



SYSTEMS MANAGEMENT

System Automation Tools

Installation

Version 3.1.2



This document applies to Version 3.1.2 of System Automation Tools. Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

© June 2002, Software AG
All rights reserved

Software AG and/or all Software AG products are either trademarks or registered trademarks of Software AG. Other products and company names mentioned herein may be the trademarks of their respective owners.

Table of Contents

| | |
|--|----|
| Introduction | 1 |
| Introduction | 1 |
| Operating System Designations | 1 |
| System Automation Tools 3.1.2 Release Notes | 2 |
| System Automation Tools 3.1.2 Release Notes | 2 |
| Introduction | 2 |
| Migrating from Previous Versions | 2 |
| Migration of Data | 2 |
| Prerequisites | 2 |
| Compatibility and Migration | 2 |
| SAGSIS Problems | 3 |
| Enhancements and New Features | 3 |
| SAT Log File | 3 |
| Installing SAT / Mainframe | 4 |
| Installing SAT / Mainframe | 4 |
| SAT Concepts | 5 |
| SAT Concepts | 5 |
| Installing System Automation Tools | 6 |
| Installing System Automation Tools | 6 |
| Installation Jobs | 6 |
| Using System Maintenance Aid | 6 |
| Prerequisites | 7 |
| Prerequisites | 7 |
| Installation Tape | 8 |
| Installation Tape | 8 |
| Contents of the Installation Tape | 8 |
| OS/390 | 8 |
| BS2000/OSD | 8 |
| VSE/ESA | 9 |
| Storage Requirements | 10 |
| Storage Requirements | 10 |
| OS/390 | 10 |
| BS2000/OSD | 10 |
| VSE/ESA | 10 |
| Copying the Tape Contents to Disk | 11 |
| Copying the Tape Contents to Disk | 11 |
| OS/390 | 11 |
| BS2000/OSD | 12 |
| Step 1 | 12 |
| Step 2 | 13 |
| VSE/ESA | 13 |
| Installation Procedure | 15 |
| Installation Procedure | 15 |
| Step 1: Load SAT System File | 15 |
| Step 2: Scratch SAT Library | 15 |
| Step 3: Create NATPARM Module | 15 |
| Step 4: Link Natural Subtask/Batch | 16 |
| OS/390 | 17 |
| BS2000/OSD | 18 |
| VSE/ESA | 18 |
| Step 5: Load the INPL and ERRN Files | 19 |
| Natural Security Environment | 19 |
| Non-Natural Security Environment | 19 |

| | |
|--|-----------|
| Step 6: Create NATPARM Module | 19 |
| Step 7: Relink all Online Natural Nuclei | 20 |
| Natural Security Definitions | 21 |
| Natural Security Definitions | 21 |
| Applications | 21 |
| User | 21 |
| External Security Definitions | 22 |
| External Security Definitions | 22 |
| OS/390 only | 22 |
| Define SAT, Natural, Product Parameters | 23 |
| Define SAT, Natural, Product Parameters | 23 |
| General | 24 |
| General | 24 |
| General Layout of a Parameter Block | 25 |
| General Layout of a Parameter Block | 25 |
| Examples | 25 |
| Long DB Ids and File Numbers | 26 |
| Long DB Ids and File Numbers | 26 |
| Long DB Ids and File Numbers | 27 |
| Long DB Ids and File Numbers | 27 |
| Parameter Blocks and Parameters | 28 |
| Parameter Blocks and Parameters | 28 |
| Table of Parameter Blocks and Parameters | 28 |
| Example | 29 |
| SAT Environment Settings | 30 |
| Natural Environment Settings | 30 |
| Product Environment Settings | 30 |
| Product Automatic Start | 31 |
| Contents of Member NOPPARMS in SYSSATU | 31 |
| SAT Directory Member - SATDIR | 32 |
| SAT Directory Member - SATDIR | 32 |
| General | 32 |
| SAT in Distributed Computing Environment | 32 |
| Explanation | 32 |
| General Description of SATDIR | 32 |
| General Description of SATNET | 33 |
| SAT in Client/Server Environments | 35 |
| SAT in Client/Server Environments | 35 |
| Client/Server Processes Communication | 35 |
| Addressing | 35 |
| Example | 35 |
| SATSRV Parameters | 36 |
| Example: SATSRV Parameters | 36 |
| Starting a Server | 37 |
| Starting a Server | 37 |
| ONLINE-Start | 37 |
| AUTO-START | 37 |
| For OS/390 and VSE/ESA | 37 |
| For BS2000/OSD | 37 |
| For OS/390 and VSE/ESA | 38 |
| For BS2000/OSD | 38 |
| Starting Servers with TYPE=SUBTASK | 39 |
| Starting Servers with TYPE=BATCH | 40 |
| Messages and Codes | 41 |
| Messages and Codes | 41 |

