCOUNTING),'COMP SOURCE',CLASS=A,TIME=40,NOTIFY=&USERID
0020 /***
0030 /* THIS IS SAMPLE JCL FOR THE TOOLBOX OPTION SOURCE COMPARE
0040 /* THIS JOB SHOULD BE RENAMED N2OCOMPS
0050 /***
0060 /* N2OCOMPS SHOULD BE RUN WHERE N2O IS INSTALLED
0070 //N2OCOMPS EXEC PGM=NATBATCH
0080 /*
0090 //CMPRINT DD SYSOUT=*
0100 //CMPRT01 DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2O3110B
0150 &INPUT
0160 FIN
0170 /*
0180 /*
***** End of list *****

```

```

Program      BSCOMPS  Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS(LISTING=YES)
0050 /REMARK *** EXECUTE OBJECT COMPARE ***
0060 /FILE N2O.COMPOBJ, LINK=P01
0070 /FILE N2O.COMPARE, LINK=P02
0080 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0090 /MODIFY-JOB-SWITCHES ON=(4,5)
0100 /START-PROGRAM FROM-FILE=$EDT
0110 LS=132, PS=60, MENU=OFF
0120 @WRITE 'N2O.COMPARE.IPT.BATCH' OVERWRITE
0130 @HALT
0140 /MODIFY-JOB-SWITCHES OFF=(4,5)
0150 /ASSIGN-SYSIPT TO-FILE=N2O.COMPARE.IPT.BATCH
0160 /MODIFY-JOB-SWITCHES ON=(2)
0170 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0180 LOGON N2OLIB
0190 N2O3110B
0200 &INPUT
0210 FIN
0220 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0230 /DELETE-FILE FILE-NAME=N2O.COMPARE.IPT.BATCH,
0240 /OPTION=DESTROY-ALL
0250 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMCOMPS  Library N2OBATCH
0010 /* Execute Source compare */
0020 address 'COMMAND'
0030 'ERASE COMPSRC CMSYNIN A'
0040 'EXECIO 1 DISKW COMPSRC CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0050 'EXECIO 1 DISKW COMPSRC CMSYNIN A 2 F 80 (STRING N2O3110B'
0060 'EXECIO 1 DISKW COMPSRC CMSYNIN A 3 F 80 (STRING &INPUT'
0070 'EXECIO 1 DISKW COMPSRC CMSYNIN A 4 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMSYNIN DISK COMPSRC CMSYNIN A'
0100 'FILEDEF CMPRINT PRINTER'
0110 'FILEDEF CMPRT01 PRINTER'
0120 'FILEDEF CMPRT02 PRINTER'
0130 'EXEC NAT BATCH'
0140 'ERASE COMPSRC CMSYNIN A'
0150 exit
***** End of list *****

```

```

Program      VSECOMPS Library N2OBATCH
0010 * $$ JOB JNM=N2OCOMPS, CLASS=A, USER=&USERID
0020 * $$ LST CLASS=A, LST=SYSLST
0030 * $$ LST CLASS=A, LST=02E, DISP=K, JSEP=0
0040 // JOB N2OCOMPS
0050 * N2OCOMPS - COMPARE NATURAL SOURCE
0060 // ASSGN SYSIPT, SYSRDR
0070 // ASSGN SYS001, 01E
0080 // ASSGN SYS002, 02E
0090 // ASSGN SYS009, SYSLST
0100 // EXEC NATBATCH
0110 /*
0120 ADARUN DB=xxx, SVC=yyy, DEVICE=zzzz
0130 /*
0140 LOGON N2OLIB
0150 N2O3110B
0160 &INPUT
0170 FIN
0180 /*
0190 /&
0200 * $$ EOJ
***** End of list *****

```

**Deferred Moves**

```

Program      MVSDMOVE Library N2OBATCH
0010 //N2ODMOVE JOB (20000), 'DEFERRED MOVE', CLASS=A, NOTIFY=&USERID
0020 //***
0030 //* THIS IS SAMPLE JCL FOR THE PROCESSING OF DEFERRED MOVES
0040 //***
0050 //* N2ODSEL RUNS WHERE N2O IS INSTALLED
0060 //***
0070 //N2ODSEL EXEC PGM=NATBATCH
0080 //CMWKF02 DD DSN=N2O.DEFER, DISP=(NEW, PASS, DELETE),
0090 //          DCB=(RECFM=VB, LRECL=3147, BLKSIZE=3151),
0100 //          UNIT=SYSDA, SPACE=(TRK, (12, 12))
0110 //CMPRINT DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2ODSEL
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 N2ODSEL ALL
0190 /*
0200 //***
0210 //* N2ODELT RUNS ON THE FROM (SOURCE) ENVIRONMENT FOR THE EVENT(S)
0220 //***
0230 //N2ODELT EXEC PGM=NATBATCH
0240 //CMWKF01 DD DSN=N2O.DEFER, DISP=(OLD, DELETE, DELETE)
0250 //CMWKF02 DD DSN=N2O.DACKN, DISP=(NEW, PASS, DELETE),
0260 //          DCB=(RECFM=VB, LRECL=3147, BLKSIZE=3151),
0270 //          UNIT=SYSDA, SPACE=(TRK, (12, 12))
0280 //CMPRINT DD SYSOUT=*
0290 //CMSYNIN DD *
0300 LOGON SYSTEM
0310 N2ODELT
0320 FIN
0330 /*
0340 //***
0350 //* N2ODACKN RUNS WHERE N2O IS INSTALLED
0360 //***
0370 //N2ODACKN EXEC PGM=NATBATCH
0380 //CMWKF01 DD DSN=N2O.DACKN, DISP=(OLD, DELETE, DELETE)
0390 //CMPRINT DD SYSOUT=*
0400 //CMSYNIN DD *
0410 LOGON N2OLIB
0420 N2ODACKN
0430 FIN
0440 /*
0450 /*
***** End of list *****

```

```

Program      BSDMOVE Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2ODSEL ***
0060 /SET-FILE-LINK LINK-NAME=W01, FILE-NAME=N2O.SELECT
0070 /FILE N2O.DEFER, LINK=W02, RECFORM=(VB), RECSIZE=(3147), BLKSIZE=(3151)
0080 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0090 /MODIFY-JOB-SWITCHES ON=(4, 5)
0100 /START-PROGRAM FROM-FILE=$EDT
0110 LS=132, PS=60, MENU=OFF
0120 @WRITE 'N2O.DMOVE.IPT.BATCH' OVERWRITE
0130 @HALT
0140 /MODIFY-JOB-SWITCHES OFF=(4, 5)
0150 /ASSIGN-SYSIPT TO-FILE=N2O.MOVE.IPT.BATCH
0160 /MODIFY-JOB-SWITCHES ON=(2)
0170 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0180 LOGON N2OLIB
0190 N2ODSEL

```

```

0200 FIN
0210 /REMARK *** EXECUTE N2ODELT ***
0220 /FILE N2O.DEFER, LINK=W01, BLKSIZE=(STD,2)
0230 /FILE N2O.DACKN, LINK=W02, BLKSIZE=(STD,2)
0240 /SET-JOB-STEP
0250 /ASSIGN-SYSIPT TO-FILE=N2O.DMOVE.IPT.BATCH
0260 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0270 LOGON SYSTEM
0280 N2ODELT
0290 FIN
0300 /REMARK *** EXECUTE N2ODACKN ***
0310 /FILE N2O.DACKN, LINK=W01, RECFORM=VB, RECSIZE=3147, BLKSIZE=3151
0320 /SET-JOB-STEP
0330 /ASSIGN-SYSIPT TO-FILE=N2O.DMOVE.IPT.BATCH
0340 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0350 LOGON N2OLIB
0360 N2ODACKN
0370 FIN
0380 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0390 /DELETE-FILE FILE-NAME=N2O.DMOVE.IPT.BATCH,
0400 /OPTION=DESTROY-ALL
0410 /LOGOFF NOSPOOL
***** End of list *****

```

**Program VMDMOVE Library N2OBATCH**

```

0010 /* Execute N2ODSEL */
0020 address 'COMMAND'
0030 'ERASE N2ODSEL CMWKF01 A'
0040 'ERASE N2ODSEL CMSYNIN A'
0050 'EXECIO 1 DISKW N2O CMWKF01 A 1 F 80 (STRING N2ODSEL ALL'
0060 'EXECIO 1 DISKW N2ODSEL CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2ODSEL CMSYNIN A 2 F 80 (STRING N2ODSEL'
0080 'EXECIO 1 DISKW N2ODSEL CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2ODSEL CMWKF01 A'
0110 'FILEDEF CMWKF02 DISK N2O DEFER A (RECFM VB LRECL 3147 BLKSIZE 3151'
0120 'FILEDEF CMSYNIN DISK N2ODSEL CMSYNIN A'
0130 'FILEDEF CMPRINT PRINTER'
0140 'EXEC NAT BATCH'
0150 'ERASE N2ODSEL CMSYNIN A'
0160 /* Execute N2ODELT */
0170 'ERASE N2ODELT CMSYNIN A'
0180 'EXECIO 1 DISKW N2ODELT CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0190 'EXECIO 1 DISKW N2ODELT CMSYNIN A 2 F 80 (STRING N2ODELT'
0200 'EXECIO 1 DISKW N2ODELT CMSYNIN A 3 F 80 (STRING FIN'
0210 'FILEDEF * CLEAR'
0220 'FILEDEF CMWKF01 DISK N2O DEFER A'
0230 'FILEDEF CMWKF02 DISK N2O DACKN A (RECFM VB LRECL 3147 BLKSIZE 3151'
0240 'FILEDEF CMSYNIN DISK N2ODELT CMSYNIN A'
0250 'FILEDEF CMPRINT PRINTER'
0260 'EXEC NAT BATCH'
0270 'ERASE N2ODELT CMSYNIN A'
0280 'ERASE N2O DEFER A'
0290 /* Execute N2ODACKN */
0300 'ERASE N2ODACKN CMSYNIN A'
0310 'EXECIO 1 DISKW N2ODACKN CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0320 'EXECIO 1 DISKW N2ODACKN CMSYNIN A 2 F 80 (STRING N2ODACKN'
0330 'EXECIO 1 DISKW N2ODACKN CMSYNIN A 3 F 80 (STRING FIN'
0340 'FILEDEF * CLEAR'
0350 'FILEDEF CMWKF01 N2O DACKN A'
0360 'FILEDEF CMSYNIN DISK N2ODACKN CMSYNIN A'
0370 'FILEDEF CMPRINT PRINTER'
0380 'EXEC NAT BATCH'
0390 'ERASE N2ODACKN CMSYNIN A'
0400 'ERASE N2O DACKN A'
0410 exit
***** End of list *****

```

```
Program      VSEDMOVE Library N2OBATCH
0010 * $$ JOB JNM=NATMOVE,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB NATMOVE
0040 // DLBL CMWKF01,'N2ODSEL.INPUT.CARDS'
0050 // EXTENT SYS001,,,,nnnnn,nnnnn
0060 // EXEC IDCAMS,SIZE=AUTO
0070 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0080      OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0090 N2ODSEL ALL
0100 /*
0110 * N2ODSEL - SELECT LIST OF PROGRAMS TO BE DELETED
0120 // ASSGN SYSIPT,SYSRDR
0130 // ASSGN SYS001,DISK,SHR
0140 // ASSGN SYS002,DISK,SHR
0150 // ASSGN SYS009,SYSLST
0160 // DLBL CMWKF01,'N2ODSEL.INPUT.CARDS'
0170 // EXTENT SYS001,...
0180 // DLBL CMWKF02,'N2O.DEFER'
0190 // EXTENT SYS002,...
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB,2,2,3140,VB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2ODSEL
0270 FIN
0280 /*
0290 * N2ODELT - DELETE PROGRAMS IN FROM ENV
0300 // ASSGN SYS001,DISK,SHR
0310 // ASSGN SYS002,DISK,SHR
0320 // ASSGN SYS009,SYSLST
0330 // DLBL CMWKF01,'N2O.DEFER'
0340 // EXTENT SYS001,...
0350 // DLBL CMWKF02,'N2O.DACKN'
0360 // EXTENT SYS002,...
0370 // EXEC NATBATCH
0380 BWORKD=(1,1,3151,VB,2,2,3151,VB)
0390 /*
0400 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0410 /*
0420 LOGON SYSTEM
0430 N2ODELT
0440 FIN
0450 /*
0460 * N2ODACKN - ACKNOWLEDGEMENT OF MOVE COMPLETION
0470 // ASSGN SYS001,DISK,SHR
0480 // ASSGN SYS009,SYSLST
0490 // DLBL CMWKF01,'N2O.DACKN'
0500 // EXTENT SYS001,...
0510 // EXEC NATBATCH
0520 BWORKD=(1,1,3151,VB)
0530 /*
0540 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0550 /*
0560 LOGON N2OLIB
0570 N2ODACKN
0580 FIN
0590 /*
0600 /&
0610 * $$ EOJ
***** End of list *****
```

## Emergency Recovery in Batch

```

Program      MVSER      Library N2OBATCH
0010 //N2OER JOB (20100),'EXECUTE N2OER',CLASS=A,NOTIFY=&USERID
0020 //***
0030 //* THIS IS SAMPLE JCL FOR EMERGENCY RECOVERY IN BATCH
0040 //***
0050 //* RECOVERY RUNS
0060 //***
0070 //RECOVERY EXEC PGM=NATBATCH
0080 //CMWKF02 DD DSN=N2O.3GL.OBJECT,DISP=SHR
0090 //CMPRINT DD SYSOUT=*
0100 //CMSYNIN DD *
0110 LOGON SYSTEM
0120 N2OER
0130 &INPUT
0140 FIN
0150 /*
0160 /*
***** End of list *****

```

```

Program      BSER      Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS(LISTING=YES)
0050 /REMARK *** EXECUTE N2OER ***
0060 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0070 /MODIFY-JOB-SWITCHES ON=(4,5)
0080 /START-PROGRAM FROM-FILE=$EDT
0090 LS=132,PS=60,MENU=OFF
0100 @WRITE 'N2O.ER.IPT.BATCH' OVERWRITE
0110 @HALT
0120 /MODIFY-JOB-SWITCHES OFF=(4,5)
0130 /ASSIGN-SYSIPT TO-FILE=N2O.ER.IPT.BATCH
0140 /MODIFY-JOB-SWITCHES ON=(2)
0150 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0160 LOGON SYSTEM
0170 N2OER
0180 &INPUT
0190 FIN
0200 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0210 /DELETE-FILE FILE-NAME=N2O.ER.IPT.BATCH,
0220 /OPTION=DESTROY-ALL
0230 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMER      Library N2OBATCH
0010 /* Execute N2OER */
0020 address 'COMMAND'
0030 'ERASE N2OER CMSYNIN A'
0040 'EXECIO 1 DISKW N2OER CMSYNIN A 1 F 80 (STRING LOGON SYSTEM)'
0050 'EXECIO 1 DISKW N2OER CMSYNIN A 2 F 80 (STRING N2OER)'
0060 'EXECIO 1 DISKW N2OER CMSYNIN A 3 F 80 (STRING &INPUT)'
0070 'EXECIO 1 DISKW N2OER CMSYNIN A 4 F 80 (STRING FIN)'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMSYNIN DISK N2OER CMSYNIN A'
0100 'FILEDEF CMWKF02 DISK N2OER CMWKF02 A'
0110 'FILEDEF CMPRINT PRINTER'
0120 'EXEC NAT BATCH'
0130 'ERASE N2OREPT CMSYNIN A'
0140 exit
***** End of list *****

```

```

Program      VSEER      Library N2OBATCH
0010 * $$ JOB JNM=N2OER,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB N2OER
0040 * N2ORECOVERY - N2O EMERGENCY RECOVERY
0050 // ASSGN SYSIPT,SYSRDR
0060 // ASSGN SYS009,SYSLST
0070 // EXEC NATBATCH
0080 /*
0090 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0100 /*
0110 LOGON SYSTEM
0120 N2OER
0130 &INPUT
0140 FIN
0150 /*
0160 /&
0170 * $$ EOJ
***** End of list *****

```

### Emergency Recovery Acknowledgement

```

Program      MVSEERAKN Library N2OBATCH
0010 //NATERAKN JOB (ACCOUNTING),'EMERG REC ACKN',CLASS=A,NOTIFY=&USERID
0020 /*
0030 /* THIS JOB PERFORMS THE ACKNOWLEDGEMENT STEP FOR EMERGENCY RECOVERY
0040 /* WHICH UPDATES THE N2O MIGRATION FILE WITH ALL OBJECTS RECOVERED
0050 /* WITH THE N2O EMERGENCY RECOVERY UTILITY
0060 /*
0070 /* THIS STEP IS RAN AGAINST AN ENVIRONMENT THAT IS LOCAL TO THE
0080 /* ARCHIVE FILE USED IN EMERGENCY RECOVERY
0090 /*
0100 /* ARCHIVE-DBID MUST BE REPLACED WITH THE DBID OF THE
0110 /* ARCHIVE FILE USED IN EMERGENCY RECOVERY
0120 /*
0130 /* ARCHIVE-FNR MUST BE REPLACED WITH THE FILE NUMBER OF THE
0140 /* ARCHIVE FILE USED IN EMERGENCY RECOVERY
0150 /*
0160 //N2OERAK1 EXEC PGM=NATBATCH
0170 //CMWKF01 DD DSN=ARCHIVE.LIST.PARMS,DISP=(NEW,PASS,DELETE),
0180 //          SPACE=(TRK,(1,1),RLSE),UNIT=SYSDA,
0190 //          DCB=(RECFM=FB,BLKSIZE=152,LRECL=152)
0200 //CMPRINT DD SYSOUT=*
0210 //CMSYNIN DD *
0220 LOGON SYSTEM
0230 N2OERAK1
0240 ARCHIVE-DBID , ARCHIVE-FNR
0250 FIN
0260 /*
0270 /* THIS STEP IS RAN AGAINST AN ENVIRONMENT THAT IS LOCAL TO THE
0280 /* N2O MIGRATION FILE
0290 /*
0300 //N2OERAK2 EXEC PGM=NATBATCH
0310 /*
0320 //CMWKF01 DD DSN=ARCHIVE.LIST.PARMS,DISP=(OLD,PASS,CATLG)
0330 //CMPRINT DD SYSOUT=*
0340 //CMSYNIN DD *
0350 LOGON N2OLIB
0360 N2OERAK2
0370 FIN
0380 /*
0390 /*
***** End of list *****

```

```

Program      BSERAKN  Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2OERAK1 ***
0060 /FILE ARCHIVE.PARMS, LINK=W01, RECFORM=FB, RECSIZE=152, BLKSIZE=156
0070 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0080 /MODIFY-JOB-SWITCHES ON=(4,5)
0090 /START-PROGRAM FROM-FILE=$EDT
0100 LS=132, PS=60, MENU=OFF
0110 @WRITE 'N2O.ARCHIVE.IPT.BATCH' OVERWRITE
0120 @HALT
0130 /MODIFY-JOB-SWITCHES OFF=(4,5)
0140 /ASSIGN-SYSIPT TO-FILE=N2O.ARCHIVE.IPT.BATCH
0150 /MODIFY-JOB-SWITCHES ON=(2)
0160 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0170 LOGON SYSTEM
0180 N2OERAK1
0190 ARCHIVE-DBID , ARCHIVE-FNR
0200 FIN
0210 /REMARK *** EXECUTE N2OERAK2 ***
0220 /FILE ARCHIVE.PARMS, LINK=W01
0230 /SET-JOB-STEP
0240 /ASSIGN-SYSIPT TO-FILE=N2O.ARCHIVE.IPT.BATCH
0250 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0260 LOGON N2OLIB
0270 N2OERAK2
0280 FIN
0290 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0300 /DELETE-FILE FILE-NAME=N2O.ARCHIVE.IPT.BATCH,
0310 /OPTION=DESTROY-ALL
0320 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMERAKN  Library N2OBATCH
0010 /*
0020 /* THIS JOB PERFORMS THE ACKNOWLEDGEMENT STEP FOR EMERGENCY RECOVERY
0030 /* WHICH UPDATES THE N2O MIGRATION FILE WITH ALL OBJECTS RECOVERED
0040 /* WITH THE N2O EMERGENCY RECOVERY UTILITY
0050 /*
0060 /* THIS STEP IS RAN AGAINST AN ENVIRONMENT THAT IS LOCAL TO THE
0070 /* ARCHIVE FILE USED IN EMERGENCY RECOVERY
0080 /*
0090 /* ARCH-DBID MUST BE REPLACED WITH THE DBID OF THE
0100 /* ARCHIVE FILE USED IN EMERGENCY RECOVERY
0110 /*
0120 /* ARCH-FNR MUST BE REPLACED WITH THE FILE NUMBER OF THE
0130 /* ARCHIVE FILE USED IN EMERGENCY RECOVERY
0140 /*
0150 /* EXECUTE N2OERAK1 */
0160 address 'COMMAND'
0170 'ERASE N2OERAK1 CMSYNIN A'
0180 'ERASE ARCHIVE PARMS A'
0190 'EXECIO 1 DISKW N2OERAK1 CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0200 'EXECIO 1 DISKW N2OERAK1 CMSYNIN A 2 F 80 (STRING N2OERAK1'
0210 'EXECIO 1 DISKW N2OERAK1 CMSYNIN A 3 F 80 (STRING ARCH-DBID , ARCH-FNR'
0220 'EXECIO 1 DISKW N2OERAK1 CMSYNIN A 4 F 80 (STRING FIN'
0230 'FILEDEF * CLEAR'
0240 'FILEDEF CMWKF01 DISK ARCHIVE PARMS A RECFM FB LRECL 152 BLKSIZE 156'
0250 'FILEDEF CMSYNIN DISK N2OERAK1 CMSYNIN A'
0260 'FILEDEF CMPRINT PRINTER'
0270 'EXEC NAT BATCH'
0280 'ERASE N2OERAK1 CMSYNIN A'
0290 /*
0300 /* THIS STEP IS RAN AGAINST AN ENVIRONMENT THAT IS LOCAL TO THE
0310 /* N2O MIGRATION FILE
0320 /*
0330 /* EXECUTE N2OERAK2 */
0340 'ERASE N2OERAK2 CMSYNIN A'

```

```

0350 'EXECIO 1 DISKW N2OERAK2 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0360 'EXECIO 1 DISKW N2OERAK2 CMSYNIN A 2 F 80 (STRING N2OERAK2'
0370 'EXECIO 1 DISKW N2OERAK2 CMSYNIN A 3 F 80 (STRING FIN'
0380 'FILEDEF * CLEAR'
0390 'FILEDEF CMWKF01 DISK ARCHIVE PARMS A'
0400 'FILEDEF CMSYNIN DISK N2OERAK2 CMSYNIN A'
0410 'FILEDEF CMPRINT PRINTER'
0420 'EXEC NAT BATCH'
0430 'ERASE N2OERAK2 CMSYNIN A'
0440 exit
***** End of list *****

```

**Program VSEERAKN Library N2OBATCH**

```

0010 * $$ JOB JNM=ERACKN,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB ERACKN
0040 /*
0050 * EXECUTE N2OERAK1
0060 *
0070 * THIS JOB PERFORMS THE ACKNOWLEDGEMENT STEP FOR EMERGENCY RECOVERY
0080 * WHICH UPDATES THE N2O MIGRATION FILE WITH ALL OBJECTS RECOVERED
0090 * WITH THE N2O EMERGENCY RECOVERY UTILITY
0100 *
0110 * THIS STEP IS RAN AGAINST AN ENVIRONMENT THAT IS LOCAL TO THE
0120 * ARCHIVE FILE USED IN EMERGENCY RECOVERY
0130 *
0140 * ARCH-DBID MUST BE REPLACED WITH THE DBID OF THE
0150 * ARCHIVE FILE USED IN EMERGENCY RECOVERY
0160 *
0170 * ARCH-FNR MUST BE REPLACED WITH THE FILE NUMBER OF THE
0180 * ARCHIVE FILE USED IN EMERGENCY RECOVERY
0190 *
0200 // ASSGN SYSIPT,SYSRDR
0210 // ASSGN SYS001,DISK,SHR
0220 // ASSGN SYS009,SYSLST
0230 // DLBL CMWKF01,'ARCHIVE.PARM'
0240 // EXTENT SYS001,,,,nnnnn,nnnnn
0250 // EXEC NATBATCH
0260 BWORKD=(1,1,152,FB)
0270 /*
0280 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0290 /*
0300 LOGON SYSTEM
0310 N2OERAK1
0320 ARCHIVE-DBID , ARCHIVE-FNR
0330 FIN
0340 /*
0350 * EXECUTE N2OERAK2
0360 *
0370 * THIS STEP IS RAN AGAINST AN ENVIRONMENT THAT IS LOCAL TO THE
0380 * N2O MIGRATION FILE
0390 *
0400 // ASSGN SYS009,SYSLST
0410 // DLBL CMWKF01,'ARCHIVE.PARM'
0420 // EXTENT SYS001,,,,nnnnn,nnnnn
0430 // EXEC NATBATCH
0440 BWORKD=(1,1,152,FB)
0450 /*
0460 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0470 /*
0480 LOGON N2OLIB
0490 N2OERAK2
0500 FIN
0510 /*
0520 /&
0530 * $$ EOJ
***** End of list *****

```

## Event Purge

### Program MVSEVNTP Library N2OBATCH

