



JetSym

Version Update from V. 5.5.1 to V. 5.6.0 - release

We automate your success

Jetter AG
Graeterstrasse 2
71642 Ludwigsburg,
Germany

Phone:

Switchboard	+49 7141 2550-0
Sales	+49 7141 2550-531
Technical hotline	+49 7141 2550-444

E-mail:

Hotline	hotline@jetter
Sales	sales@jetter

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1 New features

Below, all features that are new in this version, as well as the enhancements are listed.

1.1 Editor

1.1.1 Dragging a breakpoint by moving the mouse

To drag a breakpoint by moving the mouse, press and hold the Ctrl key. Drag a breakpoint with the mouse along the page margin of the program document to another line.

1.1.2 Indentations in AutoTexts

From now on, for indentation in AutoTexts the tab key is used instead of white-space characters.

1.1.3 Tracepoint can be created directly via breakpoint

A trace point can now be created directly using the shortcut menu in the program editor, without a breakpoint already having to exist in a relevant line. If a simple variable is positioned at the mouse pointer before the settings dialog opens, a trace message is inserted that displays the file name, the line, the name, and the value of the variable.

1.2 Setup

1.2.1 Lines that contain expressions with pointers are selected

In Setup, the name of an expression that contains at least one pointer is italicized.

1.2.2 New option to recalculate rows with expressions and pointers

A new option in the Setup allows lines with expressions containing at least one pointer to be constantly recalculated. This option should be used carefully as it can slow down the communication in the Setup.

1.2.3 Shortcut for the "Delete cells" function in the Setup, Declaration and STXDA file

The **Shift+Del** shortcut is now used for the **Delete cells** function in Setup, Declaration and STXDA files.

1.3 Motion API

1.3.1 Touch probe feature

In version 2.0.0.3, Motion API has been enhanced by a touch probe feature.

1.3.2 Torque shut-off feature

In version 2.0.0.3, Motion API has been enhanced by a torque shut-off feature.

1.3.3 New property `IMCManager.IsInitialized`

Motion v. 1.0.0.14 and Motion API v. 2.0.0.3 have been enhanced by the property **IMCManager.IsInitialized** by which inquiries can be made whether Motion Control has been initialized successfully. Requirement: Motion Control v. 1.19.0.48 or higher

1.3.4 Additional parameter for MCTechnoGearing.Configure()

The parameter **ActivationMode** has been added to the method MCTechnoGearing.Configure(). This can be used to control whether the following axis is to be coupled in when the technology group is activated (standard setting) or not.

1.3.5 New Motion API v2.0.0.4 available

The Motion API v2.0.0.4 is now available. Details can be found in the version history in the JetSym help.

1.4 Motion Setup

1.4.1 Value 0 as tracking error limit for MC axes now supported

In the Motion Setup for MC axes, value 0 can now be entered for the position lag limit. So far, the smallest permissible input value was 0.01). With some drives, the value 0 causes the position lag monitoring to be disabled. For drives that do not support disabling the monitoring function, a value of 0 can lead to a drive error.

1.4.2 New text box “Comment” for axes and axis groups

This text box lets you enter additional comments for axes and axis groups. They are then also displayed in the tooltip of Hardware Manager.

1.4.3 Resolver pole pair number mode in Motion Setup

If **resolver** is selected as encoder for EtherCAT axes in Motion Setup, the resolver pole pair number is indicated instead of an encoder resolution.

1.4.4 New temperature sensors added

In the Motion Setup for EtherCAT axes, the list of temperature sensors has been extended by the **Motor-specific** option.

1.4.5 Motor database

The motor database of the motors selectable in Motion Setup has been updated.

1.4.6 Selection of OS version on axis parameter page of EtherCAT

The selection of the OS version was removed from the axis parameter page of EtherCAT axes, since this is currently not available.

1.5 General information

1.5.1 Parallel connection setup (XCOM/PCOM)

When an STX controller is to be connected with another controller, both an XCOM and a PCOM connection is established. If both connections have been established successfully, XCOM will be used, while PCOM is closed again. If only PCOM is available, e.g. if the controller is in bootloading mode, PCOM is used. By establishing a parallel connection, the doubling of the timeout time in comparison to earlier versions is no longer necessary. Further, the port numbers for XCOM and PCOM can now be changed individually, or else the default ports can always be addressed by means of a new check box.

