

Applications

This section tells you how to define, maintain, and report on PAC applications. For general information about applications, see *Configuring a PAC Environment*.

The application is the high level identifier for a set of related objects. An object can be placed under PAC control only as part of an application. An application definition is required for every application placed under PAC control.

When an application definition is added to PAC, it is automatically linked to the Control status; this link is required and cannot be deleted.

Applications must be linked to predefined statuses. An environment exists only when statuses and applications are linked. The process of linking an application to a status is described in *Linking Applications and Statuses*.

The application names Predict and Predict Case are reserved for PAC and may not be deleted. These are special-use applications. The Predict Case application is used to populate the Predict Case objects used for composing objects for other applications under the control of PAC.

You can access the PAC application maintenance and reporting sub-functions by entering Code A (Applications) on the PAC Main Menu.

Depending on your user profile, either the Application Menu or the Application Reporting Menu appears. Discussions of the PAC maintenance and reporting sub-functions in this section refer to the Application Menu.

```

21:21:24          ***** PREDICT APPLICATION CONTROL *****          2000-04-21
User UKMJ                - Application Menu -

  Code  Sub-Function                Code  Sub-Function
  ----  -
  A    Add an Application            N    Applications With No Links
  B    Add Predict Application        P    Purge an Application
  C    Copy Application              S    Select Applications
  D    Display Application            T    Statuses Linked to Application
  L    Link Statuses to Application  ?    Help
  M    Modify Application            .    Exit
  ----  -

Code ..... _
Application ..... _____
New Application .. _____
Keyword ..... _____

Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                     Canc

```

Field	Description
Application	Enter either the name of an existing application or a name for a new application. You may enter an application name, an alias, or a range. The name must begin with an alphabetic character and may be up to 32 characters in length. Embedded blanks are allowed, but are automatically changed to the underscore (_) character. If a duplicate application name is entered, an error message is displayed. The application name Predict Case is reserved for PAC and may not be deleted.
New Application	Enter a new application name in the New Application field if you are copying an existing application.
Keyword	This field allows you to enter a keyword that has been assigned to the application with the "Keys" Additional Options function.

Note:

Except for Add, the sub-functions on the Application Menu can be invoked from the Application Selection List displayed when you select sub-function S.

This chapter covers the following topics:

- Adding (Defining) an Application of Type NAT
- Adding (Defining) an Application of Type PRD
- Displaying/Modifying an Application
- Selecting an Application from a List
- Copying an Application
- Linking Statuses to an Application
- Purging an Application

Adding (Defining) an Application of Type NAT

Step 1. Accessing the Add Application Screen

You can access the Add Application screen by entering Code A and a unique application name on the Application Menu. Alternatively, enter the ADD APPLICATION direct command on the command line of the Application Menu; refer to the PAC Reference Manual for the command syntax.

```

21:21:24          ***** PREDICT APPLICATION CONTROL *****          2000-04-21
User UKMJ                - Add Application -

Application . DEMO_APPLICATION                      Modified: 2000-02-03 by UKMJ
Keys ..... /.....
Appl. Type .. NAT
SYSDIC Appl. PREDICT_____
Prefix ..... ___ Level .. 1_____ Gen No .. _____
Title ..... _____

PREDICT CASE Usage ..... N                      DB2 Support ..... N

Default NATURAL Library
  Development .. _____
  Incorporate .. _____
  Maintenance .. _____
  Test ..... _____

Additional Options ..... N
PAC7253: (I) Application has been added successfully.

Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Opts                      Links NNAT                      Canc

```

Step 2. Editing the Add Application Screen

Prefix, Level, and Gen No Fields

These fields require values only if the names of migration events for this application are to be automatically generated.

The Prefix is a 1-3 character designation that functions as the higher level qualifier for the application in the generated migration event name. If you intend to generate migration event names that begin with this prefix, then the first character must be non-numeric because a migration event name cannot begin with a numeric value. The Prefix is most useful if it is a meaningful identifier for the application. The Prefix designation can be subsequently modified.

The Level field can contain a version level designation for the application as a whole. Currently, this designation is not used within the PAC system; it is for documentation purposes only. The format for an entry in this field is not restricted. The version level designation can be subsequently modified.

The Gen No (generation number) is a 5-digit numeric value ranging from 00000-99999. The starting value is set by entering a value in this field. If the number you enter contains fewer than 5 digits, the PAC system adds initial zeros. The value you enter is incremented by one for each migration event defined for the application to ensure a unique value for each event.

