

Entire Operations

Installation and Setup

Version 5.5.2

September 2025

This document applies to Entire Operations Version 5.5.2 and all subsequent releases.

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

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Preface

This document describes the installation of Entire Operations on a z/OS, z/VSE, BS2000 or UNIX operating system server and the installation and configuration settings of Entire Operations GUI Client.



Note: Before beginning the installation process and setting up your environment, be sure to read the current Entire Operations *Release Notes* for information on software and hardware requirements, data migration, known issues and changes to the documentation.

For important last-minute information, see the Readme file supplied with the current Entire Operations version or cumulative fix.

System Requirements for Server Environments	General product requirements for installation on mainframe or UNIX servers.
Installing Entire Operations on Mainframes and UNIX	How to install Entire Operations on mainframe or UNIX platforms.
Parameter Settings Required for Server Environments	Installation and configuration parameter settings required for mainframe or UNIX servers.
Entire Operations in Client/Server Environments	How to run Entire Operations in client/server environments.
Entire Operations in Distributed Environments	How to run Entire Operations in mixed mainframe/UNIX/Windows environments.
Performance Considerations	Performance considerations for using Entire Operations with other Software AG products.

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Document Conventions

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

Online Information and Support

Product Documentation

You can find the product documentation on our documentation website at <https://documentation.softwareag.com>.

Product Training

You can find helpful product training material on our Learning Portal at <https://learn.software-ag.com>.

Tech Community

You can collaborate with Software GmbH experts on our Tech Community website at <https://tech-community.softwareag.com>. From here you can, for example:

- Browse through our vast knowledge base.
- Ask questions and find answers in our discussion forums.
- Get the latest Software GmbH news and announcements.
- Explore our communities.
- Go to our public GitHub and Docker repositories at <https://github.com/softwareag> and <https://hub.docker.com/publishers/softwareag> and discover additional Software GmbH resources.

Product Support

Support for Software GmbH products is provided to licensed customers via our Empower Portal at <https://empower.softwareag.com>. Many services on this portal require that you have an account. If you do not yet have one, you can request it at <https://empower.softwareag.com/register>. Once you have an account, you can, for example:

- Download products, updates and fixes.
- Search the Knowledge Center for technical information and tips.
- Subscribe to early warnings and critical alerts.
- Open and update support incidents.
- Add product feature requests.

Data Protection

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

2 System Requirements for Server Environments

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Operating Environments

This section covers the following topics:

- [Supported Operating Systems Platforms](#)
- [Natural Security](#)

Supported Operating Systems Platforms

Entire Operations supports the operating systems listed in the current Entire Operations *Release Notes*.

Natural Security

If Natural Security is installed, access to Entire Operations is protected by the Natural Security facilities. Entire Operations-generated modules operate in, and are controlled by, the Natural Security system.

Memory Space Requirements

There is no specific memory requirement for operating the product.

Disk Space Requirements (UNIX only)

Approximately 50 MB of hard-disk space is required for Entire Operations (without any Natural or Software AG Installer packages). This value depends on the installation hardware. On some platforms, it is higher. If you install Natural and/or other required products in one step with Entire Operations, see the installation documentation for these products for further information.

Software Requirements for Using Related Entire Operations Products

For the prerequisites Entire Operations requires to use related Software AG products, see the current Entire Operations *Release Notes*.

License File (UNIX only)

During the installation of Entire Operations, the Software AG Installer prompts you to enter the path to a valid product license file. The license file is an XML file which is delivered by e-mail.

The components that can be installed with Entire Operations are based on your license file.



Note: The Software AG Installer does not check all information in the license file. All license checks are done, however, when the product itself is started.

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Installing Entire Operations on Mainframes and UNIX

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This section describes step by step how to complete the installation of Entire Operations (product code: NOP) on a z/OS, BS2000 or z/VSE mainframe operating system, or a UNIX operating system.

Information that only applies to a specific operating system is indicated where relevant.



Note: Do not proceed with the installation steps described in this section until you have completed installation of System Automation Tools (product code: SAT). Refer to the separate *System Automation Tools* documentation.

Document Conventions

Operating Systems

The following internal (old) terms are used for operating systems:

MVS for z/OS

VSE for z/VSE

Notation *vrs* or *vr*

The notation *vrs* or *vr* represents a three or two-digit product version.

install-dir

The term *install-dir* represents the name of an installation directory for UNIX.

Installation Medium (Mainframes only)

The installation medium (for example, tape or CD ROM) contains the following data sets/files listed in the following table. The sequence in which the files are located on the medium is shown in the *Software AG Product Delivery Report* which accompanies the installation medium.

File Name	Contents
NOP <i>vrs</i> .JOBS	Entire Operations Installation Jobs (z/OS and BS2000).
NOP <i>vrs</i> .LIBJ	Entire Operations Installation Jobs (z/VSE).
NOP <i>vrs</i> .SYS1	Entire Operations System File 1 (Adabas).
NOP <i>vrs</i> .SYS4	Entire Operations System File 4 (Adabas Accounting File).
NOP <i>vrs</i> .SYS5	Entire Operations System File 5 (Adabas Log Selection File).
NOP <i>vrs</i> .INPL	Entire Operations System Libraries (Natural).
NOP <i>vrs</i> .DATA	Input data (sample network definitions) for Entire Operations import operations.

The installation medium can contain files with problem fixes. Refer to the problem descriptions before applying them.

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

System Automation Tools (SAT) files are included as described in the *System Automation Tools* documentation.

This section covers the following topics:

- [Copying Data Sets to a z/OS Disk](#)
- [Copying Files to a BS2000 Disk](#)
- [Copying Files to a z/VSE Disk](#)
- [Installing an Update Medium](#)

Copying Data Sets to a z/OS Disk

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

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

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

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

- [Step 1: Copy Data Set COPY.JOB from Tape to Disk](#)
- [Step 2: Modify hilev.COPY.JOB on Your Disk](#)
- [Step 3: Submit COPY.JOB](#)

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

- Modify the following sample job according to your requirements:

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

```
//SYSPRINT DD SYSOUT=*  
//SYSIN DD DUMMY  
//
```

where:

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

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

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

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

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

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

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

Step 3: Submit `COPY.JOB`

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

Copying Files to a BS2000 Disk

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

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

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

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

- [Step 1: Copy Library `SRVvrs.LIB` from Tape to Disk](#)
- [Step 2: Copy the Procedure `COPY.PROC` from Tape to Disk](#)

- Step 3: Copy all Product Files from Tape to Disk

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

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

- Execute the following commands to convert `SRVvrs.LIBS` into an LMS library:

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

where:

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

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

- Call the procedure `P.COPYTAPE` in the library `SRVvrs.LIB` to copy the procedure `COPY.PROC` to disk:

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

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

Step 3: Copy all Product Files from Tape to Disk

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

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

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

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

Copying Files to a z/VSE Disk

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

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

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

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

- [Step 1: Copy Data Set COPYTAPE.JOB to Disk](#)
- [Step 2: Modify COPYTAPE.JOB on Your Disk](#)
- [Step 3: Submit COPYTAPE.JOB](#)

Step 1: Copy Data Set COPYTAPE.JOB to Disk

- Modify the following sample job according to your requirements:

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

```
// EXEC LIBR,PARM='MSHP; ACC S=lib.sublib'
/*
// MTC REW,SYS004
ASSGN SYSIPT,FEC
/*
/&
* $$ E0J
```

where:

nnn is the tape address, and

lib.sublib is the library and sublibrary in which the data set `COPYTAPE.JOB` is to be stored.

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

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

Step 2: Modify `COPYTAPE.JOB` on Your Disk

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

Step 3: Submit `COPYTAPE.JOB`

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

Installing an Update Medium

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 medium 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.

System Maintenance Aid (z/OS and z/VSE Mainframes only)

For each step of the installation procedure, System Maintenance Aid (SMA) generates an installation job according to your specifications in SMA. You then submit and run the generated job.

Before you can start generating the jobs, you have to load the data set `SMT111.TABS` from the installation medium into the SMA system file. `SMT111.TABS` contains the tables SMA requires to build the jobs.

SMA is supplied with base Natural. For instructions on loading the data set and using SMA, refer to the *System Maintenance Aid Documentation*.

Readme File

➤ To view a product-specific Readme

- From the product list on an SMA Maintenance screen, execute the RM (Show Readme File) command for the required product(s).

