# Installing NAF under CICS

This chapter describes how to install Natural Advanced Facilities (NAF) under CICS.

- Prerequisites
- Installation Tape - z/OS Systems
- Installation Tape - z/VSE Systems
- Installation Procedure

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## Prerequisites

- Base Natural must be installed.
- The Natural CICS Interface must be installed.
- It is possible to use a VSAM file as a spool file. In this case, Natural for VSAM must be installed. For more information, see the *Natural for VSAM* documentation.

For further information, refer to the products and versions specified under *Natural and Other Software AG Products* and *Operating and Teleprocessing Systems Required* in the current Natural *Release Notes*.

## Installation Tape - z/OS Systems

The installation tape contains the datasets listed in the table below. The sequence of the datasets is shown in the Report of Tape Creation which accompanies the installation tape.

| Dataset Name | Contents |
|---|---|
| NAF*nnn*.LOAD | Natural Advanced Facilities executable load phases and modules which are necessary for the linkage editor. |
| NAF*nnn* SRCE | Natural Advanced Facilities source modules which include macros for specific TP monitors. |
| NAF*nnn*.INPL | Natural programs including example source programs and system load modules which are necessary for Natural Advanced Facilities. |
| NAF*nnn*.SYSF | FDT for spool file used as input to Adabas load utility. |
| NAF*nnn*.ERRN | Natural Advanced Facilities error messages. |

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

# Installation Tape - z/VSE Systems

The installation tape contains the datasets listed in the table below. The sequence of the datasets is shown in the Report of Tape Creation which accompanies the installation tape.

| Dataset Name | Contents |
|---|---|
| NAF*nnn*.LIBR | LIBR backup file. |
| NAF*nnn*.INPL | Natural programs including example source programs and system load modules which are necessary for Natural Advanced Facilities. |
| NAF*nnn*.SYSF | FDT for spool file used as input to Adabas load utility. |
| NAF*nnn*.ERRN | Natural Advanced Facilities error messages. |

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

# Installation Procedure

This section describes the jobs and steps required to install Natural Advanced Facilities (NAF). They apply to Adabas or VSAM system files.

For installation, use the jobs provided on your Natural tape (names begin with NAF).

- Step 1: Modify the CICS RDO Definitions
- Step 2: Create/Load the Spool File
- Step 3: Modify NAFPARMC
- Step 4: Create a Separate Thread Group for Printer Transaction
- Step 5: Modify NATPARM
- Step 6: Link the Natural Nucleus
- Step 7: Load the System Programs
- Step 8: Load the Error Messages
- Step 9: Natural Advanced Facilities and Natural Security
- Step 10: Start Natural
- Step 11: Create Sample Conversion JCL
- Step 12: Create NATSPOOL Environment
- Step 13: Natural Advanced Facilities and VTAM/SNA

- Step 14: Natural Advanced Facilities and VTAM/NON-SNA

# Step 1: Modify the CICS RDO Definitions

Job I005

For performance reasons, it is strongly recommended to specify for the spool server a transaction ID which is different from that of the terminal task. It is then possible to dedicate special threads to the spool server.

### VSAM System Files

The following additional step applies when using VSAM system files:

- Add the Natural Advanced Facilities spool files (`SPOOL`, `SPOOLA`, `SPOOLB`, `SPOOLC`, `SPOOLD` and `SPOOLE`) to your FCT.

Refer to the example job `NAFVI005`. You can also add `DD` statements for these datasets to your CICS startup job.

If you want to convert an existing VSAM spool file, the FCT must contain the entries for this spool file. The cluster names of the new and the old versions must be different. The VSAM database ID and file number as well as the VSAM DD-names must be unique.

# Step 2: Create/Load the Spool File

### Adabas Spool File

Job I050, Step 0300

The following steps only apply when using Adabas system files:

When you upgrade from the previous release of Natural Advanced Facilities, skip this step.

