

Entire System Server

Installing Entire System Server (NPR) on Linux

Version 2.1.18

October 2025

This document applies to Entire System Server Version 2.1.18 and all subsequent releases.

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

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Preface

Entire System Server (NPR) is installed using the Software AG Installer which you download from the Empower website at <https://empower.softwareag.com/>.

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

This documentation is organized under the following headings:

System Requirements	Supported operating system platforms and prerequisites.
Important Information	Important information that you should be aware of before you start the installation.
Installing Entire System Server (NPR)	How to install Entire System Server (NPR) with the Software AG Installer.
Structure and Usage of the npr.ini File	Defining the behaviour of a server process.
Completing the Installation	How to proceed after the installation.
Entire System Server (NPR) Directory Structure	A description of the Entire System Server (NPR) directory structure after the installation.
Operation of Entire System Server on Linux Platforms	This document describes the NPRMGR Utility (Linux only) and the handling of EntireX Broker Error Codes.
Handling of EntireX Broker Error Codes	An overview of EntireX Broker Error Codes.
Uninstalling Entire System Server (NPR)	How to uninstall Entire System Server (NPR).
List of Solved Issues	Solved Issues.

For important last-minute information, see the readme file that is provided with Entire System Server (NPR). You can find it in the Entire System Server (NPR) product documentation at <http://documentation.softwareag.com/> (Empower login required).



Note: Entire System Server (NPR) is using the user ID to connect and to get the data from the operating system, the data storing depends on the customer using Entire System Server (NPR) and logging feature using any script. For a customer to be compliant with the General Data Protection Regulation (GDPR) in case a user wants his data to be deleted then there should be provisions to do so otherwise logging can be avoided.

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Document Conventions

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

Online Information and Support

Product Documentation

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

Product Training

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

Tech Community

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

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

Product Support

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

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

Data Protection

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

2 System Requirements

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Operating Environments

Operating System

Entire System Server (NPR) functions in any Linux environment that supports Natural Version 8.3.x.



Note: Starting with Natural for Linux and Cloud version 9.2, UNIX platforms are no longer supported. Instead, Software AG promotes applications for Linux and Cloud. However, some Add-On products still run with older versions of Natural and therefore will still be able to support UNIX platforms.

Memory Space Requirements

There are no specific memory requirements for operating the product.

Disk Space Requirements

Approximately 1 MB of hard-disk space is required for Entire System Server (NPR) (without any Software AG Installer packages). This value depends on the installation hardware. On some platforms, it is higher.

If you install other products together with Entire System Server (NPR) in one step, see the installation documentation for these products for further information.

Software Requirements

With Entire System Server 2.1 SP8 the following components will be installed automatically:

- EntireX Libraries Version 9.10 or higher

It is recommended that you use the latest versions of the above listed Software GmbH products. You can view all available Software GmbH product versions and check the dates when their maintenance ends by visiting Software GmbH's Empower web site at <https://empower.software-ag.com/>. Go to **Products > Product Version Availability**.

Additional Software Requirements for Red Hat Enterprise Linux 9 (x86-64)

Before installing Entire Systems Server (NPR) on your machine, you first have to install the package `libxcrypt-compat`. The NPRTB component of Entire Systems Server (NPR) requires `libcrypt.so.1` which is no longer installed by default in Red Hat 9. Please ensure that the appropriate package is installed. You can do that by running the command:

```
yum install libxcrypt-compat
```


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Important Information

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Administrator Status

During the installation, the **Sudo panel** may appear. When you enter the sudo password in this panel, the installer will execute the scripts which require sudoers privileges. If sudoers privileges are not available, you may run the script manually after installation as explained later in this documentation.

For you to use sudo in the installer, the user that you are using to install must be in the sudoers configuration. If you are creating or installing from an installation script, the installer cannot execute the script because it does not store the sudo password for security reasons. You must therefore execute the script *afterInstallAsRoot.sh* contained in `<install-dir>/bin` manually after the installation.

Installation Directory

During the installation, you are asked to specify an installation directory. Specify the installation directory in which to install Entire System Server (NPR). In case you want to use Entire System Server (NPR) together with Natural or other Software GmbH products, specify the installation directory in which you have installed these products. The user that you are using to install must have full read and write permissions to this directory.