Installation and Migration Procedure (Mainframes only)

This section covers the following topics:

- [Step 1: Load System Files](#)
- [Step 2: Delete the old Entire Operations Objects](#)
- [Step 3: Load New Entire Operation Objects and Error Messages](#)
- [Step 4: Copy Programs or Module in a Non-Security Environment](#)
- [Step 5: Migration from Entire Operations Version 5.4.3 to Version 5.5.x](#)
- [Step 6: Import Entire Operations Network Examples \(optional\)](#)
- [Step 7: Data Migration in Batch Mode](#)
- [Step 8: Adapt System Automation Tools Parameters for Entire Operations](#)

Step 1: Load System Files

(Job I050, Steps 2100, 2104, 2105)

If you want to install the product Entire Operations for the first time, load the System files by using the Adabas ADALOD utility.

1. Step 2100 - ADALOD for System File 1

Load the Entire Operations System File 1 contained in the data set `NOPvrs.SYS1` by using the Adabas ADALOD utility.

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.

2. Step 2104 - ADALOD for Accounting System File 4

Load the Entire Operations System File 4, contained in the data set NOP_{vrs}.SYS4 by using the Adabas ADALOD utility.

3. Step 2105 - Optional Entire Operations Log Selection

Load the Entire Operations System File 5, contained in the data set NOP_{vrs}.SYS5 by using the Adabas ADALOD utility.

Step 2: Delete the old Entire Operations Objects

(Job I051, Steps 2100, 2101)

Perform this step only if this is not a new installation.

1. Step 2100:

Delete old objects starting with NOP* in the SYSTEM library on FNAT and FUSER.

2. Step 2101:

Delete all objects of the previously installed version from the SYSEOR library.

Step 3: Load New Entire Operation Objects and Error Messages

(Job I061, Step 2100)

- Load the Entire Operations objects from the NOP_{vrs}.INPL data set by using the Natural INPL utility.

Use the Natural system command INPL (which is described in the *Natural System Commands* documentation) to load the Entire Operations system objects.

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 Exit

Step 4: Copy Programs or Module in a Non-Security Environment

(Job I082, Step 2111)

- Copy program MENU from library SYSSAT to library SYSEOR (in non-security environments only).

Step 5: Migration from Entire Operations Version 5.4.3 to Version 5.5.x

(Job I082, Steps 2123, 2124, 2125, 2126, 2127, 2128, 2129)

Add or change fields in the Entire Operations System File 1:

1. Step 2123: Delete Entire Operations Version 5.4.3 fields.
2. Step 2124: Change Entire Operations Version 5.4.3 fields.
3. Step 2126: Release descriptors.
4. Step 2127: Add new fields for Version 5.5.x.
5. Step 2129: Add Version 5.5.x descriptors.

Add or change fields in the Entire Operations System File 4:

1. Step 2125: Change Entire Operations Version 5.4.3 fields.
2. Step 2128: Add new fields for Version 5.5.x.



Note: After migration of the Entire Operations System File 1, invoke the direct command `TECH` from the Entire Operations command line to update the internal version control record.

Migration of System Automation Tools Log File

The format of the System Automation Tools log file has changed with System Automation Tools Version 3.5.1.

Step 6: Import Entire Operations Network Examples (optional)

(Job I200, Step 2105)

If you want to install the product Entire Operations for the first time, import the examples networks.

- Import the Entire Operations examples contained in the data set `NOPVRS.DATA`.

Step 7: Data Migration in Batch Mode

(Job I200, Step 2110)

- Migrate the accounting data on the Entire Operations System File 4.

The data migration can be performed only if the Entire Operations Monitor is not active.

Step 8: Adapt System Automation Tools Parameters for Entire Operations

- [Mandatory Parameter Blocks/Parameters](#)
- [Specific Parameters](#)
- [RPC Server for the Entire Operations GUI Client](#)
- [Example of Start Definitions for Entire Operations Monitor](#)

Mandatory Parameter Blocks/Parameters

For more information, see the section *Parameter Blocks and Parameters* in the *System Automation Tools* documentation.

Parameter Block	Parameter	Description
SATENV	NSC=YES/NO	Indicates whether Natural Security is installed or not.
	NSCUSER=	If Natural Security is installed, this is the user ID for logging on to it.
	NSCPSWD=	Password for logging on to Natural Security.
	ESYUSER=	User ID for logging on to Entire System Server, if it is installed and an interface to an external security system is activated.
	NATTASK=	Name of the Natural subtask module for starting a server as a subtask.
SATSTART	PRODUCT=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=(131,sat-log-dbid,sat-log-fnr) ^{3,4}	
	LFILE=(85,nopsysf4-dbid,accounting-fnr) ⁴	
	ID=','	Input delimiter.

Parameter Block	Parameter	Description
	IM=D	Input mode.

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

² Pointer to Entire Operations System File 1

³ Pointer to System Automation Tools log file.

⁴ These pointers can be alternately set in the common Natural parameter module created for the System Automation Tools products or in a Natural parameter profile indicated by the Natural parameter PROFILE.

Specific Parameters

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 = NOPprefix-from-satstart-block
```

Parameter Block	Parameter
SATSTART	MEMBER= ¹

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

RPC Server for the Entire Operations GUI Client

This chapter is relevant only if you want to use Entire Operations GUI Client (OGC) with your installation.

Example of an RPC server SYSPARM profile definition:

```
FNAT=(9,140),FUSER=(9,124),FSEC=(9,125),FDIC=(9,141)
AUTO=OFF,TQ=OFF,ETID=' ',INTENS=1
DU=ON
LFILE=(216,9,7)
LFILE=(131,9,15)
LFILE=(85,9,95)
LFILE=(206,9,242)
LFILE=(204,9,140)
RPC=(SERVER=ON,ACIVERS=4,SIZE=32,SRVNODE=broker-name,SRVNAME=service-name,
TIMEOUT=59,TRACE=1,MAXBUFF=28,NTASKS=2,SRVUSER='*NSC')
```

Example of Start Definitions for Entire Operations Monitor

This section provides examples of System Automation Tools (SAT) and Natural environment settings required to start the Entire Operations Monitor.

For more information, see the section *Parameter Blocks and Parameters* in the *System Automation Tools* documentation.

System Automation Tools (SAT) Environment Settings

Parameter Block		Parameter
SAT	SATENV	NATTASK=NSATT08
		NATBATCH=NAT _{vr} sBA
		NATSKEL=EORJSMVS
		NSC=YES
		NSCUSER=EORMON
		NSCPWD=EORMON1
NOP _{vr} s	SATENV	NATTASK=NSATT08
		NATBATCH=NAT _{vr} sBA
		NATSKEL=EORJSMVS
		NSC=YES
		NSCUSER=EORMON
		NSCPWD=EORMON1
NOPBAT	SATENV	NATTASK=NSATT08
		NATBATCH=NAT _{vr} sBA
		NATSKEL=EORJSMVS
		JOBPREF=SN
		NSC=NO
NOPRPC	SATENV	NATTASK=NATSAT _{vr}
		NUMTASK=2
		SRVNAME=NOP _{vr} SRV
		SRVNODE=BKR _{vr} s
		PROFILE=WATCHDOG

Natural Environment Settings

Parameter Block		Parameter
SAT	NATENV	DU=OFF
SAT	NATENV	DU=OFF
NOP _{vrs}	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=(131,9,23)
		LFILE=(85,9,95)
		LFILE=(251,21,16)
		LFILE=(206,9,111)
		LFILE=(204,9,80)
NOPBAT	NATENV	PARM=E41200BP
		IM=D
		AUTO=OFF
		FUSER=(9,90)
		LFILE=(204,9,80)
NOPRPC	NATENV	FNAT=(9,140)
		PROFILE=NOP _{vrs} RP

Product Automatic Start

Parameter Block		Parameter
SAT	SATSTART	PRODUCT=NOP
		PREFIX= <i>vrs</i>
		TYPE=SUBTASK
		APPLLIB=SYSEOR
		SERVSYSF=(9,89)

**Notes:**

1. NOP_{vrs}, NOPBAT and NOPRPC are the proposed names for Entire Operations subtask, Entire Operations batch and Entire Operations RPC server. They can be modified.
2. If Natural Security is installed, specify AUTO=OFF in NATENV; if not installed, specify AUTO=ON.

Installing Entire Operations Using Software AG Installer (UNIX only)

Entire Operations is installed using the Software AG Installer, which you download from the Software AG Empower website at <https://empower.softwareag.com/>.

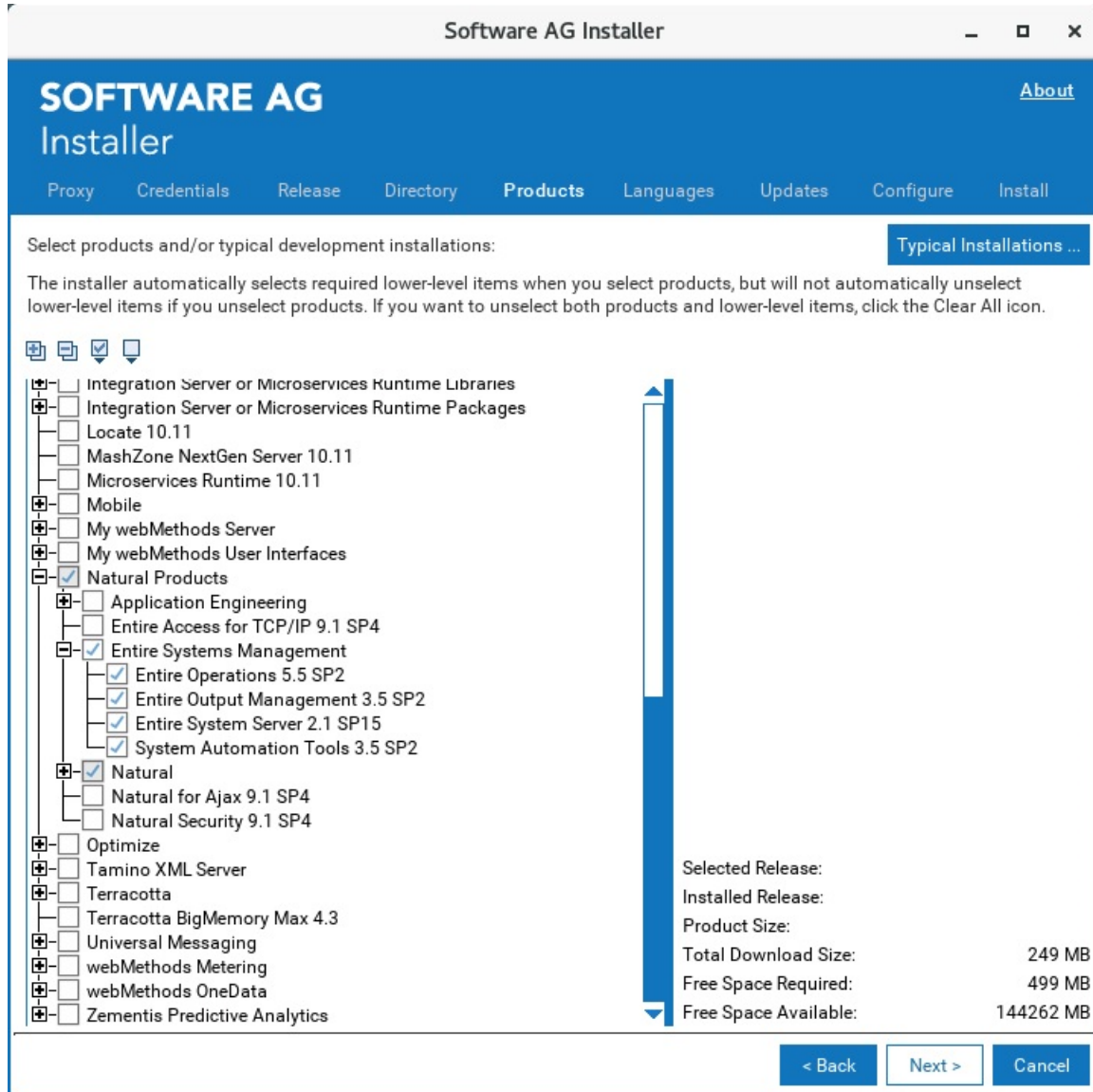
This documentation provides product-specific instructions for installing Entire Operations. It is intended for use with *Using the Software AG Installer*. That guide explains how to prepare your machine to use the Software AG Installer, and how to use the Software AG Installer and Software AG Uninstaller to install and uninstall your products. The most up-to-date version of *Using the Software AG Installer* is always available at <http://documentation.softwareag.com/> (Empower login required).

This installation documentation provides just a brief description on how to install Entire Operations directly on the target machine using the Software AG Installer GUI. For detailed information on the Software AG Installer, see *Using the Software AG Installer*.

➤ To install Entire Operations

Software AG provides a license file for Entire Operations; the installer requires them during a first-time installation. Copy the license file to the machine on which you want to install Entire Operations. You can copy the license file to any temporary location. The installer will ask for the location of your license file and will then copy it to the *common/conf* directory of your installation directory.

- 1 Start the Software AG Installer GUI as described in *Using the Software AG Installer*.
- 2 When the first page of the Software AG Installer GUI (the so-called Welcome panel) is shown, choose the **Next** button repeatedly (and specify all required information on the shown panels as described in *Using the Software AG Installer*) until the panel containing the product selection tree appears. This tree lists the products you have licensed, and which can be installed on the operating system of the machine on which you are installing.
- 3 To install Entire Operations with all its product components, expand the **Natural Products** node, expand the Entire Systems Management node and select **Entire Operations 5.5 SP2**.



 Note: Products or product versions which are already installed in the selected installation directory are shown as disabled.

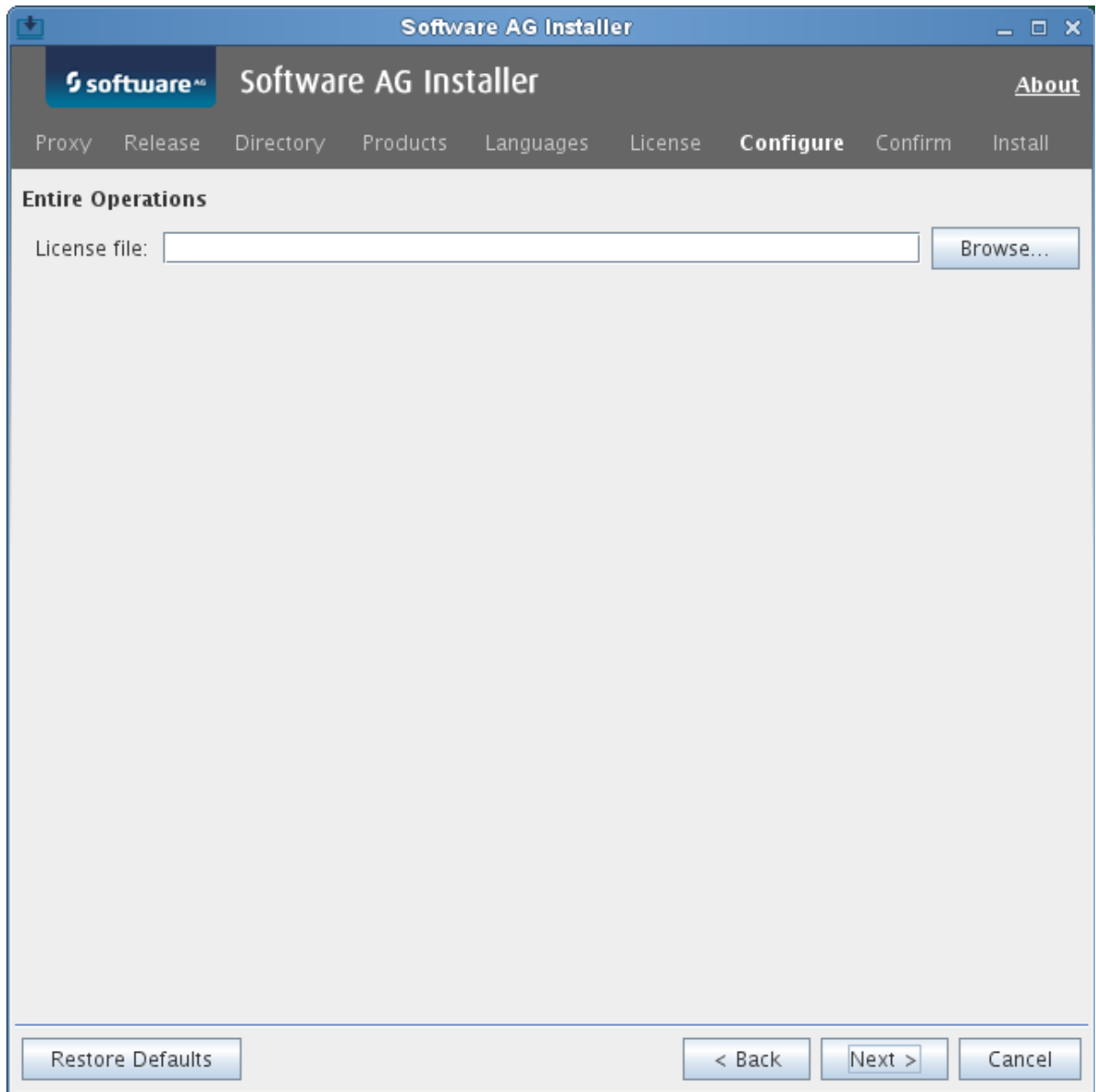
The following products are prerequisite and will be selected too if not already installed:

- Natural
- Entire System Server
- System Automation Tools

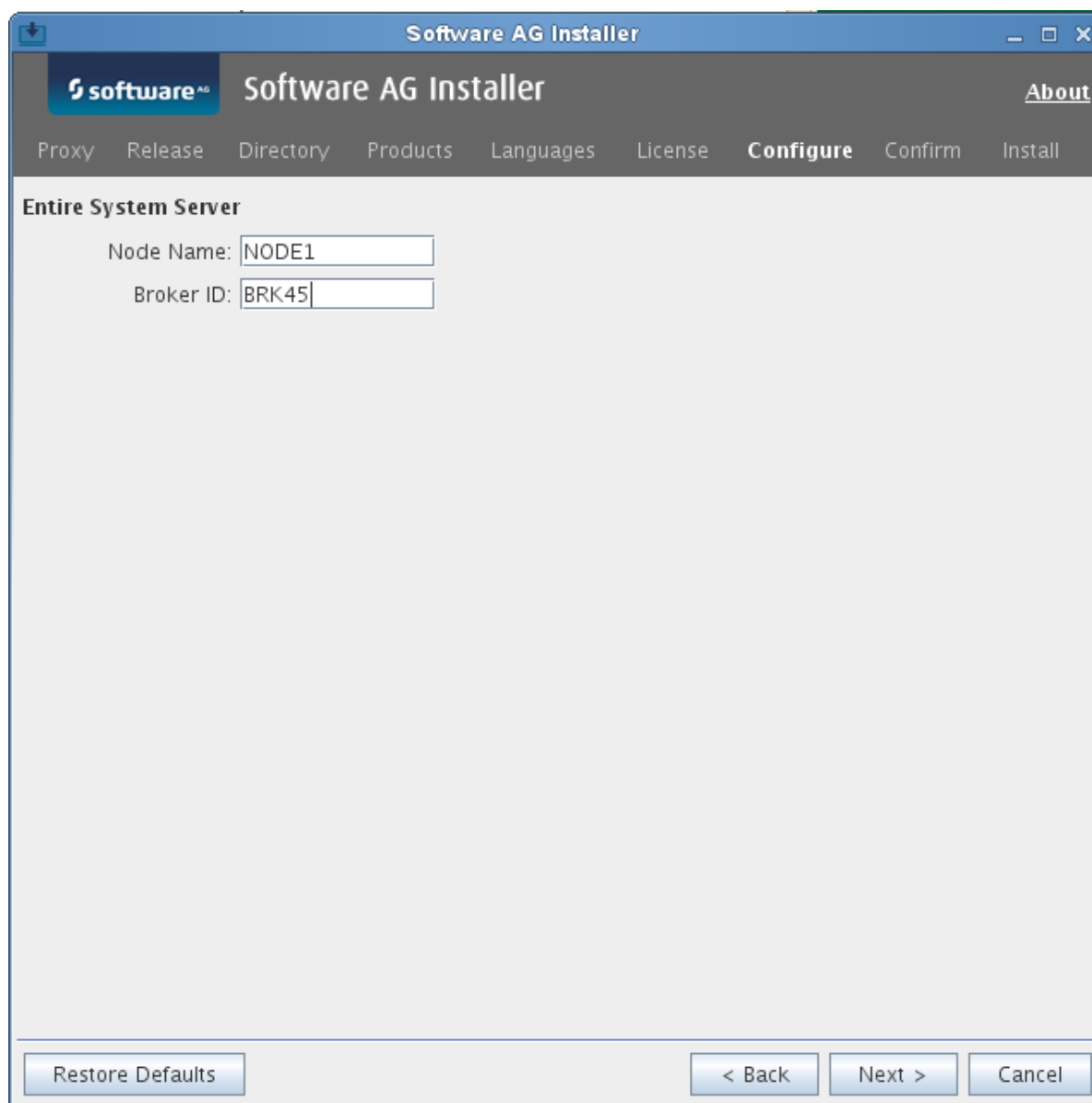
- 4 Choose the **Next** button.
- 5 Read the license agreement, select the check box to agree to the terms of the license agreement, and choose the **Next** button.

- 6 Choose the **Next** button.
- 7 First-time installation only:

Enter the full path to the Natural license file (or use the **Browse** button to select it from a dialog box).



- 8 Choose the **Next** button.
- 9 First time installation only: enter a **Node Name** and a **Broker ID**.



- 10 Choose the **Next** button.
