Template Programming

TEMENOS EDUCATION CENTRE

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Agenda

- What is a Template program?
- Why Template programming?
- Major components in a Template
- Types of Template
- Creation of a new application using the Template



What is a Template Program?

APPLICATION PROGRAM

- Get data
- Stores data



Why T24 uses Template Programming?

Any user who wishes to create a new application on T24 has to make use of an existing program in T24 called a TEMPLATE in order to

- Maintain code consistency and code standard
- Rapid code development
- Eliminate mundane tasks

Major components

When creating a new application, there are various factors that need to be kept in mind, like the

- Functions that can be allowed for the application
- Fields that comprise the application
- Field level validations
- Input level validations
- Authorization level validations
- Accounting entries that need to be generated for the transaction of the application
- Limit checks
- Generation of delivery advices
- End of day processing

Types of Template =

Following are the different types of template programs available

- > TEMPLATE
- > TEMPLATE.L
- > TEMPLATE.T
- > TEMPLATE.W

INSURANCE application an example

Using the INSURANCE application, a customer can deposit an Insurance policy with the bank. There are different types of policies that a customer can deposit. The INSURANCE application consists of 2 main files.

- ➤ The INSURANCE file Allows a customer to deposit a policy and also allows the bank to charge a commission/charge
- ➤ The POLICY.TYPE file that holds details of the various policies that a customer can deposit with the bank.

Fields that comprise the main INSURANCE file

No	Field Name	Туре	Description	Mandatory
1	POLICY.NO	16,A	Standard T24 ID – Prefix IN	Υ
2	POLICY.TYPE	35,A	Should be a valid Policy Type in the POLICY.TYPE file.(See Below)	Υ
3	CUSTOMER.NO	10,CUS	Must be a valid CUSTOMER	Υ
4	CURRENCY	3,CCY	Must be a valid CURRENCY	Υ
5	COVER.AMOUNT	16,AMT		Υ
6	PREMIUM.AMOUNT	16,AMT		Υ
7	START.DATE	11,D	Defaults to TODAY	
8	PAYMENT.FRQ	16,FQO	Must be after START.DATE Must be after TODAY	
9	XX <beneficiary< td=""><td>10,CUS or 35,A</td><td>Free Text</td><td></td></beneficiary<>	10,CUS or 35,A	Free Text	
10	XX>ADDRESS	35,A	Free Text	
11	AGREEMENT.TYPE	35,A	Only the following options are valid OPTION1 OPTION2 OPTION3 OPTION4 Either the AGREEMENT.TYPE or CONDITIONS must be set	
12	CONDITIONS	35,A	Free Text	
13	XX.LOCAL.REF			

Fields that comprise the POLICY.TYPE application

No	Field Name	Туре	Description	Mandatory
1	POLICY.TYPE.ID	7,A		Υ
2	XX.LL.DESCRIPTION	35,A	Description of the policy type	Y
			Must be a valid CATEGORY	
3	CATEGORY		Must be in the product range 20000 - 49999	Υ
4	RESERVED12-1	NOINPUT		

Steps to create the INSURANCE Template

Step 1:

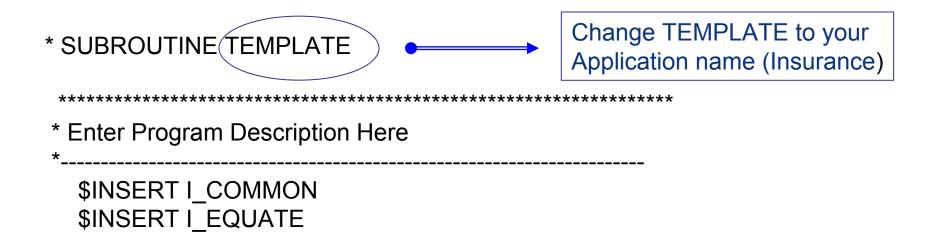
Make a copy of the TEMPLATE program that is available in the GLOBUS.BP directory on to your local directory (Example TRG.BP). Ensure that you save the TEMPLATE program with a different name (Insurance – Name of the application that we are to create).

```
jsh...>COPY FROM GLOBUS.BP TO DEV.BP TEMPLATE
jsh...>sh
jsh...>cd DEV.BP
jsh...>mv TEMPLATE INSURANCE
jsh...>cd
jsh...>COPY FROM GLOBUS.BP TO DEV.BP TEMPLATE
jsh...>sh
jsh...>cd DEV.BP
jsh...>mv TEMPLATE POLICY.TYPE
```

Steps to create the new INSURANCE Template

Step 2:

Change the name of the template program to your application name (Insurance).