| | |
|--|----|
| Messages and Codes in English | 42 |
| Messages and Codes in English | 42 |
| Messages and Codes in German | 47 |
| Messages and Codes in German | 47 |
| Installing SAT / UNIX | 52 |
| Installing SAT / UNIX | 52 |
| Overview | 52 |
| Prerequisites | 52 |
| Environment Variables | 52 |
| Directory Structure | 53 |
| Main Menu | 53 |
| Installation of Application SYSSAT | 54 |
| Menu-driven Installation | 54 |
| After Execution of the Shell Script | 55 |
| Customizing the SATSRV Text Member | 55 |
| Accessing Services via Entire Broker | 56 |
| Accessing Local Service | 56 |
| SYSSAT Library Files | 56 |
| Installation and Operations of Entire System Server on UNIX and Windows Platforms | 57 |
| Installation and Operations of Entire System Server on UNIX and Windows Platforms | 57 |
| Installing and Setting up Entire System Server on UNIX Platforms | 58 |
| Installing and Setting up Entire System Server on UNIX Platforms | 58 |
| Overview | 59 |
| Overview | 59 |
| General Information | 60 |
| General Information | 60 |
| Prerequisites | 60 |
| Installation Package | 60 |
| Installation Steps | 60 |
| Entire System Server Directory Structure | 62 |
| Entire System Server Directory Structure | 62 |
| Directory Structure | 62 |
| \$NPRDIR/\$NPRVERS Directory | 62 |
| \$NPRDIR/\$NPRVERS/bin Directory | 62 |
| \$NPRDIR/\$NPRVERS/INSTALL Directory | 63 |
| \$NPRDIR/\$NPRVERS/lib Directory | 63 |
| \$NPRDIR/\$NPRVERS/test Directory | 64 |
| Setting up Entire System Server Components | 65 |
| Setting up Entire System Server Components | 65 |
| Overview of Steps for Setting up Entire System Server on UNIX | 65 |
| Step 1: Read the README File | 65 |
| Step 2: Customize Entire Broker | 65 |
| Step 3: Establish Environment Variables | 66 |
| Step 4: Customize the NPR Server | 66 |
| Settings within a Section | 67 |
| [<npr identifier>] section settings | 68 |
| Step 5: Start Work with Entire System Server | 69 |
| Starting a Server | 70 |
| Stopping a Server | 70 |
| Product Operation: The NPRMGR Utility | 71 |
| Product Operation: The NPRMGR Utility | 71 |
| NPRMGR Utility Functions | 71 |
| Usage | 71 |
| Starting the Server of a UNIX Service | 71 |
| Querying the Status of a Service | 72 |
| Stopping the Server of a Service | 72 |

| | |
|--|----|
| Installing and Setting up Entire System Server on Windows Platforms | 73 |
| Installing and Setting up Entire System Server on Windows Platforms | 73 |
| Overview | 74 |
| Overview | 74 |
| General Information | 75 |
| General Information | 75 |
| Prerequisites | 75 |
| Installation Package | 75 |
| Installation Steps | 75 |
| Environment Variables | 75 |
| Registry Modifications | 76 |
| Entire System Server Directory Structure | 77 |
| Entire System Server Directory Structure | 77 |
| Directory Structure | 77 |
| %NPRDIR%\%NPRVERS% Directory | 77 |
| %NPRDIR%\%NPRVERS%\bin Directory | 77 |
| %NPRDIR%\%NPRVERS%\work Directory | 78 |
| Setting up Entire System Server Components | 79 |
| Setting up Entire System Server Components | 79 |
| Overview of Steps for Setting up Entire System Server on Windows | 79 |
| Step 1: Read the README File | 79 |
| Step 2: Customize Entire Broker | 79 |
| Step 3: Customize the NPR Server | 80 |
| [DEFAULTS] Section Settings | 80 |
| [<npr identifier>] section settings | 81 |
| Step 4: Adapt the Windows Registry | 82 |
| Step 5: Start Work with Entire System Server | 83 |
| Product Operation: Windows Service Usage | 84 |
| Product Operation: Windows Service Usage | 84 |
| Accessing Windows Services Control Panel | 84 |
| Starting the Server | 84 |
| Querying the Status of a Server | 84 |
| Stopping the Server | 85 |
| Windows Event Logging | 85 |
| Operations of Entire System Server on UNIX and Windows Platforms | 86 |
| Operations of Entire System Server on UNIX and Windows Platforms | 86 |
| Handling of Entire Broker Error Codes | 86 |

