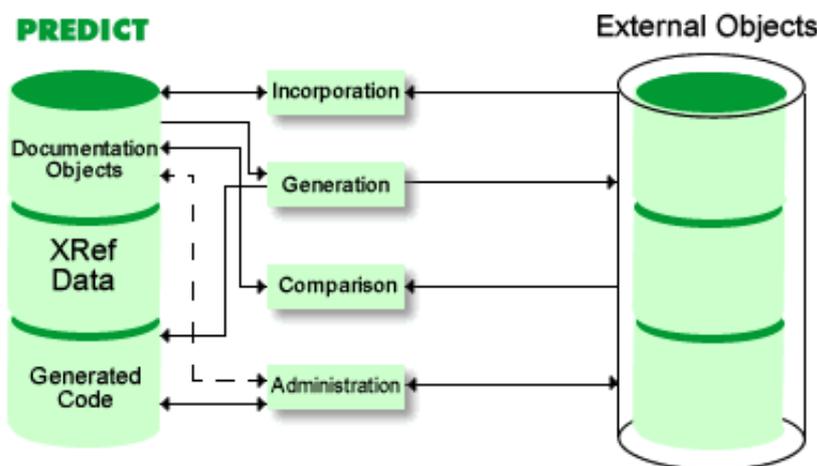


Handling of External and Documentation Objects

Information stored in Predict objects can be used to generate external objects, and documentation objects can be incorporated from external objects. The concepts of handling external and documentation objects in Predict are described in this section.

Information provided in this section is needed to understand many options of generation, incorporation and comparison functions.



This section covers the following topics:

- What is an External Object
Different types of external objects can be connected to Predict documentation objects. This section provides an overview and describes the general characteristics of different external object types.
- Connection of External and Documentation Objects
Predict ensures consistency of documentation and application by protecting external and/or documentation objects that are connected from being deleted or modified arbitrarily.
The connection between external and documentation objects is established by information stored with Predict objects.
- Overview of External Objects
This table shows which external objects can be processed with which functions.

What is an External Object

In Predict, data definition objects for use in applications that can be connected to Predict documentation objects are called **external objects**. There are basically two types of external objects:

- external objects owned by Predict (usually stored in the FDIC file)
- external objects **not** owned by Predict (usually stored in the external environment).

Note:

Special rules apply to DDMs and Natural processing rules. See the respective sections of section Generation in this documentation for more information.

External Objects Owned by Predict

The following types of external objects are owned by Predict:

- 3GL copy/include code (C, COBOL, Assembler, FORTRAN, PL/I)
- Adabas invert, compression and security definitions (ADAINV, ADAWAN/ADACMP/ADAFDU, ADASCR)
- Adabas/VSAM Bridge transparency table
- SQL CREATE statements

General Rules

The following rules apply to external objects that are owned by Predict.

Administration

- Objects of all the above types are generated from Predict file objects of the respective types.
- Up to 30 external objects per file and per language can be generated.
- The objects can be administered exclusively with Predict functions.
- The objects are dependent on the Predict documentation objects from which they were generated: if the documentation object is deleted, the generated objects are deleted as well.

Use

- The external objects of the above types are used at compile time.
- Copy code for use in 3GL programs must be copied (punched) to an operating system library before it can be used. Copying can be performed by Entire System Server. Storage of generated data definition objects as operating system members is possible in an OS/390 and VSE environment.
- The preprocessor can be used to generate 3GL copy code and include copy code into 3GL programs.

External Objects Not Owned by Predict

The following types of external objects are not owned by Predict: they belong to an application (development) environment.

- Databases (Adabas , DB2, IMS/DL1)
- Vista translation table
- DB2 tablespaces and storagegroups
- Files, tables and views (Adabas , DB2, SQL/DS, Adabas SQL Server)
- IMS User Defined Fields (UDFs)
- Natural DDMs (including Natural security definitions and/or Super Natural files)

General Rules

The following rules apply to external objects that are **not** owned by Predict.

Administration

- External objects of all these types can be generated from Predict documentation or be processed with Incorporate functions.
- Each external object can be connected to a documentation object with a generation or incorporation function. For the impact of connecting external and documentation objects see Connection of External and documentation Objects.
- For external objects implemented with SQL (DB2, Adabas SQL Server, SQL/DS storagegroups, databases, tablespaces, dbspaces, tables and views) Predict stores the SQL statements that have been generated in a generation protocol. If several generation runs are executed, the protocol is extended for each generation.
- The objects can be administered with utilities of the application environment (for example SYSDDM,

SYSAOS, SYSDDB2, Natural map editor).

