Installing the Natural TSO Interface

The Natural TSO Interface (NATTSO) consists of a number of service routines interfacing with the OS/390 operating system. NATTSO is supplied as a source module and can be customized to meet your requirements (see also Step 3 of the NATTSO installation).

You have two options:

- assemble and link it to the Natural nucleus
- or run it separately, connecting with a shared nucleus.

NATTSO is fully reentrant and can run above the 16 MB line.

This document describes step by step how to install Natural in a TSO environment. It covers the following topics:

- Prerequisites
- Installation Tape for the Natural TSO Interface
- Installation Procedure for the Natural TSO Interface
- Installation Verification

For information on the following topics, refer to Natural under TSO (in the Natural TP Monitor Interfaces documentation):

- General Information about the Natural TSO Interface
- Natural TSO Datasets

Notation *vrs* or *vr:* If used in the following document, the notation *vrs* or *vr* stands for the relevant ***v***ersion, ***r***elease, ***s***ystem maintenance level numbers.

Copyright Software AG 2002

Prerequisites

Base Natural must be installed under OS/390.

See Installing Natural under OS/390.

Installation Tape for the Natural TSO Interface

The installation tape contains the dataset listed in the table below. The position of the dataset is shown in the **Report of Tape Creation** which accompanies the installation tape.

Dataset Name	Contents
NTI*nnn*.SRCE	TSO-dependent source programs

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

Copying the Tape Contents to Disk

If you are not using System Maintenance Aid:

Adapt and run job NTITAPE to copy the dataset from tape to disk.

NTITAPE is contained in job dataset NAT*nnn*.JOBS on the Natural installation tape; see Installation Tape for Natural under OS/390.

The dataset type and the space it requires on disk are shown in the **Report of Tape Creation**.

Installation Procedure for the Natural TSO Interface

Step 1: Create CLIST

(Job I070, Step 2400)

Create a source Natural TSO CLIST.

This CLIST is used later to invoke Natural under TSO. Please note that this is only a basic example which you can adapt to your requirements and to your TSO environment.

Step 2: Create ADARUN Cards

(Job I070, Step 2410)

Create source ADARUN cards.

This source member is required by the CLIST created in Step 1.

Step 3: Create and Assemble Module NATTSO

(Job I070, Step 2415,Step 2420)

The source program NATTSO contains a call to macro NTTSO, which generates the Natural TSO Interface.

 Copyright Software AG 2002

The following parameters can be set in this macro call:

Parameter	Explanation
ABEXIT=ESTAE/SPIE/NONE	Specifies the mode of abend processing within Natural. With ABEXIT=ESTAE, Natural intercepts all abends and issues the appropriate error messages. With ABEXIT=SPIE, only program checks are intercepted as they used to be with Natural Version 2.1. With ABEXIT=NONE, Natural does not intercept any abends or program checks at all. The default value is "ESTAE".
ALTSCRN=YES/NO	Specifies the screen mode in which a session is to run. By default, a session runs in alternate screen mode ("YES"). If ALTSCRN is set to "NO", the session runs in default screen mode .
FACOM=NO/YES	Specifies whether the FACOM operating system is to be used. With FACOM=NO, FACOM is not used. With FACOM=YES, FACOM is to be used. The default value is "NO".
LBPNAME=*name*	This parameter controls the sharing of the local buffer pools. It defines the *name* of the shared buffer pool environment. (1-8 characters) and is used to locate and synchronize the local buffer pools. The default value is none, that is, local buffer pools are not shared. When running multiple Natural sessions under OS/390 in a batch or TSO environment concurrently, for example, using a Natural RPC, each session allocates storage for separate local buffer pools. Except for the Natural OS/390 batch server, the local buffer pools are not shared, that is, if the different sessions use the same Natural objects, these have to be loaded once for each session. The buffer pool specified by *name* will be shared by the different Natural sessions.
LE370=NO/YES/POSIX	Specifies whether Natural is to run in the IBM language environment. With LE370=YES, you can call external subprograms according to the LE/370 calling conventions. With LE370=NO, you can only call main programs of the language environment. With LE370=POSIX, you can call external subprograms according to the LE/370 calling conventions with POSIX semantics, i.e. LE/370 is initialized with runtime option POSIX(ON). The default value is "NO".
NDBFSRV=NO/YES	Specifies whether the Natural for DB2 file server is to be used. With NDBFSRV=YES, this file server is invoked at each terminal I/O. With NDBFSRV=NO, this file server will not be used. The default value is "NO".
SUBPOOL=*nnn*	Defines the storage subpool for GETMAIN requests. Possible values are "0" to "127". The default value is "0".

SWAPKEY=*key*	Defines the TSO/ISPF split screen swap key for Natural, which is assigned to PF9 on most of the ISPF panels. Valid keys are PF1 to PF24 and PA1 to PA3. Split screen support requires TSO/ISPF interface module ISPLINK from the ISPF load library to be included in the link step for Natural/TSO. By default, no split screen support is generated.
TTYTYPE=*type*	Defines the default device type for TTY terminals. The specified type must be defined in the NATCONFG (Natural configuration) module. It can be overwritten by the TTYPE profile parameter or by the "%T" terminal command. The default value is "TTY".

Assemble and link the Natural TSO Interface module NATTSO.

Step 4: Create and Assemble Parameter Module

(Job I080, Step 0010, Step 0015)

Create the Natural parameter module for TSO.

The following parameters in the parameter module must be modified for the installation:

```
FNAT=(dbid,fnat)
  FUSER=(dbid,fuser)
```

For *dbid*, *fnat* and *fuser* use the values you specified when loading the system files; see Installation Procedure for Natural under OS/390

Global Buffer Pool: If you wish to use a Natural *global* buffer pool under TSO, specify macro NTBPI as in Step 7 of the Natural installation procedure under OS/390.

For all other parameters: You can generally use the default values.

Modify only the values of those parameters whose default values do not suit your requirements.

For a description of the individual parameters contained in the parameter module, refer to Parameter Reference (in the Natural Reference documentation).

For dynamic assignment of profile parameters, see also the CMPRMIN dataset described in the section Natural in Batch Mode (in the Natural Operations for Mainframes documentation).

Assemble and link the parameter module.

Step 5: Link Natural TSO Nucleus

(Job I080, Step 0020)

With the INCLUDE instruction for the parameter module, specify the name of the Natural TSO parameter module created in Step 4.

Non-Shared Nucleus:
If you do not wish to use a shared Natural nucleus under TSO:
merge all INCLUDE statements and corresponding DD cards from Job I060, Step 0105 (shared nucleus) into Job I080, Step 0020 (front-end).

 Copyright Software AG 2002

Link the executable Natural TSO nucleus.

Step 6: Make Adabas Interface Available

You have two options:

- Include the Adabas load library in the steplib of your TSO user procedures.
- Or copy the modules listed in the section referring to installation with TSO of the appropriate Adabas installation manual to a library of your TSO user steplib.

Installation Verification

Perform the following steps to verify the successful installation of the Natural TSO Interface:

1. Enter TSO, "READY" mode.
2. Invoke the CLIST you created in Step 1 of this Installation Procedure.
   Example:

   ```
   EX 'SAGLIB.SMA.SRCE(NATvr)'
   ```

3. Proceed with the steps described in the section Installation Verification for TP Monitor Interface.