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 |

System Automation Tools 3.1.2 Release Notes

This section covers the following topics:

- Introduction
 - Migrating from Previous Versions
 - Prerequisites
 - Compatibility and Migration
 - SAGSIS Problems
 - Enhancements and New Features
-

Introduction

These Release Notes inform you of the enhancements and new features that are provided with System Automation Tools Version 3.1.2.

If not mentioned in separate release notes, the notes apply to all supported operating systems: OS/390, VSE/ESA, BS2000/OSD, UNIX (HP-UX, Reliant Unix, AIX, Sun Solaris) as well as Managed Nodes under Windows (Intel).#####

Migrating from Previous Versions

Migration of Data

The old proprietary NOP and NOM log files can be migrated to the SAT log file format by using product-specific utility programs. Special installations job will be provided with these products.

Prerequisites

System Automation Tools 3.1.2 requires

- Adabas Version 7.1.2 or above (on UNIX Version 3.1 or above);
- Natural Version 3.1.4 or above, including the Software AG Editor component (on UNIX Version 5.1 or above);
- Entire System Server Version 3.1.1 or above;
- Entire System Server for Unix 2.1.1.05 and above (optional);
- Natural Security (same as NAT) (optional); for UTM users under BS2000/OSD Natural Security is required;
- Entire Network 5.6.1 or above (optional, for multi-CPU support).

Compatibility and Migration

With the release of System Automation Tools 3.1.2, versions below and equal to 3.1.1 can no longer be supported. You are, therefore, strongly advised to switch to the current version at your earliest convenience.

SAGSIS Problems

All solved problems of Version 3.1.1 and below are included in this release.

Enhancements and New Features

- SAT Log File

SAT Log File

The purpose of the new SAT log file is to provide a common log layout for the ESM products.

All log entries will be written with a product identifier and a monitor identifier (resp. user identifier). Their origin can always be reconstructed.

The logical file number (LFILE) of the SAT log file is **131**.

The following products use the new SAT Log File as replacement of their own proprietary log file formats:

- Entire Operations (Version 4.1.1 and higher);
- Entire Output Management (Version 2.1.1 and higher).

One or Several SAT Log Files

If you have **both Entire Operations and Entire Output Management**, you have the installation choices:

- One physical log file for both products;
- Separate log files for the products.

The behaviour of log writing, reading, and browsing within the products is the same in both cases.

Installing SAT / 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
- Define SAT, Natural, 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

This subsection covers the following topics:

- Installation Jobs
 - Using System Maintenance Aid
-

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 7.1.2 or higher (on UNIX 3.1 or higher);
- Natural 3.1.4 or higher (on UNIX 5.1 or higher);
- Entire System Server 3.1.1 or higher;
- Natural Security (optional);
- Entire Net-work (optional).

Installation Tape

This subsection covers the following topics:

- Contents of the Installation Tape
- OS/390
- BS2000/OSD
- VSE/ESA

Contents of the 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
 - BS2000/OSD
 - VSE/ESA
-

OS/390

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

BS2000/OSD

| File Name | Type | Storage Space |
|-----------------|------|---------------|
| SAT nnn .JOBS | PAM | 144 PAM pages |
| SAT nnn .INPL | SAM | 288 PAM pages |
| SAT nnn .ERRN | SAM | 33 PAM pages |
| SAT nnn .SYSF | SAM | 48 PAM pages |

VSE/ESA

| File Name | Type | Space on 3380 Disk |
|-----------------|------|--------------------|
| SAT nnn .LIBR | SEQ | 2 tracks |
| SAT nnn .INPL | SEQ | 14 tracks |
| SAT nnn .ERRN | SEQ | 1 track |
| SAT nnn .SYSF | SEQ | 20 tracks |

Copying the Tape Contents to Disk

This subsection covers the following topics:

- OS/390
- BS2000/OSD
- VSE/ESA

OS/390

If you are using System Maintenance Aid (SMA), refer to the SMA documentation (included on the current edition of the Natural documentation CD).