1.5.2 Optional prompt when downloading a program to the controller

This dialog displays information about the local program and the program running on the controller. This prevents the user from downloading the wrong program.

1.5.3 Behavior of delete operations in setup, declaration file and STXDA file has been updated

For data processing in setup, declaration, and STXDA files, the deleting operations have been updated. The shortcut menu now contains 2 entries:

- **Clear Cells** (removes entire lines)
- **Clear Contents** (removes only the text string from a line)
- The behavior at deleting by using the DEL key corresponds to the menu entry **Clear Contents**.

1.5.4 Minimum timeout time in the CPU configuration can be set to 500 ms

In the CPU configuration the timeout can now be set to a minimum value of 500 ms. If a value is set that is less than the minimum timeout recommended for the device, a warning sign with a corresponding note is displayed in the tooltip.

1.5.5 Greater data sizes supported

For the following controls, the maximum data sizes were increased as follows:

- JC-3xx: Maximum data size = 24 MB
- JC-4xx: Maximum data size = 32 MB
- JC-9xx: Maximum data size = 64 MB

1.5.6 File for virtual commissioning

JetSym creates the VirtualSetup.xml file to configure virtual commissioning software. This file contains the address of the controller with which data is to be exchanged and the registers which are read from the controller or written to in the controller.

1.5.7 Pre-set option Copy additional files from the source directory

The **Copy Additional Files from Source Directory** option in the **Save Project As** dialog is now set by default, except when saving the project as a new template.

1.5.8 The status of files was not displayed

If an open workspace was closed after creating a new project with the Create new workspace option, the status of the files in the project tree was no longer displayed.

1.6 Compiler

1.6.1 Compiler warning instead of error with anonymous Enum declarations

When declaring Enum types, it is generally recommended that you assign a type name to them so that they can also be used later in the program. JetSym 5.2 has therefore introduced a corresponding compiler error message if Enum types are declared without type names. For compatibility reasons with existing projects where anonymous Enum types were declared, this compiler error message was replaced by a warning.

1.7 STX

1.7.1 Navigation labels

In an STX program, the pragma **MARK** lets you set navigation labels. Syntax: **#pragma mark (name)**.

These labels are stored in the **Go To...** list in the upper part of the program editor window. By selecting the label in the **Go To...** list box, the program jumps to the position of the pragma declaration in the code.

1.7.2 Assign default value to function parameters of "Interface" type

The default parameter 0 could not be assigned to function parameters of type Interface, error message 3530 appeared.

Example:

```
type
  lmyInterface : interface
    function wow();
  end_interface;
end_type
function myFunktion(FuParam : lmyInterface) // default value 0 does not work: (FuParam :
lmyInterface := 0) => error 3530: Constant type does not match variable type.
  if (FuParam == 0) then
    // do nothing
  end_if;
end_function;
```

1.7.3 CanOpenAPI.stxp was extended

The CanOpenAPI.stxp was extended by new functions.

1.7.4 New file functions FileTell and FileSeek

The file functions FileTell and FileSeek have been implemented for STX controllers.

1.8 Hardware Manager

1.8.1 New folder connectivity with OPC UA

Jetter controllers of the current generation have an OPC UA server. This server offers a standardized communication interface for access to symbol values of the respective controller. With OPC UA global variables, constants and object instances can be published. These values can be read and written by an OPC UA client.

1.8.2 JC-975MC

The controller JC-975-MC can now be selected in Hardware Manager.

1.8.3 JC-440EXT

The controller JC-440EXT can now be selected in Hardware Manager.

1.8.4 JX3-BN-EC

The new module JX3-BN-EC has been added.

1.8.5 JCM-501

The controller JCM-501 can now be selected in Hardware Manager.

1.8.6 Extended tooltip info for axis groups

The tooltip info for error-free axis groups has been extended by the associated axes and their function within the group.

1.8.7 Encoder selection option replaced

The encoder selection option **HIPERFACE SCM70** (MultiTurn) has been replaced by **HIPERFACE with extended EDS**. The Motion API v1.0.0.14 has been updated.

2 Fixed software bugs

This chapter describes the software bugs which have been fixed in the new software release.