When you upgrade from a release which is older than the previous release, see the section relating to Natural Advanced Facilities migration in the Natural *Release Notes*.

Load the Natural Advanced Facilities spool file contained in `NAF`*`nnn`*`.SYSF` by using the `ADALOD` utility. An initial size of one cylinder for this file will be sufficient. The following parameters are mandatory:

```
ISNREUSE=YES
```

to cause Adabas to reuse the ISN of a deleted record. For the file number `<`*`fspool`*`>`, you may choose any value.

### VSAM Spool File

Job I008, Steps 0300 - 0311

The following steps only apply when using VSAM system files.

- Prepare VSAM Cluster for Spool File.
- Define and initialize a VSAM cluster (FSPOOL) to be used as a spool file and five alternative indices.

## Step 3: Modify NAFPARMC

Job I055, Step 0305

The use of the NAFPARMC parameter module is optional. Alternatively, to set the server options, you can use Function 30 of the SYSPOOL Application.

If using the NAFPARMC module, modify, assemble and link NARPARMC.

## Step 4: Create a Separate Thread Group for Printer Transaction

Jobs I070, I080

It is recommended to establish a separate thread group for the Natural Advanced Facilities printer transaction. To do so, perform these steps:

1. **Modify the Natural/CICS Control Block**
   Job I070, Step 2245

   Include a definition of the Natural Advanced Facilities printer thread group into the Natural/CICS control block.

2. **Relink the Modified Natural/CICS Control Block**
   Job I070, Step 2250

   Repeat linking of the Natural/CICS control block.

## Step 5: Modify NATPARM

Jobs I060, I080

Modify the parameters FSPOOL, NTPRINT, NAFUPF and NAFSIZE in NATPARM according to your site requirements. For more information on these parameters, see *NATSPOOL Initialization*.

Assemble and link the Natural parameter module NATPARM.

### VSAM System Files

The following additional step applies when using VSAM system files:

- Set the FSPOOL parameter as follows:

  FSPOOL=(*vsam-dbid*,*fnr-fspool*,*dd-name-fspool*)

  The *dd-name* is limited to seven characters.

## Step 6: Link the Natural Nucleus

Jobs I060, I080

Add the following INCLUDE statements in the link steps for Natural and link-edit the executable module:

| z/OS | z/VSE |
|---|---|
| INCLUDE NAFLIB(NAFAF) | INCLUDE NAFAF |
| INCLUDE NAFLIB(NAFNUC) | INCLUDE NAFNUC |
| INCLUDE SMALIB(NAFPARMC) (optional) | INCLUDE NAFPARMC (optional) |

Ensure that the Natural module NATTTY is part of your Natural nucleus, since NATTTY enables the Natural Advanced Facilities spool server to send error messages to a printer.

The link-edit of the load module containing Natural Advanced Facilities can be done in any of the following ways:

- Include all modules of Natural Advanced Facilities, that is, NAFNUC, NAFAF and, optionally, NAFPARMC, in the link-edit of Natural.

  **Note:**
  If a shared nucleus is created, the modules can be included in the shared nucleus.

- Link-edit NAFNUC, NAFAF and, optionally, NAFPARMC and an alternative Natural parameter module as a separate module with the mandatory name CMPRMTB specified in the ENTRY statement. The name of the resulting module is optional.

  **Note:**
  This way of link-editing only applies if an alternate parameter module (PARM=*parameter*) is used. If so, an additional CICS PPT entry with PROGRAM=*name* is required.

- Link-edit NAFNUC, NAFAF and, optionally, NAFPARMC as a separate module with the mandatory name CMAM08 specified in the ENTRY statement. The name of the resulting module is optional. If it is different from CMAM08, however, it must be specified as an alias name in an NTALIAS macro entry of the Natural parameter module.