```

0010 //EVNTPURG JOB (ACCOUNTING),'EVENT PURGE',CLASS=A,NOTIFY=&USERID
0020 //***
0030 /** THIS IS SAMPLE JCL FOR THE EVENT PURGE PROCESS
0040 /** THIS SHOULD BE RENAMED N2OPUEVT
0050 //***
0060 /** EVNTP1 RUNS WHERE N2O IS INSTALLED
0070 //***
0080 /** N2OV5.1 &INPUT FORMAT CHANGED - SEE MANUAL
0090 //***
0100 //EVNTP1 EXEC PGM=NATBATCH
0110 /*
0120 //CMWKF01 DD DSN=EVENT.LIST,DISP=(NEW,PASS,DELETE),
0130 // SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA,
0140 // DCB=(RECFM=FB,BLKSIZE=13,LRECL=13)
0150 //CMPRINT DD SYSOUT=*
0160 //CMPRT02 DD SYSOUT=*
0170 //CMSYNIN DD *
0180 LOGON N2OLIB
0190 N2OPEVT1
0200 &INPUT
0210 FIN
0220 /*
0230 //***
0240 /** EVNTP2 RUNS WHERE N2O IS INSTALLED
0250 //***
0260 //***
0270 /** N2OV5.1 CMWKF03 NEW FILE
0280 //***
0290 //EVNTP2 EXEC PGM=NATBATCH
0300 /**
0310 //CMWKF02 DD DSN=EVENT.LIST,DISP=(OLD,DELETE,CATLG)
0320 //CMWKF03 DD DSN=&BACKUP,
0330 // DISP=(NEW,PASS,DELETE),
0340 // DCB=(RECFM=FB,BLKSIZE=2002,LRECL=2002),
0350 // SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA
0360 //CMPRINT DD SYSOUT=*
0370 //CMPRT02 DD SYSOUT=*
0380 //CMPRT04 DD SYSOUT=*
0390 //CMSYNIN DD *
0400 LOGON N2OLIB
0410 N2OPEVT2
0420 FIN
0430 /*
0440 /**
***** End of list *****

```

### Program BSEVNTP Library N2OBATCH

```

0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS(LISTING=YES)
0050 /REMARK *** EXECUTE N2OPEVT1 ***
0060 /FILE EVENT.LIST,LINK=W01,RECFORM=FB,RECSIZE=13,BLKSIZE=1300
0070 /FILE MASTER.LIST,LINK=P02
0080 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0090 /MODIFY-JOB-SWITCHES ON=(4,5)
0100 /START-PROGRAM FROM-FILE=$EDT
0110 LS=132,PS=60,MENU=OFF
0120 @WRITE 'N2O.PURGE.IPT.BATCH' OVERWRITE
0130 @HALT
0140 /MODIFY-JOB-SWITCHES OFF=(4,5)
0150 /ASSIGN-SYSIPT TO-FILE=N2O.PURGE.IPT.BATCH
0160 /MODIFY-JOB-SWITCHES ON=(2)
0170 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0180 LOGON N2OLIB
0190 N2OPEVT1

```

```

0200 &INPUT
0210 FIN
0220 /REMARK *** EXECUTE N2OPEVT2 ***
0230 /FILE EVENT.LIST, LINK=W02
0240 /FILE &BACKUP, LINK=W03, RECFORM=FB, RECSIZE=2002, BLKSIZE=2002
0250 /FILE CONTROL.LIST, LINK=P02
0260 /FILE SUMMARY.LIST, LINK=P04
0270 /SET-JOB-STEP
0280 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0290 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0300 LOGON N2OLIB
0310 N2OPEVT2
0320 FIN
0330 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0340 /DELETE-FILE FILE-NAME=N2O.TRANSFER.IPT.BATCH,
0350 /OPTION=DESTROY-ALL
0360 /LOGOFF NOSPOOL
***** End of list *****

```

**Program VMEVNTP Library N2OBATCH**

```

0010 /* Execute N2OPEVT1 */
0020 address 'COMMAND'
0030 'ERASE N2OPEVT1 CMSYNIN A'
0040 'EXECIO 1 DISKW N2OPEVT1 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0050 'EXECIO 1 DISKW N2OPEVT1 CMSYNIN A 2 F 80 (STRING N2OPEVT1'
0060 'EXECIO 1 DISKW N2OPEVT2 CMSYNIN A 3 F 80 (STRING &INPUT'
0070 'EXECIO 1 DISKW N2OPEVT1 CMSYNIN A 4 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMWKF01 DISK EVENT LIST A RECFM FB LRECL 13 BLKSIZE 1300'
0100 'FILEDEF CMSYNIN DISK N2OPEVT1 CMSYNIN A'
0110 'FILEDEF CMPRINT PRINTER'
0120 'FILEDEF CMPRT02 PRINTER'
0130 'EXEC NAT BATCH'
0140 'ERASE N2OPEVT1 CMSYNIN A'
0150 /* Execute N2OPEVT2 */
0160 'ERASE N2OPEVT2 CMSYNIN A'
0170 'EXECIO 1 DISKW N2OPEVT2 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0180 'EXECIO 1 DISKW N2OPEVT2 CMSYNIN A 2 F 80 (STRING N2OPEVT2'
0190 'EXECIO 1 DISKW N2OPEVT2 CMSYNIN A 3 F 80 (STRING FIN'
0200 'FILEDEF * CLEAR'
0210 'FILEDEF CMWKF02 DISK EVENT LIST A'
0220 'FILEDEF CMWKF03 DISK &BACKUP RECFM FB LRECL 2002 BLKSIZE 2002'
0230 'FILEDEF CMSYNIN DISK N2OPEVT2 CMSYNIN A'
0240 'FILEDEF CMPRINT PRINTER'
0250 'FILEDEF CMPRT02 PRINTER'
0260 'FILEDEF CMPRT04 PRINTER'
0270 'EXEC NAT BATCH'
0280 'ERASE N2OPEVT2 CMSYNIN A'
0290 exit
***** End of list *****

```

**Program VSEEVNTP Library N2OBATCH**

```

0010 * $$ JOB JNM=EVNTPURG, CLASS=A, USER=&USERID
0020 * $$ LST CLASS=A, LST=SYSLST
0030 * $$ LST CLASS=A, LST=02E, DISP=K, JSEP=0
0040 // JOB EVNTPURG
0050 /*
0060 * N2OPEVT1 - CREATE LIST OF EVENTS TO BE PURGED.
0070 // ASSGN SYSIPT, SYSRDR
0080 // ASSGN SYS001, DISK, SHR
0090 // ASSGN SYS002, 02E
0100 // ASSGN SYS009, SYSLST
0110 // DLBL CMWKF01, 'EVENT.LIST'
0120 // EXTENT SYS001, , , , nnnnn, nnnnn
0130 // EXEC NATBATCH
0140 BWORKD=(1,1,13,FB)
0150 /*
0160 ADARUN DB=xxx, SVC=yyy, DEVICE=zzzz
0170 /*

```

```
0180 LOGON N2OLIB
0190 N2OPEVT1
0200 &INPUT
0210 FIN
0220 /*
0230 * N2OPEVT2 - PURGE EVENTS FROM MIGRATION FILE
0240 * $$ LST CLASS=A,LST=04E,DISP=K,JSEP=0
0250 // ASSGN SYS002,DISK,SHR
0260 // ASSGN SYS003,DISK,SHR
0270 // ASSGN SYS004,04E
0280 // ASSGN SYS009,SYSLST
0290 // DLBL CMWKF02,'EVENT.LIST'
0300 // EXTENT SYS002,,,,nnnnn,nnnnn
0310 // DLBL CMWKF03,'&BACKUP'
0320 // EXTENT SYS003,,,,nnnnn,nnnnn
0330 // EXEC NATBATCH
0340 BWORKD=(2,2,13,FB,3,3,2002,2002)
0350 /*
0360 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0370 /*
0380 LOGON N2OLIB
0390 N2OPEVT2
0400 FIN
0410 /*
0420 /&
0430 * $$ EOJ
***** End of list *****
```

**Batch Migration**

```

Program      MVSMIG      Library N2OBATCH
0010 //NATMIGR JOB (20000), 'NATURAL MIGRATION', CLASS=A, NOTIFY=&USERID
0020 //*****
0030 //* THIS IS SAMPLE JCL TO PERFORM BATCH NATURAL, SYSERR,
0040 //* PREDICT 3.3 AND BELOW, PREDICT 3.4 AND 4.1 WITH
0050 //* BUILD EXTRACT SET TO FALSE MIGRATIONS(N2OUE14N)
0060 //* FOR PREDICT 3.4 AND ABOVE WITH BUILD EXTRACT (N2OUE14N)
0070 //* SEE THE MVSMIGP EXAMPLE.
0080 //* THIS JOB SHOULD BE RENAMED TO THE NAME SPECIFIED IN THE
0090 //* MIGRATION PROFILE JCL PROGRAM NAME
0100 //*****
0110 //* N2OSEL ALWAYS RUNS WHERE N2O IS INSTALLED
0120 //*****
0130 //****
0140 //* N2OV5.2 CHANGE CMWKF02 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0150 //****
0160 //N2OSEL EXEC PGM=NATBATCH
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 //CMWKF02 DD DSN=N2O.PARM, DISP=(NEW, PASS, DELETE),
0210 // DCB=(RECFM=VB, LRECL=3151, BLKSIZE=3155),
0220 // UNIT=SYSDA, SPACE=(TRK, (12, 12))
0230 //CMWKF03 DD DUMMY
0240 //CMWKF04 DD DUMMY
0250 //CMPRINT DD SYSOUT=*
0260 //CMSYNIN DD *
0270 LOGON N2OLIB
0280 N2OSEL
0290 FIN
0300 /*
0310 /*
0320 //*****
0330 //* N2OSEND RUNS ON THE FROM FUSER (SOURCE FUSER)
0340 //*****
0350 //N2OSEND EXEC PGM=NATBATCH, COND=(9, LT)
0360 //CMWKF01 DD DSN=N2O.PREDICT, DISP=(, CATLG, DELETE),
0370 // DCB=(RECFM=VB, LRECL=1804, BLKSIZE=1808),
0380 // UNIT=SYSDA, SPACE=(CYL, (1, 1), RLSE)
0390 //CMWKF02 DD DSN=N2O.SOURCE, DISP=(, CATLG, DELETE),
0400 // DCB=(RECFM=VB, LRECL=9183, BLKSIZE=9187),
0410 // UNIT=SYSDA, SPACE=(CYL, (1, 1), RLSE)
0420 //CMWKF03 DD DSN=N2O.PARM, DISP=(OLD, PASS, DELETE)
0430 //CMWKF05 DD DUMMY
0440 //CMPRINT DD SYSOUT=*
0450 //CMSYNIN DD *
0460 LOGON SYSTEM
0470 N2OSEND
0480 FIN
0490 /*
0500 /*
0510 //*****
0520 //* N2ORECV RUNS ON THE TO FUSER (TARGET)
0530 //*****
0540 //****
0550 //* N2OV5.2 CHANGE CMWKF03 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0560 //****
0570 //N2ORECV EXEC PGM=NATBATCH, COND=(9, LT)
0580 //CMWKF01 DD DSN=N2O.PREDICT, DISP=SHR
0590 //CMWKF02 DD DSN=N2O.SOURCE, DISP=SHR
0600 //CMWKF03 DD DSN=N2O.ACKN, DISP=(NEW, PASS, DELETE),
0610 // DCB=(RECFM=VB, LRECL=3151, BLKSIZE=3155),
0620 // UNIT=SYSDA, SPACE=(CYL, (1, 1), RLSE)
0630 //CMWKF04 DD DSN=N2O.ACACKN, DISP=(NEW, PASS, DELETE),
0640 // DCB=(RECFM=VB, LRECL=100, BLKSIZE=104),
0650 // UNIT=SYSDA, SPACE=(CYL, (1, 1), RLSE)
0660 //CMWKF05 DD DSN=N2O.RECOVER, DISP=(NEW, PASS, DELETE),
0670 // DCB=(RECFM=VB, LRECL=160, BLKSIZE=164),

```

```

0680 //          UNIT=SYSDA,SPACE=(TRK,(12,12))
0690 //CMPRINT DD  SYSOUT=*
0700 //CMSYNIN DD  *
0710 LOGON SYSTEM
0720 N2ORECV
0730 LOGON SYSTEM
0740 N2OBCOMP
0750 FIN
0760 /*
0770 /**
0780 /** The following step is only necessary for sites using
0790 /** the MOVE option. If this step is removed for a COPY,
0800 /** then change the N2OACKN step so that CMWK01 references
0810 /** N2O.ACKN.
0820 /**
0830 /** N2ODELT RUNS ON THE FROM (SOURCE) FUSER
0840 /** (THE SAME AS N2OSEND STEP)
0850 /******
0860 /** N2OV5.2 CHANGE CMWK02 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0870 /******
0880 //N2ODELT EXEC PGM=NATBATCH,COND=(9,LT)
0890 //CMWK01 DD  DSN=N2O.ACKN,DISP=(OLD,DELETE,DELETE)
0900 //CMWK02 DD  DSN=N2O.DACKN,DISP=(NEW,PASS,DELETE),
0910 //          DCB=(RECFM=VB,LRECL=3151,BLKSIZE=3155),
0920 //          UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)
0930 //CMPRINT DD  SYSOUT=*
0940 //CMSYNIN DD  *
0950 LOGON SYSTEM
0960 N2ODELT
0970 FIN
0980 /*
0990 /**
1000 /*******
1010 /** N2OACKN ALWAYS RUNS WHERE N2O IS INSTALLED
1020 /** (THE SAME AS THE N2OSEL STEP)
1030 /*******
1040 //N2OACKN EXEC PGM=NATBATCH
1050 //CMWK01 DD  DSN=N2O.DACKN,DISP=(OLD,DELETE,CATLG)
1060 //CMWK02 DD  DSN=N2O.ACACKN,DISP=(OLD,DELETE,CATLG)
1070 //CMWK03 DD  DSN=N2O.RECOVER,DISP=(OLD,CATLG,DELETE)
1080 //CMPRINT DD  SYSOUT=*
1090 //CMSYNIN DD  *
1100 LOGON N2OLIB
1110 N2OACKN
1120 FIN
1130 /*
1140 /**
***** End of list *****

```

**Program BSMIG Library N2OBATCH**

```

0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS(LISTING=YES)
0050 /REMARK *** EXECUTE N2OSEL ***
0060 /remark ***
0070 /remark N2OV5.2 CHANGE CMWK02 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0080 /remark ***
0090 /SET-FILE-LINK LINK-NAME=W01,FILE-NAME=N2O.SELECT
0100 /FILE N2O.PARM,LINK=W02,RECFORM=VB,RECSIZE=3151,BLKSIZE=3155
0110 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0120 /MODIFY-JOB-SWITCHES ON=(4,5)
0130 /START-PROGRAM FROM-FILE=$EDT
0140 LS=132,PS=60,MENU=OFF
0150 @WRITE 'N2O.TRANSFER.IPT.BATCH' OVERWRITE
0160 @HALT
0170 /MODIFY-JOB-SWITCHES OFF=(4,5)
0180 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0190 /MODIFY-JOB-SWITCHES ON=(2)
0200 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH

```

```
0210 LOGON N2OLIB
0220 N2OSEL
0230 FIN
0240 /REMARK *** EXECUTE N2OSEND ***
0250 /remark ***
0260 /remark N2OV5.2 CHANGE CMWKF03 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0270 /remark ***
0280 /FILE N2O.PREDICT, LINK=W01, RECFORM=VB, RECSIZE=1804, BLKSIZE=1808,
0290 /      SPACE=(6,6)
0300 /FILE N2O.SOURCE, LINK=W02, RECFORM=VB, RECSIZE=9183, BLKSIZE=9187,
0310 /      SPACE=(12,12)
0320 /FILE N2O.PARM, LINK=W03, RECFORM=VB, RECSIZE=3151, BLKSIZE=3155,
0330 /      SPACE=(12,12)
0340 /SET-JOB-STEP
0350 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0360 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0370 LOGON SYSTEM
0380 N2OSEND
0390 FIN
0400 /REMARK *** EXECUTE N2ORECV AND N2OBCOMP ***
0410 /remark ***
0420 /remark N2OV5.2 CHANGE CMWKF03 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0430 /remark ***
0440 /FILE N2O.PREDICT, LINK=W01
0450 /FILE N2O.SOURCE, LINK=W02, BLKSIZE=(STD,5)
0460 /FILE N2O.ACKN, LINK=W03, RECFORM=VB, RECSIZE=3151, BLKSIZE=3155,
0470 /      SPACE=(12,12)
0480 /FILE N2O.ACACKN, LINK=W04, RECFORM=VB, RECSIZE=100, BLKSIZE=104
0490 /FILE N2O.RECOVER, LINK=W05, RECFORM=VB, RECSIZE=160, BLKSIZE=164,
0500 /      SPACE=(12,12)
0510 /SET-JOB-STEP
0520 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0530 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0540 LOGON SYSTEM
0550 N2ORECV
0560 LOGON SYSTEM
0570 N2OBCOMP
0580 FIN
0590 /REMARK *** EXECUTE N2ODELT ***
0600 /remark ***
0610 /remark N2OV5.2 CHANGE CMWKF02 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0620 /remark ***
0630 /FILE N2O.ACKN, LINK=W01
0640 /FILE N2O.DACKN, LINK=W02, RECFORM=VB, RECSIZE=3151, BLKSIZE=3155
0650 /SET-JOB-STEP
0660 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0670 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0680 LOGON SYSTEM
0690 N2ODELT
0700 FIN
0710 /REMARK *** EXECUTE N2OACKN ***
0720 /FILE N2O.DACKN, LINK=W01
0730 /FILE N2O.ACACKN, LINK=W02
0740 /FILE N2O.RECOVER, LINK=W03
0750 /SET-JOB-STEP
0760 /ASSIGN-SYSIPT TO-FILE=N2O.TRANSFER.IPT.BATCH
0770 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0780 LOGON N2OLIB
0790 N2OACKN
0800 FIN
0810 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0820 /DELETE-FILE FILE-NAME=N2O.TRANSFER.IPT.BATCH,
0830 /OPTION=DESTROY-ALL
0840 /LOGOFF NOSPOOL
***** End of list *****
```

```

Program      VMMIG      Library N2OBATCH
0010 /* Execute N2OSEL */
0020 /*
0030 /* N2OV5.2 CHANGE CMWKF02 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0040 /*
0050 address 'COMMAND'
0060 'ERASE N2O CMWKF01 A'
0070 'ERASE N2OSEL CMWSYNIN A'
0080 'EXECIO 1 DISKW N2O CMWKF01 A 1 F 80 (STRING &INPUT'
0090 'EXECIO 1 DISKW N2OSEL CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0100 'EXECIO 1 DISKW N2OSEL CMSYNIN A 2 F 80 (STRING N2OSEL'
0110 'EXECIO 1 DISKW N2OSEL CMSYNIN A 3 F 80 (STRING FIN'
0120 'FILEDEF * CLEAR'
0130 'FILEDEF CMWKF01 DISK N2O CMWKF01 A'
0140 'FILEDEF CMWKF02 DISK N2O PARM A RECFM VB LRECL 3151 BLKSIZE 3155'
0150 'FILEDEF CMSYNIN DISK N2OSEL CMSYNIN A'
0160 'FILEDEF CMPRINT PRINTER'
0170 'EXEC NAT BATCH'
0180 'ERASE N2O CMWKF01 A'
0190 'ERASE N2OSEL CMWSYNIN A'
0200 /* Execute N2OSEND */
0210 'ERASE N2OSEND CMSYNIN A'
0220 'ERASE N2O PREDICT A'
0230 'ERASE N2O PARM A'
0240 'EXECIO 1 DISKW N2OSEND CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0250 'EXECIO 1 DISKW N2OSEND CMSYNIN A 2 F 80 (STRING N2OSEND'
0260 'EXECIO 1 DISKW N2OSEND CMSYNIN A 3 F 80 (STRING FIN'
0270 'FILEDEF * CLEAR'
0280 'FILEDEF CMWKF01 DISK N2O PREDICT A RECFM VB LRECL 1804 BLKSIZE 1808'
0290 'FILEDEF CMWKF02 DISK N2O SOURCE A RECFM VB LRECL 9183 BLKSIZE 9187'
0300 'FILEDEF CMWKF03 DISK N2O PARM A'
0310 'FILEDEF CMSYNIN DISK N2OSEND CMSYNIN A'
0320 'FILEDEF CMPRINT PRINTER'
0330 'EXEC NAT BATCH NATPARMS FUSER=(&FROMFUSER) FDIC=(&FROMFDIC)'
0340 'ERASE N2OSEND CMSYNIN A'
0350 /* Execute N2ORECV */
0360 /*
0370 /* N2OV5.2 CHANGE CMWKF03 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0380 /*
0390 'ERASE N2ORECV CMSYNIN A'
0400 'EXECIO 1 DISKW N2ORECV CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0410 'EXECIO 1 DISKW N2ORECV CMSYNIN A 2 F 80 (STRING N2ORECV'
0420 'EXECIO 1 DISKW N2ORECV CMSYNIN A 3 F 80 (STRING LOGON SYSTEM'
0430 'EXECIO 1 DISKW N2ORECV CMSYNIN A 4 F 80 (STRING N2OBCOMP'
0440 'EXECIO 1 DISKW N2ORECV CMSYNIN A 5 F 80 (STRING FIN'
0450 'FILEDEF * CLEAR'
0460 'FILEDEF CMWKF01 DISK N2O PREDICT A'
0470 'FILEDEF CMWKF02 DISK N2O SOURCE A'
0480 'FILEDEF CMWKF03 DISK N2O ACKN A RECFM VB LRECL 3151 BLKSIZE 3155'
0490 'FILEDEF CMWKF04 DISK N2O ACACKN A RECFM VB LRECL 100 BLKSIZE 104'
0500 'FILEDEF CMWKF05 DISK N2O RECOVER A RECFM VB LRECL 160 BLKSIZE 164'
0510 'FILEDEF CMSYNIN DISK N2ORECV CMSYNIN A'
0520 'FILEDEF CMPRINT DISK N2ORECV OUTPUT A'
0530 'EXEC NAT BATCH NATPARMS FUSER=(&TOFUSER1) FDIC=(&TOFDIC1)'
0540 'ERASE N2O PREDICT A'
0550 'ERASE N2O SOURCE A'
0560 'ERASE N2ORECV CMSYNIN A'
0570 /* Execute N2ODELT */
0580 /*
0590 /* N2OV5.2 CHANGE CMWKF02 LRECL 3147 TO 3151, BLKSIZE 3151 TO 3155
0600 /*
0610 'ERASE N2ODELT CMSYNIN A'
0620 'EXECIO 1 DISKW N2ODELT CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0630 'EXECIO 1 DISKW N2ODELT CMSYNIN A 2 F 80 (STRING N2ODELT'
0640 'EXECIO 1 DISKW N2ODELT CMSYNIN A 3 F 80 (STRING FIN'
0650 'FILEDEF * CLEAR'
0660 'FILEDEF CMWKF01 DISK N2O ACKN A'
0670 'FILEDEF CMWKF02 DISK N2O DACKN A RECFM VB LRECL 3151 BLKSIZE 3155'
0680 'FILEDEF CMSYNIN DISK N2ODELT CMSYNIN A'
0690 'FILEDEF CMPRINT PRINTER'
0700 'EXEC NAT BATCH NATPARMS FUSER=(&FROMFUSER) FDIC=(&FROMFDIC)'

```

```

0710 'ERASE N2ODELT CMSYNIN A'
0720 'ERASE N2O ACKN A'
0730 /* Execute N2OACKN /*
0740 'ERASE N2OACKN CMSYNIN A'
0750 'EXECIO 1 DISKW N2OACKN CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0760 'EXECIO 1 DISKW N2OACKN CMSYNIN A 2 F 80 (STRING N2OACKN'
0770 'EXECIO 1 DISKW N2OACKN CMSYNIN A 3 F 80 (STRING FIN'
0780 'FILEDEF * CLEAR'
0790 'FILEDEF CMWKF01 DISK N2O DACKN A'
0800 'FILEDEF CMWKF02 DISK N2O ACACKN A'
0810 'FILEDEF CMWKF03 DISK N2O RECOVER A'
0820 'FILEDEF CMSYNIN DISK N2OACKN CMSYNIN A'
0830 'FILEDEF CMPRINT PRINTER'
0840 'EXEC NAT BATCH'
0850 'ERASE N2OACKN CMSYNIN A'
0860 'ERASE N2O DACKN A'
0870 'ERASE N2O ACACKN A'
0880 'ERASE N2O AUTOREC A'
0890 exit
***** End of list *****

```

**Program VSEMIG Library N2OBATCH**

```

0010 * $$ JOB JNM=NATMIGR,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLSLST
0030 // JOB NATMIGR
0040 // DLBL CMWKF01,'N2OSEL.INPUT.CARDS'
0050 // EXTENT SYS001,, ,nnnnn,nnnnn
0060 // EXEC IDCAMS,SIZE=AUTO
0070 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0080 OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0090 &INPUT
0100 /*
0110 * N2OSEL - SELECT LIST OF PROGRAMS/OBJECTS TO BE MIGRATED
0120 *
0130 * N2OV5.2 CHANGE CMWKF02 3151 TO 3155
0140 *
0150 // ASSGN SYSIPT,SYSRDR
0160 // ASSGN SYS001,DISK,SHR
0170 // ASSGN SYS002,DISK,SHR
0180 // ASSGN SYS009,SYSLST
0190 // DLBL CMWKF01,'N2OSEL.INPUT.CARDS'
0200 // EXTENT SYS001,...
0210 // DLBL CMWKF02,'N2O.PARM'
0220 // EXTENT SYS002,...
0230 // EXEC NATBATCH
0240 BWORKD=(1,1,80,FB,2,2,3155,VB)
0250 /*
0260 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0270 /*
0280 LOGON N2OLIB
0290 N2OSEL
0300 FIN
0310 /*
0320 * N2OSEND - UNLOAD THE PROGRAMS TO BE MIGRATED
0330 *
0340 * N2OV5.2 CHANGE CMWKF02 3151 TO 3155
0350 *
0360 // ASSGN SYS001,DISK,SHR
0370 // ASSGN SYS002,DISK,SHR
0380 // ASSGN SYS003,DISK,SHR
0390 // ASSGN SYS009,SYSLST
0400 // DLBL CMWKF01,'N2O.PREDICT'
0410 // EXTENT SYS001,...
0420 // DLBL CMWKF02,'N2O.SOURCE'
0430 // EXTENT SYS002,...
0440 // DLBL CMWKF03,'N2O.PARM'
0450 // EXTENT SYS003,...
0460 // EXEC NATBATCH
0470 BWORKD=(1,1,1808,VB,2,2,9187,VB,3,3,3155,VB)
0480 /*

```