Steps to create the new INSURANCE Template

Step 3:

Basic template program is ready

Add relevant code in the appropriate paragraphs.

Add the various fields that the Insurance application needs to contain

Steps to create the new INSURANCE Template

DEFINE.PARAMETERS:

To define the various fields that comprise an application.

Edit and add the necessary fields for our Insurance application.

DEFINE.PARAMETERS: * SEE 'I_RULES' FOR DESCRIPTIONS *

REM > CALL XX.FIELD.DEFINITIONS

RETURN

Remove the REM statement from the line CALL XX.FIELD.DEFINITIONS and replace the XX to INSURANCE (application name)

CALL INSURANCE.FIELD.DEFINITIONS

XX.FIELD.DEFINITIONS

XX.FIELD.DEFINITIONS

```
DEFINE FIELDS:
```

```
ID.F = "ID .NO" ; ID.N = "16" ; ID.T = "A"
   Z=0
REM > Z+=1; F(Z) = "XX.XX.FIELD.NAME"; N(Z) = "35.2"; T(Z) = "A"
REM > Z+=1; F(Z) = "XX.XX.FIELD.NAME"; N(Z) = "35.2"; T(Z) = "A"
V = Z + 9
RETURN
INITIALISE:
```

Actual field definition

```
MAT F = "" ; MAT N = "" ; MAT T = ""
MAT CHECKFILE = "" ; MAT CONCATFILE = ""
ID.CHECKFILE = "" : ID.CONCATFILE = ""
```

V:Total number of fields in an application

Z:Number of fields defined V=Z+9 (To add 9 audit fields)

* Define often used check file variables

```
CHK.ACCOUNT = "ACCOUNT":FM:AC.SHORT.TITLE:FM:"L"
CHK.CUSTOMER = "CUSTOMER":FM:EB.CUS.SHORT.NAME:FM:'.A'
RETURN
```

END

Steps to create the new Insurance Template

Step 4:

Copy the skeleton program XX.FIELD.DEFINITIONS from GLOBUS.BP to BP with the name INSURANCE.FIELD.DEFINITIONS

```
jsh...>COPY FROM GLOBUS.BP TO DEV.BP XX.FIELD.DEFINITIONS
jsh...>sh
jsh...>cd DEV.BP
jsh...>mv XX.FIELD.DEFINITIONS INSURANCE.FIELD.DEFINITIONS
jsh...>cd
jsh...>cd
jsh...>cd
jsh...>cd
jsh...>copy FROM GLOBUS.BP TO DEV.BP XX.FIELD.DEFINITIONS
jsh...>sh
jsh...>sh
jsh...>cd DEV.BP
```



Steps to create the new Insurance Template

Step 5:

INSURANCE.FIELD.DEFINITIONS is ready

Edit and add the necessary code

Specify the various attributes of a field

Steps to create the new Insurance Template

Field Attributes:

- The maximum number of characters the field can hold.
- The minimum number of characters a field can hold
- The type of data the field can hold (Alphanumeric, Integer, Date etc)
- Pick list for the field (if any)
- Other attributes of a field like whether it is a NOINPUT field or a NOCHANGE, MULTIVALUE field, SUBVALUE field, etc.

Attributes of the field

Attributes of a field have to be specified when a field is created. In order to specify the attributes for a field, T24 gives us 3 arrays namely the

- > F array
- N Array
- > T Array

F Array:

To define the name of the field and to specify if the field is a single value, multi value or a sub value field. This array also allows us to specify a field as a language specific field.

