

Before You Begin

This section contains information you should read before installing Natural Business Services or Natural Construct.

Note:

When installing both products, you must install Natural Construct before installing Natural Business Services.

The following topics are covered:

- Prerequisites
 - Operating Environments
 - Dataset Naming Conventions
 - System Maintenance Aid (SMA)
 - Description of Installation Tape
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Prerequisites

This section describes the software and hardware requirements for Natural Business Services and Natural Construct on mainframe platforms. The following topics are covered:

- Natural Business Services
- Natural Construct

Natural Business Services

This section describes the software prerequisites for installing the Business Service Administration subsystem on the mainframe. This documentation assumes you are installing Natural Business Services for the first time.

To use the online job submission features, the NATRJE module must be installed and operational (see your Natural Installation and Operations documentation).

Before installing Natural Business Services, the following products must be installed on your server:

- Natural V4.2
- Natural Security V4.2 (optional)
- Natural Construct V 5.3.1
- Adabas V7.4 or higher

Important:

If you are using Adabas V7.4, apply Adabas zaps AU742187/AU743100/AU744033 before beginning the installation procedure. This is not required for Adabas V8.

- EntireX Communicator V7.2
- Entire Net-Work V5.9.1 or higher or EntireX Communicator configured to use TCP/IP as the network transport protocol
- Natural Development Server (NDV) V2.2 (conditional on whether Natural for Windows will be used)

Natural Construct

Natural Construct V5.3 is compatible with the following Software AG products and versions:

- Natural V4.2
- Natural Business Services V5.3
- Adabas V7.4 or higher

Important:

If you are using Adabas V7.4, apply Adabas zaps AU742187/AU743100/AU744033 before beginning the installation procedure. This is not required for Adabas V8.

- Predict V4.5

Note:

If you are creating business services from existing Natural subprograms, Predict is not required. Predict, however, allows Natural Construct to use its relationships, views, verification rules, and field attributes (such as column headings, edit masks, and business data types) to generate consistent code.

The Natural Construct installation tape includes sample JCL for the installation (see the `CSTnnn.JOBS` dataset).

This guide assumes you are installing Natural Construct for the first time or upgrading from Natural Construct V5.2. If you are upgrading from any other version, read the release notes and installation guides for all versions between your current version and V5.2 and perform the required procedures.

As some components of Natural Construct require access to the Software AG editor, ensure that the editor is fully installed and operational. To use the online job submission features, you must also ensure that the NATRJE module is fully installed and operational. For information about the editor or NATRJE module, see your Natural installation and operations documentation.

Operating Environments

This section describes the operating environments for Natural Business Services and Natural Construct on mainframe platforms. The following topics are covered:

- Operating Systems
- TP Monitors
- Natural Construct Environments

Operating Systems

The Business Service Administration subsystem V5.3 and Natural Construct function in any environment that supports Natural V4.2, including the following operating systems:

- BS2000/OSD

Note:

EntireX V7.2 is not currently supported on BS2000/OSD. To use Natural Business Services, you must have EntireX Broker installed on a supported platform and the Broker Stubs installed on BS2000/OSD.

- z/OS
- z/VSE

TP Monitors

Like Natural, the Business Service Administration subsystem and Natural Construct run under the following teleprocessing monitors:

- CICS
- Com-plete
- IMS/DC
- TSO

Natural Construct Environments

This section describes the data structures accessed by Natural Construct-generated applications, the compatible Natural software systems, and the use of Natural Security. The following topics are covered:

- Data Access
- Natural Software Systems
- Natural Security

Data Access

Natural Construct generates applications that access the following data structures:

- Adabas
- DB2

- SQL/DS
- VSAM
- DL/1

You can also create your own models to access other data structures.

Natural Software Systems

Natural Construct operates in conjunction with any Natural software system, including:

- Natural Security
- Natural ISPF
- Predict V4.5
- Entire Connection
- Natural Process
- Natural Business Services V5.3

Natural Security

Access to Natural Construct is protected by Natural Security facilities. Natural Construct-generated modules operate within, and are controlled by, the Natural Security system.

