DATABASE BROWSER:

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INTRODUCTION:

This application has been developed to run on IBM midrange systems.

With this application you can retrieve and view data in a fairly simple and fast way, you can make selections on the data and organize the columns in a sequence of your choice by left or right click on the column headings. You don't need to know the complex syntax of SQL or any other RUNQRY command. With this command you make to data visible for any user.

You can use this application to retrieve data from the database or you can use them as a basis for your other applications by connection your local applications or connecting other browser applications.

You can create personalized browser applications, you can add filters, you can ensure your data is protected at user profile level or at group profile level ...

The applications can run from your library list or from an environment. An environment is a collection of libraries such as your library list but created in advance like development, test, UAT, production,...

There are two commands involved. With command WRKAPP you can start building applications and with command RUNAPP you can view or maintain data from your database.

What follows is a fairly technical explanation of the possibilities of both commands. At the end of the document you will find a list of tutorials explaining each step in detail.

Below an example of employer data handled by a browser application ...

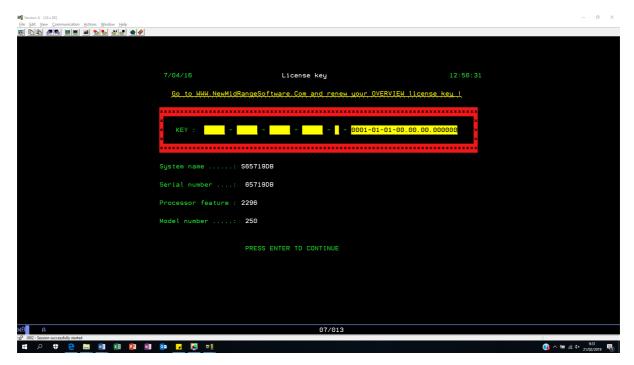


Picture 1

Watch out tutorial on YOUTUBE https://www.youtube.com/watch?v=167WQ9b1cUM&feature=youtu.be

LICENSE KEY:

Before you can start you must ask for a license key. You do this via webshop www.NewMidrangeSoftware.com. Select products/A_database_browser_for_greenscreens and ask a license key for a one word in the product.



Picture 2

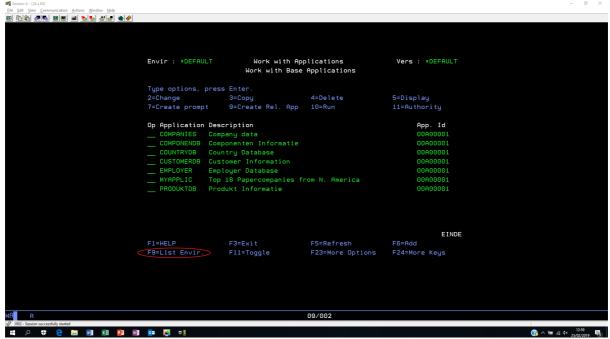
Once you have received you license key, you can execute the command

Watch out tutorial on YOUTUBE https://www.youtube.com/watch?v=1zwkC3upSaw

Setup of the environments:

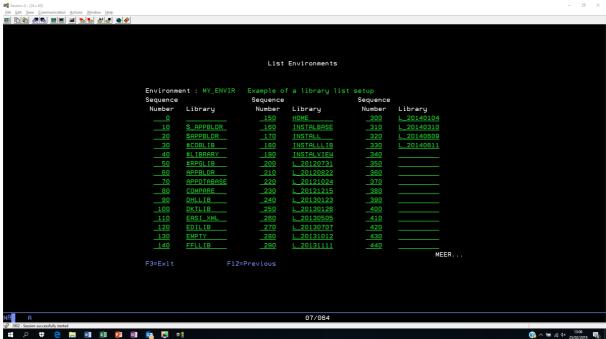
The first thing to do is to create all your environments. All applications run into an environment or from your current library list. You can set up as many environments as you want. When you run an application from a certain environment, the application will save you current environment (library list), replace it by the selected environment and then run the application. When leaving the application, your current environment or library list will be restored.

Type command WRKAPP and press command-9 (F9=List Envir.) to list all your environments and F6 to create an environment, the default environment will always be present because it was created during installation, this environment contains the installation library.



Picture2

The setup of the environments is done in the same as using command EDTLIBL.



Picture 3

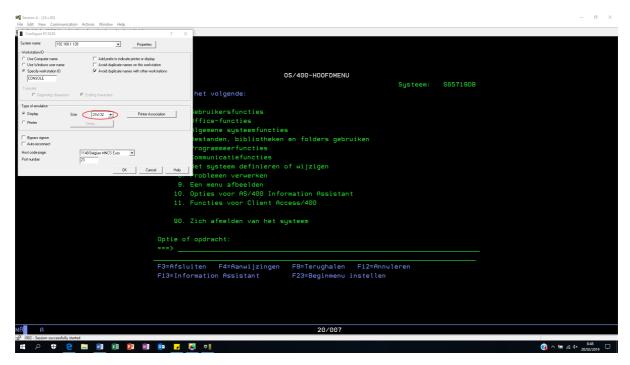
Press ENTER and your environment is created.

Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=WIYLfZHXdZc

Screen configuration:

You can run this application in 24 X 80 or 27 X 132. The best thing to do is to select 27 X 132 in this way you can display more information on the screen.

Go to Communication >> Configure... and select size 27 X 132

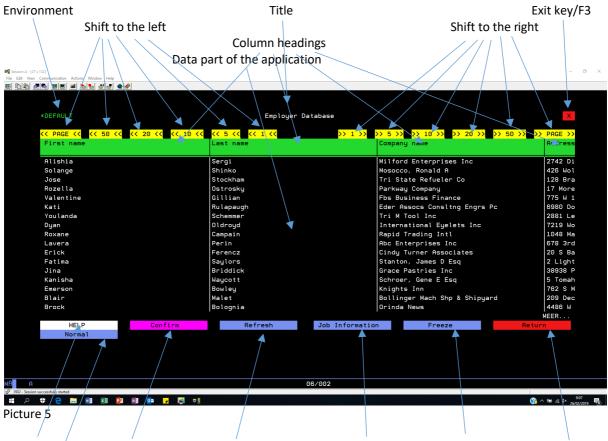


Picture 4

How to query your database using the RUNAPP command:

Once you have set up the environments you can start querying the database.