Attributes of the field

Attributes of a field have to be specified when a field is created. In order to specify the attributes for a field, T24 gives us 3 arrays namely the

- > F array
- N Array
- > T Array

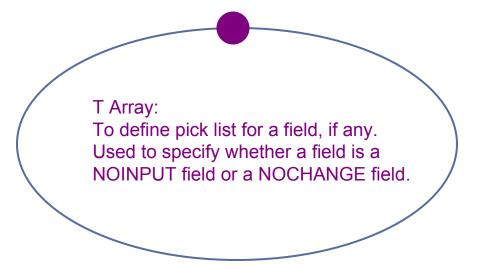
N Array:

To define the maximum and minimum number of characters a field can hold. This array is also used to set a flag to specify whether any other validations apart from the data type validation have to be performed or not.

Attributes of the field

Attributes of a field have to be specified when a field is created. In order to specify the attributes for a field, T24 gives us 3 arrays namely the

- F array
- N Array
- > T Array



Attributes of the fields

Following is the way to define a field using the 3 different arrays

These refer to the field numbers. For definition of the 2nd field, they would become '2' and so on.

F Array

F Array has been used to define the name of the Field.

Define a single value field in the following way F(1) = "Fieldname"

Define a multi value field in the following way F(1) = "XX.Fieldname"

Define a sub value field in the following way F(1) = "XX.XX.Fieldname"

In order to define an associated multi value field the definitions has to be as follows

F(1) = "XX.XX<Fieldname1"

F(2) = "XX.XX-FieldName2"

F(3) = "XX.XX>FieldName3"

N Array

The N array comprises of 3 parts

- The first part is used to specify the maximum number of characters.
- The second part is used to specify the minimum number of characters.
- A value 'C' in the third part of this array is used to signify that extra validation has to be done for this field.

Example : N(1) = "35.1.C"

T Array =

The T array consists of 3 elements.

Element 1 Element 2 Element 3

IN2 Routines Pick Lists NOINPUT/NOCHANGE

T Array =

Element 1:

The first element of the T array is used to define the type of data the field has to contain.

Example :
$$T(1) < 1 > = 'A'$$

The value input for the 1st element refers to a suffix of an IN2 routine.

IN2 Routines =

There are a number of IN2 routines existing in T24. Using these IN2 routines we can restrict the type of data that is entered into a field.

IN2 Routine Name	Description
IN2AAA	Characters from a-z and A-Z only
IN2	Numeric data
IN2D	Will accept input in any of several valid date formats. The date input will be expanded to the full date YYYYMMDD and displayed as DD MMM YYYY.
IN2AMT	This routine accepts input of an amount and can edit the input to have the number of decimal places defined for a specified currency.
IN2CUS	Input must be a valid customer number, i.e. 1 - 10 numeric. Input of a customer mnemonic will also be accepted and converted to the customer number.

T Array

Element 2:

The second element of the T array is used to define pick lists for a field.

Incase the pick list for a field has to contain values of another field in another Application, then a component called 'CHECKFILE' can be used.

T Array

Element 3:

The third element of the T array is used to make a field a NOINPUT or an NOCHANGE field.

Note: (Remember a field cannot be NOINPUT and NOCHANGE)

T(1)<3> = "NOINPUT" (or)

T(1)<3> = "NOCHANGE"



POLICY.TYPE.FIELD.DEFINITIONS

SUBROUTINE POLICY.TYPE.FIELD.DEFINITIONS

\$INSERT I_COMMON

\$INSERT I_EQUATE

GOSUB INITIALISE
GOSUB DEFINE.FIELDS
RETURN

POLICY.TYPE.FIELD.DEFINITIONS

DEFINE.FIELDS:

```
ID.F="POLICY.TYPE.ID";ID.N="7";ID.T=""
7=0
Z+=1; F(Z)="XX.LL.DESCRIPTION"; <math>N(Z)="35.1"; T(Z)="A"
Z+=1; F(Z)="CATEGORY"; <math>N(Z)="5.1.C"; T(Z)=""
Z+=1; F(Z)="RESERVED12";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED11";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED10";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED9";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED8";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED7";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED6";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
Z+=1; F(Z)="RESERVED5"; N(Z)="35..."; <math>T(Z)="A"; T(Z)<3>="NOINPUT"
Z+=1; F(Z)="RESERVED4";N(Z)="35...";T(Z)="A";T(Z)<3>='NOINPUT'
```