We recommend that you use the `/opt/softwareag` directory as the location for Entire System Server. But any other directory is also possible.



Important: It is recommended that you do not install into a directory which is a subdirectory of a previous installation. Such a previous installation may have been created either with the Software AG Installer or by an installation tool that was used in the past.

The *npr.ini* file is delivered with Entire System Server (NPR) in the `<install-dir>/EntireSystemServer` directory. To be able to share a global *npr.ini* configuration file by multiple Entire System Server (NPR) installations, the installation copies the *npr.ini* file to the `/opt/softwareag/EntireSystemServer` directory if the user executing the Software AG Installer has sufficient permissions. If the copy fails, the Entire System Server (NPR) installation creates the script `<install-dir>/EntireSystemServer/INSTALL/install_copy_nprini`, which copies the *npr.ini* file. *install_copy_nprini* will be included into *afterInstallAsRoot.sh* and may be run with sudoers privileges after the installation. The `<install-dir>/EntireSystemServer` directory will not be removed by an uninstallation.

Entire System Server (NPR) searches for the *npr.ini* file

1. at the place where the environment variable `NPR_INI` points to
2. in the `/opt/softwareag/EntireSystemServer` directory
3. in the `<install-dir>/EntireSystemServer` directory

If a user wants to use the local *npr.ini* file in the the `<install-dir>/EntireSystemServer` directory, he has to make sure that `NPR_INI` does not point to an *npr.ini* file and he must delete or rename the *npr.ini* in the `/opt/softwareag/EntireSystemServer` directory.

During the installation, the script `<install-dir>/EntireSystemServer/INSTALL/inatnpr.bsh` is executed. If Natural is already installed in the installation directory, the script copies shared libraries of Entire System Server (NPR) into the `NATEXTLIB` directory.

File Permissions

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

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

The Entire System Server(NPR) installation sets the owner to root for user and group (`chown root:root`) and the s-bit (`chmod ug+s`) for executables *npretb* and *nprmgr.bin*, located in the `<install-dir>/EntireSystemServer/bin` directory.

Side-by-Side Installations

You can install the same Entire System Server (NPR) version more than once on the same machine. And you can also install several different versions of Entire System Server on the same machine. This may be necessary to test a new Entire System Server version before it is taken over into a production environment. Each version, however, must be installed in a separate directory. That is, when Entire System Server is already installed, for example, in the directory `/opt/softwareag`, you can install a second instance of Natural, for example, in a directory named `/opt/softwareag2`.

If you install Entire System Server (NPR) more than once in different directories, these Entire System Server installations may share one *npr.ini* file.

Since Empower only offers the latest version of Entire System Server and other products, it is recommended that you create and keep an image of installed Entire System Server versions for possible later use. Installing from an image rather than downloading it from Empower will usually be faster, too. For further information, see *Using the Software AG Installer*.