```

0490 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0500 /*
0510 LOGON SYSTEM
0520 N2OSEND
0530 FIN
0540 /*
0550 * N2ORECV - LOAD THE PROGRAMS TO THE TARGET FUSER/FDIC.
0560 *
0570 * N2OV5.2 CHANGE CMWKF03 3151 TO 3155
0580 *
0590 // ASSGN SYS001,DISK,SHR
0600 // ASSGN SYS002,DISK,SHR
0610 // ASSGN SYS003,DISK,SHR
0620 // ASSGN SYS004,DISK,SHR
0630 // ASSGN SYS005,DISK,SHR
0640 // ASSGN SYS009,SYSLST
0650 // DLBL CMWKF01,'N2O.PREDICT'
0660 // EXTENT SYS001,...
0670 // DLBL CMWKF02,'N2O.SOURCE'
0680 // EXTENT SYS002,...
0690 // DLBL CMWKF03,'N2O.ACKN'
0700 // EXTENT SYS003,...
0710 // DLBL CMWKF04,'N2O.ACACKN'
0720 // EXTENT SYS004,...
0730 // DLBL CMWKF05,'N2O.RECOVER'
0740 // EXTENT SYS005,...
0750 // EXEC NATBATCH
0760 BWORKD=(1,1,1808,VB,2,2,9187,VB,3,3,3155,VB,4,4,104,VB,5,5,164,VB)
0770 /*
0780 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0790 /*
0800 LOGON SYSTEM
0810 N2ORECV
0820 LOGON SYSTEM
0830 N2OBCOMP
0840 FIN
0850 /*
0860 * N2ODELT - DELETE PROGRAMS IN FROM ENV FOR MOVES.
0870 *
0880 * N2OV5.2 CHANGE CMWKF02 3151 TO 3155
0890 *
0900 // ASSGN SYS001,DISK,SHR
0910 // ASSGN SYS002,DISK,SHR
0920 // ASSGN SYS009,SYSLST
0930 // DLBL CMWKF01,'N2O.ACKN'
0940 // EXTENT SYS001,...
0950 // DLBL CMWKF02,'N2O.DACKN'
0960 // EXTENT SYS002,...
0970 // EXEC NATBATCH
0980 BWORKD=(1,1,3151,VB,2,2,3155,VB)
0990 /*
1000 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
1010 /*
1020 LOGON SYSTEM
1030 N2ODELT
1040 FIN
1050 /*
1060 * N2OACKN - ACKNOWLEDGEMENT OF EVENT COMPLETION
1070 // ASSGN SYS001,DISK,SHR
1080 // ASSGN SYS002,DISK,SHR
1090 // ASSGN SYS003,DISK,SHR
1100 // ASSGN SYS009,SYSLST
1110 // DLBL CMWKF01,'N2O.DACKN'
1120 // EXTENT SYS001,...
1130 // DLBL CMWKF02,'N2O.ACACKN'
1140 // EXTENT SYS002,...
1150 // DLBL CMWKF03,'N2O.RECOVER'
1160 // EXTENT SYS003,...
1170 // EXEC NATBATCH
1180 BWORKD=(1,1,3151,VB,2,2,104,VB,3,3,164,VB)
1190 /*

```

```

1200 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
1210 /*
1220 LOGON N2OLIB
1230 N2OACKN
1240 FIN
1250 /*
1260 /&
1270 * $$ EOJ
***** End of list *****

```

## N2OPURGE

### Program MVSPURGE Library N2OBATCH

```

0010 //N2OPURGE JOB (20000),'N2OPURGE UTILITY',CLASS=A,NOTIFY=&USERID
0020 //****
0030 /* THIS IS SAMPLE JCL FOR THE N2OPURGE UTILITY
0040 /* THIS SHOULD BE RENAMED N2OPURGE
0050 //****
0060 /* N2OPURGE RUNS ON FUSER WHERE OBJECTS ARE TO BE PURGED FROM
0070 //****
0080 //****
0090 /** N2OV5.2 CHANGE CMWKF01 LRECL FROM 123 TO 150, BLKSIZE 127 TO 154
0100 //****
0110 //N2OPURGE EXEC PGM=NATBATCH
0120 //CMWKF01 DD DSN=N2OPURGE.LIST,DISP=(,CATLG),
0130 // DCB=(RECFM=VB,LRECL=150,BLKSIZE=154),
0140 // UNIT=SYSDA,SPACE=(TRK,(12,12))
0150 //CMPRINT DD SYSOUT=*
0160 //CMSYNIN DD *
0170 LOGON N2OLIB
0180 N2OPURGE
0190 &INPUT
0200 FIN
0210 /*
0220 /*
0230 //****
0240 /** N2OV5.2 CHANGE CMWKF02 LRECL FROM 290 TO 317, BLKSIZE 294 TO 321
0250 //****
0260 /*
0270 //N2OPURG1 EXEC PGM=NATBATCH
0280 //CMWKF01 DD DSN=N2OPURGE.LIST,DISP=SHR
0290 //CMWKF02 DD DSN=N2OPURGE.ACKN,DISP=(,CATLG),
0300 // DCB=(RECFM=VB,LRECL=317,BLKSIZE=321),
0310 // UNIT=SYSDA,SPACE=(TRK,(12,12))
0320 //CMPRINT DD SYSOUT=*
0330 //CMSYNIN DD *
0340 LOGON SYSTEM
0350 N2OPURG1
0360 FIN
0370 /*
0380 //****
0390 /* N2OPURG2 RUNS WHERE N2O IS INSTALLED
0400 //****
0410 //N2OPURG2 EXEC PGM=NATBATCH
0420 //CMWKF02 DD DSN=N2OPURGE.ACKN,DISP=SHR
0430 //CMPRINT DD SYSOUT=*
0440 //CMSYNIN DD *
0450 LOGON N2OLIB
0460 N2OPURG2
0470 FIN
0480 /*
0490 /*
***** End of list *****

```

```

Program      BSPURGE      Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS(LISTING=YES)
0050 /REMARK *** EXECUTE N2OPURGE ***
0060 /remark **
0070 /remark N2OV5.2 CHANGE CMWKF01 LRECL FROM 123 - 150, BLKSIZE 127 - 154
0080 /remark **
0090 /FILE N2OPURGE.LIST, LINK=W01, RECFORM=VB, RECSIZE=150, BLKSIZE=154
0100 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0110 /MODIFY-JOB-SWITCHES ON=(4,5)
0120 /START-PROGRAM FROM-FILE=$EDT
0130 LS=132, PS=60, MENU=OFF
0140 @WRITE 'N2O.PURGE.IPT.BATCH' OVERWRITE
0150 @HALT
0160 /MODIFY-JOB-SWITCHES OFF=(4,5)
0170 /ASSIGN-SYSIPT TO-FILE=N2O.PURGE.IPT.BATCH
0180 /MODIFY-JOB-SWITCHES ON=(2)
0190 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0200 LOGON N2OLIB
0210 N2OPURGE
0220 &INPUT
0230 FIN
0240 /REMARK *** EXECUTE N2OPURG1 ***
0250 /remark **
0260 /remark N2OV5.2 CHANGE CMWKF02 LRECL FROM 290 - 317, BLKSIZE 294 - 321
0270 /remark **
0280 /FILE N2OPURGE.LIST, LINK=W01
0290 /FILE N2OPURGE.ACKN, LINK=W02, RECFORM=VB, RECSIZE=317, BLKSIZE=321
0300 /SET-JOB-STEP
0310 /ASSIGN-SYSIPT TO-FILE=N2O.PURGE.IPT.BATCH
0320 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0330 LOGON SYSTEM
0340 N2OPURG1
0350 FIN
0360 /REMARK *** EXECUTE N2OPURG2 ***
0370 /FILE N2OPURGE.ACKN, LINK=W02
0380 /SET-JOB-STEP
0390 /ASSIGN-SYSIPT TO-FILE=N2O.PURGE.IPT.BATCH
0400 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0410 LOGON N2OLIB
0420 N2OPURG2
0430 FIN
0440 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0450 /DELETE-FILE FILE-NAME=N2O.PURGE.IPT.BATCH,
0460 /OPTION=DESTROY-ALL
0470 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMPURGE      Library N2OBATCH
0010 /* Execute N2OPURGE */
0020 /*
0030 /* N2OV5.2 CHANGE CMWKF01 LRECL FROM 123 TO 150, BLKSIZE 127 TO 154
0040 /*
0050 address 'COMMAND'
0060 'ERASE N2OPURGE CMSYNIN A'
0070 'EXECIO 1 DISKW N2OPURGE CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0080 'EXECIO 1 DISKW N2OPURGE CMSYNIN A 2 F 80 (STRING N2OPURGE'
0090 'EXECIO 1 DISKW N2OPURGE CMSYNIN A 3 F 80 (STRING &INPUT'
0100 'EXECIO 1 DISKW N2OPURGE CMSYNIN A 4 F 80 (STRING FIN'
0110 'FILEDEF * CLEAR'
0120 'FILEDEF CMWKF01 N2OPURGE LIST A RECFM VB LRECL 150 BLKSIZE 154'
0130 'FILEDEF CMSYNIN DISK N2OPURGE CMSYNIN A'
0140 'FILEDEF CMPRINT PRINTER'
0150 'EXEC NAT BATCH'
0160 'ERASE N2OPURGE CMSYNIN A'
0170 /* Execute N2OPURG1 */
0180 /*
0190 /* N2OV5.2 CHANGE CMWKF01 LRECL FROM 290 TO 317, BLKSIZE 294 TO 321

```

```

0200 /*
0210 'ERASE N2OPURG1 CMSYNIN A'
0220 'EXECIO 1 DISKW N2OPURG1 CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0230 'EXECIO 1 DISKW N2OPURG1 CMSYNIN A 2 F 80 (STRING N2OPURG1'
0240 'EXECIO 1 DISKW N2OPURG1 CMSYNIN A 3 F 80 (STRING FIN'
0250 'FILEDEF * CLEAR'
0260 'FILEDEF CMWKF01 N2OPURGE LIST A'
0270 'FILEDEF CMWKF02 N2OPURGE ACKN A RECFM VB LRECL 317 BLKSIZE 321'
0280 'FILEDEF CMSYNIN DISK N2OPURG1 CMSYNIN A'
0290 'FILEDEF CMPRINT PRINTER'
0300 'EXEC NAT BATCH'
0310 'ERASE N2OPURGE LIST A'
0320 'ERASE N2OPURG1 CMSYNIN A'
0330 /* Execute N2OPURG2 */
0340 'ERASE N2OPURG2 CMSYNIN A'
0350 'EXECIO 1 DISKW N2OPURG2 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0360 'EXECIO 1 DISKW N2OPURG2 CMSYNIN A 2 F 80 (STRING N2OPURG2'
0370 'EXECIO 1 DISKW N2OPURG2 CMSYNIN A 3 F 80 (STRING FIN'
0380 'FILEDEF * CLEAR'
0390 'FILEDEF CMWKF02 N2OPURGE ACKN A'
0400 'FILEDEF CMSYNIN DISK N2OPURG2 CMSYNIN A'
0410 'FILEDEF CMPRINT PRINTER'
0420 'EXEC NAT BATCH'
0430 'ERASE N2OPURGE ACKN A'
0440 'ERASE N2OPURG2 CMSYNIN A'
0450 exit
***** End of list *****

```

**Program VSEPURGE Library N2OBATCH**

```

0010 * $$ JOB JNM=N2OPURGE,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB N2OPURGE
0040 * N2OPURGE - VERIFY INPUT PARMS
0050 *
0060 * N2OV5.2 CHANGE CMWKF01 127 TO 154
0070 *
0080 // ASSGN SYSIPT,SYSRDR
0090 // ASSGN SYS001,DISK,SHR
0100 // ASSGN SYS009,SYSLST
0110 // DLBL CMWKF01,'N2OPURGE.LIST'
0120 // EXTENT SYS001,,,,nnnnn,nnnnn
0130 // EXEC NATBATCH
0140 BWORKD=(1,1,154,VB)
0150 /*
0160 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0170 /*
0180 LOGON N2OLIB
0190 N2OPURGE
0200 &INPUT
0210 FIN
0220 /*
0230 * N2OPURG1 - BATCH DELETE OF PROGRAMS
0240 *
0250 * N2OV5.2 CHANGE CMWKF02 294 TO 321
0260 *
0270 // ASSGN SYS001,DISK,SHR
0280 // ASSGN SYS002,DISK,SHR
0290 // ASSGN SYS009,SYSLST
0300 // DLBL CMWKF01,'N2OPURGE.LIST'
0310 // EXTENT SYS001,,,,nnnnn,nnnnn
0320 // DLBL CMWKF02,'N2OPURGE.ACKN'
0330 // EXTENT SYS002,,,,nnnnn,nnnnn
0340 // EXEC NATBATCH
0350 BWORKD=(1,1,127,VB,2,2,321,VB)
0360 /*
0370 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0380 /*
0390 LOGON SYSTEM
0400 N2OPURG1
0410 FIN

```

```
0420 /*
0430 * N2OPURG2 - ACKNOWLEDGE DELETE
0440 *
0450 *   N2OV5.2 CHANGE CMWKF01 294 TO 321
0460 *
0470 *
0480 // ASSGN SYS002,DISK,SHR
0490 // ASSGN SYS009,SYSLST
0500 // DLBL CMWKF02,'N2OPURGE.ACKN'
0510 // EXTENT SYS002,,,,nnnnn,nnnnn
0520 // EXEC NATBATCH
0530 BWORKD=(1,1,321,VB)
0540 /*
0550 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0560 /*
0570 LOGON N2OLIB
0580 N2OPURG2
0590 FIN
0600 /*
0610 /&
0620 * $$ EOJ
***** End of list *****
```

**Recover from Archive backup (Natural objects)**

```

Program      MVSJOB      Library N2OBATCH
0010 //N2ORAB JOB (ACCT),'RECOVER ARCH BACKUP',CLASS=A,NOTIFY=&USERID
0020 //***
0030 //***      THIS IS SAMPLE JCL FOR A RECOVER FROM ARCHIVE BACKUP
0040 //***      THIS SHOULD BE RENAMED TO N2ORAB
0050 //***
0060 //*      N2ORAB1 RUNS WHERE N2O IS INSTALLED
0070 //***
0080 //N2ORAB1 EXEC PGM=NATBATCH
0090 //CMWK02 DD DSN=REC.PARMS,DISP=(NEW,PASS,DELETE),
0100 //          SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA,
0110 //          DCB=(RECFM=VB,BLKSIZE=193,LRECL=189)
0120 //CMPRINT DD SYSOUT=*
0130 //CMSYNIN DD *
0140 LOGON N2OLIB
0150 N2ORAB1
0160 FIN
0170 /*
0180 //CMWK01 DD *
0190 &INPUT
0200 /*
0210 //***
0220 //*      N2ORAB2 RUNS ON THE TARGET FUSER
0230 //***
0240 //N2ORAB2 EXEC PGM=NATBATCH
0250 //CMWK01 DD DSN=REC.PARMS,DISP=(OLD,DELETE,CATLG)
0260 //CMWK02 DD DSN=&BACKUP,DISP=(OLD,KEEP,KEEP)
0270 //CMWK03 DD DSN=REC.ACKN,DISP=(NEW,PASS,DELETE),
0280 //          SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA,
0290 //          DCB=(RECFM=VB,BLKSIZE=193,LRECL=189)
0300 //CMPRINT DD SYSOUT=*
0310 //CMSYNIN DD *
0320 LOGON SYSTEM
0330 N2ORAB2
0340 FIN
0350 /*
0360 //***
0370 //*      N2ORAB3 RUNS WHERE N2O IS INSTALLED
0380 //***
0390 //N2ORAB3 EXEC PGM=NATBATCH
0400 //CMWK01 DD DSN=REC.ACKN,DISP=(OLD,DELETE,CATLG)
0410 //CMPRINT DD SYSOUT=*
0420 //CMSYNIN DD *
0430 LOGON N2OLIB
0440 N2ORAB3
0450 FIN
0460 /*
0470 /*
***** End of list *****

```

```

Program      BSRAB      Library N2OBATCH
0010 / .N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2ORAB1 ***
0060 /SET-FILE-LINK LINK-NAME=W01,FILE-NAME=N2O.RAB.INFO
0070 /FILE REC.PARMS,LINK=W02,RECFORM=VB,RECSIZE=189,BLKSIZE=193
0080 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0090 /MODIFY-JOB-SWITCHES ON=(4,5)
0100 /START-PROGRAM FROM-FILE=$EDT
0110 LS=132,PS=60,MENU=OFF
0120 @WRITE 'N2O.RAB.IPT.BATCH' OVERWRITE
0130 @HALT
0140 /MODIFY-JOB-SWITCHES OFF=(4,5)
0150 /ASSIGN-SYSIPT TO-FILE=N2O.RAB.IPT.BATCH
0160 /MODIFY-JOB-SWITCHES ON=(2)
0170 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0180 LOGON N2OLIB
0190 N2ORAB1
0200 FIN
0210 /REMARK *** EXECUTE N2ORAB2 ***
0220 /FILE REC.PARMS,LINK=W01
0230 /FILE &BACKUP,LINK=W02
0240 /FILE REC.ACKN,LINK=W03,RECFORM=VB,RECSIZE=189,BLKSIZE=193
0250 /SET-JOB-STEP
0260 /ASSIGN-SYSIPT TO-FILE=N2O.RAB.IPT.BATCH
0270 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0280 LOGON SYSTEM
0290 N2ORAB2
0300 FIN
0310 /REMARK *** EXECUTE N2ORAB3 ***
0320 /FILE REC.ACKN,LINK=W01
0330 /SET-JOB-STEP
0340 /ASSIGN-SYSIPT TO-FILE=N2O.RAB.IPT.BATCH
0350 /START-PROGRAM FROM-FILE=$ADABAS.NATBATCH
0360 LOGON N2OLIB
0370 N2ORAB3
0380 FIN
0390 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0400 /DELETE-FILE FILE-NAME=N2O.RAB.IPT.BATCH,
0410 /OPTION=DESTROY-ALL
0420 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMRAB      Library N2OBATCH
0010 /* Execute N2ORAB1 */
0020 address 'COMMAND'
0030 'ERASE N2ORAB1 CMSYNIN A'
0040 'EXECIO 1 DISKW N2ORAB1 CMWKF01 A 1 F 80 (STRING &INPUT'
0050 'EXECIO 1 DISKW N2ORAB1 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0060 'EXECIO 1 DISKW N2ORAB1 CMSYNIN A 2 F 80 (STRING N2ORAB1'
0070 'EXECIO 1 DISKW N2ORAB1 CMSYNIN A 3 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMWKF01 N2ORAB1 CMWKF01 A'
0100 'FILEDEF CMWKF02 REC PARMS A RECFM VB LRECL 189 BLKSIZE 193'
0110 'FILEDEF CMSYNIN DISK N2ORAB1 CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'EXEC NAT BATCH'
0140 'ERASE N2ORAB1 CMSYNIN A'
0150 /*
0160 /* Execute N2ORAB2 */
0170 'ERASE N2ORAB2 CMSYNIN A'
0180 'EXECIO 1 DISKW N2ORAB2 CMSYNIN A 1 F 80 (STRING LOGON SYSTEM'
0190 'EXECIO 1 DISKW N2ORAB2 CMSYNIN A 2 F 80 (STRING N2ORAB2'
0200 'EXECIO 1 DISKW N2ORAB2 CMSYNIN A 3 F 80 (STRING FIN'
0210 'FILEDEF * CLEAR'
0220 'FILEDEF CMWKF01 REC PARMS A'
0230 'FILEDEF CMWKF02 &BACKUP'
0240 'FILEDEF CMWKF03 REC ACKN RECFM VB LRECL 189 BLKSIZE 193'

```

```

0250 'FILEDEF CMSYNIN DISK N2ORAB2 CMSYNIN A'
0260 'FILEDEF CMPRINT PRINTER'
0270 'EXEC NAT BATCH'
0280 'ERASE N2ORAB2 CMSYNIN A'
0290 'ERASE REC PARMS A'
0300 /* Execute N2ORAB3 */
0310 'ERASE N2ORAB3 CMSYNIN A'
0320 'EXECIO 1 DISKW N2ORAB3 CMSYNIN A 1 F 80(STRING LOGON N2OLIB'
0330 'EXECIO 1 DISKW N2ORAB3 CMSYNIN A 2 F 80(STRING N2ORAB3'
0340 'EXECIO 1 DISKW N2ORAB3 CMSYNIN A 3 F 80(STRING FIN'
0350 'FILEDEF * CLEAR'
0360 'FILEDEF CMWKF01 REC ACKN a'
0370 'FILEDEF CMSYNIN DISK N2ORAB3 CMSYNIN A'
0380 'FILEDEF CMPRINT PRINTER'
0390 'EXEC NAT BATCH'
0400 'ERASE N2ORAB3 CMSYNIN A'
0410 'ERASE REC ACKN A'
0420 exit
***** End of list *****

```

**Program VSERAB Library N2OBATCH**

```

0010 * $$ JOB JNM=N2ORAB,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB N2ORAB
0040 // DLBL CMWKF01,'RAB.INPUT.PARMS'
0050 // EXTENT SYS001,, ,nnnnn,nnnnn
0060 // EXEC IDCAMS,SIZE=AUTO
0070 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0080 OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0090 &INPUT
0100 /*
0110 * N2ORAB1 - VERIFY INPUT PARMS
0120 // ASSGN SYSIPT,SYSDR
0130 // ASSGN SYS001,DISK,SHR
0140 // ASSGN SYS002,DISK,SHR
0150 // ASSGN SYS009,SYSLST
0160 // DLBL CMWKF01,'RAB.INPUT.PARMS'
0170 // EXTENT SYS001,, ,nnnnn,nnnnn
0180 // DLBL CMWKF02,'REC.PARMS'
0190 // EXTENT SYS002,, ,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB,2,2,193,VB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2ORAB1
0270 FIN
0280 /*
0290 * N2ORAB2 - RECOVER OBJECT TO TARGET
0300 // ASSGN SYS001,DISK,SHR
0310 // ASSGN SYS002,DISK,SHR
0320 // ASSGN SYS003,DISK,SHR
0330 // ASSGN SYS009,SYSLST
0340 // DLBL CMWKF01,'REC.PARMS'
0350 // EXTENT SYS001,, ,nnnnn,nnnnn
0360 // DLBL CMWKF02,'&BACKUP'
0370 // EXTENT SYS002,, ,nnnnn,nnnnn
0380 // DLBL CMWKF03,'REC.ACKN'
0390 // EXTENT SYS003,, ,nnnnn,nnnnn
0400 // EXEC NATBATCH
0410 BWORKD=(1,1,193,VB,2,2,5500,VB,3,3,193)
0420 /*
0430 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0440 /*
0450 LOGON SYSTEM
0460 N2ORAB2
0470 FIN
0480 /*
0490 * N2ORAB3 - ACKNOWLEDGE RECOVERY

```

```

0500 // ASSGN SYS001,DISK,SHR
0510 // ASSGN SYS009,SYSLST
0520 // DLBL CMWKF01,'REC.ACKN'
0530 // EXTENT SYS001,, ,nnnnn,nnnnn
0540 // EXEC NATBATCH
0550 BWORKD=(1,1,193,VB)
0560 /*
0570 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0580 /*
0590 LOGON N2OLIB
0600 N2ORAB3
0610 FIN
0620 /*
0630 /&
0640 * $$ EOJ
***** End of list *****

```

### Recover from archive backup (3GL PDS Objects)

```

Program      MVSRAB3  Library N2OBATCH
0010 //N2ORAB3 JOB (ACCT),'RECOVER PDS ARCH BACKUP',CLASS=A,NOTIFY=&USERID
0020 /***
0030 /*** THIS IS SAMPLE JCL FOR A PDS RECOVER FROM ARCHIVE BACKUP
0040 /***
0050 /*** N2ORAB1 RUNS WHERE N2O IS INSTALLED
0060 /***
0070 //N2ORAB1 EXEC PGM=NATBATCH
0080 //CMWKF02 DD DSN=REC.PARMS,DISP=(NEW,PASS,DELETE),
0090 //          SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA,
0100 //          DCB=(RECFM=VB,BLKSIZE=193,LRECL=189)
0110 //CMPRINT DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2ORAB1
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 /***
0210 /*** N2ORAB2T RUNS ON THE TARGET RECOVERY ENVIRONMENT
0220 /***
0230 //N2ORAB2T EXEC PGM=NATBATCH
0240 //CMWKF01 DD DSN=REC.PARMS,DISP=(OLD,DELETE,CATLG)
0250 //CMWKF02 DD DSN=&BACKUP,DISP=(OLD,KEEP,KEEP)
0260 //CMWKF03 DD DSN=REC.ACKN,DISP=(NEW,PASS,DELETE),
0270 //          SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA,
0280 //          DCB=(RECFM=VB,BLKSIZE=193,LRECL=189)
0290 //CMWKF05 DD DSN=&PDS(&MEMBER),DISP=SHR
0300 //CMPRINT DD SYSOUT=*
0310 //CMSYNIN DD *
0320 LOGON SYSTEM
0330 N2ORAB2T
0340 FIN
0350 /*
0360 /***
0370 /*** N2ORAB3 RUNS WHERE N2O IS INSTALLED
0380 /***
0390 //N2ORAB3 EXEC PGM=NATBATCH
0400 //CMWKF01 DD DSN=REC.ACKN,DISP=(OLD,DELETE,CATLG)
0410 //CMPRINT DD SYSOUT=*
0420 //CMSYNIN DD *
0430 LOGON N2OLIB
0440 N2ORAB3
0450 FIN
0460 /*
0470 /***
***** End of list *****

```

### Recover Purged Events

