



SYSTEMS MANAGEMENT

System Automation Tools

Installation

Version 3.1.1

 **SOFTWARE AG**



Order Number: SAT311-010ALL

This document applies to Version 3.1.1 of System Automation Tools. Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Introduction

This documentation describes System Automation Tools (SAT) used in combination with Entire Output Management (NOM), Entire Operations, (NOP) and Entire Event Management, (NCL) and its installation under OS/390, VSE/ESA and BS2000/OSD as well as under UNIX.

System Automation Tools (SAT) is only offered together with NOP, NOM or NCL.

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

Installing System Automation Tools / Mainframe

This section describes System Automation Tools (SAT) and its installation under OS/390, VSE/ESA and BS2000/OSD.

It covers the following topics:

- SAT Concepts
- Installing System Automation Tools
- Prerequisites
- Installation Tape
- Storage Requirements
- Copying the Tape Contents to Disk
- Installation Procedure
- Natural Security Definitions
- External Security Definitions
- Defining SAT, Natural and Product Parameters
- Starting a Server
- Messages and Codes

SAT Concepts

System Automation Tools allows you to start the products of the ESM family whenever Entire System Server is started (AUTO-Start) or on request, using the product's **start monitor** function. Parameters can be specified for:

- the SAT environment itself;
- the Natural environment used;
- each product of the SAT family, i.e.:
 - Entire Operations (NOP);
 - Entire Output Management (NOM);
 - Entire Event Management (NCL);

System Automation Tools can start servers for the above products:

- independently of the underlying operating system. This means the same parameters are valid in all environments;
- independently of the product version, even with different product versions in parallel;
- independently of the version of System Automation Tools. This means compatibility with future versions of System Automation Tools and the products under its control;
- independently of the mode of operation in which these servers run. This means they can run as subtasks in OS/390 and VSE/ESA or as separate batch jobs under OS/390, VSE/ESA and BS2000/OSD;
- even in multi-node-environments consisting of any number of nodes. Of course, they must be interlinked with Software AG's Entire Net-work products.

Installing System Automation Tools

Installation Jobs

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

For each step of the installation procedure described below, the job number of a job performing the respective task is indicated. This job number refers to an installation job generated by SMA. If you are not using SMA, a sample installation job of the same number is provided in the job library on the System Automation Tools installation tape; you must adapt this sample job to your requirements.

Using System Maintenance Aid

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

Prerequisites

Before attempting to install the System Automation Tools, the following Software AG products must already be installed at your site:

- Adabas 6.2 or higher;
- Natural 3.1.4 or higher;
- Entire System Server 2.2.2 or higher;
- Natural Security (optional);
- Entire Net-work (optional).

Installation Tape

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

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

The SAT (System Automation Tools) load/module and source libraries contain modules shared by the SAT product family.

OS/390

Data Set Name	Contents
SAT <i>nnn</i> .JOBS	System Automation Tools Installation Jobs
SAT <i>nnn</i> .INPL	System Automation Tools System Libraries (Natural)
SAT <i>nnn</i> .ERRN	System Automation Tools Error Messages
SAT <i>nnn</i> .SYSF	System Automation Tools System File
....*	* Some data sets for the solution of certain SAGSIS problems may be included on the installation tape. Please refer to the problem descriptions before applying them.

BS2000/OSD

File Name	Contents
SAT <i>nnn</i> .JOBS	System Automation Tools Installation Jobs
SAT <i>nnn</i> .INPL	System Automation Tools System Libraries (Natural)
SAT <i>nnn</i> .ERRN	System Automation Tools Error Messages
SAT <i>nnn</i> .SYSF	System Automation Tools System File
....*	* Some data sets for the solution of certain SAGSIS problems may be included on the installation tape. Please refer to the problem descriptions before applying them.

VSE/ESA

Data Set Name	Contents
SAT <i>nnn</i> .LIBR	System Automation Tools Installation Jobs
SAT <i>nnn</i> .INPL	System Automation Tools System Libraries (Natural)
SAT <i>nnn</i> .ERRN	System Automation Tools Error Messages
SAT <i>nnn</i> .SYSF	System Automation Tools System File
...*	* Some data sets for the solution of certain SAGSIS problems may be included on the installation tape. Please refer to the problem descriptions before applying them.

Storage Requirements

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

OS/390

File Name	Type	Space on 3380 Disk
SATnnn.JOBS	PDS	2 tracks
SATnnn.INPL	SEQ	14 tracks
SATnnn.ERRN	SEQ	1 track
SATnnn.SYSF	SEQ	20 tracks

BS2000/OSD

File Name	Type	Storage Space
SATnnn.JOBS	PAM	144 PAM pages
SATnnn.INPL	SAM	288 PAM pages
SATnnn.ERRN	SAM	33 PAM pages
SATnnn.SYSF	SAM	48 PAM pages

VSE/ESA

File Name	Type	Space on 3380 Disk
SATnnn.LIBR	SEQ	2 tracks
SATnnn.INPL	SEQ	14 tracks
SATnnn.ERRN	SEQ	1 track
SATnnn.SYSF	SEQ	20 tracks

Copying the Tape Contents to Disk

OS/390

If you are not using SMA, copy the job data set `SAT nnn .JOBS` from tape to disk using the sample JCL below.

The following values must be supplied in the JCL:

- In the data set names, replace nnn with the current version number of the data sets.
- 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 data set (see Report of Tape Creation).
- With VOL=SER parameter, replace YYYYYY with the volume serial number of the disk pack.
- With the UNIT parameter, specify the device type being used.

```
// JOB CARD
//V2COPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN1 DD DSN=SAT $nnn$ .JOBS,DISP=OLD,UNIT=TAPE,
// VOL=(,RETAIN,SER=XXXXXX),LABEL=( $x$ ,SL)
//OUT1 DD DSN=SAGLIB.SAT $nnn$ .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 SATTAPE from the job data set to copy the load library from tape to disk. The sample job directly uses the sequential data sets from tape.

BS2000/OSD

If you are not using SMA, copy the data set `SAT nnn .JOBS` from tape to disk using the procedure described below. In this procedure, the following values must be supplied:

- In the data set names, replace nnn with the current version number of the data sets.
- Replace XXXXXX with the volume serial number of the tape.
- Replace YYY with the file sequence number.

Step 1

Copy the job data set `SAT nnn .JOBS` from tape to disk using the BS2000/OSD utility PERCON or EDT.

If you use PERCON, issue the following commands:

```

/FILE SATnnn.JOBS,VOL=xxxxxx,DEV=T9G -
/ ,BLKSIZE=,RECSIZE=,RECFORM=,FCPTYPE= -
/ ,STATE=FOREIGN,FSEQ=YYY,LINK=PCIN
/FILE P.SATnnn,LINK=PCOUT
/EXEC PERCON
END

```

If you use EDT, issue the following commands:

```

/FILE SATnnn.JOBS,VOL=xxxxxx,DEV=T9G -
/ ,BLKSIZE=,RECSIZE=,RECFORM= -
/ ,STATE=FOREIGN,FSEQ=YYY,LINK=EDTSAM
/EXEC EDT
@ READ '/'
@ SY '/REL EDTSAM'
@ WRITE 'P.SATnnn'
@ HALT

```

Step 2

Issue the command:

```

/CALL P.SATnnn,PRODUCT=SATnnn

```

An example job library LIB.SATnnn is created from the procedure data set.

VSE/ESA

The sample JCS supplied on tape for the installation of System Automation Tools assumes one library, which has installation sublibraries per Software AG product. In addition to these sublibraries, you need a work sublibrary and a sublibrary for sample installation jobs for System Automation Tools. It is recommended that you create this library and the work sublibrary now.

The following job creates this library. The size needed for the library depends on the number of products and versions which are to be loaded into this library later on; the following example uses 1200 tracks of a 3380 device as a recommended size:

In the // EXTENT statement, replace *vvvvvv* with the VOLSER of the pack where the data set is to reside, and *nnnn* with the starting track of the data set.

