

Allowed Online Modifications



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Overview

The following pages describe modifications that are allowed when Unity mode is online.

General Rules Concerning Online Modifications

Online modification is a feature that concerns only the 'online equal' state.

If the application present in the PLC is different from the one opened in Unity Pro, the state is 'online different'. One of both applications should be chosen and loaded to be in the 'online equal' state.

NOTE: To download the application from Unity Pro into the PLC, it is mandatory to stop the PLC. However, the PLC may stay in RUN mode while uploading the application to the PC via Unity Pro.

The 'online equal' state may only be reached if the connection mode is 'programming'. To configure the connection mode, use the command **Tool → Options → Connection**.

Two different connection modes are available:

- [monitoring](#): state is 'monitoring' and no online modification is allowed,
- [programming](#).

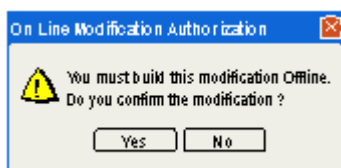
The distinction between executable code and upload information means that there are 2 kinds of modifications:

- those which truly modify the executable information (e.g., which add a new EFB call or a new ST instruction)
- modifications that have an impact only on the Upload information (e.g. concerning comments, graphical information of languages).

Consequently, these kinds of modifications may not need to be built depending on whether upload information is loaded into PLC, comments and animation tables included in upload information.

As a general rule, Unity Pro prevents the user from doing actions by mistake that would force them to stop the PLC and/or to perform a complete download:

- either by simply disabling the forbidden functions in online mode
- or by a warning message, as follows:



To know what parts have been modified, the application browser displays a specific mark for the modified parts and in the title bar of the editors by character ‘*’.

Modify the Program

It is always possible to modify a section of the program in **online** mode. As soon as a section has been modified, it is no longer animated until the next build and transfer to PLC.

Nevertheless, depending on the kind of **modifications**, a SFC graph may be reset after the build and PLC update.

Some **modifications** performed in SFC might need a **rebuild all** command. In such cases, a warning message appears in the editor. For example, deleting an action or a transition section requires a ‘rebuild all’ command. However, removing an action or a transition section from a step or a transition and keeping the section unused only requires an **online** build.

NOTE: Adding an SFC section must be done offline, if the two following conditions are fulfilled simultaneously:

- If the project contains at least one SFC section already.
- If the project has been designed with an earlier version than Unity Pro 3.0.

This modification requires a **rebuild all** of the project and a PLC stop to download the entire application.

Modify Data

In the data editor, there is no specific operating mode.

Generally, it is allowed to modify the type of a variable or a Function Block (FB) in **online** mode.

Modifying a data, which is used in the program, may have consequences wherever it is used, on the contrary to an unused variable. Therefore **online** actions are more restricted on used data.

NOTE: Adding a variable without rebuilding increases the memory usage until next rebuild.

For used EDT variable or used DDT/FB instance, only comments and the initial values can be modified. Unused variable/instance may be deleted. It is allowed to create new variable/instance **online**.

Concerning DDT type, it is only allowed to change comments if the type is used. It is possible to create new DDT or to delete an unused one.

For DFB type, it is possible to:

- create, modify and delete sections
- change comments
- change initial values
- add a new public or private variable

If there is no instance of the DFB, there is no limitation. The DFB type may even be deleted. Finally creating new DFB type(s) and instantiating it in online mode is straightforward.

Modify the Configuration

For Premium and Atrium PLCs, it is not possible to add or remove any module in online mode. Parameters of an existing module on the contrary may be configured online. Once modified, the animated mode is no longer available until the next build and PLC update.

For Quantum system PLCs, it is possible to add or delete a selection of modules and change the parameters of an existing module in STOP and RUN mode.

Comment Concerning Offline Modifications

Modifications that are only possible offline and new application downloads require an offline build and a rebuild all. In these cases, the modification is not possible online and a message notifies the user.

The rebuild is needed:

- After application creation or import
- Once the application is already built:
 - Changing some project settings
 - CPU change
 - Memory card change
 - Memory card layout change
 - Switching from real target to simulator and vice versa

Furthermore, if a flash PCMCIA card without additional SRAM (TSX MFPP •••M or TSX MFPP •••K) is configured, no modification is allowed online. User is informed by a specific message 'This action is forbidden because: Flash Cartridge'.

Synthesis of Authorized and Unauthorized Modifications

The following table presents the main authorized and unauthorized online modifications. The second column indicates which modifications have impact only to the upload information and do not have any impact to the executable code:

Type of Modification	Impacts Only Upload Information	Allowed in Online Mode (RUN/STOP)	Requires to Build the Application in Offline Mode
General			
Name of Station, Programs, Sections	Yes	Yes	No
Comment of Station, Configuration, Programs,	Yes	Yes	No

Sections			
Documentation Summary	Yes	Yes	No
Animation Table	Yes	Yes	No
Integrated Operator Screens	Yes	Yes	No
Functional View	Yes	Yes	No
Security Information: Passwords, Protection Attributes,...	No	Yes	No
Switch Simulator <-> Real Target	No	No	Yes
Import/Export Project	No	Yes	No
Program			
Sections of Programs: Add, Change Execution Order	No	Yes	No
Modify the Code of a Section (Task Section, SR, Transition, Action, DFB Sections)	Yes ⁽¹⁾	Yes	No
Modify the Code of EVT Sections	No	Yes ⁽²⁾	Yes
Modify the Code of SFC Chart	No	Yes	No ⁽¹⁾
Configuration/Communication			
Premium Configuration: Add/Delete a Module	No	No	Yes
Premium Configuration: Change Module Parameters	No	Yes	No
Quantum Configuration: Add/Delete a Module	No	Yes	No
Quantum Configuration: Change Module Parameters	No	Yes	No
Changing Memory Sizes in	No	No	Yes

Configuration Screen			
Global Variables (Used Even in Animation Table or Operator Screen)			
Remove an Used Variable	No	No	Yes
Symbol an Used Variable	No	Yes	No
Type an Used Variable	No	No	Yes
Topological Address of an Used Variable	No	Yes	No
Initial Value of an Used Variable	No	Yes	No
Comment of an Used Variable	Yes	Yes	No
Create, Remove or Modify Unused Variables (EDT, DDT)	No	Yes	No
Create, Remove or Modify Unused Variables (FB)	No	Yes	No
Used DFB			
Type Name of Used DFB	No	No	Yes
All Comments	Yes	Yes	No
Add a Parameter	No	No	Yes
Add a Public or Private Variable	No	Yes	No
Delete or Change Unused Private Variable	No	Yes	No
Initial Value of Parameters and Variables	No	Yes	No
Other Attributes of Parameters and Variables (Public and Private)	No	No	Yes
Modify the Code of a section	No	Yes	No

Create a New DFB Type	No	Yes	No
Delete an Unused DFB Type	No	Yes	No
Used DDT			
Create a New DDT Type	No	Yes	No
Delete an Unused DDT Type	No	Yes	No
(1) Modifying only the graphical layout or the free form comments does not impact code generation, but only generation of the upload information. (2) This is only available in the RUN mode for the Quantum modules.			

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