```

Program      MVSREB      Library N2OBATCH
0010 //N2OREB   JOB (ACCT), 'RECOVER EVENT BACKUP', CLASS=A, NOTIFY=&USERID
0020 //*
0030 //N2OREB1  EXEC   PGM=NATBATCH
0040 //CMWKF01  DD    DSN=&BACKUP, DISP=SHR
0050 //CMPRINT  DD    SYSOUT=*
0060 //CMPRT01  DD    SYSOUT=*
0070 //CMSYNIN  DD    *
0080 LOGON N2OLIB
0090 N2OREB
0100 FIN
0110 /*
0120 //
***** End of list *****

```

```

Program      BSREB      Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2O EVENT RECOVERY ***
0060 /FILE N2O.REPORT, LINK=P01
0070 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0080 /MODIFY-JOB-SWITCHES ON=(4,5)
0090 /START-PROGRAM FROM-FILE=$EDT
0100 LS=132, PS=60, MENU=OFF
0110 @WRITE 'N2O.REPT.IPT.BATCH' OVERWRITE
0120 @HALT
0130 /MODIFY-JOB-SWITCHES OFF=(4,5)
0140 /ASSIGN-SYSIPT TO-FILE=N2O.REPT.IPT.BATCH
0150 /MODIFY-JOB-SWITCHES ON=(2)
0160 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0170 LOGON N2OLIB
0180 N2OREB
0190 FIN
0200 /FILE &BACKUP, LINK=W01
0210 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0220 /DELETE-FILE FILE-NAME=N2O.REPT.IPT.BATCH,
0230 /OPTION=DESTROY-ALL
0240 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMREB      Library N2OBATCH
0010 /* EXECUTE A EVENT RECOVERY */
0020 ADDRESS 'COMMAND'
0030 'ERASE N2OREB CMSYNIN A'
0040 'EXECIO 1 DISKW N2OREB CMSYNIN A 1 F 80 (STRING LOGON N2OLIB)'
0050 'EXECIO 1 DISKW N2OREB CMSYNIN A 2 F 80 (STRING N2OREB)'
0060 'EXECIO 1 DISKW N2OREB CMSYNIN A 3 F 80 (STRING FIN)'
0070 'FILEDEF * CLEAR'
0080 'FILEDEF CMWKF01 DISK N2OREB &BACKUP A'
0090 'FILEDEF CMSYNIN DISK N2OREB CMSYNIN A'
0100 'FILEDEF CMPRINT PRINTER'
0110 'FILEDEF CMPRT01 PRINTER'
0120 'EXEC NAT BATCH'
0130 'ERASE N2OREB CMSYNIN A'
0140 exit
***** End of list *****

```

```

Program      VSEREB      Library N2OBATCH
0010 * $$ JOB JNM=N2OREPT,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 // JOB N2OREPT
0040 * N2OREB - N2O EVENT RECOVERY JCL
0050 // ASSGN SYS001,DISK,SHR
0060 // ASSGN SYS009,SYSLST
0070 // DLBL CMWKF01,'&BACKUP'
0080 // EXTENT SYS001,, ,NNNNN,NNNNN
0090 // EXEC NATBATCH
0100 /BWORKD=(1,1,80,FB)
0110 /*
0120 ADARUN DB=XXX,SVC=YYY,DEVICE=ZZZZ
0130 /*
0140 LOGON N2OLIB
0150 N2OREB
0160 FIN
0170 /*
0180 /&
0190 * $$ EOJ
***** End of list *****

```

### Reporting

```

Program      MVSREPT      Library N2OBATCH
0010 //N2OREPT JOB (20100),'EXECUTE REPORT',CLASS=A,NOTIFY=&USERID
0020 //***
0030 /* THIS IS SAMPLE JCL FOR ALL OF N2O REPORTS AND FOR THE
0040 /* DOCUMENTATION TOOLS SUBSYSTEM
0050 /*
0060 /* THIS JCL SHOULD BE RENAMED AS N2OREPT
0070 //***
0080 /* N2OREPT RUNS WHERE N2O IS INSTALLED
0090 //***
0100 //N2OREPT EXEC PGM=NATBATCH
0110 //CMPRINT DD SYSOUT=*
0120 //CMPRT01 DD SYSOUT=*
0130 //CMSYNIN DD *
0140 LOGON N2OLIB
0150 &REPORT
0160 &INPUT
0170 FIN
0180 /*
0190 /*
***** End of list *****

```

```

Program      BSREPT      Library N2OBATCH
0010 / .N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2OREPT ***
0060 /FILE N2O.REPORT, LINK=P01
0070 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0080 /MODIFY-JOB-SWITCHES ON=(4,5)
0090 /START-PROGRAM FROM-FILE=$EDT
0100 LS=132, PS=60, MENU=OFF
0110 @WRITE 'N2O.REPT.IPT.BATCH' OVERWRITE
0120 @HALT
0130 /MODIFY-JOB-SWITCHES OFF=(4,5)
0140 /ASSIGN-SYSIPT TO-FILE=N2O.REPT.IPT.BATCH
0150 /MODIFY-JOB-SWITCHES ON=(2)
0160 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0170 LOGON N2OLIB
0180 &REPORT
0190 &INPUT
0200 FIN
0210 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0220 /DELETE-FILE FILE-NAME=N2O.REPT.IPT.BATCH,
0230 /OPTION=DESTROY-ALL
0240 /LOGOFF NOSPOOL
***** End of list *****

```

```

Program      VMREPT      Library N2OBATCH
0010 /* Execute a report */
0020 address 'COMMAND'
0030 'ERASE N2OREPT CMSYNIN A'
0040 'EXECIO 1 DISKW N2OREPT CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0050 'EXECIO 1 DISKW N2OREPT CMSYNIN A 2 F 80 (STRING &REPORT'
0060 'EXECIO 1 DISKW N2OREPT CMSYNIN A 3 F 80 (STRING &INPUT'
0070 'EXECIO 1 DISKW N2OREPT CMSYNIN A 4 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMSYNIN DISK N2OREPT CMSYNIN A'
0100 'FILEDEF CMPRINT PRINTER'
0110 'FILEDEF CMPRT01 PRINTER'
0120 'EXEC NAT BATCH'
0130 'ERASE N2OREPT CMSYNIN A'
0140 exit
***** End of list *****

```

```

Program      VSEREPT      Library N2OBATCH
0010 * $$ JOB JNM=N2OREPT, CLASS=A, USER=&USERID
0020 * $$ LST CLASS=A, LST=SYSLST
0030 // JOB N2OREPT
0040 * N2OREPT - N2O REPORTING
0050 // ASSGN SYSIPT, SYSRDR
0060 // ASSGN SYS009, SYSLST
0070 // EXEC NATBATCH
0080 /*
0090 ADARUN DB=xxx, SVC=yyy, DEVICE=zzzz
0100 /*
0110 LOGON N2OLIB
0120 &REPORT
0130 &INPUT
0140 FIN
0150 /*
0160 /&
0170 * $$ EOJ
***** End of list *****

```

## N2OSCAN

### Program MVSSCAN Library N2OBATCH

```

0010 //N2OSCAN JOB (ACCOUNTING),'N2OSCAN ',CLASS=A,TIME=40,NOTIFY=&USERID
0020 //***
0030 //* THIS IS SAMPLE JCL FOR THE TOOLBOX OPTION FOR THE N2OSCAN UTILITY
0040 //* THIS JOB SHOULD BE RENAMED N2OSCAN
0050 //***
0060 //* N2OSCAN RUNS WHERE N2O IS INSTALLED
0070 //***
0080 //N2OSCAN EXEC PGM=NATBATCH
0090 //*
0100 //CMPRINT DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2OSCANX
0150 &INPUT
0160 FIN
0170 /*
0180 /*
***** End of list *****

```

### Program VMSCAN Library N2OBATCH

```

0010 /* Execute N2OSCAN Utility */
0020 address 'COMMAND'
0030 'ERASE N2OSCAN CMSYNIN A'
0040 'EXECIO 1 DISKW N2OSCAN CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0050 'EXECIO 1 DISKW N2OSCAN CMSYNIN A 2 F 80 (STRING N2OSCANX'
0060 'EXECIO 1 DISKW N2OSCAN CMSYNIN A 3 F 80 (STRING &INPUT'
0070 'EXECIO 1 DISKW N2OSCAN CMSYNIN A 4 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMSYNIN DISK N2OSCAN CMSYNIN A'
0100 'FILEDEF CMPRINT PRINTER'
0110 'FILEDEF CMPRT01 PRINTER'
0120 'EXEC NAT BATCH'
0130 'ERASE N2OSCAN CMSYNIN A'
0140 exit
***** End of list *****

```

### Program VSESCAN Library N2OBATCH

```

0010 * $$ JOB JNM=N2OSCAN,CLASS=A,USER=&USERID
0020 * $$ LST CLASS=A,LST=SYSLST
0030 * $$ LST CLASS=A,LST=02E,DISP=K,JSEP=0
0040 // JOB N2OSCAN
0050 * N2OSCAN - N2OSCAN UTILITY
0060 // ASSGN SYSIPT,YSRDR
0070 // ASSGN SYS002,02E
0080 // EXEC NATBATCH
0090 /*
0100 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0110 /*
0120 LOGON N2OLIB
0130 N2OSCANX
0140 &INPUT
0150 FIN
0160 /*
0170 /&
0180 * $$ EOJ
***** End of list *****

```

**N2OSCAN delete specific scan output set**

```
Program      MVSSCBD1 Library N2OBATCH
0010 //N2OSCBD1 JOB (ACCOUNTING),'N2OSCAN DELETE',CLASS=A,NOTIFY=&USERID
0020 //*****
0030 //* THIS IS SAMPLE N2OSCAN DELETE JCL (FOR N2OSCBD1)
0040 //* THIS JOB SHOULD BE RENAMED TO N2OSCBD1
0050 //*****
0060 //* N2OSCBD1 RUNS WHERE N2O IS INSTALLED
0070 //*
0080 //N2OSCBD1 EXEC PGM=NATBATCH
0090 //CMPRINT DD SYSOUT=*
0100 //CMPRT01 DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2OSCBD1
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 //*
***** End of list *****
```

```
Program      VMSCBD1 Library N2OBATCH
0010 /* Execute N2OSCBD1 */
0020 address 'COMMAND'
0030 'ERASE N2OSCBD1 CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OSCBD1 CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OSCBD1 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OSCBD1 CMSYNIN A 2 F 80 (STRING N2OSCBD1'
0080 'EXECIO 1 DISKW N2OSCBD1 CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2OSCBD1 CMWKF01 A'
0110 'FILEDEF CMSYNIN DISK N2OSCBD1 CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'FILEDEF CMPRT02 PRINTER'
0150 'EXEC NAT BATCH'
0160 exit
***** End of list *****
```

```

Program      VSESCBD1 Library N2OBATCH
0010 * N2OSCBD1 - N2OSCAN DELETE 1
0020 * $$ JOB JNM=N2OSCBD1,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OSCBD1
0050 /*
0060 * N2OSCBD1 -
0070 // DLBL CMWKF01,'N2O.SCBD1.INPUT'
0080 // EXTENT SYS001,,,,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100     REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110           OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYSIPT,SYSRDR
0150 // ASSGN SYS000,SYSRDR
0160 // ASSGN SYS001,DISK,SHR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.SCBD1.INPUT'
0190 // EXTENT SYS001,,,,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2OSCBD1
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****

```

### N2OSCAN Batch Delete by Date and User ID

```

Program      MVSSCBD2 Library N2OBATCH
0010 //N2OSCBD2 JOB (ACCOUNTING),'N2OSCAN DELETE',CLASS=A,NOTIFY=&USERID
0020 //*****
0030 /** THIS IS SAMPLE N2OSCAN DELETE JCL (FOR N2OSCBD2)
0040 /** THIS JOB SHOULD BE RENAMED TO N2OSCBD2
0050 //*****
0060 /** N2OSCBD2 RUNS WHERE N2O IS INSTALLED
0070 /**
0080 //N2OSCBD2 EXEC PGM=NATBATCH
0090 //CMPRINT DD SYSOUT=*
0100 //CMPRT01 DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2OSCBD2
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 /**
***** End of list *****

```

```

Program      VMSCBD2  Library N2OBATCH
0010 /* Execute N2OSCBD2 */
0020 address 'COMMAND'
0030 'ERASE N2OSCBD2 CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OSCBD2 CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OSCBD2 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OSCBD2 CMSYNIN A 2 F 80 (STRING N2OSCBD2'
0080 'EXECIO 1 DISKW N2OSCBD2 CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2OSCBD2 CMWKF01 A'
0110 'FILEDEF CMSYNIN DISK N2OSCBD2 CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'FILEDEF CMPRT02 PRINTER'
0150 'EXEC NAT BATCH'
0160 exit
***** End of list *****

```

```

Program      VSESCBD2 Library N2OBATCH
0010 * N2OSCBD2 - N2OSCAN DELETE 1
0020 * $$ JOB JNM=N2OSCBD2,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OSCBD2
0050 /*
0060 * N2OSCBD2 -
0070 // DLBL CMWKF01,'N2O.SCBD2.INPUT'
0080 // EXTENT SYS001,, ,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110          OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYSIPT,SYSRDR
0150 // ASSGN SYS001,DISK,SHR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.SCBD2.INPUT'
0190 // EXTENT SYS001,, ,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2OSCBD2
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****

```

**N2OSCAN Batch source display**

```

Program      MVSSCBS Library N2OBATCH
0010 //N2OSCBS JOB (ACCOUNTING), 'N2OSCAN BSD', CLASS=A, NOTIFY=&USERID
0020 //*****
0030 /* THIS IS SAMPLE N2OSCAN BATCH SOURCE DISPLAY
0040 /* THIS JOB SHOULD BE RENAMED TO N2OSCBS
0050 //*****
0060 /* N2OSCBS RUNS WHERE N2O IS INSTALLED
0070 /*
0080 //N2OSCBS EXEC PGM=NATBATCH
0090 //CMPRINT DD SYSOUT=*
0100 //CMPRT01 DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2OSCBS
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 /*
***** End of list *****

```

```

Program      VMSCBSD Library N2OBATCH
0010 /* Execute N2OSCBS */
0020 address 'COMMAND'
0030 'ERASE N2OSCBS CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OSCBS CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OSCBS CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OSCBS CMSYNIN A 2 F 80 (STRING N2OSCBS'
0080 'EXECIO 1 DISKW N2OSCBS CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2OSCBS CMWKF01 A'
0110 'FILEDEF CMSYNIN DISK N2OSCBS CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'FILEDEF CMPRT02 PRINTER'
0150 'EXEC NAT BATCH'
0160 exit
***** End of list *****

```

```
Program      VSESCBSD Library N2OBATCH
0010 * N2OSCBSD - N2OSCAN BATCH SOURCE DISPLAY
0020 * $$ JOB JNM=N2OSCBSD,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OSCBSD
0050 /*
0060 * N2OSCBSD -
0070 // DLBL CMWKF01,'N2O.SCBSD.INPUT'
0080 // EXTENT SYS001,, ,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100     REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110           OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYS001,DISK,SHR
0150 // ASSGN SYSIPT,SYSRDR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.SCBSD.INPUT'
0190 // EXTENT SYS001,, ,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2OSCBSD
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****
```

## N2OSCAN

### Program MVSSCBX Library N2OBATCH

```

0010 //N2OSCBX JOB (ACCOUNTING), 'N2OSCAN', CLASS=A, NOTIFY=&USERID
0020 //*****
0030 /* THIS IS SAMPLE N2OSCAN JCL
0040 /* THIS JOB SHOULD BE RENAMED TO N2OSCBX
0050 //*****
0060 /* N2OSCBX RUNS WHERE N2O IS INSTALLED
0070 /*
0080 //N2OSCBX EXEC PGM=NATBATCH
0090 //CMPRINT DD SYSOUT=*
0100 //CMPRT01 DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2OSCBX
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 /*
***** End of list *****

```

### Program VMSCBX Library N2OBATCH

```

0010 /* Execute N2OSCBX */
0020 address 'COMMAND'
0030 'ERASE N2OSCBX CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OSCBX CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OSCBX CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OSCBX CMSYNIN A 2 F 80 (STRING N2OSCBX'
0080 'EXECIO 1 DISKW N2OSCBX CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2OSCBX CMWKF01 A'
0110 'FILEDEF CMSYNIN DISK N2OSCBX CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'FILEDEF CMPRT02 PRINTER'
0150 'EXEC NAT BATCH'
0160 exit
***** End of list *****

```

```
Program      VSESCBX  Library N2OBATCH
0010 * N2OSCBX - N2OSCAN
0020 * $$ JOB JNM=N2OSCBX,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OSCBX
0050 /*
0060 * N2OSCBX -
0070 // DLBL CMWKF01,'N2O.SCBX.INPUT'
0080 // EXTENT SYS001,, ,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110          OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYSIPT,SYSRDR
0150 // ASSGN SYS001,DISK,SHR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.SCBX.INPUT'
0190 // EXTENT SYS001,, ,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2OSCBX
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****
```

**N2OSCAN Standard report**

```

Program      MVSSCB01 Library N2OBATCH
0010 //N2OSCB01 JOB (ACCOUNTING),'N2OSCAN B01',CLASS=A,NOTIFY=&USERID
0020 //*****
0030 /** THIS IS SAMPLE N2OSCAN OUTPUT STANDARD REPORT
0040 /** THIS JOB SHOULD BE RENAMED TO N2OSCB01
0050 //*****
0060 /** N2OSCB01 RUNS WHERE N2O IS INSTALLED
0070 /**
0080 //N2OSCB01 EXEC PGM=NATBATCH
0090 //CMPRINT DD SYSOUT=*
0100 //CMPRT01 DD SYSOUT=*
0110 //CMPRT02 DD SYSOUT=*
0120 //CMSYNIN DD *
0130 LOGON N2OLIB
0140 N2OSCB01
0150 FIN
0160 /*
0170 //CMWKF01 DD *
0180 &INPUT
0190 /*
0200 /**
***** End of list *****

```

```

Program      VMSCB01 Library N2OBATCH
0010 /* Execute N2OSCB01 */
0020 address 'COMMAND'
0030 'ERASE N2OSCB01 CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OSCB01 CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OSCB01 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OSCB01 CMSYNIN A 2 F 80 (STRING N2OSCB01'
0080 'EXECIO 1 DISKW N2OSCB01 CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'
0100 'FILEDEF CMWKF01 DISK N2OSCB01 CMWKF01 A'
0110 'FILEDEF CMSYNIN DISK N2OSCB01 CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'FILEDEF CMPRT02 PRINTER'
0150 'EXEC NAT BATCH'
0160 exit
***** End of list *****

```

```

Program VESCB01 Library N2OBATCH
0010 * N2OSCB01 - N2OSCAN OUTPUT STD REPORT
0020 * $$ JOB JNM=N2OSCB01,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OSCB01
0050 /*
0060 * N2OSCB01 -
0070 // DLBL CMWKF01,'N2O.SCB01.INPUT'
0080 // EXTENT SYS001,, , ,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110          OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYSIPT,SYSRDR
0150 // ASSGN SYS001,DISK,SHR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.SCB01.INPUT'
0190 // EXTENT SYS001,, , ,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2OSCB01
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****

```

**N2OSCAN String found report**

```

Program MVSSCB02 Library N2OBATCH
0010 //N2OSCB02 JOB (ACCOUNTING),'N2OSCAN B02',CLASS=A,NOTIFY=&USERID
0020 //*****
0030 //* THIS IS SAMPLE N2OSCAN STRING FOUND REPORT
0040 //* THIS JOB SHOULD BE RENAMED TO N2OSCB02
0050 //*****
0060 //* N2OSCB02 RUNS WHERE N2O IS INSTALLED
0070 /*
0080 //N2OSCB02 EXEC PGM=NATBATCH
0090 //SYSOUT DD SYSOUT=*
0100 //CMPRINT DD SYSOUT=*
0110 //CMPRT01 DD SYSOUT=*
0120 //CMPRT02 DD SYSOUT=*
0130 //CMSYNIN DD *
0140 LOGON N2OLIB
0150 N2OSCB02
0160 FIN
0170 /*
0180 //CMWKF01 DD *
0190 &INPUT
0200 /*
0210 /*
***** End of list *****

```

```

Program VMSCB02 Library N2OBATCH
0010 /* Execute N2OSCB02 */
0020 address 'COMMAND'
0030 'ERASE N2OSCB02 CMSYNIN A'
0040 'ERASE N2O CMWKF01 A'
0050 'EXECIO 1 DISKW N2OSCB02 CMWKF01 A 1 F 80 (STRING &INPUT'
0060 'EXECIO 1 DISKW N2OSCB02 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OSCB02 CMSYNIN A 2 F 80 (STRING N2OSCB02'
0080 'EXECIO 1 DISKW N2OSCB02 CMSYNIN A 3 F 80 (STRING FIN'
0090 'FILEDEF * CLEAR'

```

```

0100 'FILEDEF CMWKF01 DISK N2OSCB02 CMWKF01 A'
0110 'FILEDEF CMSYNIN DISK N2OSCB02 CMSYNIN A'
0120 'FILEDEF CMPRINT PRINTER'
0130 'FILEDEF CMPRT01 PRINTER'
0140 'FILEDEF CMPRT02 PRINTER'
0150 'EXEC NAT BATCH'
0160 exit
***** End of list *****

```

**Program VSESCB02 Library N2OBATCH**

```

0010 * N2OSCB02 - N2OSCAN STRING FOUND REPORT
0020 * $$ JOB JNM=N2OSCB02,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OSCB02
0050 /*
0060 * N2OSCB02 -
0070 // DLBL CMWKF01,'N2O.SCB02.INPUT'
0080 // EXTENT SYS001,,,,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100 REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110 OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYSIPT,SYSRDR
0150 // ASSGN SYS001,DISK,SHR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.SCB02.INPUT'
0190 // EXTENT SYS001,,,,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON N2OLIB
0260 N2OSCB02
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****

```

**Batch Update of Environment FUSER/FDIC Information**

**Program MVSUML Library N2OBATCH**

```

0010 //N2OBATCH JOB 'UPDATE ENVIRONMENT',MSGLEVEL=1,
0020 // CLASS=C,MSGCLASS=X,REGION=4M,NOTIFY=&USERID
0030 /*
0040 /* UPDATE THE FUSER/FDIC INFORMATION FOR AN EXISTING ENVIRONMENT
0050 /* THIS MEMBER SHOULD BE RENAMED NATUML
0060 /* THIS STEP RUNS WHERE N2O IS INSTALLED
0070 /*
0080 //STEP1 EXEC PGM=NATBATCH,
0090 // TIME=1400,COND=(9,LT)
0100 /*
0110 //CMPRINT DD SYSOUT=*
0120 //CMPRT01 DD SYSOUT=*
0130 //CMSYNIN DD *
0140 LOGON N2OLIB
0150 N2O5210P
0160 FIN
0170 /*
0180 //CMWKF01 DD *
0190 &INPUT
0200 /*
0210 /*
***** End of list *****

```

```
Program      BSUML      Library N2OBATCH
0010 /REMARK *** RENAME NATUML ***
0020 /.N2O LOGON
0030 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0040 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0050 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0060 /REMARK *** EXECUTE N2OUML ***
0070 /FILE CAPT1.INPUT, LINK=W01
0080 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0090 /MODIFY-JOB-SWITCHES ON=(4,5)
0100 /START-PROGRAM FROM-FILE=$EDT
0110 LS=132, PS=60, MENU=OFF
0120 @WRITE 'N2O.CAPTURE.IPT.BATCH' OVERWRITE
0130 @HALT
0140 /MODIFY-JOB-SWITCHES OFF=(4,5)
0150 /ASSIGN-SYSIPT TO-FILE=N2O.CAPTURE.IPT.BATCH
0160 /MODIFY-JOB-SWITCHES ON=(2)
0170 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0180 LOGON N2OLIB
0190 N2OUML
0200 FIN
0210 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0220 /DELETE-FILE FILE-NAME=N2O.CAPTURE.IPT.BATCH,
0230 /OPTION=DESTROY-ALL
0240 /LOGOFF NOSPOOL
***** End of list *****
```

```
Program      VMUML      Library N2OBATCH
0010 /* EXECUTE N2OUML RENAME THIS TO NATUML */
0020 address 'COMMAND'
0030 'ERASE N2OUML1 CMSYNIN A'
0040 'ERASE CAPTURE DATA A'
0050 'ERASE N2OUML1 CMWKF01 A'
0060 'EXECIO 1 DISKW N2OUML1 CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0070 'EXECIO 1 DISKW N2OUML1 CMSYNIN A 2 F 80 (STRING N2OUML1'
0080 'EXECIO 1 DISKW N2OUML1 CMSYNIN A 3 F 80 (STRING FIN'
0090 'EXECIO 1 DISKW N2OUML1 CMWKF01 A 1 F 80 (STRING &INPUT'
0100 'FILEDEF * CLEAR'
0110 'FILEDEF CMSYNIN DISK N2OUML1 CMSYNIN A'
0120 'FILEDEF CMWKF01 DISK N2OUML1 CMWKF01 A'
0130 'FILEDEF CMPRINT PRINTER'
0140 'EXEC NAT BATCH'
0150 'ERASE N2OUML1 CMSYNIN A'
0160 exit
***** End of list *****
```

