



SYSTEMS MANAGEMENT

Entire Operations

Installation and Operations

Version 3.2.1

 **SOFTWARE AG**



Order Number: NOP321-010ALL

This document applies to Version 3.2.1 of Entire Operations and to 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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Installation and Operations - Overview

This documentation covers the following topics:

- Introduction Explains what Entire Operations is used for and provides an overview of the individual sections.
- Installation and Customization on Mainframe Platforms Explains how to install and first start Entire Operations on mainframe platforms.
- Installation and Customization on UNIX Platforms Provides general information for the installation of Software AG products on a UNIX platform.
- Installation of Entire System Server / UNIX Explains the installation of Entire System Server on UNIX platforms.
- Installation of Entire System Server / Windows NT Describes the installation of Entire System Server on the Windows NT platform.
- Operations of Entire System Server / UNIX / Windows NT Provides information on the operations of Entire System Server / UNIX / Windows NT
- Performance Considerations Provides information on performance considerations for Adabas, Natural, Entire System Server and Entire Operations.
- Sample Network Represents a sample network in external format.

For details on how to navigate within the documentation, see [Using the Documentation](#).

Introduction

Entire Operations is a Software AG product for the automatic control of batch processing in the computer center. This manual is intended as a guide for the system programmer who maintains the Entire Operations environment. It describes how to install Entire Operations, how to maintain user profiles, resources and mailboxes, how to define nodes and system defaults, as well as how to control the Entire Operations Monitor.

Before reading this manual and putting its information into practice, you are advised to have at least a working knowledge of the Entire Operations Reference Documentation.

Operating System Designations

BS2000, MVS and VSE are short designations for the corresponding operating systems, which can be found on the individual screens in this manual and in the online help. But throughout the remaining text, their long names are consistently used, i.e., BS2000/OSD, OS/390 and VSE/ESA.

Operating Systems	
Short Names	Long Names
BS2000	BS2000/OSD
MVS	OS/390
VSE	VSE/ESA

Contents of this Documentation

- **System Administrator Services**
Describes the online system services with which you can control the Entire Operations environment.
- **Installation and Customization on Mainframe Platforms**
Explains how to install and first start Entire Operations on mainframe platforms.
- **Installation and Customization on UNIX Platforms**
Provides general information for the installation of Software AG products on a UNIX platform.
- **Installation of Entire System Server / UNIX**
Explains the installation of Entire System Server on UNIX platforms.
- **Installation of Entire System Server / Windows NT**
Explains the installation of Entire System Server on the Windows NT platform.
- **Operations of Entire System Server / UNIX / Windows NT**
Provides information on the operations of Entire System Server / UNIX / Windows NT
- **Import / Export Utility**
Explains how to use the Import / Export Utility for migrating between different versions of Natural Operations and Entire Operations.
- **Performance Considerations**
Provides information on performance considerations for Adabas, Natural, Entire System Server and Entire Operations.
- **Sample Network**
Provides a sample network in external format.

Installation and Customization on Mainframe Platforms

This section covers the following topics:

- Overview
 - System Maintenance Aid
 - Prerequisites
 - Installation Tape
 - Storage Requirements
 - Copying the Tape Contents to Disk
 - Installation / Migrate Procedure for Entire Operations
 - Interfaces to other Software AG Products
 - Interfaces to other Operating Systems
 - Security Definitions
 - Starting Entire Operations for the First Time
 - Import and Export of Entire Operations Data - if necessary
 - Entire Operations in Client/Server Environments
 - Installing Updates
 - Naming Conventions for Work Files Created By Entire Operations
-

Overview

Notes:

1. Do not proceed with the installation steps described in this section until you have completed installation of System Automation Tools (SAT). Please refer to the separate SAT Documentation.
2. Starting with version 1.4.1, Natural Operations has become Entire Operations, abbreviated as SYSEOR. However, the abbreviation NOP for Natural Operations is still used for Software AG internal/installation files. The same is true for Entire System Server (ESY), which was formerly Natural Process (NPR).

This section describes step by step how to complete the installation of Entire Operations under OS/390, BS2000/OSD and VSE/ESA. The main parts of it are identical for all **3** operating systems. Where the procedure differs according to operating system this is described under separate headings: OS/390, BS2000/OSD, and VSE/ESA.

This section also contains information about installation on UNIX. It is therefore recommended to read this section as well if Entire Operations is to be installed on a UNIX platform.

This section consists of the following basic parts:

1. Customizing System Automation Tools (SAT) for the Entire Operations Monitor.
2. Creating system files for the Entire Operations objects.
3. Creating executable environments under different TP monitors for using Natural in online mode.

System Maintenance Aid

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

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 Operations installation tape; you must adapt this example job to your requirements.

Note:

The job numbers on the tape are preceded by a product code (for example, NOPI061).

Prerequisites

Before you can install Entire Operations, the following Software AG products must already be installed at your site:

- Adabas version 6.2 or higher;
- Natural version 3.1.3 or higher;
- Entire System Server version 2.2.2 or higher; note that you require Entire System Server version 2.2.2 or higher if you intend to access mainframe system resources and jobs from an Entire Operations running in a UNIX environment.
- System Automation Tools (SAT) version 2.3.2 or higher;
- Natural Security (optional);
- Entire Network (optional); this product is required for any kind of multi-CPU constellation where mainframe and/or UNIX and/or Windows NT partners are involved (non-local);
- Entire Broker version 2.1.1 for BS2000/OSD or VSE/ESA;
EntireX Broker version 5.2.1 for OS/390;
EntireX Broker version 5.2.1 for UNIX or Windows NT platforms;
this product is required for any kind of multi-CPU constellation, if one partner is a UNIX system or Windows NT or different UNIX systems are involved. Entire Broker is not required, if you are running Entire Operations on a UNIX or Windows NT platform and controlling the job networks on a mainframe system;

The installation procedure for Entire System Server is described in the Entire System Server Installation Documentation.

The installation procedure for SAT 2.3.2 is described in the System Automation Tools Documentation.

Special Considerations

DBID 148 is reserved for Entire System Server and must not be used for any data base.

Platforms and Required Middleware

The following products are required to connect the individual platforms:

Online System / Monitor	Job Execution	Connection / Products
mainframe	mainframe (local *)	none
mainframe	other mainframe	Entire Network
mainframe	UNIX	Entire Network and Entire Broker
mainframe	Windows NT	Entire Network and Entire Broker
UNIX	UNIX (local *)	none
UNIX	other UNIX	Entire Network and Entire Broker
UNIX	Windows NT	Entire Network and Entire Broker
UNIX	mainframe	Entire Network

* **Local** means that the Entire Operations online system is installed on the same machine on which jobs are executed.

Combinations are also possible. For example, if you want to install the Entire Operations online system on one mainframe and execute jobs on another mainframe and another UNIX or Windows NT machine, you would need:

- 3 Entire Networks (one for each system to be connected) for connecting to the other mainframe and to UNIX or Windows NT, and
- Entire Broker (on one system) for connecting to UNIX or Windows NT.

Installation Tape

The installation tape contains the files listed in the table below. The sequence of the files is shown in the **Report of Tape Creation** which accompanies the installation tape.

File Name	Contents
NOPnnn.JOBS	Entire Operations Installation Jobs (OS/390 and BS2000/OSD)
NOPnnn.LIBR	Entire Operations Load Library & Installation Jobs (VSE/ESA)
NOPnnn.SYS1	Entire Operations System File 1 (Adabas)
NOPnnn.SYS2	Entire Operations System File 2 (Adabas)
NOPnnn.SYS3	Entire Operations System File 3 (Adabas)
NOPnnn.INPL	Entire Operations System Libraries (Natural)
NOPnnn.ERRN	Entire Operations Error Messages (Natural)
NOPnnn.DATA	Input data (sample network definitions) for Entire Operations Import Utility.

* Some files for the solution of certain SAGSIS problems maybe included on the installation tape. Please refer to the problem descriptions before applying them.

The notation *nnn* in file names represents the version number of the product.

System Automation Tools files are included as described in the separate SAT Documentation.

Special Considerations for Installing an Update Tape

The following applies to the Entire System Management products Entire Operations, Entire Output Management and Entire Event Management.

Before you update any production library or file using a single solution or an update tape containing a series of solutions supplied by Software AG, you must stop the Monitor of the relevant Entire System Management product. Do not start the Monitor before your entire update process is completed successfully. Use the Natural utility SYSBPM to purge all modules of the application SYSEOR from the Natural buffer pool.

This is necessary to avoid mixing the versions of the delivered software, for example in Natural libraries where such a mixture may lead to parameter errors like NAT0935, NAT0936 etc.

Storage Requirements

During installation, the following files are loaded from the installation tape:

File Name	OS/390		BS2000/OSD	VSE/ESA
	Type	Tracks / Cylinders on 3380 Disk	PAM Pages	Tracks / Cylinders on 3380 Disk
NOPnnn.JOBS	PDS	2 tracks	192	n/a
NOPnnn.LOAD	PDS	1 track	n/a	n/a
NOPnnn.INPL	SEQ	12 cylinders	3105	12 cylinders
NOPnnn.ERRN	SEQ	16 tracks	336	16 tracks
NOPnnn.SYS1	SEQ	7 tracks	168	7 tracks
NOPnnn.SYS2	SEQ	1 track	33	1 track
NOPnnn.SYS3	SEQ	1 track	33	1 track
NOPnnn.DATA	SEQ	1 cylinder	306	1 cylinder
NOPnnn.LIBR	SUBLIB	n/a	n/a	1 track

Copying the Tape Contents to Disk

OS/390

If you are not using SMA, copy the job file NOPnnn.JOBS from tape to disk using the sample JCL below. The following values must be supplied in the JCL:

- In the file names, replace *nnn* with the current version number of the files.
- With the SER parameter, replace XXXXXX with the volume serial number of the tape.
- With the LABEL parameter, replace *x* with the sequential number of the tape file (see **Report of Tape Creation**).
- With VOL=SER parameter, replace YYYYYY with the volume serial number of the disk pack.
- With the SPACE parameter, specify the device type being used.

```
// JOB CARD
//V2COPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN1 DD DSN=NOPnnn.JOBS,DISP=OLD,UNIT=TAPE,
// VOL=(,RETAIN,SER=XXXXXX),LABEL=(x,SL)
//OUT1 DD DSN=SAGLIB.NOPnnn.JOBS,DISP=(NEW,CATLG,DELETE),
// UNIT=SYSDA,VOL=SER=YYYYYY,SPACE=(CYL,(1,1,10))
//SYSIN DD *
C I=IN1,O=OUT1
/*
```

Then adapt and run job NOPTAPE from the job file to copy the load library from tape to disk. The sample jobs directly use the sequential files from tape.

The file type and the space each file requires on disk are shown in the **Report of Tape Creation**.

BS2000/OSD

If you are not using SMA, copy the files from tape to disk using the procedure described below. In this procedure, the following values must be supplied:

- In the file names, replace *nnn* with the current version of the files.
 - Replace *nnnnnn* with the volume serial number of the tape.
1. Copy the job file NOPnnn.JOBS from tape to disk using the BS2000/OSD utility PERCON or EDT.

If you use PERCON, issue the following commands:

```
/FILE NOPnnn.JOBS,VOL=nnnnnn,DEV=T9G,STATE=FOREIGN -
,BLKSIZE=,RECSIZE=,FCBTYPE=,RECFORM= -
,FSEQ=UNK,LINK=PCIN
/FILE P.NOPnnn,LINK=PCOUT
/EXEC $PERCON
END
```

If you use EDT, issue the following commands:

```

/FILE NOPnnn.JOBS,VOL=nnnnnn,DEV=T9G,STATE=FOREIGN -
      ,FSEQ=UNK,LINK=EDTSAM
/EXEC $EDT
$ READ '/'
$ SY '/REL EDTSAM'
$ WRITE 'P.NOPnnn'
$ HALT

```

2. Issue the command:

```
/CALL P.NOPnnn,PRODUCT=NOPnnn
```

An example job library LIB.NOPnnn is created from the procedure file.

3. Adapt job E.NOPTAPE from the example job library.

Then issue the following command to run the job, which copies all files from tape to disk:

```
/E LIB.NOPnnn(E.NOPTAPE)
```

VSE/ESA

The sample JCS supplied on tape for the installation of Entire Operations assumes one library (SAGLIB).

Copy the sublibrary containing the sample installation jobs and object modules from tape using the following JCS:

```

* $$ JOB JNM=RESTORE,CLASS=0
* $$      DISP=D,LDEST=*
* $$ LST CLASS=A,DISP=D
// JOB RESTORE
// ASSGN SYS005,IGN
// ASSGN SYS006,CUU,VOL=xxxxxx
// MTC REW,SYS006
// MTC FSF,SYS006,nn          * For the value of nn, see the tape report
* *** Now process NOPnnnJ.LIBR - JOBS ***
// EXEC LIBR,PARM='MSHP'
RESTORE SUB=(SAGLIB.NOPnnn:SAGLIB.NOPnnn -
            SAGLIB.NOPnnnJ:SAGLIB.NOPnnnJ) -
            TAPE=SYS006 -
            LIST=YES -
            REPLACE=YES
/*
/&
* $$ EOJ

```

The notation *nnn* represents the version number of the product.