If you are not using SMA: Follow the instructions below.

This section explains how to:

- Copy data set COPY.JOB from tape to disk.
- Modify this data set to conform with your local naming conventions.

The JCL in this data set is then used to copy all data sets from tape to disk. After that, you will have to perform the individual install procedure for each component.

Step 1 - Copy data set COPY.JOB from tape to disk

The data set COPY.JOB (label 2) contains the JCL to unload all other existing data sets from tape to disk. To unload COPY.JOB, use the following sample JCL:

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

Where:

<hilev> is a valid high level qualifier

<Tnnnnn> is the tape number

<vvvvvv> is the desired volser

Step 2 - Modify COPY.JOB to conform with your local naming conventions

There are three parameters you have to set before you can submit this job:

- Set HILEV to a valid high level qualifier.
- Set LOCATION to a storage location.
- Set EXPDT to a valid expiration date.

Step 3 - Submit COPY.JOB

Submit COPY.JOB to unload all other data sets from the tape to your disk.

BS2000/OSD

- Step 1
- Step 2

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 SAT $nnn$ .JOBS,VOL=xxxxxxx,DEV=T9G -
/      ,BLKSIZE=,RECSIZE=,RECFORM=,FCPTYPE= -
/      ,STATE=FOREIGN,FSEQ=YYY,LINK=PCIN
/FILE P.SAT $nnn$ ,LINK=PCOUT
/EXEC PERCON
END
```

If you use EDT, issue the following commands:

```
/FILE SAT $nnn$ .JOBS,VOL=xxxxxxx,DEV=T9G -
/      ,BLKSIZE=,RECSIZE=,RECFORM= -
/      ,STATE=FOREIGN,FSEQ=YYY,LINK=EDTSAM
/EXEC EDT
@ READ '/'
@ SY '/REL EDTSAM'
@ WRITE 'P.SAT $nnn$ '
@ 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
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,PARM='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 $(3 * \text{file-no}) - 2$, 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

This subsection covers the following topics:

- Step 1: Load SAT System File
- Step 2: Scratch SAT Library
- Step 3: Create NATPARM Module
- Step 4: Link Natural Subtask/Batch
- Step 5: Load the INPL and ERRN Files
- Step 6: Create NATPARM Module
- Step 7: Relink all Online Natural Nuclei

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 being installed for the first time.

For the ADALOD utility use the following parameters:

| Parameter | Value |
|-----------|--------|
| MAXISN | 100000 |
| DSSIZE | 10 |
| UISIZE | 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 and scratch the error messages with the SYSERR utility.

Step 3: Create NATPARM Module

(for Natural Subtask/Batch, for OS/390 and VSE/ESA only)

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 | Extended work area size. |
| | ASIZE=64 | Entire System Server work area size. Choose a value between 48 and 64 ¹ . |
| | DATSIZE=90 | Local data |
| | CDYNAM=10 | Number of dynamic loaded modules. |
| | MAXCL=0 | Max. program calls (no limit) |
| | MADIO=0 | Maximum DBMS calls (no limit) |
| | ETEOP=OFF | No ET at end of program |
| | WH=ON | WAIT on HOLD, NAT314 |
| | IM=D | Set input mode |
| | MT=0 | Max. CPU time: no limit |
| | LS=132 | Line Size |
| | PS=66 | Page Size |
| NTFILE | ID=204,DBID=satdbid, FNR=satfnr | Locates main member ² . |
| 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= <i>nnn</i> instead of NAME= to use a local buffer pool (for NOM/ NCL only). Note: If you use a local buffer pool, the parameter SIZE must be 512 or higher. |
| NTPRINT | NTPRINT (1-4),AM=STD, OPEN=ACC | Printer definition. |
| NTWORK | (1-4),AM=STD | Work file definition (for NOM only) |

¹ See the minimum values for Entire System Server.

² Must point to the FNAT to which SYSSAT was loaded.

