General Installation Steps

This section covers the following topics:

- Installation Tape
- Which Installation Method?
- Pre-Installation Steps

Installation Tape

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. The notation *n* in the dataset name represents the SM level of the product, for example PAC Version 2.3.1.

- Tape Contents
- Copying to a BS2000/OSD Disk
- Copying to a VM/CMS Disk
- Copying to a OS/390 Disk
- Copying to a DOS/VSE Disk

Tape Contents

Datasets required for PAC and PAA:

Dataset Name	Contents
PAC23*n*.INPL	Natural modules in INPL format loaded into libraries SYSPAC, SYSPACA, SYSPACUS, SYSPAA, SYSPAAUS, SYSPAAA on the FNAT and into SYSTEM libraries on the FNAT and FUSER. `DCB=(RECFM=VB,LRECL=4624,BLKSIZE=4628)`
PAC23*n*.ERRN	PAC long and short error messages for libraries SYSPAC and SYSPAA on the FNAT. `DCB=(RECFM=VB,LRECL=4624,BLKSIZE=4628)`
PAC23*n*.SYS1	PAC system file (ACF) in Adabas ADAULD format and database description. Contains the data to be loaded into the ACF file. `DCB=(RECFM=VB,LRECL=9996,BLKSIZE=10000)`
PAC23*n*.SYS2	PAC system file (PCF) in Adabas ADAULD format and database description. Contains the data to be loaded into the PCF file used in a Predict version 4.1 environment. `DCB=(RECFM=VB,LRECL=9996,BLKSIZE=10000)`
PAC23*n*.SYS3	PAC system file (PCF) in Adabas ADAULD format and database description. Contains the data to be loaded into the PCF file used in a Predict version 4.2 environment. `DCB=(RECFM=VB,LRECL=9996,BLKSIZE=10000)`
PAC23*n*.SRCE (OS/390 only)	Contains the batch procedure PACBATCH. `DCB=(RECFM=FB,LRECL=80,BLKSIZE=6320)`
PAC23*n*.JOBS (OS/390 and BS2000/OSD)	Sample installation jobs. `DCB=(RECFM=FB,LRECL=80,BLKSIZE=6320)`
PAC23*n*.DATA	JCL texts to be loaded into the ACF. `DCB=(RECFM=FB,LRECL=80,BLKSIZE=6320)`
PAC23*n*.UTIL	Utilities PACN*, MIG*, MG*, COMPARE for migration PAC/PAA objects. `DCB=(RECFM=VB,LRECL=4624,BLKSIZE=4628)`
PAA23*n*.SYSF	PAA system file in Adabas ADAULD format and database description. Contains the data to be loaded into the PAA system file. `DCB=(RECFM=VB,LRECL=9996,BLKSIZE=10000)`
PAC23*n*.TAPE (VM/CMS)	Sample installation jobs. `DCB=(RECFM=U,LRECL=0,BLKSIZE=5000)`
PAC23*n*.LIBR (DOS/VSE)	Sample installation jobs. `DCB=(RECFM=U,LRECL=0,BLKSIZE=16632)`
PRD412.I0I8	INPL fix I8 for Predict 4.1.2. `DCB=(RECFM=VB,LRECL=4624,BLKSIZE=4628)`
PRD421.I0I1	INPL fix I1 for Predict 4.2.1. `DCB=(RECFM=VB,LRECL=4624,BLKSIZE=4628)`
PAC23*n*.ZAPS	Zaps are required for Natural for Mainframes 3.1.3 and 3.1.4.
NA314.I029	INPL fix 29 for Natural `DCB=(RECFM=VB,LRECL=4624,BLKSIZE=4628)`

Note:
The PAA system modules are no longer delivered in a separate dataset as it was with PAA13n.INPL. The PAA system modules have been merged with the PAC system modules delivered in the PAC231.INPL dataset. The change is also for preparations for future features of shared functionality in future releases.

Copying to a BS2000/OSD Disk

The steps required to copy the contents of the installation tape to disk depend on your operating system environment.

If you are not using SMA, copy the datasets from tape to disk using the steps below. The following values must be supplied:

- In the dataset names, replace *n* with the current system maintenance number of the datasets.
- Replace all *xxxxxx* with the volume serial number of the tape.