The notation *xxxxxx* represents the volume serial number of the tape.

All further data sets will be used directly from tape by the installation jobs.

Installation / Migrate Procedure for Entire Operations

Step1: Load System Files (Job I050, Steps 2100-2102, Job I082, Steps 2100-2106)

For existing Entire Operations installations, the following migration paths are possible:

From Version	To Version	Use Job, Steps
NOP 14x	NOP 311	I082 2100, 2101 2102, 2103
NOP 211	NOP 311	I082 2102, 2103
NOP 311	NOP 321	I082 2104, 2105, 2106

Additionally, the steps 2102 and 2103 must be performed (as described in the subsection Migration from NOP 211 to NOP 311).

- **Migration from NOP 211 to NOP 311:**

Backup System Files **1** and **2**. Use Job I082 to perform the following changes on System File **1**. This job contains two steps:

1. For system file **1**, Step 2102:

Field	Length (2.1.1)	Length (3.1.1)
A3	6	10
AG	7	12
EM	10	16
F4	8	16
Y6	8	16
V1	30	32
DH	3	5
DO	3	5

2. For system file **2**, Step 2103:

Field	Length (2.1.1)	Length (3.1.1)
A3	5	10
FA	8	16
Y6	8	16

System Files **1** and **2** can now be used by Entire Operations 2.1.1 without data loss. However, a system file that has been used under version 2.1.1 can no longer be used under version 1.4.x.

System File **3** can be used without any changes.

- **Migration from NOP14x to NOP311:**

To migrate directly from NOP14x to NOP311, the following job has to be performed in addition to job I082 mentioned above:

Use Job I082 to perform the following changes on System File **1** (Step 2100):

Field	Length (1.4.x)	Length (2.1.1)
EF	8	16
FA	8	16
F6	10	16

A new superdescriptor FV=F6(1,16),F7(1,10) must also be created in the File Description Table (Step 2101).

Additionally, the steps 2102 and 2103 must be performed (as described in the subsection Migration from NOP 211 to NOP 311).

System File **1** can now be used by Entire Operations 3.1.1 without data loss. However, a system file that has been used under version 3.1.1 can no longer be used under version 1.4.x.

Migration from NOP 311 to NOP 321

Backup System Files **1** and **2**. Use Job I082 to perform the following changes on System File. This job contains 3 steps:

1. For system file **1**, Step 2104:

Field	Length (3.1.1)	Length (3.2.1)
BZ	10	20
C7	8	20
CJ	10	20
DL	3	8
EM	16	20
F4	16	20
I9	10	20
KD	8	20
KH	10	20
VM	8	20

- For system file 1, Step 2105:

The field Y2 must be made a descriptor. It is to be inverted, e.g. by ADAINV.

- For system file 2, Step 2106:

Field	Length (3.1.1)	Length (3.2.1)
FA	16	20
Y6	16	20

Migration from NOP 14x or NOP 211 to NOP 321

Perform all necessary modifications to NOP 311.

After this, perform the migration from NOP 311 to NOP 321.

Entire Operations System File 1

Entire Operations System File 1 holds all definitions and information needed to control the batch job processing. The file supplied on the installation tape contains some examples. If you do not want these examples, load the file with the ADALOD parameter NUMREC=0.

Step 2: Load System Objects and Error Messages - Job I061

- Job I051, Step 2100 deletes old objects starting with NOP* in the SYSTEM library on FNAT and FUSER. This runs only if an Entire Operations version less than or equal to 2.1.1 was installed.

Step 2101 deletes all objects from the SYSEOR library, if NOP14x was the previously installed version.

- Use the Natural system command INPL (which is described in the **Natural Reference Documentation**) to load the Entire Operations system objects (file NOPnnn.INPL, Job I061, Step 2100).

The following libraries are loaded:

Library	File	Contents
SYSEOR	FNAT	Entire Operations Programs
SYSEORH1	FNAT	Entire Operations Help Data (English)
SYSEORH2	FNAT	Entire Operations Help Data (German)
SYSTEM	FUSER	Entire Operations Programs starting with NOP...
SYSEORU	FNAT	Entire Operations Example User Routine

- Load the Entire Operations error messages file (file NOPnnn.ERRN) using the ERRLODUS utility in Step 2102. The ERRLODUS utility is described in the Section **The SYSERR Utility** of the **Natural Utilities Documentation**)

Step 3: Install the Entire Operations Monitor

The following additional definitions are required in the Natural parameter modules for online and batch (=Monitor):

NTFILE	ID=216,DBID=<DBID-216>,FNR=<FNR-216>	Entire Operations System File 1
NTFILE	ID=173,DBID=<DBID-173>,FNR=<FNR-173>	Entire Operations System File 2
NTFILE	ID=215,DBID=<DBID-215>,FNR=<FNR-215>	Entire Operations System File 3 (optional) ¹
NTFILE	ID=206,DBID=<DBID-206>,FNR=<FNR-206>	Entire Output Management System File (optional)
NTFILE	ID=251,DBID=<DBID-251>,FNR=<FNR-251>	Con-nect File (optional)

¹ Entire Operations System File 3 is the Log Selection File. This file is required only if you use the extraction of log data described in Special API Routines for Entire Operations in the Entire Operations User's Guide.

Note:

The NTFILE settings can be overridden at any time by dynamic LFILE definitions in the SAT NATENV subsection for the Entire Operations Monitor.

Step 4: Adapt SAT Parameters for Entire Operations

Mandatory Parameter Blocks and Parameters for Entire Operations

Param. 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	SATVERS=23	The Entire Operations Server startup program must use SAT version 2.3.2.
	PRODUCT=NOP	3-byte product code.
	PREFIX=	PRODUCT and PREFIX are compressed into a prefix which identifies the Server- specific parameters.
	TYPE=BATCH/SUBTASK	Entire Operations Servers can be started as subtasks or batch jobs. ¹
	APPLIB=SYSEOR	Name of the Natural library where Entire Operations Server is installed.
	SERVSYSF=	DBID and file number for Entire Operations System File 1 (must be unique within all SATSTART instructions of this node).
NATENV	LFILE=(216,<NOPSYSF1-DBID>,<NOPSYSF1-FNR>) ^{2,4}	
	LFILE=(173,<NOPSYSF2-DBID>,<NOPSYSF2-FNR>) ^{3,4}	
	ID=','	Input delimiter.
	IM=D	Input mode.

¹ Under BS2000/OSD these subtasks are simulated by Entire System Server.

² Pointer to Entire Operations System File 1

³ Pointer to Entire Operations System File 2

⁴ These pointers can be alternately set in the common NATPARM module created for the SAT products or in

a Natural parameter profile indicated by the Natural parameter PROFILE.

Notes:

1. NOP311 and NOPBAT are the proposed names for SYSEOR311 SUBTASK and SYSEOR311 BATCH and can be modified.
2. If Natural Security is installed, specify AUTO=OFF in NATENV; if not installed, specify AUTO=ON.

Specific Parameters for Entire Operations

Furthermore, you can overwrite the SATENV and NATENV parameters with Entire Operations-specific assignments. The naming convention for the prefix which identifies the parameter block is:

```
<Prefix> = NOP+<Prefix from SATSTART block>
```

Parameter Block	Parameter	
SATSTART	MEMBER=	¹

¹ You can specify a member where Entire Operations-specific parameters are located.

Example:

SAT Environment Settings

SAT	SATENV	NATTASK=NSATT08, NATBATCH=NAT228BA, NATSKEL=EORJSMVS, NSC=YES, NSCUSER=EORMON, NSCPSWD=EORMON1	
NOP311	SATENV	NATTASK=NSATT08, NATBATCH=NAT226BA, NATSKEL=EORJSMVS, NSC=YES, NSCUSER=EORMON, NSCPSWD=EORMON1	/* SYSEOR 321 SUBTASK
NOPBAT	SATENV	NATTASK=NSATT08, NATBATCH=NATBAT22, NATSKEL=EORJSMVS, JOBPREF=SN, NSC=NO	/* SYSEOR 321 BATCH /* OPS.SYSF.PROD.LOAD /* JOB NAME PREFIX

Natural Environment Settings

SAT	NATENV	DU=OFF	
NOP311	NATENV	FUSER=(9,90),FNAT=(9,80),FSEC=(9,83), MAXCL=0,MADIO=0,MT=0,AUTO=OFF, IM=D,ID=',', WH=ON, LFILE=(216,9,89), LFILE=(173,9,23), LFILE=(251,21,16), LFILE=(206,9,111), LFILE=(204,9,80)	/* SYSEOR SYS 1 /* SYSEOR SYS 2 (LOG) /* CNT SYSF /* NOM SYSF /* SYSSATU FNAT
NOPBAT	NATENV	PARM=E31122BP,IM=D,AUTO=OFF FUSER=(9,90) LFILE=(204,9,80)	/* SYSSATU FNAT

Product automatic start

SAT	SATSTART	SATVERS=23, PRODUCT=NOP, PREFIX=311, TYPE=SUBTASK, PREFIX=BAT, TYPE=BATCH, APPLLIB=SYSEOR, SERVSYSF=(9,89)	/* SYSEOR 321 SUBTASK /* SYSEOR 321 BATCH
*			
*			

For an explanation of the SAT parameters, see the description of System Automation Tools in the separate SAT Documentation.

Interfaces to other Software AG Products

Con-nect Interface

If you intend to transfer messages from Entire Operations to Con-nect, the application programming interface must be copied; you must copy all objects starting with **Z** from the library SYSCNT2 to the library SYSEOR.

In addition, you have to add a **standalone** cabinet to Con-nect with:

Name	Password	Description
SYSEOR	SYSEOR	Entire Operations Monitor

This cabinet serves as a sender-cabinet for the indicated messages and has not other functions. Ensure that the cabinet SYSEOR is never locked because this forces a Monitor abend.

Interface to Entire Output Management

If you want to use the Entire Output Management Application Programming Interface to pass SYSOUT and files to Entire Output Management, you must:

- Define the LFILE 206 for the Entire Output Management System File in the System Automation Tools startup parameters, and/or define the NTFILE 206 in the Natural parameter module for Entire Operations.
- Add the library SYSNOM (Entire Output Management Application Programming Interface) to the STEPLIB definitions of Entire Operations in Natural Security.

Interfaces to other Operating Systems

OS/390 Interfaces

- **CA-LIBRARIAN Interface**

To activate the CA-LIBRARIAN interface, you must assemble and link the Entire System Server module NATPAML into the Entire System Server Load Library. For instructions, please refer to the Entire System Server Reference Documentation.

- **Force Job Display To Console**

To recognize whether a job has terminated normally, Entire Operations needs the terminate message (IEF404I ...) for each job. If not yet installed, modify each member CONSOLxx in the SYS1.PARMLIB library, which defines the OS/390 master console and alternate consoles.

Insert the entry MONITOR(JOBNAMES-T) for automatic job display.

Make sure there is no entry in any MPFLSTxx member in SYS1.PARMLIB to suppress message IEF404I.

BS2000/OSD Interfaces

- **LMS Interface**

For access to LMS elements from Entire Operations, LMS version V1.4Axy or higher is required.

- **UCON Interface**

For the following functions the UCON interface of Entire System Server is required:

- Sending messages via an Entire System Server node
- Cancel jobs
- Hold jobs
- Release jobs

The UCON interface is accessed by the Entire System Server view CONSOLE. This means that the Entire System Server jobs for the console must have been started.

If you use Entire System Server in multi-user mode (node number other than **148**) these tasks will be started by Entire System Server nucleus.

In single user mode, the UCON interface is only available from the user ID where the active and passive console tasks of Entire System Server are running.

UNIX and Windows NT Interfaces

For more information related to UNIX and Windows NT system access, see the subsection Entire Operations in Client/Server Environments.

SAP R/3 Interfaces

For more information related to SAP R/3 access, see the Entire Operations User's Guide.

Security Definitions

With Natural Security

If Natural Security is installed at your site, you must create the following definitions:

Applications

SYSEOR	Entire Operations Programs
SYSEORH1	Entire Operations Help Data (English)
SYSEORH2	Entire Operations Help Data (German)
SYSEORU	Entire Operations User Routines & JCL (NAT & MAC)

Notes:

- **For all applications:**
Do not define a startup program.
Do not define Clear Source area by Logon within Security Options.
These security parameters must also be installed for any additional user applications.
- **For SYSEOR - define in this order:**
 1. STEPLIB=SYSSAT
 2. STEPLIB=SYSNOM
(only if Entire Output Management is available)
 3. STEPLIB=SYSLIBS
 4. STEPLIB=SYSEXT
 5. STEPLIB=SYSTEM

Do not define the error transaction: NOPERROR. (This had to be done explicitly in former versions of Entire Operations.

- **For user libraries and SYSEORU (JCL, macros, user exits) - define in this order:**
 1. STEPLIB=SYSEOR
 2. STEPLIB=SYSSAT
 3. STEPLIB=SYSLIBS

4. STEPLIB=SYSEXT
5. STEPLIB=SYSTEM

Users

(defined as person in Natural Security)

EORMON	Entire Operations Monitor
---------------	---------------------------

Note:

Link user EORMON to all Entire Operations applications as listed above.