POLICY.TYPE.FIELD.DEFINITIONS

```
Z+=1; F(Z)="RESERVED3";N(Z)="35..";T(Z)="A";T(Z)<3>='NOINPUT' Z+=1; F(Z)="RESERVED2";N(Z)="35..";T(Z)="A";T(Z)<3>='NOINPUT' Z+=1; F(Z)="RESERVED1";N(Z)="35..";T(Z)="A";T(Z)<3>='NOINPUT' V=Z+9 RETURN
```

INITIALISE:

```
MAT F="";MAT N="";MAT T=""

MAT CHECKFILE = "";MAT CONCATFILE =""

ID.CHECKFILE ="";ID.CONCATEFILE=""

RETURN

END
```



Compiling POLICY.TYPE application =

EB.COMPILE DEV.BP POLICY.TYPE.FIELD.DEFINITIONS EB.COMPILE DEV.BP POLICY.TYPE

FILE.LAYOUT =

Capable of creating insert files.

Run this utility from the 'jsh' prompt.

FILE.LAYOUT =

```
jsh...> FILE.LAYOUT
Use Select List or Input Individually either:
List of FILE names from which to build insert modules via their dictionarys
List of PROGRAM names from which to build insert modules through calling.
Enter Program/File(s) :POLICY.TYPE
Enter Program/File(s) :
Build Insert from File (D)ictionarys or (P)rograms or (Q)uit
\langle CR = (P) \text{rograms} \rangle : P
Building Insert From Program(s)
Program is POLICY.TYPE
Enter output Name - <CR> = I_F.Entryname :I_F.POLICY.TYPE
Enter PREFIX or <CR> = NONE :POL
Enter SUFFIX or <CR> = NONE :
Processed 23 matrix entries for POLICY.TYPE program
```

I_F.POLICY.TYPE =

Find below the insert file for the POLICY.TYPE application.

Name: I F.POLICY.TYPE

INSURANCE.FIELD.DEFINITIONS

Now let us define the fields for the INSURANCE application.

SUBROUTINE INSURANCE.FIELD.DEFINITIONS

\$INSERT I_COMMON

\$INSERT I_EQUATE

\$INSERT I_F.CUSTOMER

\$INSERT | F.CURRENCY

\$INSERT BP I_F.POLICY.TYPE

GOSUB INITIALSE

GOSUB DEFINE.FIELDS

RETURN

INSURANCE.FIELD.DEFINITIONS

DEFINE.FIELDS:

```
ID.F = "POLICY.NO"; ID.N = "16"; ID.T = "A"
7=0
Z+=1; F(Z) = "POLICY.TYPE"; N(Z) = "35.1."; T(Z) = "A"
CHECKFILE(Z) = "POLICY.TYPE":FM:POL.DESCRIPTION:FM:"L"
Z+=1; F(Z) = "CUSTOMER.NO"; N(Z) = "10.1"; T(Z) = "CUS"
CHECKFILE(Z) = "CUSTOMER":FM:EB.CUS.MNEMONIC:"L"
Z+=1; F(Z) = "CURRENCY"; N(Z) = "3.1"; T(Z) = "CCY"
CHECKFILE(Z) = "CURRENCY":FM:EB.CUR.CCY.NAME:"L"
Z+=1; F(Z) = "COVER.AMOUNT"; N(Z) = "16.1.C"; T(Z) = "AMT"
Z+=1; F(Z) = "PREMIUM.AMOUNT"; N(Z) = "16.1.C"; T(Z) = "AMT"
Z+=1; F(Z) = "START.DATE"; N(Z) = "11..C"; T(Z) = "D"
Z+=1; F(Z) = "END.DATE"; N(Z) = "11.1.C"; T(Z) = "D"
```

INSURANCE.FIELD.DEFINITIONS

```
Z+=1; F(Z) = "PAYMENT.FRQ"; N(Z) = "16.."; T(Z) = "FQO"
Z+=1; F(Z) = "XX < BENEFICIARY"; N(Z) = "10...C"; T(Z) = "A"
Z+=1; F(Z) = "XX>ADDRESS"; N(Z) = "35...C"; T(Z) = "A"
Z+=1;F(Z)="AGREEMENT.TYPE";N(Z)="35..";T(Z)<2> = "OPTION1_OPTION2_OPTION3_OPTION4"
Z+=1; F(Z) = "CONDITIONS"; N(Z) = "35..C"; T(Z) = "A"
Z+=1; F(Z) = "XX.LOCAL.REF"; N(Z) = "16.."; T(Z) = "A"; T(Z) < 3 > = 'NOINPUT'
V = 7 + 9
RFTURN
INITIAL ISF:
  MAT F = "" ; MAT N = "" ; MAT T = ""
  MAT CHECKFILE = ""; MAT CONCATFILE = ""
  ID.CHECKFILE = "" ; ID.CONCATFILE = ""
* Define often used check file variables
  RFTURN
FND
```