The incremented value serves as the "suffix" value following the value specified in the Prefix field. The two values together create a value for the @GEN variable when it is used in the migration event name. If a Prefix has not been defined for the application, the @GEN variable replacement comprises just the suffix value.

The Gen No starting value can be reset at any time by modifying the application definition. However, if a non-unique (duplicate) number is created as a result of resetting the Gen No, an error message is returned along with a request that the user enter a unique name for the event. Non-unique numbers can be avoided by using standard naming conventions; that is, meaningful string prefixes and suffixes.

Note:

User Exits 13 and 25 allow you to use additional variables when generating migration event names.

Title Field

You may optionally add a title in the Title field. A title is an expanded name or description of the application. Selection List screens display the titles assigned to PAC entities. The title is free format; up to 60 characters in length.

Predict Case Usage Field

By default, this field has the value N (no) which indicates that Predict Case is not used; that is, Natural objects for this application are not to be composed by Predict Case.

If this application will be using Natural objects composed by Predict Case, you need to overtype the default in this field with Y (yes). In this case, all Predict Case objects used by the Natural objects are versioned in the PAC application.

Note:

If you change the default to Y, a Predict Case library must be specified in the development or maintenance status link of the application to link the Predict Case definition to the Natural definition and activate the facility.

Later sections of this manual provide information about using Predict Case with PAC.

DB2 Support Field

By default, this field has the value N (no) which indicates that Natural for DB2 support is not required for the application.

If you are defining a Natural for DB2 application to PAC, overtype the default with Y (yes). PAC supports migrations for both qualified and non-qualified DB2 tables/views, but the migrations must be performed separately. The Truncate Creator option is supported for non-qualified tables/views. Ensure that the Predict generation defaults for views are set correctly before running the migration.

section Using PAC with Predict Case or Natural for DB2 provides general information about using Natural for DB2 with PAC.

Default Natural Library Fields

You may optionally specify default Natural libraries to be used when linking the application to one of the status types listed.

Step 3. Selecting Additional Options

1. Access the Additional Options window by typing over the default with Y (yes) or by pressing PF4 (Opts).

The Additional Options window displays the following available options:

Option	Purpose
General Defaults	Specifies the Compile Options: MCG, steplibs, Version 2.1 syntax, object version retention, log all object purge options and view security default.
Linked Statuses	Adds statuses you want to link to the application. Refer to the section , Linking Applications and Statuses, on page for more information.
Foreign Support	Defines foreign datasets for the application.
Description	Provides a detailed description of the application.
Aliases	Adds alias names for the application.
Keywords	Adds keywords for the application. Keywords must have been previously defined to PAC.
Dates	Records the date/time that the application was added/modified, the user ID of the person adding/modifying the application, and the terminal ID from which the addition/modification was made.

- On the Additional Options window, enter Y (yes) to select the options you wish to edit as described in the following steps.

Step 4. Editing the General Defaults

The General Defaults are presented on the Application General Defaults screen:

```

08:26:21          ***** PREDICT APPLICATION CONTROL *****          2000-04-19
User UKMJ          - Application General Defaults -

Application .. DEMO_APPLICATION

View security default ..... U
Compile options    MCG .. _____
                  Steplibs ..... _____
                  _____
                  _____
                  _____
                  _____
                  _____

Retention
Minimum Archive Versions .. ____  Archive Retention Period .. ____
Minimum Current Versions .. __3   Current Retention Period .. 180
Log All Object Purges ..... N

Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Opts                                     Canc

```

The General Defaults comprise the View security default parameter, Compile Options and Retention Options.

View Security Default

- D disallowed for compilation
- A Access only allowed
- U Update usage is not restricted

The default value will be used at the first time the view is registered. This takes place during Predict object migration.

Compile Options

MCG (Machine Code Generator) Option

The MCG option is a Natural profile parameter that activates the Natural OPTIMIZER COMPILER, which must be installed in your environment if you are using this option. Natural OPTIMIZER COMPILER is a Software AG product that extends the optimizing capabilities of Natural to complex statements and statement sequences including array range operations, field concatenation, and optimal base register assignment. If MCG is active, all programs are compiled to machine code. Refer to the Natural OPTIMIZER COMPILER documentation for more information.