Use

- Most of the object types are used at run time. Some of these objects are stored directly in the application environment, others are stored in the Predict system file. For objects that are stored in the Predict system file, Predict data must therefore be accessible at run time of the application which uses the external objects.

Connection of External and Documentation Objects

Predict connects external objects and documentation objects if an external object has been generated from a documentation object or - vice versa - a documentation object has been incorporated from an external object.

Connecting external and documentation objects helps ensure the consistency of the documentation and an application: documentation objects and - to a certain extent - external objects that are connected are protected from being deleted or modified.

External objects owned by Predict need not be connected: because these types of objects can only be administrated with Predict functions, the consistency with documentation objects is not endangered.

Disconnecting Objects

External objects and documentation objects can be disconnected with Administration functions Disconnect Implementation and Purge Implementation. See the section Administration of External Objects in this documentation.

Impact of Connecting External and Documentation Objects

The connection of external objects and documentation objects affects the following activities.

- **Administration of External Objects**
The administration of external objects connected to documentation objects can be restricted with the Predict parameters of the SYSDDM utility, AOS, SYSDDB2 utility and Rule in map editor. See Protection in the section **Defaults** in the **Predict Administration documentation**.
If these parameters are set to C (connected) the respective utilities cannot be used to administrate external objects that are connected to a Predict object.
- **Modification of Predict Objects**
Modification of Predict objects is affected as follows:
 - Predict file objects of type Adabas that are connected to an implemented file cannot be unlinked from the Predict database object they belong to.
 - The type of a file connected to an external object cannot be changed.
- **Purging Predict Objects**
Purging Predict objects is affected as follows:
 - Predict File and Verification objects connected to an external object cannot be deleted. To delete a Predict object connected to an external object, the two objects must be disconnected.
 - A generation protocol created by a Generate DB2 ... function can only be purged by purging or disconnecting the implemented DB2 object.
- **Incorporation of External Objects**
As a general rule, only external objects not yet connected to a documentation object can be processed with incorporation functions. However, for IMS and DL1 databases, a Replace option is available with which connected documentation objects can be overwritten.
- **Comparison of External and documentation Objects**
To compare an external object and a documentation object, both have to be connected.

Overview of External Objects

The table below provides a full list of all external object types supported by Predict.

Object	Code	Command	Generate	Incorporate	Compare	Administrate
Adabas Compression Definition	AC	WAN, CMP	Y			Y
Adabas Database	AD	ADABAS-DATABASE		Y	Y	Y
Adabas File	AF	FDT	Y	Y	Y	Y
Adabas Invert Definitions	AI	ADAINV	Y			Y
Adabas Security Definitions	AS	SCR	Y			Y
Vista Table	AT	VISTATAB	Y		Y	Y
Transp. Table for Adabas VSAM Bridge	AV	AVB ADAVSAM	Y			Y
Assembler Copy Code	BA	BAL ASSEMBLER	Y			Y
Adabas D Table / View	BF	ESD-TABLE		Y		
C Include Code	CC	LANG-C	Y			Y
COBOL Copy Code	CO	COBOL	Y	Y		Y
SQL CREATE Statement	CR	SQL-CREATE	Y			Y
Data Definition Module	DD	DDM	Y	Y	Y	Y
DB2 Database	D2	DB2-DATABASE	Y	Y	Y	Y
Adabas Table/View	EQ	ESQ	Y	Y	Y	Y
FORTRAN Copy Code	FO	FORTRAN	Y			Y
INGRES Table/View	JF	INGRES-TABLE		Y		
IMS Database	ND	NDB		Y		Y
Natural Security User	NS	Security		Y		
ORACLE Table/View	OF	ORACLE-TABLE		Y		
PL/I Include Code	PL	PLI	Y			Y
Processing Rule	RU	RULE	Y	(Y)	(Y)	Y
DB2 Storagegroup	SG	STORAGEGROUP	Y	Y	Y	Y
Super Natural User	SU	SUPER		Y		
DB2 Table/View, SQL/DS Table/View	T2	TABLE	Y	Y	Y	Y
DB2 Tablespace, SQL/DS DBspace	TS	TABLESPACE	Y	Y	Y	Y
User-defined Fields for IMS	UD	UDF	Y			Y
INFORMIX Table/View	XF	INFORMIX-TABLE		Y		
SYBASE Table/View	YF	SYBASE-TABLE		Y		

Note for items marked with (Y) for SQL objects only:

If a check expression exists in the SQL catalog, the check expression can be incorporated or compared.