Upgrading Your Entire System Server (NPR) Environment

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

Updating Your Entire System Server (NPR) Environment

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

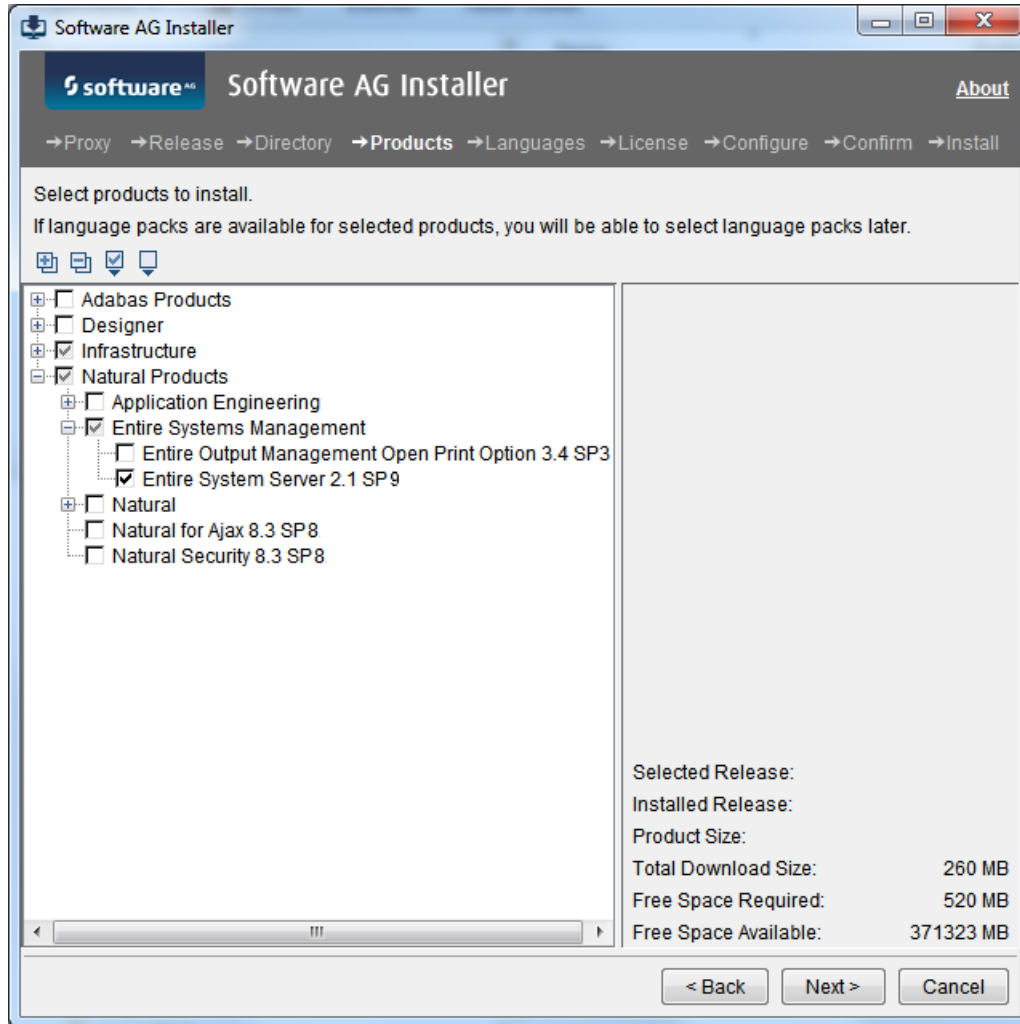
It is not possible to update an existing Entire System Server Version 2.1. SP4 with an Entire System Server Version 2.1. SP8.

4 Installing Entire System Server (NPR)

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

➤ To install Entire System Server (NPR)

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



The installer automatically selects any additional component which is also required, including EntireX Libraries if you have not installed this component yet.

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



Note: If you are installing other products together with Entire System Server (NPR), several panels may appear that are not explained in this documentation. See the documentation for these products for more information.