```

* $$ JOB JNM=SMADEF,CLASS=0,DISP=D,LDEST=(,...)
* $$ LST CLASS=A,DISP=D
// JOB SMADEF
// DLBL SAGLIB,'INSTALL.SMALIB',99/365,SD
// EXTENT ,vvvvvv,1,0,nnnn,1200
// EXEC LIBR,PARM='MSHP'
  DEFINE LIB=SAGLIB
  DEFINE SUB=SAGLIB.USRLIB,REUSE=AUTO,R=Y
/*
/&
* $$ EOJ

```

The sample job assumes that standard label SAGLIB is defined for this library. You can use the following job to add this label to the standard label area:

In the // EXTENT statement, replace vvvvvv with the VOLSER of the pack where the data set is to reside.

```

* $$ JOB JNM=STDLABEL,CLASS=A,DISP=D
* $$ LST CLASS=A,DISP=D
// JOB STDLABEL
// OPTION STDLABEL=DELETE
  SAGLIB
/*
// OPTION STDLABEL=ADD
// DLBL SAGLIB,'INSTALL.SMALIB'
// EXTENT ,vvvvvv
/*
/&
* $$ EOJ

```

Now copy the sublibrary containing System Automation Tools sublibrary and the sample installation jobs from tape using the following JCS:

```

* $$ JOB JNM=SATJOBS,CLASS=0,DISP=D,LDEST=*,SYSID=1
* $$ LST CLASS=A,DISP=D
// JOB SATJOBS
// ASSGN SYS005,IGN
// ASSGN SYS006,cuu,VOL=SATnnn
// MTC REW,cuu
// MTC FSF,SYS006,nn
* Tape positioned at file ?, tape mark nn
* *** Now process SATnnn.LIBR - JOBS ***
// EXEC LIBR,PARAM='MSHP'
  RESTORE SUBLIB=SAGLIB.SATnnnJ:SAGLIB.SATnnnJ -
    SUBLIB=SAGLIB.SATnnn:SAGLIB.SATnnn -
    TAPE=SYS006 -
    LIST=YES -
    REPLACE=NO
/*
// MTC REW,SYS006
/*
/&
* $$ EOJ

```

The notation *cuu* represents the physical unit address of the tape drive.

The notation *nn* represents the file sequence number given by $(3 * \textit{file-no}) - 2$, as shown in the **Report of Tape Creation**. If your library is the first data set on the tape, leave out the // MTC ... instructions.

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

Now use job SATTAPE from this job library to restore the System Automation Tools sublibrary from tape and make System Automation Tools known to MSHP.

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

Installation Procedure

Step 1: Load SAT System File

System Automation Tools (SAT) versions 3.1 and above use a SAT system file with LFILE 131. Please use the Adabas load utility (Job I050, Step 3700) to load the SATnnn.SYSF file. The System File is in version 5 format. For SAT versions 3.1.2 and above this step can be omitted if SAT is not installed for the first time.

For the ADALOD utility use the following parameters:

Parameter	Value
MAXISN	50000
DSSIZE	10
UI SIZE	100B
NISIZE	1000B
ISNREUSE	YES
DSRU	YES

Step 2: Scratch SAT Library - Job I051, Step 3700

If the System Automation Tools sub-component has been installed before, scratch the SYSSAT library using the Natural SYSMAN utility. Scratch the error messages with the SYSERR utility.

Step 3: Create NATPARM Module for Natural Subtask/Batch

Modify, assemble and link the parameter module for the Natural subtask.

To do this, adapt **Job I060: Steps 3700-3710** (subtask) / **Steps 0010-0015** (batch).

The module must contain at least the following parameters (entries for other products are possible, but not documented here). Refer to your **Natural Installation and Operations Documentation**.

Note:

To complete these settings additional parameters may be required for other product(s). See product-specific installation procedure.

NTPRM	ESIZE=96 ASIZE=64 DATSIZE=90 CDYNAM=10 MAXCL=0 MADIO=0 PRINTER=(DUMMY, DUMMY) ETEOP=OFF WH=ON IM=D MT=0 LS=132 PS=66	Extended work area size Entire System Server Work area size Choose a value must between 48 and 64 ¹ Local data Number of dynamic loaded modules. Max. program calls (no limit) Maximum DBMS calls (no limit) Printer assignment ² No ET at end of program WAIT on HOLD, NAT314 Set input mode Max. CPU time: no limit Line Size Page Size SAT Calendar Function Entries for SAT products ³
NTFILE	ID=204,DBID=satdbid, FNR=satfnr	Locates main member ⁴
NTFILE	ID=131,DBID=db, FNR=nr	SAT System File access, use real database ('db') and file number ('fnr') values
NTDB	PROCESS,148	Entire System Server Views cataloged to this DBID
NTBPI	TYPE=NAT,SEQ=0,NAME=bpname	Global buffer pool - specify SIZE=nnn instead of NAME= to use a local buffer pool (for NOM/ NCL only)
NETWORK	(1-4),AM=STD	Work file definition (for NOM only)

¹ See the minimum values for Entire System Server.

² If you have other printer assignments, you can substitute DUMMY with your definitions, however, you must assign **at least 2** printers.

³ See Section **Installation** for the desired product.

⁴ Must point to the FNAT to which SYSSAT was loaded.

Step 4: Link a Natural Subtask/Batch Module

Job I060: Step 3720 - subtask / Step 0020 - batch

Note about ESX:

Starting with Natural 2.3.4, the Entire System Server interface (ESX) is no longer a separate product but part of Natural (and included on the Natural installation tape).

The installation is described in **Installing the Entire System Server Interface** in the **Natural Installation Guide for Mainframes**.

OS/390

Servers for SAT products can be started either as subtasks or as separate batch jobs. Therefore, you need either a subtask Natural or a batch Natural.

The following libraries must be used for the linkage:

Library	Description
//NATLIB DD DISP=SHR,DSN=SAGLIB.NAT nnn .LOAD	Natural Load Library.
//NPRLIB DD DISP=SHR,DSN=SAGLIB.NPR nnn .LOAD	Supplied Entire System Server Load Library.

The notation nnn in data set names represents the version number of the product.

Note:

The result of the subtask linkage must be stored in any STEPLIB of the Entire System Server node used and it must be reentrant. This library, like any STEPLIB of the Entire System Server Started Task, must be APF-authorized.

- Take the link job of an existing batch Natural, link the Entire System Server interface to Natural as described in the **Natural 3.1.4 Release Notes** and include the statements listed below.
- Adjust NATLIB to your Natural load library and NPRLIB and SMALIB to your Entire System Server load library.
- To make Con-nect features available, ensure that the appropriate CNT/TRS modules are included.

For Entire System Server version 2.2.2 and above together with Natural version 3.1.4 and above

The following is an example of how to link the Natural subtask front-end:

INCLUDE ...	
INCLUDE SMALIB(ESYNODTB)	ESY node table
INCLUDE ...	

For NOM

The following is an example of how to link the Natural subtask front-end:

INCLUDE SMALIB (NATOS)	Natural subtask / batch interface
INCLUDE <natparm>	NATPARM
INCLUDE NPRLIB (ADANPR)	Adabas / Entire System Server interface
INCLUDE NATLIB(SATDTA)	SAT Calendar (required for NOP, NOM, NCL), if Natural Version 3.1.4 and above are used.
ENTRY NATMVS	
NAME NATSAT31 (R)	

BS2000/OSD

- Take the link job of an existing batch Natural, link the Entire System Server interface to Natural as described in the **Natural 3.1.4 Installation Documentation** and include the statements listed below.
- To make Con-nect features available, ensure that the appropriate CNT/TRS modules are included.

The following libraries must be used for the linkage:

Library	Description
<NATLIB> = NAT nnn .MOD	Supplied Natural Load Library.
<SMALIB> = SMA nnn .MOD	User Load Library.

The notation nnn in data set names represents the version number of the product.

For Entire System Server version 2.2.2 and above together with Natural version 3.1.4 and above

Relink Natural, including the following modules:

INCLUDE SATDTA,<NATLIB>	SAT Calendar (required for NOP, NOM, NCL).
INCLUDE xxxxxxxx,<pppLIB>	Product-specific modules (<pppLIB> refers to the product's load library)

VSE/ESA

- Take the link job of an existing batch Natural, link the Entire System Server interface to Natural as described in the **Natural 3.1.4 Installation Documentation** and include the statements listed below.
- To make Con-nect features available, ensure that the appropriate CNT/TRS modules are included.

Include the library definitions for USRLIB, NATLIB, and NPRLIB in your LNKEDT procedure: (LIBDEF chain).

For Entire System Server Version 2.2.2 and above together with Natural version 3.1.4 and above

PHASE SATNT nnn	Change as required.
INCLUDE NATVSE	Natural Batch Driver
INCLUDE SATDTA	SAT Calendar (required for NOP, NOM, NCL), you will find SATDTA in the Natural library.
INCLUDE LNKVSER	Adabas interface
INCLUDE ...	Product-specific INCLUDEs

Step 5: Load the INPL and ERRN Files - Job I061, Steps 3700 and 3702

Load the programs and error messages for System Automation Tools.

Library	File	Contents
SYSSAT	FNAT	System Automation Tools programs and error messages.

Note:

If there are any data sets for the solution of certain SAGSIS problems on the installation tape, refer to the problem descriptions before loading them, now.

SAT in a Natural Security Environment

Define SYSSAT as STEPLIB for all products of the SAT product family.

SAT in a Natural Non-security Environment

The SYSSAT library is automatically defined as STEPLIB for all products of the SAT product family.

Step 6: Create NATPARM Module for Online Natural

Modify, assemble and link the parameter module for the online Natural. To do this, adapt **Job I080** (see NAT314.JOBS). The module must contain at least the following parameters (entries for other products are possible, but not documented here):

NTPRM	ESIZE=96 SSIZE=60 ASIZE=64 DATSIZE=90 CDYNAM=10 MAXCL=0 MADIO=0 ETEOP=OFF WH=ON IM=D MT=0 LS=132 PS=66	Extended work area size Software AG Editor work area size Entire System Server work area size Choose a value must between 48 and 64 Local data ¹ Number of dynamic loaded modules. Entries for SAT products ² Max. program calls (no limit) Maximum DBMS calls (no limit) No explicit Open WAIT on HOLD, NAT314 Set input mode Max. CPU time: no limit Line Size Page Size
NTFILE	ID=204,DBID=satdbid, FNR=satfnr	Locates main member ³
NTFILE	ID=131,DBID=db, FNR=fnr	SAT System File access, use real database ('db') and file number ('fnr') values.
NTDB	PROCESS,148	Entire System Server Views cataloged to this DBID.
NTBPI	TYPE=NAT,SEQ=0,NAME=bpname	Global buffer pool.

¹ See the minimum values for Entire System Server.

² See installation section in documentation for desired product.

³ Must point to the FNAT to which SYSSAT was loaded.

Step 7: Relink all Online Natural Nuclei

All Natural modules, online and batch, which will be used to execute ESM functionality (for example online usage of SYSEOR, SYSNOM, SYSNCL and batch jobs used for NOM printing, archiving, etc.) must be relinked:

- Link the Entire System Server interface to Natural as described in the **Natural 3.1.4 Installation Documentation** or above.
- Include SATDTA (SAT Calendar function) from the SAT library with Natural 3.1.4 and above: from the Natural library) and product-specific load modules as described in the documentation of the relevant products.
- To make Con-nect features available, ensure that the appropriate CNT/TRS modules are included.

Natural Security Definitions

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

Applications

Application	Description
SYSSAT	System Automation Tools application.
SYSSATU	System Automation Tools user library.

User

Define the Natural Security User representing the various servers of the SAT product family as **person** with User ID and password identical to <NSCUSER> and <NSCPSWD> parameters described in the subsection Parameter Blocks and Parameters.

Specify PRIVATE LIBRARY=YES.

If you define the above applications **people-protected**, you must link this User to them.

External Security Definitions

OS/390 only

If Entire System Server is installed with an external security system (RACF, ACF2, TOP SECRET), a User ID identical to the <ESYUSER> parameter (described in the subsection Parameter Blocks and Parameters) must be defined in the security system. The user must have sufficient authorization to access the spooling system, the console and all data sets used in the online system.

Defining SAT, Natural and Product Parameters

You can define the run-time environment of your products in one or more Natural members in the SAT user library, SYSSATU. You can specify any member name except the 'main' member, which must conform to the following naming convention: SATP*nnn*, where *nnn* = Entire System Server node under which the SAT products are AUTO-Started.

In the 'main' member, you must specify all parameter values needed to start the products. An asterisk * in the first column denotes a comment line. Lines prefixed with SAT are treated as default values for SAT or Natural. They can be overwritten by product-specific values. This means that all occurrences of a parameter are merged when the product is started.

For each occurrence of a SATSTART entry a product server is started.

Note:

If Software AG's integrated application development tool Natural ISPF is installed at your site, you can use the SAT menu to perform this maintenance work and for logging on to any of Software AG's solutions in the Entire Systems Management product line. The SAT menu is provided in the SAT*nnn*.INPL data set.

To make this menu available within Natural ISPF's menu system, simply activate the SAT subsystem of Natural ISPF.

If you need further information, see Section **System Configuration** in the **Natural ISPF Installation and Administration Documentation**.

General Layout of a Parameter Block

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

where:

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

Examples:

```
SAT  SATENV  NATTASK=NOPSUBT, NSC=NO
NOP321 NATENV  DU=OFF, FUSER=(9,81)
```

Long DB Ids and File Numbers

Database IDs (dbid) and file numbers (fnr) may be specified with up to 5 digits, that is from 1 to 65,535, as specified in the Natural documentation.

Parameter Blocks and Parameters

Parameter Block	Parameter	Description
NATENV	-	All profile parameters supported by Natural are possible.
Product Block	-	See product.
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. In BS2000/OSD: Use the user ID under which the Entire System Server Server is running
	NATTASK=	Name of the Natural subtask module for starting a server as a subtask.
	NATBATCH=	Name of the Natural batch module for starting a server as a batch job.
	NATSKEL=	Job skeleton for starting a server as a batch job.
	JOBPREF=zzz	Job name prefix for building job names when starting servers as a batch job. For example, the Characters zzz will replace 'EOR' in monitor jobname EORMON.
SATSTART	SATVERS=31	SAT version, which is supported by the product startup program. This does not necessarily reflect the currently installed SAT version - it means the version documented as prerequisite for the specific product.
	PRODUCT=	3-byte code, eg.: NOP, NOM, NCL.
	PREFIX=	PRODUCT and PREFIX are compressed into a prefix which identifies the server-specific parameters.
	TYPE=BATCH/SUBTASK	Start server as a batch job or subtask.
	APPLLIB=	Name of the Natural library where the product is installed.
	SERVSYSF=	Product-specific data file. For each SATSTART instruction of one SATPxxx member, a different data file must be referred to.
	MEMBER=	You can specify a member where product-specific parameters are located.

Example:

The member SATP148 in SYSSAT provides an example of a 'main' member. To use this as the basis for your own member: just copy it to SYSSATU and adapt it.

In the example below, it is assumed that you are running three products of the SAT product family (NCL, NOM and NOP) as subtasks on node 148. The parameters of NOP are located in a second parameter member NOPPARMS.

SAT Environment Settings

SAT * *	SATENV	NATTASK=SAT311ST NATBATCH=NAT314BA NATSKEL=JSKELVSE ESYUSER=NOMMON NSC=YES NSCUSER=NOMMON NSCPSWD=NOMMON STEPLIB1=(SYSLIBS, <i>dbid,fnr</i>) STEPLIB2=(SYSEXT, <i>dbid,fnr</i>) STEPLIB3=(SYSTEM, <i>dbid,fnr</i>)	1
NCL212 *	SATENV	NATTASK=NSATT08 NSC=NO ESYUSER=NCLMON	2
NOM211 *	SATENV	NATTASK=NSATT08 NSC=NO ESYUSER=NOMMON	2
NOP321 *	SATENV	NSC=NO ESYUSER=NOPMON JOBPREF= <i>zzz</i>	2

Natural Environment Settings

If the following parameters are passed to Natural as dynamic parameters, the maximum string length of all parameters may not exceed 250 bytes.

SAT *	NATENV	DU=OFF MAXCL=0 MADIO=0 MT=0 ID=' ' DC='.' ETID=''' (for NOM only)	3 9
NCL212 *	NATENV	FNAT=(1,5)	4
NOM211	NATENV	FNAT=(9,45)	4
NOP321 *	NATENV	FNAT=(9,45)	4

Product Environment Settings

NOM141	NOMENV	BS2USER=PROD01	8
--------	--------	----------------	---

Product Automatic Start

SAT *	SATSTART	SATVERS=23 PRODUCT=NCL PREFIX=212 TYPE=SUBTASK APPLLIB=SYSNCLSV SERVSYSF=(1,7)	5
SAT *	SATSTART	SATVERS=31 PRODUCT=NOM PREFIX=211 TYPE=SUBTASK APPLLIB=SYSNOM SERVSYSF=(9,46)	5
SAT *	SATSTART	SATVERS=23 PRODUCT=NOP APPLID=SYSEOR PREFIX=321 /* EOR 321 SUBTASK TYPE=SUBTASK APPLLIB=SYSEOR SERVSYSF=(9,65)	5

Contents of the Member NOPPARMS in SYSSATU:

NOP321 *	SATENV	NSC=YES, NSCUSER=NOPMON, NSCPSWD=HUGO	6
NOP321 *	NATENV	DU=ON	7

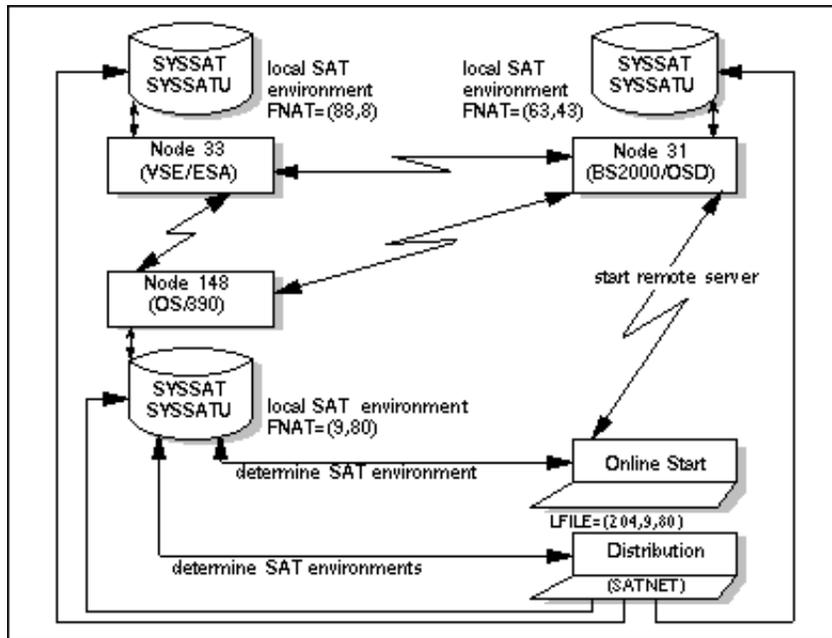
Explanations:

- ¹ Sets the SAT defaults for all SAT products, here: NOP and NOM.
- ² Overwrites some SAT values for NCL212, NOM141 and NOP321 respectively.
- ³ Sets the NAT defaults for all SAT products.
- ⁴ Overwrites some NAT values for NCL212, NOM141 and NOP321 respectively.
- ⁵ Specifies that the servers for NCL212, NOM141 and NOP321 respectively should be started as subtasks.
- ⁶ Overwrites some SAT defaults for NOP321 only.
- ⁷ Overwrites some NAT defaults for NOP321 only.
- ⁸ Product environment settings are documented in the corresponding product installation documentation.
- ⁹ It is recommended to use ETID=''. Check Natural documentation for the valid ETID syntax (applies only to NOM).

SAT Directory Member - SATDIR

You must define your SAT environment(s) in the member SATDIR in SYSSATU. The entries in this member are used to distribute your definitions into your SAT environments (with the SATNET program) and to determine the **local** SAT environment for a specific node when starting servers from online.

Example of a SAT scenario in a distributed computing environment:



Explanation:

A user has logged onto Natural, whose LFILE-entry for ID=204 is pointing to FNAT=(9,80). The user's **main** member SATP148 as well as the member SATDIR reside in the SYSSATU library of that FNAT. With this connection he can start SAT product servers online.

General Description of SATDIR

Database IDs (dbid) and file numbers (fnr) may be specified with up to 5 digits.

Syntax:

```
SAT $nnn$  SATDIR SATSYSF=( $\langle$ SATDBID $\rangle$ , $\langle$ SATFNR $\rangle$ )
```

where:

```
 $nnn$  = Entire System Server node number
SATDBID = DBID of local FNAT
SATFNR = FNR of local FNAT
```

Example:

```
SAT148 SATDIR SATSYSF=(9,80)
SAT033 SATDIR SATSYSF=(88,8)
SAT031 SATDIR SATSYSF=(63,43)
```



```

14:31:38          - SAT Parameter Distribution -          2000-11-15

Member      DBID  FNR  Message
-----
EORJSBS2    9    101
EORJSBS2    9     45
EORJSBS2   88     8
EORJSBS2   63    40
EORJSMVS    9    101
EORJSMVS    9     45
EORJSMVS   88     8
SATNET903 Distribution in progress - please wait.
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help           End

```

The DBIDs and FNRs are the target environment to which the members have been copied. If an error occurs, a message appears in the Message column.

SAT in Client/Server Environments

ESM products use the 'Advanced Communication Interface' (ACI) of the Entire Broker to communicate between client and server processes. Each service provided by one or more servers is uniquely identified by the attributes CLASS, SERVER and SERVICE as shown in the example below (extract from Entire Broker attribute file):

```

*
* SERVICES NEEDED FOR NOM PRINT SERVER (MRS)
*
DEFAULTS = SERVICE
  CONV-NONACT    = 30S
  TRANSLATION    = SATTCHA
  SERVER-NONACT  = 2M
CLASS=PrintClass,SERVER=PCMRSPrintServer,SERVICE=Print

```

You can find more information on the above in the appropriate **Entire Broker Documentation**.

Note:

The source of the translation table SATTCHA is delivered in the Entire Broker source library. For information on how to assemble and activate this translation, see the subsection **User-written Translation Routines** in **Section 1** of the **Entire Broker Administration Documentation**.

In order for a client or server to address a service, the client or server must pass the above parameters to REGISTER or SEND. SAT encapsulates this addressing data by allowing the ESM product to address the parameter with a symbolic name. The parameters are stored in text members of the SYSSATU library and subdivided into sections.

Examples: Addressing

- If you specify a name in the following format (two tokens, separated by a period '.'), then the name contains both the name of the **text member** and the name of the **section**:

XXXXXXXX.SSSSSS

where the first token, XXXXXXXX, is the **text member name** and the second token, SSSSSS, the **section name**. For example, the name:

PCMRS.Printer

addresses the section Printer in the text member PCMRS.

- If the name consists of only one token, then this is assumed to be the section in the text member SATSRV. For example, the name:

PCMRSPrinter

addresses the section PCMRSPrinter in the text member SATSRV.

SATSRV Parameters

Parameter	Meaning
WAIT-TIME	Corresponds to the parameter WAIT in the SDPA structure. ¹
TYPE	Type of communication. Must always be ACI.
BROKER-ID	Corresponds to the parameter BROKER-ID specified in the Entire Broker attribute file and in the SDPA structure. ¹
SERVER-CLASS	Corresponds to the parameter CLASS in the SDPA structure. ¹
SERVER-NAME	Corresponds to the parameter SERVER in the SDPA structure. ¹
SERVICE	Corresponds to the parameter SERVICE in the SDPA structure. ¹
USER-ID	Corresponds to the parameter USER-ID in the SDPA structure. ¹

¹ For a description of the SDPA structure, refer to the subsection **The ACI Control Block** in the **Entire Broker Reference Documentation**.

Example: SATSRV Parameters

