

This is a quick review of Siemens TIA Portal v11, as released in may 2011.  
It is based on TIA Portal with STEP7 Professional and WinCC Professional.

This review is by no means “complete”. It is the result of testing during 3-4 days.

### **Overall about TIA Portal.**

TIA Portal is supposed to encompass all Siemens Simatic software products.

At the moment there are some holes in the line-up.

Lacking are the following:

- Integration with DRIVES.

- Safety.

- S7-300 T CPUs.

- S7-400 H CPUs.

- WinCC redundancy.

- CFC.

As to the S7 programming, it is worth noting that the new S7-1200 platform uses a different strategy compared to the older S7-300/400 platform. The programs for S7-1200 are compiled to machine-near instructions, whereas the programs for S7-300/400 are compiled to MC7 code. This means to end-users, that the instruction set for S7-1200 and S7-300/400 are not 100% identical. Also, when a programming functionality is released for one platform it isn't necessarily released for the other platform. For example is the programming language SCL available for S7-300/400, but not for S7-1200. SCL for S7-1200 should be released at a later time.

It has been rumored that S7-300/400 will change to the same program strategy as S7-1200 sometime in the future. This will be logical so that there will be one uniform programming platform from top to bottom.

TIA Portal requires a hefty computer. It does not run very fast on my average specified machine with 2GB RAM.

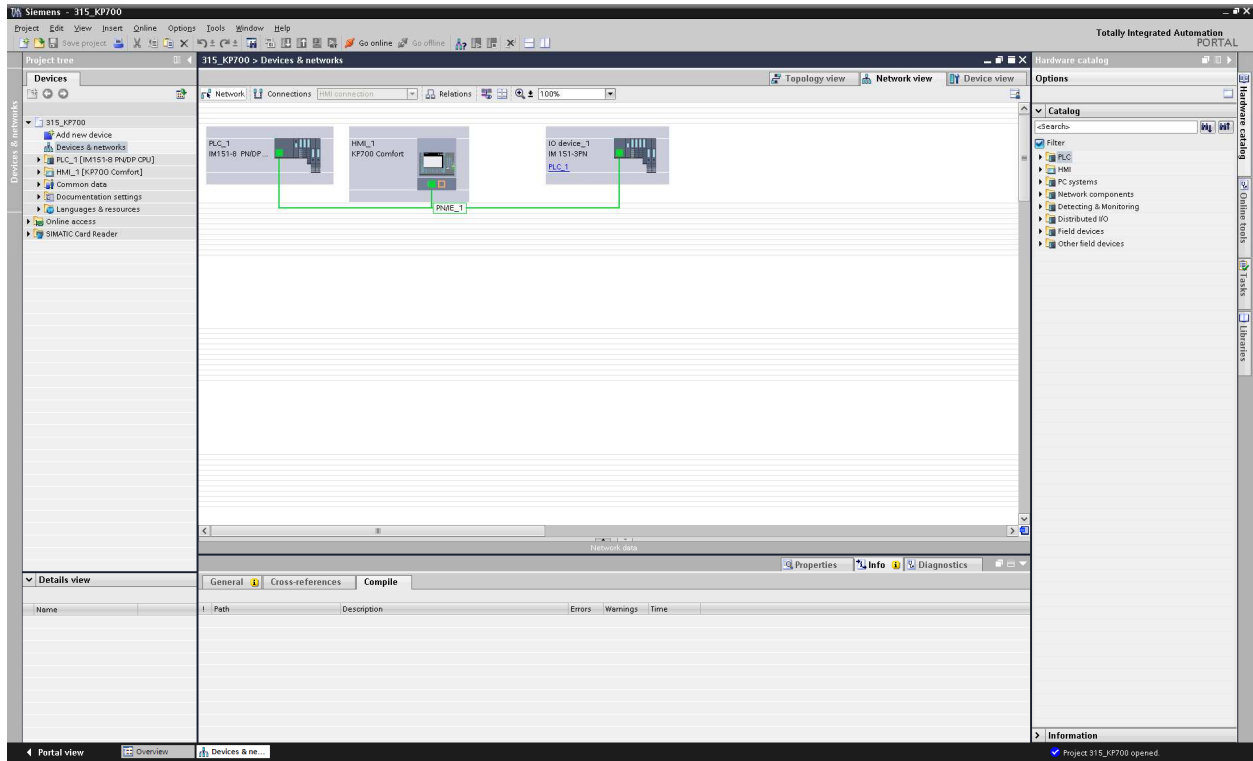
Starting a major activity, such as inserting an entire station, takes 20-30 seconds.

More irritatingly is that there is a minute delay for every activity in the editors that are used for coding the programs.