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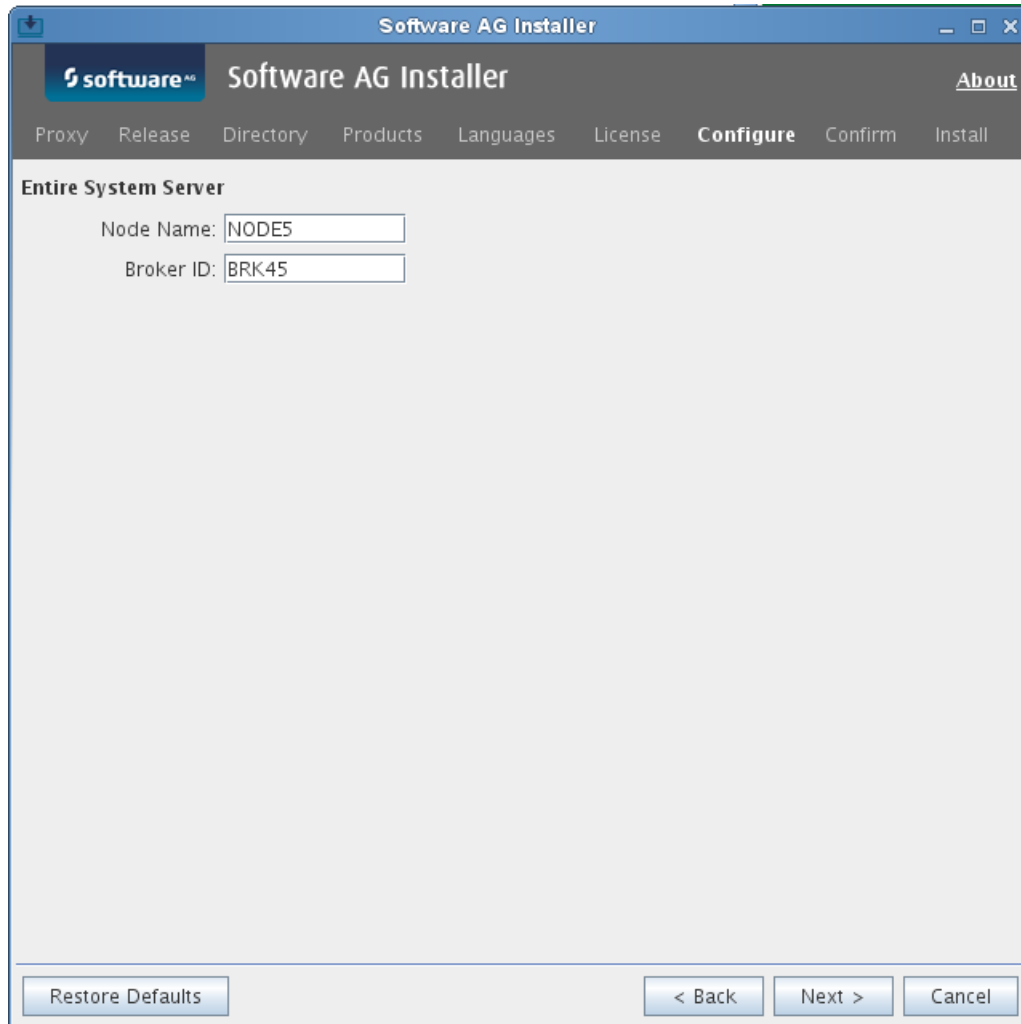


Specify whether to use sudo or not.

You must either have the installer execute the `<install-dir>/bin/afterInstallAsRoot.sh` script, or you must run the script manually after installation as explained later in [Registering Daemons and Setting File Permissions](#). If you want to have the installer to execute the script, the user under which you are running the installer must be in the sudoers configuration.

For security reasons, the installer does not store the sudo password in installation scripts. If you are creating or installing from an installation script, therefore, the option to use sudo is not available. You must execute the `afterInstallAsRoot.sh` script manually after the installation.

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First-time installation only. Depending on your selection in the tree, the installer may ask for a **Node Name** and a **Broker ID**. Enter valid values and choose the **Next** button.



Note: If you use Entire System Server only locally, i.e. without broker communication, you can enter dummy values for **Node Name** and **Broker ID**. In this case, broker communication will not be activated and you have to replace the dummy values in the *npr.ini* file manually, to activate broker communication.

- 8 On the last panel, review the list of products and items you have selected for installation. If the list is correct, choose the **Next** button to start the installation process.

When the Software AG Installer has completed, the first-time installation, additional configuration steps are required. See [Completing the Installation](#) for further details.

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Structure and Usage of the npr.ini File

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Sections

The *npr.ini* file is structured in a single or multiple sections.

- DEFAULTS
- NPR Identifier
- Local Node
- NPRMGR
- DRIVEMAP

DEFAULTS

A DEFAULTS section is used to define default values for the [<NPR identifier>] sections. Any item defined in the DEFAULTS section can also be defined in any <NPR identifier> section. If an item is not defined in such a section, the definition of the DEFAULTS section is being used. Note that this does not hold for parameters such as `Server_Local` or `IPC_Prefix` which are specific to a particular section and have no default.

NPR Identifier

For each NPR service provided on a given machine, one [<NPR identifier>] section is to be defined. Additional sections can be defined for remote services (on other machines), so that they can be controlled by the `nprmgr` utility.

Local Node

Local nodes are special NPR nodes which are invoked directly from a Natural session

- on the same machine where the Natural session is executed;
- without EntireX Broker communication.

