Table of Contents

Preface

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

Installing and Configuring Entire Operations GUI Client	Describes how to install, start and configure Entire Operation GUI client.
Further Information	Lists topics like performance considerations and general installation notes.

I Installing and Configuring Entire Operations GUI Client

1 Installing and Configuring Entire Operations GUI Client

This chapter describes the installation and configuration of Entire Operations GUI Client.

Notation *vrs* **or** *vr***:**

When used in this document, the notation *vrs* or *vr* represents the relevant product version.

Server Prerequisites

The following Software AG products must be installed on the server:

- According to the desired type of communication between the Natural for Windows client with the remote Natural mainframe server environment, one of the following must be installed:
  - EntireX (EXX)* is required for working in a Natural Remote Procedure Call (RPC) environment.
- System Automation Tools (SAT)*.
- Entire System Server (NPR)*.
- Natural for Mainframes (NAT)**, including the Entire System Server Interface (ESX). See the section *Installing Entire System Server Interface* in the Natural *Installation* documentation which is provided with Natural for Mainframes.

* The required version of Natural Development Server or EntireX, and of System Automation Tools and Entire System Server depends on the installed Natural version. See the *Release Notes* which are provided with Natural for Mainframes.

** The required Natural version depends on the Natural ISPF version running on your system.

Installation Notes

Ensure that your desired EntireX Broker is accessible. This means that your installation requires:

- The correct RPC server (`SRVNAME`) and EntireX Broker (`SRVNODE`) names to be entered in your Natural parameter module (usually `SYSESM2`),
- or add Specify RPC Client's Default Server Address (DSF) parameter dynamically at your startup shortcut.

🛑 **Caution:** Ensure that your RPC server has got the definitions for logical files 206 and 91. LFILE 206 must point to your Entire Output Management system file, LFILE 91 must point to your Entire Output Management active data file. If you did not split the Entire Output Management system file, both, LFILEs 206 and 91 will point to your Entire Output Management system file, because in this case Entire Output Management system file and active data file are one and the same file.

If Natural Security is installed on the server and server library SYSSAT is protected, the Entire Operations GUI Client user has to be linked to library SYSSAT or he has to be a member of a group which possesses a link to SYSSAT.

Installation on Windows

Entire Operations GUI Client can optionally be installed with Natural for Windows. It needs to be installed with either the Natural development environment or the Natural runtime environment. If Entire Operations GUI Client has not yet been installed, proceed as described below. For more information, see the Natural for Windows installation documentation.

> **To install and configure Entire Operations GUI Client on your local machine**

1   Start the Software AG Installer and specify all required information on the different panels.

>   **Note:** Make sure the machine on which you are going to run the Software AG Installer contains the latest Windows updates. On Windows Version 8.1 and Windows Server 2012R2, the installation will fail if the Microsoft update KB2919355 is missing.

2   By default, the text browser of Entire System Management GUI Framework uses the EntireX instance installed by the Software AG Installer.

However, the browser can be configured to use the EntireX libraries located in the path specified with environment variable EGF_EXX_LIB_PATH. EGF_EXX_LIB_PATH must reference the path of the 32-bit version of the EntireX libraries.

3   When the product selection tree is shown, expand the **Natural Products** > **Natural** node.

4   Select Runtime Environment and/or Development Environment.

5   Select Entire Systems Management. This installs Mainframe Navigation, Output Management GUI Client and Entire Operations GUI Client. Additionally the EntireX Mini Runtime is installed automatically, if not already existing.

6   Choose the Next button to continue with the installation.

>   **Notes:**

1. During the Natural installation, an EntireX Mini Runtime environment is installed automatically if EntireX was not previously installed on your machine.

2. Entire Operations GUI Client uses an OCX control to represent netplan diagrams. This OCX is not affected by the language settings you may specify in the Entire Systems Management application frame. The OCX will be installed in German if you are using a German version of the Windows operating system; otherwise an English OCX version is installed on your machine.