2.1 IntelliSense

2.1.1 JetSym failed to open IntelliSense when defining a method

If the user entered a dot after the method identifier while defining a method, JetSym sometimes failed to open IntelliSense.

2.1.2 The IntelliSense list was incomplete due to missing symbols

In case of missing symbols, for example in a newly created project or after unsuccessful compilation, some keywords would be missing in the IntelliSense selection: int, boolean, float, char, byte, word, double, long.

2.1.3 Program crash when opening IntelliSense

If IntelliSense was opened in the editor while the compiler was updating the IntelliSense info after the compilation process, the program could crash.

2.1.4 Incorrect entries in implicitly declared enumeration

The IntelliSense selection box contained incorrect entries if an Enum was implicitly declared in an unnamed structure.

2.1.5 Tooltip in IntelliSense selection too small

After opening the IntelliSense selection behind a structure variable, the height was calculated incorrectly in the tooltip of a structure that had only one sub-element. The text in the IntelliSense window was not visible.

2.1.6 Incorrect tooltip content in IntelliSense

If methods and global functions had the same name, it could happen that the tooltip in the IntelliSense window displayed the wrong signature for global functions.

2.1.7 Inactive code areas were colored incorrectly in ST

In JetSym ST, inactive code areas were incorrectly colored even after a successful build if the Automatic IntelliSense Update option was disabled.

2.1.8 Improvements in IntelliSense for Implicit Type Declarations

The entries for implicit type declarations, such as enums in structures, have been improved by displaying the structure name before the type name.

2.1.9 IntelliSense Information Incomplete

After loading a project, compiler directives of the current controller were not present in IntelliSense. Only after translating the project, or after an IntelliSense update, were the directives available.

2.2 Setup file

2.2.1 Copying of variable blocks did not work

The program failed to copy a highlighted variable block from a program file into the column **Name** of a setup window. As a result, the cells of the column remained empty.

2.2.2 The content of the column "Name" could be overwritten

The content of the **Name** column in the setup could inadvertently be overwritten by pressing the keys + and - in online mode.

2.2.3 Possibility of crash after deleting cells

If selected cells were deleted in the setup via the shortcut menu and then clicked in cells below the deleted area, the program could crash.

2.2.4 IntelliSense selection in setup file incorrect

After IntelliSense selected a structure variable, the result was assembled incorrectly if the sub-element of the structure was already in the cell.

2.2.5 Go to definition does not work when selecting parts of a structured expression

In contrast to the program editor, it was not possible to jump to the corresponding variable in the Setup by selecting a subrange of a structured expression.

2.2.6 Structures and arrays were not collapsed

If a structure or array variable entered in the setup was no longer declared in the program and could therefore no longer be resolved, the structure of the variable remained expanded. Individual elements could not be deleted.

2.2.7 Incorrect cursor position after activating a cell with the right mouse button

In Setup it could happen that the cursor was too far to the right after activating a cell with the right mouse button.

2.2.8 Multidimensional arrays were not completely expanded

In the setup it could happen that multi-dimensional arrays that had to be expanded recursively were not expanded via the menu item **Expand All**.

2.2.9 In deactivated code blocks IntelliSense was without function

In the program editor no IntelliSense appeared in deactivated blocks after entering a period behind a structured variable.

2.2.10 Context menu in setup file did not always open

If the context menu was activated with the right mouse button in several cells arranged one below the other in the setup file, it did not always appear immediately.

2.2.11 Crash of JetSym

After deleting an expanded structure in a setup file, JetSym could crash while scrolling.

2.2.12 Incorrect display of a timer variable in Setup pane

If a timer variable is displayed in the Setup pane, a **T** is displayed in the line header. However, it did not disappear again if another variable was entered or the content was deleted.

2.2.13 No restoration of a structure root element after Undo

In a setup file it could happen that an expanded structure variable could not be restored with Undo after deleting its root element.

2.3 General information

2.3.1 Wrong tab order and missing shortkey in dialog “Add Project Configuration”

Items in dialog **Add Project Configuration** were not addressed in correct order when the user pressed the Tab key. The shortkey was missing for one of the checkboxes.

2.3.2 MC.ini was not generated for JC-647B

If the compare and download dialog of a JC-647B involving MC axes was opened, the configuration file MC.ini could not be generated.