```
PCMRSPrinter SATSRV TYPE=ACI  
    BROKER-ID=BKR034  
    SERVER-CLASS=PrintClass  
    SERVER-NAME=PCMRSPrintServer  
    SERVICE=Print  
    USER-ID=MRS  
    WAIT-TIME=60S
```

Starting a Server

Two methods are supported for starting a server of the SAT product family:

- ONLINE-Start
 - AUTO-Start
-

ONLINE-Start

The start of a server of any SAT product

- Entire Operations
- Entire Output Management
- Entire Event Management

in any environment supported (OS/390, VSE/ESA, BS2000/OSD) can be performed online.

Proceed as follows:

1. Use an online Natural with the following specifications:
 - FNAT must contain SYSSAT library (as installed in Step 2)
 - LFILE 204 must point to your local SYSSAT environment in order to find main member SATP nnn in SYSSATU (see Step 5 and Step 6 of the subsection Installation Procedure).
2. LOGON to the appropriate product library, for which you want to start the server(s).
3. Invoke the product specific start command (see documentation for the product itself).
4. This start command reads the SATSTART parameter block of the appropriate product in SATP nnn and invokes the server initialization program.
5. You will be informed online about the success of the operation.

AUTO-START

With AUTO-START you can automatically start one or more servers at Entire System Server startup time.

Proceed as follows:

1. Link a suitable Natural for this purpose (as described in Step 3 and Step 4):

For OS/390 and VSE/ESA:

This must be a subtask-Natural, because it runs in the address space of the Entire System Server.

For BS2000/OSD:

This must be a multi-user Natural.

2. To activate this process, adapt the startup parameters of Entire System Server. This consists of the following actions:
 - Specify the name of the Natural module which should be given control.
 - Specify the LOGON commands to invoke program SATSTART in library SYSSAT.

For OS/390 and VSE/ESA:

Parameters to be filled in are marked with brackets <>; required values are denoted by capital letters.

```
NATSHARE=<Name of Natural shared nucleus, if used>
NATNUMSUB=<Maximum number of subtasks> (recommended: 20)
NATMOD=<Name of Natural subtask module as linked in Step 4
STRTNTP1=STACK=(LOGON SYSSAT,<NSC-USERID>,<NSC-PASSWORD>;
STRTNTP2=SATSTART;FIN),AUTO=OFF
```

or, if Natural Security is not installed:

```
STRTNTP1=STACK=(LOGON SYSSAT;SATSTART;FIN),AUTO=OFF
```

For BS2000/OSD:

Parameters to be filled in are marked with brackets <>; required values are denoted by capital letters.