Use command RUNAPP (Run an application), select a file from your current environment and press ENTER. Below an example of employer data handled by a browser application...



Help button Confirmation button Refresh/F5 button Job Info button Freeze button Return button Normal/Large button

Environment : This is the environment you are currently working in or the second parameter of the RUNAPP command.

Title : This is the title of the application as described into the WRKAPP command, the title of the file as described into the DDS or the filename if there is no file title specified into the DDS.

Exit key/F3: Click on this button if you want to leave the application.

Shift to the left: Click on this buttons to shift a number of positions or an entire page to the left.

Shift to the right: Click on this buttons to shift a number of positions or an entire page to the right.

Column headings : These are the column headings as described into the WRKAPP command, the column heading as described into the DDS or the names of the fields as described into the DDS if there are no column headings specified into the DDS .

Right click on a column heading to display the record selections and left click to customize the application.

Data part of the application: This is the data coming from the file you have specified into the WRKAPP command or the first parameter from the RUNAPP command. Click on any item into this part of the application to display the record options like display, maintain, insert, delete, ... These options are automatically provided by the application, you do not need to do any programming.

Help button : Click on this button to display a help text. Group profile QPGMR, user class *SECOFR and user class *PGMR are allowed to create a help text, all other users can only display the help text.

Confirmation button : After customization of your application (moving, removing and adding the columns) you click on this button to confirm and freeze your customization. Next time you go to the app, you will find your columns the same way as after the last customization done.

Refresh/F5 button : Click this button to refresh the application from start, all record selections will be removed.

Job info button : Click on this button to display more information about the application you are currently working in.

Freeze button : When working with related applications, you can use this button to temporary freeze your customizations before going to a related application.

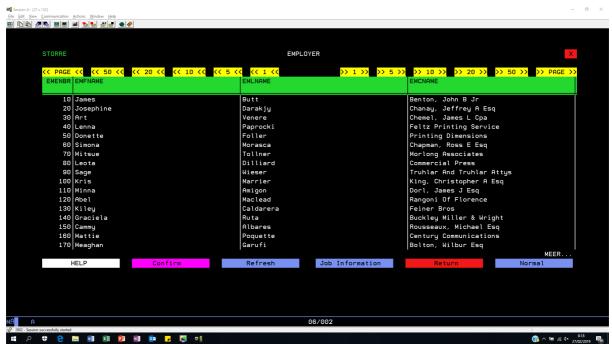
Return button : Click on this button to return to previous point of entry.

Normal/Large button: Click on this button to switch from (24 X 80) to (27 X 132) and vice versa.

Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=TLTpimsf3bs&feature=youtu.be

How to run an application from your library list:

Go to a command line and use command RUNAPP if you want to query data from your library list. The first parameter must contain the name of the file you want to query, the second parameter must be always *LIBL and press ENTER. Below an example of the employer database using the RUNAPP command from a library list.

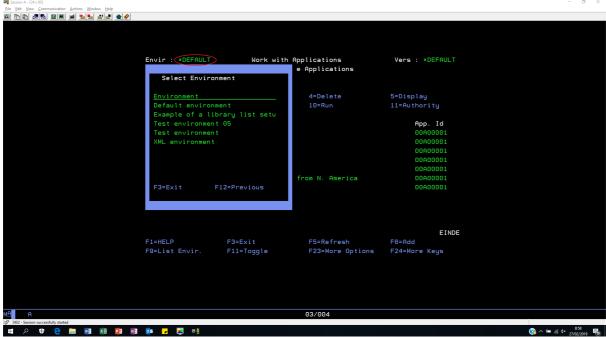


Picture 6

How to create an application using the WRKAPP command:

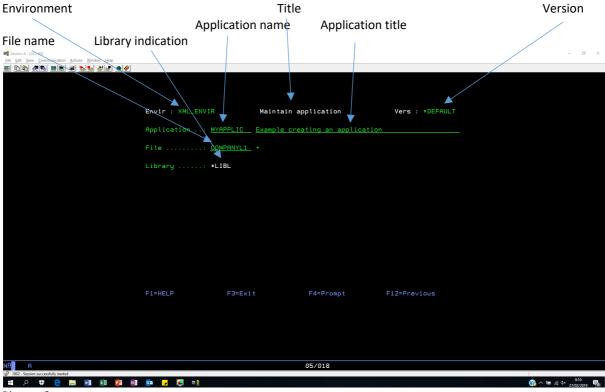
You can only create an application into a certain environment. Go to a command line, type command WRKAPP and press ENTER. If you know the name of the environment you can type WRKAPP ENVIR(*Your Environment*) and press ENTER.

Click on the environment name into the upper left corner and a drop down box will be displayed containing all your environments. Select an environment by clicking on the environment name and the application will show all application from selected environment.



Picture 7

Once you have selected your environment you can start creating an application. Press F6 and start creating an application. The first screen shall contain the application header specifications.



Picture 8

Environment : This is the environment you are about to create an application in. It will also be the second parameter used into the RUNAPP command.

Title: Maintain applications – This is the first screen containing the application header specifications.

Version : You can create multiple versions of an application, at the moment we are creating the default version. Later on you will find out that it is possible to create customized version of an application and then you will be able to select another version instead of the default version.

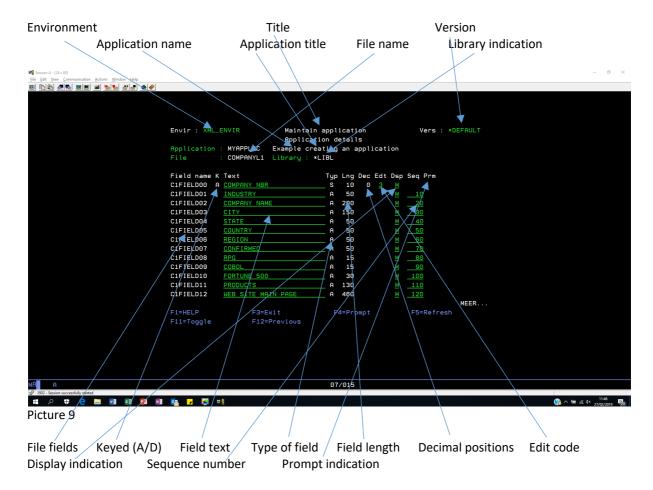
Application name : This is a random name you can give to the application and also the first parameter used into the RUNAPP command.