Without Natural Security

If Natural Security is not installed at your site, proceed as follows:

Edit the System Automation Tools member as described in the subsection Parameter Blocks and Parameters of the SAT Documentation. Add the following lines to the parameter block of Entire Operations (SATENV):

1. STEPLIB1=(SYSEOR, dbid, fnr)
2. STEPLIB2=(SYSSAT, dbid, fnr)
3. STEPLIB3=(SYSNOM, dbid, fnr)
4. STEPLIB4=(SYSLIBS, dbid, fnr)
5. STEPLIB5=(SYSEXT, dbid, fnr)
6. STEPLIB6=(SYSTEM, dbid, fnr)

Copy all modules beginning with the prefix NOP from the SYSEOR library to the SYSTEM library. If you use FNAT user libraries, (for example, SYSEORU), you must copy the modules to the SYSTEM library on FNAT. If you use FUSER user libraries, you must copy the modules to the SYSTEM library on FUSER.

External Security System

If Entire System Server is installed with an external security system (RACF, ACF2, TOP SECRET), a user ID for the Entire Operations Monitor must be defined in the security system. The user ID is **EORnnn01**, where *nnn* is the Monitor node number. For example, if the Monitor node is **148**, define the user ID as **EOR14801**.

BS2000/OSD

Define the BS2000/OSD user ID under which the Entire Operations Monitor runs (usually TSOS).

Note:

Link user for the Entire Operations Monitor to all Entire Operations applications as listed above.

Starting Entire Operations for the First Time

If you are logged on to the SYSEOR library, you must enter the direct command `INSTALL`.

After the first start, the Entire Operations Installation screen is automatically invoked:

```

14.05.00                *** Entire Operations 3.2.1 ***                10:29:29
                        Installation

-----
This program will help to make some initial definitions for and within
Entire Operations.
The most definitions can be modified later, by using the
'System Administration' online functions.

If you do not want to continue, please press the PF3 key.
If you want to continue, please enter the following:

        User ID of the Entire Operations System Administrator ==> SYSDBA__

Enter ==> Continue Installation
PF3   ==> End

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

```

To proceed with installation

- Enter `SYSDBA` in the User ID field of this screen and press Enter.

During the installation procedure, you can add your own user ID.

This enables you to customize Entire Operations by following the steps described in Section System Administrator Services. This includes:

- Entire Operations Defaults;

BS2000/OSD only:

You should at least modify the activation and submission escape characters, since `$` and `§` cannot be used in BS2000/OSD. You should use `^` and `'` (accent grave).

- Definition of Nodes - the user can delete unnecessary node definitions and add the appropriate ones;
- User Maintenance.

Notes:

1. You cannot start the Entire Operations Monitor until the installation is finished.
2. You will be forced to leave the Natural session after termination of the Install program. The reason is that some of the definitions are necessary for a regular user session. If you want to work with Entire Operations after `INSTALL`, you must start a new Natural

session.

BS2000/OSD

Note for TIAM-Natural

If you run your Natural under TIAM, it is possible to access Entire System Server as well as the Editor in single-user mode. To do this, the following FILE statements must be given before starting Natural:

```
/FILE <NPRLIB>,LINK=DDLIB2           (for ESY single user mode)
```

where <NPRLIB> is the Entire System Server load library,

```
/FILE <workfile>,LINK=CMEDIT         (for Editor single-user mode)
```

where <workfile> must be the user-specific workfile, and <workfile> may not be accessed by any other task (refer to the subsection **Installing the Software AG Editor** in Section 2 of the **Natural Operations Documentation**.)

Note for UTM-Natural

If you run your Natural under UTM, you must not use single-user mode for Entire System Server or the Editor.

This means that node number 148 may not be given in any definition within Entire Operations, and a global Editor Buffer Pool must have been installed.

Installation Verification

If you have installed Entire Operations properly, issue the TECH command to display technical information for your installation. For details, see the subsection Online Technical Information in Section Logging on to Entire Operations of the Entire Operations User's Guide.

Note:

The TECH command must be used to synchronize the version and date of both your online Entire Operations system and your Entire Operations Monitor - for example, if the error message **wrong monitor version** appears after the INPL of an Entire Operations update tape. The TECH command is invoked automatically within the INSTALL program.

After having started the Entire Operations Monitor, you can now start some sample networks that are included in System File 1 on the installation tape. You can find these sample networks under the owner EXAMPLE.

Notes:

- For detailed information on starting the Entire Operations Monitor, see the subsection Starting a Server in the SAT Documentation and the subsection Entire Operations 3.2.1 Monitor.
- You cannot start these sample networks, if you have loaded your Entire Operations System File with NUMREC=0.

Prerequisites for the Installation Verification

You must adapt the job networks of the owner EXAMPLE, which you want to use for the installation verification.

It is recommended that you use the following networks:

Operating System	Network	Description
BS2000/OSD	B60-FLOW	BS2000/OSD Job Flow
OS/390	E60-FLOW	OS/390
VSE/ESA/ESA	V60-FLOW	VSE/ESA Job Flow
UNIX	X60-FLOW	UNIX Job Flow

You must perform the following steps:

1. Check whether the node table contains all operating system server nodes you need (see the subsection Definition of Nodes in Section System Administrator Services).
2. For each node you want to use: enter the direct command LOGON SERVER <node-number> and perform a logon with a valid user ID and password. This must be done to check the availability of the node, and to obtain the operating system information from the node.
3. Go to the Network Modification screen and set the fields Execution Node and JCL Node to a valid node number. If you are using network B60-FLOW or X60-FLOW, you must also check the special defaults using PF6 from this screen; then set the field Submit User ID (and for B60-FLOW also Sysout User ID) to a user ID valid in your environment.
4. The node numbers above must be propagated to all jobs of the network. Press PF9 to display the screen Application of Network Defaults to Jobs. Enter **S** before Exec Node and JCL Node and press Enter to modify the jobs. For network B60-FLOW or X60-FLOW, you must also enter **S** before the User ID field(s) you modified in step 3.
5. For most of the sample job networks, you will find the name of a symbol table on the Network Modification screen. Press PF7 to display the symbols within that table. Check the symbols listed in the table and, if necessary, adapt them for your needs. Use the line command **M** for modifications.
6. Go to the Calendar Maintenance screen. Make sure that the calendar EXAMPLECAL is defined for the current year.
7. If you use Natural Security: Make sure that the library SYSEORU is defined as **public library**. If it is defined as **people protected**, you need a link to your user ID and to the user ID of the Entire Operations Monitor.

Activating Sample Job Networks

The sample networks demonstrate a sequence of interdependent jobs and are used to ensure that all of your installation has been successfully completed.

▶ **To activate a sample network**

- Enter **R** in the input field of the Cmd column preceding the network name on the Network Maintenance screen and press Enter.

▶ **To check the Entire Operations log**

- Enter LOG in the Command => line and press Enter. The sample jobs of your network should have been started and have ended **ok**. If this is not the case, check that you have performed the installation correctly.

Notes:

1. The following message in LOG can be ignored if you are using sample networks that were issued with Entire Operations 1.4x: Inv.Out Cond.Ref: E60-JOB-1 RUN-1.
If you are using native Entire Operations 3.1.1 sample networks, this message is unlikely to occur.
2. In a VSE/ESA environment, before activating network V60-FLOW, you are recommended to verify the definitions of End-of-Job actions for JOB-01 of this network. For this job, some message recipients are defined which may not exist in your environment. You can either overwrite these recipients with valid destination IDs, or else delete all recipient definitions. For details, see the subsection Message Switching (Nachricht Senden) in the Entire Operations User's Guide.

Possible Errors

- You have forgotten to use some Natural Security definitions.
- You might be using improper versions of Adabas, Natural or Entire System Server.
- There are errors in your Natural definition (linkage, parameter module, etc.).
- You have forgotten some System Automation Tools parameters or have defined them incorrectly.
- You have not performed the installation procedure correctly or have not ended it properly.

Migration Considerations

- **Sample Networks for Previous Versions 1.4.x**
In general, the installation verification can also be carried out using the sample networks delivered with previous versions 1.4.x of Entire Operations. However, these network definitions contained some minor inconsistencies which have been corrected in the current version. The current version also contains some additional sample network definitions, in particular those demonstrating access to UNIX nodes. It is therefore recommended that you update the sample networks by importing them from the DATA file supplied with Entire Operations version 2.1.1 and above. For further information, see the subsection Import and Export of Entire Operations Data.
- **Sample Networks for Previous Versions 1.3.x**
Similar considerations apply for the sample networks supplied with Entire Operations version 1.3.x. However, in this case you are advised to proceed as described in the subsection Import and Export of Entire Operations Data.

If Entire Operations Monitor Subtask Does Not Start

Error NAT0838

If you receive the error message NAT0838 in the System Automation Tools output:

- Log on online to SYSEOR and change the password there.
- Modify the NSCPSWD= settings in NOPxxx SATENV in the System Automation Tools parameters as well.
- Retry the System Automation Tools start.

Import and Export of Entire Operations Data - if necessary

Starting with version 1.4.1, an Import / Export Utility is provided by Entire Operations. It can be used to transfer Entire Operations data (networks, jobs and all other objects) from one System File to another by exporting and importing the data via a work file.

Updating Sample Networks from Version 1.4

The Import / Export Utility can also be used to update sample network definitions supplied with Entire Operations version 1.4.x by importing the definitions contained in the system file supplied with version 2.1.1 and above. **Step 3** below describes what must be done for this purpose.

The Import / Export Utility is described in detail in Section Import/Export Utility of this documentation.

Importing updated sample networks (optional)

This step is recommended when migrating from any previous version of Entire Operations. It can also be useful for backing out modifications made to sample network definitions, or for loading the sample networks into your system file, if your Entire Operations system files were initially loaded with NUMREC=0.

1. Assign the Natural Workfile **1** to the NOPnnn.DATA file and invoke the Import Utility to load the sample networks. This can be done online in a TIAM (BS2000/OSD) or TSO (OS/390) Natural environment, or preferably in batch mode as described in the subsections Using the Import / Export Utility in Batch Mode and Import in Section Import/Export Utility.
2. If you intend to update the sample network B60-FLOW, you are recommended to delete this network manually from the Entire Operations NETWORK maintenance screen prior to the steps following below. You can omit this deletion step if you do not use BS2000/OSD functionality, or if you have defined your own jobs within network B60-FLOW.
3. Use the Initial Mode **A** to load some new sample networks, especially demonstrating access to UNIX nodes, and/or use the Initial Mode **U** to update existing examples belonging to the owner EXAMPLE. In either case, you are advised to set the parameters ERROR LIMIT and WARNING LIMIT to 9999. See Job I200, step 2105. This is only necessary if this is a first-time installation and not an update.

Entire Operations in Client/Server Environments

With Version 2.1.1, Entire Operations can be run in mixed mainframe/UNIX or, from Version 3.1.1 onwards, in Windows NT environments. To access a UNIX or Windows NT machine from mainframe you must define services and nodes on both mainframe and UNIX or Windows NT systems. For

information on defining UNIX or Windows NT nodes within Entire Operations, see the subsection UNIX and Windows NT Node Definitions. This describes where to define corresponding services and Entire Broker parameters.

General Prerequisites

Make sure that the following INCLUDE statement has been added to the linkage of the Natural batch/subtask module (see also Step 4: Link a Natural Subtask/Batch Module in the SAT Documentation.):

- INCLUDE ETBLIB(NATETB)

Required Parameter Definitions

In order to work with Entire System Server nodes on UNIX and Windows NT, the following definitions must be present:

- On the platform where the Entire Operations online system and monitor are running - in the Natural member SATSRV in the SYSSATU library:

Definition	Comment
BROKER-ID=	
SERVER-CLASS=NPR	(must be NPR)
SERVER-NAME=	(in upper case)
SERVICE=<service>	(in lower case)

For more information on SATSRV, see the heading SATSRV Parameters in the subsection SAT in Client/Server Environments of the SAT Documentation.

- For Entire Broker, in the attribute file:

Definition	Comment
BROKER-ID=	
CLASS=NPR	(must be NPR)
SERVER=	(in upper case)
SERVICE=<service>	(in lower case)

These definitions must be created on the platform where the Entire Broker is installed (either mainframe or UNIX or Windows NT). For more information on the customization of the Entire Broker attribute file, see Step 4.

- For the file **npr.ini**, located on the UNIX or Windows NT system being addressed:
 - the same values as for Natural, above, are used;
 - the service name <service> is written within angle brackets. The attributes follow this.

Definition of the Entire System Server/UNIX or Windows NT initialization file **npr.ini** is described in Step 4: Customize the NPR Server.

- On the UNIX or Windows NT system being addressed, the Entire System Server must be active.

