Installing the Natural Development Server

This document describes how to install a Natural Development Server (product code NDV) under the operating system OS/390.

The following topics are covered:

- Prerequisites
- Content of the Development Server Distribution Tape
- Installation Procedure

Prerequisites

For details, refer to the section Prerequisites.

Content of the Development 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**
NDV*nnn*.LOAD	Contains the load modules of the development server. See Natural Development Server on Mainframes.
NDV*nnn*.EXPL	Contains the sample programs required for using the tutorial. See First Steps with Natural Single Point of Development.
NDV*nnn*.DE11	Contains instructions for deleting NDV Version 1.1 modules not used in NDV Version 2.1.
NDV*nnn*.INPL	Contains the transaction processor. See Natural Development Server on Mainframes.
NDV*nnn*.ERRN	Contains the error messages of the transaction processor.
NDV*nnn*.SYSF	Contains the FDT of the Development Server File (the layout is identical with PRD*nnn*.SYSF provided with a Predict version as specified under Natural and Other Software AG Products in the current Natural Release Notes).

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

Installation Procedure

To install the Natural Development Server in the OS/390 environment, perform the following steps:

Copying the Tape Contents to Disk

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.

If the datasets for more than one product are delivered on the tape, the dataset COPY.JOB contains the JCL to unload the datasets for all delivered products from the tape to your 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 COPYTAPE.JOB

Modify the COPYTAPE.JOB to conform with your local naming conventions and set the disk space parameters before submitting 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.

Step 4: Create a development server configuration file and sample Clist

(Job I009 / Step 8410,8420,8430)

See sample member NDVCONFG on dataset NDV*nnn*.JOBS.

Step 8430 creates a sample batch job to PING and TERMINATE an NDV server. See sample member NDVBATCH on dataset NDV*nnn*.JOBS.

Described in the section Development Server Configuration under OS/390.

The following parameters of the configuration file have to be defined. For the other parameters, the default values may be used:

FRONTEND_NAME	Specify the name of the NDV server frontend module you generate in Step 6.
PORT_NUMBER	Specify the TCP/IP port number under which the server can be connected..

Step 8420 creates a sample CLIST to PING and TERMINATE an NDV server. See sample member NDVCLIST on dataset NDV*nnn*.JOBS.

Step 5: Load FDIC system file (optional)

(Job I050, Step 8403)

If you do not use Predict at all or if you have not yet migrated to a Predict version as specified under Natural and Other Software AG Products in the current Natural Release Notes, create the development server file, using the dataset NDV*nnn*.SYSF.

The layout of the Development Server File corresponds to the layout of the Predict Version 4.2 or above dictionary file.

Note: If you have a Predict version installed as specified under Natural and Other Software AG Products in the current Natural Release Notes, you can ignore this step.

Step 6: Assemble and link reentrant ADALNKR

(Job I055, Step 8401)

The server environment requires a reentrant ADALINKR module.

Link ADALNK using the RENT option.

Step 7: Assemble NATOS with LE370=YES

(Job I055, Steps 8410, 8420)

- Job I055, Step 8410 starts the batch program IEBUPDATE to create the source member.
- Job I055, Step 8420 assembles and links NATOS.

Adapt your Natural parameter module with the new parameters and assemble it.

Link the new Natural parameter module and, if Predict is to be used, the PRDXREF module from the load library NAT31*n*.LOAD to the environment-independent part of the Natural nucleus.

Step 8: Create NATPARM and NDV server front-end module

(Job I060, Steps 8410, 8420, 8430)

- Job I060, Step 8410 starts the batch program IEBUPDATE.
- Job I060, Step 8420 assembles and links NATPARM.
- Job I060, Step 8430 link the NDV server frontend module.

Step 9: Delete Old Objects

(Job I061, Step 8440)

This step is required if NDV Version 1.1 was installed before. For a first time installation of NDV, skip this step.

Use the INPL command to delete the objects in dataset NDV*nnn*.DE11 from your Natural system file (FNAT). These modules are not used by the current NDV version.
Note that the parameter FDIC must have been set to point to your Natural development server file.

Step 10: Load Natural objects, error messages and samples for NDV

(Job I061, Steps 8450,8451,8452)

During NDV INPL the assigned FDIC/FSEC file is initialized with NDV specific information.

- Load objects from dataset NDVnnn.INPL onto your Natural system file (FNAT) using the INPL command. The parameter FDIC must have been set to point to your development server file.
- Load the error messages from dataset NDV*nnn*.ERRN using ERRLODUS.
- To use the tutorial (see First Steps with Natural Single Point of Development), load the sample programs from dataset NDVnnn.EXPL to your Natural system file.

Step 11: Copy DDMs and processing rules to FDIC (optional)

If you use a Predict system file FDIC as development server file (FDIC), ignore this step.

If a Predict version as specified under Natural and Other Software AG Products in the current Natural Release Notes has not been installed or if you do not use a Predict system file FDIC as development server file (FDIC), you have to copy the existing DDMs and processing rules to the development server file (FDIC), using the copy function of the Natural utility SYSMAIN.

Step 12: Create server startup JCL

(Job I200, Step 8415)

Described in the section Development Server Configuration under OS/390. See sample member NDVSTART on dataset NDV*nnn*.JOBS.

Sample:


```
//         PROC SRV=SAGNDV
//NDV      EXEC PGM=NATRDEVS,
// REGION=4000K,TIME=1440,PARM='POSIX(ON),TRAP(ON,NOSPIE)/&SRVŸ
//STEPLIB  DD   DISP=SHR,DSN=NDVvrs.LOAD
//         DD   DISP=SHR,DSN=SMA.LOAD
//SYSUDUMP DD   SYSOUT=X
//CEEDUMP  DD   SYSOUT=X
//CMPRINT  DD   SYSOUT=X
//STGCONFG DD   DISP=SHR,
//              DSN=NDV.CONFIG(&SRV)
//STGTRACE DD   SYSOUT=X
//STGSTDO  DD   SYSOUT=X
//STGSTDE  DD   SYSOUT=X
//SYSOUT   DD   SYSOUT=X
```

Note: The NDV server account must be defined in OS/390 UNIX System Services (OE segment). If the server account is not defined, the server ends with U4093 and system message CEE5101C in the trace file.

Step 13: NDV Clients must be defined to Natural Security

If Natural Security (NSC) is installed:

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

If the NDV initial user ID is not defined, the NDV server initialization aborts with a NAT0856.

If an NDV client is not defined, the map environment returns an NSC error.

If you logon to the server from an NDV client, make sure that the user who is defined in Natural Security has a default libary or a private library defined. Otherwise, error message NAT0815 will occur.