- 11 On the last panel, review the list of products and items you have selected for installation. If the list is correct, choose the **Next** button to start the installation process. When the Software AG Installer has completed the first-time installation, additional configuration steps are required. See [Completing the Installation](#) for further details.

Completing the Installation (UNIX only)

This section covers the following topics:

- [Setting the Environment Variables with *sagenv.new*](#)
- [Setting Up Your Products Using the SYSPCI Utility](#)
- [Invoking the SYSPCI Utility](#)
- [Loading Sample Networks](#)
- [Script for Monitor Tasks](#)

Setting the Environment Variables with *sagenv.new*

Before you start your product, it is recommended that you run (source) the *sagenv.new* script in the *install-dir/bin* directory. This sets the environment variables needed to run your product and other Software AG products.



Important: The *sagenv.new* file is replaced with every new installation. If you have set up your own environment settings file (for example, with the name *sagenv*), replace only the modified product-specific part in your existing *sagenv* file.

Running the *sagenv.new* script is also recommended before configuring the installed products with the SYSPCI utility.



Important: It is recommended that you start a new shell before switching to a different installation directory and running the *sagenv.new* script (for example, when switching from the directory for a test environment to the directory for a production environment).

Setting Up Your Products Using the SYSPCI Utility

After you have installed your product for the first time, you need to set up a number of files, parameters and individual settings depending on your environment. These are described below. To set them up, you use the SYSPCI utility. For detailed information on this utility, see *SYSPCI Utility - Product Configuration and Initialization* in the *Natural Tools and Utilities* documentation.

Before you can define Entire Operations system files, the System Automation Tools system file (LFILE 131) must be defined.

Entire Operations requires the following Adabas system files:

NOP-SYSF1 file, where the logical file number (LFILE) is 216, NOP-SYSF2 file, where the logical file number (LFILE) is 85.

The database IDs and file numbers of the new or existing files (NOP-SYSF1, NOP-SYSF2) that you specify using the SYSPCI utility are entered into the default parameter files Entire Operations (NOPPARM), Entire Operations (NOMPARM, if available) and Natural (NATPARM).

The required Adabas files can either be local or remote:

■ Remote Access

If the file is located in a remote database, Entire Net-Work must be active and the database must be accessible.



Note: For Natural Security, see also *Using Natural Security on Multiple Platforms* in the *Natural Security* documentation.

■ Existing Local File

Before you start the SYSPCI utility, make sure that the Adabas database containing the required files is active. With this version, you can continue to use your existing files. No migration of data from the previous version to the current version is necessary.

■ New File

Before you start the SYSPCI utility, make sure that the Adabas database which will contain the required files is active. The SYSPCI utility will load and initialize these files. This should be also done if another file is required for your product.

Before you create new files with the SYSPCI utility, make sure that the ASSO and DATA sizes of your Adabas database are appropriate for these files. It is therefore recommended that you check the Adabas *.fdu* files in the *install-dir/product/INSTALL/product-code* directory for the used sizes. If required, change your database setup so that the files can be created.

For Natural Security, for example, the ASSO and DATA sizes are not appropriate if you are using the default database. The *.fdu* files for Natural Security can be found in the *install-dir/Natural/INSTALL/nsc* directory.

In addition, make sure that the Adabas nucleus parameters listed in the following table are set for the database you want to use at database startup. They are not appropriate if you are using the default nucleus parameters.

LWP	Must be at least 1,000,000.
OPTIONS	The option TRUNCATION must be set in the OPTIONS parameter.



Notes:

1. After Natural Security has been initialized (activated) with the SYSPCI utility, you need to use a Natural Security nucleus to start Natural. The Natural Security nucleus delivered with the Natural Security installation is called *natsec* and is located in the *install-dir/Natural/bin* directory. Start Natural Security with *natsec parm=NSCPARM*. Alternatively, you can back up the nucleus called *natural* and rename *natsec* to *natural*.

2. When you have installed Natural Security, you need to start Natural Development Server with a Natural Security nucleus (for example, `natdvsrv -s=natsec`).

Invoking the SYSPCI Utility

In order to invoke the SYSPCI utility, you must first invoke Natural. You can then invoke the SYSPCI utility using the **Direct Command** window.

➤ To invoke the SYSPCI utility

- 1 Enter the following command at the UNIX system prompt to invoke Natural:

```
natural
```

- 2 Select the **Direct** menu and press ENTER to invoke the **Direct Command** window.
- 3 Enter the following command in the Direct Command window:

```
SYSPCI
```

For more information, see *SYSPCI Utility - Product Configuration and Initialization* in *Natural's Tools and Utilities* documentation.

Loading Sample Networks

The data for the sample networks of Entire Operations are contained in the directory \$NOP-DIR/\$NOPVERS/example. Before proceeding, ensure that you have completed the installation of System Automation Tools (SAT) as described in the *System Automation Tools* 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 import/export functions, see the relevant documentation



Note: Alternatively, you can 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 [Installation Verification](#).

Script for Monitor Tasks

The script nopmon.bsh (example below) is to be used to start the Entire Operations Monitor.

```
#!/ bin/sh
# set -xv
# // Copyright © 2013-2019 Software AG, Darmstadt, Germany and/or
#   Software AG USA Inc., Reston, VA, USA, and/or its subsidiaries
#   and/or its affiliates and/or their licensors

# Entire Operations (NOP)
# Monitor task startup
#
# NOP versions: 551 and above
#
# -----
# Parameters:
#   1. Entire Operations (NOP) Monitor task ID (optional)
#
# Notes:
# - Please adapt this script for your installation,
#   if necessary.
# - If the Entire Operations (NOP) Monitor node is not local, please make sure that
#   all necessary environment variables are set and exported.
# -----

TASK_ID=1
if [ $# -ge 1 ]; then
    TASK_ID=$1
fi

# sagenv=/opt/softwareag/sagenv #
# if [ -f $sagenv ]; then
#     . $sagenv
# fi #
sagenv={{INSTALLDIR}}/bin/sagenv.new #
if [ -f $sagenv ]; then
    . $sagenv
fi #

# if [ "$NPRDIR" = "" ]; then
#     echo "NPRDIR is not set"; exit 1
# fi
# if [ "$NPRVERS" = "" ]; then
#     echo "NPRVERS is not set"; exit 1
# fi
# if [ ! -d $NPRDIR/$NPRVERS ]; then
#     echo "directory $NPRDIR/$NPRVERS not found"; exit 1
# fi
#
```

```

if [ "$NPR_HOME" = "" ]; then
    echo "NPR_HOME is not set"; exit 1
fi
if [ ! -d $NPR_HOME ]; then
    echo "directory $NPR_HOME not found"; exit 1
fi

#
# if [ "$NOPDIR" = "" ]; then
#     echo "NOPDIR is not set"; exit 1
# fi
# if [ "$NOPVERS" = "" ]; then
#     echo "NOPVERS is not set"; exit 1
# fi
# if [ ! -d $NPRDIR/$NPRVERS ]; then
#     echo "directory $NOPDIR/$NOPVERS not found"; exit 1
# fi

#
if [ "$NOP_HOME" = "" ]; then
    echo "NOP_HOME is not set"; exit 1
fi
if [ ! -d $NOP_HOME ]; then
    echo "directory $NOP_HOME not found"; exit 1
fi

# NATUSER=\ls $NPRDIR/$NPRVERS/lib/natnpr.s[lo]`      # 'sl' or 'so'
# NATUSER=\ls $NPR_HOME/lib/natnpr.s[lo]`            # 'sl' or 'so'
export NATUSER

# if [ "$ETBLNK" = "" ]; then                        #
#     ETBLNK=\ls $NOPDIR/$NOPVERS/exx/*/lib/broker.s[lo]`
#     export ETBLNK
# fi                                                  #

if [ "$ETBLNK" = "" ]; then                        #
    ETBLNK=\ls {{INSTALLDIR}}/common/EntireX/lib/broker.s[lo]`
    export ETBLNK
fi                                                  #

CMOBJIN=cmbjobjin.dummy
export CMOBJIN
if [ ! -f $CMOBJIN ]; then
    echo "." > $CMOBJIN      # create a dummy file
fi

CMSYNIN=cmsynin.dummy
export CMSYNIN
if [ ! -f $CMSYNIN ]; then
    echo "." > $CMSYNIN      # create a dummy file
fi

```

```
sysout_dir=/tmp          # directory for the Monitor sysout files

time_now=`date +%Y%m%d.%H%M%S`
CMPRINT=${sysout_dir}/${time_now}.task$TASK_ID.log
export CMPRINT

nat=natural              # Natural executable
parm=noparm              # Natural parameter module
natlib=syseor            # Natural library

$nat batchmode=yes parm=$parm noapplerr "stack=(logon $natlib;mo-ini-p XB ↵
$TASK_ID;fin)" &
```

Uninstalling Entire Operations Using Software AG Installer (UNIX only)

You uninstall Entire Operations using the Software AG Uninstaller. For detailed information on how to use the uninstaller, see the *Using the Software AG Installer* guide.

In short: to uninstall Entire Operations, proceed as follows:

1. Open a command window and go to the *bin* directory of your main installation directory.
2. Run the command `uninstall`. This starts the Software AG Uninstaller.

The following files are not removed:

- All files created by the user, for example, Entire Operations modules in `FUSER` or parameter files.
- `NOPARM`.

Important Information for UNIX

This section covers the following topics:

- [Administrator Status](#)
- [User ID for Installation](#)
- [Installation Directory](#)
- [File Permissions](#)
- [FNAT Usage](#)
- [Upgrading Your Entire Operations Environment](#)

- [Updating Your Entire Operations Environment](#)

Administrator Status

During the installation, the **Sudo** panel may appear. This happens because Entire Operations depends on the installation of Natural where the **Sudo** panel may be used. For the installation of Entire Operations, however, you do not need sudoers privileges.

User ID for Installation

Entire Operations depends on Natural. Therefore, the user ID under which you run the Software AG Installer must not be longer than eight characters. If you use a longer user ID, an error message is shown. You can then exit the installer and use a different user ID or - in case you also want to install other products - return to the product selection tree and deselect Natural.

Installation Directory

During the installation, you are asked to specify an installation directory. The installation of Entire Operations requires the installation of Natural. If Natural is already installed, choose the directory of your Natural installation. Otherwise, see *Installation* in the Natural for UNIX documentation for detailed information regarding the installation directory. The user that you are using to install must have full read and write permissions to this directory.

File Permissions

The user who starts the installation owns all files that are installed.

The user file-creation mode mask (`umask` command) determines the file permissions for newly created files. Make sure that the `umask` command you are using for the installation will not prevent users from accessing and executing the installed files. On UNIX systems, for example, the command `umask 022` allows full access rights for the file owner and read-only access rights for group members and others.

FNAT Usage

By default, a new FNAT system file is created in the installation directory during the installation of Natural `install-dir/Natural/fnat`. This FNAT must always exist, and the global configuration file must have an entry which defines this FNAT.

Entire Operations can only be installed into this FNAT.



Note: If you want to check or edit the settings in the global configuration file, use the Natural Configuration Utility.

The Software AG Installer maintains an internal list of installed products, which must coincide with the add-ons that are currently installed in the FNAT. This is important for updates and uninstalls to work correctly.

For this reason:

- Do not install products into the FNAT without the use of the Software AG Installer.
- Do not replace the default FNAT (*install-dir/Natural/fnat*) with another FNAT.
- Make sure to complete the installation of Entire Operations by using the SYSPCI utility (this is explained later in this documentation).

If an error occurs due to the above-mentioned scenarios, the only way to solve the problem is a new installation. In some situations, one of the following workarounds may help:

- Workaround 1: Complete the previous installation by using the SYSPCI utility.
- Workaround 2: Uninstall the product and then start the installation once more.

Upgrading Your Entire Operations Environment

When one of the first two digits of the version number changes, we consider an installation as an upgrade installation.

Updating Your Entire Operations Environment

When the first two digits of the version number remain the same and the third or fourth digit changes, we consider an installation as an update installation.

An update installation does not prompt again for license files. The existing license files will be used.

Scripts located in the *install-dir/EntireOperations/INSTALL* directory will not be replaced. Thus, user changes in scripts will be kept. If a script changes with an Entire Operations update, you can find the updated scripts in the *install-dir/EntireOperations/INSTALL/tpl* directory. The name of an updated script consists of the original name followed by *.tpl*. For example, *nopenv* is then named *nopenv.tpl*. Administrators and users can adapt any scripts manually according to their own needs.

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 can detect a version mix if a runtime error occurs. In this case, all Monitor tasks will immediately be terminated with an error message.

Interfaces to other Software AG Products

This section covers the following topics:

- [Interface to Entire Output Management](#)

Interface to Entire Output Management

If you want to use the Entire Output Management (NOM) 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 NTLFILE 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

This section covers the following topics:

- [z/OS Interfaces](#)
- [BS2000 Interfaces](#)
- [UNIX and Windows Interfaces](#)

z/OS 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, see 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 CONSOL_{xx} in the SYS1.PARMLIB library, which defines the z/OS master console and alternate consoles.

Insert the entry MONITOR(JOBNAMES-T) for automatic job display. Make sure there is no entry in any MPFLST_{xx} member in SYS1.PARMLIB to suppress message IEF404I.

BS2000 Interfaces

■ LMS Interface

For access to LMS elements from Entire Operations, LMS Version V1.4A 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 Interfaces

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

Security Definitions

This section covers the following topics:

- [With Natural Security](#)
- [Without Natural Security](#)
- [External Security System](#)

With Natural Security

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

- [Applications](#)
- [Users](#)

Applications

SYSEOR	Entire Operations Programs
SYSEORH1	Entire Operations Help Data (English)
SYSEORH2	Entire Operations Help Data (German)
SYSEORU	Entire Operations User Exits & 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 (only if the Entire Operations SYSEOR system library is not on the Natural FNAT system file)
 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 (only if the Entire Operations SYSEOR system library is not on the Natural FNAT system file)
4. STEPLIB=SYSEXT
5. STEPLIB=SYSTEM

Users

(defined as a 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 sections *Parameter Blocks* and *Parameters* of the *System Automation Tools* 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 the module SATSLS-P from SYSSAT to SYSEOR (if not already existing in SYSEOR).

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 EOR $_{nnn}$ 01, where nnn is the Monitor node number. For example, if the Monitor node is 148, define the user ID as EOR14801.

BS2000

Define the BS2000 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:

```

20.11.10                ***** Entire Operations *****                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 the section *System Administrator Services*. This includes:

■ **Entire Operations Defaults - BS2000 only:**

If necessary, modify the activation and submission escape characters, since the dollar (\$), section (§) and commercial at (@) signs cannot be used in BS2000.

- 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, because some of the definitions are necessary for a regular user session. To work with Entire Operations after `INSTALL`, you must start a new Natural session.

This section covers the following topics:

- [Single-User Mode under BS2000](#)
- [Installation Verification](#)
- [Possible Installation Verification and Startup Errors](#)
- [Migration Considerations](#)

Single-User Mode under BS2000

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

For Entire System Server:

```
/ADD-FILE-LINK LINK-NAME=CMEDIT,FILE-NAME=npr-lib,SUPPORT=*DISK
```

in ISP format:

```
/FILE npr-lib,LINK=DDLIB2
```

where *npr-lib* is the Entire System Server load library.

For Natural Software AG Editor single-user mode:

```
/ADD-FILE-LINK LINK-NAME=CMEDIT,FILE-NAME=workfile,SUPPORT=*DISK
```

in ISP format:

```
/FILE workfile,LINK=CMEDIT
```

where *workfile* must be the user-specific work file, and *workfile* may not be accessed by any other task (refer to *Installing Software AG Editor* in the *Natural Installation* documentation.)

For information on the Natural editor work file, see the section *Editor Work File* in the *Natural Operations* documentation.



Note: If you run your Natural under *openUTM*, you must not use single-user mode for Entire System Server or the Natural Software AG Editor. This means that node number 148 may not be given in any definition within Entire Operations, and a **Software AG 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 section *Online Technical Information* in the section *Logging on to Entire Operations* of the *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`. See also the sample network shown in the *Import/Export Functions* documentation.



Notes:

1. For detailed information on starting the Entire Operations Monitor, see the section *Starting a Server* in the *System Automation Tools* documentation and the section *Entire Operations Monitor* in the *Administration* documentation.
2. You cannot start these sample networks if you have loaded your Entire Operations system file with `NUMREC=0`.

> To adapt the sample job networks

- 1 Adapt the job networks of the owner `EXAMPLE`, which you want to use for the installation verification.

We recommended that you use the following networks:

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

- 2 Check whether the node table contains all operating system server nodes you need (see *Definition of Nodes* in the *System Administration* documentation).
- 3 For each node you want to use: enter the direct command `LOGON NODE 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.
- 4 Go to the **Network Modification** window (described in the *User's Guide*) 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 window; then set the field **Submit User ID** (and for B60-FLOW also **SYSOUT User ID**) to a user ID valid in your environment. See also *Operating System and Environment Defaults* in the *User's Guide*.
- 5 The node numbers above must be propagated to all jobs of the network. Choose PF9 in the **Network Modification** window 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 the previous step.
- 6 For most of the sample job networks, you will find the name of a symbol table in the **Network Modification** window. Choose 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.
- 7 Go to the **Calendar Maintenance** screen (described in the *User's Guide*). Make sure that the calendar `EXAMPLECAL` is defined for the current year.
- 8 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.

> To activate a sample job network

- 1 Open the Entire Operations Main Menu (described in the *User's Guide*).



Note: In a z/VSE 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 section *Defining Notification Messages* in the *User's Guide*.

Possible Installation Verification and Startup Errors

If your installation verification fails and you cannot start Entire Operations properly, consider the following:

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

NAT0838: Monitor Subtask Does Not Run

If your Entire Operations Monitor subtask does not start and you receive a NAT0838 error message in the System Automation Tools output, proceed as follows:

1. Log on online to SYSEOR and change the password there.
2. Modify the NSCPSWD= settings in NOP_{vr}SATENV in the System Automation Tools parameters as well.
3. Retry the System Automation Tools start.

Migration Considerations

Sample Networks of Previous Entire Operations Versions

In general, the installation verification can also be carried out using the sample networks delivered with previous versions 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 the current Entire Operations version. For further information, see the section *Import and Export of Entire Operations Data*.

Import and Export of Entire Operations Data

Entire Operations provides import/export functions. 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.

For detailed information, see the *Import/Export Functions* documentation.

This section covers the following topics:

- [Updating Sample Networks](#)
- [Importing Updated Sample Networks \(optional\)](#)
- [Using Sample Networks](#)

Updating Sample Networks

Import/export functions can also be used to update sample network definitions (see the *Import/Export Functions* documentation) supplied with previous Entire Operations versions by importing the definitions from the system files supplied with the previous versions.

Step 3 in the section [Importing Updated Sample Networks \(optional\)](#) describes what must be done for this purpose.

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.

➤ To import updated sample networks

- 1 Assign the Natural Workfile 1 to the NOP_{VRS}.DATA file and invoke the import function to load the sample networks. This can be done online in a TIAM (BS2000) or TSO (z/OS) Natural environment, or preferably in batch mode as described in the section *Using Import/Export Functions in Batch Mode* in the *Import/Export Functions* documentation.
- 2 If you intend to update the sample network B60-FLOW (see the *Import/Export Functions* documentation), you are recommended to delete this network manually from the Entire Operations **Network Maintenance** screen (described in the *User's Guide*) prior to the steps following below. You can omit this deletion step if you do not use BS2000 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.

Using Sample Networks

➤ To use the sample networks

- 1 In the network definition (see *Fields and Commands: Network Definition* in the *User's Guide*), adapt the JCL node and execution node to a node you want to use.
- 2 In the operating system specific entries, check the **JCL User ID** and **Submit User ID** fields: see *Input Fields: Network Defaults* in the section *Operating System and Environment Defaults* in the *User's Guide*.
- 3 With the function **Application of Network Defaults to Jobs** (see the *User's Guide*), copy the modified definitions into the jobs.
- 4 For MAC-type jobs (Macro), you must edit the JCL and enter the command MACRO to get an executable Macro program. This must be done prior to the first execution of the network or job.

Naming Conventions for Work Files

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

- BS2000
- UNIX
- Windows

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

This section covers the following topics:

- [BS2000](#)
- [UNIX](#)
- [Windows](#)

■ File Name Generation Exit

BS2000

BS2000 work files are created with the following names:

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

Variable	Explanation
<i>catid</i>	BS2000 catalog ID for the file.
<i>sysout-userid</i>	BS2000 user ID, under which the file is created. If a SYSOUT user ID (see <i>Job Maintenance</i> in the <i>User's Guide</i>) has been defined, then it will be used.
<i>owner</i>	Entire Operations owner of network.
<i>network</i>	Entire Operations network.
<i>run</i>	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.
<i>job</i>	Name of the job. If a suffix follows, then the field will be filled up to a length of 10 characters using the number sign (#).
<i>suffix</i>	Suffix to clearly distinguish between several work files of a job.

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 maximum file length in BS2000 is 54.

Special Work File Names

BS2000 temporary print files are created with the following names:

```
:catid:$bs2000-userid.EOR.PRINT.node.date.time
```

Variable	Explanation
<i>catid</i>	BS2000 catalog ID for the file.
<i>bs2000-userid</i>	BS2000 user ID (submit user ID or SYSOUT user ID).
<i>node</i>	Entire System Server node (3 digits).
<i>date</i>	Current date (YYYYMMDD).
<i>time</i>	Current time (HHMMSS).

UNIX

All work files created by Entire Operations are contained 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 `$NPDDIR/$NPRV-ERS/work`. See also *Establish Environment Variables* in the section *Installing Entire System Server (NPR) under UNIX* in the *Entire System Server* documentation.

