Entire Output Management

Installation and Customization

Version 3.5.2

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ADABAS & NATURAL

This document applies to Entire Output Management Version 3.5.2 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Notations *vrs* and *vr*

When used in this documentation, the notations *vrs* and *vr* represent the product version number.

1 About this Documentation

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *`folder.subfolder.service`*, APIs, Java classes, methods, properties.
`Italic`	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
`Monospace font`	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

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- Subscribe to early warnings and critical alerts.
- Open and update support incidents.
- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Installation and Customization on Mainframes

This documentation describes how to install Entire Output Management on BS2000, z/OS and z/VSE.

This documentation is organized under the following headings:

Before the Installation	Information you need to know and steps to perform before you start the installation.
Installing Entire Output Management	How to install Entire Output Management on BS2000, z/OS and z/VSE.
Completing the Installation	How to proceed after the installation.
Installing Optional Features	How to install various optional features.

Notations *vrs* and *vr*

When used in this documentation, the notations *vrs* and *vr* represent the product version number.

3 Before the Installation

This section covers the following topics:

Installation Jobs

The installation of Software AG products is performed by installation jobs. These jobs are either created manually or generated by System Maintenance Aid (SMA).

For each step of the installation procedure described below, the job number of a job performing the respective task is indicated. This job number refers to an installation job generated by SMA. If you are not using SMA, an example installation job of the same number is provided in the job library on the Entire Output Management installation medium; you have to adapt this example job to your requirements.

Note: The job numbers on the installation medium are preceded by the product code (for example, NOMI060).

Using System Maintenance Aid

For information on using Software AG's System Maintenance Aid (SMA) for the installation process, refer to the *System Maintenance Aid* documentation.

Prerequisites

Before you can install Entire Output Management, certain prerequisite products must be installed at your site. For detailed information on these products, see the *Prerequisites* sections in the *Release Notes*.

Contents of Installation Medium

The installation medium contains the files listed below.

The sequence of the files is shown in the *Software AG Product Delivery Report* which accompanies the installation medium.

Notation vrs or vr: If used in the following document, the notation *vrs* or *vr* stands for the relevant version. For further information on product versions, refer to the entry *Version* in the *Glossary* of the Natural documentation.

- z/VSE
- z/OS
- BS2000

z/VSE

File Name	Contents
NOM*vrs*.LIBJ	Entire Output Management installation jobs.
NOM*vrs*.LIBR	Entire Output Management source and load library.
NOM*vrs*.INPL	Entire Output Management system libraries (Natural).
NOM*vrs*.SYSF	Entire Output Management definition-data/active-data file (Adabas).
NOM*vrs*.SYS2	Entire Output Management container file (Adabas).

z/OS

File Name	Contents
NOM*vrs*.JOBS	Entire Output Management installation jobs.
NOM*vrs*.SRCE	Entire Output Management source library.
NOM*vrs*.LOAD	Entire Output Management load library.
NOM*vrs*.INPL	Entire Output Management system libraries (Natural).
NOM*vrs*.SYSF	Entire Output Management definition-data/active-data file (Adabas).
NOM*vrs*.SYS2	Entire Output Management container file (Adabas).

BS2000

File Name	Contents
NOM*vrs*.JOBS	Entire Output Management installation jobs.
NOM*vrs*.SRC	Entire Output Management source library.
NOM*vrs*.MOD	Entire Output Management module library.
NOM*vrs*.INPL	Entire Output Management system libraries (Natural).
NOM*vrs*.SYSF	Entire Output Management definition-data/active-data file (Adabas).
NOM*vrs*.SYS2	Entire Output Management container file (Adabas).

Copying the Data Sets to Disk

Copying the Data Sets to a z/VSE Disk

Copy the data sets from the supplied installation medium to your disk before you perform the individual installation procedure for each component to be installed.

The way you copy the data sets depends on the installation method and the medium used:

- If you use System Maintenance Aid (SMA), refer to the copy job instructions provided in the *System Maintenance Aid* documentation.
- If you are not using SMA and want to copy the data sets from CD-ROM, refer to the README.TXT file on the CD-ROM.
- If you are not using SMA and want to copy the data sets from tape, follow the instructions in this section.

This section explains how to copy the data sets `.LIBJ`, `.LIBR` and `.LICS` (if supplied) from tape to disk. All other data sets can be installed directly from the tape.

Step 1: Copy Data Set COPYTAPE.JOB to Disk

- Modify the following sample job according to your requirements:

```
* $$ JOB JNM=LIBRCAT,CLASS=0,                                          +
* $$ DISP=D,LDEST=(*,UID),SYSID=1
* $$ LST CLASS=A,DISP=D
// JOB LIBRCAT
* ***************************************
*     STORE COPYTAPE.JOB IN LIBRARY
* ***************************************
// ASSGN SYS004,nnn
// MTC REW,SYS004
// MTC FSF,SYS004,4
ASSGN SYSIPT,SYS004
// TLBL IJSYSIN,'COPYTAPE.JOB'
// EXEC LIBR,PARM='MSHP; ACC S=lib.sublib'
/*
```

```
// MTC REW,SYS004
ASSGN SYSIPT,FEC
/*
/&
* $$ EOJ
```

where:

nnn is the tape address, and
lib.sublib is the library and sublibrary in which the data set COPYTAPE.JOB is to be stored.

- Execute the job to copy the data set COPYTAPE.JOB to disk.

  COPYTAPE.JOB contains the JCL required to copy the data sets .LIBJ, .LIBR and .LICS from tape to disk.

Step 2: Modify COPYTAPE.JOB on Your Disk

- Modify COPYTAPE.JOB according to your requirements and set the disk space parameters as appropriate.

Step 3: Submit COPYTAPE.JOB

- Execute COPYTAPE.JOB to copy the data sets .LIBJ, .LIBR and .LICS to your disk.

Copying the Data Sets to a z/OS Disk

Copy the data sets from the supplied installation medium to your disk before you perform the individual installation procedure for each component to be installed.

The way you copy the data sets depends on the installation method and the medium used:

- If you use System Maintenance Aid (SMA), refer to the copy job instructions provided in the *System Maintenance Aid* documentation.
- If you are not using SMA and want to copy the data sets from CD-ROM, refer to the README.TXT file on the CD-ROM.
- If you are not using SMA and want to copy the data sets from tape, follow the instructions in this section.

This section explains how to copy all data sets from tape to disk.