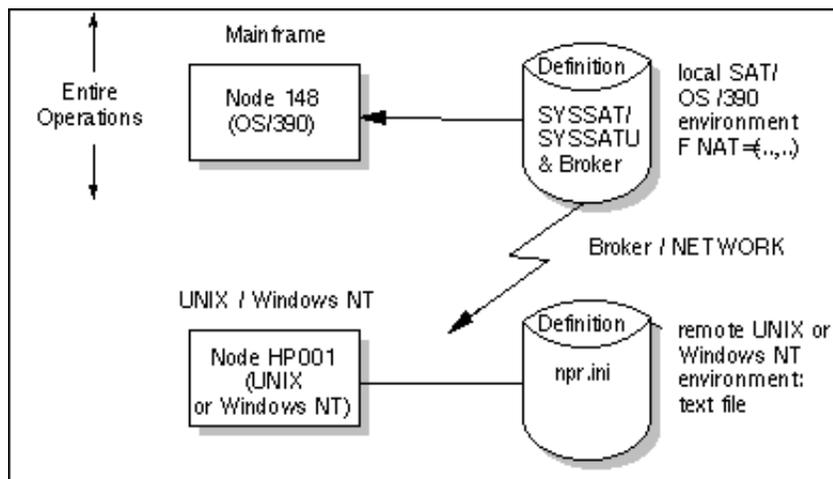
UNIX:

To activate it, start **nprmgr**, then enter the command **start service <service>**. For details, see the subsection Starting the Server of a UNIX Service.

Windows NT:

To activate it, choose Control Panel (Systemsteuerung). Then choose Services (Dienste). Then choose Entire System Server (standard) or Entire System Server (with R/3).

Example Scenario



Mainframe Definitions for this Example

SYSSATU/SATSRV

In the member SATSRV in the library SYSSATU, a section must exist starting with:

```
<node name> SATSRV TYPE=ACI
```

In this line, <node name> must be replaced by the identifier specified in the corresponding field when defining the node within Entire Operations (see field Node Name). The required definitions for the above example would be read as follows:

```
demonode SATSRV TYPE=ACI
                BROKER-ID= BKR034
                SERVER-NAME= HP001
                SERVER-CLASS= NPR
                SERVICE= nprdemo
.
.
```

Middleware Definitions for this Example (either on mainframe or UNIX or Windows NT)

Entire Broker Attribute File

The following is an example for Entire Operations with:

```
SERVER    = HP001
CLASS     = NPR
SERVICE  = nprdemo
.
.
```

Server Definitions on the UNIX or Windows NT System

The following definitions in the file **npr.ini** are required for the example above:

```
[nprdemo]
```

```
Local_node           = HP001
Integration_Mechanism = ETB,BKR034
.
.
```

Installing Updates

If an update for Entire Operations is to be installed, do the following:

1. Ensure that the Entire Operations Monitor is not active and that online users have logged off. Otherwise, data can be lost or corrupted.
2. Copy the update completely to the affected target libraries. Verify this.
3. When the new modules are in place, purge the Natural buffer pool for online and/or monitor usage.
4. In the Entire Operations main menu, enter the direct command "TECH". The version information is displayed and updated for monitor usage.

The monitor error transaction is able to detect a version mix if a runtime error occurs. In this case, all monitor tasks will immediately be terminated with an error message.

Naming Conventions for Work Files Created By Entire Operations

Entire Operations creates its own work files if jobs are executed on one of the following operating systems:

- BS2000/OSD
- UNIX
- Windows NT

Work files are deleted automatically by the Entire Operations monitor during the cleanup of active job networks.

BS2000/OSD

BS2000/OSD work files are created with the following names:

```
:catid:$sysout-userid.owner.network.run.job#suffix
```

Variable	Explanation
catid	BS2000/OSD catalog ID for the file.
sysout userid	BS2000/OSD user ID, under which the file is created. If a sysout user ID (see Entire Operations User's Guide, Job Maintenance, Operating-System-Dependent Job Definitions) has been defined, then it will be used.
owner	Entire Operations owner of network.
network	Entire Operations network.
run	Entire Operations run number (with network). Run numbers from 1 to 9999 are filled up to contain 4 digits with leading zeros. For run numbers containing 5 digits , the dot between run number and job name will be omitted for reasons of space.
job	Name of the job. If a suffix follows, then the field will be filled up to a length of 10 characters using the hash character ("#").
suffix	Suffix to clearly distinguish between several work files of a job.

BS2000/OSD Work File Extensions

Extension	Explanation
None	Current sysout file.
1 through 9	Previous sysout files.
E	Temporary Enter file. Will be deleted after job submission.
M	Monitor job variable.
A through Z, apart from E, M	Sysout file copies which are to be passed to Entire Output Management.

Note:

The maximal file length in BS2000/OSD is **54**.

Special Work File Names In BS2000/OSD

BS2000/OSD temporary print files are created with the following names:

```
:catid:$BS2000/OSD-uid.EOR.PRINT.node.date.time
```

Variable	Explanation
catid	BS2000/OSD catalog ID for the file.
BS2000/OSD-uid	BS2000/OSD user ID (submit user ID or sysout user ID).
node	Entire System Server node (3 digits).
date	Current date (YYYYMMDD).
time	Current time (HHMMSS).

UNIX

All work files created by Entire Operations reside in the directory \$EOR_WORK or one of its subdirectories.

The environment variable EOR_WORK is set during the installation of Entire System Server for UNIX. This variable may contain any valid directory name. The default is "\$NPDDIR/\$NPRVERS/work". See also the subsection Establish the Correct Environment Variables in Section Installation of Entire System Server/UNIX.

The directory \$EOR_WORK should have the access "drwxrwxrwx" because its subdirectories may belong to various UNIX owners and groups. Ensure that enough space for work file creation is available.

UNIX work files are created with the following names:

```
$EOR_WORK/unix-group/dbid/fnr/owner/network/run/job.ext
```

Variable	Explanation
unix-group	The submit group name of the job. If it is not specified explicitly in the job definition, the UNIX default group of the submit user ID is used.
dbid	Entire Operations system file 1 database ID, from the caller's environment (5 digits).
fnr	Entire Operations system file 1 file number, from the caller's environment (5 digits).
owner	Entire Operations owner of network.
network	Entire Operations network.
run	Entire Operations run number (with leading zeroes).
job	Entire Operations job name.
ext	Extension (see below).

The name of the work directory for an active network is available in the pre-defined symbol P-NADIR. Application-specific work files may be stored there, as long as there are no name conflicts with files generated by Entire Operations.

Work files created by Entire Operations and by the application are deleted during the network or job deactivation by the Entire Operations monitor.

UNIX Work File Extensions

Extension	Explanation
S	Current sysout file.
S01 through S09	Previous sysout files.
B	Shell script which is actually submitted (batch file).
BF	Shell script frame (batch frame).

Notes:

1. Since owner, network and job are defined in upper case within Entire Operations, they also appear in upper case in the generated file names.
2. The access rights of the UNIX work files and of the intermediate directories depend on the UMASK setting of the Entire System Server for UNIX. You may insert a UMASK statement into the Entire System Server for UNIX startup script (for example "startups").

Windows NT

All work files created by Entire Operations reside in the directory %EOR_WORK% or one of its subdirectories.

The environment variable EOR_WORK is set during the installation of Entire System Server for Windows NT.

Windows NT work files are created with the following names:

```
%EOR_WORK%\userid\dbid\fnr\owner\network\run\job.ext
```

Variable	Explanation
userid	Windows NT userid (submit userid of the job).
dbid	Entire Operations system file 1 database ID, from the caller's environment (5 digits).
fnr	Entire Operations system file 1 file number, from the caller's environment (5 digits).
owner	Entire Operations owner of network.
network	Entire Operations network.
run	Entire Operations run number (with leading zeroes).
job	Entire Operations job name. For batch frames, a single "#" is appended to the job name.
ext	Extension (see below).

Windows NT Work File Extensions

Extension	Explanation
*#.BAT	Frame batch file. This frame invokes the executable batch file or a directly executable program.
BAT	Executable batch file
S	Current sysout file.
S01 through S09	Previous sysout files.

Note:

Since owner, network and job are defined in upper case within Entire Operations, they also appear in upper case in the generated file names.

File Name Generation Exit

It is possible to generate work file names using a generic logic (an exit). For this purpose, all generated file names must be unique.

Installation and Customization on UNIX Platforms

This section covers the following topics:

- UNIX Installation Overview
 - Installation Package
 - Writing Conventions
 - General Installation and Setup Overview
 - Performing General Installation and Setup
 - SAG Environment
 - Entire Operations Installation
 - Entire Operations in Distributed Environments
 - Entire Operations in Client/Server Environments
 - Starting Entire Operations for the First Time
-

UNIX Installation Overview

The first part of this section contains general information which applies when installing and setting up Software AG products on a UNIX platform. Product-specific installation, configuration and installation verification are described in the subsection Entire Operations Installation.

The information contained in this section is independent of hardware type and platform.

Installation Package

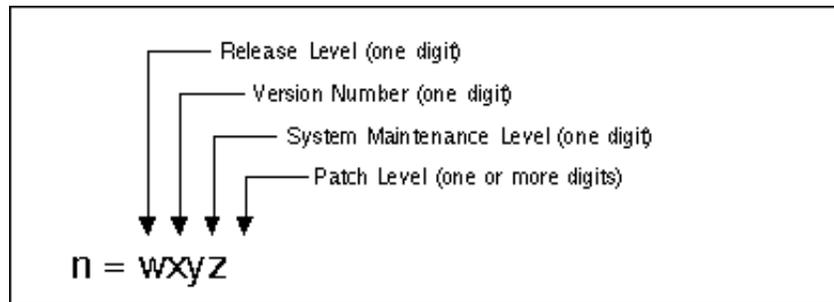
The installation package containing Software AG products is available on cartridge, magnetic tape and other media. For some systems, the installation package is also available on ISO 9660 CD-ROM.

The CD-ROM contains a complete directory structure which clearly indicates product and platform.

For media other than CD-ROM, the installation medium is written in standard **cpio** format and contains a complete directory structure with all files included.

Writing Conventions

Notation	Description
.profile	Letters in bold indicate set strings which cannot be changed, for example commands or certain file names.
cpio	Letters in courier bold indicate that you must enter the information exactly as specified.
<placeholder>	Lower-case letters in <i>italics</i> contained in angle brackets (< >) are used to represent variable information which you must supply.
\$<environment-variable-name>	An environment variable name preceded by a dollar sign (\$) stands for the string contained in the environment variable. For example, when the environment variable SAG is set to /usr /SAG , \$SAG stands for /usr /SAG .
<i>vn</i>	<i>vn</i> represents a product version number. <i>v</i> is v for released versions, b for beta test versions and r for run-time versions. <i>n</i> consists of the following components:



General Installation and Setup Overview

The following is a summary of the steps required to set up the Software AG environment and install Software AG products for UNIX:

1. Create the administrator's account and group.
2. Back up your current product version.
3. Log in as the user **sag**.
4. Copy the contents of the distribution medium to disk.
5. Check images.
6. Read the README files. They may contain modifications to this installation documentation.
7. Create the environment file **sagenv.new**.
8. Modify user profiles.
9. Perform product-specific installation, configuration and installation verification.

Performing General Installation and Setup

In this section the following is assumed:

- The account for the administrator of Software AG products is called **sag**.
- The group to which the administrator and all users of Software AG products belong is called **sag**.
- The home directory for the user **sag** is **/usr/SAG**.
- The root directory for Software AG products is **/usr/SAG**.

Step 1: Create the administrator's account and group

You must create one administrator's account and one group for all Software AG products when you install your first Software AG product.

- Define an administrator account to which all of the Software AG products installed at your site belong.

Since all environment definition files for the products are written in Bourne shell, the Bourne shell is recommended as the login shell for the administrator account. This section assumes that the administrator account is called **sag**.

- Define a group to which the administrator and all users of Software AG products belong.

This section assumes that this group is also called **sag**.

- Create a login directory for the user **sag**.

Note:

To perform these steps, use an appropriate system administration tool.

Examples:

The following is a possible entry in the system file **/etc/group**:

```
sag:*:21:sag
```

The following is a possible entry in the system file **/etc/passwd**:

```
sag::100:21:SAG - Product Administrator:/usr/SAG:/bin/sh
```

The following is a command which creates a login directory for the user **sag**:

```
mkdir /usr/SAG
```

Step 2: Back up your current product version

When you are upgrading a product, it is strongly recommended that you back up your current product version.

- Back up the current version of the product you are installing.

Step 3: Log in as the user sag

This section assumes that the user **sag** is the administrator for Software AG products.

- Log in as the user **sag** (do not log in as **root**).

Step 4: Copy the contents of the distribution medium to disk

Make sure that the administrator user and group have been created and defined.

Processing for CD-ROM

- Use the script CDINST.BSH supplied on the CD-ROM.

For further information on installing products from CD-ROM see the booklet provided with the CD-ROM.

Processing for Other Media - For Example, Cartridges and Video 8mm

Note:

The raw device name is specific to the operating system.

- List the contents of the distribution medium by issuing the following system command:

```
cpio -icBvtm < /dev/<raw-device-name>
```

Note for AIX Users:

The BLOCKSIZE parameter for the device used must be set to **0** (variable block size). Use the System Maintenance Interface Tool (SMIT) to do this.