```

Program      VSEUML      Library N2OBATCH
0010 * N2OUML - MODIFY ENVIRONMENT  RENAME NATUML
0020 * $$ JOB JNM=N2OUML1,CLASS=A,USER=&USERID
0030 * $$ LST CLASS=A,LST=SYSLST
0040 // JOB N2OUML1
0050 /*
0060 * N2OUML1 -
0070 // DLBL CMWKF01,'N2O.UML.INPUT'
0080 // EXTENT SYS001,,,,nnnnn,nnnnn
0090 // EXEC IDCAMS,SIZE=AUTO
0100     REPRO INFILE(SYSIPT ENV(RECFM(FB) RECSZ(80))) -
0110           OUTFILE(CMWKF01 ENV(RECFM(FB) RECSZ(80) BLKSZ(80)))
0120 &INPUT
0130 /*
0140 // ASSGN SYSIPT,SYSRDR
0150 // ASSGN SYS001,DISK,SHR
0160 // ASSGN SYS000,SYSRDR
0170 // ASSGN SYS009,SYSLST
0180 // DLBL CMWKF01,'N2O.UML.INPUT'
0190 // EXTENT SYS001,,,,nnnnn,nnnnn
0200 // EXEC NATBATCH
0210 BWORKD=(1,1,80,FB)
0220 /*
0230 ADARUN DB=xxx,SVC=yyy,DEVICE=zzzz
0240 /*
0250 LOGON SYSTEM
0260 N2OUML
0270 FIN
0280 /*
0290 /&
0300 * $$ EOJ
***** End of list *****

```

### Archive Backup Reporting

```

Program      MVSWKRP      Library N2OBATCH
0010 //N2OREPT JOB (20100),'EXECUTE REPORT',CLASS=A,NOTIFY=&USERID
0020 //***
0030 /* THIS IS SAMPLE JCL FOR THE N2O ARCHIVE BACKUP REPORT
0040 //***
0050 /* N2OREPT RUNS WHERE N2O IS INSTALLED
0060 //***
0070 //N2OREPT EXEC PGM=NATBATCH
0080 //CMPRINT DD SYSOUT=*
0090 //CMPRT01 DD SYSOUT=*
0100 //CMSYNIN DD *
0110 LOGON N2OLIB
0120 N2OTOLC
0130 &INPUT
0140 FIN
0150 //CMWKF01 DD DSN=&BACKUP,DISP=SHR
0160 /*
0170 /*
***** End of list *****

```

```

Program      BSWKRP      Library N2OBATCH
0010 /.N2O LOGON
0020 /CALL-PROCEDURE NAME=$TSOSAVE.DO.JV.T
0030 /ASSIGN-SYSOUT TO-FILE=N2O.OUT.LOAD.&(JV.ZEIT.T)
0040 /MODIFY-JOB-OPTIONS LOGGING=PARAMETERS (LISTING=YES)
0050 /REMARK *** EXECUTE N2OREPORT ***
0060 /FILE N2O.REPORT,LINK=P01
0070 /ASSIGN-SYSDTA TO-FILE=*SYSCMD
0080 /MODIFY-JOB-SWITCHES ON=(4,5)
0090 /START-PROGRAM FROM-FILE=$EDT
0100 LS=132,PS=60,MENU=OFF
0110 @WRITE 'N2O.REPT.IPT.BATCH' OVERWRITE
0120 @HALT
0130 /MODIFY-JOB-SWITCHES OFF=(4,5)

```

```
0140 /ASSIGN-SYSIPT TO-FILE=N2O.REPT.IPT.BATCH
0150 /MODIFY-JOB-SWITCHES ON=(2)
0160 /START-PROGRAM FROM-FRIL=$ADABAS.NATBATCH
0170 LOGON N2OLIB
0180 N2OTOLC
0190 &INPUT
0200 FIN
0210 /FILE &BACKUP, LINK=W01
0220 /ASSIGN-SYSIPT TO-FILE=*PRIMARY
0230 /DELETE-FILE FILE-NAME=N2O.REPT.IPT.BATCH,
0240 /OPTION=DESTROY-ALL
0250 /LOGOFF NOSPOOL
***** End of list *****
```

**Program VMWKR Library N2OBATCH**

```
0010 /* EXECUTE A REPORT WITH A WORKFILE */
0020 ADDRESS 'COMMAND'
0030 'ERASE N2OREPT CMSYNIN A'
0040 'EXECIO 1 DISKW N2OREPT CMSYNIN A 1 F 80 (STRING LOGON N2OLIB'
0050 'EXECIO 1 DISKW N2OREPT CMSYNIN A 2 F 80 (STRING N2OTOLC'
0060 'EXECIO 1 DISKW N2OREPT CMSYNIN A 3 F 80 (STRING &INPUT'
0070 'EXECIO 1 DISKW N2OREPT CMSYNIN A 4 F 80 (STRING FIN'
0080 'FILEDEF * CLEAR'
0090 'FILEDEF CMWKF01 DISK N2OREPT &BACKUP A'
0100 'FILEDEF CMSYNIN DISK N2OREPT CMSYNIN A'
0110 'FILEDEF CMPRINT PRINTER'
0120 'FILEDEF CMPRT01 PRINTER'
0130 'EXEC NAT BATCH'
0140 'ERASE N2OREPT CMSYNIN A'
0150 EXIT
***** End of list *****
```

**Program VSEWKR Library N2OBATCH**

```
0010 * $$ JOB JNM=N2OREPT, CLASS=A, USER=&USERID
0020 * $$ LST CLASS=A, LST=SYSLST
0030 // JOB N2OREPT
0040 * N2OREPT - N2O REPORTING WITH INPUT WORK FILE
0050 // ASSGN SYS001, DISK, SHR
0060 // ASSGN SYS009, SYSLST
0070 // DLBL CMWKF01, '&BACKUP'
0080 // EXTENT SYS001, , , , NNNNN, NNNNN
0090 // EXEC NATBATCH
0100 /BWORKD=(1,1,80,FB)
0110 /*
0120 ADARUN DB=XXX, SVC=YYY, DEVICE=ZZZZ
0130 /*
0140 LOGON N2OLIB
0150 N2OTOLC
0160 &INPUT
0170 FIN
0180 /*
0190 /&
0200 * $$ EOJ
***** End of list *****
```

### 3GL compile

**Program MVS3GLAC Library N2OBATCH**

```
0010 //COMPILE JOB (ACCOUNTING),'COMPILE MEMBERS',CLASS=A,NOTIFY=&USERID
0020 /**
0030 &INCLUDE COMPILE
0040 /**
***** End of list *****
```

### 3GL batch submit

**Program N2O3GL Library N2OBATCH**

```
0010 //N2O3GL JOB (ACCT),'SUBMIT 3GL',CLASS=A,NOTIFY=&USERID
0020 /**
0030 //N2O3GL1 EXEC PGM=NATBATCH
0040 //CMWKF01 DD *
0050 &INPUT
0060 /**
0070 //CMWKF02 DD DSN=&&TEMP,DISP=(NEW,PASS,DELETE),
0080 // DCB=(RECFM=FB,LRECL=80,BLKSIZE=80),
0090 // UNIT=SYSDA,SPACE=(TRK,(12,12))
0100 //CMPRINT DD SYSOUT=*
0110 //CMSYNIN DD *
0120 LOGON N2OLIB
0130 N2OSELT
0140 FIN
0150 /**
0160 /**
0170 //N2O3GL2 EXEC PGM=IEBGENER,COND=(4,LT)
0180 //SYSUT1 DD DSN=&&TEMP,
0190 // DISP=(OLD,DELETE)
0200 //SYSUT2 DD SYSOUT=(A,INTRDR)
0210 //SYSPRINT DD SYSOUT=*
0220 //SYSIN DD DUMMY
0230 /**
0240 /**
***** End of list *****
```

**D.2 – 3GL PDS JCL****PDS archive**

```
Program      PDSARCH  Library N2OBATCH
0010 /* &INCLUDE PRTPCH will be automatically replaced with the IEBFTPCH
0020 /* commands necessary to punch the members to a workfile.
0030 /*
0040 /*&STEP1      EXEC PGM=IEBFTPCH
0050 /*
0060 //SYSPRINT DD  SYSOUT=A
0070 //SYSUT1  DD  DSNNAME=&PDS,DISP=(SHR,KEEP),UNIT=SYSDA
0080 //SYSUT2  DD  DSNNAME=&&TEMP,DISP=(NEW,PASS,DELETE),
0090 //        UNIT=SYSDA,VOL=SER=XXXXXX,SPACE=(TRK,(12,12))
0100 //SYSIN   DD  *
0110 &INCLUDE PRTPCH
0120 /*
0130 /*
0140 /*&STEP2      EXEC PGM=NATBATCH
0150 //CMWKF01 DD  *
0160 &EVENT
0170 /*
0180 //CMWKF02 DD  DSN=&&TEMP,DISP=(OLD,DELETE,DELETE)
0190 //CMPRINT DD  SYSOUT=*
0200 /*
0210 //CMSYNIN DD  *
0220 LOGON N2OLIB
0230 N2OARCP
0240 FIN
0250 /*
0260 /*
***** End of list *****
```

**PDS Catalog Capture**

```

Program      PDSCAPT  Library N2OBATCH
0010 //PDSCAPT  JOB (ACCOUNTING),'CATALOG CAPTURE',CLASS=A,NOTIFY=&USERID
0020 //*
0030 //PDSLIST  EXEC PGM=IEHLIST
0040 //*
0050 //*****
0060 //*      CUSTOMIZATION NOTES
0070 //*****
0080 //*      THE CORRECT "VOLSER" MUST BE IDENTIFIED.
0090 //*      DCB INFORMATION LISTED IS MANDATORY.
0100 //*      THE LISTPDS STATEMENTS CANNOT BEGIN IN COLUMN ONE
0110 //*      UP TO TEN LISTPDS STATEMENTS MAY BE ISSUED.
0120 //*****
0130 //DD1      DD UNIT=SYSDA,DISP=OLD,VOL=SER=volser
0140 //SYSPRINT DD UNIT=SYSDA,DSN=N2O.PDS.CAPTURE.DATA,
0150 //          DCB=(RECFM=FBA,LRECL=121,BLKSIZE=1210),
0160 //          DISP=(,CATLG,DELETE),SPACE=(CYL,(1,1),RLSE)
0170 //SYSIN    DD *
0180          LISTPDS DSNAME=pdsname1,VOL=SYSDA=volser
0190          LISTPDS DSNAME=pdsname2,VOL=SYSDA=volser
0200          LISTPDS DSNAME=pdsname3,VOL=SYSDA=volser
0210          ...
0220 /*
0230 /*
0240 //CAPTURE  EXEC PGM=NATBATCH
0250 //CMWKF01 DD *
0260 &INPUT
0270 /*
0280 //CMWKF02 DD DSN=N2O.PDS.CAPTURE.DATA,DISP=(OLD,DELETE,KEEP)
0290 //CMPRINT DD SYSOUT=*
0300 //CMSYNIN DD *
0310 LOGON N2OLIB
0320 N2OCAPT3
0330 FIN
0340 /*
0350 /*
***** End of list *****

```

**PDS Compile**

```

Program      PDSCMPL  Library N2OBATCH
0010 //PDSCMPL  JOB (ACCOUNTING),'PDS COMPILE',CLASS=A,NOTIFY=&USERID
0020 //*
0030 &INCLUDE COMPILER
0040 //*
***** End of list *****

```

## PDS Move

```

Program      PDSMOVE Library N2OBATCH
0010 /* Steps below required only for 3GL MOVE events.
0020 /*
0030 /* &INCLUDE DELETE will be replaced automatically by N2O with
0040 /*      IDCAMS cards to delete each member that were migrated
0050 /*      if MOVE is specified for the Migration Profile.
0060 /*
0070 //PDSDEL  EXEC PGM=IDCAMS,COND=(8,LT)
0080 //SYSPRINT DD  DSN=N2O.DELOUT,
0090 //          DCB=(RECFM=VB,LRECL=125,BLKSIZE=129),
0100 //          DISP=(NEW,PASS,DELETE)
0110 //SYSIN   DD  *
0120 &INCLUDE DELETE
0130 /*
0140 /**
0150 //PDSACKN2 EXEC NATBATCH
0160 //CMWKF01  DD  DSN=N2O.DELOUT,DISP=OLD
0170 //CMWKF02  DD  *
0180 &EVENT
0190 /*
0200 //CMPRINT  DD  SYSOUT=*
0210 //CMSYNIN DD  *
0220 LOGON N2OLIB
0230 N2OACKND
0240 FIN
0250 /*
0260 /**
***** End of list *****

```

## PDS Migration

```

Program      PDSMIGR Library N2OBATCH
0010 //PDSMIGR JOB (ACCOUNTING),'PDS MIGRATION',CLASS=A,NOTIFY=&USERID
0020 /*
0030 /* The Archive JCL exists in program PDSARCH in library N2OBATCH.
0040 /* Archiving will be performed if specified on the TO-ENV Definition
0050 /*
0060 &INCLUDE ARCHIVE
0070 /*
0080 /* &INCLUDE PDS will automatically be replaced with the names of
0090 /* the FROM and TO PDS identified on the Environment Definitions.
0100 /* This information will be formulated into the INDD and OUTDD cards.
0110 /*
0120 //PDSCOPY  EXEC PGM=IEBCOPY
0130 //SYSPRINT DD  DSN=N2O.COPYOUT,
0140 //          DISP=(NEW,PASS,DELETE),LRECL=120,SPACE=(TRK,(1))
0150 /*
0160 &INCLUDE PDS
0170 /*
0180 //SYSUT3   DD  UNIT=SYSDA,SPACE=(TRK,(1))
0190 //SYSUT4   DD  UNIT=SYSDA,SPACE=(TRK,(1))
0200 /*
0210 /* &INCLUDE COPY will be replaced automatically by N2O with the
0220 /* COPY and SELECT control statements necessary to migrate the
0230 /* selected members.
0240 /*
0250 //SYSIN    DD  *
0260 &INCLUDE COPY
0270 /*
0280 /*
0290 //PDSACKN  EXEC PGM=NATBATCH
0300 //CMWKF01  DD  DSN=N2O.COPYOUT,DISP=OLD
0310 //CMWKF02  DD  *
0320 &EVENT
0330 /*
0340 //CMPRINT  DD  SYSOUT=*
0350 //CMSYNIN  DD  *

```

```

0360 LOGON N2OLIB
0370 N2OACKNP
0380 FIN
0390 /*
0400 /**
0410 /** &INCLUDE COMPILE will be replaced automatically by N2O
0420 /**      with compile JCL for each member migrated
0430 /**      if Autocompile is specified for the Migration Profile.
0440 /**
0450 &INCLUDE COMPILE
***** End of list *****

```

### PDS archive recovery

```

Program      PDSRJOB  Library N2OBATCH
0010 //PDSRMIGR JOB (ACCOUNTING),'PDS RECOVERY',CLASS=A,NOTIFY=&USERID
0020 /**
0030 /** &INCLUDE RECOVERY will be replaced by the JCL step (PDSRMIGR)
0040 /**      for each member to be recovered.
0050 /**
0060 &INCLUDE RECOVERY
0070 /**
0080 /** &INCLUDE COMPILE will be replaced automatically by N2O with
0090 /**      compile JCL for each member migrated if Autocompile is
0100 /**      for the Migration Profile.
0110 /**
0120 &INCLUDE COMPILE
0130 /**
***** End of list *****

```

### PDS Archive recovery

```

Program      PDSRMIGR Library N2OBATCH
0010 //&STEPNUM EXEC PGM=NATBATCH
0020 //CMWKF01 DD *
0030 &MEMBER
0040 &EVENT
0050 /*
0060 /**
0070 //CMPRINT DD SYSOUT=*
0080 //CMWKF02 DD DSN=&PDS,DISP=SHR
0090 /*
0100 //SYSIN DD *
0110 //CMSYNIN DD *
0120 LOGON N2OLIB
0130 N2ORECP
0140 FIN
0150 /*
***** End of list *****

```

### 3GL member submit to PREDICT pre-processor

```

Program      PREPROCS Library N2OBATCH
0010 /** JCL to submit 3GL members to the PREDICT Pre-processor.
0020 /** The pre-processor will store XREF information for
0030 /** a 3GL member in PREDICT.
0040 /**
0050 /** &STEPNUM will be replaced automatically by N2O with the next
0060 /** available step name.
0070 /**
0080 /** &SLIB will be replaced automatically by N2O with the target
0090 /** PDS name of the Event.
0100 /**
0110 /** &MEMBER will be replaced automatically by N2O with the name of
0120 /** the migrated member.
0130 /**
0140 //&STEPNUM EXEC PGM=NATBATCH
0150 /**

```

```
0160 /** The COBOL source code is input to the pre-processor
0170 /**
0180 //CMWKF01 DD DSN=&SLIB(&MEMBER),DISP=SHR
0190 /**
0200 /** The output of the pre-processor can be passed to the compiler,
0210 /** but the SYSIN statement of compile JCL must have the DSN below.
0220 /**
0230 //CMWKF02 DD DSN=&&TEMPPPDS (&MEMBER),DISP=(NEW,PASS),
0240             UNIT=SYSDA,DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
0250 /**
0260 /** Temporary work file for the pre-processor.
0270 /**
0280 //CMWKF03 DD DSN=&&WORK,DISP=(NEW,DELETE),
0290             UNIT=SYSDA,DCB=(RECFM=FB,LRECL=91,BLKSIZE=9100)
0300 //CMPRINT DD SYSOUT=*,DCB=BLKSIZE=1330
0310 //CMPRT01 DD SYSOUT=*,DCB=BLKSIZE=1330 /* Success of run
0320 //CMPRT02 DD SYSOUT=*,DCB=BLKSIZE=1330 /* List of Pre-proc cmds
0330 //CMPRT03 DD SYSOUT=*,DCB=BLKSIZE=1330 /* List of errors
0340 //CMSYSIN DD *
0350 LOGON SYSDIC
0360 MENU
0370 PREPROCESS,COBOL,&MEMBER
0380 FIN
0390 /*
0400 /**
***** End of list *****
```

### D.3 – Panvalet JCL

#### Panvalet Catalog Capture

```

Program PANVCAPT Library N2OBATCH
0010 //PANVCAPT JOB (ACCOUNTING), 'CATALOG CAPTURE', CLASS=A, NOTIFY=&USERID
0020 /*
0030 //PANPRT EXEC PGM=PAN#2
0040 /*
0050 //PANDD1 DD DSN=&PANDD1, DISP=SHR
0060 //SYSPUNCH DD DSN=N2O.CAPTURE.DATA, LRECL=121,
0070 // DISP=(,CATLG,DELETE),
0080 // UNIT=SYSDA, SPACE=(CYL,(1,1),RLSE)
0090 //SYSPRINT DD SYSOUT=*
0100 //SYSIN DD *
0110 ++PRINT 0-UP
0120 /*
0130 /*
0140 //CAPTURE EXEC PGM=NATBATCH
0150 /*
0160 //CMWKF01 DD *
0170 &INPUT
0180 /*
0190 //CMWKF02 DD DSN=N2O.CAPTURE.DATA, DISP=SHR
0200 //CMPRINT DD SYSOUT=*
0210 //CMSYNIN DD *
0220 LOGON N2OLIB
0230 N2OCAPT3
0240 FIN
0250 /*
0260 /*
***** End of list *****

```

#### Panvalet Compile

```

Program PANVC MPL Library N2OBATCH
0010 //PANVC MPL JOB (ACCOUNTING), 'PANVALET COMPILE', CLASS=A, NOTIFY=&USERID
0020 /*
0030 &INCLUDE COMPILE
0040 /*
***** End of list *****

```

#### Panvalet Migration

```

Panvalet Migration Program PANVMIGR Library N2OBATCH
0010 //PANVMIGR JOB (ACCOUNTING), 'PANVALET MIGRATION', CLASS=A, NOTIFY=&USERID
0020 /*
0030 /* &PANDD1 and &PANDD2 will be replaced automatically by N2O when
0040 /* the batch migration is submitted to an internal reader.
0050 /*
0060 //PANTRAN EXEC PGM=PAN#2, PARM='OPEN=INP'
0070 /*
0080 //PANDD1 DD DSN=&PANDD1, DISP=SHR
0090 //PANDD2 DD DSN=&PANDD2, DISP=SHR
0100 //SYSPRINT DD DSN=N2O.PANV.MIGR,
0110 // DISP=(NEW,PASS,CATLG)
0120 //SYSIN DD *
0130 &INCLUDE TRANSFER
0140 /*
0150 /*
0160 //PANACKN EXEC PGM=NATBATCH
0170 /*
0180 //CMWKF01 DD DSN=N2O.PANV.MIGR, DISP=(OLD,DELETE,CATLG)
0190 //CMWKF02 DD *
0200 &EVENT
0210 /*
0220 //CMSYNIN DD *

```

```
0230 LOGON N2OLIB
0240 N2OACKNP
0250 FIN
0260 /*
0270 /**
0280 /** &INCLUDE COMPILE will be replaced automatically by N2O with
0290 /** the JCL to compile each migrated member if Autocompile
0300 /** is specified for the Migration Profile.
0310 /**
0320 &INCLUDE COMPILE
0330 /**
0340 //PANMOVE EXEC PGM=PAN#2,PARM='OPEN=INP'
0350 //PANDD1 DD DSN=&PANDD1,DISP=SHR
0360 //PANDD2 DD DUMMY
0370 //SYSPRINT DD SYSOUT=N2O.PANV.MOVELIST,
0380 // DISP=(NEW,PASS,CATLG)
0390 //SYSIN DD *
0400 &INCLUDE DELETE
0410 /*
0420 /**
0430 //PANACKN2 EXEC PGM=NATBATCH
0440 /**
0450 //CMWKF01 DD DSN=N2O.PANV.MOVELIST,DISP=(OLD,DELETE,CATLG)
0460 //CMWKF02 DD *
0470 &EVENT
0480 /*
0490 //CMSYNIN DD *
0500 LOGON N2OLIB
0510 N2ODAKNP
0520 FIN
0530 /*
***** End of list *****
```

## D.4 - Endeavor JCL

### Endeavor Catalog capture

```

Program      ENDVCAPT Library N2OBATCH
0010 //ENDVCAPT JOB (ACCOUNTING),'CATALOG CAPTURE',CLASS=A,NOTIFY=&USERID
0020 /**
0030 //CAPTURE1 EXEC  PGM=NDVRC1,PARM='C1BR1000',REGION=4096K
0040 //CONLIB DD DSN=PREND.PERM.CONLIB,DISP=SHR
0050 //SYSOUT DD DSN=N2O.CAPTURE.DATA,DISP=SHR
0060 //BSTINF DD *
0070     REPORT 03 .
0080     ENVIRONMENT PROD .
0090     SYSTEM * .
0100     SUBSYSTEM * .
0110     TYPE * .
0120     STAGE P .
0130     DAYS 7 .
0140 //BSTPDS DD DUMMY
0150 //SMFDATA DD DUMMY
0160 //UNLINPT DD DUMMY
0170 //BSTPCH DD DSN=&TEMP,DISP=(NEW,DELETE,DELETE),
0180 //          UNIT=SYSDA,SPACE=(CYL,(1,2)),
0190 //          DCB=(RECFM=FB,LRECL=416,BLKSIZE=4160)
0200 //BSTLST DD SYSOUT=*
0210 //SORTIN DD UNIT=SYSDA,SPACE=(CYL(5,5))
0220 //SORTOUT DD UNIT=SYSDA,SPACE=(CYL(5,5))
0230 //SORTWK01 DD UNIT=SYSDA,SPACE=(CYL(5,5))
0240 //SORTWK02 DD UNIT=SYSDA,SPACE=(CYL(5,5))
0250 //SORTWK03 DD UNIT=SYSDA,SPACE=(CYL(5,5))
0260 //C1MSG1 DD SYSOUT=*
0270 //SYSOUT DD SYSOUT=*
0280 //SYSPRINT DD SYSOUT=*
0290 /*
0300 //CAPTURE2 EXEC PGM=NATBATCH
0310 /**
0320 //CMWKF01 DD *
0330 &INPUT
0340 /*
0350 //CMWKF02 DD DSN=N2O.CAPTURE.DATA,DISP=SHR
0360 /**
0370 //CMPRINT DD SYSOUT=*
0380 //CMSYSIN DD *
0390 LOGON SYSTEM
0400 N2OCAPT3
0410 FIN
0420 /*
0430 /**
***** End of list *****

```

### Endeavor migration

```

Program      ENDVMIGR Library N2OBATCH
0010 //ENDVMIGR JOB (ACCOUNTING),'ENDEAVOR MIGRATION',CLASS=A,NOTIFY=&USERID
0020 /**
0030 //ENDV001 EXEC PGM=NDVRC1,DYNAMNBR=1500,PARM='C1BM3000',REGION=4096K
0040 //CONLIB DD DSN=IPRFX.IQUAL.CONLIB,DISP=SHR
0050 //SYSPRINT DD DSN=N2O.ENDVOUT,DISP=SHR
0060 /**
0070 /** &INCLUDE COPY will be replaced automatically by N2O with the
0080 /** ADD, MOVE, OR RETRIEVE statements necessary to migrate the
0090 /** selected members.
0100 /**
0110 //BSTIPT01 DD *
0120 &INCLUDE COPY
0130 /*
0140 //C1MSG1 DD SYSOUT=*
0150 //C1PRINT DD SYSOUT=*

```