Application title : The title of the application displayed on top of the screen.

File name : Name of the file used to build the application, the file must exist into the environment, the file must be keyed and cannot contain multiple formats. You can prompt on this field and the application will give you all available files into the selected environment.

Library indication : This will always be *LIBL, meaning the file must come from the library collection from your environment.

Press ENTER and go to the application detail specifications ...



Environment : This is the environment you are about to create an application in. It will also be the second parameter used into the RUNAPP command.

Title: Application details – This is the first screen containing the application detail specifications.

Version : You can create multiple versions of an application, at the moment we are creating the default version. Later on you will find out that it is possible to create customized version of an application and then you will be able to select another version instead of the default version.

Application name : This is a random name you can give to the application and also the first parameter used into the RUNAPP command.

Application title : The title of the application displayed on top of the screen.

File name : Name of the file used to build the application, the file must exist into the environment, the file must be keyed and cannot contain multiple formats. You can prompt on this field and the application will give you all available files into the selected environment.

Library indication : This will always be *LIBL, meaning the file must come from the library collection from your environment.

File fields : This column contains all fields from file specified on top of the screen. Key field(s) will be first displayed in order as they are specified into your DDS.

Keyed (A/D): If this column is filled, this means you are dealing with a key field. Value 'A' means ascending, 'D' means descending.

Field text : This is the field text as specified into the DDS. This is a mandatory field and will be used into the record detail handling (Display, Maintain, Delete, Insert options) (see picture 13).

Type of field : This is the field type as specified into the DDS. The value 'S' is means zoned field, 'A' is an alphanumeric field, 'P' is a packed field, 'L' is a date field type, 'T' is a timestamp, ...

Field length : This is the field length as specified into your DDS.

Decimal positions: These are the decimal positions as specified into your DDS.

Edit code : Numeric fields can be foreseen from an edit code, prompt on the field to find out about the possible edit codes.

Display indication : In this column you can specify if you want the field to be displayed into the application or not. You can also specify in the field must be input capable or not.

Value 'M' = Maintainable, meaning input capable.

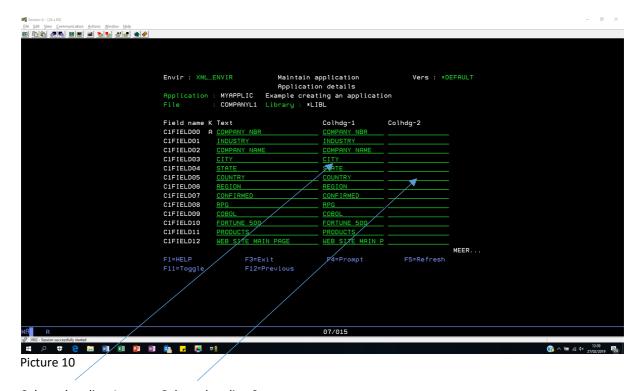
Value 'D' = Display only, not input capable.

Value 'H' = Hidden, the field will not be displayed into the application.

Sequence number : Into this column you can specify the order how the fields should be displayed into the application.

Prompt indication: In column you can see if there is a prompt application created for concerned field.

Press F11 (=Toggle) and go to the column heading of the application.



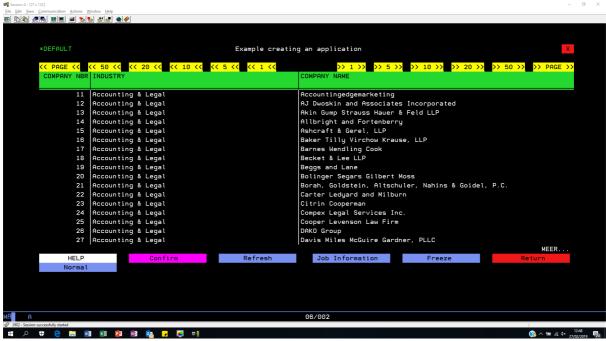
Column heading 1 Column heading 2

These two columns contain the column headings as specified into your DDS. They will be displayed on top of the application. (See <u>picture 11</u>)

Press ENTER and your application is finished.

Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=TLTpimsf3bs&feature=youtu.be

To see the results go to a command line and type **RUNAPP APPLIC(MYAPPLIC) ENVIR(XML_ENVIR)** (see picture 11)



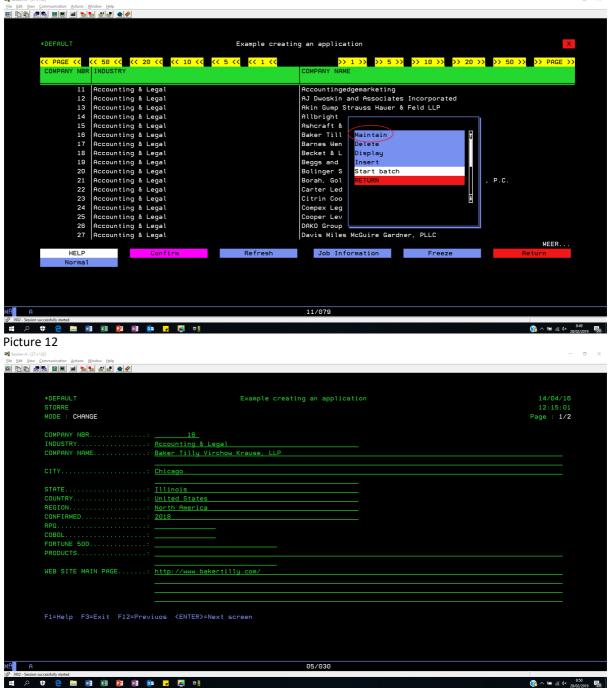
Picture 11

The application options:

Each application is automatically foreseen from a number of options to handle the record details. Click on an item within the list and a dropdown box will be displayed containing the options.

The options are: Maintain, Delete, Display, Insert, Start batch, End batch and Return.

- Maintain: Click on the text 'Maintain' within the dropdown box and start changing record details.
- Delete: Click on the text 'Delete' within the dropdown box and delete an item from the list.
- Display: Click on the text 'Display' within the dropdown box and display the record detail.
- Insert: Click on the text 'Insert' within the dropdown box and start creating new item.
- Start batch: Click on the text 'Start batch' within the dropdown box to mark the beginning of a batch process.
- *End batch*: Once you have started a batch, the 'End batch' option will automatically be displayed into the dropdown box. Use this option o mark the end of batch.