Compile INSURANCE.FIELD.DEFINITIONS

EB.COMPILE DEV.BP INSURANCE.FIELD.DEFINITONS
EB.COMPILE DEV.BP INSURANCE

PGM.FILE =

Make entries for INSURANCE and POLICY.TYPE application in PGM.FILE

Type H denotes that it is a table capable of holding data and allows addition, modification and deletion of data





FILE.CONTROL

Step 8:

Using the FILE.CONTROL application we can set,

- The type of files our application has to store (Live, Unauthorised, History)
- The type(hashed,non hashed) and modulo of the files
- The other attributes of a file (INT,CUS,FIN) etc.

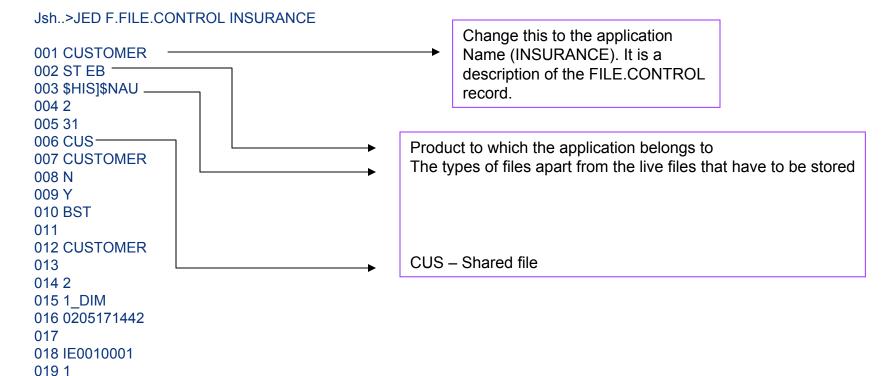


Creation of FILE.CONTROL record

To create a FILE.CONTROL record, we can make a copy of an existing FILE.CONTROL record of any existing application and make the changes.

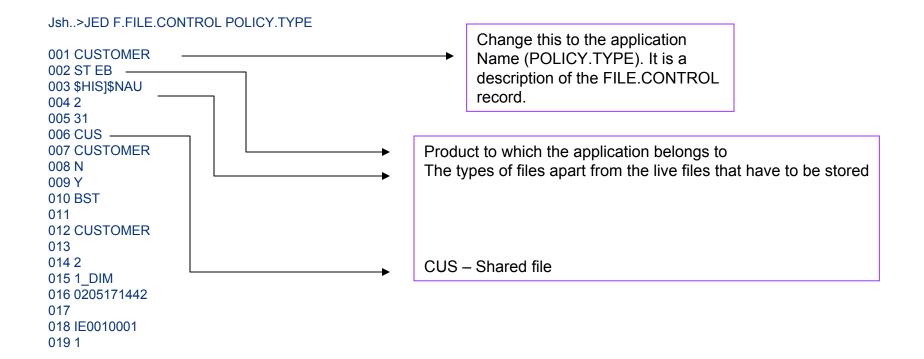
FILE.CONTROL – INSURANCE

Use the 'Merge' facility provided by jBASE and create the FILE.CONTROL record. Create the FILE.CONTROL record for the POLICY.TYPE application



FILE.CONTROL – POLICY.TYPE

Use the 'Merge' facility provided by jBASE and create the FILE.CONTROL record. Create the FILE.CONTROL record for the POLICY.TYPE application