Dataset Naming Conventions

The Business Service Administration subsystem and Natural Business Services installation tapes use a dataset-naming convention that identifies the product, version number, release number, system maintenance level, and dataset type. For example, the Natural Business Services installation tape includes the following dataset:

NBS nnn .INPL

This dataset name consists of the following components:

Component	Description
NBS	Product code (NBS for Natural Business Services or CST for Natural Construct)
n	Version number
n	Release number
n	System maintenance level
INPL	Dataset type

System Maintenance Aid (SMA)

To install Software AG products, use the installation jobs. You can either create these jobs manually using JCL or use System Maintenance Aid (SMA).

Note:

If you are not using SMA, the JCL for installing is included in Copy the Tape Contents to Disk. Adapt this sample job to your requirements.

If you are using SMA, perform the following steps before generating jobs:

1. Load the SMA table data as described in the System Maintenance Aid documentation (if you have not already done so).
2. Set `CST53n` in the list of available products for your environment to `TO BE INSTALLED`.
3. If you are performing a first-time installation, adapt the `FCST` and `FCST-DBID` parameters in the `FILNUM` parameter group to the required values.

To use SMA, set the following options in your SMA environment (specified on the **Modify Environment** panel). Verify all options before generating jobs, as they may be set from a previous installation.

CST-FIRST-INSTALL

To load a new Natural Construct system file, set this option to "Y". To migrate your existing system file to the current version, set this option to "N". The new help text, code frames, and models will be loaded.

CST-FULL-ENV

To establish an environment in which you can generate, catalog, and run generated modules, set this option to "Y". This will load the `CSTnnn.INPL` dataset.

Note:

The `CSTnnn.INPL` dataset contains the Predict modules and will automatically install these modules in your environment.

CST-CAT-ENV

To establish an environment in which you can catalog and run (but not generate) generated modules, set this option to "Y". This will load the `CSTnnn.INPC` dataset (subset of `CSTnnn.INPL`).

CST-EXE-ENV

To establish an environment in which you can run (but not generate or catalog) generated modules, set this option to "Y". This will load the `CSTnnn.INPE` dataset (subset of `CSTnnn.INPC`).

CST-LOAD-PRD

To load the Predict definitions for the demo system and system file, set this option to "Y".

CST-LOAD-DB2

To install the demo system to access DB2 tables, set this option to "Y". (Natural for DB2 must be installed.)

CST-LOAD-VSAM

To install the demo system to access VSAM files, set this option to "Y". (Natural for VSAM must be installed.)

FCST

File number of the Natural Construct system file.

ESIZE-NAT (BS2000/OSD only)

ESIZE for batch environments (minimum is 220).

ESIZE-NRT (BS2000/OSD only)

ESIZE for TIAM environments (minimum is 220).

ESIZE-NUT (BS2000/OSD only)

ESIZE for UTM environments (minimum is 220).

FCST-DBID (z/OS only)

Database ID of the Natural Construct system file.

ESIZE-BATCH (z/OS only)

ESIZE for batch environments (minimum is 120).

ESIZE-ONLINE (z/OS only)

ESIZE for online environments (minimum is 220).

ESIZE (z/VSE only)

ESIZE for z/VSE environments (minimum is 220).

RUNSIZE

Size of the Natural runtime buffer (minimum is 40).

SYNERR

SYNERR option, which must be set to "ON".

Note:

The <DATSIZE> buffer is a "variable size" buffer. If more storage is required during the session for local data areas, the <DATSIZE> buffer is expanded dynamically. In a thread environment, the <DATSIZE> may be temporarily allocated outside the storage thread if it becomes too large. The size of the <DATSIZE> buffer is reduced back to the minimum size when the application does not need the space any longer.

Description of Installation Tape

This section describes the installation tape for Natural Business Services. The *Report of Tape Creation* lists the volume serial number, media type, dataset names, and dataset sequence numbers. It also indicates the record layouts and disk storage required for each dataset.

