Build Process
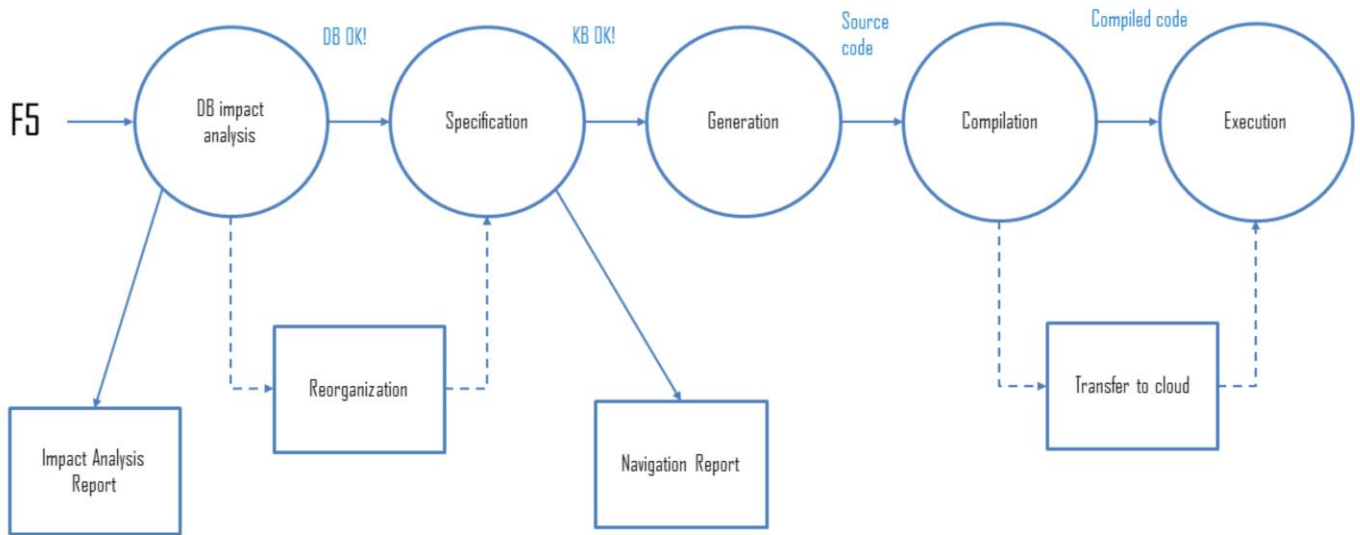
Introduction

GeneXus

To run a KB we press F5, but we haven't really thought about what happens when we do it and what steps are taken until we see our application running.
The following is a quick introduction to this pre-run process, called Build process.

Build Process and Execution

When we press F5, the first thing GeneXus does is to perform an impact analysis of the database; that is, check if changes are needed in the database structure to reflect the changes we have made to our application model.

If the database needs to be adjusted, an Impact Analysis Report is shown, detailing the changes that should be made and the SQL statement(s) that would be executed if the reorganization is confirmed.

If the user accepts the changes, a program is created and executed to make them in the structure, relationships, tables, indexes, and other database components.

After the impact analysis comes the Specification stage, in which GeneXus checks the syntax and logic of the KB objects, updating modules and pattern instances, and importing resources if necessary.