3. If Natural Security is installed on the server and server library SYSSAT is protected, the Entire Operations GUI Client user has to be linked to library SYSSAT or he has to be a member of a group which possesses a link to SYSSAT.

💡 **Tip:** If you want to access multiple Entire Systems Management servers with the same SYSESM2 parameter file, you can use the dynamic parameter DFS to overwrite the settings in the parameter file, e.g. DFS=(NOP52SRV,BKR034,L). See the description of the DFS parameter in the *Natural Parameter Reference documentation* for details.

Installing Entire Operations

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

≫ To install Entire Operations

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

1 Start the Software AG Installer GUI as described in *Using the Software AG Installer*.

2 When the first page of the Software AG Installer GUI (the so-called Welcome panel) is shown, choose the **Next** button repeatedly (and specify all required information on the shown panels as described in *Using the Software AG Installer*) until the panel containing the product selection tree appears. This tree lists the products you have licensed and which can be installed on the operating system of the machine on which you are installing.

3 To install Entire Operations with all of its product components, expand the **Natural Products** node, expand the Entire Systems Management node and select **Entire Operations 5.4 SP3**.
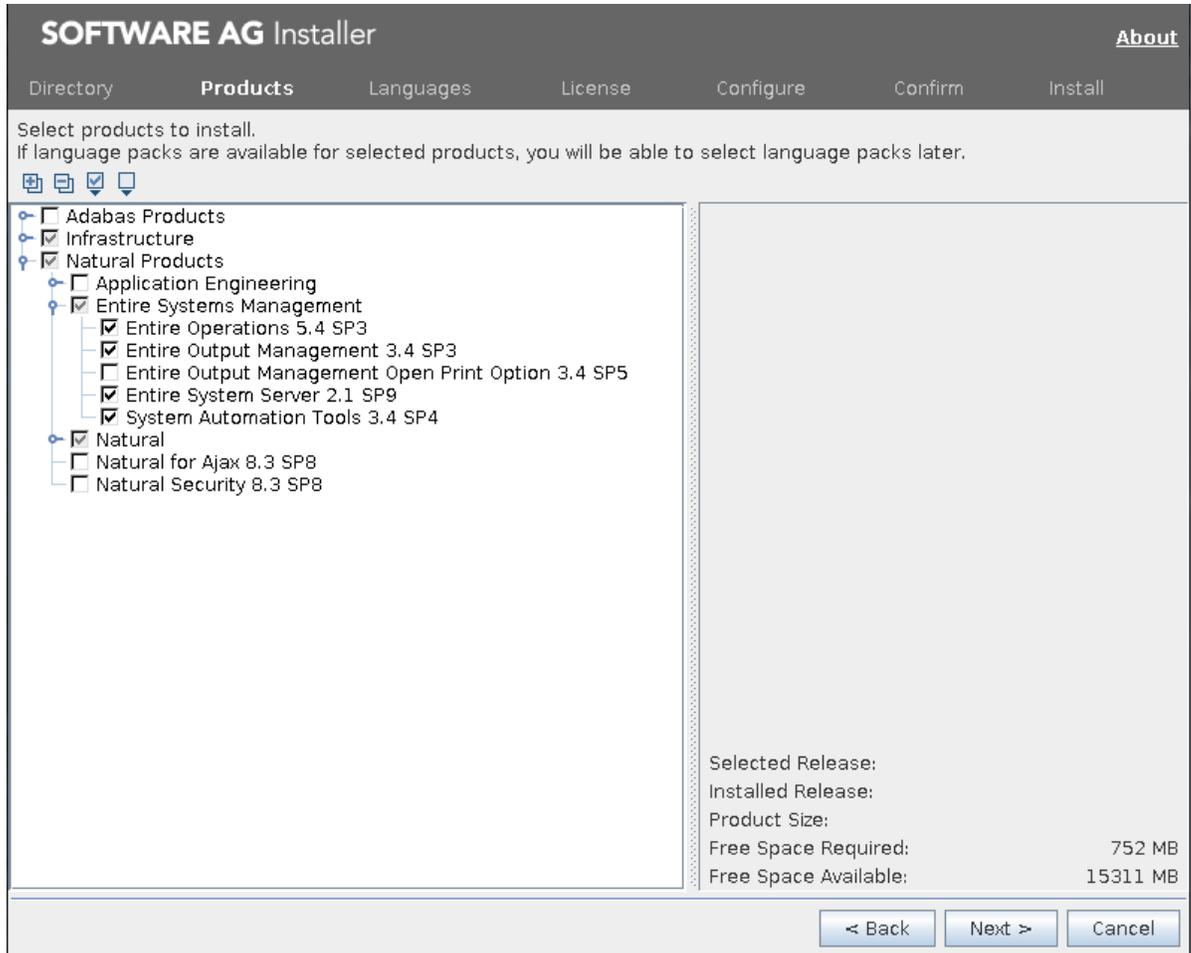
> **Note:** Products or product versions which are already installed in the selected installation directory are shown as disabled.