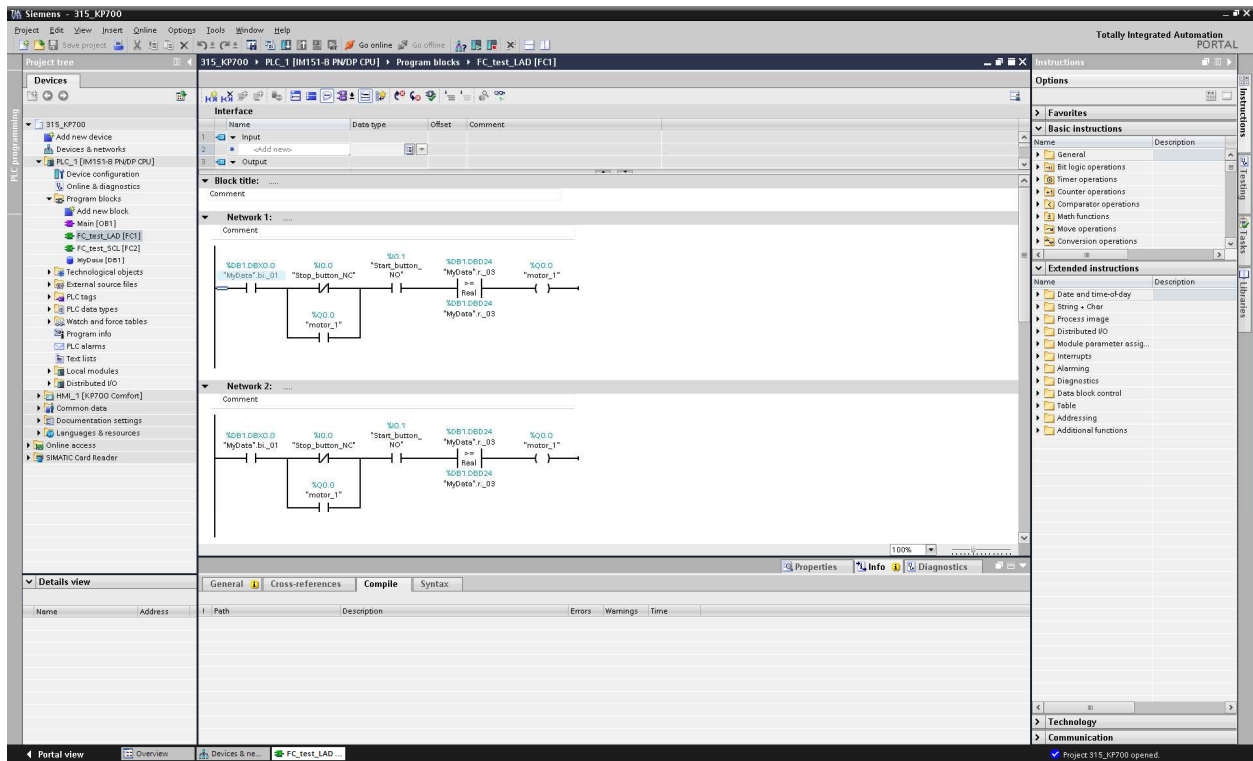
Also, the software has so many windows, menus, side-menus, tabs and sub-tabs, that you absolutely must have a large screen, and preferably two screens.

The next pages shows examples of some of the screens in TIA Portal.

## The Devices and Networks view:



## The LAD editor view:





## **Overall state of the software.**

Generally, everything functions as expected.

There are so many functions and windows that it takes some time to learn how to navigate.

The stability of the software seems pretty good. I mean that in relative terms, with a view to how massive this software release is.

I managed to crash TIA Portal once when attempting to setup the hardware configuration of a project.

But I managed to do the hardware configuration by starting all over again.

And after 3-4 days it has not crashed again.

More serious are the problems with migrating old projects to TIA Portal.

In order to migrate, there are quite many requirements that must be fulfilled beforehand.

One requirement is that the hardware components must be of the latest version (in some cases the version before the last is supported). This may mean that you must manually modify the old hardware configuration, which may be a significant job for larger projects.

Despite following all the requirements, I couldn't migrate several of my bigger projects. I only managed to migrate a smaller project. In the case of the failed migration, I only got an error-message "there was an error during migration", no further explanation as to what was wrong.

For working with TIA Portal v11, I will say overall for each of the components:

Navigation of the TIA Portal software, works not so well (see later detailed explanation).

The Devices and Networks Configuration works well (despite crashing once).

The LAD editor works quite badly (see later detailed explanation)

The SCL editor works well.

The WinCC screen editor works reasonable well, though with some issues (see later detailed explanation).

I cannot comment on the STL editor or the FBD editor. I usually do all my coding with LAD and SCL, so I shall pass on these two for now. However, I expect the FBD editor to be very similar to the LAD editor, and I expect the STL editor to be very similar to the SCL editor.