The following topics are covered:

- Contents of the Installation Tape
- Copy the Tape Contents to Disk

Contents of the Installation Tape

The Natural Business Services installation tape contains the datasets described in this section. Dataset names beginning with NBS contain Natural Business Services data, while those beginning with CST contain Natural Construct data:

User	Dataset Name	Description
All	NBS nnn .INPL	INPL dataset containing the Business Service Administration subsystem modules.
	NBS nnn .IUPD	INPL dataset containing updates and fixes to the main INPL dataset. Load this dataset after loading the NBS nnn .INPL dataset. Note: This dataset is only supplied if there are updates or fixes to the main INPL dataset.
	NBS nnn .SYS1	Dataset containing the Business Service Administration subsystem file. This file contains secured data used as input to the Adabas ADALOD load utility.
	NBS nnn .SYS2	Dataset containing the Business Service Administration subsystem data file. This file contains unsecured data used as input to the Adabas ADALOD load utility.
	NBS nnn .NCSR	Dataset containing the Natural client service runtime component. To create a runtime environment for generated Natural clients, install this dataset in a non-Natural Business Services environment. For instructions on installing this component, see Installing the Natural Client Service Runtime Component.
	CST nnn .INPL	INPL dataset containing all the modules required to generate, catalog, and run Natural Construct-generated modules. It also contains the messages used by Natural Construct-generated applications.
	CST nnn .INPC	INPL dataset containing the modules required to catalog and run generated modules. This dataset is a subset of CST nnn .INPL. It also contains the messages used by Natural Construct-generated applications.

User	Dataset Name	Description
	CST nnn .INPE	INPL dataset containing the modules required to run (but not catalog) generated modules. This dataset is a subset of CST nnn .INPC. It also contains the messages used by Natural Construct-generated applications.
	CST nnn .SYSF	Dataset used to unload the Natural Construct SYSF system file. Use this data file as input to the Adabas load utility (ADALOD).
	CST nnn .SYSH	Dataset containing help text. This dataset is a subset of CST nnn .SYSF.
	CST nnn .SYSM	Dataset containing program models. This dataset is a subset of CST nnn .SYSF.
	CST nnn .SYSR	Dataset containing code frames. This dataset is a subset of CST nnn .SYSF.
	CST nnn .DA4	Dataset containing Predict views used in the demo application.
	CST nnn .VINP	INPL dataset containing the Natural Construct demo programs to access VSAM data files.
	CST nnn .VD4	Dataset containing Predict definitions for the VSAM demo application.
	CST nnn .DINP	INPL dataset containing the Natural Construct demo programs to access DB2 data files.
	CST nnn .DD4	Dataset containing Predict definitions for the DB2 demo application.
	CST nnn .CPRD	Dataset containing all Predict interface modules for users running Natural Construct V5.3 with Predict V4.5.
	CST nnn .C521	Dataset containing the code frame listings used to compare the code frames in Natural Construct V5.3 with those in V5.2.
	CST nnn .FUPD	Dataset containing the updated Natural Construct code frames. Note: This dataset is only supplied when there are updates or fixes for the CST nnn .SYSR dataset.
z/OS and BS2000/OSD	NBS nnn .JOBS	Dataset containing sample JCL for all functions required to install the Business Service Administration subsystem.
	CST nnn .JOBS	Dataset containing sample JCL for all functions required to install Natural Construct.
z/VSE	NBS nnn .LIBJ	Dataset containing sample JCL for all functions required to install the Business Service Administration subsystem.
	CST nnn .LIBJ	Dataset containing sample JCL for all functions required to install Natural Construct.

Copy the Tape Contents to Disk

You may want to copy the datasets on the installation tape to disk. The disk storage required for each dataset is given in the Report of Tape Creation, which accompanies the installation tape. The procedure to copy the datasets to disk differs, depending on whether you are using System Maintenance Aid (SMA). If you are using SMA, refer to the System Maintenance Aid (SMA) documentation (included on the current Natural documentation CD).

If you are not using SMA, refer to one of the following sections:

- BS2000/OSD Users
- z/OS Users
- z/VSE Users

BS2000/OSD Users

The following steps apply to BS2000/OSD users.

1. Copy the SRVnnn.LIB library from tape to disk.

This step is not required if you have already copied the SRVnnn.LIB library from another Software AG tape. For more information, see the #READ-ME file in this library.

The SRVnnn.LIB library is stored on the tape as the SRVnnn.LIBS sequential file containing LMS commands. The current version *nnn* can be obtained from the *Report of Tape Creation*.