```
JOBNATSUB=<JCL location for Natural subtask AUTO-Start>
PRMNATSUB=<Parameters of ENTER/START-JOB>
NATNUMSUB=<Maximum number of subtasks> (recommended: 20)
```

Note:

You can find an example of JCL for Natural subtask AUTO-STARTs in the member E.STARTSAT in the LIB.SATnnn library.

3. During startup, the program SATSTART now gets control. As in the case of an online start, SATSTART uses the LFILE setting for file **204** to find its main member.
4. For each SATSTART instruction defined in the SATPnnn program, SATSTART starts a server. The type of the server (batch or subtask) is determined by the parameter TYPE.
 - For TYPE=SUBTASK:

The Natural subtask module specified with the NATTASK parameter is given control.
 - For TYPE=BATCH:

The Natural batch module specified with the NATBATCH parameter is given control. The necessary JCL for this batch job is expected in the Natural member specified with the NATSKEL parameter (library is SYSSATU). The jobname of the server task is created automatically.

For more information on the above, see the subsections Starting Servers with Type=Subtask and Starting Servers with Type=Batch.
5. These server sessions can be adapted with the SATENV parameter block:

Default settings are marked with the prefix SAT. They can be overridden by product-specific parameter blocks. The same holds true for Natural-specific parameter settings (NATENV block).
6. During each server startup, a product-specific initialization module gets control. Its name is automatically derived from parameters given in the SATSTART block in the following way:

<PRODUCT>SAT<SATVERS>

For example: NOPSAT23

7. This server initialization module can itself start other servers.
8. You can check the success of this processing either by examining the Entire System Server protocol or by logging on to the online application and testing the server status online.

Starting Servers with TYPE=SUBTASK

For each SATSTART instruction a subtask is started in the address space of Entire System Server (OS/390, VSE/ESA) which initiates the server start. The subtask name is built as follows:

pppSTAddddffff

where:

ppp = product code
dddd = DBID as specified in the SERVSYSF parameter
ffff = FNR

Note:

If you want to start servers as subtasks in a BS2000/OSD environment, proceed as follows:

1. Adapt either the NSBTSKIS member (for ISP format) or the NSBTSKSD member (for SDF format) in the SAT nnn source library.

Note:

The ADALNK parameter file is optionally supported. To use this function, you must change the member NSBTSKIS or NSBTSKSD correspondingly. Further information is available in the Adabas Release Notes.

2. Assemble it into the Entire System Server load library.

Subtasks are simulated by Entire System Server: batch jobs are submitted under the BS2000/OSD user ID as specified in the ESYUSER parameter. The job names of these batch jobs are built as follows:

pppST nnn

where:

ppp = product code
nnn = node number

Starting Servers with **TYPE=BATCH**

For each SATSTART instruction a batch job is submitted. For this submit, the user ID specified in the ESYUSER parameter is in effect. The job name is built as follows:

pppnnnrr

where:

ppp = prefix as specified in the JOBPREF parameter or product code
nnn = node number
rr = run number

You must prepare a job skeleton which reflects your system environment and which is used by the SATSTART program. Examples are delivered in SYSSAT which you can use as a basis for your skeletons. Skeletons must reside in the SYSSATU library. You can specify their names with the NATSKEL parameter, for example:

NATSKEL=JSKELMVS ! OS/390 environment
NATSKEL=JSKELVSE ! VSE/ESA environment
NATSKEL=JSKELBS2 ! BS2000/OSD environment

Messages and Codes

- Messages and Codes in English
- Messages and Codes in German

Messages and Codes in English

Messages and Codes
SATST0002 Node not specified.
SATST0003 Invalid System Type.
SATST0004 Invalid Server Type.
SATST0006 Natural Library not specified.
SATST0007 Natural Program not specified.
SATST0008 Natural Security user ID not specified.
SATST0009 Natural Security password not specified.
SATST0010 Skeleton Library not specified.
SATST0011 Skeleton Member not specified.
SATST0012 Subtask Name not specified.
SATST0013 NATPARMS Line exceeded.
SATST0014 NATENV parameter does not fit into one line.
SATST0015 NATENV Number of Lines exceeded.
SATST0016 Skeleton DBID not specified.
SATST0017 Skeleton FNR not specified.
SATST0018 Natural Batch Module not specified.
SATLF0051 Invalid function specified.
SATLF0052 No logical files currently available.
SATLF0053 Bad response from CMMPP call.
SATSS0101 Unknown status.
SATSS0102 Invalid System Type.
SATSS0103 Invalid Server Type.
SATSS0104 Subtask Name not specified.
SATSS0105 Jobname not specified.
SATSS0106 Jobnumber not specified.
SATPM0151 Please specify SAT node.
SATNT0201 Node not specified.
SATNT0202 Subtask name not specified.
SATNT0203 Natural Parameter not specified.
SATSF0251 Invalid SYSF value specified.
SATSJ0301 Skeleton Library not specified.

SATSJ0302 Skeleton Member not specified.
SATSJ0303 Skeleton DBID not specified.
SATSJ0304 Skeleton FNR not specified.
SATSJ0305 Invalid Skeleton.
SATSJ0306 Node not specified.
SATSJ0307 Natural Logon line not specified.
SATSJ0308 Natural Program Line not specified.
SATSJ0309 Invalid System Type.
SATSR0351 Invalid function specified.
SATSR0352 Library not specified.
SATSR0353 Member not specified.
SATSR0354 DBID not specified.
SATSR0355 FNR not specified.
SATSR0356 Name not specified.
SATSR0357 Type not specified.
SATSR0358 Parameter member not found.
SATKY0401 Line contains no key assignment.
SATMG0451 Resulting parm block is too long.
SATOP0501 Invalid System type.
SATOP0502 Node not specified.
SATMM0551 DBID not specified.
SATMM0552 FNR not specified.
SATMM0553 Library not specified.
SATMM0554 Member not specified.
SATMM0555 Name not specified.
SATMM0556 Type not specified.
SATMM0557 At least one block must be specified.
SATSP0601 Satlib not specified.
SATSP0602 Satmem not specified.
SATSP0603 ApplFnr specified but no ApplDbid.
SATSP0604 ApplDbid specified but no ApplFnr.
SATSP0605 No SATSTART entries found.
SATOS0651 Node not specified.
SATOS0652 Product System File (DBID) not specified.

SATOS0653 Product System File (FNR) not specified.
SATPA0701 SatDbid not specified.
SATPA0702 SatFnr not specified.
SATPA0703 Type not specified.
SATPA0704 No keywords specified.
SATPA0705 Library name missing.
SATPA0706 Member name missing.
SATPA0707 Prefix name missing.
SATPA0708 At least one block must be specified.
SATDR0751 Node not specified.
SATDR0752 SATDIR Member not found or no entry for this node.
SATDR0753 Invalid SATSYSF parameter.
SATMS0801 Invalid Message Type - 'N' or 'U' are valid.
SATMS0802 No error code specified.
SATMS0803 Bad response from call to 'USR0120N'.
SATMS0804 SAT LFILE is not set.
SATCP0851 From-member not specified.
SATCP0852 From-library not specified.
SATCP0853 From-DBID not specified.
SATCP0854 From-FNR not specified.
SATCP0855 To-library not specified.
SATCP0856 To-DBID not specified.
SATCP0857 To-FNR not specified.
SATNET901 SATNET Parameter Distribution Protocol.
SATNET902 Please press <ENTER> to start distribution.
SATNET903 Distribution in progress - please wait.
SATNET904 Distribution complete - no errors detected.
SATNET905 Distribution with errors - press enter for protocol.
SATNET906 No members for distribution found.
SATNET907 Duplicate entries in SATDIR found - terminating.
SATEL1001 Library not specified.
SATEL1002 Invalid DBID.
SATEL1003 Invalid FNR.
SATEL1004 Invalid Cipher Code.

SATDL1051 Node not specified.
SATDL1052 Product System File (DBID) not specified.
SATDL1053 Product System File (FNR) not specified.
SATAC1101 Error during REGISTER :1:.
SATAC1102 Abnormal termination during REGISTER :1:.
SATAC1103 Invalid conversation handle in function RECEIVE.
SATAC1104 Neither a handle nor ANY,OLD,NEW specified.
SATAC1105 Maximum number of conversations exceeded.
SATAC1106 Error during RECEIVE :1:.
SATAC1107 Abnormal termination during RECEIVE :1:.
SATAC1108 Error during Deregister :1:.
SATAC1109 Abnormal termination during Deregister :1:.
SATAC1110 Error during END CONVERSATION :1:.
SATAC1111 Abnormal termination during END CONVERSATION :1:.
SATAC1112 SendMessage - ACI invalid conv handle specified.
SATAC1113 SendMessage - ACI Neither conv handle nor NEW specified
SATAC1114 Error during SendMessage - ACI :1:.
SATAC1115 Abnormal termination during SendMessage - ACI :1:.
SATAC1116 Abnormal termination during DeleteMessage - ACI :1:.
SATWY1301 Abnormal termination during WaitForAnyMessage (ACI):1:
SATWY1302 Abnormal termination during WaitForAnyMessage (ESY):1:
SATWN1351 Abnormal termination during WaitForNewMessage (ACI):1:
SATWN1352 Abnormal termination during WaitForNewMessage (ESY):1:
SATWO1401 Abnormal termination during WaitForOldMessage (ACI):1:
SATWO1402 Abnormal termination during WaitForOldMessage (ESY):1:
SATWS1451 Abnormal termination during WaitForSpeMessage (ACI):1:
SATWS1452 Abnormal termination during WaitForSpeMessage (ESY):1:
SATPY1501 Abnormal termination during PollForAnyMessage (ACI):1:
SATPY1502 Abnormal termination during PollForAnyMessage (ESY):1:
SATPN1551 Abnormal termination during PollForNewMessage (ACI):1:
SATPN1552 Abnormal termination during PollForNewMessage (ESY):1:
SATPO1601 Abnormal termination during PollForOldMessage (ACI):1:
SATPO1602 Abnormal termination during PollForOldMessage (ESY):1:
SATPS1651 Abnormal termination during PollForSpeMessage (ACI):1:

SATPS1652 Abnormal termination during PollForSpeMessage (ESY):1:
SATEC1701 Invalid conversation handle specified.
SATEC1702 Conversation handle missing.
SATEC1703 Abnormal termination during EndConversation - ACI :1:
SATSY1751 Send reply not possible.
SATSY1752 Conversation handle missing.
SATSY1753 Abnormal termination during SendReply (ACI):1:.
SATFM1801 Abnormal termination during ForwardMessage (ACI):1:.
SATFM1802 Abnormal termination during ForwardMessage (ESY):1:.