2.3.3 Version control with TFS did not support newer versions

Version control with Microsoft Team Foundation Server was only possible with Visual Studio 2010/12. Now, also the editions of Visual Studio 2017 are supported.

2.3.4 Updating JX6-SB-I and BN-CAN by means of collective OS update

JX6-SB-I and BN-CAN could not be updated via the **Update OS** (collective OS update) dialog.

2.3.5 Collective OS update was possible in online mode

A collective OS update was allowed although setup, monitor, tracing or debugging were active.

2.3.6 When saving a project under a different name, program files were not copied

When saving a project under a different name, the program files that were compiled but not pasted in the file tree were not copied.

2.3.7 Scroll bars in the dialog for selecting the active configuration

In the dialog for selecting the active configuration, no horizontal scroll bar was displayed for very long texts. This made it difficult to select a configuration.

2.3.8 Unhandled exception error when saving

If an attempt was made to save the CPU configuration in offline state after a successful connection to the controller, an unhandled exception error occurred and the CPU window was no longer displayed.

2.3.9 Files were copied by mistake

When saving a project under a different name (Save As), files from the platform or library directory were mistakenly copied to the target directory.

2.3.10 No connection to the bootloader of a mobile controller via JetCAN

If only the bootloader was running on a mobile controller, JetCAN could no longer establish a connection to transfer a new operating system. The test button didn't work either.

2.3.11 German texts for English operating system

In the module setup texts appeared in German, although the operating system was in English. This could occur if the German language was selected for the date and time format.

2.3.12 Incorrect Transfer of Publisher/Subscriber Configuration

The Publisher/Subscriber configuration of JX3 COM modules was incorrectly adopted from legacy projects. It is no longer possible to generate STX variables. The file created in old projects must now be included manually.

2.3.13 Vertical Scrollbar of the IO Pages of JX3 Modules

The vertical scrollbar of the IO pages of JX3 modules was not displayed if the available display area was too small.

2.4 STX

2.4.1 Incorrect compiler error message

If in source code the keyword **Program** was not followed by a program name, JetSym issued the error message **Controller does not support the STX language**. The correct error message is **Program expected**.

2.4.2 Warning alert 2107 could not be suppressed

The possibly occurring warning message 2107 from the compiler (Warning 2107: Variable (identifier) overlaps variable (other identifier)) could not be suppressed by means of `#pragma warning(disable:2107)`.

2.4.3 Incorrect values at declaration of initialized variables

Values of non-localized variables were not correct, if they had been initialized directly during declaration.

2.4.4 Pragma "Warning" for compiler warning 2106 ineffective

If there was an overlap in the mapping file, the warning 2106 issued could not be suppressed with the Pragma **Warning**.

2.4.5 Changing the When_Max Command

With the `When_Max` command, the wait time now only starts again when the error handling routine is finished, not as before as soon as the wait time has been triggered. This is especially important when error handling routines are running for a long time. Previously, the runtime of the error handling route depended on the wait time.

2.5 Oscilloscope

2.5.1 Incorrect information on channels at data upload

If recorded data were uploaded via menu item **Upload data** of the oscilloscope's shortcut menu, the register numbers of channels 9 ... 32 were displayed incorrectly.

2.5.2 Unused channels were also loaded when uploading recorded data

If recorded data was uploaded via the shortcut menu of the oscilloscope diagram, all channels were always uploaded and scaled, even if not all channels were defined in the recording configuration.

2.5.3 Modules on JX3-BN-CAN could not be recorded

In internal oscilloscope mode, it was not possible to record analog JX3 modules connected to JC-9xx controllers via JX3-BN-CAN.

2.6 Motion Setup

2.6.1 Communication issues within Motion Setup for axis groups have been resolved

In Motion Setup for axis groups, temporary communication issues could result in the error message **JetSTX request has been aborted because of a thread termination!**.

2.6.2 Error when copying EtherCAT axes via drag-and-drop

Copying EtherCAT axes via drag-and-drop in the hardware tree could lead to an inconsistent hardware configuration.

2.6.3 Incorrect assignment of slave numbers during IntelliSense update in connection with D203-STX

When attaching further axes to a D203-STX controller, slave numbers were incorrectly assigned twice.

2.6.4 Nodes were visible in the case of invalid group configurations

The motion setup node is not hidden despite an invalid axis group configuration, e.g. immediately after deleting an axis group in the hardware tree.