Create the insert file using FILE.LAYOUT program

```
Jsh...>FILE.LAYOUT
Use Select List or Input Individually either:
List of FILE names from which to build insert modules via their dictionarys
List of PROGRAM names from which to build insert modules through calling.
Enter Program/File(s) :INSURANCE
Enter Program/File(s) :
Build Insert from File (D)ictionarys or (P)rograms or (Q)uit
<CR = (P)rograms> :P
Building Insert From Program(s)
Program is INSURANCE
Enter output Name - <CR> = I_F.Entryname :I_F.INSURANCE
Enter PREFIX or <CR> = NONE :INS
Enter SUFFIX or <CR> = NONE :
Processed 22 matrix entries for INSURANCE program
```

I_F.INSURANCE

The insert file created by the FILE.LAYOUT program for the INSURANCE application

CREATE.FILES =

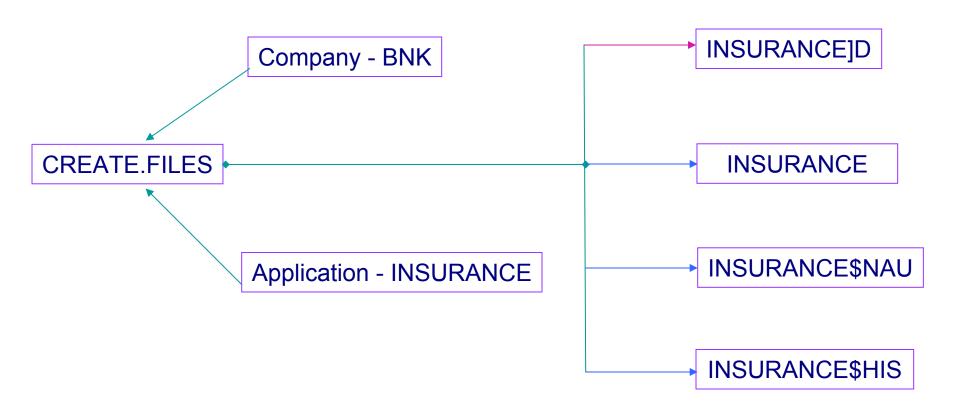
Step 10:

The application CREATE.FILES is the one that looks into the FILE.CONTROL record for the respective application and creates the necessary files.

We need to run this process in classic

CREATE.FILES

This process will create 3 Files



CREATE.FILES =

Type CREATE. FILES from within T24 T24 will prompt for the following : BNK COMPANY CODE : <Application name>* FILE NAME CREATE FILES FOR Globus Demo Account using FILE NAME(S) INPUT: Y Execute CREATE.FILES for the POLICY.TYPE application. Output below. Creating dictionary for F.POLICY.TYPE [417] File ..\mbdemo.dict**F.POLICY.001]D** created , type = J4 Creating file FBNK.POLICY.TYPE No Records selected [417] File ..\mbdemo.data\eb\FBNK.POLI001 created , type = J4 Creating file FBNK.POLICY.TYPE\$HIS 2 Records selected [417] File ..\mbdemo.data\eb\FBNK.POLI002 created , type = J4 Creating file FBNK.POLICY.TYPE\$NAU [417] File ..\mbdemo.data\eb\FBNK.POLI000 created , type = J4 Creating file FBNK.POLICY.TYPE

CREATE.FILES =

Output below. Creating dictionary for F.INSURANCE [417] File ..\mbdemo.dict\F.INSURANCE]D created , type = J4 Creating file FBNK.INSURANCE No Records selected [417] File ..\mbdemo.data\eb\FBNK.INSU001 created , type = J4 Creating file FBNK.INSURANCE\$HIS 2 Records selected [417] File ..\mbdemo.data\eb\FBNK.INSU002 created , type = J4 Creating file FBNK.INSURANCE\$NAU [417] File ..\mbdemo.data\eb\FBNK.INSU000 created , type = J4 Creating file FBNK.INSURANCE

Execute CREATE.FILES for the INSURANCE application.



Rebuild STANDARD.SELECTION

- Files are ready to store data
- Update the field 'REBUILD.SYS.FIELDS' to a 'Y'

Auto id generation

The ID of the INSURANCE application has to be in the following format

Example: IN00000000000001

This number needs to be automatically generated.

In order to automatically generate ids set the applications

- > AUTO.ID.START
- > COMPANY.



Ready to use =

Start inputting records in POLICY.TYPE and INSURANCE applications

Workshops

Wokshop1