To enable different log and trace settings for multiple local NPR nodes, the environment variable `NPR_LOCAL_SECTION` has to be set, and if the defined section exists in *npr.ini*, the settings from the local node will be used from that section. To use this feature, the variable `NPR_LOCAL_SECTION` is to be set before the invocation of Natural for NOP online or Monitor or RPC server, example:

Shell script code:


```
NPR_LOCAL_SECTION=npr_local_1
export NPR_LOCAL_SECTION
natural parm=...
...
```

npr.ini::

```
[npr_local_1]
Log_File_Prefix=log_local_1
Trace_File_Prefix=trace_local_1
Trace_Level=100
Command_Log_Level=4
...
[npr_local_2]
Log_File_Prefix=log_local_2
Trace_File_Prefix=trace_local_2
Trace_Level=0
Command_Log_Level=0
...
```

NPRMGR

The NPRMGR section is relevant for the utility `nprmgr` only. The following parameters can be specified in this section:

- `Locale_String`
- `Command_Log_Level`
- `Trace_Level`
- `Log_File_Prefix`
- `Trace_File_Prefix`

DRIVEMAP

Definition of file server drives within Entire System Server for Windows: The *npr.ini* file can have the optional section DRIVEMAP.

The definitions made here must match the settings that can be retrieved with the Windows `NET USE` command.

Each definition for a network drive consists of one line. A line must contain these 3 keyword parameters:

Local

The local drive letter, followed by ':', example: G:

Remote

The remote path, example: \\daefs01\sagtemp

Type

Must match one of the following:

Microsoft for Windows file servers

NetWare for Novell Netware

Example:

```
[DRIVEMAP]
Local=G: Remote=\\sag-hq\temp Type=Microsoft
Local=T: Remote=\\daefs01\sagtemp Type=NetWare
```

An npr.ini Sample File

```
; Entire System Server
; Version 2.1.2 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
```

Parameter Description

- Server=<server>
- Server_Local={yes|no|compare}
- Integration_mechanism=ETB,<broker id>
- ETB_Wait=<seconds>
- ETB_Replica={yes|no}
- ETB_Dup_Check={yes|no}
- Log_File_Prefix=<string>
- Trace_Level=<integer>
- Trace_File_Prefix=<file name>
- Command_Log_Level=<number>
- IPC_Prefix=<4 hexadecimal digits>
- Use_Pam={yes|no}
- Locale_String={yes|no|<string>}
- SSL_Trust_Store=<full qualified path to a SSL certificate file>
- Broker_User=<user name for Broker>
- Broker_CPW=<ciphered password for Broker_User>
- Administrator=<admininstrator user name>
- Admin_Group=<admininstrator group name>
- Admin_CPW=<administrator's ciphered password>
- Autostart={yes|no}
- EOR_WORK=<EOR (NOP) work directory>
- EOR_NOM=<NOM work directory>
- ETBLNK=<path to EntireX Broker shared library>
- Open_File_Timeout=<seconds>

Server=<server>

Default	Description
localhost	Host name of the machine on which the NPR service is executed. With Server=localhost the local machine can be specified. This value is always converted to upper case before it is passed to the Broker.



Notes:

1. Before version 2.1.2.10, the keyword 'Local_Node' was used for this parameter. For compatibility reasons, 'Local_Node' is still supported.
2. For Local node sections, you can specify Server=localhost.

Server_Local={yes|no|compare}

Default	Description
compare	Determines how nprmgr shall access the service. yes The service is handled as executed as own process on the local host. no The service is handled as executed as own process on a remote host. compare The name of the server defined in <code>Server=</code> , and the local host name will be compared to it. If they match, the service will be treated as local.



Note: This keyword cannot be overridden from the [DEFAULTS] section. It must be defined specifically for the service.

Integration_mechanism=ETB,<broker id>

Default	Description
None	Integration mechanism. This item identifies the integration mechanism by the NPR server. EntireX Broker and UCI are supported as integration mechanisms.

Examples for *broker ID*:

BKR034 Standard definition.

etb034:3800:TCP Use TCP/IP, host ibm1, port 3800 (for EntireX TCP/IP communication)

pcsn2:1958:SSL Use SSL, host pcsn2, port 1958 (for EntireX SSL communication)

ETB_Wait=<seconds>

Default	Description
30	EntireX Broker timeout.

ETB_Replica={yes|no}

Default	Description
no	Replica server option. Currently not supported.