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

- Natural
- Entire System Server
- System Automation Tools

4　Choose the **Next** button.

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

6　Choose the **Next** button.

7　First-time installation only:

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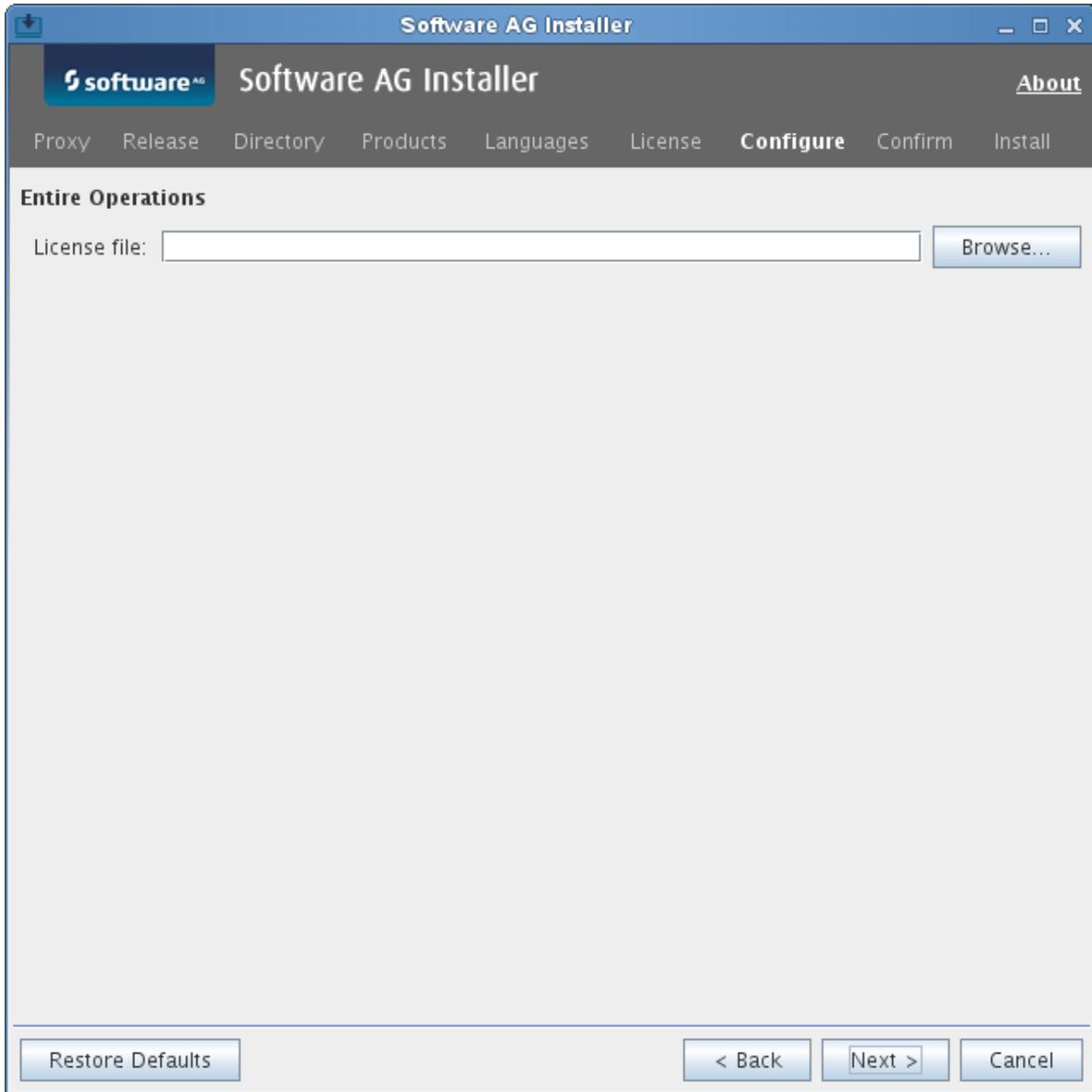
8   Choose the **Next** button.