## Issues with the LAD editor.

Generally I find that it is simply not possible to program code by using the keyboard only.

And this I find is crucial in order to work productively.

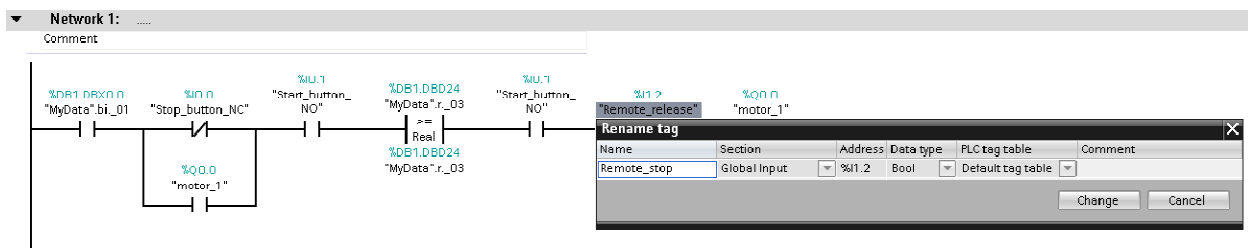
Writing code is where a very large proportion of the time will be spent with TIA Portal. So Siemens should think long and hard on how to totally eliminate the need to use the mouse, and also how to significantly reduce the amount of keyboard entries that must be done.

Generally it is totally impossible to navigate around the LAD code with the keyboard (!).

Scrolling trough rungs by the mouse-wheel goes swiftly. When one tries to use the arrow keys or page-up or page-down .... nothing happens (!).

A typical issue is typing in symbolic names from with the LAD editor. This happens with a dialog that pops up, you can type in the name, but then there is no hot-key to close the dialog. Again, you have to use the mouse, or hit the TAB several times to navigate to the Change button and then finish with ENTER.

This is the dialog that I mean, to get from typing in the name to activate the Change button is too difficult:



Suggestion to Siemens: Hitting ENTER should accept the entered name and close the dialog. If the programmer wants to access the other properties, he should hit TAB after typing in the name, and finish with ENTER.

Another small issue with placing addresses by browsing the available PLC symbols (now called PLC Tags). The list of PLC tags does not pop up automatically. You have to start by typing a quote ("). A small thing, but since you have to do this very frequently, it is an unnecessary extra keyboard entry that should be removed.

Similarly, you have to open the next level of the structure by typing a period (.).

Suggestion to Siemens: When selecting the address field, a dialog pops up that allows the immediate entry of the address by the keyboard or that the address is found by browsing with the arrow keys.

When browsing with the arrow keys, it should not be necessary to shift between using the arrow keys, and typing (such as having to type a "." or hitting ENTER to open the browsing for the next structure level).

Placing instruction in a rung is also a chore. There is a favorites bar, where you can even drop in your own favorites. The thing is though, only the 6 predefined favorites have hot-keys assigned to them.

The 6 predefined favorites:

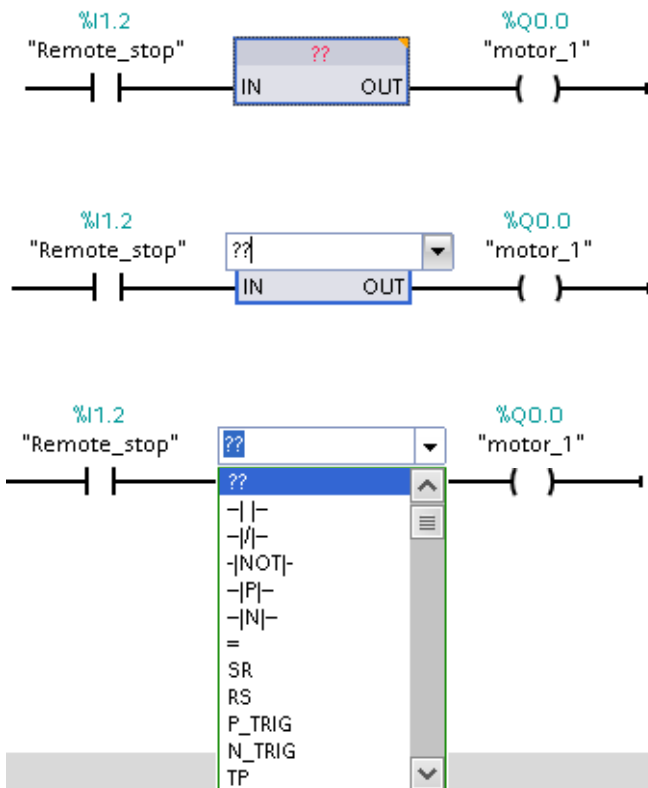


Another way to place instructions is to start with an “empty box”, by hitting SHIFT-F5.