Step 4: Link Natural Subtask/Batch

(Job I060: Step 3720 - Subtask / Step 0020 - Batch)

- OS/390
- BS2000/OSD
- VSE/ESA

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

- For NPR and Natural
- For NOM

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 NPR and Natural

The following example applies to NPR 3.1.1 and above together with Natural 3.1.4 and above. It demonstrates 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

For NPR and Natural

- 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. |

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

For NPR and Natural

The following example applies to NPR 3.1.1 and above together with Natural 3.1.4 and above. It demonstrates how to 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

For NPR and Natural

- 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 NPR and Natural

The following example applies to NPR 3.1.1 and above together with Natural 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 LNKVSR | Adabas interface |
| INCLUDE ... | Product-specific INCLUDEs |

Step 5: Load the INPL and ERRN Files

(Job I061, Steps 3700 and 3702)

- Natural Security Environment
- Non-Natural Security Environment

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.

Natural Security Environment

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

Non-Natural 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 | Extended work area size |
| | SSIZE=60 | Software AG Editor work area size |
| | ASIZE=64 | Entire System Server work area size. Choose a value between 48 and 64. |
| | DATSIZE=90 | Local data ¹ . |
| | CDYNAM=10 | Number of dynamic loaded modules. |
| | MAXCL=0 | Entries for SAT products ² . Max. program calls (no limit) |
| | MADIO=0 | Maximum DBMS calls (no limit) |
| | ETEOP=OFF | No explicit Open |
| | WH=ON | WAIT on HOLD, NAT314 |
| | IM=D | Set input mode |
| | MT=0 | Max. CPU time: no limit |
| | LS=132 | Line Size |
| | PS=66 | Page Size |
| NFILE | ID=204,DBID=satdbid, FNR=satfnr | Locates main member ³ . |
| NFILE | 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. Note: If you use a local buffer pool, the parameter SIZE must be 512 or higher. |

- 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
 - User
-

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.

Define SAT, Natural, Product Parameters

This section covers the following topics:

- General
- General Layout of a Parameter Block
- Long DB Ids and File Numbers
- Parameter Blocks and Parameters
- SAT Directory Member - SATDIR
- SAT in Client/Server Environments

General

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 the section System Configuration in the Natural ISPF 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.

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

This subsection covers the following topics:

- Table of Parameter Blocks and Parameters
 - Example
 - SAT Environment Settings
 - Natural Environment Settings
 - Product Environment Settings
 - Product Automatic Start
 - Contents of Member NOPPARMS in SYSSATU
-

Table of 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 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. |
| | APLLIB= | 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=SAT312ST NATBATCH=NAT314BA NATSKEL=JSKELVSE ESYUSER=NOMMON NSC=YES NSCUSER=NOMMON NSCPSWD=NOMMON STEPLIB1=(SYSLIBS,dbid,fnr) STEPLIB2=(SYSEXT,dbid,fnr) STEPLIB3=(SYSTEM,dbid,fnr) | 1 |
| NCL212 * | SATENV | NATTASK=NSATT08 NSC=NO ESYUSER=NCLMON | 2 |
| NOM211 * | SATENV | NATTASK=NSATT08 NSC=NO ESYUSER=NOMMON | 2 |
| NOP411 * | SATENV | NSC=NO ESYUSER=NOPMON JOBPREF=zzz | 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 |
| NOP411 * | NATENV | FNAT=(9,45) | 4 |

Product Environment Settings

| | | | |
|--------|--------|----------------|---|
| NOM211 | 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=31 PRODUCT=NOP APPLID=SYSEOR PREFIX=411 /* EOR 411 SUBTASK TYPE=SUBTASK APPLLIB=SYSEOR SERVSYSF=(9,65) | 5 |

Contents of Member NOPPARMS in SYSSATU

| | | | |
|-------------|--------|---|---|
| NOP411 * | SATENV | NSC=YES, NSCUSER=NOPMON, NSCPSWD=HUGO | 6 |
| NOP411 * | 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, NOM211 and NOP411 respectively.
- ³ Sets the NAT defaults for all SAT products.
- ⁴ Overwrites some NAT values for NCL212, NOM211 and NOP411 respectively.
- ⁵ Specifies that the servers for NCL212, NOM211 and NOP411 respectively should be started as subtasks.
- ⁶ Overwrites some SAT defaults for NOP411 only.
- ⁷ Overwrites some NAT defaults for NOP411 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).