- Step 3: Submit COPY.JOB

Step 1: Copy Data Set COPY.JOB from Tape to Disk

- Modify the following sample job according to your requirements:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//* --------------------------------
//COPY EXEC PGM=IEBGENER
//SYSUT1 DD DSN=COPY.JOB,
// DISP=(OLD,PASS),
// UNIT=(CASS,,DEFER),
// VOL=(,RETAIN,SER=tape-volser),
// LABEL=(2,SL)
//SYSUT2 DD DSN=hilev.COPY.JOB,
// DISP=(NEW,CATLG,DELETE),
// UNIT=3390,VOL=SER=disk-volser,
// SPACE=(TRK,(1,1),RLSE),
// DCB=*.SYSUT1
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//
```

  where:

  tape-volser is the VOLSER of the tape, for example: T12345,
  hilev is a valid high-level qualifier, and
  disk-volser is the VOLSER of the disk.

- Execute the job to copy the data set COPY.JOB to your disk.

Step 2: Modify hilev.COPY.JOB on Your Disk

- Modify *hilev*.COPY.JOB according to your requirements:

  Set EXPDT to a valid expiration date, for example, 99365.

  Set HILEV to a valid high-level qualifier, for example, USERLIB.

  Set LOCATION to a storage location, for example, STORCLAS=ABC or UNIT=3390,VOL=SER=USR123.

Step 3: Submit COPY.JOB

- Execute *hilev*.COPY.JOB to copy single, multiple, or all data sets to your disk.

Copying the Data Sets to a BS2000 Disk

Copy the files (data sets) from the supplied installation medium to your disk before you perform the individual installation procedure for each component to be installed.

The way you copy the files depends on the installation method and the medium used:

- If you want to copy the files from CD-ROM, refer to the *README.TXT* file on the CD-ROM.
- If you want to copy the files from tape, follow the instructions in this section.

This section explains how to copy all files from tape to disk.

Step 1: Copy Library SRVvrs.LIB from Tape to Disk

This step is not necessary if you have already copied the library SRV*vrs*.LIB from another Software AG installation tape. For further information, refer to the element #READ-ME in this library. The library SRV*vrs*.LIB is stored on the tape as a sequential file named SRV*vrs*.LIBS containing LMS commands. The current version *vrs* can be obtained from the *Software AG Product Delivery Report*.

- Execute the following commands to convert SRV*vrs*.LIBS into an LMS library:

```
/IMPORT-FILE  SUPPORT=*TAPE(FILE-NAME=SRVvrs.LIBS,-
/   VOLUME=volser, DEV-TYPE=tape-device)
/ADD-FILE-LINK  LINK-NAME=EDTSAM, FILE-NAME=SRVvrs.LIBS,-
/   SUPPORT=*TAPE(FILE-SEQ=3), ACC-METH=*BY-CAT,-
/   BUF-LEN=*BY-CAT, REC-FORM=*BY-CAT, REC-SIZE=*BY-CAT
/START-EDT
@READ  '/'
@SYSTEM 'REMOVE-FILE-LINK  EDTSAM'
@SYSTEM 'EXPORT-FILE  FILE-NAME=SRVvrs.LIBS'
@WRITE  'SRVvrs.LIBS'
@HALT
/ASS-SYSDTA  SRVvrs.LIBS
/MOD-JOB-SW  ON=1
/START-PROG  $LMS
/MOD-JOB-SW  OFF=1
/ASS-SYSDTA  *PRIMARY
```

where:

tape-device is the device type of the tape, for example, TAPE-C4, and
volser is the VOLSER of the tape (see the *Software AG Product Delivery Report*).

Step 2: Copy the Procedure COPY.PROC from Tape to Disk

- Call the procedure P.COPYTAPE in the library SRV*vrs*.LIB to copy the procedure COPY.PROC to disk:

```
/CALL-PROCEDURE  (SRVvrs.LIB,P.COPYTAPE), -
/   (VSNT=volser, DEVT=tape-device)
```

If you use a TAPE-C4 device, you can omit the parameter DEVT.

Step 3: Copy all Product Files from Tape to Disk

- Enter the procedure COPY.PROC to copy all product files to disk:

```
/ENTER-PROCEDURE  COPY.PROC, DEVT=tape-device
```

If you use a TAPE-C4 device, you can omit the parameter DEVT.

The result of this procedure is written to the file L.REPORT.SRV.

4 Installing Entire Output Management

To install Entire Output Management on on BS2000, z/OS or z/VSE, perform the following steps:

Step 1: Load the Data File - for First-Time Installation Only

(Job I050, Step 2800)

If you are installing Entire Output Management for the first time, use the Adabas load utility to load the `NOM`*`vrs`*`.SYSF` file. The data file contains some examples and initializations.

Step 2: Load the Container File

(Job I050, Step 2801)

When working with container files, load one or more files using NOM*vrs*.SYS2 with `NUMREC=0`. For more information on how to use container files, see *Defining Container Files* in the *System Administration* documentation.

Step 3: Activate Index Compression (optional)

In large environments, it may be useful to activate Adabas index compression for the Entire Output Management system files. This will result in less space required in the Adabas ASSO container, as Entire Output Management uses several similar descriptors which can be compressed very efficiently.

If you decide to perform this step, it is recommended to do so now during the installation. However, it is also possible to perform it later if desired.

To activate Adabas index compression, invoke the Adabas reorder utility as follows:

```
ADAORD REORFASSO FILE=NOM-system-file-number INDEXCOMPRESSION=YES
```

Step 4: Scratch NOM Libraries - for Update Installation Only

(Job I051, Step 2800)

If Entire Output Management has been installed before, scratch all objects from the libraries SYSNOM, SYSNOMS, SYSNOMH1 and SYSNOMH2.

Step 5: Adapt Parameter Modules and Link Jobs for Batch and Online Natural

Monitors of the System Automation Tools product family run as a Natural subtask. For further information, see the section *Monitor Defaults* in the *System Administration* documentation, and the sections *Installing System Automation Tools* and *Starting a Server* in the *System Automation Tools* documentation.

In the online and batch modules, EOMVOLID, EOMSPL (for z/VSE), EOMTFT (for BS2000) must be linked with the Natural shared nucleus. In this case, the Natural parameter module with CSTATIC=(ESF..) must be linked to the shared and dependent parts. For 3GL programs, NOMPUT, NOMADA and NOMCOMPR must be linked to the 3GL program itself.

In addition to the specifications described in the *System Automation Tools Installation* documentation, you have to adapt and link the following:

1. **Adapt the Batch Natural Parameter Module (Job I060)**
   Add or change the following parameters in your Natural parameter module:

CSTATIC=(ESFCLOS,ESFOPEN,ESFPURG, ↩ ESFREAD,ESFROUT,ESFSTAT,ESFWRIT)	Optional; required only if CA Spool is installed. **Note:** If you wish to access TCP/IP printers directly, you also have to specify the module ESMLPR in the CSTATIC list. See the section *TCP/IP Direct Printing* in the *Concepts and Facilities* documentation.
NTLFILE 91,*dbid*,*fnr*	The database ID and file number of the Entire Output Management active data file. If you wish to keep all data in a single Entire Output Management data file, specify the same database ID and file number as for NTLFILE 206 (see below).
NTLFILE 206,*dbid*,*fnr*	The database ID and file number of the Entire Output Management data file.
NTLFILE 131,*dbid*,*fnr*	The database ID and file number of the System Automation Tools system file (mandatory).

NTSORT WRKSIZE=30,STORAGE=MAIN,EXT=OFF	Sort program specifications. **Note:** The Natural SORT statement may optionally invoke an external sort program. In this case, EXT=ON must be specified. For further information, see the section *External Sort Programs* in the *Natural Operations* documentation.
RUNSIZE=64	Required for the correct execution of the Entire Output Management monitor.

2. **Link the Natural Batch Module (Job I060)**

z/VSE:

Take the link job as described in the *System Automation Tools Installation* documentation and adapt the following. Include the library definitions for NOMLIB in your LNKEDT procedure (LIBDEF chain).