```
0160 //SYSOUT DD SYSOUT=*
0170 /**
0180 /** &INCLUDE COMPILE will be replaced automatically by N2O with the
0190 /** compile JCL for each member migrated if Autocompile is set to YES.
0200 /**
0210 &INCLUDE COMPILE
0220 /**
0230 /** &EVENT will be replaced automatically by N2O with the Event that
0240 /** is being migrated when the batch migration is submitted to an
0250 /** internal reader.
0260 /**
0270 //ENDVACKN EXEC PGM=NATBATCH
0280 //CMWKF01 DD DSN=N2O.ENDVOUT,DISP=OLD
0290 //CMWKF02 DD *
0300 &EVENT
0310 /**
0320 //CMPRINT DD SYSOUT=*
0330 //CMSYNIN DD *
0340 LOGON N2OLIB
0350 N2OACKNE
0360 FIN
0370 /**
***** End of list *****
```

## D.5 - Librarian JCL

### Librarian catalog capture

```

Program LIBRCAPT Library N2OBATCH
0010 //LIBRCAPT JOB (LIST),'CATALOG CAPTURE',CLASS=A,NOTIFY=&USERID
0020 /*
0030 //LIBPRT EXEC PGM=LIBRPROG
0040 /*
0050 /* &MASTER1 will be replaced automatically by N2O with
0060 /* the Librarian Master file name to be captured.
0070 /*
0080 //OSJOB DD DSN=&&TEMP,UNIT=SYSDA,
0090 // SPACE=(TRK,(3,1)),DISP=NEW
0100 //MASTER DD DSN=&MASTER1,DISP=SHR
0110 //INDEX DD DSN=N2O.CAPTURE.DATA,LRECL=121,
0120 // DISP=(,CATLG,DELETE),
0130 // UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)
0140 //SYSPRINT DD SYSOUT=*
0150 //SYSIN DD *
0160 -OPT INDEX
0170 -END
0180 /*
0190 /*
0200 //CAPTURE EXEC PGM=NATBATCH
0210 /*
0220 //CMWKF01 DD *
0230 &INPUT
0240 /*
0250 //CMWKF02 DD DSN=N2O.CAPTURE.DATA,DISP=SHR
0260 //CMPRINT DD SYSOUT=*
0270 //CMSYNIN DD *
0280 LOGON N2OLIB
0290 N2OCAPT3
0300 FIN
0310 /*
0320 /*
***** End of list *****

```

### Librarian Compile

```

Program LIBRCMPL Library N2OBATCH
0010 //LIBRCMPL JOB (ACCOUNTING),'LIBRARIAN COMPILE',CLASS=A,NOTIFY=&USERID
0020 /*
0030 &INCLUDE COMPILE
0040 /*
***** End of list *****

```

## Librarian migration

```

Program LIBRMIGR Library N2OBATCH
0010 //LIBRMIGR JOB (ACCOUNTING),'LIBRARIAN MIGRATION',CLASS=A,NOTIFY=&USERID
0020 /**
0030 /** &MASTER1 will be replaced automatically by N2O with the
0040 /** LIBRARIAN Master File representing the source of the migration,
0050 /** when the batch migration is submitted to an Internal Reader.
0060 /**
0070 /** &MASTER2 will be replaced automatically by N2O with the
0080 /** LIBRARIAN Master File representing the target of the migration,
0090 /** when the batch migration is submitted to an Internal Reader.
0100 /**
0110 /** &INCLUDE COPY will be replaced automatically by N2O with
0120 /** the LIBRARIAN commands necessary to perform the migration.
0130 /**
0140 //LIBCOPY1 EXEC PGM=LIBRCOPY,PARM='NOSEQ,NOHIST'
0150 /**
0160 //OSJOB DD DSN=&&TEMP,DISP=(NEW,PASS),
0170 // UNIT=DISK,SPACE=(CYL,(5,1)),
0180 // DCB=(RECFM=FB,LRECL=80,BLKSIZE=80)
0190 //MASTER DD DSN=&MASTER1,DISP=SHR
0200 //DESTMAST DD DSN=&MASTER2,DISP=SHR
0210 //SYSPRINT DD DSN=N2O.LIBR.COPY,SPACE=(CYL,(2,1)),
0220 // DISP=(NEW,PASS,CATLG),
0230 // DCB=(RECFM=FB,LRECL=121,BLKSIZE=1210)
0240 //SYSIN DD *
0250 &INCLUDE COPY
0260 /*
0270 /**
0280 //LIBCOPY2 EXEC PGM=LIBRPROG,PARM='NRJS,NJTS'
0290 /**
0300 //OSJOB DD DUMMY
0310 //LIST DD SYSOUT=*
0320 //INDEX DD SYSOUT=*
0330 //MASTER DD DSN=&MASTER2,DISP=SHR
0340 //SYSPRINT DD DSN=N2O.LIBR.PROGLIST,
0350 // SPACE=(CYL,(2,1)),
0360 // DISP=(NEW,PASS,CATLG),
0370 // DCB=(RECFM=FB,LRECL=121,BLKSIZE=1210)
0380 //SYSIN DD &&TEMP,DISP=(OLD,DELETE)
0390 /**
0400 /** &EVENT will be replaced automatically by N2O with the Event
0410 /** that is being migrated when the batch migration is submitted.
0420 /**
0430 //LIBACKN1 EXEC PGM=NATBATCH
0440 /**
0450 //CMWKF01 DD DSN=N2O.LIBR.COPY,
0460 // DISP=(OLD,DELETE,CATLG)
0470 //CMWKF02 DD *
0480 &EVENT
0490 /*
0500 //CMWKF03 DD DSN=N2O.LIBR.PROGLIST,
0510 // DISP=(OLD,DELETE,CATLG)
0520 //CMPRINT DD SYSOUT=*
0530 //CMSYNIN DD *
0540 LOGON N2OLIB
0550 N2OACKNL
0560 FIN
0570 /*
0580 /** &INCLUDE COMPILE will be replaced automatically by N2O with
0590 /** the JCL to compile each migrated member if Autocompile
0600 /** is specified on the Migration Profile.
0610 /**
0620 &INCLUDE COMPILE
0630 /**
0640 /** The following steps are for Librarian MOVES only.
0650 /**
0660 //LIBMOVE EXEC PGM=LIBRPROG,COND=(4,LT)
0670 /**

```

```
0680 //MASTER DD DSN=&MASTER1,DISP=SHR
0690 //SYSAF01 DD UNIT=SYSDA,SPACE=(TRK,(30,30),RLSE)
0700 //SYSAF02 DD UNIT=SYSDA,SPACE=(TRK,(30,30),RLSE)
0710 //OSJOB DD DUMMY
0720 //LIST DD SYSOUT=*
0730 //SYSPRINT DD DSN=N2O.LIBR.MOVELIST,SPACE=(CYL,(2,1)),
0740 // DISP=(NEW,PASS,CATLG)
0750 //SYSIN DD *
0760 &INCLUDE DELETE
0770 /*
0780 //LIBACKN2 EXEC PGM=NATBATCH
0790 /*
0800 //CMWKF01 DD DSN=N2O.LIBR.MOVELIST,DISP=(OLD,DELETE,CATLG)
0810 //CMWKF02 DD *
0820 &EVENT
0830 /*
0840 //CMPRINT DD SYSOUT=*
0850 //CMSYNIN DD *
0860 LOGON N2OLIB
0870 N2OACKNL
0880 FIN
0890 /*
***** End of list *****
```

## D.6 - DB2 related JCL

```

Program      DB2ASM      Library N2OBATCH
0010 /*      &ASMNUM will generate the next available step name for the
0020 /*      Assemble step (e.g. ASM1, ASM2).
0030 /*
0040 /*&ASMNUM EXEC PGM=IEV90,REGION=1M,PARM='NODECK,OBJECT'
0050 /*
0060 //SYSLIB DD DISP=SHR,DSN=NDB21X.SRCE
0070 // DD DISP=SHR,DSN=NAT21X.SRCE
0080 // DD DISP=SHR,DSN=DSNXXX.DSNMACS
0090 // DD DISP=SHR,DSN=SYS1.MACLIB
0100 //SYSIN DD DSN=&&DSNHOUT,
0110 // DISP=(OLD,DELETE)
0120 //SYSLIN DD DSN=&&LOADSET,
0130 // DISP=(NEW,PASS),UNIT=SYSDA,SPACE=(800,(500,500))
0140 // DCB=(RECFM=FBS,LRECL=80,BLKSIZE=800,BUFNO=1)
0150 //SYSTEM DD SYSOUT=*
0160 //SYSPRINT DD SYSOUT=*
0170 //SYSUDUMP DD SYSOUT=*
0180 //SYSUT1 DD SPACE=(TRK,(50,5)),UNIT=SYSDA,DISP=(,DELETE)
0190 //SYSUT2 DD SPACE=(TRK,(36,5)),UNIT=SYSDA,DISP=(,DELETE)
0200 //SYSUT3 DD SPACE=(TRK,(36,5)),UNIT=SYSDA,DISP=(,DELETE)
0210 /*
***** End of list *****

```

```

Program      DB2BIND      Library N2OBATCH
0010 //N2OBIND JOB (ACCT),'SUBMIT BIND',CLASS=A,NOTIFY=&USERID
0020 /*
0030 //JOB LIB DD DSN=NATURAL.NAT21X.LOADLIB,
0040 // DISP=(SHR,KEEP,KEEP)
0050 // DD DSN=ADABAS.ADA52X.LOADLIB,
0060 // DISP=(SHR,KEEP,KEEP)
0070 /*
0080 //N2OBIND1 EXEC PGM=NATBATCH
0090 /*
0100 //DDCARD DD *
0110 ADARUN DBID=xxx,SVC=yyy,DEVICE=zzzz,MODE=MULTI,PROGRAM=USER
0120 /*
0130 //CMPRINT DD SYSOUT=*
0140 //CMSYNIN DD *
0150 LOGON N2OLIB
0160 N2OBIND
0170 FIN
0180 /*
0190 //CMWKF01 DD *
0200 &INPUT
0210 /*
0220 //CMWKF02 DD DSN=SYSTSIN.INPUT.N2O
0230 //CMWKF03 DD DSN=&&TEMP,DISP=(NEW,PASS,DELETE),
0240 // UNIT=WORK,SPACE=(TRK,(1,1),RLSE),
0250 // DCB=(RECFM=FB,LRECL=80,BLKSIZE=80)
0260 /*
0270 /*
0280 /* COPY JCL TO BIND DB2 PLAN TO INTERNAL READER
0290 /*
0300 //N2OBIND2 EXEC PGM=IEBGENER,COND=(4,LT,N2OBIND)
0310 //SYSUT1 DD DSN=&&TEMP,
0320 // DISP=(OLD,DELETE)
0330 //SYSUT2 DD SYSOUT=(A,INTRDR)
0340 //SYSIN DD DUMMY
0350 /*
0360 /*
***** End of list *****

```

```

Program      DB2BINDP Library N2OBATCH
0010 //BINDPLAN  JOB (ACCT),'BIND DB2 PLAN',CLASS=A,NOTIFY=&USERID
0020 /**
0030 /** If each DBRM was bound separately as a package, see DB2PKLST.
0040 /**
0050 /** &PLAN will be replaced automatically by N2O with the name
0060 /** of the Plan to be bound (set in User Exit 9).
0070 /**
0080 /** &SUBSYS will be replaced automatically by N2O with the name
0090 /** of the DB2 Subsystem (set in User Exit 9).
0100 /**
0110 /** &DBRM will be replaced automatically by N2O with the name(s)
0120 /** of the DBRM(s) to be bound. The list of DBRM(s) is written
0130 /** to work file 2 in N2OUE10N, and then copied to work file 3
0140 /** with the remainder of the JCL.
0150 /**
0160 //BIND      EXEC PGM=IKJEFT01,DYNAMNBR=20,REGION=4096K,TIME=200
0170 /**
0180 //STEPLIB  DD DISP=SHR,DSN=DSNxxx.DSNLOAD
0190 //DBRMLIB DD DISP=SHR,DSN=NDB21x.DBRMLIB
0200 //SYSTSPRT DD SYSOUT=*
0210 //SYSPRINT DD SYSOUT=*
0220 //SYSUDUMP DD SYSOUT=*
0230 //SYSTSIN  DD *
0240   &INPUT
0250   OR
0260   DSN SYSTEM(&SUBSYS)
0270   BIND PLAN(&PLAN) -
0280   MEM( -
0290     &DBRM
0300   ) -
0310   ISOLATION(CS) -
0320   RELEASE(COMMIT) -
0330   ACTION(REPLACE) -
0340   END
0350 /*
***** End of list *****

```

```

Program      DB2DBRM  Library N2OBATCH
0010 //N2ODBRM JOB (ACCT), 'CREATE DBRM', CLASS=A, NOTIFY=&USERID
0020 //*
0030 //JOBLIB DD DSN=NATURAL.NAT21X.LOADLIB,
0040 //      DISP=(SHR,KEEP,KEEP)
0050 //      DD DSN=ADABAS.ADA52X.LOADLIB,
0060 //      DISP=(SHR,KEEP,KEEP)
0070 //*
0080 //N2ODBRM1 EXEC PGM=NATBATCH
0090 //*
0100 //DDCARD DD *
0110 ADARUN DBID=xxx, SVC=yyy, DEVICE=z z z z, MODE=MULTI, PROGRAM=USER
0120 /*
0130 //CMPRINT DD SYSOUT=*
0140 //CMSYNIN DD *
0150 LOGON N2OLIB
0160 N2ODBRM
0170 FIN
0180 /*
0190 //CMWKF01 DD *
0200 &INPUT
0210 /*
0220 //CMWKF03 DD DSN=&&TEMP, DISP=(NEW, PASS, DELETE),
0230 //      UNIT=WORK, SPACE=(TRK, (1, 1), RLSE),
0240 //      DCB=(RECFM=FB, LRECL=80, BLKSIZE=80)
0250 //*
0260 //N2ODBRM2 EXEC PGM=IEBGENER, COND=(4, LT, N2ODBRM)
0270 //SYSUT1 DD DSN=&&TEMP,
0280 //      DISP=(OLD, DELETE)
0290 //SYSUT2 DD SYSOUT=(A, INTRDR)
0300 //SYSIN DD DUMMY
0310 /*
0320 //*
***** End of list *****

```

```

Program      DB2DBRMA Library N2OBATCH
0010 //* The NATURAL DB/2 Batch Nucleus must be used for this job.
0020 //*
0030 //* &DBRM will be replaced automatically by N2O with the name
0040 //* of the DBRM to be created.
0050 //*
0060 //* &LIBRARY will be replaced automatically by N2O with the name
0070 //* of the library containing the programs included in the DBRM.
0080 //*
0090 //* &PROGRAM will be replaced automatically by N2O with the name
0100 //* of the program(s) to be included in the DBRM.
0110 //*
0120 //&DBRM EXEC PGM=NATDEMO, REGION=2000K, TIME=1400
0130 //*
0140 //STEPLIB DD DSN=NDB21X.LOAD, DISP=SHR
0150 //      DD DSN=ADA51X.LOAD, DISP=SHR
0160 //      DD DSN=NAT21X.LOAD, DISP=SHR
0170 //DDKARTE DD DUMMY
0180 //DDDRUCK DD SYSOUT=*
0190 //DDPRINT DD SYSOUT=*
0200 //DDCARD DD *
0210 ADARUN DBID=xxx, SVC=yyy, DEVICE=z z z z, MODE=MULTI, PROGRAM=USER
0220 /*
0230 //***** OUTPUT DECKS
0240 //CMWKF01 DD DSN=&&TMP1,
0250 //      DISP=(, PASS), UNIT=SYSDA, SPACE=(TRK, (5, 5)),
0260 //      DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
0270 //CMWKF02 DD DSN=&&TMP2,
0280 //      DISP=(, PASS), UNIT=SYSDA, SPACE=(TRK, (5, 5)),
0290 //      DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
0300 //CMWKF03 DD DSN=&&TMP3,
0310 //      DISP=(, PASS), UNIT=SYSDA, SPACE=(TRK, (5, 5)),
0320 //      DCB=(DSORG=PS, RECFM=FB, LRECL=80, BLKSIZE=3120)
0330 //CMWKF04 DD DSN=&&TMP4,
0340 //      DISP=(, PASS), UNIT=SYSDA, SPACE=(TRK, (5, 5)),

```

```

0350 //          DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=3120)
0360 //CMWKF05 DD DSN=&&TMP5,
0370 //          DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(5,5)),
0380 //          DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=3120)
0390 //CMWKF06 DD DSN=&&TMP,
0400 //          DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(5,5)),
0410 //          DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=3120)
0420 //CMWKF07 DD DSN=&&TMP7,
0430 //          DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(5,5)),
0440 //          DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=3120)
0450 //*
0460 //CMPRINT DD SYSOUT=*
0470 //CMSYNIN DD *
0480 LOGON SYSDB2
0490 CMD CREATE DBRM &DBRM USING INPUT DATA WITH XREF NO
0500 &LIBRARY,&PROGRAM
0510 .
0520 FIN
0530 /*
***** End of list *****

```

**Program DB2JOB Library N2OBATCH**

```

0010 //NSTATIC JOB (ACCT),'GENERATE DBRM',CLASS=A,
0020 //  MSGCLASS=X,NOTIFY=&USERID
0030 //*
0040 //* The following JOBLIB statements can be used instead of specifying
0050 //* LOADLIBS in each step.
0060 //*
0070 /*JOBPARM S=CPU1
0080 /*ROUTE PRINT SYSPRT
0090 //*
0100 //JOBLIB DD DSN=NATURAL.NAT21X.LOADLIB,
0110 //        DISP=(SHR,KEEP,KEEP)
0120 //        DD DSN=NATURAL.NDB21X.LOADLIB,
0130 //        DISP=(SHR,KEEP,KEEP)
0140 //        DD DSN=ADABAS.ADA51X.LOADLIB,
0150 //        DISP=(SHR,KEEP,KEEP)
0160 //        DD DSN=DB2.DSNLOAD.LOADLIB,
0170 //        DISP=(SHR,KEEP,KEEP)
***** End of list *****

```

**Program DB2LINK Library N2OBATCH**

```

0010 //* &LKONUM will generate the next available step name for the
0020 //* Online Link step (e.g. LKO1, LKO2).
0030 //*
0040 //* &LKBNUM will generate the next available step name for the
0050 //* Batch Link step (e.g. LKB1, LKB2).
0060 //*
0070 //* Note: Online Link Skeleton shown below.
0080 //*
0090 //* &DBRM will be replaced automatically by N20 with the name
0100 //* of the DBRM specified in the generate step above.
0110 //*
0120 //&LKONUM EXEC PGM=IEWL,PARM='REUS,XREF',
0130 //        COND=((4,LT,&ASNUM),(4,LT,&PCNUM))
0140 //*
0150 //SYSLIB DD DISP=SHR,DSN=NDB21X.LOAD,DCB=BLKSIZE=20000
0160 //        DD DISP=SHR,DSN=DSNXXX.DSNLOAD
0170 //*        DD DISP=SHR,DSN=IMSVS.RESLIB >--- IMS
0180 //*        DD DISP=SHR,DSN=CICS.LOADLIB >--- CICS
0190 //SYSLIN DD DSN=&&LOADSET,
0200 //        DISP=(OLD,DELETE)
0210 //        DD DDNAME=SYSIN
0220 //*
0230 //* Include the appropriate language interface
0240 //*
0250 //SYSIN DD *
0260 INCLUDE SYSLIB(DSNCLI) <--- CICS
0270 NAME &DBRM(R)

```

```

0280 /* INCLUDE SYSLIB(DSNELI) <--- TSO
0290 /* INCLUDE SYSLIB(DSNALI) <--- CAF
0300 /* INCLUDE SYSLIB(DFSLI000) <--- IMS/DC
0310 /*
0320 //SYSUT1 DD UNIT=SYSDA,SPACE=(1024,(50,50))
0330 //SYSMOD DD DISP=SHR,DSN=NDB21X.LOAD(&DBRM)
0340 //SYSPRINT DD SYSOUT=*
0350 //SYSUDUMP DD SYSOUT=*
0360 /*
***** End of list *****

```

**Program DB2PC Library N2OBATCH**

```

0010 /* &PCNUM will generate the next available step name for the
0020 /* Precompile step (e.g. PC1, PC22).
0030 /*
0040 /* &DBRM will be replaced automatically by N2O with the name
0050 /* of the DBRM specified in the generate step above.
0060 /*
0070 //PCNUM EXEC PGM=DSNHPC,REGION=2048K,PARM='HOST(ASM)',
0080 // COND=(4,LT,&DBRM)
0090 /*
0100 //DBRMLIB DD DSN=NDB21X.DBRMLIB(&DBRM),
0110 // DISP=SHR
0120 //SYSIN DD DSN=&&TMP,
0130 // DISP=(OLD,DELETE)
0140 //SYSUT1 DD UNIT=SYSDA,SPACE=(800,(500,500),,,ROUND)
0150 //SYSCIN DD DSN=&&DSNHOUT,
0160 // DISP=(NEW,PASS),UNIT=SYSDA,SPACE=(800,(500,500))
0170 //SYSPRINT DD SYSOUT=*
0180 //SYSTEM DD SYSOUT=*
0190 /*
0200 /* * * * * *
0210 /* OUTPUT PRE-COMPILE
0220 /* * * * * *
0230 /*
0240 //PRINT1 EXEC PGM=IEBGENER
0250 //SYSUT1 DD DSN=&&DSNHOUT,DISP=(OLD,PASS)
0260 //SYSUT2 DD SYSOUT=*
0270 //SYSIN DD DUMMY
0280 //SYSPRINT DD SYSOUT=*
0290 /*
***** End of list *****

```

```

Program      DB2PKG      Library N2OBATCH
0010 /**      &PKANUM will generate the next available step name for the
0020 /**      Bind Package Add step (e.g. PKA1, PKA2).
0030 /**
0040 /**      &PKRNUM will generate the next available step name for the
0050 /**      Bind Package Replace step (e.g. PKA1, PKA2).
0060 /**
0070 /**      &DBRM will be replaced automatically by N2O with the name
0080 /**      of the DBRM specified in the generate step above.
0090 /**
0100 /**&PKRNUM EXEC PGM=IKJEFT01,DYNAMNBR=20,
0110 /**      COND=((4,LT,&ASMNUM),(4,LT,&PCNUM))
0120 /**
0130 /**STEPLIB DD DISP=SHR,DSN=NDB23X.LOADLIB
0140 /**SYSTSPRT DD SYSOUT=*
0150 /**SYSPRINT DD SYSOUT=*
0160 /**SYSUDUMP DD SYSOUT=*
0170 /**SYSTSIN DD *
0180 DSN
0190 BIND PACKAGE (Location-name.Collection-id) -
0200 QUALIFIER(qualifier-name) -
0210 MEMBER(&DBRM) -
0220 LIBRARY(dbrm-pds-name) -
0230 SQLERROR(NOPACKAGE) -
0240 VALIDATE(RUN) -
0250 FLAG(I) -
0260 ISOLATION(CS) -
0270 RELEASE(COMMIT) -
0280 EXPLAIN(NO) -
0290 CURRENTDATA(NO) -
0300 ACTION(REPLACE) -
0310 ENABLE (*)
0320 END
***** End of list *****

```

```

Program      DB2PKLST Library N2OBATCH
0010 /**BINDPLAN JOB (ACCT),'BIND DB2 PLAN',CLASS=A,NOTIFY=&USERID
0020 /**
0030 /**      To bind DBRMs directly to a plan, see DB2BIND.
0040 /**
0050 /**      &PLAN will be replaced automatically by N2O with the name
0060 /**      of the Plan to be bound (set in User Exit 9).
0070 /**
0080 /**      &SUBSYS will be replaced automatically by N2O with the name
0090 /**      of the DB2 Subsystem (set in User Exit 9).
0100 /**
0110 /**      &INPUT will be replaced automatically by N2O with the SYSTSIN
0120 /**      statements necessary to perform the bind. These statements
0130 /**      are written to work file 2 in N2OUE10N, and then copied to
0140 /**      work file 3 with the remainder of the JCL.
0150 /**
0160 /**BIND EXEC PGM=IKJEFT01,DYNAMNBR=20,REGION=4096K,TIME=200
0170 /**
0180 /**STEPLIB DD DISP=SHR,DSN=DSNXXX.DSNLOAD
0190 /**DBRMLIB DD DISP=SHR,DSN=NDB21X.DBRMLIB
0200 /**SYSTSPRT DD SYSOUT=*
0210 /**SYSPRINT DD SYSOUT=*
0220 /**SYSUDUMP DD SYSOUT=*
0230 /**SYSTSIN DD *
0240 DSN SYSTEM(&SUBSYS)
0250 BIND PLAN(&PLAN) -
0260 &INPUT
0270 ISOLATION(CS) -
0280 RELEASE(COMMIT) -
0290 ACTION(REPLACE) -
0300 END
0310 /*
***** End of list *****

```

**D.7 - Network Data Mover sample JCL**