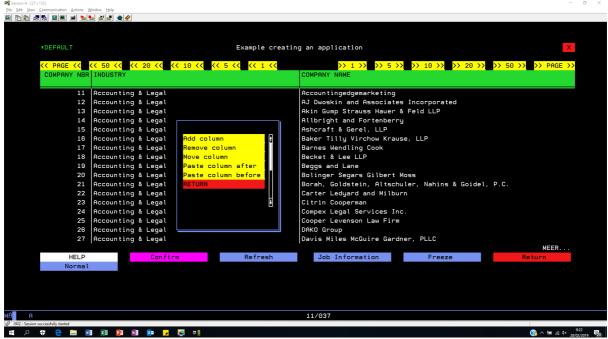


Picture 13

How to customize your application:

You can customize each application by organizing the columns in a sequence of your choice. Left click on the column headings and a dropdown box will be displayed containing the customization options like ... Add column, Remove column, Move column, Paste column after and Paste column before.

- Add column: Click on the text 'Add column' within the dropdown box and add a column to the application. At first the column will be added at the end of the application from where you can use the other options to move it to the correct place of your choice. This option will on be display once you have removed a column.
- Remove column: Click on the text 'Remove column' within the dropdown box and remove a column from the application. You can afterwards add it again by using the 'Add column' option.
- Move column: Click on the text 'Move column' within the dropdown box and move concerned column to the correct place of your choice by afterwards using the 'Paste column before' or 'Paste column after' option.
- Paste column before: Click on the text 'Paste column before' within the dropdown box and paste previously selected column using the 'Move column' option before the selected column.
- Paste column after: Click on the text 'Paste column after' within the dropdown box and paste previously selected column using the 'Move column' option after the selected column.
- Return: Use this option the return to the application.



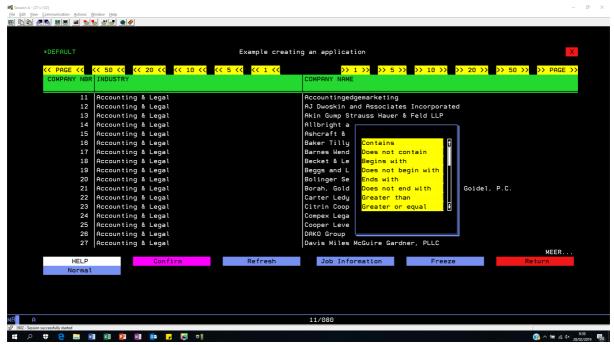
Picture 14

Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=dZToSL08oBE&feature=youtu.be

The record selection options:

Each application is automatically foreseen from a number of record selection options. You can use these options to create a subset into the data displayed.

Depending on the type of field (alphanumeric, numeric, binary, ...) a number of options will be displayed when doing a right click on the column headings.

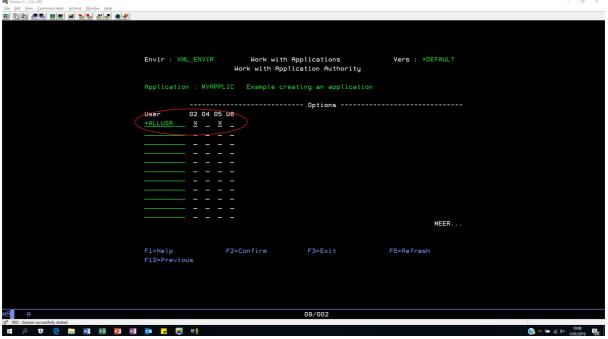


Picture 15

The application authorities:

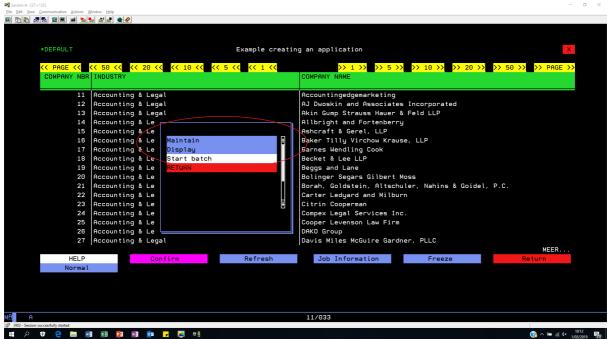
For each application you can set the authorities on level of user profile or group profile. As explained into chapter 'The application options', each application is automatically foreseen from the options Maintain, Delete, Display and Insert. You can for certain users block options or allow them to use options. Underneath an example to block the options Insert and Delete for all users.

Go to a command line, type WRKAPP, press the ENTER key, select the correct environment and type option 11 in front of your application. A screen will be displayed where the *Maintain* option is replaced by value '2', the *Delete* option is replaced by the value '4', the *Display* by the value '5' and *Insert* by value '6'. Put the value 'X' underneath an option to allow the user displayed to the left having access to this option. Put blanks if you want to block the option from the user. Confirm everything with command key 2.



Picture 16

As you can see the options *Delete* and *Insert* are remove from the options dropdown box.



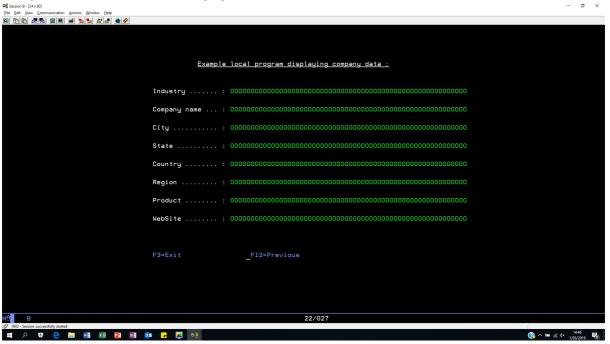
Picture 17

Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=sfdNEhw3Zrk&feature=youtu.be

How to plugin a local option:

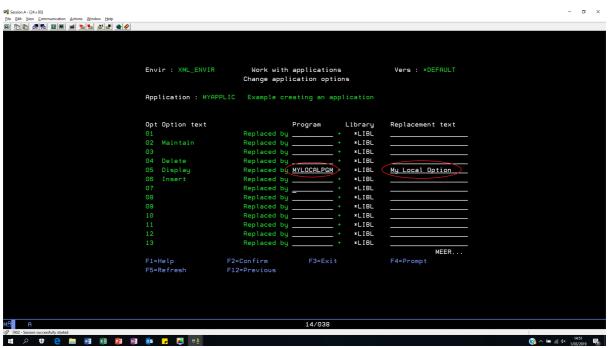
You can create your own local options into the option dropdown box or have an automatically generated option replaced by a local option. Into the example below we will replace the default *Display* option by a local option called MYLOCALPGM. If you want to create your own options into the dropdown box, you must take into account the interface as described on the end of this chapter!