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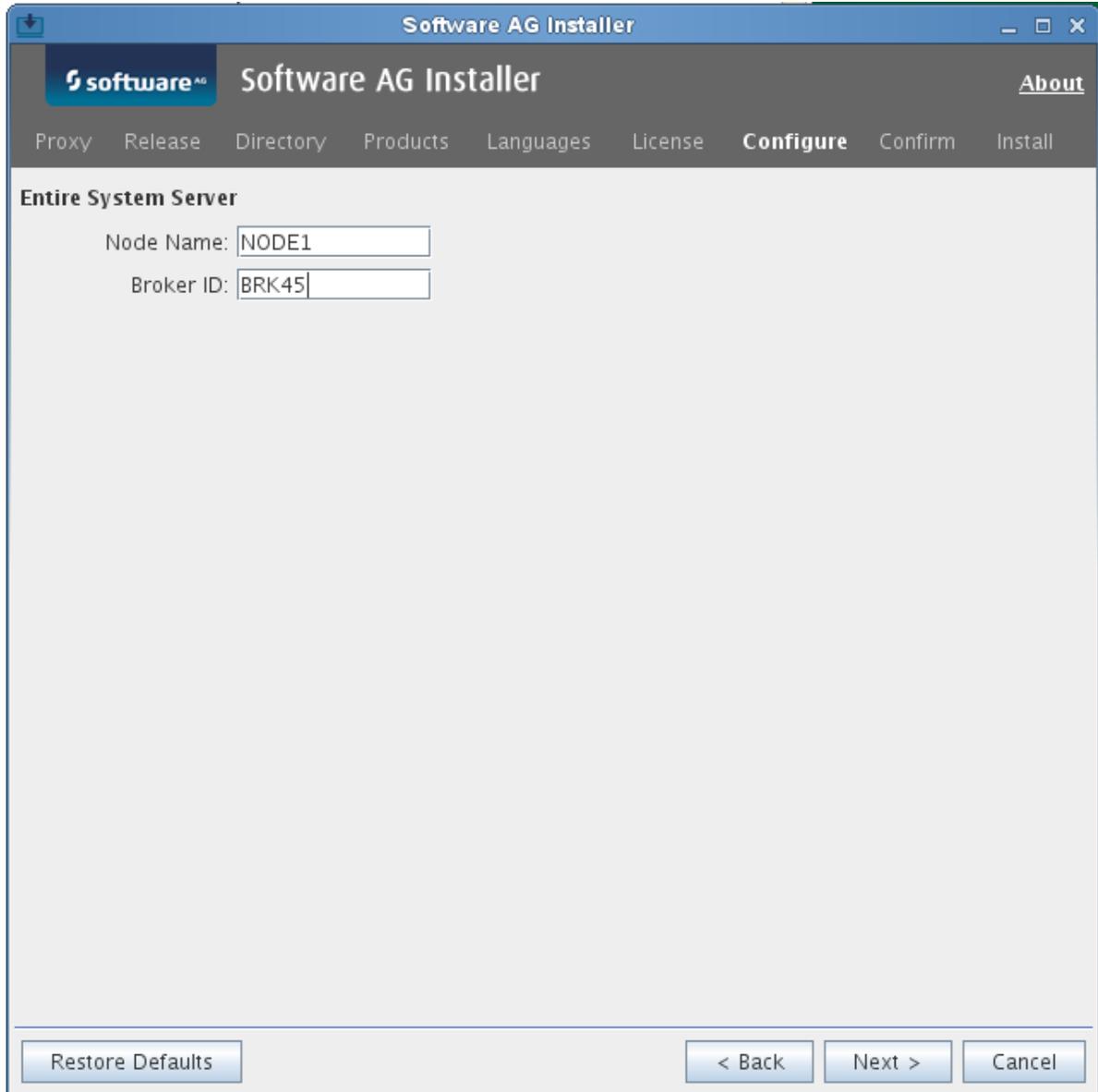
10   Choose the **Next** button.