Unfortunately, in order to open the list of instructions, you have to use the mouse. This quite nullifies the value of being able to add an instruction via an “empty box”.

Suggestion to Siemens: When using SHIFT-F5, the list of instructions should open immediately, like the 3<sup>rd</sup> step illustrated below.

(The three steps of adding an instruction. To get from the 2<sup>nd</sup> to the 3<sup>rd</sup> step requires that you use the mouse).



All this just an example on that a lot of optimization of the user interface is needed before the workflow becomes good enough for productive work.

One thing that is improved over STEP7 v5.5, is that it is now possible to save the code even if there are unfinished rungs. Finally !

## **The SCL editor.**

There are major improvements and radical changes to the SCL editor.

Now the SCL editor works in many ways as the LAD or FBD editors.

This means for example that you create the declaration part of FBs and FCs by means of the declaration editor. It is no longer possible to write the declaration as SCL text code. It is more cumbersome than typing text, but on the other hand it is less error-prone, so it is overall an advantage.

Another “change” is that it is no longer possible to create UDTs or DBs directly in SCL code. For this there are separate editors. And, it is no longer possible to write more than one block at a time.

It is possible to export and import SCL text code. These external text code files are what are now called “SCL source” files.

When typing SCL code, there is now auto-suggestion of both code and variables.

And there is also Auto-indentation.

Both works well, and are welcome additions to the functionality.

There are the same quirks when entering address names as in the LAD editor.



## Issues with the WinCC screen editor.

All the functionality of the WinCC part reminds very much about WinCC Flexible.  
Overall there are very few surprises.

A very welcome addition is that there are now X/Y-trends (aka “f(x) trends”).

Something quite annoying are the changes to the main toolbar that is used constantly when working with screens.

In WinCC Flexible, the toolbar would expand automatically (if there was available screen area) to allow direct activation of the functions, with only 1 mouse-click. In the below image from WinCC Flexible, for example all the alignment possibilities are directly available:



In WinCC v11, the toolbar “cleverly” remembers the last selected activity. Getting to the other actions within a type of activity requires that a drop-down menu is activated. That means the same work takes 3 mouse-clicks in stead of 1 mouse-click. It looks prettier, but is just plain stupid (pardon my language). Example from WinCC v11, central alignment in the vertical plane is chosen, drop-down menu is open to select other alignments:



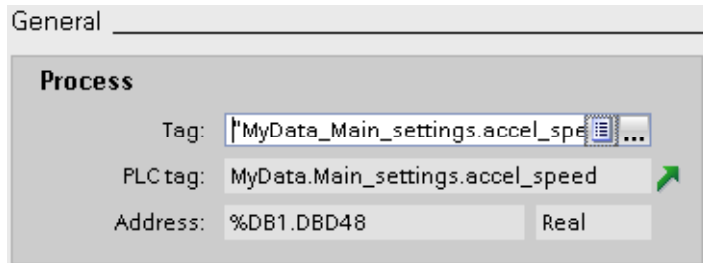
Also notice that the language selection has disappeared. This means switching languages requires diving into a menu dialog at a different location in the software (!). I always wished that language switching was possible with a hot-key.

Suggestion to Siemens:

Please revert to the toolbar design of WinCC Flexible.

Please make language switching possible with a hot-key.

One very irritating detail is the tag selection dialog for objects that must be linked to a tag. The input field is simply too small to display the entire tag name, if the tag is relatively long (for example for tags that have several structure levels).



Suggestion to Siemens: Please make this input field expand automatically to take advantage of all the available screen area.

Rant: This has been complained about for years for WinCC Flexible. It is poor show to have this problem reappear. Especially when it should be so easy to fix.

## **WinCC VBS editor.**

Not much has changed over the VBS editor in WinCC Flexible.

A new thing is that you can hit CTRL-J in order to browse for Tags you want to insert.

Strange is that now there are 3 quotes around smarttags.

I.e.: SmartTags("""MyData\_r\_02""").

## **Final thoughts, for now .....**

With all these issues mentioned, it could appear that I am very negative about TIA Portal. But that is not the case.

The software project that is to collect all Simatic programs under one roof, is much bigger than for example WinCC Flexible as it was released in 2004. Despite of this the stability is much better than WinCC Flexible 2004.

The main problems as I see it are:

The LAD editors ergonomics is too poor to work efficiently.

The migration of old projects is not reliable enough.

For smaller projects, I can recommend TIA Portal v11, given that you have a potent computer and a big screen.

For bigger projects, I recommend to wait until Siemens has ironed out the kinks.

For some people, TIA Portal will remain irrelevant until all the software options are released.

*Jesper M. Pedersen*

*May 16, 2011*