To convert the SRVnnn.LIBS sequential file into an LMS-library, execute the following commands:

```
/IMPORT-FILE  SUPPORT=*TAPE(FILE-NAME=SRVnnn.LIBS, -
/  VOLUME=<volser>, DEV-TYPE=<tape-device>)
/ADD-FILE-LINK LINK-NAME=EDTSAM, FILE-NAME=SRVnnn.LIBS, -
/  SUPPORT=*TAPE(FILE-SEQ=3), ACC-METH=*BY-CAT, -
/  BUF-LEN=*BY-CAT, REC-FORM=*BY-CAT, REC-SIZE=*BY-CAT
/START-EDT
@READ  ' / '
@SYSTEM 'REMOVE-FILE-LINK  EDTSAM'
@SYSTEM 'EXPORT-FILE  FILE-NAME=SRVnnn.LIBS'
@WRITE  'SRVnnn.LIBS'
@HALT
/ASS-SYSDTA  SRVnnn.LIBS
/MOD-JOB-SW  ON=1
/START-PROG  $LMS
/MOD-JOB-SW  OFF=1
/ASS-SYSDTA  *PRIMARY
```

where:

- <tape-device> is the device type of the tape (for example, TAPE-C4)
 - <volser> is the VOLSER of the tape (see the *Report of Tape Creation*)
2. Copy the COPY.PROC procedure from tape to disk.

To copy the COPY.PROC procedure to disk, call the P.COPYTAPE procedure in the SRVnnn.LIB library:

```
/CALL-PROCEDURE (SRVnnn.LIB,P.COPYTAPE), -
/ (VSNT=<volser>, DEVT=<tape-device>)
```

Note:

If you use a TAPE-C4 device, you can omit the DEVT parameter.

3. Copy all product files from tape to disk.

To copy all Software AG product files from tape to disk, enter the COPY.PROC procedure:

```
/ENTER-PROCEDURE COPY.PROC, DEVT=<tape-device>
```

Note:

If you use a TAPE-C4 device, you can omit the DEVT parameter. The result from this procedure is written to the 'L.REPORT.SRV' file.

z/OS Users

The following steps apply to z/OS users. If the datasets for more than one product are on the tape, the COPY.JOB dataset contains the JCL to unload the datasets for all products. You must then perform the individual installation procedure for each component.

1. Copy the COPY.JOB dataset from tape to disk.

The COPY.JOB dataset (label 2) contains the JCL to unload all other datasets from the installation 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

2. Modify COPY.JOB to conform with your naming conventions.

Before submitting this job, set the following parameters:

- Set HILEV to a valid high-level qualifier
 - Set LOCATION to a storage location
 - Set EXPDT to a valid expiration date
3. Submit the job.

To unload all other datasets from the tape to your disk, submit COPY.JOB.

z/VSE Users

The following steps apply to z/VSE users. If the datasets for more than one product are on the tape, the COPYTAPE.JOB member contains the JCL to unload the datasets for all delivered products (except datasets you can install directly from tape, such as INPL objects). You must then perform the individual installation procedure for each component.

1. Copy the COPYTAPE.JOB dataset from tape to disk.

The COPYTAPE.JOB dataset (file 5) contains the JCL to unload all other datasets from tape to disk. To unload COPYTAPE.JOB, use the following sample JCL:

```
* $$ JOB JNM=LIBRCAT,CLASS=0,
* $$ DISP=D,LDEST=(*,UID),SYSID=1
* $$ LST CLASS=A,DISP=D
// JOB LIBRCAT
* *****
*      CATALOG COPYTAPE.JOB TO LIBRARY
* *****
// ASSGN SYS004,NNN                <----- tape address
// MTC REW,SYS004
// MTC FSF,SYS004,4
ASSGN SYSIPT,SYS004
// TLBL IJSYSIN,'COPYTAPE.JOB'
// EXEC LIBR,PARM='MSHP; ACC S=lib.sublib'    <----- for catalog
/*
// MTC REW,SYS004
ASSGN SYSIPT,FEC
/*
/&
* $$ EOJ
```

where:

- *NNN* is the tape address
 - *lib.sublib* is the library and sub-library of the catalog
2. Modify COPYTAPE.JOB to conform with your naming conventions.

Before submitting this job, modify COPYTAPE.JOB to conform to your local naming conventions and set the disk space parameters.

3. Submit the job.

To unload all other datasets from the tape to your disk, submit COPYTAPE.JOB.