11   On the last panel, review the list of products and items you have selected for installation. If the list is correct, choose the **Next** button to start the installation process. When the Software AG Installer has completed the first-time installation, additional configuration steps are required. See *Customizing the Initialization Settings* for further details.

Initializing Entire Operations GUI Client

When the Software AG Installer has finished the installation, you have to initialize Entire Operations GUI Client. Only initialized clients will be shown in the Entire Systems Management application window.

≫ To initialize Entire Operations GUI Client

1   From the Windows **Start** menu, choose **All Programs** > **Software AG** > **Administration**.

Example:
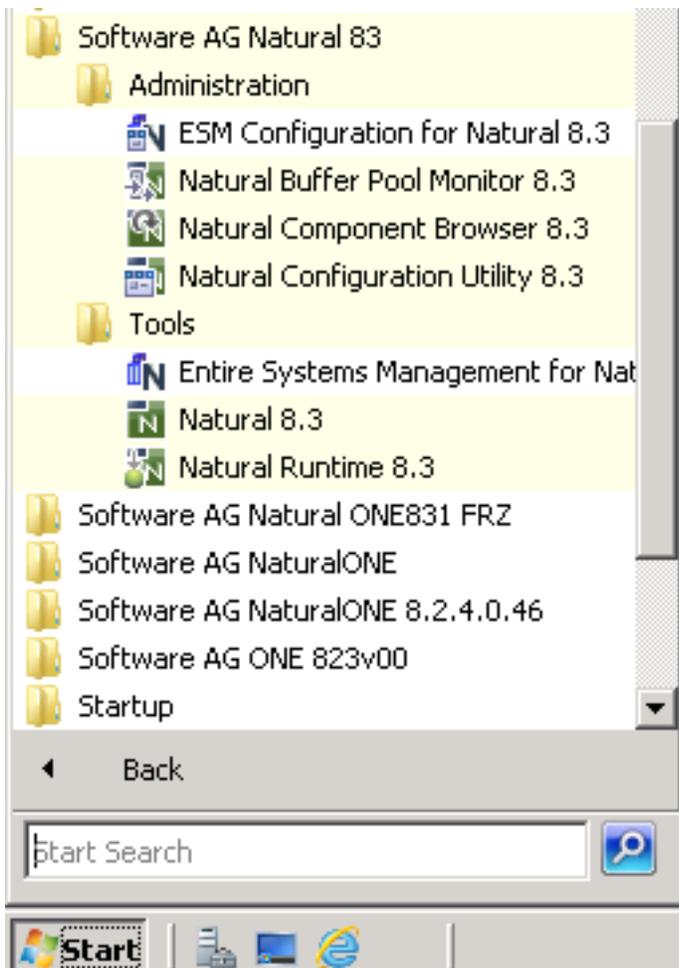
The group name in the **Start** menu can be changed during installation (by default, this is **Software AG**).