```
INCLUDE NOMCOMPR
INCLUDE EOMVOLID
INCLUDE EOMSPL
INCLUDE NOMPUT
INCLUDE NOMADA
INCLUDE NATAM12
```

z/OS:

Take the link job as described in the *System Automation Tools Installation* documentation and adapt the following libraries for the linkage:

//NOMLIB DD DISP=SHR,DSN=SAGLIB.NOM*vrs*.LOAD	Supplied Entire Output Management load library.
//CMALIB DD DISP=SHR,DSN=CMASPOOL.LOAD	Supplied CA Spool load library (optional).
INCLUDE NOMLIB(NOMCOMPR)	Compression.
INCLUDE NOMLIB(NOMPUT)	Install Natural Advanced Facilities printer type "NOM".
INCLUDE NOMLIB(NOMADA)	
INCLUDE NOMLIB(NATAM12)	Install Natural printer type "NOM".
INCLUDE CMALIB(AESFPRIV)	Optional. Only if CA Spool is installed.

BS2000:

Take the link job as described in the *System Automation Tools Installation* documentation and adapt the following libraries for the linkage. Use the library NOM*vrs*.MOD for the linkage.

INCLUDE NOMCOMPR	Compression
INCLUDE EOMTFT	Get volume information from BS2000.
INCLUDE NOMPUT	Only if printing from Natural Advanced Facilities to a printer of type "NOM" is desired. See the section ***Using NOMPUT***.
INCLUDE NOMADA	
INCLUDE NATAM12	If you want Natural to print directly to an Entire Output Management container file (AM=NOM in printer definitions), you have to make the module NATAM12 available. See the section ***Printing from Natural to Entire Output Management Directly***.

3. **Adapt the Online Natural Parameter Module (Job I080)**
   Add or change the following parameters in your Natural parameter module:

NTLFILE 91,*dbid*,*fnr*	The database ID and file number of the Entire Output Management active data file. If you wish to keep all data in a single Entire Output Management data file, specify the same database ID and file number as for NTLFILE 206 (see below).
NTLFILE 206,*dbid*,*fnr*	The database ID and file number of the Entire Output Management data file.
NTLFILE 131,*dbid*,*fnr*	The database ID and file number of the System Automation Tools system file (mandatory).
NTSORT WRKSIZE=30,STORAGE=MAIN,EXT=OFF	Sort program specifications. **Note:** The Natural SORT statement may optionally invoke an external sort program. In this case, EXT=ON must be specified. For further information, see the section *External Sort Programs* in the *Natural Operations* documentation.

4. **Link the Online Natural Parameter Module (Job I080)**
   Take the link job as described in the *System Automation Tools Installation* documentation and adapt the following:

   z/VSE:

   Include the library definitions for NOMLIB in your LNKEDT procedure (LIBDEF chain):

```
INCLUDE NOMCOMPR
INCLUDE NOMPUT
INCLUDE NOMADA
INCLUDE NATAM12
```

z/OS:

Take the link job as described in the *System Automation Tools Installation* documentation and adapt the following libraries for the linkage:

`//NOMLIB DD DISP=SHR,DSN=SAGLIB.NOM`*`vrs`*`.LOAD`	Supplied Entire Output Management load library.
`INCLUDE NOMLIB(NOMCOMPR)`	Compression.
`INCLUDE NOMLIB(NOMPUT)`	Install Natural Advanced Facilities printer type "NOM".
`INCLUDE NOMLIB(NOMADA)`	
`INCLUDE NOMLIB(NATAM12)`	Access method AM=NOM.

BS2000:

Take the link job as described in the *System Automation Tools Installation* documentation, and adapt the following libraries for the linkage. Use the library `NOM`*`vrs`*`.MOD` for the linkage (reentrant part of Natural).

`INCLUDE NOMLIB(NOMPUT)`	Install NAF printer type "NOM".
`INCLUDE NOMLIB(NOMADA)`	
`INCLUDE NOMLIB(NATAM12)`	Install Natural access method "NOM".
`INCLUDE NOMCOMPR`	Install compression.

Additional Steps

If you want to print from Natural to Entire Output Management directly (without a spooling system), additional steps are required; see the section ***Printing from Natural to Entire Output Management Directly***.

If you want to print from Natural Advanced Facilities to Entire Output Management directly, additional steps are required; see the section ***Using NOMPUT***.

Step 6: Load the INPL File

(Job I061, Step 2800)

Load the INPL file. The following libraries are loaded:

Library	File	Contents
SYSNOM	FNAT	Entire Output Management application.
SYSNOMH1	FNAT	Entire Output Management help system (English).
SYSNOMH2	FNAT	Entire Output Management help system (German).
SYSNOMS	FNAT	JCL skeletons and separator examples.

5 Completing the Installation

This section covers the following topics:

Adapting to an Existing Environment

Step 1: Create a User Library

The library SYSNOMS contains standard separator pages for reports and bundles, as well as job skeletons which have to be modified to suit your requirements. As the contents of SYSNOMS are overwritten by every new product release, copy the job skeletons you wish to modify from SYSNOMS to the library SYSNOMU, and modify them there.

If you want to use the Entire Output Management standard separation exits for reports and bundles, copy the current versions of the members RS* and BS* (with REPLACE option) to the library SYSNOMU.

Always copy the current versions of the following data areas (with the REPLACE option) to the library SYSNOMU:

- P-UEXIT and P-UEXITE (for separation exits),
- P-PEXIT (for printing exits),
- NOMEXP* and NOMEX08E (for user exits).

Then recatalog your user exits which use these parameter data areas.

The sample exits UEX* in the library SYSNOMS also use these parameter data areas. For further information on user exits, see the source of subprogram UEXFRAME in the library SYSNOMS.

Step 2: Modify the Job Skeletons

The following tasks require job skeletons which have to be adapted to your requirements. Adapt the sources in the library SYSNOMU which are specified in the Source column and make them available under the Target name as shown below:

Task	Environment	Source	Target
ARCHIVE	z/VSE Tape	JARCVTAP	JARCSKEL
	z/VSE with DYNAM-T	JARCVCAT	
	z/OS Tape	JARCMTAP	
	z/OS GDG or predefined Disk VOLSERs	JARCMDSK	
	z/OS, SMS	JARCMSMS	
	BS2000 Tape	JARCBTAP	
	BS2000 with job variables	JARCBTJV	
REVIVE	z/VSE Tape	JREVVTAP	JREVSKEL
	z/VSE with DYNAM-T	JREVVCAT	
	z/OS Tape	JREVMTAP	
	z/OS GDG or predefined Disk VOLSERs or SMS	JREVMDSK	
	BS2000 Tape	JREVBTAP	
	BS2000 with job variables	JREVBTJV	
CONDENSE	z/VSE Tape	JCDNVTAP	JCDNSKEL
	z/VSE with DYNAM-T	JCDNVCAT	
	z/OS Tape	JCDNMTAP	
	z/OS GDG or predefined Disk VOLSERs	JCDNMDSK	
	z/OS, SMS	JCDNMSMS	
	BS2000 Tape	JCDNBTAP	
	BS2000 with job variables	JCDNBTJV	
PRINT	POWER	SYSPRPWR	SYSPRPWR or user-defined
	z/VSE Tape	TAPEVSE	TAPEVSE or user-defined
	JES	SYSPRJES	SYSPRJES or user-defined
	z/OS Disk	DISKMVS	DISKMVS or user-defined
	z/OS Tape	TAPEMVS	TAPEMVS or user-defined
	BS2000	SYSPRBS2	SYSPRBS2 or user-defined
	BS2000 with job variables	SYSPRBJV	SYSPRBJV or user-defined
	BS2000 for binary printing	SYSPBBS2	SYSPBBS2 or user-defined

Step 3: VTAM Definitions

To enable Entire Output Management to print to VTAM printers, add the definition from the member NOMVTAM in the Entire Output Management source library to your SYS1.VTAMLST library and activate it. If your SYS1.VTAMLST already contains a definition for Entire System Server, include only the definition for Entire Output Management in it.

In the Entire System Server parameters, assign the value for SPOOLACB as defined in your SYS1.VTAMLST.

Step 4: Entire System Server Parameters

To activate the common data pool, assign a value of at least "1" to the CDATALEN parameter.

To run Natural subtasks, assign a value of at least "80" to the NABS parameter.

Natural Profile Parameters

For all online and batch tasks which execute Entire Output Management, the following Natural profile parameters have to be set:

Parameter	Description
CVMIN=ON	Control variable modified at input.
ID=' '	Set input delimiter to blank.
WH=ON	Wait for locked Adabas records.

If UNIX or Windows platforms are to be used as external spooling system source, the following Natural profile parameters have to be set:

Parameter	Description
CFICU=ON	Unicode and code page support.
CP=ON	Default code page.
XML=(ON,RDOC=ON,PARSE=ON)	XML support.

Natural Security Definitions

If Natural Security is installed at your site, you have to create security profiles for the following libraries and users.

Libraries

Library	Description	with Steplibs
SYSNOM	Entire Output Management online application.	■ SYSSAT ■ SYSNOMU ■ SYSSEC (optional) ■ any other library containing user routines (optional) (see also note below)
SYSNOMH1	Entire Output Management help system (English).	-
SYSNOMH2	Entire Output Management help system (German).	-
SYSNOMU	User copy of SYSNOMS library.	-

Note: When a user routine is requested, the steplibs are searched sequentially in the order in which they are specified in the security profile of SYSNOM, and the user-routine member from the first steplib in which it is found will be used. If a user-routine member and library are specified in a report definition and this library is not specified as steplib in the SYSNOM security profile, it will be temporarily appended to the list of steplibs being searched. For the user-routine member from that library to be used, a member of the same name must therefore not be contained in any of the other steplibs listed before in the library profile.

Users

Create a Natural Security user profile of user type "Person" for the user representing the Entire Output Management server, with the user ID and password identical to the NSCUSER and NSCPSWD parameters taken from the main member SATP*nnn* or SP*nnnnn*.

You can use one user ID for all or different user IDs for each server type. See also the **example** under *Define Environment for Entire Output Management Server* below.

Entire Output Management in a Non-Security Environment

Entire Output Management's start program MENU is executed from SYSSAT. In a non-security environment, this means that MENU will not be found as start program. Therefore you have to rename the program MENUNOM in the library SYSNOM to MENU. As an alternative, you can copy the program MENU of the library SYSSAT into the library SYSTEM. This, however, may have the disadvantage of causing other applications to erroneously find the program MENU in the library SYSTEM, thus producing undesired results.

If Natural Security is not installed at your site, the following steplibs are automatically assigned to the library SYSNOM:

- SYSSAT
- SYSNOMU

Define Environment for Entire Output Management Server

See also the section *Defining SAT, Natural and Product Parameters* in the *System Automation Tools Installation* documentation.

For each Entire Output Management Server you must define the run-time environment in one or more Natural members in the System Automation Tools user library SYSSATU.

If you want to run various Entire Output Management Servers under different Entire System Server nodes *nnn*, you must provide startup parameters at least in the related "main" members. These must conform to the following naming convention: SATP*nnn* or SP*nnnnn*. In addition, you can provide further Entire Output Management-specific parameters in a second member, whose name must not match the naming convention for the main members.

General Layout of a Parameter Block