ETB_Dup_Check={yes|no}

Default	Description
yes	If yes, the NPR service checks first if a service with the same name is already registered at the EntireX Broker. If this is the case, the second service will shut down immediately. If no is specified, the duplicate check will not be performed.

Log_File_Prefix=<string>

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

Trace_Level=<integer>

Default	Description
0	Trace level for server's trace file. 0 (zero) means: no trace. Values can range from 0 to 999.

Trace_File_Prefix=<file name>

Default	Description
nprtrace	The trace output will be written to \$NPR_HOME/work/ <i>file-name</i> .log.

Command_Log_Level=<number>

Default	Description
0	<ul style="list-style-type: none"> ■ 0 no command logging ■ 1 log after NPR call ■ 2 log before and after NPR call ■ 3 log before and after NPR call plus EntireX Broker error code logging ■ 4 like 3, with more call parameter logging <p>Log data is written to the trace file.</p>

IPC_Prefix=<4 hexadecimal digits>

Default	Description
aaaa	Prefix for IPC resources.



Note: This parameter cannot be overridden in the [DEFAULTS] section. It must be defined specifically for the service.

Use_Pam={yes|no}

Default	Description
yes Linux	PAM user authorization method is used.
no for all other operating systems	The traditional authorization method is used.



Note: This parameter is meaningful only for Linux-like operating systems that allow PAM user authentication. The parameter can be set for local nodes, too.

Locale_String={yes|no|<string>}

Default	Description
no	If yes, <code>Locale_String</code> for the Broker equals the value retrieved by the <code>setlocale</code> function. If no, no locale string is passed to the Broker. If a string is defined, it will be passed unchanged to the Broker. The maximum string length is 40 characters.



Note: To enable communication of the utility `nprmgr` with EntireX Broker, this parameter must be specified in section `NPRMGR`.

SSL_Trust_Store=<full qualified path to a SSL certificate file>

Default	Description
none	If this parameter is set, SSL Broker communication will be used, and the given full qualified file name is taken as SSL certificate file. If this parameter is not set, SSL Broker communication will not be used.



Note: This parameter is required for SSL Broker communication only.

Broker_User=<user name for Broker>

Default	Description
none	User name to be used for Broker security. This user ID is used for the Broker logon. The parameter Broker_CPW is required, too.



Note: This parameter is required only if Broker security is used. Otherwise, this parameter has no meaning.

Broker_CPW=<ciphered password for Broker_User>

Default	Description
none	If Broker security is used, the ciphered password for the Broker logon must be specified here. To cipher a given password, invoke the utility <code>nprpwc</code> which prompts for a password and returns the ciphered password. Invoke <code>nprpwc</code> in a command shell.



Note: This parameter is required only if Broker security is used.

Administrator=<admininstrator user name>

Default	Description
none	User name that has privileges over the server process. The parameter Admin_CPW is required, too.



Note: This parameter is required for some `nprmgr` functions in non-interactive mode.

Admin_Group=<admininstrator group name>

Default	Description
none	Group to be used for the administrator.



Note: This parameter is required for some `nprmgr` functions in non-interactive mode.

Admin_CPW=<administrator's ciphered password>

Default	Description
none	Ciphered password for the administrator. To cipher a given password, invoke the utility <code>nprpwc</code> which prompts for a password and returns the ciphered password. Invoke <code>nprpwc</code> in a command shell.



Note: This parameter is required for some `nprmgr` functions in non-interactive mode.

Autostart={yes|no}

Default	Description
no	The NPR service is to be started automatically during system startup, if 'yes' is defined here.



Note: Available on Linux operating systems only.

EOR_WORK=<EOR (NOP) work directory>

Default	Description
none	The EOR (NOP) work directory can be defined here.

**Notes:**

1. A default for all service sections can be specified in the [DEFAULTS] section. You may use different work directories for each NPR service if you specify this parameter on the section level.
2. This setting always overrides the environment variable `EOR_WORK`.
3. This parameter must be used, if the NPR service(s) are to be started automatically during system startup.

EOR_NOM=<NOM work directory>

Default	Description
none	The EOR (NOM) work directory can be defined here.