Example of the screen we want to display instead of the default screen ...



Picture 18

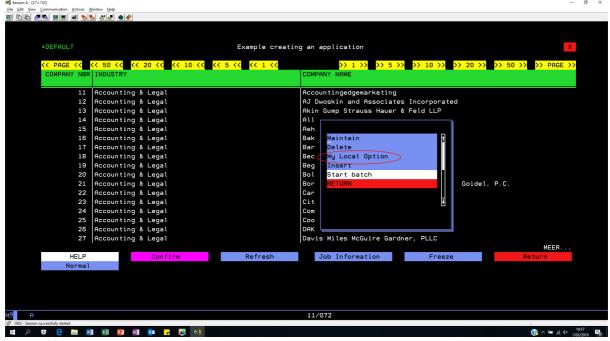
Go to a command line, type WRKAPP, press the ENTER key, select the correct environment and type option 13 (= Change options) in front of your application. A screen will be displayed from where you can maintain the application options.



Picture 19

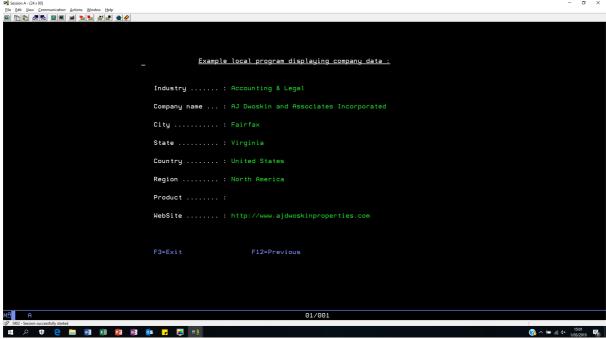
Replace option 05 (=Display) by your local program, add a text for the dropdown box and confirm everything with command key 2.

When returning to the original application you will find the *Display*-option replaced by your local option.



Picture 20

Click on the text 'My Local Option' and the application will access your local program 'MYLOCALPGM'.



Picture 21

 $Watch \ our \ tutorial \ on \ YOUTUBE \ \underline{https://www.youtube.com/watch?v=3lhlhDW5ouE\&feature=youtu.be}$

Interface:

The interface consist out of 4 fields from the type *pointer*.

Description	Length	Туре	Value
Program mode	2	Alfa	Field OPT see <u>Picture 19</u>
Relative Record Number	9	Binary	RRN selected record
Data	32648	Alfa	Selected record
Return value	2	Alfa	'00' → OK
			'03' → Exit application
			'12' → Previous step

Source example :

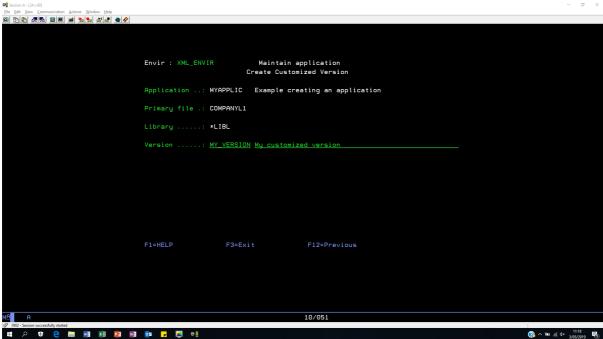
dMYLOCALPGM d pPgmMode d pRrnPhy d pInData d pReturn	pr	* * * *
dMYLOCALPGM d pPgmMode d pRrnPhy d pInData d pReturn	pi	* * * *
d DsCompanies	e ds	ExtName(Companies)
d piPgmMode D piRrnPhy d piInData d piReturn	s s s	2 Based(pPgmMode) 9b 0 Based(pRrnPhy) 32648 Based(pInData) 2 Based(pReturn)
c	Eval	DsCompanies = piInData

Picture 22

How to create multiple versions of an application :

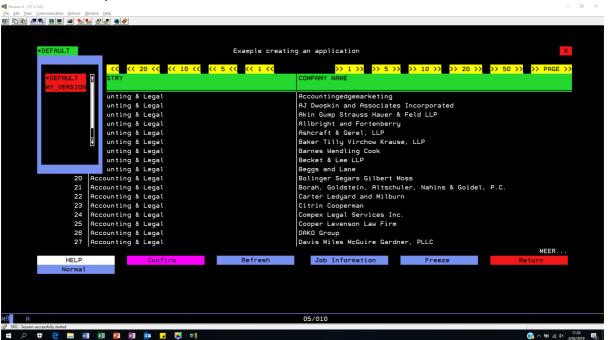
You can create as many versions of an application as you want. The intention is that users can selected their own customized version within the same application. Until now we have been creating default versions, customized or not, available for everyone. When an application has multiple versions, you will find the text *DEFAULT into the upper left corner highlighted. The user can click upon the text and select his own version to work with.

Go to a command line, type WRKAPP, press the ENTER key, select the correct environment, type option 15 (=Customize) in front of your application and press F6(=Add). A screen will be displayed from where you can create a new version, afterwards you can run the version via option 10 and do your customization the same way as explained into chapter *How to customize you application*.

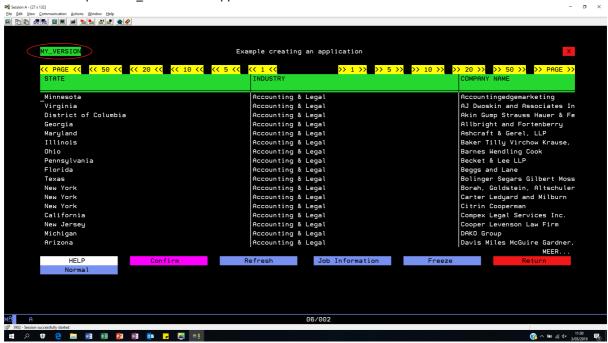


Picture 23

When running the application you will find the text *DEFAULT into the upper left corner highlighted. Click on the text and select your version.