This field allows you to specify default values for the MCG option. Valid values are as follows:

Value	Purpose
()	(blank) Ignores the MCG option; normally used when Natural Optimizer Compiler is not installed in your environment.
N	Turns off the MCG option (other options are not turned on/restored)
Y	Turns on the MCG option. Programs are partly compiled to machine code. Additional features (overflow checking, index checking, mixed mode, optimization of I/O statements) are switched off by default. To activate one or more of these features, add the relevant code(s) listed below:
O	Activates checking in all programs for arithmetic overflows and zero division.
I	Activates checking in all programs for array indexes that are out of bounds (MIX).
M	Activate mixed-mode checking to ensure that the generated object code is compatible with IBM, SNI and Wang mainframes.
W	activate I/O statement compilation to machine code for the following statements: DISPLAY, WRITE, WRITE TITLE, WRITE TRAILER, READ WORK FILE with SELECT option, WRITE WORK FILE.

Specifying O, I, M, and/or W presuppose Y. Multiple options can simply be specified one after the other.

Compile Steplib Option

A steplib is another existing PAC application that has copycode, maps, and/or data areas that are used as subordinates by application objects at compile time. Such steplibs are used in migrations from development or maintenance or during alignment migrations. You may specify up to eight compile steplibs.

The provision made at application level is for default and documentation purposes only and values used here are not used during migrations. The list in the application record is used as a default at the creation of application status links records. For more information, see section Linking Applications and Statuses.

Retention Options

These options are used to specify the number of object versions to be retained and the period of retention before the Purge Object Version sub-function is invoked.

Minimum Archive Versions	the number of archived object versions retained by PAC before the oldest version is eligible for automatic purging.
Archive Retention Period	the number of days before an archived object version is eligible for automatic purging.
Minimum Current Versions	the number of object versions retained by PAC before the oldest version is eligible for automatic purging.
Current Retention Period	the number of days before an object version is eligible for automatic purging.

Log All Object Purges Option

This option indicates whether all purges through the Purge Object Version function are to be logged in the object version audit trail. The default is N (no).

Overtyping the default with Y (yes) if you want to create a log in the object version audit trail of the objects purged with the Purge Object Version function.

Step 5. Specifying Foreign Datasets for the Application

The PAC administrator defines the classes and types of foreign datasets that PAC supports for a particular site. You may be responsible for selecting a subset of those dataset types to be used for a particular application.

1. You can view a list of the foreign datasets supported at your site on the Foreign Support Maintenance screen by accessing the Additional Options window from the Add Application screen.

```

21:12:21          ***** PREDICT APPLICATION CONTROL *****          2000-04-23
User PACUSR          - Foreign Support Maintenance -

Foreign types for application APPLES
C  Nr  Long Text          Short  Code   Type   Add Date  Add User
-  --  -
_   1  dbrm                dbrm   3DB2  Load  97-04-22  PACUSR1
_   2  Jules JCL           JCL    3JCL  Source 97-02-03  PACUSR2
_   3  Karen's jcl        jcl    3KST  Source 97-02-03  PACUSR1
_   4  Terry's jcl        jcl    3TSH  Source 97-02-20  PACUSR1

Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Help  Menu  Exit                                     Canc

```

This screen describes the supported foreign datasets, displays the object type code, and indicates whether the dataset contains source code, load (compiled) code, or both.

2. Select the datasets you want to use for the application by marking each with a non-blank character in the "C" column.

Only the types you select on this screen will be displayed in the foreign selection list for the application.

Step 6. Editing Other Additional Options

(Optional) Add for the application

- status links (see section Linking Applications and Statuses on page for more information);
- a description in the Description field;
- alternative names in the Aliases field;
- (previously defined) keywords in the Keys field.

When you have finished editing options for the application, return to the Add Application screen and press ENTER.

If the application has been added, the message "Application has been added successfully" is displayed.

Adding (Defining) an Application of Type PRD

Step 1. Accessing the Add Predict Application Screen

You can access the Add Predict Application screen by entering Code B and a unique application name on the Application Menu.

```

14:09:25          *****PREDICT APPLICATION CONTROL*****          2000-02-25
User VMU              - Add Application -

Application . DEMO-PRD-APPLICATION          Modified: 2000-02-25 by VMU
Keys ..... /-----/
Appl. Type .. PRD

Prefix ..... PRD  Level .. 4.1          Gen No .. _____

Title ..... _____

Additional Options ..... N
PAC7253: (I) Application has been added successfully.

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Opts          Links          Canc
    
```

Step 2. Editing / Displaying the Add Predict Application Screen

These four fields are split into modifiable and fixed fields. The Gen No only requires a value if names of migration events are to be generated.

The Prefix is a 1-3 character designation that functions as the higher level qualifier for the application in the generated migration event name. This value is set to the value of PRD for this type of application.