2   Choose **ESM Configuration for Natural** *vr*.

The **ESM Configuration** dialog of the ESM Configuration utility opens:
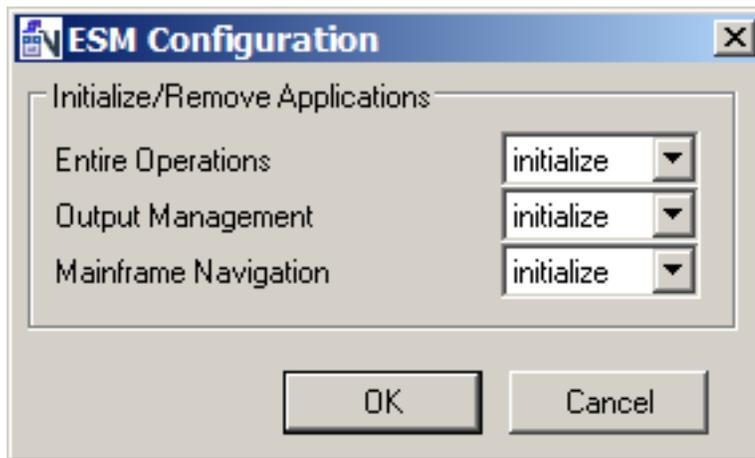
The ESM Configuration utility initializes or removes Entire System Management GUI components (applications) at your installation site.

3   From the drop-down list box next to the GUI component you want to use, select **initialize**. Select **remove** if you want to uninstall the GUI component. Leave the box empty if the GUI component is already installed or if no action is required.

4   Choose **OK** to complete the initialization.

The **ESM Configuration** dialog closes.

Customizing the Initialization Settings

You can create an `esminit.xml` configuration file to customize the initialization settings for the **ESM Configuration dialog**. You can change the following:

■ Default setting for the initialization of a GUI component,

■ Default dialog language,

■ Default initialization with or without (silent) dialog prompting.

> **Note:** The initialization of GUI components applies to the complete installation and affects all users.

≫ **To change initialization settings with esminit.xml**

1   Create an XML file with the name `esminit.xml` that contains the **basic elements** described in the following section.

2   Place `esminit.xml` in the `prof` directory of the used Natural installation (typically: `C:\SoftwareAG\Natural\prof`).

3   Execute the `ESINIT-D` program supplied in the Natural SYSSATGF system library.

   `ESINIT-P` calls the ESM Configuration utility and determines the initialization settings in the **ESM Configuration dialog**.

   > **Note:** The `ESINIT-P` program used in previous Entire Operations versions is still supported. If used, all GUI-specific components available in a Natural system library are initialized.

This section covers the following topics:

- Basic Elements of esminit.xml
- Example of esminit.xml

Basic Elements of esminit.xml

The `esminit.xml` must contain the entities `<esmInit>` and `<app>` with the following attributes:

Attributes of <esmInit>

Attribute	Description	
`silent=`	Determines whether the **ESM Configuration dialog** prompts you to confirm the initialization action. Possible settings:	
	`"false"`	Opens the dialog for user action (default).
	`"true"`	Action is performed without dialog.
`language=`	Sets the language to be used in the dialogs. Possible settings:	
	`"1"`	Dialog language is English.
	`"2"`	Dialog language is German.
	If this attribute is not specified, the current language of the installed Natural is used by default.	

Attributes of <app>

Attribute	Description	
`short=`	Identifies the GUI component (application) to be initialized. Possible settings:	
	`"AND"`	GUI component Mainframe Navigation
	`"NOM"`	GUI component Entire Output Management
	`"OPC"`	GUI component Entire Operations
	A GUI component not specified in `<app>` is initialized by default.	
`action=`	Specifies the action to be performed for a GUI component. Possible settings:	

Attribute	Description	
`"initialize"`	Initialize the specified GUI component.	
`"remove"`	Remove the specified GUI component.	
	If this attribute is not specified, the GUI component is initialized by default.	