```

Program      NDMTRANF Library N2OBATCH
0010 /* USED BY SITES THAT HAVE NOT MODIFIED N2OUE14N,
0020 /* VARIABLE BUILD-EXTRACT SET TO FALSE (DEFAULT)
0030 /******
0040 /* &PFUSERNETID will be replaced automatically by N2O with the
0050 /* Network Id for the primary FUSER node (FROM FUSER Node).
0060 /*
0070 /* &SFUSER NETID1 - &SFUSERNETID10 will be replaced by N2O with
0080 /* the Network Id for the secondary FUSER nodes (TO FUSER Nodes)
0090 /*
0100 /* &PFDICNETID will be replaced automatically by N2O with the
0110 /* Network Id for the primary FDIC node (FROM FDIC Node).
0120 /*
0130 /* &SFDIC NETID1 - &SFDICNETID10 will be replaced by N2O with
0140 /* the Network Id for the secondary FDIC nodes (TO FDIC Nodes)
0150 /*
0160 /* &DATE will be replaced automatically by N2O with a value
0170 /* derived from &DATN in order to uniquely identify the dataset.
0180 /*
0190 /* &TIME will be replaced automatically by N2O with a value
0200 /* derived from &TIMN in order to uniquely identify the dataset.
0210 /*
0220 //NDMBATCH EXEC PGM=DMBATCH
0230 //          REGION=4M,
0240 //          PARM=(YYSLYNN)
0250 //DMPUBLIB DD DSN=PRNDM.PERM.PROCESS.LIB,DISP=SHR
0260 //          DD DSN=PSOPE.PERM.NDM.PROCESS,DISP=SHR
0270 //DMMSGFIL DD DSN=PRNDM.PERM.MSG,DISP=SHR
0280 //DMPRINT  DD SYSOUT=*
0290 //NDMCMDS  DD SYSOUT=*
0300 //SYSIN    DD *
0310   SIGNON NETMAP=PSNDM.PERM.NETMAP
0320   ESF=YES
0330   SUBMIT PROC=D4903NEW
0340   &&PNODE=&PFUSERNETID
0350   &&SNODE=&SFUSERNETID1
0360   &&FROMDSN=N2O.SOURCE
0370   &&TODSN=N2O.SOURCE.&DATE.&TIME
0380   &&UNIT=SYSDA
0390 /*
0400 //NDMBATCH EXEC PGM=DMBATCH
0410 //          REGION=4M,
0420 //          PARM=(YYSLYNN)
0430 //DMPUBLIB DD DSN=PRNDM.PERM.PROCESS.LIB,DISP=SHR
0440 //          DD DSN=PSOPE.PERM.NDM.PROCESS,DISP=SHR
0450 //DMMSGFIL DD DSN=PRNDM.PERM.MSG,DISP=SHR
0460 //DMPRINT  DD SYSOUT=*
0470 //NDMCMDS  DD SYSOUT=*
0480 //SYSIN    DD *
0490   SIGNON NETMAP=PSNDM.PERM.NETMAP
0500   ESF=YES
0510   SUBMIT PROC=D4903NEW
0520   &&PNODE=&PFUSERNETID
0530   &&SNODE=&SFUSERNETID1
0540   &&FROMDSN=N2O.PREDICT
0550   &&TODSN=N2O.PREDICT.&DATE.&TIME
0560   &&UNIT=SYSDA
0570 /*
***** End of list *****

```

```

Program      NDMTRANT Library N2OBATCH
0010 /** USED BY SITES THAT HAVE MODIFIED N2OUE14N, SETTING THE
0020 /** VARIABLE BUILD-EXTRACT TO TRUE
0030 /*******
0040 /** &PFUSERNETID WILL BE REPLACED AUTOMATICALLY BY N2O WITH THE NETWORK
0050 /**          ID FOR THE PRIMARY FUSER NODE (FROM FUSER NODE) .
0060 /****
0070 /** &SFUSER NETID1 - &SFUSERNETID10 WILL BE REPLACED BY N2O WITH THE
0080 /**          NETWORK ID FOR THE SECONDARY FUSER NODES (TO FUSER NODES) .
0090 /****
0100 /** &PFDICNETID WILL BE REPLACED AUTOMATICALLY BY N2O WITH THE NETWORK
0110 /**          ID FOR THE PRIMARY FDIC NODE (FROM FDIC NODE) .
0120 /** &SFDICNETID1 - &SFDICNETID10 WILL BE REPLACED BY N2O WITH THE
0130 /**          NETWORK ID FOR THE SECONDARY FDIC NODES (TO FDIC NODES) .
0140 /****
0150 /** &DATE WILL BE REPLACED AUTOMATICALLY BY N2O WITH A VALUE DERIVED
0160 /**          FROM *DATN IN ORDER TO UNIQUELY IDENTIFY THE DATASET.
0170 /** &TIME WILL BE REPLACE AUTOMATICALLY BY N2O WITH A VALUE DERIVED FROM
0180 /**          *TIMN IN ORDER TO UNIQUELY IDENTIFY THE DATASET.
0190 //N2OSEND      EXEC NATBAT,SOUT=X
0200 //CMWK01        DD          DSN=N2OPRD,DISP=(NEW,CATLG),
0210 //              SPACE=(CYL,(4,4)),
0220 //              DCB=(RECFM=VB,LRECL=1804,BLKSIZE=1808)
0230 //CMWK02        DD          DSN=N2OSRC,DISP=(NEW,CATLG),
0240 //              DCB=(RECFM=VB,LRECL=9183,BLKSIZE=9187),
0250 //              SPACE=(CYL,(1,1),RLSE)
0260 //CMWK03        DD          DSN=N2OPARM,DISP=SHR
0270 //CMWK05        DD          DSN=CMWK05,DISP=(NEW,CATLG),
0280 //              DCB=(RECFM=VB,LRECL=254,BLKSIZE=2540),
0290 //              SPACE=(CYL,(4,4))
0300 //CMPRT01      DD          SYSOUT=X
0310 //SYSIN         DD          DSN=N2OCOMM,DISP=SHR
0320 /****
0330 //NDBATCH EXEC PGM=DMBATCH,
0340 //              REGION=4M,
0350 //              PARM=(YYSLYNN)
0360 //DMPUBLIB      DD          DSN=PRNDM.PERM.PROCESS.LIB,DISP=SHR
0370 //              DD          DSN=PSOPE.PERM.NDM.PROCESS,DISP=SHR
0380 //DMMSGFIL      DD          DSN=PSNDM.PERM.MSG,DISP=SHR
0390 //DMPRINT       DD          SYSOUT=*
0400 //NDMCMDS      DD          SYSOUT=*
0410 //SYSIN         DD*
0420 SIGNON NETMAP=PSNDM.PERM.NETMAP,
0430          ESF=YES
0440 SUBMIT PROC=D4903NEW
0450 &&PNODE=&PFUSERNETID
0460 &&SNODE=&SFUSERNETID1
0470 &&FROMDSN=N2O.SOURCE
0480 &&TODSN=N2O.SOURCE.&DATE.&TIME
0490 &&UNIT=SYSDA
0500 //NDBATCH      EXEC      PGM=DMBATCH,
0510 //              REGION=4M,
0520 //              PARM=(YYSLYNN)
0530 //DMPUBLIB      DD          DSN=PRNDM.PERM.PROCESS.LIB,DISP=SHR
0540 //              DD          DSN=PSOPE.PERM.NDM.PROCESS,DISP=SHR
0550 //DMMSGFIL      DD          DSN=PSNDM.PERM.MSG,DISP=SHR
0560 //DMPRINT       DD          SYSOUT=*
0570 //NDMCMDS      DD          SYSOUT=*
0580 //SYSIN         DD*
0590 SIGNON NETMAP=PSNDM.PERM.NETMAP,
0600          ESF=YES
0610 SUBMIT PROC=D4903NEW
0620 &&PNODE=&PFUSERNETID
0630 &&SNODE=&SFUSERNETID1
0640 &&FROMDSN=N2O.PREDICT
0650 &&TODSN=N2O.PREDICT.&DATE.&TIME
0660 &&UNIT=SYSDA
0670 //NDBATCH EXEC PGM=DMBATCH,
0680 //              REGION=4M
0690 //              PARM=(YYSLYNN)
0700 //DMPUBLIB      DD          DSN=PRNDM.PERM.PROCESS.LIB,DISP=SHR

```

```
0710 //          DD      DSN=PSOPE.PERM.NDM.PROCESS,DISP=SHR
0720 //DMMSGFIL  DD      DSN=PSNDM.PERM.MSG,DISP=SHR
0730 //DMPRINT   DD      SYSOUT=*
0740 //NDMCMDSD DD      SYSOUT=*
0750 //          SYSIN   DD*
0760          SIGNON  NETMAP=PSNDM.PERM.NETMAP,
0770          ESF=YES
0780          SUBMIT  PROC=D4903NEW
0790          &&PNODE=&PFUSERNETID
0800          &&SNODE=&SFUSERNETID1
0810          &&FROMDSN=N2OCOMM
0820          &&TODSN=N2OCOMM.&DATE.&TIME
0830          &&UNIT=SYSDA
***** End of list *****
```

**Section D.8 – COBOL sample JCL**

```

Program      N2OCMPL  Library N2OBATCH
0010 //CBLOAD   PROC MEMBER=TEMPNAME,
0020 //          SLIB=,LLIB=DEVL,OBJNAME=TEMPNAME,
0030 //          CLIB1=CB,CLIB2=CB,CLIB3=CB,
0040 //          LLIB1=DEVL,LLIB2=PROD,FLAG=W,
0050 //          CALL=,CLIST=,DMAP=,DYNAM=,PMAP=NO,
0060 //          STATE=NO,FLOW=,RES=,COPT=,LOPT=,
0070 //          SYMDMP=NO,SYSOPT=A
0080 //COB      EXEC PGM=IKFCBL00,PARM=(&CLIST.CLIST,
0090 //          &DMAP.DMAP,&DYNAM.DYNAM,FLAG&FLAG,
0100 //          &PMAP.PMAP,&RES.RESIDENT,&STATE.STATE,
0110 //          &SYMDMP.SYMDMP,'&FLOW',
0120 //          TERM,LIB,'SIZE=384K',&COPT)
0130 //STEPLIB  DD DSN=SYS1.VSCOLIB,DISP=SHR
0140 //SYSLIB   DD DSN=ADMU.B014.&CLIB1..SOURCE,DISP=SHR
0150 //          DD DSN=ADMU.B014.&CLIB2..SOURCE,DISP=SHR
0160 //          DD DSN=ADMU.B014.&CLIB3..SOURCE,DISP=SHR
0170 //          DD DSN=ADMU.B014.CB.SOURCE,DISP=SHR
0180 //          DD DSN=ADMU.B014.MP.SOURCE,DISP=SHR
0190 //          DD DSN=SYS2.MACCOB,DISP=SHR
0200 //          DD DSN=SYSC.B022.PROD.SOURCE,DISP=SHR
0210 //SYSPRINT DD SYSOPT=&SYSOPT
0220 //SYSTEM   DD SYSOPT=&SYSOPT
0230 //SYPUNCH  DD SYSOPT=B
0240 //SYSUT1   DD UNIT=SYSDA,SPACE=(460,(700,100)),DSN=&&SYSUT1
0250 //SYSUT2   DD UNIT=SYSDA,SPACE=(460,(700,100)),DSN=&&SYSUT2
0260 //SYSUT3   DD UNIT=SYSDA,SPACE=(460,(700,100)),DSN=&&SYSUT3
0270 //SYSUT4   DD UNIT=SYSDA,SPACE=(460,(700,100)),DSN=&&SYSUT4
0280 //SYSUT5   DD UNIT=SYSDA,SPACE=(460,(700,100)),DSN=&&SYMDMP,
0290 //          DISP=(,PASS)
0300 //SYSLIN   DD DSN=&&LOADSET,DISP=(MOD,PASS),UNIT=SYSDA,
0310 //          SPACE=(80,(500,100))
0320 //SYSIN    DD DSN=&SLIB(&MEMBER),DISP=SHR
***** End of list *****

```

```

Program      MVSCOBAC Library N2OBATCH
0010 /** COBOL COMPILE JCL
0020 /**
0030 /** &STEPNUM will be replaced automatically by N2O with the next
0040 /** available step name.
0050 /**
0060 /** &SLIB will be replaced automatically by N2O with the target
0070 /** PDS name of the Event.
0080 /**
0090 /** &MEMBER will be replaced automatically by N2O with the name of
0100 /** the migrated member.
0110 /**
0120 /** &UXXXXXX will be replaced with the corresponding value specified
0130 /** in User-Exit-11.
0140 /**
0150 /**&STEPNUM EXEC PGM=IKFCBL00,PARM=(&UCLIST.CLIST,
0160 //          &UDMAP.DMAP,&UDYNAM.DYNAM,FLAG&UFLAG,
0170 //          &UPMAP.PMAP,&URES.RESIDENT,&USTATE.STATE,
0180 //          &USYMDMP.SYMDMP,'&UFLOW',
0190 //          TERM,LIB,'SIZE=384K',&COPT)
0200 //STEPLIB  DD DSN=SYS1.VSCOLIB,DISP=SHR
0210 //SYSLIB   DD DSN=&UCLIB1,DISP=SHR
0220 //          DD DSN=&UCLIB2,DISP=SHR
0230 //          DD DSN=&UCLIB3,DISP=SHR
0240 //          DD DSN=TREE.CB.SOURCE,DISP=SHR
0250 //          DD DSN=TREE.MP.SOURCE,DISP=SHR
0260 //          DD DSN=SYS2.MACCOB,DISP=SHR
0270 //          DD DSN=TREE.PROD.SOURCE,DISP=SHR
0280 //SYSPRINT DD SYSOPT=&USYSOPT
0290 //SYSTEM   DD SYSOPT=&USYSOPT
0300 //SYPUNCH  DD SYSOPT=B
0310 //SYSUT1   DD UNIT=SYSDA,SPACE=(460,(700,100))
0320 //SYSUT2   DD UNIT=SYSDA,SPACE=(460,(700,100))

```

```

0330 //SYSUT3 DD UNIT=SYSDA,SPACE=(460,(700,100))
0340 //SYSUT4 DD UNIT=SYSDA,SPACE=(460,(700,100))
0350 //SYSUT5 DD UNIT=SYSDA,SPACE=(460,(700,100))
0360 //SYSLIN DD DSN=&&LOADSET,DISP=(MOD,PASS),UNIT=SYSDA,
0370 // SPACE=(80,(500,100))
0380 //SYSIN DD DSN=&SLIB(&MEMBER),DISP=SHR
0390 /*
0400 //CHKGOOD EXEC NATBATCH,COND=(4,LE,&STEPNUM)
0410 //CMPRINT DD SYSOUT=*
0420 //DDCARD DD *
0430 ADARUN MODE=MULTI,SVC=999,DEVICE=8390,DBID=999
0440 /*
0450 //CMWKF01 DD *
0460 &EVENT
0470 &MEMBER
0480 /*
0490 //CMSYNIN DD *
0500 LOGON N2OLIB
0510 N2O3GLAC
0520 FIN
0530 /*
0540 //CHKBAD EXEC NATBATCH,COND=(4,GT,&STEPNUM)
0550 //CMPRINT DD SYSOUT=*
0560 //DDCARD DD *
0570 ADARUN MODE=MULTI,SVC=999,DEVICE=8390,DBID=999
0580 /*
0590 //CMWKF01 DD *
0600 &EVENT
0610 &MEMBER
0620 /*
0630 //CMSYNIN DD *
0640 LOGON N2OLIB
0650 N2O3GLER
0660 FIN
0670 /*
0680 //*****
***** End of list *****

```

**Program MVSCOBK Library N2OBATCH**

```

0010 /* LINK EDIT JCL
0020 /*
0030 /* &STEPNUM will be replaced automatically by N2O with the next
0040 /* available step name.
0050 /*
0060 /* &MEMBER will be replaced automatically by N2O with the name of
0070 /* the migrated member.
0080 /*
0090 /* &UXXXXXX will be replaced with the corresponding value specified
0100 /* in User-Exit-11.
0110 /*
0120 //&STEPNUM EXEC PGM=IEWL,PARM=(&LUOPT),
0130 // COND=(5,LT,COB)
0140 //SYSLIN DD DSNAME=&&LOADSET,DISP=(OLD,DELETE)
0150 // DDNAME=SYSIN
0160 //STEPLIB DD DSN=SYS1.VSCOLIB,DISP=SHR
0170 //SYSLMOD DD DSNAME=&ULLIB(&MEMBER),DISP=SHR
0180 //SYSLIB DD DSN=TREE.VSCLLIB,DISP=SHR
0190 // DD DSN=TREE.NTSUBRTN.LOAD,DISP=SHR
0200 // DD DSN=&ULLIB1,DISP=SHR
0210 // DD DSN=&ULLIB2,DISP=SHR
0220 // DD DSN=TREE.PROD.ADALOAD,DISP=SHR
0230 // DD DSN=TREE.PROD.LOAD,DISP=SHR
0240 // DD DSN=TREE.PROD.COBLOAD,DISP=SHR
0250 //SYSUT1 DD UNIT=SYSDA,SPACE=(1024,(50,20))
0260 //SYSRINT DD SYSOUT=USYSOUT
0270 /*
***** End of list *****

```