The Level field reflects the current version of Predict that this installation of PAC is running. This field is not modifiable.

The Gen No (generation number) is a 5-digit numeric value ranging from 00000-99999. The starting value is set by entering a value in this field. If the number you enter contains fewer than 5 digits, the PAC system adds initial zeros. The value you enter is incremented by one for each migration event defined for the application to ensure a unique value for each event.

The Title field is optional. You can extend the name of the application by using this field. Selection list screens display the titles assigned to PAC entities. the title is free format; up to 60 characters in length.

Step 3. Selecting Additional Options

Access the Additional Options window by typing over the default with Y (yes) or by pressing PF4 (Opts). See the section Selecting Additional Options for more information on these options.

Step 4. Editing the General Defaults

In the Additional Options window enter Y (yes) to select the options you wish to edit as described in the following step. The General Defaults are presented on the Application General Defaults screen:

```

14:51:29          *****PREDICT APPLICATION CONTROL*****          2000-02-25
User VMU          - Application General Defaults -

Application .. DEMO-PRD-APPLICATION

Retention
Minimum Current Versions .. __3
Current Retention Period .. 180

Log All Object Purges ..... N

Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Opts                                Canc

```

Retention Options

These options are used to specify the number of object versions to be retained and the period of retention before the Purge Object Version sub-function is invoked.

Minimum Current Versions	the number of object versions retained by PAC before the oldest version is eligible for automatic purging.
Current Retention Period	the number of days before an object version is eligible for automatic purging.

Log All Object Purges Option

This option indicates whether all purges through the Purge Object Version function are to be logged in the object version audit trail. The default is N (no).

Overtyping the default with Y (yes) if you want to create a log in the object version audit trail of the objects purged with the Purge Object Version function.

Displaying/Modifying an Application

The Display (non-modifiable) and Modify screens are similar to the Add Application screen. Refer to the section Add (Define) an Application for more information.

Access the Display or Modify screens from the Application Menu by entering Code D (Display Application) or M (Modify Application) and the application name. Alternatively, enter the DISPLAY or MODIFY direct commands on the command line of the relevant menus. PAC commands are described in the PAC Reference Manual.

Selecting an Application from a List

You can display a list of existing applications by entering Code S (Select an Application from a List) on the Application Menu. Alternatively, enter the SELECT APPLICATION direct command on the command line of the Application Menu. PAC commands are described in the PAC Reference Manual.

The resulting Application Selection List screen lists the application name and title.

If you accessed the screen with the S sub-function or with the SELECT direct command for one or more of the listed applications, you may process the following sub-functions directly from the list by entering the Code for the sub-function in the "C" column:

Code Sub-Function

C	Copy an application
D	Display an application
L	Link an application to a status
M	Modify an application
P	Purge an application
S	Select an application
T	Statuses linked to an application
.	Return to the Application Maintenance Menu.

If you mark the status with the cursor or enter an X or an S in the "C" column, or if you enter the application number (from the "Nr" column) in the Mark Selection... field, the Application Menu appears with the specified status already displayed in the Application field.

Copying an Application

You can copy the application definition of one application to another and, optionally, copy the associated application status links and migration paths. Application aliases are not copied.

1. To copy an application, enter Code C (Copy an Application), the name of the application to be copied, and a new name for the copy on the Application Menu. If you do not enter the name of an application to be copied, PAC first presents a list of existing applications and you must select one to be copied by entering "C" next to the application.

You may also copy an application from the Selection Application List screen.

In both cases, the Copy Application screen appears:

```

21:21:24          ***** PREDICT APPLICATION CONTROL *****          2000-04-21
User UKMJ              - Copy Application -

Application . DEMO_APPL                      Modified: 2000-04-21 by UKMJ
Keys ..... /
Appl. Type .. NAT
SYSDIC Appl. PREDICT_____
Prefix ..... ____ Level .. 1_____ Gen No .. ____
Title ..... _____

PREDICT CASE Usage ..... N                DB2 Support ..... N
NATURAL Object Documented .. N

Default NATURAL Library
  Development .. _____
  Incorporate .. _____
  Maintenance .. _____
  Test ..... _____

Additional Options ..... N
PAC7253: (I) Application has been added successfully.

Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Menu  Exit  Opts                Links NNAT                        Canc

```

Refer to the discussion of the Add Application menu for information about the fields on this screen. You may modify the copied field values except Prefix, Level, and Gen No.