Example of esminit.xml

```
<?xml version="1.0" ?>
<!-- language="1" English -->
<!-- language="2" German -->
<esmInit silent="false" language="2">
<!-- GUI component Mainframe Navigation -->
<app short="AND" action="remove" />
<!-- GUI component Entire Output Management -->
<app short="NOM" action=" " />
<!-- GUI component Entire Operations -->
<app short="OPC" action="initialize" />
</esmInit>
```

If you execute `ESINIT-D` with the above XML configuration, the **ESM Configuration dialog** shows the following actions in the drop-down list boxes:

- Entire Output Management has an empty box denoting default action,

- Entire Operations is set to **initialize**,

- Mainframe Navigation is set to **remove**.

Starting Entire Operations GUI Client

》 **To establish an Entire Operations session**

1   On your desktop, click on the **Entire Systems Management** shortcut icon.

   (A desktop icon for Entire Systems Management is generated automatically after the installation procedure.)

   A **Software AG ESM Logon** dialog similar to the example below opens:

2   Enter your credentials:

▪ Natural Security user ID and password. If required, choose **Change password** to change
  your password (see the next step).

▪ (optional) EntireX user ID and password.

Select the **Restore My Desktop** check box (selected by default) if you want to restore your
current desktop settings. See also *My Desktop Menu* in the *User's Guide*.

3   Choose **OK** when you are finished.

Entire Operations Client is launched if your Natural Security and EntireX (if relevant) user
IDs and passwords are accepted. Otherwise, appropriate error messages occur.

If a password has expired, a dialog similar to the example prompts you for a password change:

Choose **OK**.

The **Entire Systems Management** main application window (see the *User's Guide*) opens.

Information in the Main Application Window

By default, the current server name and node name are displayed at the top and at the bottom of the main application window.

In addition, you can display text information of your choice at the top or bottom of the object workspace. For this purpose, System Automation Tools provides the user exit `ESUEX02N` in the system library `SYSSAT`. With the user exit, you can specify the text to be displayed, its color and location, and also choose to display this text instead of the server name and node name at the top of the main application window. For details, see the corresponding user exit source object `ZSUEX02N` in the library `SYSSAT`.

Customizing the Entire Operations GUI Client Startup

It is possible to disable the display of specific applications in the Entire Operations tree view, even if the applications are installed and shown during normal startup.

≫ **To modify your startup:**

■   Change the `STACK` parameter of your Natural parameter module (usually `SYSESM2`) as follows:

If you want to start ...	STACK Parameter Specification
NGC only	`"LOGON SYSSATGF;ESSTRPCD NGC;FIN"`
OGC only	`"LOGON SYSSATGF;ESSTRPCD OGC;FIN"`
OGC and NGC	`"LOGON SYSSATGF;ESSTRPCD OGC+NGC;FIN"`
OGC and MN	`"LOGON SYSSATGF;ESSTRPCD OGC+MN;FIN"`

Or:

Make a copy of the Entire Systems Management shortcut (desktop icon) generated by the installation procedure. That is, rename the desktop icon as desired.

Then open the properties of the shortcut and add the following at the end of the Target parameter:

If you want to start ...	Target Parameter Specification
NGC only	`"STACK=(LOGON SYSSATGF;ESSTRPCD NGC;FIN)"`
OGC only	`"STACK=(LOGON SYSSATGF;ESSTRPCD OGC;FIN)"`
OGC and NGC	`"STACK=(LOGON SYSSATGF;ESSTRPCD OGC+NGC;FIN)"`
OGC and MN	`"STACK=(LOGON SYSSATGF;ESSTRPCD OGC+MN;FIN)"`

See the description of the `STACK` parameter in the *Natural Parameter Reference* documentation for details.

II   Further Information

2 Performance Considerations

Overview

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

Entire System Server

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

Natural

■ If the Monitor runs as a separate batch job or task, the same as mentioned under Entire System Server applies for the Natural batch buffer pool.

■ Define the necessary Editor Buffer Pools large enough to avoid swapping to the EDTWORK dataset. For further information on Editor Buffer Pools, see the *Installation Notes*.

Adabas

■ **Use LFIOP with Adabas.**

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

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

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

■ On which disks are the components of these files (AC,UI/NI/MI,DS) located?