```
<Prefix> <block-identifier>[<keyword>=<value>,...]
```

where:

Parameter	Description
<Prefix>	SAT or compressed product code + prefix as specified in the SATSTART instruction.
<block-identifier>	SATENV/NATENV/SATSTART or product block identifier.
[<keyword>=<value>,...]	Block-specific parameter.

Parameter Blocks and Parameters for Entire Output Management

Mandatory Parameters

Parameter Block	Parameter	Description
SATENV	NSC=YES/NO	Indicates whether Natural Security is installed or not.
	NSCUSER=	If Natural Security is installed, this is the user ID for logging on to it.
	NSCPSWD=	Password for logging on to Natural Security.
	ESYUSER=	User ID for logging on to Entire System Server, if it is installed and an interface to an external security system is activated.
	NATTASK=	Name of the Natural subtask module for starting a server as a subtask.
SATSTART	PRODUCT=NOM	3-byte product code.
	PREFIX=	PRODUCT and PREFIX are compressed into a prefix which identifies the Server-specific parameters. Usually the version *vrs* is specified as PREFIX. However, if you run more than one Entire Output Management Monitor on the same node, you have to specify SATSTART blocks with different PREFIXes for them.
	TYPE=SUBTASK/BATCH	Entire Output Management Servers are always started as subtasks.
	APPLIB=SYSNOM	Name of the Natural library where Entire Output Management Server is installed.
	SERVSYSF=	Pointer to the Entire Output Management data file (must be unique within all SATSTART instructions of this node).

Parameter Block	Parameter	Description
NOMENV	BS2USER=	BS2000 user ID under which the Monitor, Archive, Revive and Condense jobs are submitted. Default: ESYUSER.
	ETID=*	Generate unique ETIDs for tasks.
	ETIDPREF=	6-byte prefix for ETIDs.
NATENV	LFILE=(206,*NOMSYSF-DBID*,*NOMSYSF-FNR*) or LFILE=(131,*SATSYSF-DBID*,*SATSYSF-FNR*) or LFILE=(91,*NOMACTDATA-DBID*,*NOMACTDATA-FNR*)	These pointers can be set either in the common Natural parameter module created for the System Automation Tools products or in a Natural parameter profile indicated by the Natural parameter PROFILE. Make sure that the system-file pointer coincides with the pointer to the Entire Output Management system file 1 provided with the SERVSYSF parameter in the SATSTART block.
	WH=ON	The user is placed in "wait" status until either the requested record becomes available, or an error message is issued due to Adabas exceeding a time limit or other limit while attempting to place the record in "hold" status.

Optional Parameters

You can overwrite the SATENV and NATENV parameters with Entire Output Management-specific or even Entire Output Management-subtask-specific assignments. The naming convention for the prefix which identifies the parameter block is:

```
                              (PRT for Print Task)
<Prefix> = NOM + <PREFIX> + (ARC for Archive Task)
                              (REV for Revive Task)
```

Parameter Block	Parameter	
SATSTART	MEMBER=*name*	You can specify a member in which Entire Output Management-specific parameters are located.

Example - Contents of "Main" Member for Node 148 - SATP148 or SP00148 in SYSSATU

The member SATP148 in SYSSAT provides an example of a "main" member. You can take this as the basis for your own member: Copy it to SYSSATU and adapt it.

SAT	SATENV	NATTASK=SAT3ST, NSC=YES, NSCUSER=SATMON, NSCPSWD=SATMON	Sets the SAT defaults for all System Automation Tools products.
NOM*vrs*PRT	SATENV	NSCUSER=NOMPRT NSCPSWD=NOMPRT ↩	Indicates that a separate user ID/password can be used for Entire Output Management's Print task.
NOM*vrs*ARC	SATENV	NSCUSER=NOMARC NSCPSWD=NOMARC	Indicates that a separate user ID/password can be used for Entire Output Management's Archive task.
NOM*vrs*REV	SATENV	NSCUSER=NOMREV NSCPSWD=NOMREV	Indicates that a separate user ID/password can be used for Entire Output Management's Revive task.
SAT	NATENV	DU=OFF, PROFILE=SATMON	Sets the Natural defaults for all System Automation Tools products: the Natural profile parameters are provided in the profile SATMON.
SAT	SATSTART	PRODUCT=NOM, PREFIX=*vrs*, TYPE=SUBTASK, APPLIB=SYSNOM, SERVSYSF=(88,51)	Specifies that the server for Entire Output Management is to be started as a subtask.

Migrating from Previous Versions

- Migration from Version 3.5.1 to Version 3.5.2 on Mainframes
- Migration from Version 3.4.3 to Version 3.5.2 on Mainframes
- Migration on UNIX Systems

Migrations from earlier versions are not supported.

Migration from Version 3.5.1 to Version 3.5.2 on Mainframes

Important:

In addition to the migration procedure described below, you have to perform with Version 3.5.2 the two recatalog steps listed under *Migrating from Previous Versions* in the *Version 3.5.2. Release Notes*.

Migration Procedure

Execute the following jobs:

Job	Step(s)	Action
I200	2811	Start of current system-file version (MIGSTART).
	2812	Migration of printers (MIGPRT).
	2814	Migration of the Monitor (MIGMON).
	2819	Setting of current system file version (MIGEND).

Migration from Version 3.4.3 to Version 3.5.2 on Mainframes

Important:

- Before you start the migration, make sure that:
  - the Entire System Server node on which the Entire Output Management Monitor runs is active,
  - the Entire Output Management Monitor itself is inactive.
- In addition to the migration procedure described below, you have to perform with Version 3.5.2 the two recatalog steps listed under *Migrating from Previous Versions* in the *Version 3.5.2. Release Notes*.
- As of Entire Output Management Monitor Version 3.4.1 on mainframes, record spanning is required to keep long buffers in Adabas. If the Adabas parameter `MIXDSDEV` is used in the ADALOD utility, record spanning is not available. Therefore the `MIXDSDEV` parameter must be omitted.

Migration Procedure

Execute the following jobs:

Job	Step(s)	Action
I082	2850, 2852, 2853, 2855	Migration of system-file structure.
	2851, 2854 (*)	Migration of system-file structure.
I200	2811	Start of current system-file version (MIGSTART).
	2812	Migration of printers (MIGPRT).
	2813 (**)	Migration of user exits (MIGUEX).

Job	Step(s)	Action
	2814	Migration of the Monitor (MIGMON).
	2815	Check of report identifications (CHCKIDNT).
	2816	Migration of the SAT logs of NOM (MIGSAT).
	2819	Setting of current system file version (MIGEND).

(*) These steps are only required if you use two Entire Output Management data files, one containing definition data and one containing active data.

(**) MIGUEX always ends with condition code 0 in order to continue the migration process. Check the output of MIGUEX for indications of missing or outdated modules.

Migration on UNIX Systems

See *Migration* in the *Installation and Customization on UNIX* documentation.

Starting Entire Output Management for the First Time

To start Entire Output Management for the first time:

1 Make sure that the Entire System Server node under which the Entire Output Management Monitor runs is active.

2 Log on to the library `SYSNOM`.

3 Execute the program `INSTALL`.

This program adds the first user ID, modifies some example definitions, and asks you to specify various Entire Output Management parameters.

Make the necessary specifications, and leave each screen with PF3

When you have completed this step, the Entire Output Management **Main Menu** is displayed.

4 Enter the command `START MONITOR` in the command line to start the Entire Output Management Monitor online.

For information on how to automatically start the Entire Output Management Monitor when starting Entire System Server, see the section *AUTO-START* in the *System Automation Tools Installation* documentation.

Installation Verification

To verify that Entire Output Management has been installed correctly, perform the following steps.

Step 1: Verify the Startup Parameters Defined in Library SYSSATU

To do so:

1. Log on to the library SYSSATU where you keep your master definitions for all servers of the System Automation Tools family.
2. Check that the SAT*nnnnn* entry in the member SATDIR points to the correct FNAT for the application SYSSAT.
3. Check member SATP*nnn* or SP*nnnnn* for the SATSTART entry with PRODUCT=NOM. The TYPE parameter should have the value SUBTASK; the APPLLIB parameter must have the value SYSNOM, and the SERVSYSF parameter must point to the correct Entire Output Management system file where the object definitions are kept.
4. Check member SATP*nnn* or SP*nnnnn* for the SATENV parameter NATTASK. The value in effect for Entire Output Management must indicate the correct Natural subtask module. This Natural module must be correctly linked and accessible in the run-time environment of the Entire System Server node *nnn*.
5. Check the member SATP*nnn* or SP*nnnnn* for the SATENV parameters NSCUSER, NSCPSWD and ESYUSER. If you use Natural Security, <*NSCUSER*> must be defined as user and must have access to the libraries SYSNOM and SYSNOMU.

   If Entire System Server is running with security (i.e.: SECURITY<>NONE), the user ID indicated by <ESYUSER> must be defined in the external security system and have sufficient authorization.

Step 2: Verify the Monitor Defaults

To do so:

1. Log on to the library SYSNOM and invoke the program MENU.
2. Enter the direct command 8.1. On the **Default Definition Menu**, select Option 1 to verify that the System Default parameters DBID and FNR parameters point to the correct Entire Output Management system file.
3. Return to the menu by pressing PF3, and then select Option 2 to verify the Monitor Defaults:

   - node, batch module and system server jobname should be correct;
   - at least one printer task should be specified;

- at least one output class reserved for Entire Output Management is specified (z/OS, z/VSE);

  Note: For JES3, these classes must be defined as `HOLD=EXTWTR`

- temporary class is specified;
- a reserved virtual printer must be specified (BS2000).

Step 3: Start the Entire Output Management Server Automatically with Entire System Server

If the Entire System Server is active, proceed with *Step 4* below, to start the Entire Output Management Server online.

If the `SATSTART` block for the Entire Output Management Server in the `SYSSATU` member `SATP`*nnn* or `SP`*nnnnn* is provided correctly, the Server is started automatically with the Entire System Server node *nnn*.

To do so:

1 Start the Entire System Server node *nnn*.

The successful start of the Entire System Server is indicated by the console message:

```
Entire System Server IS READY - X-COM NODE nnn IS INITIALIZED
```

The successful start of the Entire Output Management Server is indicated in the Entire Output Management log (direct command `DLOG MON`):

```
NOM1522 Monitor logged on to NPR UserId = NOMMON.
NOM1510 Monitor initialization completed successfully.
NOM1524 Number of Printer Tasks 2.
NOM1525 Printer task Type ..... SUBTASK.
NOM1503 Monitor minimum wait .. 30.
NOM1504 Monitor maximum wait .. 30 .
NOM1505 Monitor increment ..... 5.
NOM1506 Monitor node .......... 148.
NOM1507 Monitor DBID .......... 1.
NOM1508 Monitor FNR ........... 37.
NOM1527 Operating System Type . MVS/ESA.
NOM1528 Spool Type ............ JES2.
NOM1509 Start monitor initialization.
NOM1511 Monitor startup.
```

The corresponding console messages will be displayed:

```
NOM1510 Monitor initialization completed successfully.
NOM1603 Monitor NOMXTS dbid fnr on node node started.
```

2 If this sequence does not appear after a while, check the following:

- If the Entire System Server node is running under z/OS, check the SYSOUT files of the node.
- If the Entire System Server node is running under z/VSE, check the LST data set of the node.
- If the Entire Output Management Server is running under BS2000, check the SYSLST protocol files matching the following naming convention: The file name must contain the substring: L.NOM*xxnnn*

  where *xx* stands for the Entire Output Management subtask and *nnn* for the server number. *xx* = XT for the main task and 02 to 05 for subtasks.

3 Proceed with *Step 5* below.

Step 4: Start the Entire Output Management Server Online

To do so:

- In the Entire Output Management online system, enter the direct command START MON.

Step 5: Produce Sample Output in one of Entire Output Management's Reserved Classes

To do so:

1 Run any job which produces output in one of the classes defined as reserved for Entire Output Management.

2 When the job has finished, invoke the **Monitor Management** screen, and wake up the Monitor by pressing PF10.

The Monitor should now start creating reports derived from the report definition UEX-DEFAULT.

3 Enter the direct command LIST AREP, and then the line command LI for the folder #Inbasket to list the active reports contained in it.

Then enter the line command BR to browse the arrived reports.

6 Installing Optional Features

This section covers the following topics:

Printing from Natural to Entire Output Management Directly

Instead of printing output from Natural programs in a spooling system, you can route it to an Entire Output Management container file (SYS2) in which the trigger data are to be stored, and from which the output can be distributed, bundled or separated. On the Entire Output Management side, NAT reports are handled exactly the same as NAF reports (same report identification attributes, same spool attributes except that the source type is 10 for NAT, and 11 for NAF).

In order to create NAT reports, `NOMPUT`, `NOMADA` and `NOMCOMPR` must be linked with Natural (`NOMADA` has to be assembled the same as for NAF) and `LFILE 206` must specify the appropriate Entire Output Management system file. The report data are written into the trigger container file, which has to be defined and activated (otherwise active reports will not be created); see *Trigger Container File*.

To install the access method, you have to link the following modules to your Natural nucleus:

```
NATAM12
NOMADA
NOMCOMPR
NOMPUT
```

Include the modules in your operating-system environment as described under ***Using NOMPUT***.

Example - Writing Data to Entire Output Management, where Printer 2 is Defined as NOM Printer:

Start Natural with the profile parameter `PRINT=(2,AM=NOM)`.

Then execute the following program:

```
DEFINE PRINTER (2) OUTPUT 'NOM'
   PROFILE 'PROF'
   FORMS 'FORM'
   NAME 'LISTNAME'
   DISP 'D'
   CLASS 'X'
   COPIES 3

WRITE (2) 'HELLO, THIS IS PRINTER 2.'
CLOSE PRINTER (2)
END
```

Your output will be written directly to the defined Entire Output Management container file, without using any spooling system.

Natural Advanced Facilities

This section is only relevant if you use Natural Advanced Facilities. It covers the following topics:

Printing from Natural Advanced Facilities to Entire Output Management

Instead of printing output from Natural programs in the Natural Advanced Facilities (NAF) spool file (FSPOOL), you can route it to an Entire Output Management file (SYS2), from which it can be distributed, bundled or separated.

Here you can define whether the NAF/NOM interface is active and from which Natural Advanced Facilities environments output is to be processed. A separate Entire Output Management container file can be assigned to each FSPOOL file. However, you can also assign the same container file to all FSPOOL files.

To define default parameters for Natural Advanced Facilities for printing to Entire Output Management, see *Natural Advanced Facilities Defaults* in the *System Administration* documentation.

Printing from Entire Output Management to Natural Advanced Facilities

To print from Entire Output Management to Natural Advanced Facilities:

- Natural Advanced Facilities must be installed in the Natural nuclei used by the monitor and for batch printing.
- The necessary Natural Advanced Facilities modules must be linked.
- The parameter modules must define printers 3 and 4 as type `NAF`, as well as specifying any site-specific parameters such as `NAFSIZE`, `NAFUPF` and `FSPOOL`.

For further information, see the *Natural Advanced Facilities* documentation.

Report Format Conversion - Additional Requirements

If report format conversion - as described under *Converting the Report Format* in the *Concepts and Facilities* documentation - is intended, the utilities Ghostscript and Enscript have to be installed. The corresponding commands - `gs` and `enscript` respectively - must reside on any open systems machine where the conversions will be executed. Entire System Server has to be installed there as well, and each conversion node must be defined as a UNIX node in Entire Output Management (8.1/13 menu, can be deactivated).

On UNIX systems, both packages are in most cases already installed.

On Windows, it is recommended that the entire "gnuwin32" package be installed. You can find download pages at:

- `http://sourceforge.net/projects/ghostscript/`
- `http://sourceforge.net/projects/gnuwin32/`

The following utilities all of which, except Ghostscript, are GNU software, will be used:

```
ghostscript
enscript
file
find
sed
```
`pdftk` (optional)

The package `pdftk` is used if a report or a printer requires a mask file which is to be overlaid to the original report. It is available for UNIX and Windows systems.

The existence of the utilites will be checked using the execution path. This means that the path of both utilities has to be added to the current execution path (environment variable `PATH`).

If the module names are different from `gs` and `enscript`, two additional environment variables are required. The following environment variables of the user ID which is used in the UNIX node definition of Entire Ouptut Management can be defined:

- If Ghostscript is not invoked with `gs`, define the environment variable `GSMOD`. In the following example, Ghostscript 9.06 for Windows has been installed. `GSMOD` contains: `gswin64c.exe`
- If Enscript is not invoked with `enscript`, enter the correct name in the environment variable `ENMOD` in a similar way.

Note: The above-mentioned the UNIX utilities are invoked by Entire Ouptut Management, but are not part of it; they are third-party products which Software AG neither delivers nor provides support for.

Printing Binary Data under BS2000

This section is only relevant under BS2000. It covers the following topics:

- BS2000 File Attributes
- Physical Printer Definition in BS2000
- Using Binary FTP Outside of Entire Output Management

BS2000 File Attributes

To print binary data transparently without changing the data, some prerequisites are necessary in BS2000.

In addition, the format of the work file has to be "SAM".

Ensure that the format in the appropriate file command (the example, the JCL for binary printing is contained in SYSPBBS2 in the library SYSNOMS) is set correctly:

```
/FILE TEST.PRN,FCBTYPE=SAM
```

The code-character-set has to be ISO 7 Bit:

```
/MODIFY-FILE-ATT FILE-NAME=TEST.PRN,COD-CHAR-SET=ISO88591«
```

Physical Printer Definition in BS2000

When you define a physical printer in BS2000, you have to set the following parameters for the printing of binary data:

```
SHIFT: 0
SYNCHRONIZATION: NETWORK
```

Using Binary FTP Outside of Entire Output Management

Entire Output Management uses a JCL skeleton to operate printouts. If you wish to pass the data to another system for further processing, consider the following hints for binary FTP.

The following commands can be entered if you are logged in to your BS2000 account via FTP.

To prepare an SAM file for binary processing:

- `ftp> quote file <yourfilename>,fcbtype=sam`

To set the transfer of SAM files to binary format:

- ```
  ftp> quote site ftyp binary

  ftp> bin
  ```

To set the code character set to ISO88591:

- ftp> quote site MOD-FI-AT FILE-NAME=<*yourfilename*>,C-C-SET=ISO88591

The PRINT-DOCUMENT command for binary printing:

- The document must be printed with the *SPECIAL-FORMAT parameter:

```
/PRINT-DOCUMENT FROM-FILE=<yourfilename>,
DOCUMENT-FORMAT=*SPECIAL-FORMAT,
TO-PRINTER=*PARAMETERS(PRINTER-NAME=<yourprinter>)
```

3GL Interface Installation and Verification

This section describes how to define a 3GL interface and how to test it with the supplied sample programs.

1. Load a container file (SYS2) with no records. The output will be stored in this file.
2. Define the 3GL interface defaults, as described under *3GL Interface Maintenance* in the *System Administration* documentation:
```