Picture 24
Below an example of MY_VERSION for application MYAPPLIC.



Picture 25

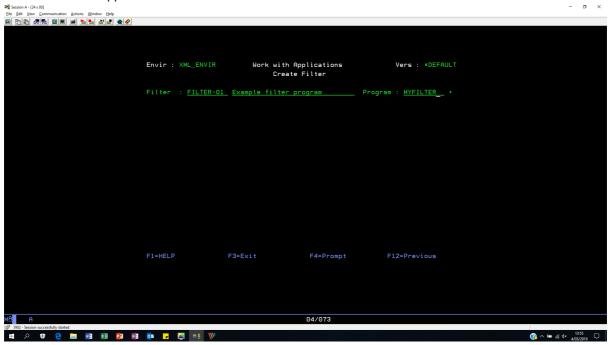
Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=dZToSL08oBE&feature=youtu.be

How to create an application filter:

By a filter we understand a user exit program that contains record selections based upon the file handled into the application. This program can be written into any programming language known by your compiler. Take into account the interface as described at the end of this chapter.

Once a filter program has been applied to the application, you will find the text *DEFAULT into the upper right corner highlighted. The user can click upon the text and select a filter program to work with.

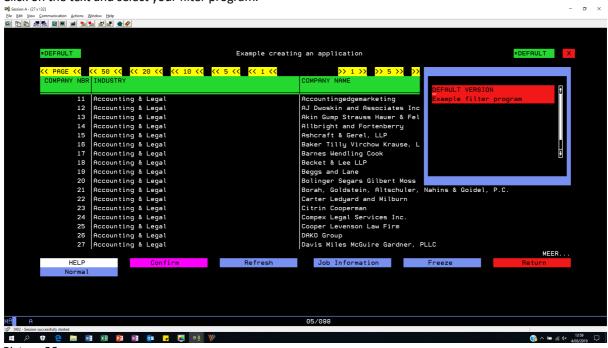
Go to a command line, type WRKAPP, press the ENTER key, select the correct environment, type option 17 (= Apply filter) in front of your application and press F6(=Add). A screen will be displayed from where you can add a filter to the application.



Picture 27

Press ENTER and the filter is applied to the application.

When running the application you will find the text *DEFAULT into the upper right corner highlighted. Click on the text and select your filter program.



Picture 28

Watch out tutorial on YOUTUBE https://www.youtube.com/watch?v=tV2sltm7Z6U&feature=youtu.be

Interface:

The interface consist out of 2 fields from the type pointer.

Description	Length	Туре	Value
Data	32648	Alfa	Selected record
Return value	1	Alfa	'Y' → Select record
			'N' → Skip record

Source example:

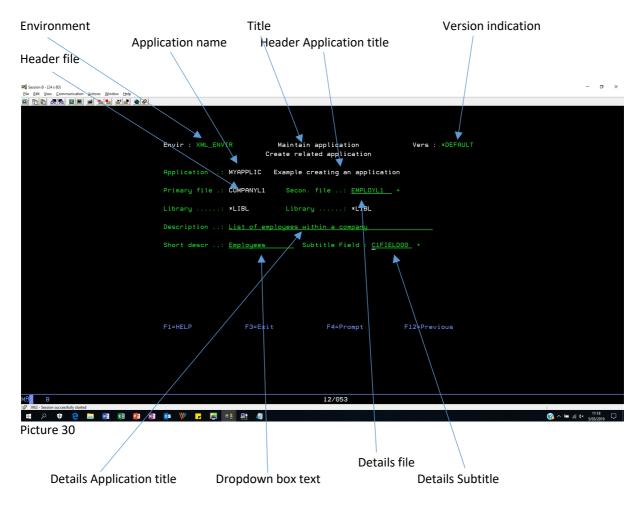
```
dMyFilter
d pInRecord
d pReturn
dMyFilter
         рi
d pInRecord
d pReturn
*_____*
* External data structure containing the record layout *
*----*
d MyRecord e ds
                 ExtName( COMPANYL1 )
d InRecord s 32767 Based(pInRecord)
                    Based( pReturn )
d YesNo
                 1
        5
*-----*
* Get the record in ...
          Eval MyRecord = InRecord
* Do the necessary processing ...
*-----*
          Eval YesNo = 'Y'
* Return the result value ...
*_____*
          Eval pReturn = %Addr( YesNo )
          Return
```

Picture 29

How to create a related application:

By a related application we understand an application accessed via an additional option into the dropdown box from a previous application. You can create additional options into your dropdown box to access new applications. For instance, the applications above are displaying company data, if I want to seen the employees working into each company I have to connect both files (COMPANYL1 and EMPLOYL1) and create a related application to display the people working into a company. This additional option shall automatically appear into the dropdown box from the company application!

Go to a command line, type WRKAPP, press the ENTER key, select the correct environment, type option 9 (=Create Rel. App) in front of your application, press the ENTER key and press F6(=Add). A screen will be displayed from where you can create a related application.



Environment: This is the environment you are about to create a related application in.

Title: Maintain Application – Create related application

Version : You can create multiple versions of your application the same way as we did in chapter

'How to create multiple versions of an application'.

Application name : This is a random name you can give to the application and also the first parameter used into the RUNAPP command.

Application title: The title of the application displayed on top of the screen of the header app.

Header File: Name of the file used to build the header application.

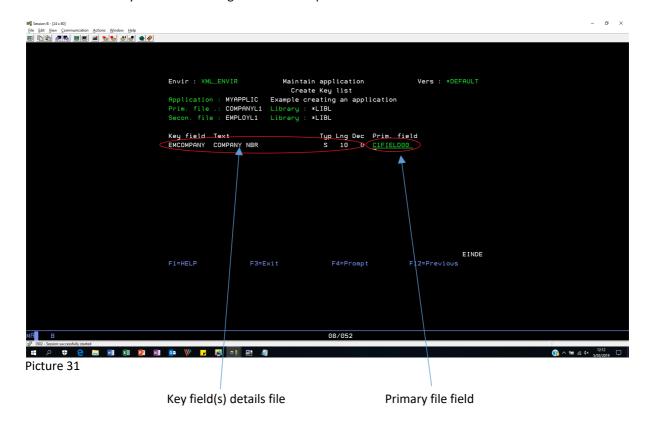
Details file: Name of the file containing the header details.