■ How fast do these devices respond to IO-requests?

■ What about the parameters ISN-reusage and DS-reusage?

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

Use LFIOP with Adabas 5.2

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

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

> **Note:** The Adabas `LFIOP` parameter for Mainframes is equivalent to the `BFIO_PARALLEL_LIMIT` parameter in Adabas for UNIX and Windows.

Entire Operations

- Monitor and Monitor Task Interval
- Monitor Tasks
- Networks
- Job Location
- Activation
- Earliest Start Time
- Input Condition Checking
- Input Condition References
- End-of-Job Checking
- End-of-Job Actions
- Asynchronous Exit Execution
- Symbol Substitution

Monitor and Monitor Task Interval

Adjust the Entire Operations Monitor and Monitor task wait intervals as necessary.

Example 1

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

Example 2

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

Monitor Tasks

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

Networks

Instead of complex networks with many jobs, use sub-networks. These sub-networks can be defined in jobs of type NET. The wait queues decrease and activation is performed, only if all necessary conditions are fulfilled.

Job Location

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

Activation

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

Earliest Start Time

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

Input Condition Checking

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

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

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

Input Condition References

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

> **Note:** RUN checks are not applicable, if you need an inter-network connection.

End-of-Job Checking

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

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

End-of-Job Actions

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

Asynchronous Exit Execution

For each end-of-job checking (EJC) exit and end-of-job action (EJA) exit you may define asynchronous execution.

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

Notes about asynchronous exit execution:

📄 **Notes:**

1. The network execution logic remains the same, if you define any exit to be executed asynchronously.

2. Exits should not be set to asynchronous execution if they have a short execution time and perform few database and `NPR` calls.

3. Exits should be set to asynchronous execution if they have a longer execution time and/or perform many database and `NPR` calls.

4. Please not the overhead in network execution elapsed time, which will be caused by more queue changes between monitor tasks.

5. The elapsed time of single network cannot be shortened by asynchronous exits.

6. The throughput of parallel running networks with excessive exit usage can become better, due to more parallelism.

Symbol Substitution

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

3 General Installation Notes

Natural Steplibs

With Entire Operations Version 5.4.3, the Natural steplib table is completely replaced during startup of an Entire Operations session. With this correction, several user-defined steplibs from the user's steplib original steplib table are merged into the effective steplib table.

The following rules apply:

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

- Only original user-defined steplibs will be merged. The steplib setting is performed by the module NOPSLS-P.

RPC Server for the Entire Operations GUI Client (OGC)

It is recommended to invoke NOPSLS-P during the startup of the RPC server for OGC.

Example:

```
STACK=(LOGON SYSEOR;NOPSLS-P)
```

Entire System Server Parameters

Entire Operations Monitor Shutdown during NPR Node Shutdown

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

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

Example:

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

Editor Buffer Pool

The Software AG Editor is being used in the Entire Operations Monitor as well as in the Entire Operations online system. To avoid side effects from the online usage of Entire Operations, the Entire Operations Monitor should use an Editor Buffer Pool other than the online system of NOP.

On account of performance reasons, it is also recommended to define these buffer pools large enough that the editor does not need to swap to the EDTWORK dataset.

Migration of Log Data to the System Automation Tools Log File

From Entire Operations Version 5.3.1 to Version 5.4.1, no migration of the System Automation Tools (SAT) log data is necessary. The format of the log file remains the same.

Usage of Separate System Automation Tools Log Files for Several Products

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

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

Notes about the Usage of separate System Automation Tools Log Files

1. In the SYSSATU/SP*nnn* member, there must be different assignments for the System Automation Tools log file for each product.

2. If you use a common Natural parameter module for the Entire Systems Management products, only one NTLFILE setting for the System Automation Tools log file can be defined there. Therefore it is recommended to use the Natural SYSPARM facility to create a separate profile for each Entire Systems Management product. These profiles must contain the setting of the LFILE 131 to the product-specific System Automation Tools log file.