```

Program      MVSCOBUS Library N2OBATCH
0010 /**
0020 /** This JCL could be used to compile a COBOL program by calling a
0030 /** PROC.
0040 /**
0050 /** &STEPNUM will be replaced automatically by N2O with the next
0060 /** available step name.
0070 /**
0080 /** &SLIB will be replaced automatically by N2O with the target
0090 /** PDS name of the Event.
0100 /**
0110 /** &MEMBER will be replaced automatically by N2O with the name of
0120 /** the migrated member.
0130 /**
0140 /** &UXXXXXX will be replaced with the corresponding value specified
0150 /** in User-Exit-11.
0160 /**
0170 /**&STEPNUM EXEC COBCMPL,
0180 /**      SLIB=&SLIB,
0190 /**      MEMBER=&MEMBER,
0200 /**      SYSOUT=*,
0210 /**      OBJNAME=&UOBJ,
0220 /**      LOPT=&ULOPT
0230 /**
0240 /**CHKGOOD EXEC NATBATCH,COND=(4,LE,&STEPNUM)
0250 /**CMPRINT DD SYSOUT=*
0260 /**DDCARD DD *
0270 ADARUN MODE=MULTI,SVC=999,DEVICE=8390,DBID=999
0280 /*
0290 /**CMWKF01 DD *
0300 &EVENT
0310 &MEMBER
0320 /*
0330 /**CMSYNIN DD *
0340 LOGON N2OLIB
0350 N2O3GLAC
0360 FIN
0370 /*
0380 /**CHKBAD EXEC NATBATCH,COND=(4,GT,&STEPNUM)
0390 /**CMPRINT DD SYSOUT=*
0400 /**DDCARD DD *
0410 ADARUN MODE=MULTI,SVC=999,DEVICE=8390,DBID=999
0420 /*
0430 /**CMWKF01 DD *
0440 &EVENT
0450 &MEMBER
0460 /*
0470 /**CMSYNIN DD *
0480 LOGON N2OLIB
0490 N2O3GLER
0500 FIN
0510 /*
0520 /*******
      ***** End of list *****

```

This page intentionally left blank.

## APPENDIX E

### USER-EXIT QUICK REFERENCE

The following is a guide to help the user quickly find specific user-exits.

| N2O Exit Title                                  | Invoked When  | N2O Name |
|---|---|----------|
| 3GL/Other Autocompile                           | Event requires autocompile for 3GL/Other members  | N2OUE11N |
| 3GL/OTHER Autocompile Job Separation            | Generating JCL for Autocompile and/or Recovering 3GL/OTHER objects  | N2OUE24N |
| Autocompile Steplib Support                     | Migrating objects to a library using the autocompile and Target XREF options  | N2OUE25N |
| Automatic Object Selection                      | User specifies 'Y' in include objects from UEX-15 field during an add/copy/modify of an event   | N2OUE15N |
| Batch Autocompile                               | LOGON to next library in the batch autocompile sequence and before exiting with an error in N2OBCOMP  | N2OUE21N |
| Batch Parameter Override                        | A batch job is submitted from N2O   | N2OUE22N |
| Bind DB2 Plan                                   | User submits a request to bind a DB2 Plan   | N2OUE10N |
| Checkout/Checkin/Enrollment Utility             | Each object affected by Checkout, Cancel, Transfer, Transfer by Event, Reject Utility, or Enrollment Facility   | N2OUE05N |
| DB2 DBRM Generation                             | Each object in Event when user generates a DBRM   | N2OUE09N |
| DB2 DBRM JCL                                    | DBRM is generated   | N2OUE08N |
| DDM Generation Selection Exit                   | N2ORDDM for each PREDICT type FI OBJECT migrated  | N2OUE26N |
| Determination of Node                           | N2OSEND and N2ORECV   | N2OUE17N |
| Delete object code when source code is migrated | If a migration profile has MOVE specified, and migrates source only this exit is invoked to determine if the object code should also be deleted from the From environment | N2OUEDON |
| Directory Reports                               | For each object affected by N2O Directory Reports   | N2OUE23N |
| Event Authorization                             | Event requires Authorization  | N2OUE03N |
| Event Completion                                | Event completes Migration Process   | N2OUE04N |
| Event Request                                   | Add/Authorize/Modify/Copy/Delete/ Service an Event  | N2OUE01N |

| <b>N2O Exit Title</b>              | <b>Invoked When</b>   | <b>N2O Name</b> |
|------------------------------------|---|-----------------|
| N2O Batch Job Submission           | Submitting batch jobs   | N2OUE9JE        |
| N2O Control Override               |   | N2OEDITU        |
| N2O Termination                    | Exiting N2O   | N2OUE99P        |
| N2O Utilities                      | Each object affected by a utility                                   | N2OUE12N        |
| N2OSEL event is not processed      | When a batch ready event is not processed                           | N2OUE27N        |
| Object Selection                   | Each object added to an Event                                       | N2OUE02N        |
| On-line Autocompile                | when N2OUE04N is customized to execute online autocompiles          | N2OUE28N        |
| On-line Autocompile                | Event completes on-line autocompile process                         | N2OUE07P        |
| Password and Cipher Initialization | Catalog Capture Function  | N2OUE16N        |
| Securitre Database                 | Each security call made when Securitre interface is used            | N2OUE13N        |
| System Product Information         | Prior to batch migration of Predict Objects                         | N2OUE14N        |
| Task Update Override               | User updates the stage of a task, cancels a task, or rejects a task | N2OUE20N        |
| User-Defined Subsystem Menu        | User defined subsystem is available on main menu                    | N2OUE06P        |
| User-ID Initialization             | Entering N2O  | N2OUE00N        |

## APPENDIX F

### RELATIONSHIPS OF N2O PARAMETERS TO ENVIRONMENT SCREENS

| <b>N2O Variable</b>               | <b>Possible Values</b>  | <b>Defined In</b>          |
|-----------------------------------|---|----------------------------|
| 3GL Category                      | ASMB, COBOL, FORT, PL/I, RPG, DATA, JCL, OTHER, MISC  | 3GL Environment Definition |
| 3GL Dataset Name                  |   | 3GL Environment Definition |
| 3GL Interface                     |   | 3GL Environment Definition |
| 3GL Environment Definition (Name) |   | 3GL Environment Definition |
| 3GL Interface                     | PDS, Librarian, Endeavor, Panvalet  | Environment Definition     |
| 3GL JCL Archive                   | NATURAL program that contains JCL used to archive PDS members. N2O replaces &INCLUDEARCHIVE with this JCL | Migration Profile          |
| 3GL JCL Library                   | NATURAL library that contains JCL to migrate 3GL members  | Migration Profile          |
| 3GL JCL Program                   | NATURAL program that contains JCL to migrate 3GL members  | Migration Profile          |
| 3GL Node                          |   | Environment Definition     |
| 3GL/Other Catalog Capture         | Submits JCL to read 3GL members and update N2O migration file<br><br>N2OCAPT3                             | Administrative Utilities   |
| 3GL/Other Profile                 | Define paths for migrating 3GL/Other modules (up to 40 from/to paths)                                     | Security Administration    |
| ADABAS Remote                     |   | Node Definition            |
| Approval Profile                  | Matches environment/library defined in a migration profile and master event                               | Security Administration    |
| Archive Cipher Code               |   | Archive Definition         |
| Archive DBID                      |   | Archive Definition         |
| Archive Description               |   | Archive Definition         |
| Archive Environment               |   | Environment Definition     |
| Archive FNR                       |   | Archive Definition         |
| Archive Name                      |   | Archive Definition         |

| <b>N2O Variable</b>            | <b>Possible Values</b>   | <b>Defined In</b>        |
|--------------------------------|--|--------------------------|
| Archive Node                   |  | Archive Definition       |
| Archive Password               |  | Archive Definition       |
| Archive Purge                  | Submits JCL to remove program versions<br><br>N2OPARC1, N2OPARC2, N2OPARC3, N2OPARC4   | Administrative Utilities |
| Archive Purge Retention Values | Versions<br><br>Days   | Archive Definition       |
| Auth-ID                        | User-ID - identifies user-ID required for authorization at specified level<br><br>Group-ID - identifies group-ID required for authorization at specified level   | Migration Profile        |
| Authorization Required         | Y/N  | Environment Definition   |
| Autocompile                    | Cat - NATURAL cataloged at target<br><br>Stow - NATURAL stowed at target<br><br>No   | Migration Profile        |
| Autorecovery                   | Y - all NATURAL programs in an event will be automatically recovered when a program receives a compile error during the autocompile process. Requires the use of autocompile and archiving<br><br>N - no recovery done | Migration Profile        |
| Base                           | Y/N  | Environment Definition   |
| Catalog Capture                | Submits JCL to read Src/Obj on remote FUSER/FDIC and update N2O migration file<br><br>N2OCAPT1, N2OCAPT2   | Administrative Utilities |
| Change Control                 | Y - indicates change control value is required when adding/copying an event<br><br>N - indicates change control value is not required when adding/ copying an event  | Master Event             |
| Checkout/Checkin Level         |  | Install Parameters       |
| DB2                            | Y/N  | Migration Profile        |

| <b>N2O Variable</b>               | <b>Possible Values</b>   | <b>Defined In</b>        |
|-----------------------------------|--|--------------------------|
| Deferred Time                     | Minimum number of hours between migration process and the deletion process of a move field is 0 when a copy is specified   | Migration Profile        |
| Delay                             | AUTH - migration must be authorized<br><br>SERV - migration must be authorized and serviced<br><br>NONE - migration may proceed immediately  | Migration Profile        |
| Description                       |  | Migration Profile        |
| Ending Program                    |  | Master Event             |
| Environment Description           |  | Environment Definition   |
| Environment Name                  |  | Environment Definition   |
| Event Description                 |  | Master Event             |
| Event Name                        |  | Master Event             |
| Event Purge                       | Submits JCL to remove events exceeding retention values in install parms or in the Master Event<br><br>N2OPEVT1, N2OPEVT2  | Administrative Utilities |
| Event Purge                       | Number of days closed events are maintained  | Install Parameters       |
| Event Purge                       | Number of days closed events are maintained, when exceeded purge event will delete it  | Master Event             |
| Extract Event                     | YES - NATURAL programs, PREDICT objects, and 3GL members are copied to development environment without modifying the checkout status<br><br>NO - Checkout status is updated when objects are selected to be migrated | Master Event             |
| FDIC Node DBID<br>FNR Pass Cipher |  | Environment Definition   |
| From Environment                  |  | Migration Profile        |
| From Environment                  |  | Master Event             |
| From Library                      |  | Master Event             |
| Function Profile                  | Sets which activities and screens a user has access to   | Security Administration  |

| <b>N2O Variable</b>                | <b>Possible Values</b>   | <b>Defined In</b>                                   |
|------------------------------------|--|---|
| FUSER Node DBID<br>FNR Pass Cipher |  | Environment Definition                              |
| JCL Library                        | NATURAL library that contains JCL to migrate NATURAL programs, SYSERR messages, and PREDICT objects  | Migration Profile<br>Master Event (Multiple Target) |
| JCL Library                        | Library containing batch JCL   | Install Parameters                                  |
| JCL Program                        | NATURAL program that contains JCL to migrate NATURAL programs, and SYSERR messages   | Migration Profile<br>Master Event (Multiple Target) |
| Levels of Authorization            | Number of authorizations required when Delay=AUTH or SERV  | Migration Profile                                   |
| Lock Event                         | ENV - Indicates only the Environment fields will be locked and cannot be modified by the user when adding or copying an Event.<br><br>LIB - Indicates only the Library fields will be locked and cannot be modified by the user when adding or copying an Event.<br><br>All - Indicates all four fields (all of the From/To fields) will be Locked and cannot be modified by the user when adding or copying an Event.<br><br>NO - Indicates no fields are locked. | Master Event  |
| Locking - N2OEDIT Required         | None<br>REQ - locked after programs are selected for migration<br>AUTH - locked after migration is authorized  | Install Parameters                                  |
| Method                             | Copy - copy object from source to target<br>Move - copy object from source to target then delete object from source<br>Both - specified at migration time  | Migration Profile                                   |
| Migrate XREF                       | Y - XREF must exist to migrate<br>S - if XREF exists migrate it<br>N - ignore XREF   | Migration Profile                                   |
| Mode                               | On-line, Batch, Both   | Migration Profile                                   |
| Network ID                         |  | Node Definition                                     |
| Node Description                   |  | Node Definition                                     |
| Node Name                          |  | Node Definition                                     |

| <b>N2O Variable</b>   | <b>Possible Values</b>   | <b>Defined In</b>                                   |
|-----------------------|--|---|
| PREDICT JCL Program   | NATURAL program that contains JCL to migrate PREDICT objects   | Migration Profile<br>Master Event (Multiple Target) |
| PREDICT Profile       | Define paths for migrating PREDICT modules (up to 40 from/to paths)  | Security Administration                             |
| Program Documentation | Y - PREDICT program documentation must exist<br><br>N - Ignore it  | Migration Profile                                   |
| Project Tracking      | Y - N2O Project Tracking task is required when adding/copying an event<br><br>N - N2O Project Tracking task is not required when adding/copying an event | Master Event  |
| SECURITRE             | No - N2O security used<br><br>Yes - N2O interface with SECURITRE   | Install Parameters                                  |
| Starting Program      |  | Master Event  |
| To Environment        |  | Migration Profile                                   |
| To Environment        | *=multiple targets   | Master Event  |
| To Library            |  | Master Event  |
| Type                  | Src, Obj, Both   | Migration Profile                                   |
| User Definition       | Define migration path and N2O functions to a user-ID   | Security Administration                             |
| Verify Object         | Checks object timestamp to ensure that it is greater than source timestamp   | Migration Profile                                   |

| N2O Variable   | Possible Values   | Defined In               |
|--|---|--------------------------|
| <p>XREF Target<br/>(Requires the use of Autocompile)</p> | <p>A - Indicates Parameter data<br/>Any object that contains a 'PARAMETER USING' clause for the selected Parameter Data Area.</p> <p>C - Indicates Copycode<br/>Any object that contains an 'INCLUDE' clause for the selected Copycode.</p> <p>G - Indicates Global data<br/>Any object that contains a 'GLOBAL USING' clause for the selected Global Data area.</p> <p>H - Indicates Helproutine<br/>Any object that contains an 'HE=' clause for the selected Helproutine.</p> <p>L - Indicates Local data<br/>Any object that contains a 'LOCAL USING' clause for the selected Local Data Area.</p> <p>M - Indicates Map<br/>Any object that contains a 'WRITE USING' or 'INPUT USING' clause for the selected Map.</p> <p>N - Indicates Subprogram<br/>Any object that contains a 'CALLNAT' to the selected Subprogram.</p> <p>P - Indicates Program<br/>Any object that issues a 'FETCH', 'FETCH RETURN', 'STACK', or 'CALL' to the selected program.</p> <p>S - Indicates Subroutine<br/>Any object that issues a 'PERFORM' to the selected subroutine.</p> <p>T - Indicates Text<br/>No objects are affected by the selection of Text objects.</p> <p>4 - Indicates Class<br/>No objects are affected by the selection of Class Objects.</p> | <p>Migration Profile</p> |

# APPENDIX G

## Frequently Asked Questions

### **Where does N2O place the output of my batch job?**

N2O writes the output to CMPRT01.

### **How can I delete an Event with a status of 'H'?**

A status of 'H' indicates that the Event is on hold. The status of the Event can be modified using the Utility Tools in the Toolbox Subsystem.

### **Why is my Event marked "Override"?**

N2O allows self-authorization and emergency migrations without authority or approval. In both cases the Events are marked as override. An override Event is always copied regardless of the migration profile. Therefore, users will see a move changed to a copy. Override Events do not delete objects.

### **What is an Extract Event and how is it used?**

An Extract Event migrates an object without causing a checkout to occur. It is used for migrating objects to a development library. The objects would be copies of existing code to be used as the basis for new programs. An Extract Event also allows the object to be renamed on the target environment.

### **How do I use an existing program as a base for creating a new program?**

An Extract Event migrates an object to a library without performing a checkout. It also allows an object to be renamed at the target.

### **How do I allow a supervisor to authorize an Event if the programmer is not available?**

When defining a migration profile with authorization, the user also defines the authorization level and authorization ID. Entering "\*" allows any user with the appropriate approval profile to authorize the Event. The Supervisor's approval profile should contain the migration paths necessary to authorize Events as needed. Up to 40 migration paths can be defined in the approval profile.

### **How is Project Tracking used with N2O?**

Every time an Event is requested, the user can relate that Event to a specific task defined in the N2O Project Tracking Subsystem. This allows the user to track the relationships of Events and projects. Refer to **Section III Project Tracking Subsystem**.

### **How does N2O handle multiple versions of the same program?**

Multiple versions of programs are handled using the checkout/checkin features of N2O. The Checkout/Checkin field on the N2O install parms screen specifies the levels of checkout permitted. Every time an object is checked out, N2O verifies the current number of checkouts. If more than one checkout exists the user receives a warning message on the screen. A user will receive this warning every time the object is migrated if more than one checkout exists.

**Does N2O have a move option so that the object's source and compiled code is deleted from the location from which you are migrating?**

Yes, there is a move option. It is set in the Migration Profile method parameter. Refer to the ***N2O Administrator Manual***.

**What does the Change Control Number do?**

The Change Control Number provides a way to relate several Events. If the user has ten Events to complete a specific enhancement/bug fix, the user can assign them all the same Change Control Number. A report by Change Control Number is available to show all Events related to a selected number. This allows a history of all modules changed to be related to an enhancement/bug fix.

**Installation/Product Upgrade Questions**

**What do I have to do to N2O when upgrading Natural versions?**

When upgrading NATURAL, the N2OUXCPY program must be executed to ensure that the correct USR\* modules are in the SYSTEM and SYSLIB libraries. If you are using N2O's autocompile and/or N2OEDIT components, they must be re-installed.

**Does upgrading PREDICT versions require any changes to N2O?**

Yes, the PREDICT version in User-Exit 14 must be changed and the member stowed as described in the ***N2O Administrator Manual***.

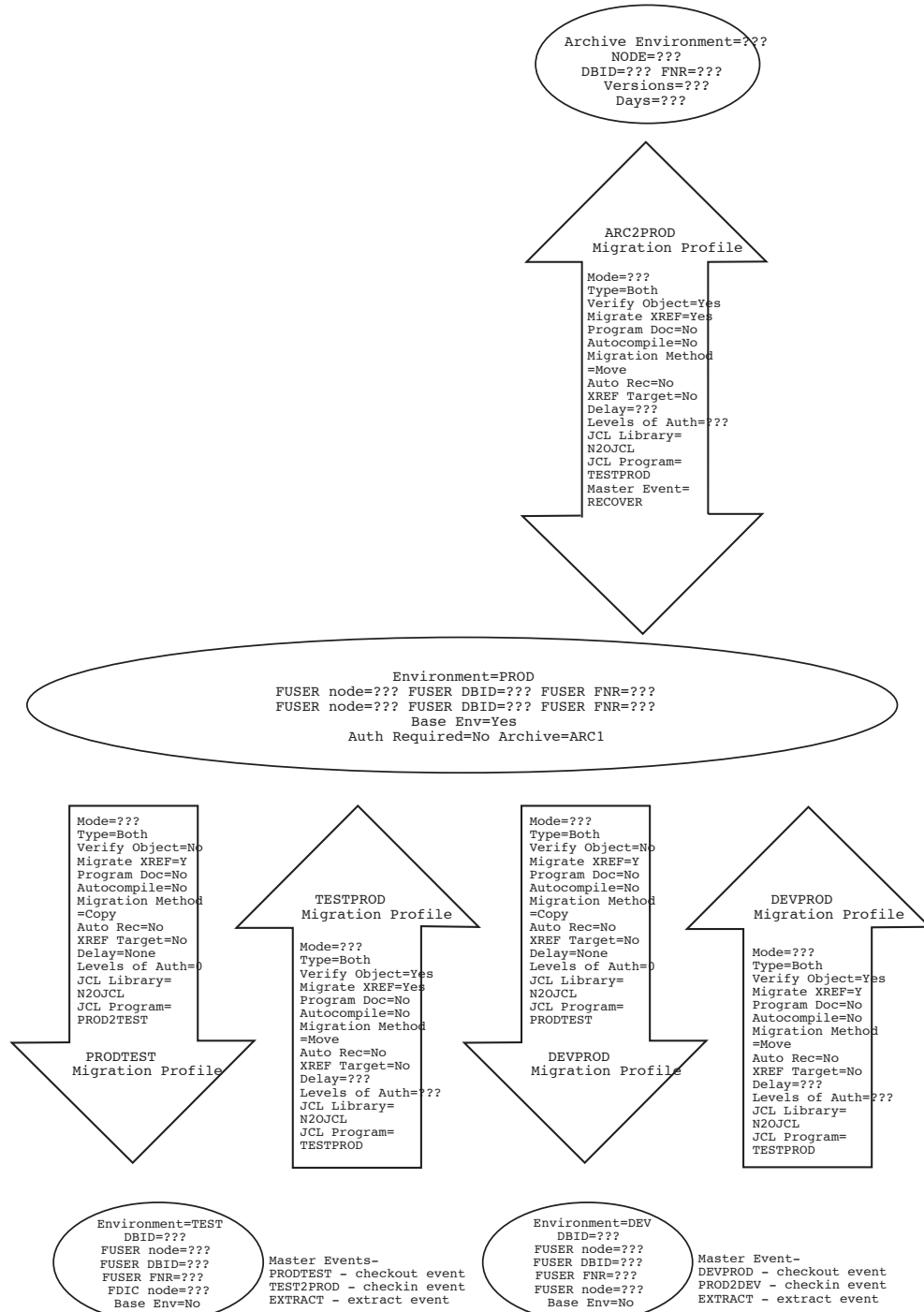
**Can I install N2O on the FNAT?**

No. N2O cannot be installed on the FNAT.

# APPENDIX H

## Sample Setup of N2O

This appendix contains information regarding how to set up in N2O.



## The Diagram

- Any field marked with ??? requires a value. The DBID and file number information must be entered, as well as the values on the Migration Profiles and Events. It is suggested that this information be discussed with the users to determine the most appropriate values.
- The five ovals represent Environments. The ARC1 environment is the Archive Environment. PROD should be defined as a Base Environment, which has no development work in it. TEST and DEV are both development environments. The values listed in the ovals correspond to the information that must be entered on the Archive Environment and Environment screens in the Environment Subsystem.
- The five large arrows are the Migration Profiles. They define the valid paths objects may follow and the options used when migrating objects between the two environments. Note that the migration profile from ARC1 to PROD is typically set up the same as the TEST to PROD migration profile.
- The fields JCL Library and JCL Program on the Migration Profile are used only for Batch events. If all migrations are going to be on-line, these fields should be left blank. If there are going to be batch migrations, the values listed in the diagram or any site-specific values can be used. The values supplied are only suggestions. If using batch events, these fields tell N2O where the template JCL lives (JCL LIBRARY) and what its name is (JCL PROGRAM). N2O will use NATRJE via the user-exit N2OUEJJE to submit the JCL to the internal reader. This is described in detail in **Section V.3.3 N2O Batch Job Submission Exit (N2OUEJJE)**. Sample JCL is supplied with N2O. It is installed into NATURAL library N2OBATCH. It is recommended that MVS sites create a copy of the MVS named modules to a library called N2OJCL, then modify the members to conform to the site standards. The sample JCL for a Batch migration is MVSMIG (for MVS), which is explained in detail in **Section V.4.1 Job Steps for Migrating NATURAL, PREDICT, and SYSERR Events**.
- The MASTER events that will be used to migrate from/to these environments are listed next to the environments (ovals). A master event is a template that is used to build a migration event. Each user's event is named using the MASTER Event name and a sequence number. Values that must be set for each event are shown in the Master Event section of this appendix. There is also an Extract Event, which creates a copy of an object without causing a checkout. This is used when a programmer wants to create a new program using an existing program as a starting point. It is used any time a program is moved from the Base with no intention of putting it back in the base.

**Master Event**

**PROD2TEST**

From Env - PROD  
From Library -  
To Env - TEST  
To Library -  
Starting Pgm -  
Ending Pgm -  
Change Cntl - ???  
Project Tracking - ???  
Lock Event - No  
Extract Event - No  
Comments - ???  
Event Purge - leave at default (defined on the Install Parms screen)

**TEST2PROD**

From Env - PROD  
From Library -  
To Env - TEST  
To Library -  
Starting Pgm -  
Ending Pgm -  
Change Cntl - ???  
Project Tracking - ???  
Lock Event - No  
Extract Event - No  
Comments - ???  
Event Purge - leave at default (defined on the Install Parms screen)

**PROD2DEV**

From Env - PROD  
From Library -  
To Env - TEST  
To Library -  
Starting Pgm -  
Ending Pgm -  
Change Cntl - ???  
Project Tracking - ???  
Lock Event - No  
Extract Event - No  
Comments - ???  
Event Purge - leave at default (defined on the Install Parms screen)

**DEV2PROD**

From Env - PROD  
From Library -  
To Env - TEST  
To Library -  
Starting Pgm -  
Ending Pgm -  
Change Cntl - ???  
Project Tracking - ???  
Lock Event - No  
Extract Event - No  
Comments - ???  
Event Purge - leave at default (defined on the Install Parms screen)

**EXTRACT**

From Env - PROD  
From Library -  
To Env -  
To Library -  
Starting Pgm -  
Ending Pgm -  
Change Cntl - ???  
Project Tracking - ???  
Lock Event - No  
Extract Event - Yes  
Comments - ???  
Event Purge - leave at default (defined on the Install Parms screen)

**RECOVER**

From Env - PROD  
From Library -  
To Env - TEST  
To Library -  
Starting Pgm -  
Ending Pgm -  
Change Cntl - ???  
Project Tracking - ???  
Lock Event - No  
Extract Event - No  
Comments - ???  
Event Purge - leave at default (defined on the Install Parms screen)

## **Additional Setup Issues**

When setting N2O up, there are other issues that must be addressed, including:

1. Levels of authorization - The DBA may allow any user to request a migration, limiting who can approve the event. This is controlled by the Delay and Levels of Auth fields on the migration profile (refer to **Section III.6.1 Add a Migration Profile** for more information). The field Approval Status on the User Definition screen can be used to allow users to approve their own events (refer to **Section IV.2.5.1 Add a User Definition** for more information). An Approval profile is created containing migration paths that a set of users will have access to. When the user definition is created, you control which paths a user can authorize by assigning them to a certain Approval profile.

### Example:

Anyone can migrate from PROD to DEV, but only managers can migrate from DEV to PROD. Two Approval profiles would be created. One would be named DEVELOP, which contains only the path PROD DEV. The other Approval profile, which would be named ADMIN, would contain DEV PROD and PROD DEV. The only Approval profile assigned to a developer is DEVELOP. Any manager could be assigned to the ADMIN profile. This does not prevent a developer from requesting an event to migrate from DEV to PROD. It limits the execution of that event to users assigned to the ADMIN profile.

2. Some applications leave the source and object in the test environment. The Migration Method field on the Migration Profile (refer to **Section III.6.1 Add a Migration Profile**) controls this. Different migration profiles would be defined for the various applications with limits as to who could use which path using the Approval profiles.

# APPENDIX I

## Phasing In PREDICT Upgrades

Sites that phase in Predict upgrades must complete the following steps to permit N2O migrations to function correctly. If these steps are not completed, N2O will not be capable of migrating any Software AG product related objects (Natural, Predict, SYSERR).

1. It is necessary to apply a zap to N2O object N2ORECV. This zap will cause N2O to process work file 2 twice. Once to determine if there are any Predict objects being migrated, and once for the actual Event execution. This will add additional processing time to the batch migrations. Once all N2O controlled environments are upgraded to the same level of Predict, be sure to reverse the verification and replace values, and apply the zap again (this will backout the zap).

To apply the zap, complete the following steps:

- a) Logon to NATURAL where N2O is installed.
  - b) As a precaution, you should create a temporary library and copy the object N2ORECV into that library.
  - c) Logon to N2OLIB.
  - d) Run N2OZAP, supplying these values when prompted:
    - N2O Program: N2ORECV
    - Zap Sequence Nbr: 2
    - Zap Index Nbr: 6
    - Zap Location: 196
    - Verification Value: D50101C6
    - Replace Value: E80101C6
  - e) PF3 exits the N2OZAP facility.
  - f) Copy the zapped module N2ORECV to the SYSTEM library on all source/target FUSERS, replacing the current module.
  - g) The NATURAL Buffer Pool in all affected environments should be cleared before performing a batch migration.
2. Set XREF to NO in all migration profiles that migrate between different versions of PREDICT.
  3. Set XREF to NONE in all User Definitions.

|   |
|---|
| <p><b>Note:</b> Once all N2O controlled environments are upgraded to the same level of Predict, reverse the zaps verification and replace values, and apply the zap again (this will backout the zap). The XREF fields on the Migration Profile and User definitions can also be set back to the previous values.</p> |
|---|

This page intentionally left blank.

# INDEX

## &

&INCLUDE ARCHIVE ..... 207  
 &INCLUDE COMPILE ..... 207, 212, 214, 216  
 &INCLUDE RECOVERY ..... 211

## 3

3GL  
   Batch Submit JCL ..... D-59  
   PDS archive JCL ..... D-60  
   PDS Archive Recovery JCL ..... D-63  
   PDS Catalog Capture JCL ..... D-61  
   PDS Compile sample JCL ..... D-61  
   PDS Migration JCL ..... D-62  
   PDS sample MOVE JCL ..... D-62  
   Predict Pre-processor JCL ..... D-63  
   Sample Compile JCL ..... D-59  
 3GL Objects ..... 2  
 3GL/Other Profile ..... 159  
   SSF Rules for a 3GL/Other Profile ..... 159

## A

Administrative Utilities  
   Catalog Capture ..... 93  
   Event Purge ..... 99–102  
 Application Life Cycle ..... 2  
 Approval Profile ..... 157  
   SSF Rules for ..... 157  
 Archive  
   Backup Reporting  
     BS2000 JCL ..... D-57  
     BSE JCL ..... D-58  
     VM JCL ..... D-58  
     z/OS JCL ..... D-57  
   Purge  
     BS2000 JCL ..... D-3  
     VM JCL ..... D-4  
     VSE JCL ..... D-5  
     z/OS JCL ..... D-1  
 Archive Definition  
   Add ..... 52  
   Copy ..... 54  
   Delete ..... 55  
   Inquire on ..... 55  
   Modify ..... 56  
   Select ..... 57  
 Archiving/Recovery ..... 6  
 Audit Trail ..... 6  
 Autocompile ..... 6, 19, 24, 27, 87, 166,  
   171, 173, 174, 176, 194, 207, 212, 214,  
   216, B-3, B-6, B-7, C-1, E-1

Installation ..... 27

## B

Batch Event Processing ..... 187–218  
   N2O/3GL ..... 204–18  
 Batch Events  
   Manual Submission ..... 199–203  
 Batch Migration  
   BS2000 JCL ..... D-29  
   VM JCL ..... D-31  
   VSE JCL ..... D-32  
   z/OS JCL ..... D-28  
 Build Extract ..... 76, 200, 201

## C

CAPTURE1 ..... 110  
 Catalog Capture  
   BS2000 JCL ..... D-8  
   PANVALET ..... 109  
   VM JCL ..... D-9  
   VSE JCL ..... D-9  
   z/OS JCL ..... D-7  
 Checkout/Checkin ..... 6, 40  
 COBOL  
   Sample JCL ..... D-81  
 Compare Utilities ..... 6  
 Cross-Reference ..... 6

## D

Data Entry Screens ..... 8, 10  
 DB2  
   Sample JCL ..... D-72  
 DB2 Bind Application Plan ..... 226, 228  
 DB2ASM ..... 224  
 DB2BIND ..... 226  
 DB2BINDP ..... 227  
 DB2DBRMA ..... 222–23  
 DB2JOB ..... 222  
 DB2PC ..... 223  
 DBRM Generation ..... 221–25  
 DBRM Generation JCL ..... 222–25  
 Deferred Move ..... 177, 194, 198, 203, B-3  
   Deferred Time ..... 75  
 Deferred Moves  
   BS2000 JCL ..... D-18  
   VM JCL ..... D-19  
   VSE JCL ..... D-20  
   z/OS JCL ..... D-18  
 Defining 3GL Environments ..... 62–63  
 Direct Command line ..... 9





VM JCL ..... D-44  
 VSE JCL ..... D-44  
 z/OS JCL ..... D-43  
 Reporting Subsystem ..... 7  
 Reports ..... B-3, B-6, B-7  
 Project Tracking ..... B-6

**S**

Screen Names and Definitions ..... A-1–A-2  
 Screens ..... 7–14  
     Data Entry ..... 8, 10  
     Error Message ..... 8, 14  
     Help ..... 8, 11  
     Menu ..... 8  
     Selection ..... 8, 10  
     Startup ..... 8  
 SECURITRE ..... 41, 157–64, 178, B-1, E-2  
 Security ..... 7  
 Selection Screens ..... 8, 10  
 Source Compare  
     Local Environment  
         BS2000 JCL ..... D-17  
         VM JCL ..... D-17  
         VSE JCL ..... D-17  
         z/OS JCL ..... D-16  
     Remote Environment  
         BS2000 JCL ..... D-13  
         VM JCL ..... D-14  
         VSE JCL ..... D-15  
         z/OS JCL ..... D-12  
 SSF Rules  
     3GL/Other Profile ..... 159  
     Approval Profile ..... 157  
     PREDICT Profile ..... 160  
 Startup Screens ..... 8  
 Static SQL Support ..... 219  
 SYSERR Messages ..... 1

**U**

User-exits ..... 7  
     3GL/OTHER Autocompile Exit  
         (N2OUE11N) ..... 176  
     Automatic Object Selection Exit  
         (N2OUE15N) ..... 179  
     Bind DB2 Plan Exit

(N2OUE10N) ..... 175  
 Checkout/Checkin/Enrollment Utility  
     (N2OUE05N) ..... 172  
 DB2 DBRM Generation Exit  
     (N2OUE09N) ..... 174  
 DB2 DBRM JCL Exit  
     (N2OUE08N) ..... 173  
 Determination of Node Exit  
     (N2OUE17N) ..... 181  
 Event Authorization Exit  
     (N2OUE03N) ..... 170  
 Event Completion Exit  
     (N2OUE04N) ..... 171  
 Event Request Exit  
     (N2OUE01N) ..... 168  
 Event Servicing Exit  
     (N2OUE32N) ..... 189  
 N2O Batch Job Submission Exit  
     (N2OUE0RJE) ..... 167  
 N2O Control Override Exit  
     (N2OEDITU) ..... 182, 183  
 N2O Termination Exit  
     (N2OUE99P) ..... 166  
 N2O Utilities Exit  
     (N2OUE12N) ..... 177  
 Object Selection Exit  
     (N2OUE02N) ..... 169  
 On-line Autocompile Exit  
     (N2OUE07P) ..... 173  
 Password and Cipher Initialization Exit  
     (N2OUE16N) ..... 181  
 SECURITRE Database Exit  
     (N2OUE13N) ..... 178  
 System Product Information Exit  
     (N2OUE14N) ..... 178  
 Task Update Override Exit  
     (N2OUE20N) ..... 182  
 User-Defined Subsystem Menu Exit  
     (N2OUE06P) ..... 172  
 User-ID Initialization Exit  
     (N2OUE00N) ..... 166

**X**

XREF ..... 1