At the end of this stage, GeneXus creates a Navigation List (Navigation View), which is very useful to check for any errors in the specification and also to see the navigation of formulas and tables, determination of base tables, filters, orders and other elements.
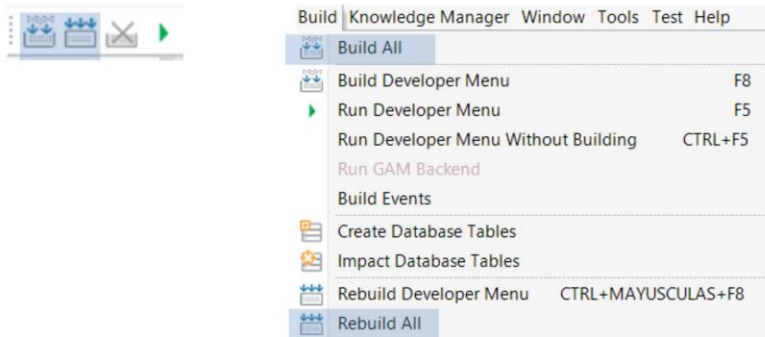
Build Process and Execution (continued)
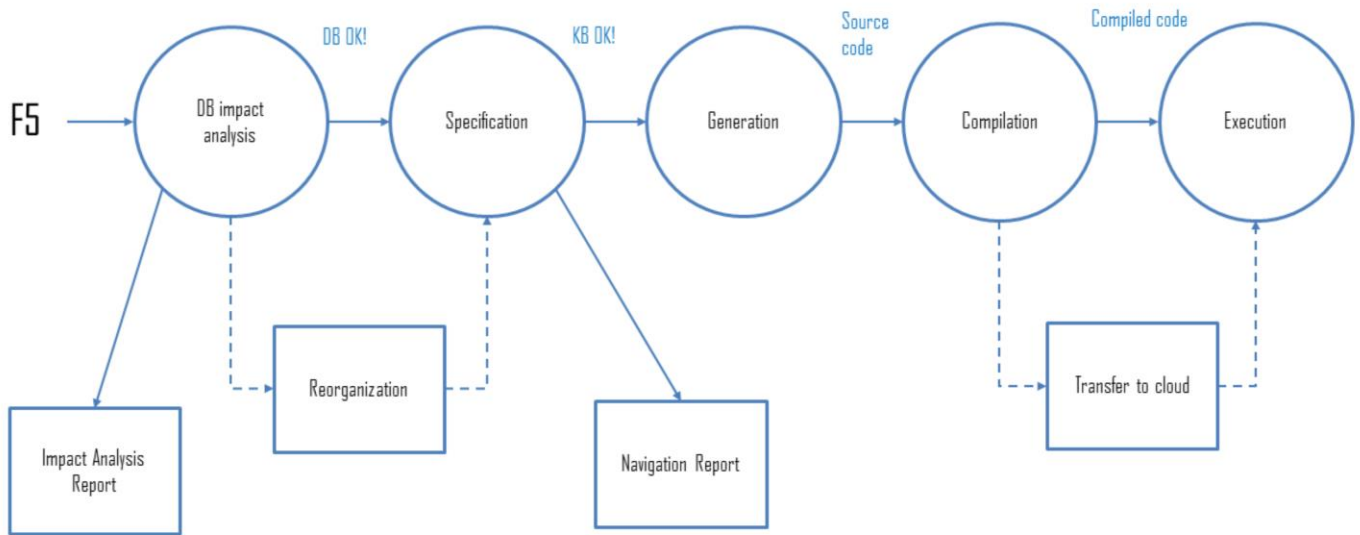
Once the Specification stage is successfully completed and the KB has been correctly validated, the generation of the source code in the language chosen for the application begins.

When it has been generated, the source code is compiled. If you are prototyping in the GeneXus cloud, after compilation the application is transferred to the cloud to be executed there.
At this point, the build process ends and the execution stage of the application begins.

Next, the necessary steps are carried out so that the application is executed; a web application runs in the browser, and a mobile application runs on the mobile device (or emulator).

All the steps carried out in the build process are reported in the Output window, including the result of each operation and the warnings or error reports, if any.

Build All / Rebuild All

As we have seen before, pressing F5 runs the Build process and executes the application. However, in some cases we are interested in the Build process to see if everything is correct, without executing the application.

One option is Build All, which can be accessed from the Build menu or with the toolbar button.

When we perform a Build All we do everything necessary to execute the build process, such as saving the objects that haven't been saved, reorganizing the database if necessary, specifying, generating and compiling the application.

The Rebuild All option, not only does what is necessary, but forces the whole build process, executing the above steps for all KB objects. This usually takes longer than Build All and is done when we want to have everything specified, generated, and compiled from scratch.

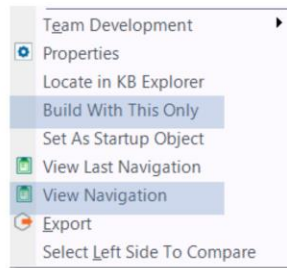# Create Database Tables / Impact Database Tables

To perform on-demand database impact analysis, the Impact Database Tables option is available in the Build menu.
If there are any changes to be made to the database, the impact analysis report will be displayed and will give us the opportunity to execute the changes.
If there is nothing to update in the database, the result of the operation will be displayed in the Output window only.

If for some reason we want all the tables in the database to be deleted and recreated, we can use the Create Database Tables option. This will create the entire database structure from scratch from our model, and obviously all the data stored in the tables will be lost.
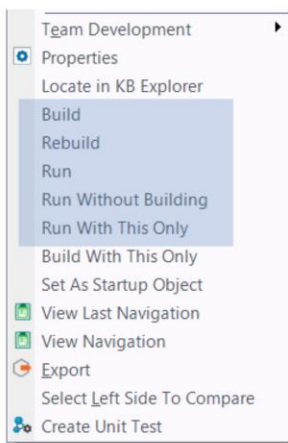
Any object: Build With This Only / View Navigation

| Team Development ▶ |
| ☉ Properties |
| Locate in KB Explorer |
| Build With This Only |
| Set As Startup Object |
| ▣ View Last Navigation |
| ▣ View Navigation |
| ↪ Export |
| Select Left Side To Compare |

When we don't want the build process to be executed for the whole KB, but we want it to be done only for one object, we can right-click on it and select Build With This Only. If we are prototyping there, this will specify, generate, compile and eventually transfer to the cloud only the object we are interested in, whether it is a main object or not, and the result information will be in the Output window. If there is an error, the navigation list is opened to display it.