  **Note:**
  This way of link-editing only applies if the Natural Resolve CSTATIC Addresses facility (RCA) is used. If so, an additional CICS PPT entry with PROGRAM=*name* is required.

The following additional step applies when using VSAM system files:

- Add the following INCLUDE instruction to all links of the Natural nucleus.

| Platform | Instruction |
|---|---|
| z/OS | INCLUDE NVSLIB(NVSFSPO) |
| z/VSE | INCLUDE NVSFSPO |

## Step 7: Load the System Programs

Job I061, Step 0300

Load the Natural Advanced Facilities system programs into the Natural system file by using the Natural INPL utility. INPL loads the maintenance programs under the application IDs SYSPOOL and SYSPRINT.

Ensure that INPL finishes with the message:

```
Natural Advanced Facilities initialized by INPL
```

If this initialization fails, various problems will be encountered at execution time.

This INPL file contains the source for all maps used in the Natural Advanced Facilities system.

These maps are provided in source form to enable users to customize the system (for example, to translate the maps from English to another language).

If these maps are modified, ensure that all fields have the same format/length/relative position in the map. Failure to abide by this restriction will result in an invalid system.

## Step 8: Load the Error Messages

Job I061, Step 0304

Load the Natural Advanced Facilities error messages file (dataset NAF*nnn*.ERRN) by using the ERRLODUS program as described in the Natural SYSERR utility documentation.

## Step 9: Natural Advanced Facilities and Natural Security

This step must only be performed, if Natural Advanced Facilities is being installed in a Natural Security environment.

Define SYSPOOL to Natural Security with startup program MENU.

**Note:**
The physical CICS printers and the application SYSPRINT need not be defined to Natural Security. The Natural Security logon processing will identify the NATSPOOL spool server and perform a simplified logon to SYSPRINT, that is, without any further security checks. In this way, maintenance efforts and the number of Adabas calls at the start of the spool server are considerably reduced. Any logon to SYSPRINT attempted by users other than the NATSPOOL spool server will be rejected by Natural Security, regardless of whether SYSPRINT is defined to it or not.

## Step 10: Start Natural

Start Natural and add the user profile, as defined in the NAFUPF parameter of NATPARM, to the SYSPOOL file by using Function 31.1.

**Note:**
A NAT7201 message is issued at the start of the session indicating that the profile has not yet been added to the SYSPOOL file.

## Step 11: Create Sample Conversion JCL

Job I200, Step 0300

When upgrading from Natural Advanced Facilities Version 4.1, skip this step. See *Migrating to Natural Advanced Facilities Version 4.2, Case 1*, in the Natural *Release Notes*.

When upgrading from a Natural Advanced Facilities version prior to Version 4.1, you must proceed as described in the section *Migrating to Natural Advanced Facilities Version 4.2, Case 2*, in the Natural *Release Notes*.

## Step 12: Create NATSPOOL Environment

To initialize a new `NATSPOOL` environment, see *NATSPOOL Initialization*.

## Step 13: Natural Advanced Facilities and VTAM/SNA

This step must only be performed, if Natural Advanced Facilities is being installed under CICS and is to be used in conjunction with VTAM/SNA printers.

- Define devices in the TCT with a `RELREQ` setting to `(YES,YES)`. (This will ensure that VTAM printers are released at the end of printout time when devices are shared with TSO, BATCH, JES, etc.)
- Define `TRMSTAT=INTLOG` or `CREATESESS=YES` for the printer to allow `EXEC CICS START` requests to create a session.
- Ensure that the device has the `SHARE` option generated into the controller VTAM specifications.

## Step 14: Natural Advanced Facilities and VTAM/NON-SNA

This step must only be performed, if Natural Advanced Facilities is being installed under CICS and is to be used in conjunction with VTAM/NON-SNA printers.

- Include `TRMSTAT=TRANSCEIVE` in the TCT definition for the device.
- Set the VTAM definition for the device parameter `ISTATUS` to `ACTIVE`.