**Notes:**

1. A default for all service sections can be specified in the [DEFAULTS] section. You can use different work directories for each NPR service if you specify this parameter on the section level.
2. This setting always overrides the environment variable `EOR_NOM`.

3. This parameter must be used, if the NPR service(s) are to be started automatically during system startup.

ETBLNK=<path to EntireX Broker shared library>

Default	Description
none	A default for the environment variable ETBLNK can be defined here.



Notes:

1. Scope: nprmgr
2. This parameter can be defined in the [DEFAULTS] section only.
3. This setting will be used only if the environment variable ETBLNK was not defined.
4. This parameter can be used for situations, where the environment variable ETBLNK is not available otherwise.

Open_File_Timeout=<seconds>

Default	Description
0 seconds (no timeout check)	Entire System Server periodically checks for files opened by the own process which were not accessed during the last <i>seconds</i> .



Notes:

1. If this parameter is missing, or if Open_File_Timeout=0, no file timeout check will be performed.
2. If run standalone (as a Broker service): Entire System Server checks its internal file table and the file descriptors of its own process.
3. If run in local mode: Entire System Server checks its internal file table only. Any files opened by the calling process remain untouched (e.g. Natural workfiles).
4. Each forced file closure by timeout will be logged in the Entire System Server trace file

Setting the Environment Variables with `sagenv.new`

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



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



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

6 Completing the Installation

- Registering a Daemon and Setting File Permissions 30
- Setting the Environment Variables with `sagenv.new` 30
- Setting up Entire System Server Components 31

Registering a Daemon and Setting File Permissions

If you installed Entire System Server (NPR) on a Linux system and did not use `sudo`, the installer was not able to register daemons and set file permissions for the affected products. Perform these tasks now by executing the script *afterInstallAsRoot.sh* as the root user. You can find this script in the *bin* directory of your main installation directory. It contains actions for all installed Software AG products.



Important: If you did not use `sudo` during the installation, you must run the script *afterInstallAsRoot.sh* or some products might not work correctly.

If you do not want to register a daemon for Entire System Server (NPR) or set file permissions, proceed as follows:

- Remove the command to start the setup script in the *afterInstallAsRoot.sh* script before you execute it. The script to register the daemon is called *install_daemon_npr*. The script to set file permissions is called *install_bin_npr*. All these scripts are located in the *<install-dir>/EntireSystemServer/INSTALL* directory.

For the daemon, an uninstall script is available. Therefore, if you do not want to register the daemon, you can also proceed as follows:

- Install all daemons (either automatically with the installation when `sudo` is used, or manually by executing the *afterInstallAsRoot.sh* script when `sudo` is not used) and then uninstall the Entire System Server daemon using the *uninstall_daemon_npr* script in the *<install-dir>/EntireSystemServer/INSTALL* directory.

Setting the Environment Variables with *sagenv.new*

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



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



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

Setting up Entire System Server Components

Entire System Server on Linux is set up with the following steps

- [Step 1: Customize EntireX Broker](#)
- [Step 2: Establish Environment Variables](#)
- [Step 3: Set Environment Variable ETB_TIMEOUT](#)
- [Step 4: Customize the NPR Server](#)
- [Step 5: Start Work with Entire System Server](#)

Step 1: Customize EntireX Broker

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

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

where

<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 installing EntireX Broker, see the latest documentation.

Step 2: Establish Environment Variables

Some environment variables are set by the `sagenv.new(nprenv)` script if it is invoked during session startup:

- `NPR_HOME` points to the Entire System Server directory;
- `EOR_WORK` points to the Entire Operations work directory. If this variable is already set, it will not be modified by this script.
- `PATH` is set to include `NPR_HOME/bin`:

```
PATH=$PATH:$NPR_HOME/bin
```

Step 3: Set Environment Variable `ETB_TIMEOUT`

To enable an Entire System Server (NPR) service to stop while the TCP/IP connection to the Broker is down, the environment variable `ETB_TIMEOUT` is automatically set to 60 seconds by `NPRETB` and `NPRMGR`. This avoids a hang of the broker stub during a disconnected TCP/IP connection, and allows the stopping of `npretb` in such a situation. Note that `ETB_TIMEOUT` remains unchanged if it was set before the execution of `npretb` resp. `nprmgr`.