- Start installation by issuing the following system command:

```
cpio -icBvdm < /dev/<raw-device-name>
```

Example:

```
cpio -icBvdm < /dev/rmt/0m      (for tape)
cpio -icBvdm < /dev/rct/c3d0s2 (for cartridge)
```

Step 5: Check images

- Ensure that all installed images are owned by the user **sag** and have the group ID **sag**.

Step 6: Read the README files

- If README files are included, read them before proceeding. They may contain modifications to this installation documentation.

Step 7: Create the environment file sagenv.new

The script SAGINST helps you to create an environment file for the product you are installing. SAGINST generates the environment file **sagenv.new** interactively.

- Start SAGINST by issuing the following command:

```
./SAGINST
```

SAGAINST checks whether the environment variable SAG is set. If SAG is not set, you are asked to confirm or modify the default provided. SAG defines the root directory for all Software AG products (which is also the home directory of the user **sag**). A list of all available products installed in the directory referred to by the path `$$SAG` appears.

- Enter the numbers corresponding to the product you are installing and to the products which are prerequisite to the product you are installing. Separate multiple entries with blanks.

Note:

Do not select more than one product version for a given product.

Example:

```

INSTALL: ENVIRONMENT

Please choose products for which you want to
generate the environment file sagenv.new

 1      ada/vn
 2      wcp/vn
 3      nat/vn

PLEASE SELECT ITEMS : 1 3

```

In this example, items **1** and **3** are selected. A **sagenv.new** file will be created for the products Adabas and Natural.

For further information on prerequisites, see the subsection Prerequisites.

- Press Enter.

The script generates the file **sagenv.new** with all of the environment variables that are required to use the selected product(s). If **sagenv.new** already exists, it is renamed to **sagenv.old**.

- Review the contents of **sagenv.new** and customize it as necessary.
- Rename **sagenv.new** to another file name (optional).

In the following examples, it is assumed that the environment file is called **sagenv**.

Note:

If you are performing an update installation, just replace the product-specific part of **sagenv.new** in your existing **sagenv** file.

- Ensure that the correct environment is being used by invoking the **sagenv** file with the following command:

```
. ./sagenv
```

This command sets the environment temporarily for the current session.

Step 8: Modify user profiles

- Enter the following command line in the **.profile** file of each user who will use this environment permanently:

```
. <SAG-root-directory>/sagenv
```

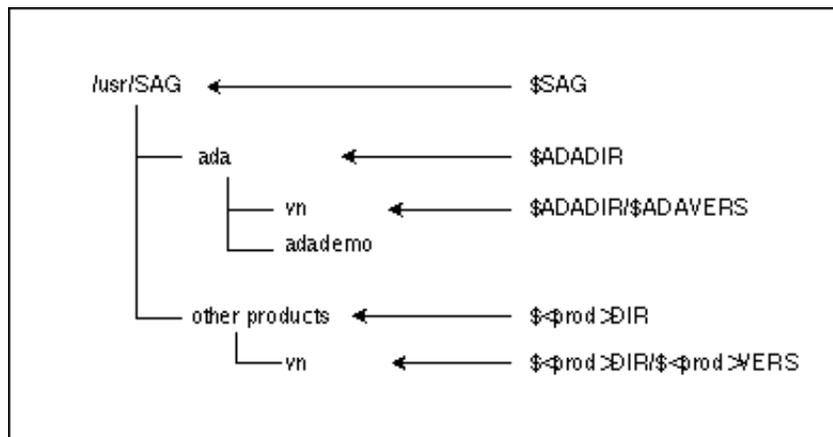
Step 9: Perform product-specific installation, configuration and installation verification

You have completed the installation steps common to all Software AG products for UNIX.

Now you must perform product-specific installation, configuration and installation verification as described in the subsection Entire Operations Installation.

SAG Environment

The general directory structure shown in the following figure and the environment variables which reference the specified directories are generated during installation.



The environment variable **SAG** defines the root directory for all Software AG products and is usually the home directory of the administrator account.

For each product, the variable **\$<prod>DIR** is set to the path of the main directory of the product specified, where **<prod>** is a three-letter product code in uppercase letters. For example, all files for Adabas, whose product code is ADA, are contained in the directory **\$ADADIR**.

```
// JOB CARD
//V2COPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN1 DD DSN=NOpnnn.JOBS,DISP=OLD,UNIT=TAPE,
// VOL=(,RETAIN,SER=XXXXXX),LABEL=(x,SL)
//OUT1 DD DSN=SAGLIB.NOpnnn.JOBS,DISP=(NEW,CATLG,DELETE),
// UNIT=SYSDA,VOL=SER=YYYYYY,SPACE=(CYL,(1,1,10))
//SYSIN DD *
C I=IN1,O=OUT1
/*
```

The name of the main directory is usually the same as the product code in lowercase letters. For example, the main directory for Adabas is named **ada**. However, there are exceptions to this rule. For example, the product code for Entire Net-Work is **WCP** but the environment variables use the prefix **NET** instead. Also, the product code for Predict is **PRD** but the environment variables use the prefix **DIC**.

Version-independent parts of the product, such as examples or data, are stored in a subdirectory of the product main directory. For example, all Adabas demo data is contained in the directory `$ADADIR/adademo`.

Version-dependent components of the product are kept in the version directory `$<prod>DIR/$<prod>VERS`. For example, the current version of Adabas is stored in the directory `$ADADIR/$ADAVERS`.

The environment variables `$<prod>DIR` and `$<prod>VERS` for all products specified during installation are set in the file **sagenv**. The same applies for any other environment variables needed for the various products.

Entire Operations Installation

Overview

The installation of Entire Operations consists of the following main steps:

- Unpacking datasets from the **cpio** installation file
- Menu-driven installation

Prerequisites

- **Memory**
There is no specific memory requirement for operating the product;
- **Disk Space**
The application SYSEOR requires approximately 10 MB of disk space during operation. At installation time, double the amount should be available;
- **Operating System**
The UNIX operating system available on the selected platform;
- **Other Software AG Products**
Natural for UNIX, version 3.1.3 PL 1 and above;
Adabas for UNIX, version 2.2.3 and above.

Note:

The ADANUC parameter **LU** must be set to **18000** or above and the ADANUC parameter **LS** must be set to a value of **20000** (default) or above.

- **Further Requirements:**
System Automation Tools (SAT) version 2.3.2 or higher (see Installing System Automation Tools / UNIX in the SAT Documentation);
Entire System Server for UNIX or Windows NT (see Section Installation of Entire System Server/UNIX and Section Installation of Entire System Server/Windows NT).
- **Optional Software AG Products**
Entire Net-Work is required for any kind of multi-CPU constellation where remote partners (mainframe and/or UNIX and/or Windows NT) are involved.

Entire Broker is required for any kind of multi-CPU constellation, if one partner is a UNIX or Windows NT system or different UNIX or Windows NT systems are involved. Entire Broker is not required, if you are running Entire Operations on a UNIX or Windows NT platform and controlling the job networks on a mainframe system (see the subsection Platforms and Required Middleware).

Environment Variables

The following environment variables must exist and must point to valid directories:

SAG	Installation directory for Software AG products
ADADIR	Adabas base directory
ADAVERS	Adabas version subdirectory
NATDIR	Natural base directory
NATVERS	Natural version subdirectory

The existence of these directories is checked during the installation.

In addition, the following environment variables must be defined:

NOPDIR	Entire Operations base directory (default: \$SAG/nop)
NOPVERS	Entire Operations version subdirectory

These variables will be temporarily set to their correct values by the installation script. Their setting should be integrated in any **sagenv** file after the installation.

After having copied in the **cpio** installation file, proceed as follows.

Directory Structure

After unpacking the **cpio** installation file, the following Entire Operations directory structure is generated:

SAG				\$SAG
	nop			\$NOPDIR
		v311		\$NOPVERS
			INSTALL	Installation script directory
			bin	Special executable files for Entire Operations
			example	Sample networks and their JCL
			lib	Special library files for Entire Operations

The following table outlines the contents of the Entire Operations version directories.

\$NOPDIR/\$NOPVERS Directory

Directory	Explanation
INSTALL	Directory containing the shell scripts and other files to be used during the installation of Entire Operations.
bin	This directory contains several scripts and other files necessary to install Entire Operations. These scripts are invoked internally from "nopinstall.bsh" (see Main Menu). Do not use them standalone.
example	This directory contains several text files: example.imp contains all sample networks in Import/Export external format. The files x60-flow.imp , b60-flow.imp , e60-flow.imp and v60-flow.imp each contain only one sample network definition, demonstrating how jobs in UNIX, BS2000/OSD, OS/390 and VSE/ESA environments (respectively) can be controlled. For details on loading sample networks, see the subsection Entire Operations Library Files.
lib	This directory contains some special library files for Entire Operations. See the subsection Entire Operations Library Files.

File	Explanation
inpl.sag	Input file for the Natural INPL. Used during installation only.

Main Menu

Loading the **cpio** file:

```
cd $SAG
cpio -icvdBm <nopv311.cpio
```

The directory structure for Entire Operations will be created.

To invoke the installation menu, use:

```
cd $NOPDIR/$NOPVERS/INSTALL
nopinstall.bsh
```

An introductory text is presented. Read this text carefully, and then enter **y** to display the installation main menu:

```
Entire Operations
Installation Main Menu

1. Environment Setup
2. Database File Creation
3. Natural Parameter Module Creation
4. Install Application SYSEOR

9. Exit

Select Option:
```

In the main menu, the options shown are sorted in the recommended sequence of steps. These steps are described below.

You may skip some of the installation steps to suit your needs. For example, the loading of Adabas files may be skipped, if you already have installed them.

Environment Setup

```
Entire Operations
Environment Setup

1. Database Files

8. Save and Exit

9. Exit

Select Option:
```

Database Files

Entire Operations needs 2 Adabas files for data storage purposes. They must have a common database ID.

This menu item serves to define the database ID and file numbers. It is a prerequisite for the real file installation, which follows under Database File Creation.

- Entire Operations System File 1 contains all operative data except the log data.
- Entire Operations System File 2 contains the log data only.

Database File Creation

Note:

You can omit this step if you are upgrading from a previous version of Entire Operations, from which no explicit migration is required, and if you wish to continue using the existing system files.

```

Entire Operations

Database File Creation

1. Create EOR System File 1 (EORSYSF1)
2. Create EOR System File 2 (EORSYSF2)
9. Exit

Select Option:

```

After the selection of item **1** or **2**, the following dialog is executed:

```

Entire Operations Installation
Adabas file EORSYSF1 installation

[Values in brackets are defaults]

Database id [22]: 22
File number [111]: 111
ISN max number [1000]:
DATA amount - DS size [50b]:
ASSO amount - NI size [50b]:
ASSO amount - UI size [10b]:

Is this all correct (y/n) ?

```

The Adabas utility ADAFDU is invoked by the script to create the files.

Natural Parameter Module Creation

This menu item serves to create a Natural parameter module to be used for the Entire Operations application and the Entire Operations Monitor.

The naming convention for the parameter module is: **NOP<vers>.SAG**, where <vers> are the digits from the environment variable NOPVERS. For example: NOP3130.SAG .

Note:

To execute this step successfully, you must be authorized to use the full functionality of the Natural utility NATPARM.

The following dialog is executed:

```
Entire Operations Installation

Natural Parameter Module Setup

Do you want to continue (y/n) ? y

Checking the current environment variables ...
Recovering the path of the Natural configuration files ...
Checking the existence of NOP version directory ...
Checking the existence of Natural version directory ...
Checking NATPARM permissions ...

Natural Parameter Module Name: NOP311

Please enter system file DBID and FNR (FNAT)
[Defaults in brackets]
FNAT-DBID [22] :
  FNAT-FNR [10] :

Please enter user file DBID and FNR (FUSER)
[Defaults in brackets]
  FUSER-DBID [22] :
  FUSER-FNR [22] :

Please enter security system file DBID and FNR (FSEC)
[Defaults in brackets]
  FSEC-DBID [252] :
  FSEC-FNR [10] :

The current settings are:
-----
FNAT system file DBID      : 022
FNAT system file FNR      : 010
FNAT directory is         : /FS/fs0354/products/nat/fnat22
FUSER file DBID           : 022
FUSER file FNR            : 022
FUSER directory is        : /FS/fs0540/dcgroup/nat/fuser22
FSEC system file DBID     : 252
FSEC system file FNR      : 010
EOR System File 1 (LFILE 216):  DBID 022  FNR 111
EOR System File 2 (LFILE 173):  DBID 022  FNR 112

Is this correct for the installation ? (y/n) :

Modifying parameter module NOP311...
Parameter module NOP311.SAG modified
Path: /FS/fs0354/products/nat/prof22

Monitor startup script nopmon.bsh created
Path: /FS/fs0540/dcgroup/prog/sn/eor_inst/nop/v311/INSTALL

Press any key to continue.
```

At the end, this menu item creates a startup script for the Entire Operations Monitor with the name **nopmon.bsh**. The full path name of this script should be defined later in the Entire Operations application under the menu options System Administrator Services / Monitor Defaults / Monitor JCL. This allows monitor restart directly from the Entire Operations application.

Installation of Application SYSEOR

This menu item contains the creation of the application SYSEOR in your Natural FNAT directory. Before you perform this step:

- Make sure that enough disk space is available in the target environment.
- Make sure that you have write access rights to the Natural FNAT directory.