2. Edit the field values of the Copy Application screen to suit the requirements of the new application.
3. Press ENTER to display the Copy Options window:

```

14:21:57          ***** PREDICT APPLICATION CONTROL *****          2001-04-06
User VMU          - Copy Application -

Application . DEMO_APPL          Modified: 2001-04-06 by VMU
Keys ..... /.....
Appl. Type .. NAT
SYSDIC Appl. PREDICT_____
Prefix ..... ___ Level .. 1_____ Gen No .. ___
Title ..... _____

PREDICT CASE Usage .....+-----+
NATURAL Object Documented ..|          --- Copy Options ---|

Default NATURAL Library | Application .. DEMO_APPL
  Development .. _____|
  Incorporate .. _____| Copy Application Status Link .. Y
  Maintenance .. _____| Copy Migration Path ..... Y
  Test ..... _____|
+-----+

Additional Options ..... N
PAC7253: (I) Application has been added successfully.
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Menu Exit Opts          Links NNAT          Canc
    
```

The Copy Options are copied by default.

If you do not wish to copy the application status links or migration paths, type N (No) over the Y defaults.

Note:

Migration paths may only be copied if the application status links are also copied.

4. To copy the application status links and migration paths, press ENTER.

The following screens are those displayed if you elected to copy the application status links and migration paths:

```

21:29:20          ***** PREDICT APPLICATION CONTROL *****          2000-04-23
User PACUSR          - Copy Application Status Links -

Application ... APPLET

Linked Status          Status Type          Message
-----
ARCHIVE                Archive          Copied
DEVELOPMENT            Development     Copied
DT-DEVELOP             Development     Copied
HISTORY-PRODUCTION    History          Copied
INCORPORATION          Incorporate      Copied
MAINTENANCE            Maintenance     Copied
PRODUCTION              Production     Copied
TEST                   Test            Copied
USER_TEST              Test            Copied
    
```

The Copy Application Status Links screen lists the existing application status links (of the copied application) that have been copied (added) to the new application.

```

12:24:19          ***** PREDICT APPLICATION CONTROL *****          2000-01-25
User PACUSR          - Copy Migration Paths -

Application ... APPLET

Origin Status          Destination Status          Message
-----
ARCHIVE                CONTROL                    Copied
CONTROL                DEVELOPMENT                Copied
CONTROL                MAINTENANCE                Copied
CONTROL                PRODUCTION                 Copied
CONTROL                USER_TEST                  Copied
CONTROL                CONTROL                    Copied
CONTROL                ARCHIVE                    Copied
CONTROL                TEST                        Copied
DEVELOPMENT            CONTROL                    Copied
DEVELOPMENT            USER_TEST                  Copied
DEVELOPMENT            PRODUCTION                 Copied
DT-DEVELOP            CONTROL                    Copied
DT-DEVELOP            TEST                        Copied
DT-DEVELOP            USER_TEST                  Copied

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9--PF10--PF11--PF12---
      Help Menu  Exit  Opts                                Canc

```

The Copy Migration Paths screen lists the existing migration paths (of the copied application) that have been copied (added) to the new application.

Linking Statuses to an Application

To display a list of applications that are not linked to statuses other than the Control status, enter Code U (Applications with no Status Links) on the Application Menu.

To link several statuses to a specified application, enter Code L (Link Statuses to an Application) and the application name on the Application Menu.

The Link Statuses to an Application screen appears:

The Statuses Linked to Application screen appears. It is similar to the Link Statuses to an Application screen. From this screen, you may directly select additional sub-functions for statuses linked to applications. The following table lists the sub-functions available:

Code	Sub-Function
AP	Display Application Definition
DI	Display Link Definition
DN	Display Foreign
MO	Modify Link Definition
PU	Purge Link Definition
ST	Display Status Definition

You may access an Options window listing available sub-functions and corresponding codes online by marking the list entry with a ? or an asterisk (*) in the "C" column or by accessing Help (PF1).

2. To select a sub-function and display the corresponding sub-function screen, mark the desired status in the "C" column with the appropriate two-character code, or enter the code on the command line of the Options window.

Purging an Application

To purge an application, enter Code P (Purge an Application) and the application name on the Application Menu.

If versioned objects exist for the application under PAC control, the purge request is denied and the following message is displayed:

"Objects exist for this application. Purge cannot be performed until the objects have been deleted using the PAC Administrator Functions."

Otherwise, the Purge Confirmation window appears and reminds you that the associated application status links, migration path definitions, and file translation tables will also be purged.

From the Purge Confirmation window, you can

- type Confirm or press PF5 to purge the application; or
- type a period (.) or press PF3 to return to the Application Menu without purging the application.