

Installing the Natural Web I/O Interface Server under SMARTS on BS2000/OSD

This chapter describes how to install a server for the Natural Web I/O Interface (product code NWO) in the runtime environment SMARTS on BS2000/OSD.

The following topics are covered:

- Prerequisites
 - Installation Tape
 - Installation Procedure
 - Installation Verification
 - SMARTS Portable File System on BS2000/OSD
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Prerequisites

For details, refer to the section *Prerequisites*.

Installation Tape

Content of the Web I/O Interface Server Distribution Tape

The installation tape contains the datasets listed in the table below. The sequence of the datasets and the number of library blocks needed are shown in the *Report of Tape Creation* which accompanies the installation tape.

Dataset Name	Contents
APSVRS.LIB	Contains the load modules and the procedures of the SMARTS server.
APSVRS.L0pp	Patch-level of SMARTS (product code APS). The content of this library must be copied into the library APSVRS.LIB.
NWOVRS.MOD	Contains the load modules of the Natural Web I/O Interface server.
NWOVRS.JOBS	Contains the Installation Job Control for those customers who want to install without using System Maintenance Aid (SMA).
NCFVRS.MOD	Contains the load modules of the Natural Complete Interface (required for SMARTS).
NCFVRS.MAC	Contains the macros of the Natural Complete Interface (required for SMARTS).

- where

vrs in a dataset name represents the version, release and system maintenance level of the product.

pp in a dataset name represents the patch level of the product.

Content of the Web I/O Interface Server JOBLIB

Naming Conventions

In the following text, the library name JOBLIB stands for

- the example job library (NWO*vrs*.JOBS), if you are not using SMA, or
- the SMA job library (see SMA parameter JOBLIB in SMA Parameter Group BASIC), if you are using SMA.

Software AG uses the following naming conventions for source elements in the library JOBLIB:

A<*product-code*><*function*> = Assembler sources

L<*product-code*><*function*> = Instruction for TSOSLNK/BINDER

Important Elements of the Job Library

Element	Description
NWO-SYSPARM	SMARTS parameters for NWO.
NWO-CONFIG	NWO configuration parameters.
NWO-ADAPARM	ADALNK parameter for NWO.
ANCFPRMW	Assembler source - Natural Com-plete interface.
ANWOPARM	Assembler source - Natural parameter module for NWO.
LNATSHAR	Link instructions to link the Natural nucleus.
LNWOFRNT	Link instructions to link the NWO front-end module.
START-NWO	Procedure to start the NWO server.
STOP-NWO	Procedure to stop the NWO server.
SHOW-SYSOUT	Show SYSOUT file.

Installation Procedure

To install the Natural Web I/O Interface server in a SMARTS environment on BS2000/OSD, perform the following steps:

Step 1: Assemble the Natural Com-plete interface

(Job I055, Step 9410)

Assemble the source ANCFPRMW which is contained in the library JOBLIB.

Step 2: Assemble the Natural parameter module

(Job I055, Step 9420)

Assemble the source ANWOPARM which is contained in the library JOBLIB.

Step 3: Relink the Natural nucleus module

(Job I060, Step 3802)

This step is optional.

The Natural nucleus module must be relinked with the modules NATWEB if this has not been included yet. This is accomplished by using the source LNATSHAR which is contained in the library JOBLIB.

If you are using SMA, please refer to the SMA Readme file of *NWOvrs* (skeleton `##NWOvrs-README`).

Step 4: Link the NWO front-end module

(Job I060, Steps 9410)

Link the NWO front-end module by using the source LNWOFRNT which is contained in the library JOBLIB.

Step 5: NWO clients must be defined to Natural Security

If Natural Security (NSC) is installed:

- The Web I/O Interface initial user ID (default ID is `STARGATE`) must be defined in Natural Security with a valid default library. Refer also to Web I/O Interface server configuration parameter `INITIAL_USERID`. Alternatively, you can define the Natural profile parameter `AUTO=OFF` (automatic logon) for the Web I/O Interface.
- Each client user ID must be defined in Natural Security.