After Execution of the Shell Script

Modify the setting of the environment variables NOPDIR, NOPVERS, EOR_BIN, EOR_WORK and NAT_ADA_RCOPT as they are generated in the script **nopenv**, or invoke **nopenv** in scripts which start the Entire Operations application or the Entire Operations Monitor. The script **nopenv** can be found in the INSTALL subdirectory.

Entire Operations Binary Files

eorxcl	Cleanup utility program for the Entire Operations work files. This program is invoked periodically by the Entire Operations monitor. Syntax and parameters: A help text is displayed if this program is invoked without parameters, or with the parameter -help or -h (for example: eorxcl -h).
---------------	--

Entire Operations Library Files

esylnku[01].*	ADALNK user exit. Required if mainframe Entire System Server nodes are to be used from Entire Operations / UNIX. For further information, see the subsection ADALNK-specific User Exits in Section 4 of the Adabas 2.2 DBA Reference Documentation for UNIX .
----------------------	---

Loading Sample Networks

The data for the sample networks of Entire Operations are contained in the directory \$NOPDIR/\$NOPVERS/example. Before proceeding, ensure that you have completed the installation of System Automation Tools (SAT) as described in the separate SAT Documentation.

Import the definitions of one sample network necessary for verification from the file **x60-flow.imp**. This file has standard ASCII format and must be assigned to Natural Workfile 1 using the appropriate Natural parameter module. For information on the Import/Export utility, see Section 3 of this documentation.

Note:

You could, alternatively, import all sample network definitions from the file **example.imp**. However, this would take considerably longer and only a few examples are designed for UNIX environments. Though the other examples in the example file help you understand some functions, they must be adapted before they can be used in a UNIX environment.

For more information about installation verification, see the subsection Installation Verification in Section Installation and Customization on Mainframe Platforms.

Entire Operations in Distributed Environments

With version 3.1.1, Entire Operations can be run in mixed mainframe/UNIX/Windows NT environments. The Entire Operations Monitor and the Entire Operations system files may reside on a UNIX machine, the controlled environments on the other hand may run under any mainframe or UNIX or Windows NT operating system.

Examples for the Required Service Definitions to Access a UNIX or Windows NT Node

Definitions for Node Where Entire Operations Resides

SYSSATU/SATSRV

The customization of SYSSATU/SATSRV is described in the subsection Customizing the SATSRV Text Member in the separate SAT Documentation. The following is an example for Entire Operations with:

```
nprdemo      SATSRV  TYPE=ACI
              BROKER-ID      = BKR034
              SERVER-NAME    = HP001
              SERVER-CLASS   = NPR
              SERVICE        = nprdemo
.
.
```

Entire Broker

The customization of Entire Broker is described in Step 2: Customize Entire Broker in Section Installation of Entire System Server / UNIX. The following is an example for Entire Operations with:

```
SERVER      = HP001
CLASS       = NPR
SERVICE    = nprdemo
.
.
```

Definitions for the Controlled Environments - UNIX only

Definition of the Entire System Server/UNIX initialization file **npr.ini** is described in Step 4: Customize the NPR Server in Section Installation of Entire System Server / UNIX. The following is an example for Entire Operations (see BS2000/OSD Work File Extensions) with:

```
[nprdemo]

Local_node      = HP001
Integration_Mechanism = ETB,BKR034
.
.
```

Considerations for Communication with a Mainframe Node

None of the above definitions are required to access mainframe resources and jobs via Entire System Server. There are only three prerequisites for this type of remote access:

1. The desired Entire System Server node must be accessible via Entire Net-Work.
2. The desired Entire System Server node on the mainframe must be version 2.1.2 or above. If this node is running in a BS2000/OSD environment, zap XC21044 (problem tape XC12P1) is also required.
3. In the UNIX environment where Entire Operations is installed, the ADALNK user exit supplied in the Entire Operations **lib** subdirectory must have been activated (see the subsection Entire Operations Library Files).

Entire Operations in Client/Server Environments

Since version 3.1.1, Entire Operations can be run in mixed mainframe/UNIX/Windows NT environments. To access a UNIX machine or a Windows NT PC from the mainframe, you must define services and nodes on both the mainframe and the UNIX/Windows NT systems.

For a description of how to define UNIX and Windows NT nodes in Entire Operations, see Section System Administrator Services, subsection UNIX and Windows NT Node Definitions.

General Prerequisites

The following INCLUDE statement must be added to the linkage of the Natural Batch/Subtask module: INCLUDE ETBLIB (NATETB)

Examples

Definitions for Mainframe Node Where Entire Operations Resides

The customization of SYSSATU/SATSRV is described in the subsection Customizing the SATSRV Text Member in the separate SAT Documentation. The following is an example for Entire Operations with:

nprdemo	SATSRV	TYPE=ACI	
		BROKER-ID	= BKR034
		SERVER-NAME	= HP001
		SERVER-CLASS	= NPR
		SERVICE	= nprdemo
.			
.			

Definitions on UNIX or Windows NT Node

The customization of the initialization file **npr.ini** is described in the subsection Setting up Entire System Server Components, Step 4: Customize the NPR Server in Section Installation of Entire System Server / UNIX. The following is an example for Entire Operations with:

```
[nprdemo]
Local_node           = HP001
Integration Mechanism = ETB, BKR034
.
.
```

Starting Entire Operations for the First Time

Before starting Entire Operations, ensure that the following have been installed:

- System Automation Tools (SAT), please refer to the separate SAT Documentation;
- Entire System Server as described in Section Installation of Entire System Server / UNIX of this documentation.

Then proceed as described in the corresponding subsection Starting Entire Operations for the First Time of Section Installation and Customization on Mainframe Platforms.

Installation of Entire System Server / UNIX

This section covers the following topics:

- Overview
 - General Information
 - Entire System Server Directory Structure
 - Setting up Entire System Server Components
 - Product Operation: The NPRMGR Utility
-

Overview

This section tells you how to install or upgrade Entire System Server (abbreviation: NPR) on UNIX platforms, and describes the parameters required for a successful startup of the product.

The method used for installation is a mixture of documentation and automated functions which are executed in a simple, straightforward manner via shell scripts.

Before you begin, ensure that your computer meets the minimum hardware and software requirements as recommended below.

You must have access to the **root** account and be thoroughly familiar with the system generation process and all other system requirements. With reference to Entire Net-Work or Entire Broker, it is also assumed that you have a fundamental knowledge of the Entire Net-Work or Entire Broker administration.

For more information on how to install Software AG products on UNIX, see Section Installation and Customization on UNIX Platforms of this documentation.

Important:

Before installing and starting to operate the product, you must take into account the following information:

- The Entire System Server version uses the UNIX Interprocess Communication mechanism intensively. This IPC mechanism includes shared memory, message queues, and semaphores.
- The current version of Entire System Server service must be owned by **root** and have the **setuid** bit set.
- Shared libraries for NPR are copied to **/usr/local/lib** by script **nprinstall.bsh** during the installation process. In order to prohibit unauthorized usage of NPR libraries, all objects in directory **usr/local/lib** must be protected via **root** access requirements.

General Information

Prerequisites

- **Memory**
There is no specific memory requirement for operating the product;
- **Disk Space**

A complete version of Entire System Server requires **1 MB** of hard disk space;

- **Operating System**

The UNIX operating system available on the selected platform;

- **Other Software AG products**

Entire Net-Work version 2.1.0.2 or above.

Note:

The LU parameter in the NET-WORK.IN file must be set to **18,000** or above.

Installation Package

The installation package containing Software AG products is available on cartridge, magnetic tape and other media.

The installation medium is written in standard **cpio** format and contains a complete directory structure with all files included.

For some systems, the installation package is also available on ISO 9660 CD-ROM. The CD-ROM contains a complete directory structure which clearly indicates product and platform.

Installation Steps

1. Set the following environment variables in your **.login** file or similar:

Variable	Value
NPRDIR	"\$SAG"/npr
NPRVERS	v211

2. Make sure that these environment variables have their new values when you perform the following steps.
3. Enter the commands:

```
cd $SAG
cpio -icvdBm < nprv211.cpio      # if necessary, use the full path for the cpio
                                # file
# The current version of NPR server must be owned by root
# and have the setuid bit set
```

4. Login as **root** and enter the commands:

```
cd $NPRDIR/$NPRVERS/INSTALL
nprinstall.bsh
```

- **For all operating systems** (if Natural is installed in this UNIX environment), enter the following command:

```
inatnpr.bsh                # copies shared library to NATEXTLIB
```

- If you want to use one Entire System Server node in **local** mode, you must give your Natural executable the necessary authorization:

```
cd $NATDIR/$NATVERS/bin
chown root natural
chmod +s natural
```

Note:

Take into account all of the security shortcomings you might then encounter. Software AG recommends not to use local mode.

- Continue with the steps described in the subsection Setting up Entire System Server Components.

Entire System Server Directory Structure

After the installation steps have been performed, the following Entire System Server directory structure is generated:

SAG	\$SAG
npr	\$NPRDIR
v211	\$NPRVERS
INSTALL	Installation script directory
test	Test environment
work	Work directory
bin	Executable files for Entire System Server
lib	Library files for Entire System Server

The following tables outline the contents of the Entire System Server version directories:

\$NPRDIR/\$NPRVERS Directory

Library / File / Directory	Explanation
npr.ini	Entire System Server environment definitions.
npr.txt	Text file describing the content of the npr.ini file.
startnpr	Shell script used to start an NPR server. Please view the script to get a description of its usage.
version.txt	Text file containing version, creation date, and corresponding UNIX platform on the Entire System Server.
test	Directory containing the shell scripts, file definitions, etc. to be used to test the current version of the product.
work	Directory containing the temporary files associated with the servers or other components, generated during the activity of Entire System Server.

\$NPRDIR/\$NPRVERS/bin Directory

Library / File / Directory	Explanation
msg01.txt msg02.txt	Files containing all messages called from the servers and internal functions of Entire System Server.
npretb	Executable file associated with the NPR server. It is referenced by the startnpr shell script.
npretbr3	Executable file associated with the NPR server. It is referenced by the startnpr shell script. To be used if SAP R/3 is to be called from this server.
nprmgr	Entire System Server management utility.
nprmgr.txt	Entire System Server management utility help file.
eorxcl	Cleanup utility program for Entire Operations.
lib.txt	R/3 library definitions.
saprfc.ini	Communication definition example for an SAP R/3 system.

\$NPRDIR/\$NPRVERS/INSTALL Directory

Library / File / Directory	Explanation
nprinstall.bsh	Shell script to perform installation tasks: copying of shared libraries, access rights for binaries, setting of environment variables.
sagenv.nprv211	Shell script establishing required environment variables.
inatnpr.bsh	Shell script for copying the shared library natnpr.* to NATEXTLIB.
sl_cp.bsh	Auxiliary shell script.

\$NPRDIR/\$NPRVERS/lib Directory

Library / File / Directory	Explanation
libnpr.*	Shared library containing all internal functions called from the servers or user programs. The name suffix is .sl for HP-UX, .o for AIX and .so for SINIX.
libnpr3.*	Analogous to libnpr.* , but with the difference that it supports SAP R/3.
natnpr.*	Natural stub to provide access from Natural applications to the Entire System Server functions in the so-called 'local mode', that is, without using Entire Broker functionality. To enable local mode access, the environment variable NATUSER must point to this stub library, if your Natural version is lower than 2.2.1 PL22. The name suffix is .sl for HP-UX, .o for AIX and .so for SINIX.
broker.*	Shared library for Entire Broker access.

\$NPRDIR/\$NPRVERS/test Directory

File	Explanation
file.dat	Text file containing data to test the FILE functions of Entire System Server.
job.dat	Text file containing data to test the JOB functions of Entire System Server.
nprtest	Executable file associated with the Entire System Server test client. It is referenced by the startest shell script.
nprtest.ini	Entire System Server test environment definitions.
nprtest.txt	Text file describing the content of the nprtest.ini file.
server.dat	Text file containing data to test the SERVER functions of Entire System Server.
startest	Shell script used to start the Entire System Server test client.

Setting up Entire System Server Components

Setting up Entire System Server on UNIX consists of the following steps:

Activity	Remarks
Read the README file.	Mandatory
Customize Entire Broker.	Mandatory, if the application using the Broker (for example: SYSEOR) is on another machine than the NPR server.
Establish the correct environment variables.	Mandatory
Customize the NPR server.	Mandatory
Start work with Entire System Server.	Optional

Step 1: Read the README File

Access the **\$SAG/npr/v211** directory and read the **README.1ST** file for any version-specific installation considerations concerning the particular platform.

Step 2: Customize Entire Broker

The following definitions must be included in the Entire Broker attribute file:

```

DEFAULTS=SERVICE
TRANSLATION=SAGTCHA
SERVER=<nodename>
CLASS=NPR
SERVICE=<npr identifier>

```

where:

Definition	Explanation
<nodename>	is the identification of the node where the server is active.
<npr identifier>	is the identification of the service name provided for the NPR server.