SATSQ1851 Abnormal termination during SendRequest (ACI):1:.
SATSQ1852 Abnormal termination during SendRequest (ESY):1:.
SATSI1901 Server name not specified.
SATSI1902 Partner type not specified.
SATAD2001 Invalid ISN Lower Limit value specified.
SATAD2002 Invalid ISN Quantity value specified.
SATAD2003 Invalid number of ISNs specified.
SATAD2004 Invalid number of records in hold specified.
SATAD2005 Invalid CID value specified.
SATAD2006 Invalid time for execution of Sx specified.
SATRN2051 Library not specified.
SATRN2052 Member not specified.
SATRN2053 Member not found.

Messages and Codes in German

Messages and Codes
SATST0002 Node nicht angegeben.
SATST0003 Ungültiger Systemtyp.
SATST0004 Ungültiger Servertyp.
SATST0006 Natural Bibliothek nicht angegeben.
SATST0007 Natural Programm nicht angegeben.
SATST0008 Natural Security Benutzer-ID nicht angegeben.
SATST0009 Natural Security Passwort nicht angegeben.
SATST0010 Skelett Bibliothek nicht angegeben.
SATST0011 Skelett Member nicht angegeben.
SATST0012 Subtask Name nicht angegeben.
SATST0013 NATPARMS Zeile zu gross.
SATST0014 NATENV Parameter passt nicht in eine Zeile.
SATST0015 NATENV Zu viele Zeilen.
SATST0016 Skelett DBID nicht angegeben.
SATST0017 Skelett FNR nicht angegeben.
SATST0018 Natural Batch Modul nicht angegeben.
SATLF0051 Ungültige Funktion angegeben.
SATLF0052 Zur Zeit keine logischen Files frei.
SATLF0053 Fehler von CMMPP call.
SATSS0101 Status unbekannt.
SATSS0102 Ungültiger Systemtyp.
SATSS0103 Ungültiger Servertyp.
SATSS0104 Subtask Name nicht angegeben.
SATSS0105 Jobname nicht angegeben.
SATSS0106 Jobnummer nicht angegeben.
SATPM0151 Bitte SAT node angeben.
SATNT0201 Node nicht angegeben.
SATNT0202 Subtask name nicht angegeben.
SATNT0203 Natural Parameter nicht angegeben.
SATSF0251 Ungültiger SYSF Wert angegeben.
SATSJ0301 Skelett Bibliothek nicht angegeben.

SATSJ0302 Skelett Member nicht angegeben.
SATSJ0303 Skelett DBID nicht angegeben.
SATSJ0304 Skelett FNR nicht angegeben.
SATSJ0305 Ungültiges Skelett.
SATSJ0306 Node nicht angegeben.
SATSJ0307 Natural Logon Zeile nicht angegeben.
SATSJ0308 Natural Programm Zeile nicht angegeben.
SATSJ0309 Ungültiger Systemtyp.
SATSR0351 Ungültige Funktion angegeben.
SATSR0352 Bibliothek nicht angegeben.
SATSR0353 Member nicht angegeben.
SATSR0354 DBID nicht angegeben.
SATSR0355 FNR nicht angegeben.
SATSR0356 Name nicht angegeben.
SATSR0357 Typ nicht angegeben.
SATSR0358 Parameter Member nicht gefunden.
SATKY0401 Zeile enthält keine Schlüsselzuweisung.
SATMG0451 Resultierender parm block ist zu lang.
SATOP0501 Falscher Systemtyp.
SATOP0502 Node nicht angegeben.
SATMM0551 DBID nicht angegeben.
SATMM0552 FNR nicht angegeben.
SATMM0553 Bibliothek nicht angegeben.
SATMM0554 Member nicht angegeben.
SATMM0555 Name nicht angegeben.
SATMM0556 Typ nicht angegeben.
SATMM0557 Mindestens ein Block muß angegeben sein.
SATSP0601 Satlib nicht angegeben.
SATSP0602 Satmem nicht angegeben.
SATSP0603 ApplFnr angegeben jedoch ohne ApplDbid.
SATSP0604 ApplDbid angegeben, jedoch keine ApplFnr.
SATSP0605 Keine SATSTART Anweisungen gefunden.
SATOS0651 Knoten nicht angegeben.
SATOS0652 Produktdatei (DBID) nicht angegeben.

SATOS0653 Produktdatei (FNR) nicht angegeben.
SATPA0701 SatDbid nicht angegeben.
SATPA0702 SatFnr nicht angegeben.
SATPA0703 Typ nicht angegeben.
SATPA0704 Keine Schlüsselworte angegeben.
SATPA0705 Bibiotheksname fehlt.
SATPA0706 Membername fehlt.
SATPA0707 Präfix fehlt.
SATPA0708 Mindestens ein Block muß angegeben sein.
SATDR0751 Knoten nicht angegeben.
SATDR0752 SATDIR nicht gefunden oder kein Eintrag für den Knoten.
SATDR0753 Falsche Angabe im SATSYSF Parameter.
SATMS0801 Ungültiger Meldungstyp - ''N'' oder ''U'' sind gültig.
SATMS0802 Fehlercode nicht angegeben.
SATMS0803 Fehler beim Aufruf von 'USR0120N'.
SATMS0804 SAT LFILE ist nicht gesetzt.
SATCP0851 From-member nicht angegeben.
SATCP0852 From-library nicht angegeben.
SATCP0853 From-DBID nicht angegeben.
SATCP0854 From-FNR nicht angegeben.
SATCP0855 To-library nicht angegeben.
SATCP0856 To-DBID nicht angegeben.
SATCP0857 To-FNR nicht angegeben.
SATNET901 Protokoll SATNET Parameter-Verteilung
SATNET902 Bitte <FREIGABE> drücken um Verteilung zu starten.
SATNET903 Verteilung läuft - bitte warten.
SATNET904 Verteilung beendet - keine Fehler aufgetreten.
SATNET905 Verteilung fehlerhaft - <FREIGABE> für Protokoll.
SATNET906 Keine Member zur Verteilung gefunden.
SATNET907 Doppelte Einträge in SATDIR - keine Verteilung.
SATEL1001 Natural-Bibliothek nicht angegeben.
SATEL1003 Falsche DBID.
SATEL1003 Falsche FNR.
SATEL1004 Angabe im Chiffrierschlüssel nicht numerisch.

SATDL1051 Knoten nicht angegeben.
SATDL1052 Produktdatei (DBID) nicht angegeben.
SATDL1053 Produktdatei (FNR) nicht angegeben.
SATAC1101 Fehler während der Funktion REGISTER :1:.
SATAC1102 Programmabbruch während der Funktion REGISTER :1:.
SATAC1103 Unbekannte Konversation in der Funktion RECEIVE.
SATAC1104 Keine gültige Konversation noch ANY,OLD, NEW angegeben
SATAC1105 Maximale Anzahl von Verbindungen überschritten.
SATAC1106 Fehler während der Funktion RECEIVE :1:.
SATAC1107 Programmabbruch bei der Funktion RECEIVE :1:.
SATAC1108 Fehler während der Funktion Deregister :1:.
SATAC1109 Programmabbruch bei der Funktion Deregister :1:.
SATAC1110 Fehler während der Funktion END CONVERSATION :1:.
SATAC1111 Programmabbruch bei der Funktion END CONVERSATION :1:.
SATAC1112 SendMessage - ACI unbekannte Konversation angegeben.
SATAC1113 SendMessage - ACI weder gült. Konv. noch NEW angegeben
SATAC1114 Fehler während der Funktion SendMessage - ACI :1:.
SATAC1115 Programmabbruch bei der Funktion SendMessage - ACI :1:.
SATAC1116 Programmabbruch bei Funktion DeleteMessage - ACI :1:.
SATCOM.. Meldungen 1200 - 1249 reserviert für SATCOM.
SATWY1300 Meldungen 1300 - 1349 reserviert für SATWY.
SATWY1301 Programmabbruch bei WaitForAnyMessage (ACI):1:.
SATWY1302 Programmabbruch bei WaitForAnyMessage (ESY):1:.
SATWN1302 Programmabbruch bei WaitForNewMessage (ESY):1:.
SATWN1350 Meldungen 1350 - 1399 reserviert für SATWN.
SATWN1351 Programmabbruch bei WaitForNewMessage (ACI):1:.
SATWO1400 Meldungen 1400 - 1449 reserviert für SATWO.
SATWO1401 Programmabbruch bei WaitForOldMessage (ACT):1:.
SATWO1402 Programmabbruch bei WaitForOldMessage (ESY):1:.
SATWS1450 Meldungen 1450 - 1499 reserviert für SATWS.
SATWS1451 Programmabbruch bei WaitForSpeMessage (ACI):1:.
SATWS1452 Programmabbruch bei WaitForSpeMessage (ESY):1:.
SATPY1500 Meldungen 1500 - 1549 reserviert für SATPY.
SATPY1501 Programmabbruch bei PollForAnyMessage (ACI):1:.

SATPY1502 Programmabbruch bei PollForAnyMessage (ESY):1:.
SATPN1550 Meldungen 1550 - 1599 reserviert für SATPN.
SATPN1551 Programmabbruch bei PollForNewMessage (ACI):1:.
SATPN1552 Programmabbruch bei PollForNewMessage (ESY):1:.
SATPO1600 Meldungen 1600 - 1649 reserviert für SATPO.
SATPO1601 Programmabbruch bei PollForOldMessage (ACI):1:.
SATPO1602 Programmabbruch bei PollForOldMessage (ESY):1:.
SATPS1650 Meldungen 1650 - 1699 reserviert für SATPS.
SATPS1651 Programmabbruch bei PollForSpeMessage (ACI):1:.
SATPS1652 Programmabbruch bei PollForSpeMessage (ESY):1:.
SATEC1700 Meldungen 1700 - 1749 reserviert für SATEC:
SATEC1701 Unbekannte Konversation angegeben.
SATEC1702 Fehlende Konversation.
SATEC1703 Programmabbruch bei EndConversation - ACI :1:.
SATSY1750 Meldungen 1750 - 1799 reserviert für SATSY.
SATSY1751 Send-Reply nicht möglich.
SATSY1752 Fehlende Konversation.
SATSY1753 Programmabbruch bei der Funktion SendReply (ACI):1:.
SATSY1754 Programmabbruch bei der Funktion SendReply (ESY):1:
SATFM1800 Meldungen 1800 - 1849 reserviert für SATFM.
SATFM1801 Programmabbruch bei ForwardMessage (ACI):1:.
SATFM1802 Programmabbruch bei ForwardMessage (ESY):1:.
SATSQ1850 Meldungen 1850 - 1899 reserviert für SATSQ.
SATSQ1851 Programmabbruch bei der Funktion SendRequest (ACI):1:.
SATSQ1852 Programmabbruch bei der Funktion SendRequest (ESY):1:.
SATSI1901 Server-Name nicht angegeben.
SATSI1902 Partner-Typ nicht angegeben.
SATAD2001 Falsches 'ISN Lower Limit' angegeben.
SATAD2002 Falsche 'ISN Quantity'-Angabe.
SATAD2003 Falsche 'Number of ISNs'-Angabe.
SATAD2004 Falsche 'Number of Records in hold'-Angabe.
SATAD2005 Falscher CID-Wert.
SATAD2006 Falsche Ausführungszeit für Sx.
SATRN2051 Library nicht angegeben.

SATRN2052 Member nicht angegeben.

SATRN2053 Member nicht gefunden.

Installing System Automation Tools / Unix

This section describes System Automation Tools (SAT) and its installation on UNIX platforms.

It covers the following topics:

- Overview
 - Installation of Application SYSSAT
 - SYSSAT Library Files
-

Overview

Prerequisites

- **Memory**
There is no specific memory requirement for operating the product;
- **Disk Space**
The application SYSSAT requires approximately 4 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 3.1.1 PL 1 or above;
Adabas for UNIX, Version 2.2.3 or above.

Environment Variables

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

Environment Variable	Explanation
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:

Environment Variable	Explanation
SATDIR	SYSSAT base directory (default: \$SAG/sat)
SATVERS	SYSSAT 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.

For the correct setting of the NATUSER environment variable, see the subsection SYSSAT Library Files.

Directory Structure

After unpacking the **cpio** installation file, the following System Automation Tools directory structure is generated:

SAG				\$SAG
	sat			\$SATDIR
		V232		\$SATVERS
			INSTALL	Installation script directory
			lib	Special library files for System Automation Tools

The following table outlines the contents of the System Automation Tools version directories:

\$SATDIR/\$SATVERS Directory

Directory	Explanation
INSTALL	Directory containing the shell scripts and other files to be used during the installation of System Automation Tools.
lib	This directory contains some special library files for System Automation Tools. See the subsection SYSSAT 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 <satv232.cpio
```