If the Web I/O Interface initial user ID is not defined, the Web I/O Interface server initialization aborts with a NAT0856.

If a Web I/O Interface client is not defined, the server connection returns an NSC error.

If you connect to the server from a Web I/O Interface client, make sure that the user who is defined in Natural Security has a default library or a private library defined. Otherwise, error message NAT0815 will occur.

Installation Verification

Check Messages

BS2000/OSD Operator Console

```
APSSVR0026-* Server NCFNAT42 started
APSOPC0000-* SMARTServer is initialized
```

SYSOUT of FSIO-Task

The following messages are displayed when parameter TRACE_LEVEL=31 was set:

```
Template session initialized
Template runtime connected
Template runtime terminated
Template ready for clone
Listener thread launched 01625028
*****
***** Server is up *****
*****
Waiting for terminate event...
```

SMARTS Portable File System on BS2000/OSD

The following topics are covered below:

- PFS Description
- Allocating and Configuring a SMARTS Portable File System

PFS Description

SMARTS PFS (Portable or POSIX File System) implements a file system, known from UNIX systems, in a mainframe environment. Basically, it consists of a container file, which comprises all (UNIX) files and a corresponding (logical) access method, which processes all requested I/O operations.

The container file has to be allocated and preformatted using the BS2000/OSD procedure CREATE-PFS described below.

The PFS maps all file names to a node of a directory tree within the physical container file. In the case of BS2000/OSD, this container file is a PAM file with a block size of 4 KB (STD, 2).

Within Natural, the actual path is specified by a corresponding DEFINE WORK FILE statement in the program which executes work file or print file access.

Each node (subdirectory) is separated by a slash (/) from its parent. The highest level qualifies the file name.

Example 1:

```
DEFINE WORK FILE 1 '/MISC/USER1/TESTFILE/'
```

Specifies: ROOT' => MISC => 'USER1 => 'TESTFILE

```
://MISC/USER1/TESTFILE
```

Example 2:

```
DEFINE WORK FILE 1 'TESTFILE2.W01'
```

Specifies: ROOT' => TESTFILE2.W01

Allocating and Configuring a SMARTS Portable File System

The Natural server uses the SMARTS portable file system (PFS) as a data container for Natural work files, print files, temporary sort files and the editor work file. The SMARTS PFS is the only storage medium available for these files under SMARTS.

In order to be able to use the PFS for Natural files you have to configure Natural accordingly:

- For work files or print files, specify the access method AM=SMARTS, using the Natural profile parameters WORK (Work-File Assignments) and/or PRINT (Print File Assignments).
- For temporary sort files, specify the type of storage medium STORAGE=SMARTS, using the Natural profile parameter SORT (Control of Sort Program).
- And to allocate the editor work file in the PFS, specify the work file mode FMODE=SM, using the Natural profile parameter EDBP (Software AG editor buffer pool definitions).

If you use one of these options, you have to configure your SMARTS to use a PFS.

Step 1: Allocate a PFS

The file PFS.TST should not exist before the allocation procedure is executed, otherwise DMS error DMS0683 will occur.

The initialization can be done by using the following procedure:

```
/CLP FROM-FILE=*LIBRARY-ELEMENT(LIBRARY=APSVrs.LIB,ELEMENT=CREATE-PFS, -
/   TYPE=SYSJ),PROCEDURE-PARAMETERS=(FILE-NAME=PFS.TEST,SIZE=4096K, -
/   APS-LIB=APSVrs.LIB)
```

Step 2: Configure SMARTS

In the SMARTS SYSPARM configuration file, add the following lines:

```
CDI_DRIVER=( ' CIO, PAAQBIO, PFSTSK=PFSTASK, TRACE=N' )
CDI_DRIVER=( ' TESTPFS, PAANPFS, LRECL=4096, CONTAINER=CIO:PFS/TEST/' )
MOUNT_FS=( ' TESTPFS://', '/' )
```