2.6.5 With external leading axis, Travel buttons were not grayed out

In the Motion Setup for technology groups, the buttons for moving the leading axis were also available if the leading axis was an external axis.

2.6.6 JM-1xxx / JM-3xxx: Number of Lines with Selected Hiperface or Hiperface DSL Encoder

In the Motion Setup of a JM-1xxx or JM-3xxx, the input field for the line count could be edited with the Hiperface or Hiperface DSL encoder selected.

2.6.7 EtherCAT axes: Short-term display of error messages on first opening

When opening a motion setup window of an EtherCAT axis for the first time, an error message appeared in online mode for a short time.

2.6.8 EtherCAT Axes: Invert direction editable, if axis was not locked

In Motion Setup for EtherCAT axes, the invert direction was editable in online mode even if the axis was not locked.

2.6.9 Invalid Parameter File when Downloading the Parameter File of Another Axis

When downloading a parameter file in Motion Setup that did not belong to the selected axis, the encoder settings were not adjusted correctly. This resulted in an invalid parameter file.

2.6.10 Scrolling with the mouse wheel in the dropdown list of the motor selection

Scrolling with the mouse wheel was not possible in the dropdown list of the motor selection in Motion Setup.

2.6.11 Deadlock in Motion Setup for Invalid Input and Focus Change

If, after entering an invalid value in an input field in the Motion Setup, the focus was set to another area outside the Motion Setup (e.g. menu bar) by mouse click, this could lead to a deadlock.

2.6.12 No Connection to an Ethernet Axis

An Ethernet axis could not be reached via the test button if a different interface than Ethernet was set in the default settings for controllers.

2.6.13 MC-Global: Warning message not updated

If more MC axes were configured on the JX2 system bus than were allowed with the set cycle time, the warning messages in the hardware tree were updated, but the warning message on the MC-Global configuration page was not.

2.7 Motion API

2.7.1 Parameter in `AxisMovePtp.StartNewTargetPosition(...)`

In the method `AxisMovePtp.StartNewTargetPosition(...)`, the parameter `PositioningMode` had wrongly been declared optional. It is obligatory, though, to specify this parameter.

2.7.2 Erroneous abort condition in the method `DriveMotor.MeasureCommutationOffset()`

A call of the method `DriveMotor.MeasureCommutationOffset()` in the Motion API 2.x should not end until either the commutation offset measurement has been completed or an error has occurred. With Motion API v2.0.0.4 this behavior was corrected accordingly.

2.7.3 Renamed options of the enumeration `MCAxisModes`

In Motion API v2.0.0.4 the options of the Enumeration `MCAxisModes` have been renamed.

2.7.4 JX2 timeouts with Motion API v1.0.0.15

The JX2 timeouts with Motion API v1.0.0.15 in conjunction with shadow axes have been fixed.

2.7.5 fixed.

2.8 JetSym editor

2.8.1 Entries made in the shortcut menu were inactive

Some of the menu items of the shortcut menu of the JetSym editor happened to be inactive, if there was a variable without indentation in the editor. The menu items affected were **Go to Definition**, **Search for References** and **Rename identifier**.

2.8.2 Crash at program download

If at least one oscilloscope file without any recording being made yet had been opened, a crash could be caused.

2.8.3 Indenting using the Tab key could lead to distortion of structures

If a block was selected in the program editor using the Ctrl key and selection using the mouse, the lines of the block were not correctly extended by a tab when the tabulator key was pressed.

2.8.4 Debugger started too late after program download

If you wanted to download a program to the controller while the debugger was running and restart the debugger, the debugger was started too late after program start.

2.8.5 Searching for and renaming an identifier

If you choose **Find Identifier** and **Rename Identifier** in the shortcut menu, the call of the base class constructor in a derived class was not found or renamed.

2.8.6 PDO configuration for EtherCAT axes updated

Due to extensions in Motion Control, the PDO configurations of EtherCAT axes have been updated accordingly. Warning! The current JetSym version is no longer compatible with older OS versions of EtherCAT controllers.

2.8.7 New method `MCAxisStateTransitions.UserPositionReset`

With the new method `MCAxisStateTransitions.UserPositionReset` the target position of the axis is set to the value of the actual position within the controller. This makes the tracking error zero. The system status of the axis is retained, ramp status and movement status are adjusted accordingly.