The directory structure for SYSSAT will be created.

To invoke the installation menu

- Use

```
setenv SATDIR $$SAG/sat
setenv SATVERS v232
cd $$SATDIR/$$SATVERS/INSTALL
inssat.bsh
```

The following menu appears:

```
                SYSTEM AUTOMATION TOOLS (SAT)
                Installation Main Menu

                1.  Install Application SYSSAT

                9.  Exit

                Select Option:
```

Installation of Application SYSSAT

This menu item contains the creation of the application SYSSAT in your Natural FNAT directory. In addition, the shared library will be copied automatically to NATEXTLIB.

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, as well as to the directory specified by the NATEXTLIB parameter within the local configuration file NATURAL.INI (see **Path to Binary Libraries of Software AG Products** in the related section of the **Natural Installation and Operations Documentation for UNIX**).

Menu-driven Installation

▶ To invoke the installation menu

- Use:

```
cd $SATDIR/$SATVERS/INSTALL
inssat.bsh
```

After Execution of the Shell Script

- Modify the setting of the environment variables SATDIR, SATVERS, SAT_LIB and NATUSER so that they conform with the variables generated in the **satenv** script, or invoke **satenv** in your logon scripts. The **satenv** script can be found in the INSTALL subdirectory.
- Create a Natural text member SATSRV as described in the following section.

Customizing the SATSRV Text Member

You must customize the SATSRV text member in the Natural library SYSSATU to contain the required parameter definitions for System Automation Tools. Example definitions can be found in the member SATSRVEX in the SYSSATU library:

```
* Example of a service definition (via Entire Broker)
*
<node_nam1> SATSRV TYPE=ACI
    BROKER-ID=<broker-id>
    SERVER-CLASS=NPR
    SERVER-NAME=<SERVER>
    SERVICE=<service_nam1>
    USER-ID=<SERVER>
    WAIT-TIME=30S
```

```
*
* Example of a service definition (local mode)
*
<node_nam2> SATSRV TYPE=ACI
    BROKER-ID=IDLE
    SERVER-CLASS=NPR
    SERVER-NAME=LOCAL
    SERVICE=<service_nam2>
    USER-ID=<SERVER>
    WAIT-TIME=30S
```

Note for Entire Operations:

In each of the above blocks, the identifier denoted by <node_namx> must correspond to the node name specified in the Entire Operations node table (see the section Definition of Nodes in Section System Administrator Services of the Entire Operations Administration Documentation), and the specified <service_namx> must correspond to a section name within the **npr.ini** file on the target system. It is recommended (but not required) that you choose the same identifiers for node names and service names, that is for <node_namx> and for the corresponding value of <service_namx>.

If you are installing System Automation Tools for the first time, proceed as follows:

1. Invoke Natural.
2. Log on to the SYSSATU library.
3. Issue the direct command: E SATSRVEX.
4. Adapt the parameter definitions.
5. Enter the command: SAVE SATSRV.
6. Press Enter.

For information on how to use members with different names, see Section SAT in Client/Server Environments.

Required Definitions for Accessing Services via Entire Broker

For each service that is to be accessed, you need one section of parameter definitions. The first section within the member SATSRVEX can be used as a template for this purpose. For further information, see Section SAT in Client/Server Environments.

Required Definitions for Local Service

To access a service in local mode (without using Entire Broker), certain parameter definitions are required. Copy the second section of the example in the member SATSRVEX into the member SATSRV and replace **service_nam2** with a name of your choice.

SYSSAT Library Files

Environment Variable	Explanation
natsat.*	<p>A shared library, whose complete path must be appended to the NATUSER environment variable after the installation, if your Natural version is lower than 2.2.1 PL22.</p> <p>This shared library is required for the execution of ESM Natural applications. The name suffix is: .sl for HP-UX and .so for AIX and SINIX.</p>

Installation and Operations of Entire System Server / UNIX and Windows NT

This section covers the following topics:

- Installation of Entire System Server / UNIX
- Installation of Entire System Server / Windows NT
- Operations of Entire System Server / UNIX and Windows NT

Installation of Entire System Server / UNIX

This subsection 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.

It covers the following topics:

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

Overview

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.

5. 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 subsection 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 subsection 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 **npreth.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.