1. Copy the job dataset PAC23*n*.JOBS from tape to disk using the BS2000/OSD utility PERCON or EDT.

   If using PERCON, issue the following commands:

   ```
   /FILE PAC23n.JOBS,VOL=xxxxxx,DEV=T9G
   /     ,STATE=FOREIGN,FSEQ=UNK,LINK=PCIN
   /FILE P.PAC23n,LINK=PCOUT
   /EXEC PERCON
   END
   ```

   If using EDT, issue the following commands:

   ```
   /FILE PAC23n.JOBS,VOL=xxxxxx,DEV=T9G
   /     ,STATE=FOREIGN,FSEQ=UNK,LINK=EDTSAM
   /EXEC EDT
   @ READ '/
   @ SY '/REL EDTSAM'
   @ WRITE 'P.PAC23n
   @ HALT
   ```

2. Call PAC using the following command:

   /CALL PAC23*n*, PRODUCT=PAC23*n*

   A sample job library LIB.PAC23*n* will be created from the procedure dataset.

Copying to a VM/CMS Disk

1. To position the tape for the TAPE LOAD command, calculate the number of tape marks as follows:

   If the sequence number of PAC23*n*.TAPE - as shown by the Report of Tape Creation - is *n*, you must position over 3*n*-2 tape marks (that is, FSF 1 for the first dataset, FSF 4 for the second, etc.).

2. Access the disk that is to contain the PAC/PAA installation files as minidisk.

3. Ask the system operator to attach a tape drive to your virtual machine at address X'181' and mount the PAC/PAA installation tape.

4. When the tape has been attached, enter the VM/CMS command: `TAPE REW`

5. Position the tape by entering the VM/CMS command: `TAPE FSF n`Where n is calculated as above (3**n*-2).

6. Load the PAC/PAA VM/CMS installation material with the VM/CMS command: `TAPE LOAD * *` *`minidisk`*

You may wish to keep the tape drive attached to your virtual machine, because the tape is still required in the installation procedure.

Copying to a OS/390 Disk

1. If you are not using SMA, copy the job dataset PAC23*n*.JOBS from tape to disk using the sample JCL below. The following values must be supplied in the JCL:

   - In the dataset names, replace "23*n*" with the current version number of the datasets.
   - With the SER parameter, replace *xxxxxx* with the volume serial number of the tape.
   - With the LABEL parameter, replace *x* with the sequential number of the dataset on the release tape (see Report of Tape Creation).
   - With VOL=SER parameter, replace *yyyyyy* with the volume serial number of the disk pack.
   - With the UNIT parameter, replace *zzzzzz* with the device type being used.

2. Modify the sample JCL to meet your site's requirements for job card, dataset names, SYSOUT class, UNIT, and disk-volume serial number. Replace the variables below with the required information:

```
//      JOB  CARD
//PACCOPY   EXEC PGM=IEBCOPY
//SYSPRINT    DD SYSOUT=A
//IN1         DD DSN=PAC23n.JOBS,DISP=OLD,UNIT=TAPE,
//               VOL=(,RETAIN,SER=XXXXXX),LABEL=(x,SL)
//OUT1        DD DSN=SAGLIB.PAC23n.JOBS,DISP=(NEW,CATLG,DELETE),
//               UNIT=ZZZZZZ,VOL=SER=YYYYYY,SPACE=(CYL,(1,1,5))
//SYSIN       DD *
 C I=IN1,O=OUT1
/*
```

3. Then change and run job TAPE from the job dataset to copy the load library from tape to disk. The sample jobs directly use the sequential dataset from tape. The dataset type and the space each dataset requires on disk are shown in the Report of Tape Creation.

Copying to a DOS/VSE Disk

1. If you are not using SMA, copy the sub-library containing the sample installation jobs from tape using the sample JCL below. The following values must be supplied in the JCL:

   - The notation *xxxxxx* represents the tape volume serial number as shown in the Report of Tape Creation.
   - The notation *cuu* represents the physical unit address of the tape drive.
   - The notation *xx* represents the file sequence number given by (3 * file-no) -2, as shown in the Report of Tape Creation. If your library is the first dataset on the tape, leave out the "// MTC…" instructions.
   - The notation *n* represents the SM number of the product.