Caution: If the axis is in motion, executing this method will cause the axis to stop abruptly. This function is used for applications in which the axis could no longer follow the actual position of the setpoint position due to mechanical conditions (e.g. movement to block) or subordinate functions (e.g. torque shut-off). This method can be used to restore a meaningful initial state for repositioning.

2.8.8 Monitor crash after project change

If the monitor mode was active before a project change and was reactivated immediately after a project change, JetSym could crash.

2.8.9 "Go to definition" was inactive after compiling a program

After compiling a program, the **Go to Definition** menu item could be inactive if the context menu was opened on a variable type that followed an implicit structure declaration.

2.8.10 Tracepoints in connection with CAN

The use of trace points did not work correctly in connection with CAN communication.

2.8.11 Parameter information of constructors were not displayed

When declaring an object that contained a constructor with parameters, the parameters were not displayed in the tooltip.

2.8.12 Missing tooltip in the editor window

The tooltip of objects and object methods was not displayed under certain circumstances.

2.8.13 Workspace (file tree) wrong tooltip

If, after changing a project, the mouse pointer was moved to the area below the last element of the file tree, a tooltip was incorrectly displayed.

2.8.14 Program crash when opening arrays or structures in JetSym ST projects

JetSym could crash in ST projects if an array or structure was opened in the monitor immediately after activating the monitor.

2.9 Hardware Manager

2.9.1 Problems adding multiple axes in conjunction with simulation option

When adding multiple axes in connection with simulation option **No slave connected**, axis names or axis IDs were sometimes assigned twice.

2.9.2 At the network node the configuration check did not always work

No configuration check was triggered after adding modules to the **Network** node in the hardware tree of an inactive hardware configuration.

2.9.3 Inconsistent hardware configuration after Drag&Drop

After dragging and dropping a multiple axis, an inconsistent hardware configuration could occur if the multiple axis or axis module configuration window was open during the drag and drop operation.

2.9.4 Autorun checkbox for JX3-BN-ETH and JX3-COM modules was not grayed out

On the configuration page of the JX3-BN-ETH or the JX3-COM modules, the Autorun checkbox was not grayed out.

2.9.5 Problems moving files in the project tree with Drag&Drop

1. Moving a file in the project tree to another file was accidentally allowed which caused the source file to be removed from the tree.
2. Moving a file in the project tree to the workspace resulted in an infinite loop.

2.9.6 CAN Node ID was not accepted after Scan

When setting the default controller via the dialog Extras/Options/Controller, the node ID was not adopted after the CAN scan of a controller.

2.10 CPU configuration

2.10.1 Wrong product was applied when scanning via JetCAN

If a product scanned via JetCAN was applied on the CPU configuration side, it could be that an incorrect controller was set.

3 Announcements

3.1 CanOpen.stxp

The platform file **CanOpen.stxp** will be replaced. Use the platform file **CanOpenAPI.stxp** instead.

3.2 OS files

As of this JetSym version, JetSym releases will no longer include OS files for Jetter devices. Current OS files can now be found in the download area of the Jetter homepage.

4 Information on future releases

4.1 Major version jump with upcoming release

Due to extensive refactoring measures in the JetSym substructure, the upcoming release will be a major version 6.0.0. This major version jump is necessary because downward compatibility of projects created from version 6.0.0 cannot be guaranteed for earlier versions.

4.2 Changeover to Unicode standard

The future release 6.0.0 of JetSym is completely based on the Unicode standard. Advantage: The complete character set (e.g. for comments in Chinese) will be available to JetSym in the future. The changeover mainly affects the program files. As a result, projects processed with JetSym version 6.0.0 can no longer be loaded in older JetSym versions.

4.3 Discontinuation of Declaration Editor

As of Release 6.0.0, the administration of declaration files and the function for creating declaration files in the declaration editor will be omitted. In the future, declarations will be created directly in a program file, as is usual in other modern high-level languages. When opening old projects with existing declaration files, these are automatically converted into .stxp files and sorted into the project tree accordingly.

4.4 Discontinuation of the old oscilloscope functionality

The old oscilloscope functionality (file extension .sof) is no longer supported with version 6.0.0.