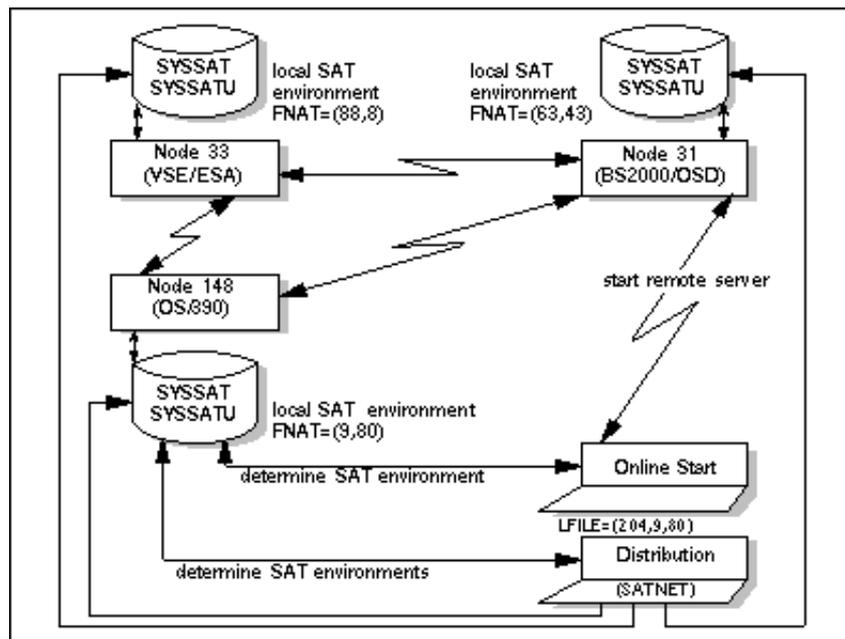
SAT Directory Member - SATDIR

- General
- SAT in Distributed Computing Environment
- Explanation
- General Description of SATDIR
- General Description of SATNET

General

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.

SAT in 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 and 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 $nmn$  SATDIR SATSYSF=( $\langle$ SATDBID $\rangle$ , $\langle$ SATFNR $\rangle$ )
```

where:

```
 $nmn$  = 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)
```

These three lines reflect the scenario above.

General Description of SATNET

In a distributed computing environment, this program can be used to copy SAT parameters from a central point to all other SAT files in the system. In this way, remote nodes can use local SAT files and do not depend on the central data base being active.

SATNET copies all sources in the SYSSATU library to all target environments as defined in the member SATDIR. A protocol is written to the member SATPROT in the SYSSATU library.

Invoke SATNET online. The following screen appears:

```

14:21:20                - SAT Parameter Distribution -                2001-11-15

Member    DBID    FNR    Message
-----

SATNET902 Please press <ENTER> to start distribution.
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help          End
    
```

Press Enter.

The distribution is started. The Natural members copied are scrolled from the bottom of the screen towards the top:

```

14:31:38                - SAT Parameter Distribution -                2001-11-15

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

This subsection covers the following topics:

- Client/Server Processes Communication
- Addressing
- SATSRV Parameters

Client/Server Processes Communication

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 the **section 1** of the **Entire Broker Administration Documentation**.

Addressing

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.

Example

- 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

- For OS/390 and VSE/ESA
- For BS2000/OSD
- For OS/390 and VSE/ESA
- For BS2000/OSD
- Starting Servers with TYPE=SUBTASK
- Starting Servers with TYPE=BATCH

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
STRNTNP1=STACK=(LOGON SYSSAT,<NSC-USERID>,<NSC-PASSWORD>;
STRNTNP2=SATSTART;FIN),AUTO=OFF
```

or, if Natural Security is not installed:

```
STRNTNP1=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, in the address space of Entire System Server (OS/390, VSE/ESA), a subtask is started 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:

pppnnrr

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

The messages are sorted in numerical order by their numbers.

The selection box provides a list of hyperlinks that enables you to jump direct to a specific parameter.

To view a specific message

- Click on a topic in the alphabetical list below:

| 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

The messages are sorted in numerical order by their numbers.

The selection box provides a list of hyperlinks that enables you to jump direct to a specific parameter.

To view a specific message

- Click on a topic in the alphabetical list below:

| 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 Bibliotheksname 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 unbekannt 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 SAT / 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
- Environment Variables
- Directory Structure
- Main Menu

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

- Menu-driven Installation
- After Execution of the Shell Script
- Customizing the SATSRV Text Member
- Accessing Services via Entire Broker
- Accessing Local Service

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 the 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 the section SAT in Client/Server Environments.

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 the section SAT in Client/Server Environments.