Details Application title: The title of the application displayed on top of the screen of the details app.

Dropdown box text: Text displayed into the dropdown box to access your details application.

Details Subtitle : Field coming from the header file to be displayed underneath the Details application title. In this case the company name. You can prompt on this field to view all fields from the header file.

Press the ENTER key and start creating the relationship between the two files COMPANYL1 and EMPLOYL1.

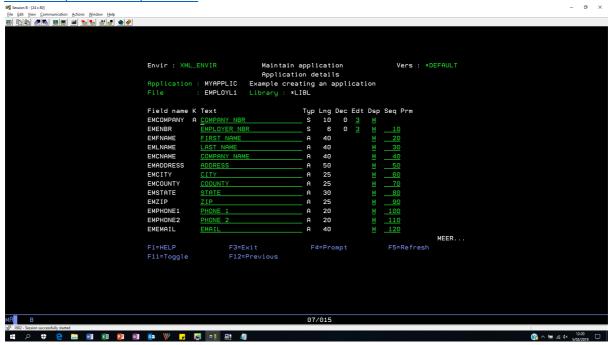


Key field(s) details file: List of all key fields coming from the details file EMPLOYL1.

Primary file field: Field from the header file COMPANYL1 containing the key value, in this case the company number.

Press ENTER and go to the application detail specifications ...

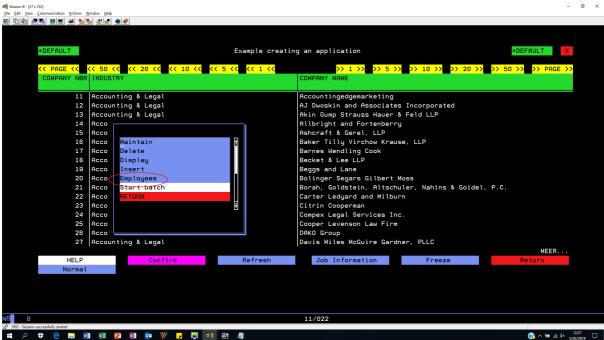
This is done in the same way as explained into chapter 'How to create an application using the WRKAPP command' picture 9 and picture 10.



Picture 32

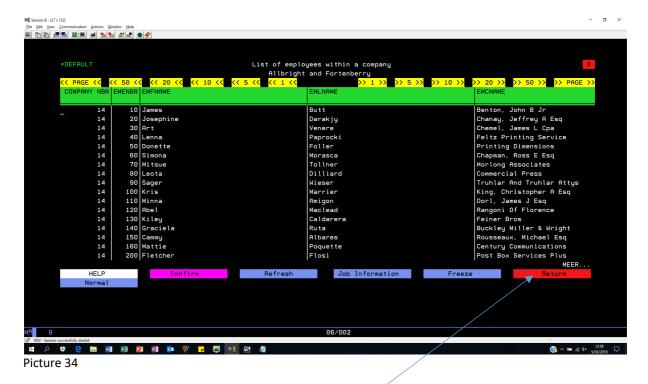
Do the necessary customization, press the ENTER key and the related application is finished.

To see the results go to a command line and type RUNAPP APPLIC(MYAPPLIC) ENVIR(XML_ENVIR)



Picture 33

Click on the text 'Employees' into the dropdown box and go to your related application for employees.



The same options are as described into the previous chapters.

To return to the header application click on the button RETURN.

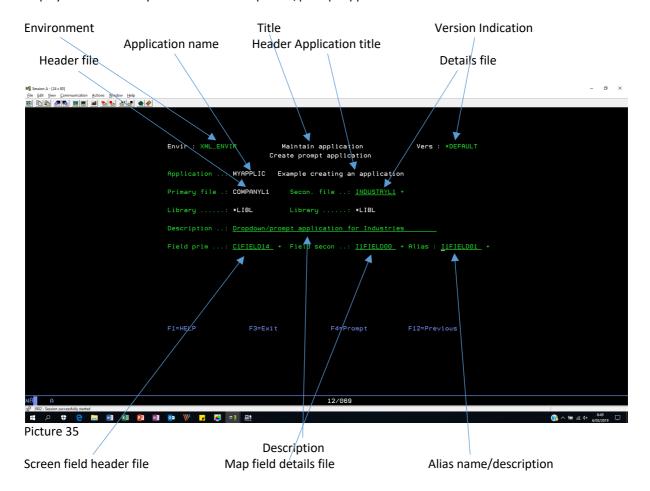
Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=NrUugy7vR3U&feature=youtu.be

How to create a dropdown box application:

You can create dropdown box or prompt applications via option 7 into the main menu. These application can only be accessed via the default provided *Maintain* and *Insert* applications. See chapter 'The application options – Picture 13'.

For instance, the applications above are displaying company data and I want to create a dropdown box into the second screen from the detail handling on field 'Industy Nbr'. In this case I have to conect both files (COMPANYL1 and INDUSTRYL1), I have to specify the relationship between the two files and select the fields I want to display into the dropdown box.

Go to a command line, type WRKAPP, press the ENTER key, select the correct environment, type option 7 (=Create Prompt) in front of your application, press the ENTER key and press F6(=Add). A screen will be displayed from where you can create a dropdown/prompt application.



Environment : This is the environment you are about to create a dropdown application in.

Title: Maintain Application – Create prompt application

Version: You can create multiple versions of your application the same way as we did in chapter

'How to create multiple versions of an application'.

Application name : This is a random name you can give to the application and also the first parameter used into the RUNAPP command.

Application title: The title of the application displayed on top of the screen of the header app.

Header File: Name of the file used to build the header application.