When we want to specify only one object, without continuing with the other build stages, we can select the View Navigation option, which will execute only the specification stage and will open the navigation list afterwards.

Main objects: Build / Rebuild / Run / Run Without Building / Run With This Only

```
Team Development                ▶
⊙ Properties
  Locate in KB Explorer
  Build
  Rebuild
  Run
  Run Without Building
  Run With This Only
  Build With This Only
  Set As Startup Object
  View Last Navigation
  View Navigation
  Export
  Select Left Side To Compare
  Create Unit Test
```

When we set the Main Object property to True, there are other options available to execute on the object. By right-clicking on the object, we can perform the Build, Rebuild, Run, Run Without Building, Run With This Only operations, in addition to the ones we saw before.

The Run With This Only option is used to build and execute only the selected main object, ignoring changes in any other object. The Run Without Building option runs the object as it was last assembled, without running the build process.

When we choose Build, Rebuild or Run, not only the main object selected will be built, but also all the objects that are part of the invocation tree, starting from that main object. The Build option will perform only the operations that are necessary to those objects; the Rebuild option will force the build process for all of them, and the Run option executes the Build first and then executes the main object.

Set as Startup Object
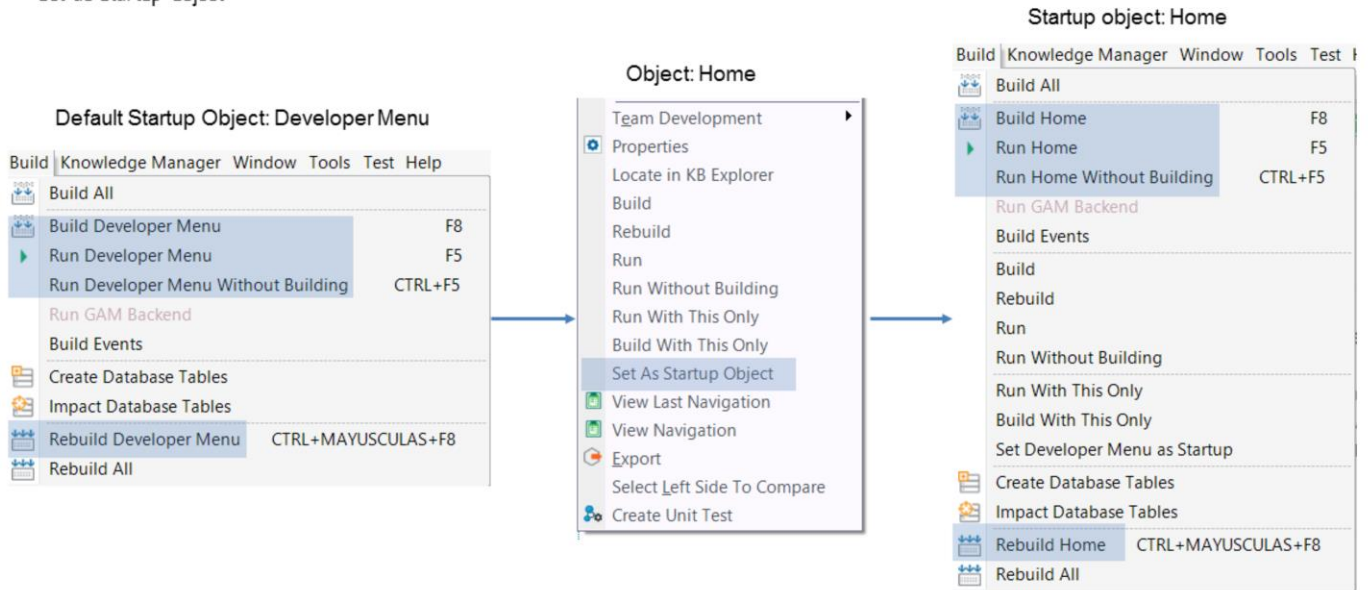
By pressing F5, the Developer Menu is displayed, which includes links to the objects we can execute. This menu is perfect in the development stage, but we probably don't want it to be displayed when running the finished system, but rather that another object is executed.

This object we want to be executed first when the application starts is called Startup object. In the Build menu, all operations are referred to the Developer Menu, as this is the default startup object.

To execute another object when pressing F5, it has to be set as a Startup Object. This can be done by right-clicking on the object and selecting the corresponding option.

From that moment on, we will see that the Build menu options change and instead of the build and run operations being performed on the Developer Menu, they will be performed on the object set as Startup.

If for some reason we want the Developer Menu to be the startup object again, in the Trial version we go to the Build menu and choose Set Developer Menu as Startup. When running the full version, this is done in the Environment property, as we will see later.

To learn more about the build process, you can read the chapter with the same name in the GeneXus Analyst course, using the link shown on screen.

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