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-userid/dbid-fnr/owner/network/run-upper/run-lower/owner/job.extension
```

Variable	Explanation
<i>unix-userid</i>	The submit user ID of the job. If it is not specified explicitly in the job definition, the UNIX default submit user ID is used.
<i>dbid-fnr</i>	Entire Operations System File 1 database ID and file number, from the caller's environment (concatenated to 10 digits, with leading zeros).
<i>owner</i>	Entire Operations owner of network.
<i>network</i>	Entire Operations network.
<i>run-upper</i>	Upper 4 digits of Entire Operations run number (with leading zeros).
<i>run-lower</i>	Lower 4 digits of Entire Operations run number (with leading zeros).
<i>job</i>	Entire Operations job name.
<i>extension</i>	Extension (see below).

The name of the work directory for an active network is available in the pre-defined symbol `P-NADIR` (see *Table of Predefined Symbols* in the *User's Guide*). 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
current.sysout.txt	Current SYSOUT file.
01.sysout.txt through 99.sysout.txt	Previous SYSOUT files.
current.sh	Shell script which was actually submitted.
current.sh.pid	File containing the process ID of the shell script.
current.frame.sh	Shell script 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 can define a `umask` command in the Entire System Server for UNIX startup script (for example startups).

Windows

All work files created by Entire Operations are contained 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.

Windows work files are created with the following names:

```
%EOR_WORK%\userid\dbid-fnr\owner\network\run-upper\run-lower\job.extension
```

Variable	Explanation
<i>userid</i>	Windows user ID (submit user ID of the job).
<i>dbid-fnr</i>	Entire Operations System File 1 database ID and file number, from the caller's environment (concatenated to 10 digits, with leading zeros).
<i>owner</i>	Entire Operations owner of network.
<i>network</i>	Entire Operations network.
<i>run-upper</i>	Upper 4 digits of Entire Operations run number (with leading zeros).
<i>run-lower</i>	Lower 4 digits of Entire Operations run number (with leading zeros).
<i>job</i>	Entire Operations job name.
<i>extension</i>	Extension (see below).

Windows Work File Extensions

Extension	Explanation
current.frame.bat	Frame batch file. This frame invokes the executable batch file or a directly executable program.
current.bat	Executable batch file
current.sysout.txt	Current SYSOUT file.
01.sysout.txt through 99.sysout.txt	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.

4

Parameter Settings Required for Server Environments

■ Natural Steplibs	52
■ Entire Operations Monitor Shutdown during Entire System Server Node Shutdown	52
■ Software AG Editor Buffer Pool (Mainframes only)	53
■ Usage of Separate System Automation Tools Log Files for Several Products	53

Natural Steplibs

With Entire Operations Version 5.5.x, the Natural steplib table is completely replaced during startup of an Entire Operations session.

The following rules apply:

- The effective steplib table may contain up to 2 user-defined steplibs only because 6 of the available 8 entries are used by Entire Operations itself. The original steplibs are taken over in the order they were previously defined.
- Only original user-defined steplibs will be merged. The steplib setting is performed by the module NOPSLP.

RPC Server for the Entire Operations GUI Client (OGC)

It is recommended to invoke NOPSLP during the startup of the RPC server for OGC.

Example:

```
STACK=(LOGON SYSEOR;NOPSLP)
```

Entire Operations Monitor Shutdown during Entire System Server Node Shutdown

During the shutdown of an Entire System Server node on a mainframe, the Entire Operations and Entire Output Management monitors running as subtasks under this node will be notified to shutdown themselves first.

To allow enough time for an Entire Operations Monitor and its Monitor tasks for termination, set the Entire System Server parameter `SHUTDOWN-MAX-DELAY` to at least twice the value of the largest Entire Operations Monitor task wait time.

Example:

If the Entire Operations Monitor wait time is 30 seconds, and if there are no higher task wait times, specify `SHUTDOWN-MAX-DELAY=60` or more in the Entire System Server parameters.

Software AG Editor Buffer Pool (Mainframes only)

The Software AG Editor is being used in the Entire Operations Monitor as well as in the Entire Operations online system. To avoid side effects from the online usage of Entire Operations, the Entire Operations Monitor should use a Software AG editor buffer pool other than the online system of Entire Operations.

Because of performance reasons, it is also recommended to define this buffer pools large enough that the editor does not need to swap to the EDTWORK data set.

Usage of Separate System Automation Tools Log Files for Several Products

If you run several Entire Systems Management products in the same environment, you have the choice between

- using a common System Automation Tools log file for all products
- using separate System Automation Tools log files for each product.

This section covers the following topics:

- [Notes about the Usage of Separate System Automation Tools Log Files](#)

Notes about the Usage of Separate System Automation Tools Log Files

1. In the SYSSATU/SP_{nnn} member, there must be different assignments for the System Automation Tools log file for each product.
2. If you use a common Natural parameter module for the Entire Systems Management products, only one NTLFILE setting for the System Automation Tools log file can be defined there. Therefore, it is recommended to use the Natural SYSPARM utility to create a separate profile for each Entire Systems Management product. These profiles must contain the setting of the LFILE 131 to the product-specific System Automation Tools log file.

5

Entire Operations in Client/Server Environments

■ Accessing UNIX/Windows Machines from the Mainframe	56
■ General Prerequisites	56
■ Required Parameter Definitions	56
■ Example Scenario for File Definitions	57

Accessing UNIX/Windows Machines from the Mainframe

➤ To access a UNIX or Windows machine from the mainframe

- Define services and nodes on both mainframe and UNIX or Windows systems. For information on defining UNIX or Windows nodes within Entire Operations, see the section *UNIX and Windows Node Definitions* in the *Administration* documentation. This describes where to define corresponding services and EntireX Broker parameters.

General Prerequisites

Make sure that an EntireX Broker Stub (e.g. NATETB ν r) is linked into the Natural batch/ subtask module.

Required Parameter Definitions

If you want to use Entire System Server nodes on UNIX and Windows, the following definitions are required in the Natural object SATSRV contained in the SYSSATU library:

Definition	Meaning
BROKER-ID=	EntireX Broker ID.
SERVER-CLASS=NPR	Class of the Entire System Server.
SERVER-NAME=	Name (in upper case) of the Entire System Server.
SERVICE= <i>service</i>	Service (in lower case) of the Entire System Server.

For more information on SATSRV, see the section *SATSRV Parameters* in the section *SATSRV: SAT Definitions for Entire System Server Nodes on UNIX and Windows* in the *Installation on Mainframe Platforms* section of the *System Automation Tools* documentation.

- For EntireX Broker, in the attribute file:

Definition	Meaning
BROKER-ID=	EntireX Broker ID.
CLASS=NPR	Class of the Entire System Server.
SERVER=	Name (in upper case) of the Entire System Server.
SERVICE= <i>service</i>	Service (in lower case) of the Entire System Server.

These definitions must be created on the platform where EntireX Broker is installed (either mainframe or UNIX or Windows).

For information on customizing the EntireX Broker attribute file and using the Entire System Server/UNIX or Windows *npr.ini* initialization file, see the appropriate Entire System Server *Installation* documentation.

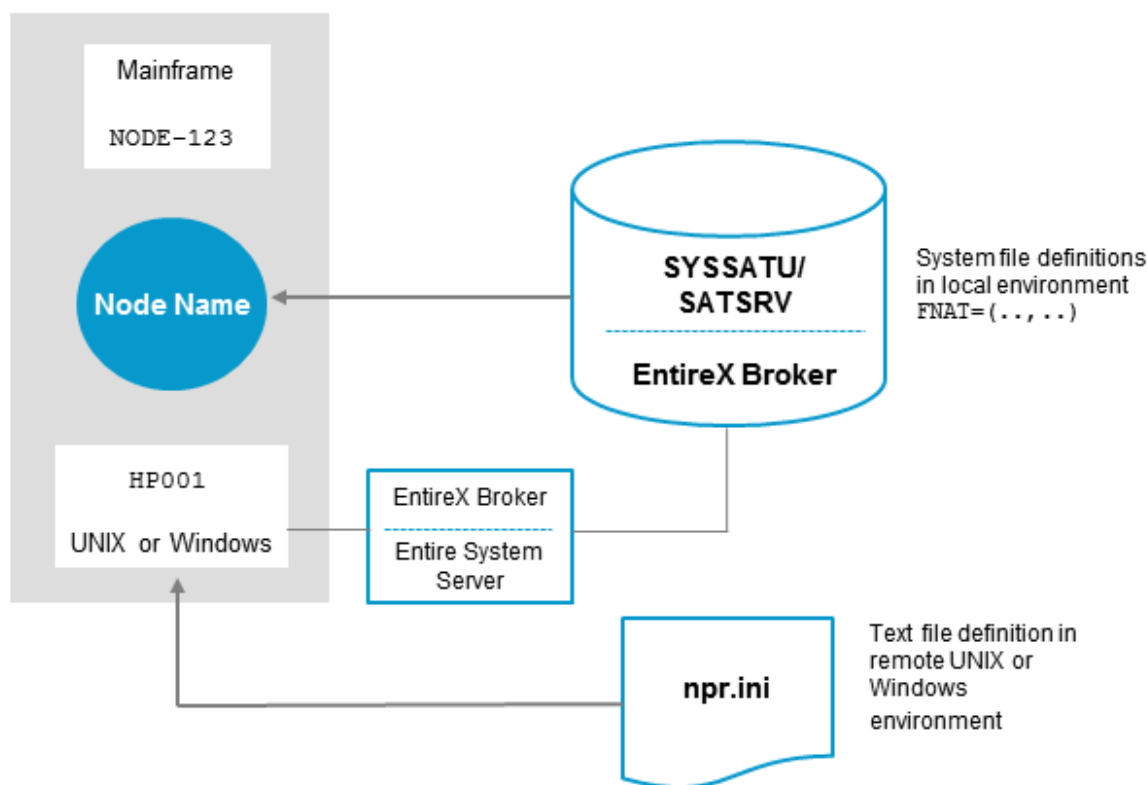
Example Scenario for File Definitions

This section covers the following topics:

- [Overview of Required File Definitions](#)
- [Mainframe Definitions for this Example](#)
- [Middleware Definitions for this Example](#)

- Server Definitions

Overview of Required File Definitions



Mainframe Definitions for this Example

SYSSATU/SATSRV

In the Natural SATSRV object in the SYSSATU library, 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 the field Node Name in the *Administration* documentation). The required definitions for the above example would be read as follows:


```
NODE123 SATSRV    TYPE=ACI  
                  BROKER-ID=BKR034  
                  SERVER-NAME=HP001  
                  SERVER-CLASS=NPR  
                  SERVICE=NPR-DEM01  
.  
.
```

Middleware Definitions for this Example

These definitions apply either to mainframe or UNIX or Windows.

EntireX Broker Attribute File

The following is an example for Entire Operations with:

```
SERVER=HP001  
CLASS=NPR  
SERVICE=NPR-DEM01  
.  
.
```

Server Definitions

The following definitions in the file *npr.ini* apply to a UNIX or Windows system. They are required for the example above:

```
NPR-DEM01
```

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

6

Entire Operations in Distributed Environments

■ Definitions for Nodes Where Entire Operations Installed	62
■ Definitions for Managed Environments - UNIX	62
■ Communication with Mainframe Nodes	63

Entire Operations can run in mixed mainframe/UNIX/Windows environments.

The Entire Operations Monitor and the Entire Operations system files can be installed on a mainframe or UNIX machine, the managed environments on the other hand may run under any mainframe or UNIX or Windows operating system.

This section provides examples of service definitions required to access a UNIX or Windows node.

Definitions for Nodes Where Entire Operations Installed

SYSSATU/SATSRV

The customization of SYSSATU/SATSRV is described in the relevant section of the *System Automation Tools* 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
.
.
```

EntireX Broker

The customization of EntireX Broker is described in *Customize EntireX Broker* in the section *Completing the Installation* in the *Entire System Server* documentation. The following is an example for Entire Operations with:

```
SERVER    = HP001F
CLASS     = NPR
SERVICE  = nprdemo
.
.
```

Definitions for Managed Environments - UNIX

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

```
[nprdemo]
Local_node           = HP001
Integration_Mechanism = ETB,BKR034
.
.
```

Communication with Mainframe Nodes

None of the definitions described in the previous section are required to access mainframe resources and jobs via Entire System Server. However, the desired Entire System Server node must be accessible via Entire Net-Work.

Nodes on z/OS and z/VSE Systems

The desired mainframe nodes must be accessible via Entire Net-Work.

Nodes on BS2000 Systems

The desired mainframe nodes must be accessible

- either via Entire Net-Work
- or via the Entire Systems Management Adapter (ESA).

Both access methods may be used in parallel for different BS2000 nodes.

Node Access via the Entire Systems Management Adapter (ESA)

Please follow the installation instructions for the Entire Systems Management Adapter (ESA).

To define a BS2000 node as an ESA node, refer to the section *Enable Mapping of Node IDs to Host Names and Port Numbers* in *Setting Up the Entire System Server Interface* in the *Entire Systems Management Adapter* documentation.

Additional Settings in the Entire Operations Online and Monitor Scripts

If you want to use ESA BS2000 nodes, you must set the environment variable `NAT_ESX_NODE_MAPPING` in the Entire Operations startup scripts for online sessions, the Entire Operations Monitor tasks, and the RPC server tasks prior to the invocation of Natural. In one Entire Operations installation, it must point to the same file in all scripts.

Code snippet (example for sh or bash):

```
NAT_ESX_NODE_MAPPING=/home/sag/esa_nodes.txt
export NAT_ESX_NODE_MAPPING
if [ ! -f $NAT_ESX_NODE_MAPPING ]; then
  echo "$NAT_ESX_NODE_MAPPING not found"
  exit 1
fi
```

The behavior and the programming interface of ESA nodes is principally the same as for Entire System Server (NPR) nodes.

7

Performance Considerations

■ Entire System Server	66
■ Natural	66
■ Adabas	66
■ Entire Operations	67

The Entire Operations system is based on Adabas, Natural and the Entire System Server. Therefore, the following performance considerations can be dedicated to these components or to Entire Operations itself.

Entire System Server

If the Entire Operations Monitor runs as a subtask of the Entire System Server, 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 as mentioned under Entire System Server applies for the Natural batch buffer pool.
- Define the necessary **Software AG Editor buffer pool** large enough to avoid swapping to the EDTWORK data set.

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 IO necessary for them. Reduce the Adabas WORK IO 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:

- Where are the files (AC,UI/NI/MI,DS) located?
- How fast do these devices respond to IO requests?
- What about the parameters ISN reuse and DS reuse?

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.

This section covers the following topics:

- [Use LFIOP with Adabas](#)

Use LFIOP with Adabas

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.

Consider that the Entire Operations Monitor works with the Natural profile parameter setting 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, the Monitor has to wait for the release of that record. In such a situation, check for the contents of the Adabas hold queue for entries pointing to the system files. Adjust all Adabas TNA_x time parameters TNA_x and the TT parameter to release resources even for those users who are no longer online.



Note: The Adabas LFIOP parameter for mainframes is equivalent to the BFIO_PARALLEL_LIMIT parameter in Adabas for UNIX and Windows.

Entire Operations

This section covers the following topics:

- [Monitor and Monitor Task Interval](#)
- [Monitor Tasks](#)
- [Networks](#)
- [Job Location](#)
- [Activation](#)
- [Earliest Start Time](#)
- [Input Condition Checking](#)
- [Input Condition References](#)
- [End-of-Job Checking](#)
- [End-of-Job Actions](#)
- [Asynchronous Exit Execution](#)

- [Symbol Substitution](#)

Monitor and Monitor Task Interval

Adjust the Entire Operations Monitor and Monitor task wait intervals 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 *Defining a Monitor Task Profile* in the *Administration* documentation.

Networks

Instead of complex networks with many jobs, use subnetworks. These subnetworks can be defined in jobs of type NET. The wait queues shorten 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 Entire System Server. 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 exits, which make excessive Adabas 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 they 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. Avoid complex End-of-Job actions on the `SYSOUT` protocol.

End-of-Job checking user exits may be run in asynchronous mode.

End-of-Job Actions

End-of-Job action user exits may be run in asynchronous mode.

Asynchronous Exit Execution

For each End-of-Job checking (EJC) exit and End-of-Job action (EJA) exit you may define asynchronous execution. See also *User Exits for End-of-Job Checking and Actions* in the *User's Guide*.

Asynchronous exits will be executed in the dedicated Monitor task(s) for jobs of type NAT. They do not block the handling of End-of-Job checking and End-of-Job action queues within the general-purpose Monitor tasks.

Notes about asynchronous exit execution:



Notes:

1. The network execution logic remains the same, if you define any exit to be executed asynchronously.
2. Exits should not be set to asynchronous execution if they have a short execution time and perform few database and Entire System Server calls.
3. Exits should be set to asynchronous execution if they have a longer execution time and/or perform many database and Entire System Server calls.
4. Note the overhead in network execution elapsed time, which will be caused by more queue changes between Monitor tasks.
5. The elapsed time of single network cannot be shortened by asynchronous exits.
6. The throughput of parallel running networks with excessive exit usage can become better, due to more parallelism.

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.