Step 4: Customize the NPR Server

The `npr.ini` file is used to define the behavior of the server processes. It is structured in one `[DEFAULTS]` section and one or more `[<npr identifier>]` sections.

You can define settings either in the `[DEFAULTS]` section or in an `[<npr identifier>]` section:

- [Define Settings in a Section](#)
- [Settings in a \[<npr identifier>\] Section](#)

Define Settings in a Section

The `[DEFAULTS]` section contains default values that apply to all servers. For a particular server such a default can be overwritten by providing an `[<npr identifier>]` section with an alternative setting.

Settings in a [*<npr identifier>*] Section

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.

Step 5: Start Work with Entire System Server

This section covers the following topics:

- [Starting a Server](#)
- [Stopping a Server](#)

You can omit this step, if Entire System Server is to be used in “local mode” by Entire Operations or Entire Output Management. In this case, no separate NPR server is necessary.

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 EntireX 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 EntireX 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

- 1 Use the NPRMGR utility:

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

- 2 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 server

- 1 Use the NPRMGR utility in this way:

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



Note: See the subsection The NPRMGR Utility for more information about these commands.

- 2 Invoke the `startnpr` script directly, followed by the service name:

```
startnpr <service-name>
```


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Entire System Server (NPR) Directory Structure

▪ <installdir>/EntireSystemServer Directory	36
▪ <installdir>/EntireSystemServer/bin Directory	36
▪ <installdir>/EntireSystemServer/work	36
▪ <installdir>/EntireSystemServer/log	36

The following tables outline the contents of the Entire System Server directories.

<installdir>/EntireSystemServer Directory

Library / File / Directory	Explanation
<i>npr.txt</i>	Text file describing the content of the npr.ini file.
<i>bin</i>	Directory containing all executable files of the current product version. See below.
<i>work</i>	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. See below.

<installdir>/EntireSystemServer/bin Directory

Library / File / Directory	Explanation
<i>npretb</i>	Executable file associated with the NPR server.
<i>libnpr</i>	DLL file required by npretb.exe
<i>eorxcl.exe</i>	Cleanup utility program for Entire Operations.
...	Other NPR files.

<installdir>/EntireSystemServer/work

If not existing, this directory will be created at the first start of the NPR service.

This directory can contain work files which are created and maintained by the products using NPR, e.g. NOP and NOM.

<installdir>/EntireSystemServer/log

If not existing, this directory will be created at the first start of the NPR service.

This directory may contain log and trace files of NPR.

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

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Operation of Entire System Server on Linux Platforms

■ The NPRMGR Utility	40
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This chapter covers the following topics:



Note: To allow the stopping of an NPR service while the TCP/IP connection to the Broker is down, an automatic setting of the environment variable `ETB_TIMEOUT` was added in `NPRETB` and `NPRMGR`. If `ETB_TIMEOUT` is already set before execution of `NPRETB` respectively `NPRMGR`, it remains unchanged. Otherwise it will be set to 60 seconds. This avoids a hang of the Broker stub during a disconnected TCP/IP connection, and allows the stopping of `npretb` in such a situation.

The NPRMGR Utility

This section covers the following topics:

- [NPRMGR Utility Functions](#)
- [Usage](#)
- [Starting the Server of a Linux 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 Go to Top

Usage

» To invoke the utility from the Linux shell

- Invoked 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.

Or:

Invoke NPRMGR in the following way:

```
$ nprmgr help
```

Below Additional information available: a list of subtopics is displayed. To get more information on a particular subtopic enter the first character(s) that uniquely identify it and press Enter.

➤ **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 Linux Service

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

Or:

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.

9

Handling of EntireX Broker Error Codes

The Entire System Server nodes on Linux and Windows use the EntireX Broker as middleware for the communication with Entire Operations monitors. If communication errors occur, the EntireX Broker error codes will be examined. This is done as follows:

EntireX Broker 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.



Note: Please refer to the documentation of the EntireX Broker for details about EntireX Broker error codes.

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Uninstalling Entire System Server (NPR)

You uninstall Entire System Server (NPR) using the Software AG Uninstaller. For detailed information on how to use the uninstaller, see the *Using the Software AG Installer* guide.

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List of Solved Issues

See *README.FIX*.