Repeat these definitions for every NPR server specified in the **npr.ini** file. For instance, if an NPR server is available in the HP001 node with the service name **nprdemo**, the following definitions must be created:

```
DEFAULTS=SERVICE
TRANSLATION=SAGTCHA
SERVER=HP001
CLASS=NPR
SERVICE=nprdemo
```

For installation of the Entire Broker, see the latest documentation (version 2.1.1 or above for mainframe platforms and UNIX).

Note for mainframe platforms:

If you are running the OS/390 operating system, you might as well use the Broker that comes integrated in the EntireX Version 5.2.1 or above.

Step 3: Establish the Correct Environment Variables

- Some environment variables are set by the **sagenv.nprv211** script if it is invoked during session startup:
 - NPRDIR points to the Entire System Server directory;
 - NPRVERS points to the Entire System Server version;
 - EOR_WORK points to the Entire Operations work directory. If this variable is already set, it will not be modified by this script.
- The following environment variables are modified by the **sagenv.nprv211** script:
 - All UNIX platforms:

```
PATH=$PATH:$NPRDIR/$NPRVERS/bin
```

- HP-UX, AIX:

```
SHLIB_PATH=$SHLIB_PATH:$NPRDIR/$NPRVERS/lib
```

- SINIX:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$NPRDIR/$NPRVERS/lib
```

Step 4: Customize the NPR Server

The information contained in the **npr.ini** file is used to define the behavior of the server processes.

The **npr.ini** file is structured in one or more sections: the [DEFAULTS] section and one or several [<npr identifier>] sections.

Settings within a Section

The [DEFAULTS] section contains default values that apply to all servers, except when a specific section for the server is created. In this case, the values defined in the [<npr identifier>]section override the values defined in the [DEFAULTS] section.

It is necessary to create a section with the title [<npr identifier>]. It is recommended to define all necessary values with this section. Please refer to the example.

Local_Node=<node name>

Default	Description
None.	Default local node name.

Integration_mechanism=ETB,<broker id>

Default	Description
None.	<p>Default integration mechanism. This item identifies the integration mechanism for establishing the communication between the client and the NPR server. Currently, only Entire Broker is supported as integration mechanism.</p> <p>Direct TCP/IP communication to the Entire Broker</p> <p>This requires the availability of an EntireX Broker stub on the machine where the NPR server is running.</p> <p>In this case, the following syntax is possible too:</p> <p>Integration_mechanism=ETB,<broker id>:<port number>:TCP</p> <p>Please refer to the EntireX Broker documentation for details about connections using TCP/IP.</p>

ETB_Wait=<seconds>

Default	Description
30.	Default Entire Broker timeout.

ETB_Replica={yes|no}

Default	Description
No.	Default replica server option. Currently not supported.

Log_File_Prefix=<string>

Default	Description
Default.	Default global log file prefix. This item identifies the prefix of the global log file that will be generated in the \$NPRDIR/\$NPRVERS/work directory.

Trace_Level=<number>

Default	Description
10	Default trace level for server's log file. Currently not supported.

Trace_File_Prefix=<string>

Default	Description
Trace	Default global trace file prefix. This item identifies the prefix of the global trace file that will be generated in the \$NPRDIR/\$NPRVERS/work directory.

Command_Log_Level=<number>

Default	Description	Possible Values
0	Sets different levels of NPR command logging.	0 no command logging 1 log after NPR call 2 log before and after NPR call 3 log before and after NPR call plus Entire Broker error code logging

IPC_Prefix=<4 hexadecimal digits>

Default	Description
aaaa	Default prefix for IPC resources.

Administrator = <user name>

Default	Description
root	Default user authorized as administrator for Entire System Server. root is always authorized independently of the value specified here.

[<npr identifier>] section settings

The [<npr identifier>] sections are optional, and can be created or modified later. They are used to define items specific to a certain server when these are different from default. Any item defined in the [DEFAULTS] section can also be defined for each [<npr identifier>] section.

Any item defined in the [DEFAULTS] section can also be defined for each [<npr identifier>] section. If an item is not defined in this section, it is taken from the [DEFAULTS] section.

Example: npr.ini File

```

; Entire System Server
; Version 2.1.1 PL 0
; (C) 1998, Software AG
; Entire System Server INI file
; This file has been customized during the installation process,
; but it is possible to modify this information at any time using
; any text editor available on the system

[DEFAULTS]
Local_node=<node name>
Integration_Mechanism=ETB,<ETB id>
ETB_Wait=30
ETB_Replica=no
Log_File_Prefix=default
Trace_Level=0
Trace_File_Prefix=trdef
Command_Log_Level=0
IPC_Prefix=aaaa
Administrator=sag

[nprdemo]
Local_node=DEMONODE
Integration_Mechanism=ETB,ETB098
ETB_Wait=30
ETB_Replica=no
Log_File_Prefix=nprdemo
Trace_Level=10
Trace_File_Prefix=trdemo
Command_Log_Level=0
IPC_Prefix=dddd

```

Step 5: Start Work with Entire System Server

You can omit this step if the application using Entire System Server is running on the same machine as the NPR server. In this case, you must setup the application using Entire System Server (for example: Entire Operations) in a way that it will access the NPR server in the so called 'local mode'.

For details, see the **System Administrator's Documentation** of the application that uses Entire System Server.

The **npretb** module is the Operating System Server for Entire Operations. It can receive remote requests from clients using the Entire Broker mechanism. The server executes the system functions by calling the adequate function in the dynamic library **nprlib.sl**.

The characteristics of the client/server communication established through the Entire Broker mechanism are as follows:

- Connection-less oriented mode;
- Broker class always equal to NPR;
- User identifier always equal to NPR_ETBS;
- Service name always equal to <npr identifier>;
- Default internal timeout value equal to **30** seconds;
- Default internal replica value equal to YES. This characteristic relative to replica servers is not implemented in the current version.

The **npr.ini** file defines the attributes related to an NPR server.

▶ **To start a server, you can**

- use the NPRMGR utility:

```
$ nprmgr  
NPRMGR> start service <service name>
```

You can check that the server has been successfully initiated with the NPRMGR utility:

```
$ nprmgr  
NPRMGR> display service <service name>
```

To stop a running server, use the NPRMGR utility in this way:

```
$ nprmgr  
NPRMGR> stop service <service name>
```

See the subsection Product Operation: The NPRMGR Utility on the following page for more information about these commands.

- invoke the **Startnpr** script directly, followed by the service name:

```
startnpr service-name
```

Product Operation: The NPRMGR Utility

The NPRMGR utility offers a command-line-oriented interface that allows the user to:

- Start servers in its local system
- Stop servers both in its local system and in remote systems
- Query the status of the server of a service

Usage

The utility is invoked from the UNIX shell with the command:

```
$ nprmgr
```

Once invoked, the utility shows the prompt NPRMGR> to show that it is ready to accept commands.

▶ **To execute a single command and then exit the utility**

- Invoke NPRMGR in the following way:

```
$ nprmgr <command>
```

The input of NPRMGR can be redirected from a text file.

▶ **To obtain online help for the utility**

- Type HELP at the NPRMGR prompt.

▶ **To exit the utility**

- Type QUIT, Q, Control+D, or your terminal EOF sequence at the NPRMGR prompt.

The commands are **not** case sensitive, **but** service identifiers **are**.

More specific commands are described in the following subsection.

Starting the Server of a UNIX Service

Syntax	Description
start service <service name>	This command starts the server of a service on the local machine.

The specified value for <service name> is compared to the section identifiers (i.e <npr identifier>) of the **npr.ini** file and it must correspond to a valid service definition in the Entire Broker parameterization file.

If the server is detected to be already active, the command will not be executed.

Even if NPRMGR says the server has been started, the server may fail to initialize itself. You can use the **display service** command to check for the successful activation of a server.

Querying the Status of a Service

Syntax	Description
display service [<service name>]	This command allows you to check whether a server is running for a service or not. If you omit the parameter <service name>, the command results in a status report for all service names defined in the npr.ini file.

If Entire Net-Work is operative, this command can detect services in any node of the network. Otherwise, this command will only detect servers running on the local machine.

Stopping the Server of a Service

Syntax	Description
stop service <service name>	This command stops the server process that is serving requests for a given service.

▶ **To be able to execute this command**

- If Entire Net-Work is operative, you must log on to the server. NPRMGR will ask you for a user ID and password.

Even if the login succeeds, the server may refuse to be stopped because the user is not authorized.

- If Entire Net-Work is down, then the user under which you are executing NPRMGR must be authorized to stop the service. You will not be required to enter a user name or password.

In this situation, the server process may last up to **30** seconds before actually stopping.

Note:

Although every user is authorized to start a server, only the administrator (as specified in the npr.ini file) and the root user are allowed to stop an active system server process.

Installation of Entire System Server / Windows NT

This section covers the following topics:

- Overview
 - General Information
 - Entire System Server Directory Structure
 - Setting up Entire System Server Components
 - Product Operation: Windows NT Service Usage
-

Overview

This section tells you how to install or upgrade Entire System Server (abbreviation: NPR) on a Windows NT machine, and describes the parameters required for a successful startup of the product.

The method used for installation is a mixture of manual and automated functions which are executed in a simple, straightforward manner via shell scripts.

Before you begin, ensure that your computer meets the minimum hardware and software requirements as recommended below.

You must have access to the **root** account and be thoroughly familiar with the system generation process and all other system requirements. With reference to Entire Net-work or Entire Broker, it is also assumed that you have a fundamental knowledge of the Entire Net-work or Entire Broker administration.

For more information on how to install Software AG products, see Section Installation and Customization on UNIX Platforms.

Important:

Before installing and starting to operate the product, you must take into account the following information:

You need Windows NT **administrator rights** to perform the installation.

General Information

Prerequisites

- **Memory**
A running Entire System Server on Windows NT uses approximately 4 MB of main storage.
- **Disk Space**
A complete version of Entire System Server requires 4 MB of hard disk space.
- **Operating System**
The Windows NT operating system. At least version 4.0 with service pack 3 is required.
- **Other Software AG products**

Entire Net-work version 2.1.0.2 or above.

Note:

The LU parameter must be set to **18,000** or above.

Installation Package

The installation file **npr.exe** is a zip file. It contains all files.

For some systems, the installation package is also available on ISO 9660 CD-ROM. The CD-ROM contains a complete directory structure which clearly indicates product and platform.

Installation Steps

- Execute **npr.exe** and unzip its contents to an install directory (e.g. **c:\tmp\npr_inst**)
- Go to this directory and execute **setup.exe** .
The installation program will be started.
- You will be prompted for a product directory.
The default is **c:\Program Files\Software AG\npr**.
- You will be prompted whether you want to install the SAP R/3 support as well.
This can be marked even if currently no SAP R/3 support is necessary.
- All files will be installed. After this is finished:
- Reboot your system.
This is necessary to make the new service and environment definitions available.
- Continue with the steps described in the subsection Setting up Entire System Server Components.

Environment Variables

Some environment variable are created or modified during the installation.

Environment variable	Explanation
NPRDIR	Directory of the Entire System Server installation.
NPRVERS	Version directory.
NOPDIR	Directory for Entire Operations modules.
NOPVERS	Version directory.
EOR_WORK	Entire Operations work directory.
RFC_INI	Full path name for saprfc.ini (required for SAP R/3)

Registry Modifications

The installation process of Entire System Server for Windows NT modifies the Windows NT Registry in the following ranges:

- Service definitions
- Event logging definitions

Entire System Server Directory Structure

After the installation steps have been performed, the following Entire System Server directory structure is generated:

C:\Program Files\Software AG	%SAG%
	(depending on the current Software AG root directory)
npr	%NPRDIR%
v211	%NPRVERS%
work	Work directory
bin	Executable files for Entire System Server

The following tables outline the contents of the Entire System Server version directories:

% NPRDIR % \ % NPRVERS % Directory

Library / File / Directory	Explanation
npr.ini	Entire System Server parameter definitions. This is a text file and can be edited with any text editor (notepad, for example).
npr.txt	Text file describing the content of the npr.ini file.
bin	Directory containing all executable files and DLLs of the current product version.
work	Directory containing the temporary files associated with the server or other components, generated during the activity of Entire System Server. This directory also contains the log files.
uninst.isu	Deinstallation information file (this is in %NPRDIR%\%NPRVERS%).

%NPRDIR%\%NPRVERS%\bin Directory

Library / File / Directory	Explanation
npretb.exe	Executable file associated with the NPR server.
npretbr3.exe	Executable file associated with the NPR server. To be used if SAP R/3 is to be called from this server.
libnpr.dll	DLL file required by npretb.exe
libnpr3.dll	DLL file required by npretbr3.exe
eorxcl.exe	Cleanup utility program for Entire Operations.
lib.txt	SAP R/3 library definitions.
saprfc.ini	Communication definition example for an SAP R/3 system.
msg01.txt msg02.txt	Files containing all messages called from the servers and internal functions of Entire System Server.

%NPRDIR%\%NPRVERS%\work Directory

Library / File / Directory	Explanation
*.log	Log files created by Entire System Server. The log files may be deleted at any time. They will be created automatically new, if necessary.

Setting up Entire System Server Components

Setting up Entire System Server on Windows NT consists of the following steps:

Activity	Remarks
Read the README file.	Mandatory
Customize Entire Broker.	Mandatory if the application using the Entire Broker (for example: SYSEOR) is on another machine than the NPR server.
Customize Windows NT Registry settings.	Mandatory
Customize the NPR server.	Mandatory
Start work with Entire System Server.	Optional

Step 1: Read the README File

Access the **%NPRDIR%\%NPRVERS%** directory and read the **README.1ST** file for any version-specific installation considerations concerning the particular platform.

Step 2: Customize Entire Broker

The following definitions must be included in the Entire Broker attribute file:

```
DEFAULTS=SERVICE
TRANSLATION=SAGTCHA
SERVER=<nodename>
CLASS=NPR
SERVICE=<npr identifier>
```

where:

Default	Description
<nodename>	is the identification of the node where the server is active.
<npr identifier>	is the identification of the service name provided for the NPR server.

Repeat these definitions for every NPR server specified in the **npr.ini** file. For instance, if an NPR server is available in the **HP001** node with the service name **nprdemo**, the following definitions must be created:

```
DEFAULTS=SERVICE
TRANSLATION=SAGTCHA
SERVER=HP001
CLASS=NPR
SERVICE=nprdemo
```

For installation of the Entire Broker, see the latest documentation (version 2.1.1 or above for mainframe platforms and Windows NT).

Note for mainframe platforms:

If you are running the OS/390 operating system, you might as well use the Broker that comes integrated in the EntireX Version 4.1.1 or above.

Step 3: Customize the NPR Server

The information contained in the **npr.ini** file is used to define the behavior of the server processes.

The **npr.ini** file is structured in one or more sections: the [DEFAULTS] section and the [<npr identifier>] sections.

[DEFAULTS] Section Settings

The [DEFAULTS] section contains default values that apply to all servers, except when a specific section for the server is created. In this case, the values defined in the [<npr identifier>] section override the values defined in the [DEFAULTS] section. You must define an item in the [<npr identifier>] section only when the value is different from the value defined in the [DEFAULTS] section.

Local_Node=<node name>

Default	Description
None.	Default local node name.

Integration_mechanism=ETB,<broker id>

Default	Description
None.	Default integration mechanism. This item identifies the integration mechanism for establishing the communication between the client and the NPR server. Currently, only Entire Broker is supported as integration mechanism.

ETB_Wait=<seconds>

Default	Description
30.	Default Entire Broker timeout.

ETB_Replica={yes|no}

Default	Description
No.	Default replica server option. Currently not supported.

Log_File_Prefix=<string>

Default	Description
Default.	Default global log file prefix. This item identifies the prefix of the global log file that will be generated in the %NPRDIR%\%NPRVERS%\work directory.

Trace_Level=<number>

Default	Description
10	Default trace level for server's log file. Currently not supported.

Trace_File_Prefix=<string>

Default	Description
Trace	Default global trace file prefix. This item identifies the prefix of the global trace file that will be generated in the %NPRDIR%\%NPRVERS%\work directory.

Command_Log_Level=<number>

Default	Description	Possible Values
0	Sets different levels of NPR command logging.	0 no command logging 1 log after NPR call 2 log before and after NPR call 3 log before and after NPR call plus Entire Broker error code logging

[<npr identifier>] section settings

The [<npr identifier>] sections are optional and can be created or modified later. They are used to define items specific to a certain server when these are different from default. Any item defined in the [DEFAULTS] section can also be defined for each [<npr identifier>] section.

Any item defined in the [DEFAULTS] section can also be defined for each [<npr identifier>]section. If an item is not defined in this section, it is taken from the [DEFAULTS] section.

Important:

This <npr identifier> must be defined in a Windows NT Registry entry as well. See below, Step 4: Adapt the Windows NT Registry.

Example: npr.ini File

```
; Entire System Server
; Version 2.1.1 PL 0
; (C) 1998, Software AG
; Entire System Server INI file
; This file has been customized during the installation process, but it is
; possible to modify this information at any time using any text editor
; available on the system.

[DEFAULTS]
Local_node=<node name>
Integration_Mechanism=ETB,<ETB id>
ETB_Wait=30
ETB_Replica=no
Log_File_Prefix=default
Trace_Level=0
Trace_File_Prefix=trdef
Command_Log_Level=0
IPC_Prefix=aaaa
Administrator=sag

[npr_nt]
Local_node=<node name>
Integration_Mechanism=ETB,<ETB id>
ETB_Wait=30
ETB_Replica=no
Log_File_Prefix=npr
Trace_Level=0
Trace_File_Prefix=trace
Command_Log_Level=0
```

Step 4: Adapt the Windows NT Registry

For this step, the Windows NT utility **regedit.exe** or **regedt32.exe** must be used.

For Entire System Server - standard

Navigate through the registry to the following entry:

```
[HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001\Services\NPR\Parameters]
```

For Entire System Server - with R/3

Navigate through the registry to the following entry:

[HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001\Services\NPR R3\Parameters]

Adapt the string in the field NPR Service to the <npr identifier> you want to use. This <npr identifier> must appear as header in the **npr.ini** file as well. The default NPR Service name is **npr_nt**.

Step 5: Start Work with Entire System Server

The **npretb.exe** or **npretbr3.exe** module is the Operating System Server for Entire Operations. It can receive remote requests from clients using the Entire Broker mechanism. The server executes the system functions by calling the adequate function in the dynamic library **nprlib.dll** or **nprlibr3.dll**.

The characteristics of the client/server communication established through the Entire Broker mechanism are as follows:

- Connection-less oriented mode;
- Broker class always equal to **NPR**;
- User identifier always equal to **NPR_ETBS**;
- Service name always equal to <npr identifier>;
- Default internal timeout value equal to **30** seconds;
- Default internal replica value equal to **YES**. This characteristic relative to replica servers is not implemented in the current version.

The **npr.ini** file defines the attributes related to an NPR server.

Product Operation: Windows NT Service Usage

The Entire System Server for Windows NT is designed as a Windows NT **service**. It can be started and controlled by the Windows NT services control panel.

To access the Windows NT services control panel

- Use

[My Computer | Control Panel | Services] (German: [Arbeitsplatz | Systemsteuerung | Dienste])

The installation program creates the Windows NT Services

- Entire System Server (standard)
- Entire System Server (with R/3) (optional)

Only one of these two may be active at any time.

Starting the Server

You may change the service definition to automatic

[Startup] (German: [Startart])

Then Entire System Server will be started automatically during system startup.

Otherwise, the service must be started manually from the Windows NT services control panel.

The Entire Net-work Service must be running so Entire System Server can establish the communication to Entire Broker.

Querying the Status of a Server

Use the Windows NT services control panel and check whether its status is 'Started' (German: 'Gestartet').

You can get additional information by viewing the Entire System Server log file in the directory **%NPRDIR%\%NPRVERS%\work**.

Stopping the Server

The server is stopped implicitly during a system shutdown. You may stop the server implicitly at any time by using the Windows NT services control panel.

It may take some time until the server has finished the current actions. This amount of time is delimited by the value of **ETB_Wait** in the **<npr identifier>** entry in the file **npr.ini**.

Windows NT Event Logging

Entire System Server for Windows NT writes Event Logging entries.

You can invoke Windows NT Event Logging with

[Start | Programs | Administrative Tools (Common) | Event Viewer]
(German: [Start | Programme | Verwaltung (allgemein) | Ereignisanzeige]).

Select [Log | Application] (German: [Protokoll | Anwendung]).

You will find the Entire System Server entries with the source names NPR or NPR R3. Double-click on these entries to read their contents.

Operations of Entire System Server / UNIX and Windows NT

Handling of Entire Broker Error Codes

The Entire System Server nodes on Unix and Windows NT use the Entire Broker as middleware for the communication with Entire Operations monitors.

If communication errors occur, the Entire Broker error codes will be examined. This is done as follows:

Entire Broker Error Code	Action
0000 / 0000	Normal operation.
0003 / 0005	Partner finished the conversation. Temporary error. Entire System Server waits until the communication returns to normal operation.
0003 / 0010	EOC due to deregister of partner. Temporary error. Entire System Server waits until the communication returns to normal operation.
0003 / 0011	Partner has canceled conversation. Temporary error. Entire System Server waits until the communication returns to normal operation.
0003 / 0011	EOC due to LOGOFF of partner. Temporary error. Entire System Server waits until the communication returns to normal operation.
0003 / 0067	Partner timeout occurred. Temporary error. Entire System Server waits until the communication returns to normal operation.
0003 / 0073	Conversation timeout occurred. Temporary error. Entire System Server waits until the communication returns to normal operation.
Others	Severe error. Entire System Server writes the message to the sysout and performs a shutdown. Please check the sysout for the error reason.

Please refer to the documentation of the Entire Broker for details about Entire Broker error codes.

Performance Considerations

The Entire Operations system is based on Adabas, Natural and the (previously Natural Process). Therefore, the following performance considerations can be dedicated to these components or to Entire Operations itself:

This section covers the following topics:

- Entire System Server
 - Natural
 - Adabas
 - Entire Operations
-

Entire System Server

If the Entire Operations Monitor runs as a subtask of the ???, the startup parameters BPSIZE and BPDIRS specify the size of Natural buffer pool. The more space and directory entries that are available in this buffer pool, the fewer the Adabas calls that are made to load Natural objects used by the Monitor.

Natural

If the Monitor runs as a separate batch job or task, the same applies for the Natural batch buffer pool.

Adabas

Check the Adabas statistics for pools filling up, number of throwbacks, number of format overwrites and thread use, and adjust the necessary parameters.

Increase the Adabas buffer LBP to enhance the ratio between the number of Adabas calls and the amount of physical IOs necessary for them. Reduce the Adabas WORK IOs by increasing the NSISN parameter (you may also need to increase the LI parameter).

Watch the usage of the Entire Operations system file(-s) carefully:

- On which disks are the components of these files (AC,UI/NI/MI,DS) located?
- How fast do these devices respond to IO-requests?
- What about the parameters ISN-reusage and DS-reusage?

Spread ASSO and DATA across approximately as many disk devices as there are Adabas threads active. WORK and PLOG should be on separate disk devices.

Use LFIOP with Adabas 5.2.

Reorder the Entire Operations system file(-s) physically and do this on a regular basis. This puts the records in ISN sequence and accelerates the process of some often-used read processes.

Be aware that the Entire Operations Monitor is working with WH=ON. If an Adabas record in the Entire Operations' system file(-s) is held by an online user and the Monitor has to update it, he has to wait for the release of that sentence. In such a situation, check for the contents of the Adabas hold queue for entries pointing to the system files. Adjust Adabas time parameters TNAX and TT to release resources even for those users who are gone.

Entire Operations

Separate Log File

Starting with version 141, Entire Operations uses a separate physical system file in Adabas for storing the LOG records. This will separate the more static data (definitions and profiles) from the data which is highly dependent on the workload of the Entire Operations system (active objects and log data). You will then have the ability to monitor each file separately.

Monitor Interval

Adjust the Entire Operations Monitor wait interval as necessary.

Example 1:

During the online daytime you may only need to have it activating every few minutes, if there are not too many jobs to be executed.

Example 2:

If most of your batch jobs are big ones, increase the Monitor wait time as well. You can even change this wait interval by using a defined API within a Natural program and invoke this program by using Entire Operations itself.

Monitor Tasks

To keep system overhead for administration of the individual Monitor tasks within reasonable limits, you should not distribute the Monitor among too many unnecessary tasks. The recommended number is **2 to 4** tasks. For the recommended distribution, see the subsection Monitor Task Profile in Section System Administrator Services of this documentation.

Networks

Instead of complex networks with many jobs, use sub-networks. These sub-networks can be activated by the end-of-job action of a job in the calling network. The wait queues decrease and activation is performed, only if all necessary conditions are fulfilled.

Job Location

Use Natural libraries instead of other JCL media. This decreases the number of requests to the ????. In addition, you can control total access to these JCL members with Natural Security.

Activation

Try to keep the time the networks are in the active queue as short as possible, i.e. activate the networks close to their submission time. The number of conditions to be checked by the Monitor decreases.

Earliest Start Time

Specify an earliest start-time for each network, if possible. Conditions are checked only after that time. Otherwise, the network is activated at midnight (the beginning of the schedule day).

Input Condition Checking

Any special actions during input condition checking are convenient, but may produce overhead. Among them are:

- input conditions dependent on files, job variables, etc.
- input condition user routines, which make excessive Adabas or calls.

Avoid the redundant checking of such conditions. It is much more efficient to let dummy jobs wait for such conditions, which are predecessors of several other jobs.

Input Condition References

Wherever possible, avoid using input condition references other than RUN, because these cause a condition check within a time interval, and this is less efficient than a direct RUN check.

Note:

RUN checks are not applicable, if you need an inter-network connection.

End-of-Job Checking

Each defined check costs performance time, so reduce the end-of-job checks to the necessary minimum. In particular, avoid complex end-of-job actions on the SYSOUT protocol.

Symbol Substitution

In complex productions with often-used JCL skeletons, avoid too much symbol substitution: for example, just assume that a job with **100** symbols is used **500** times a day! Be sure that the use of all parameters is necessary.

Sample Network

Network E60-FLOW in External Format