2. Now use job TAPE from this job library to restore the PAC/PAA sublibrary from tape and make PAC/PAA known to MSHP.

   All further datasets will be used directly from tape by the installation jobs.

```
* $$ JOB JNM=PACJOBS,CLASS=0,DISP=D,LDEST=*,SYSID=1
* $$ LST CLASS=A,DISP=D
//  JOB PACJOBS
//  ASSGN  SYS005,IGN
//  ASSGN  SYS006,cuu,VOL=xxxxxx
//  MTC REW,cuu
//  MTC FSF,SYS006,xx
```



```
*  *** Now processing PAC23n.LIBR - Sublibrary PAC23nJ ***
//  EXEC LIBR,PARM='MSHP'
  RESTORE SUBLIB=SAGLIB.PAC23nJ:SAGLIB.PAC23nJ -
        TAPE=SYS006 -
        LIST=YES -
        REPLACE =NO
/*
// MTC REW,SYS006
/*
/&
* $$ EOJ
```

3. Then adapt and run job TAPE from the job dataset to copy the load library from tape to disk. The sample jobs directly use the sequential datasets from tape.

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

Which Installation Method?

The installation method you choose depends on whether PAC/PAA is already installed at your site. There are two methods of installing PAC/PAA: first-time installation and conversion installation. In addition, it is possible to install PAA in a separate environment or install PAC Utilities at a remote site.

- First-Time Installation
- Conversion Installation from Previous Installed Versions

First-Time Installation

If you have not previously installed PAC / PAA, or if you currently have an earlier version of PAC / PAA, and want to install PAC / PAA version 2.3.1 as a separate system and will not be migrating or converting the current existing PAC and PAA data, go straight to First-Time Installation.

Conversion Installation from Previous Installed Versions

- PAC from 2.2.*n*

PAC conversion processes described in sectionUpgrading PAC may cause.

- The overwriting and deletion of Natural objects in libraries SYSPAC, SYSPACA, SYSPACUS, SYSPAA, SYSPAAA, and SYSPAAUS in the FNAT.
- The overwriting of modules SYSPAC, SYSPACA, SYSPAA, and SYSPAAA in the SYSTEM libraries in the FNAT and the FUSER.
- The deletion of modules with names beginning in 'MIG', 'MG', 'PAC', and 'PAA' from the SYSTEM libraries in the FNAT and the FUSER.
- The overwriting and deletion of error messages for libraries SYSPAC and SYSPAA in the FNAT.
- The overwriting of JCL texts in the ACF.

To keep the old PAC/PAA Natural objects (user exit subprograms included) and error messages you should back them up or use another (FNAT, FUSER) pair.

To keep the JCL texts currently in the ACF you can rename them using the PAC maintenance function.

The contents of the ACF and the PCF have to be modified to accommodate PAC 2.3.1. Back up the current contents of the ACF and the PCF before starting the conversion.

Having upgraded PAC you may need to modify user profiles, JCL texts, or application - production status links; use PAC administration and maintenance functions described in the PAC Administration documentation and the PAC User's Guide to do it.

Pre-Installation Steps

Caution:
Before you begin to install PAC/PAA 2.3.1, ensure that all pending PAC migration events (Started or Authorized state) are completed or backed out. Ensure that all PAC entities are resolved and unlocked. Otherwise, inconsistencies may arise during conversion from version 2.1.*n* and 2.2.1 to 2.3.1.

Before you begin installation of PAC/PAA version 2.3.1, do the following:

1. **Back up PAC/PAA System Files**
   Back up your existing PAC ACF and PCF system files, and the PAA system file that contains your PAA data. You must also backup the FNAT file(s) where PAC/PAA version 2.1 was installed and the FUSER and FDIC files where Natural objects were placed under PAC/PAA control.

2. **Back up your user exits**
   Back up your user exits, otherwise, these routines will be overwritten when PAC/PAA is installed. User-modifiable routines have the following prefixes: PACEX* PAAEX*.

   Note:
   Customized routines may need to be modified before using them in PAC/PAA version 2.3.1 For information on modifying these routines, refer to Customizing PAC/PAA.

3. **Rename JCL Texts**
   To preserve the JCL texts currently in the ACF, rename them using the PAC maintenance function.

4. **Backup and Delete System Libraries and Modules**
   SMA Reference: Job I051, Step 1700 / 1701 / 1702 / 1703 / 1704 / 1705

   Backup and delete the following:

   - System libraries SYSPAC, SYSPACA, SYSPACUS, SYSPAA, SYSPAAA, and SYSPAAUS on the FNAT.
   - Modules SYSPAC, SYSPACA, SYSPAA, SYSPAAA from library SYSTEM on the FNAT and FUSER.
   - Module COMPARE and those modules whose names begin in MIG, MG, PAC and PAA from library SYSTEM on the FNAT and FUSER.

   This step is required because numerous PAC/PAA modules from previous versions have been discontinued.