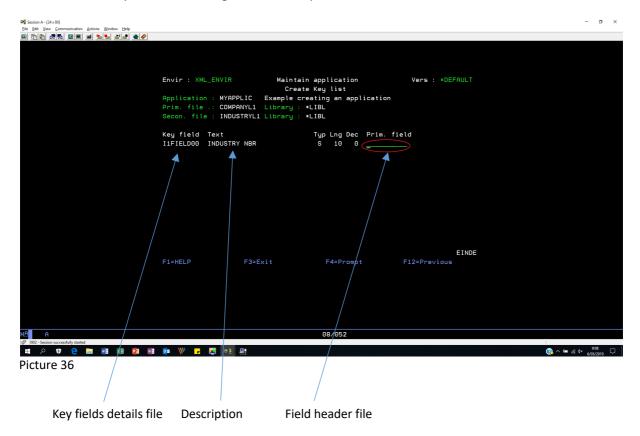
Details file: Name of the file containing the prompt details.

Description: The title of the application displayed on top of the dropdown screen.

Screen field header file: Field from file COMPANYL1 from where you can prompt on (F4). **Map field details file:** Field from file INDUSTRYL1 to be mapped into 'Screen field header file'.

Alias/Description : Descriptive field from INDUSTRYL1 to be displayed next to the 'Screen field header file'. In this case 'Industry name'.

Press the ENTER key and start creating the relationship between the two files COMPANYL1 and INDUSTRYL1.



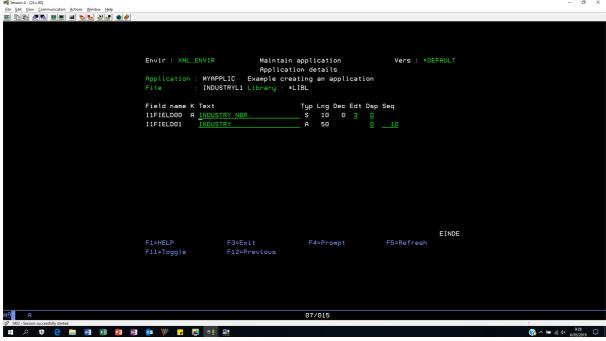
Key fields details file : The key fields from the details file in sequential order as specified into the DDS. In this case INDUSTRYL1.

Description : Field text description as specified into the DDS.

Field header file: Select here the field from the header file to be mapped into the corresponding key field from the details file. In this case there is only one key field involved (Industry Nbr) but we are going the leave it blank because we want to display ALL the industries from the details file (INDUSTRYL1)

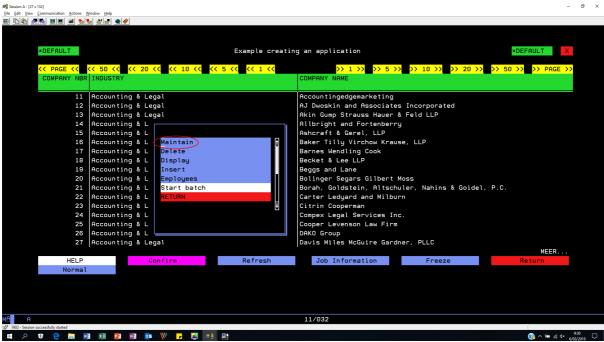
Press ENTER and go to the application detail specifications ...

This is done in the same way as explained into chapter 'How to create an application using the WRKAPP command' picture 9 and picture 10.



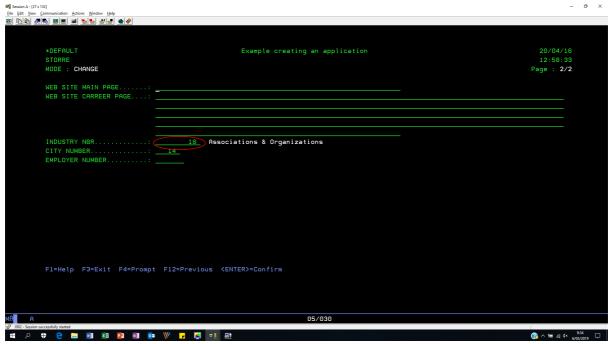
Picture 37

Do the necessary customization, press the ENTER key and the dropdown/prompt application is finished. To see the results go to a command line and type RUNAPP APPLIC(MYAPPLIC) ENVIR(XML_ENVIR)



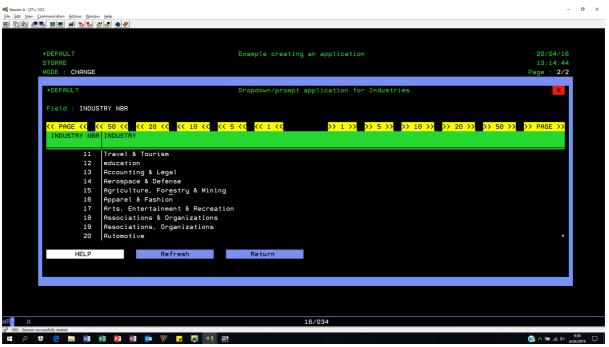
Picture 38

Click on the text 'Maintain' or 'Insert' into the dropdown box, go to the second screen of the detail handling and press F4 on the field 'Industry Nbr'.



Picture 39

Press F4 on 'Industry Nbr' and select, if necessary, an industry out of the dropdown box by click on an item into the list.



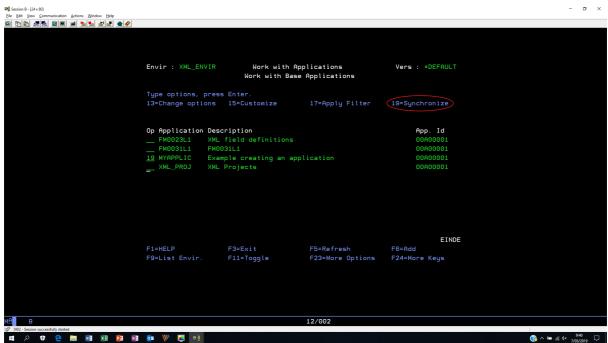
Picture 40

Watch our tutorial on YOUTUBE https://www.youtube.com/watch?v=P91ZA6Jj2QE&feature=youtu.be

The synchronization option:

When the layout of the file has been changed after your application has been created, the application will get unstable and will not work anymore. When this problem occurs you will receive a message to synchronize your app. By using option 19 (= Synchronize) you can try to repair the app, when the damage is too big, you will receive a message telling you to delete and rebuild the application.

Go to a command line, type WRKAPP, press the ENTER key, select the correct environment, type option 19 (= Synchronize) in front of your application and press the ENTER key, a program will try rebuilding your application.



Picture 41