3GL Interface Defaults (1)

```
 11:40:31             **** Entire Output Management ****            05/05/2017
UserId XYZ                 - 3GL Interface Defaults -

3GL Interface 104

  active ..................... Y
  Time Limit ................. __
  Description ................ User-defined Spool (3GL Interface 104)________

NOM container file
  DBID ....................... 1__
  FNR ........................ 138

Identifying Attributes
  Prompt                  Offset  Length  Order  Generic (*)
   1040___________________   1__     8__     1_      Y
   1041___________________   9__     8__     2_      N
   1042___________________   17_     8__     3_      N
   _______________________   ___     ___     __      _

File identification
   1043_________________     33_     8__
```

3GL Interface Defaults (2)

```
 11:45:54             **** Entire Output Management ****            05/05/2017
UserId XYZ                 - 3GL Interface Defaults -

3GL Interface 104

  active ..................... Y
  Description ................ User-defined Spool (3GL Interface 104)_________


Attributes
  Prompt                  Offset  Length
   1045_________________    25_     8__
   1044_________________    41_     50_
   _____________________    ___     ___
   _____________________    ___     ___
   _____________________    ___     ___
   _____________________    ___     ___
   _____________________    ___     ___
   _____________________    ___     ___
   _____________________    ___     ___
   _____________________    ___     ___
```

3. In the SYSERR utility, enter the prompt texts under the defined numbers (library SYSNOMU). If both the English and the German version of Entire Output Management are used, you have to enter the texts for both languages.

SYSERR - Display Short Messages

```
11:55:13             ***** NATURAL SYSERR Utility *****             05/05/2017
                          - Display Short Messages -


Number        Short Message (English)
------------  ------------------------------------------------------------------

SYSNOMU0001   User Id
SYSNOMU0002   Name
SYSNOMU0003   First Name
SYSNOMU0004   Birth date
SYSNOMU1040   User ID
SYSNOMU1041   Terminal ID
SYSNOMU1042   Program
SYSNOMU1043   List-Name
SYSNOMU1044   Description
SYSNOMU1045   List ID
SYSNOMU1234   testprompt
```

4. Create a default report for your 3GL interface. Enter an asterisk (*) for the identifying attribute that you defined with Generic=Y in the definition. For further information, see *Report Identification for 3GL Interface* in the *User's Guide*.

Report Definition - General Attributes

```
 12:12:40            **** Entire Output Management ****            05/05/2017
User ID XYZ       - Report Definition >General Attributes -

Report
   Name ............... USR104-DEFAULT___
   Description ....... Default definition for 3GL interface 104__________
   Type ............... D

Keywords ............. _______________ _______________ _______________
Master Owner ......... MRS_____
Store in NOM DB ...... N
Archive directly ..... N

Retention              Report     Archive   Revive
   Number ............ 1__        ____      ___
   Unit ............... A          _         _
   Calendar .......... ________              ________
   Action ............ P
```

Report Definition - 3GL Identification (3)

```
 15:13:43             **** Entire Output Management ****            05/05/2017
User ID XYZ        - Report Definition >3GL Identification -

Report
   Name ............... USR100-DEFAULT___
3GL Interface 100 Attributes

and
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
                        ____________________________________________________
```

5. Enter the database ID and file number of your container file in the module NOMADA. These are simply defaults which can be overwritten in the 3GL program.
6. SHUTDOWN and START the Monitor.
7. Modify the supplied member ASMNOM and assemble the module NOMADA.

   To execute the COBOL example, continue with Step 13 below.
8. Modify the supplied module NOMEX3GL. `O§ATTR` must contain the spool attributes (identifying attributes, file identification and other attributes) as defined in the interface. `N$SRCTYP` must contain the interface number at OPEN. `N$DBID` and `N$FNR` must contain the database ID and file number respectively.
9. Assemble the module NOMEX3GL.
10. Modify the member LNKEX3GL and link the sample program.
11. Modify the member RUNEX3GL and run the sample program.
12. Check the Monitor Log to see whether a report has been created.
13. Modify the supplied module NOMEX3CO. `NOMPUT-ATTRIBUTES` must contain the spool attributes as defined in the interface. In the subsection `BA-INITIALISE`, the interface number must be assigned to the field `NOMPUT-CB-SOURCE-TYPE`, the database number to the field `NOMPUT-CB-CONT-DBID`, and the file number of the container file to field `NOMPUT-CB-CONT-FNR`.
14. Modify the member COBNOM and compile the module NOMEX3CO.
15. Modify the member LNKEX3CO and link the sample program.

16. Modify the member RUNEX3CO and run the sample program.
17. Check the Monitor Log to see whether a report has been created.

Using NOMPUT

Installing an Entire Output Management Logical Printer in Natural Advanced Facilities

1. The delivered module NOMADA is assembled with the following parameters and will be valid for use with Natural and Natural Advanced Facilities. If you want to use NOMPUT with Natural, proceed with Step 4. If you are using 3GL languages, adapt the parameters to suit your requirements:

Parameter	Explanation
`AUTOET=0`	Do not perform ETs.
`CICS=YES/NO`	CICS environment required / not required (see below).
`NATURAL=NO`	Natural/Adabas not required.
`NATVERS=`*`vr`*	Version of Natural.
`NOMDBID=0`	Database ID of Entire Output Management container file.
`NOMFNR=0`	File number of Entire Output Management container file.

   NOMADA is the interface between NOMPUT and Adabas, and it can be used by:

   - 3GL batch programs, in which case `CICS=NO` must be set;
   - 3GL programs running under CICS, in which case `CICS=YES` must be set.

2. Assemble NOMADA using Entire Output Management, Natural and Adabas source libraries as steplibs; for example, see z/OS sample job `ASMNOM`:
3. INCLUDE the modules NOMPUT and NOMADA to the nucleus where NAFNUC is included (usually the shared nucleus):
4. For printing from Natural Advanced Facilities, define the Natural Advanced Facilities printers as follows:

   ```
   NTPRINT(m-n),AM=NAF
   ```

5. Define a logical printer in Natural Advanced Facilities with type `NOM`.
6. Edit the Natural Advanced Facilities defaults in Entire Output Management to link the Natural Advanced Facilities spool file and Entire Output Management container file and activate the Natural Advanced Facilities interface with "Y".
7. Direct the output of your Natural program to Entire Output Management using:

   ```
   DEFINE PRINTER (n) OUTPUT logical-NAF-printername
   ```

Output of this type is stored in the specified Entire Output Management container file. Note that container files must be located on the local system where Entire Output Management runs; remote container files accessed via Network are not possible.

Re-Routing VTAM Output to Entire Output Management

It is possible to re-route output from a VTAM application to Entire Output Management. This applies, for example, to reports generated by a user in a VTAM application (for example, Complete or CICS) which are written to VTAM printers. These reports can be the results of hardcopy requests, print requests, a Natural Advanced Facilities report, etc.

For this purpose, the VTAM virtual-printer application `NOMVPRNT` is provided, which simulates a VTAM printer. `NOMVPRNT` can run as a started task, or as a sub-task under Entire System Server. The output can be re-routed either to the JES/POWER spool or to the Entire Output Management container file. In Entire Output Management, the output will be processed according to the corresponding report definitions.