Accessing 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.* | 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. 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. |

Installation and Operations of Entire System Server on UNIX and Windows Platforms

This section covers the following topics:

- Installing and Setting up Entire System Server on UNIX Platforms
- Installing and Setting up Entire System Server on Windows Platforms
- Operations of Entire System Server on UNIX and Windows Platforms

Installing and Setting up Entire System Server on UNIX Platforms

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, see the section Installing and Setting up SAG Products on UNIX Platforms of this documentation.

nsux.ht

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** during the installation process. In order to prohibit unauthorized use of NPR libraries, all objects in directory **usr/local/lib** must be protected via **root** access requirements.

General Information

This subsection covers the following topics:

- Prerequisites
 - Installation Package
 - Installation Steps
-

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 command:

```
setup.ux
```

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

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

Note:

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

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

Entire System Server Directory Structure

This subsection covers the following topics:

- Directory Structure
- \$NPRDIR/\$NPRVERS Directory
- \$NPRDIR/\$NPRVERS/bin Directory
- \$NPRDIR/\$NPRVERS/INSTALL Directory
- \$NPRDIR/\$NPRVERS/lib Directory
- \$NPRDIR/\$NPRVERS/test Directory

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 |
|----------------------------|--|
| nprininstall.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, .so 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

This subsection covers the following topics:

- Steps Overview
- Step 1: Read the README File
- Step 2: Customize Entire Broker
- Step 3: Establish Environment Variables
- Step 4: Customize the NPR Server
- Step 5: Start Work with Entire System Server

Overview of Steps for Setting up Entire System Server on UNIX

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 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

- Settings within a Section
- [<npr identifier>] section settings

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

- Example: npr.ini File

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) 2001, 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

- Starting a Server
- Stopping a 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.

Starting a Server

▶ To start a server

- 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>
```

Stopping a Server

▶ 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 for more information about these commands.

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

```
startnpr service-name
```

Product Operation: The NPRMGR Utility

This subsection covers the following topics:

- NPRMGR Utility Functions
 - Usage
 - Starting the Server of a UNIX Service
 - Querying the Status of a Service
 - Stopping the Server of a Service
-

NPRMGR Utility Functions

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.

Installing and Setting up Entire System Server on Windows Platforms

This subsection covers the following topics:

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

Overview

This section tells you how to install or upgrade Entire System Server (abbreviation: NPR) on a Windows 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 the section Installing and Setting up SAG Products on UNIX Platforms.

Important:

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

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

General Information

This subsection covers the following topics:

- Prerequisites
 - Installation Package
 - Installation Steps
 - Environment Variables
 - Registry Modifications
-

Prerequisites

- **Memory**
A running Entire System Server on Windows 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 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 variables 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 modifies the Windows Registry in the following ranges:

- Service definitions
- Event logging definitions

Entire System Server Directory Structure

This subsection covers the following topics:

- Directory Structure
- %NPRDIR%\%NPRVERS% Directory
- %NPRDIR%\%NPRVERS%\bin Directory
- %NPRDIR%\%NPRVERS%\work Directory

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

This subsection covers the following topics:

- Overview of Steps for Setting up Entire System Server on Windows
- Step 1: Read the README File
- Step 2: Customize Entire Broker
- Step 3: Customize the NPR Server
- Step 4: Adapt the Windows Registry
- Step 5: Start Work with NPR

Overview of Steps for Setting up Entire System Server on Windows

Setting up Entire System Server on Windows 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 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).

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

- [DEFAULTS] Section Settings
- [<npr identifier>] section settings

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

- Example: npr.ini File

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 Registry entry as well. See below, Step 4: Adapt the Windows Registry.

Example: npr.ini File

```
; Entire System Server
; Version 2.1.1 PL 0
; (C) 2001, 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 Registry

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

For Entire System Server (Standard)

Navigate through the registry to the following entry:

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

For Entire System Server (with R/3)

Navigate through the registry to the following entry:

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

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

Step 5: Start Work with Entire System Server

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

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

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

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

Product Operation: Windows Service Usage

This subsection covers the following topics:

- Accessing Windows Services Control Panel
 - Starting the Server
 - Querying the Status of a Server
 - Stopping the Server
 - Windows Event Logging
-

Accessing Windows Services Control Panel

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

To access the Windows services control panel

- Use

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

The installation program creates the Windows 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 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 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 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 Event Logging

Entire System Server for Windows writes Event Logging entries.

You can invoke Windows 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 on UNIX and Windows Platforms

Handling of Entire Broker Error Codes

The Entire System Server nodes on UNIX and Windows 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.