To use this feature, you have to make the following definitions:

- Definitions in VTAM
- Definitions in Entire Output Management
- Running NOMVPRNT Under Control of Entire System Server

Definitions in VTAM

In VTAM, you define each virtual printer as follows:

```
printer-name APPL AUTH=NVPACE,EAS=1,PARSESS=NO,DLOGMOD=DSC2K,SESSLIM=YES
```

The following startup parameters have to specified for `NOMVPRNT`:

Parameter	Explanation
`PRINTER=`*`printer-name`*	Specify an entry for each printer whose printouts are to be handled by Entire Output Management.
`STORE=DB/SP`	Specify the destination of the re-routed output: `STORE=DB` - Output is written to the Entire Output Management container file. `STORE=SP` - Output is written to the JES/POWER spool.
`NOM-DBID=`*`nnnnn`*	If `STORE=DB`, specify the database ID of the container file. If `STORE=SP`, specify the database ID of the Entire System Server node for Entire Output Management.
`NOM-FNR=`*`nnnnn`*	Only applicable with `STORE=DB`: Specify the file number of the container file.

Parameter	Explanation
NOM-CLASS=*c*	Only applicable with STORE=SP: Specify the JES/POWER class which is to be handled by the Entire Output Management monitor.
NOM-USER=*uuuuuuuu*	Only applicable with STORE=SP: Specify the user ID to be used by Entire System Server. For this Entire System Server node, you specify the startup parameter STDUSER=*uuuuuuuu*.
ADA-SVC=*nnn*	Specify the number of the Adabas SVC. The default value is 249.
SNAP=YES/NO	For tracing, specify YES. The default is NO.
WTOTRACE=YES/NO	For tracing, specify YES. The default is NO.

Under z/OS, the DD-card NOMPSPRM points to the startup parameters.

If NOMVPRNT runs under control of Entire System Server (see below), this DD-card can be omitted.

Sample JCL - z/OS:

```
//EXEC  PGM=NOMVMAIN,TIME=1440
//STEPLIB  DD DSN=nom.load,DISP=SHR
//         DD DSN=adabas.loadlib,DISP=SHR
//NOMPSPRM DD DSN=parm-file,DISP=SHR
//NOMPRSNP DD SYSOUT=X
```

Sample JCL - z/VSE:

```
//LIBDEF PHASE,SEARCH=(nomvprnt.load,adabas.loadlib),TEMP
//DLBL  PARMNOM,'parm-file',0,SD
//EXTENT  SYS040,volser
//ASSGN  SYS040,DISK,VOL=volser,SHR
//EXEC  NOMVMAIN
```

Definitions in Entire Output Management

- Output to JES/POWER Spool

Output to JES/POWER Spool

If the output is to be re-routed to the JES/POWER spool, the JES/POWER report definitions in Entire Output Management apply.

The following report definitions are required:

- On the **Report Definition > General Attributes** screen, the field **Store in NOM DB** must be set to "Y". This ensures that the report can be viewed even if the spool file in JES/POWER is deleted.
- On the **Report Definition > JES Identification** screen, the *printer-name* must be specified in the **Writer** field.
- On the **Report Definition > POWER Identification** screen, the *printer-name* must be specified in the **Jobname** field.

Output to Container File

If the output is to be re-routed to Entire Output Management container file, the following definitions are required:

- **System defaults:**
  On the **3GL Interface Defaults** screen, set the field **active** to "Y", and in the fields **NOM Container File DBID/FNR**, specify the same database ID and file number as in the VTAM startup parameters (see above).

  See Example A below.
- **Report definition for each report:**
  On the **Report Definition > 3GL Identification** screen (which is invoked by pressing PF7 on the **Report Definition > General Attributes** screen, and then PF8 and then selecting the desired 3GL interface), specify the printer name (NOMPRT*nn*) in the **3GL Interface *nnn* Attributes** field.

  See Example B below.

Example A - Define 3GL interface 105 (function 8.1.12 on the Main Menu):

```
 23:55:10            **** ENTIRE OUTPUT MANAGEMENT ****           2017-07-07
UserId XYZ               - 3GL Interface Defaults -

3GL Interface 105
  active ..................... Y
  Time Limit ................. __
  Description ................ NOMVPRNT to container_____________________

NOM container file
  DBID ....................... 9____
  FNR ........................ 246__

Identifying Attributes
  Prompt                 Offset  Length  Order  Generic (*)
   1234_________________   1__     8__     1_      N
   ____________________    ___     ___     __      _
   ____________________    ___     ___     __      _
   ____________________    ___     ___     __      _
File identification
   *___________________     1__     8__

Command => ____________________________________________________________________
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit  Flip                         Attrb             Menu
```

Example B - with selected interface 105:

```
User ID XYZ        - Report Definition >3GL Identification -

Report
   Name ............. REP2112_________

3GL Interface 105 Attributes
   ..................  NOMPRT42
```

Running NOMVPRNT Under Control of Entire System Server

NOMVPRNT can run under control of Entire System Server as follows:

- NOMVPRNT As Subtask
- NOMVPRNT As Started Task
- NOMVPRNT As Batch Job

If NOMVPRNT runs under control of Entire System Server, the file which contains the startup parameters is specified in SATENV with the keyword DATASET.

All output from NOMVPRNT will be written into a separate SYSOUT file under the DD-name NMV*vrs*MS.

If AUTO=OFF is specified in the SATSTART parameter block, NOMVPRNT can be started and stopped from Entire Output Management, menu 8.11.

For details on the parameter blocks and startup parameters mentioned above and in the three sections below, see also *Define Environment for Entire Output Management Server*.

NOMVPRNT As Subtask

If NOMVPRNT is to run as a subtask, you have to specify the following System Automation Tools startup parameters.

The parameter block SATENV must be specified as follows:

```
NMVvrs SATENV DATASET=dataset(member) [/volser]                              ↩
```

For z/VSE, the definitions have to be stored in a sequential file with LRECL=80.

The parameter block SATSTART must be specified as follows:

```
SAT SATSTART PRODUCT=NMV,
             TYPE=SUBTASK,
             PREFIX=vrs
             SERVSYSF=(dbid,fnr)
*            AUTO=OFF
```

where *vrs* must be the same as specified in SATENV, and *dbid* and *fnr* must be the same as specified for LFILE 206.

The parameter block NATENV can be omitted.

NOMVPRNT As Started Task

If NOMVPRNT is to run as a started task, you have to specify the following System Automation Tools startup parameters.

The parameter block SATENV must be specified as follows:

```
NMVvrs SATENV DATASET=dataset(member)
              STC=started-task-name                                          ↩
```

The parameter block SATSTART must be specified as follows:

```
SAT SATSTART PRODUCT=NMV,
             TYPE=BATCH,
             PREFIX=vrs
             SERVSYSF=(dbid,fnr)
*            AUTO=OFF
```

where *dbid* and *fnr* must be the same as specified for LFILE 206.

The parameter block NATENV can be omitted.

NOMVPRNT As Batch Job

If NOMVPRNT is to run as a batch job, you have to specify the following System Automation Tools startup parameters.

The parameter block SATENV must be specified as follows:

```
NMVvrs SATENV DATASET=dataset(member)
              NATSKEL=job-skeleton-name                                      ↩
```

The library SYSNOMS contains the job skeletons JNMVMVS1 and JNMVVSE1, which you can adapt to suit your requirements.

The parameter block SATSTART must be specified as follows:

```
SAT SATSTART PRODUCT=NMV,
             TYPE=BATCH,
             PREFIX=vrs
             SERVSYSF=(dbid,fnr)
*            AUTO=OFF
```

The parameter block NATENV can be omitted.