STM32CubeMonitor release v1.9.0

Introduction

This release note is updated periodically to keep abreast of the STM32CubeMonitor evolution, problems, and limitations. Check the product webpage on STMicroelectronics website at *www.st.com* for the latest version. For the latest release summary, refer to Table 1.

Table 1. STM32CubeMonitor v1.9.0 release summary

Type	Summary
Maintenance release	• Updated Node-RED® to version 4.0.2 • Added write capability for SEGGER J-Link probe

Customer support

For more information or help concerning STM32CubeMonitor, contact the nearest STMicroelectronics sales office or use the ST community at community.st.com. For a complete list of STMicroelectronics offices and distributors, refer to the *www.st.com* webpage.

Software updates

Software updates and all the latest documentation can be downloaded from the STMicroelectronics support webpage at www.st.com/stm32cubemonitor.

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For further information contact your local STMicroelectronics sales office.

www.st.com

1 General information

1.1 Overview

STM32CubeMonitor is a software tool to monitor and visualize real-time data from STM32 devices. Leveraging its graphical flow-based editor for visual programming, users drag and drop nodes representing features and widgets to build quickly custom dashboards with gauges, bar graphs, plots, and much more.

STM32CubeMonitor applies to STM32 microcontrollers, based on Arm® Cortex® cores.

Note: *Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.*

1.2 Documentation

STM32CubeMonitor documentation is available in wiki format at wiki.st.com/stm32mcu/wiki/ STM32CubeMonitor:STM32CubeMonitor_overview.

1.3 Host PC system requirements

Supported operating systems and architectures

- Windows® 10 and 11, 64 bits (x64)
- Linux®: Ubuntu® LTS 20.04 and LTS 22.04
- macOS® 13 (Ventura), macOS® 14 (Sonoma)

Note: *Windows is a trademark of the Microsoft group of companies.*

Linux® is a registered trademark of Linus Torvalds.

Ubuntu® is a registered trademark of Canonical Ltd.

macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.

1.4 Setup procedure

The installation procedure is described in STM32CubeMonitor wiki pages for Windows®, macOS® and Linux®.

The zip files available from the STM32CubeMonitor webpage on *www.st.com* contain the installer for the selected operating system, embedded software for target instrumentation, and licensing information. Please refer to wiki.st.com/stm32mcu/wiki/STM32CubeMonitor:Installing_STM32CubeMonitor for setup details.

1.5 Licensing

STM32CubeMonitor is delivered under the SLA0048 software license agreement and its Additional License Terms.

2 STM32CubeMonitor v1.9.0 release information

2.1 New features/enhancements

- Node-RED® updated to the version 4.0, released in June 2024, with multiple improvements in the editor[1]:
  - Improved visualization of flow differences.
  - Enhanced user experience for node configuration: A new [**add**] button is available to create new configurations instead of editing.
  - Autocompletion for flow, context, and environment elements.
  - Palette state memorization.
- Possibility to use the `write` operation with SEGGER J-Link probes to write data in the target memory (from the dashboard "write" panel or directly from the flow).
- STM32 devices list updated.
- Dependencies updated:
  - The main change is the update of Electron® to 31.4.0 with Node.js® 20.16.0.
  - The indirect dependencies are also updated.

1. *Details are available in the Node-RED® blog. The features are presented at the first launch in the [**Welcome tour**].*

Note: *Node-RED, Electron, and Node.js are registered trademarks of the OpenJS Foundation in the United States and/or other countries.*

2.2 Fixed issues

Table 2. Main issue fixed in STM32CubeMonitor v1.9.0

ID	Summary
136976	The [**Manage Palette**] menu is missing on macOS®.
187046	Issue with the J-Link setting in `setting.js`.

2.3 Known problems and limitations

- When a flow is deployed, Node-RED® versions 3 and 4 warn the user about unused nodes. The warning can be ignored, or the unused nodes can be removed. If a flow created with an older version shows the warning, this warning can be ignored.
- When an existing flow is deployed, Node-RED® might raise warnings about invalid `ui_spacer` nodes (namely `spacer 1x1`). This is a side-effect of a dashboard improvement and can be ignored. If the incorrect `ui_spacer` nodes are removed, the dashboard editor generates new valid nodes.
- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.
- On macOS®, when a password secures the dashboard (`httpNodeAuth`), the password window is displayed during the tool startup, even if the dashboard is not displayed.
- To install an older version, the user must first uninstall version 1.9.0.
- The elf parser is not functional in Ubuntu® 24.04 due to a missing library (`libncurses5`).

3 Previous release information

3.1 STM32CubeMonitor v1.8.0 release information

3.1.1 New features/enhancements

- Added support for the SEGGER J-Link probe:
  - SEGGER J-Link probes are supported only on Windows®. STM32CubeMonitor does not support the J-Link probes on Linux® or macOS®.
  - New nodes are available to support one J-Link probe: `ack jlink in` and `ack jlink out`.
  - This J-Link flow has the same purpose as the ST-LINK flow with the former `acq in` and `acq out` nodes. To avoid confusion, `acq in` and `acq out` are renamed to `acq stlink in` and `acq stlink out`.
  - How to use the J-Link probe is detailed in the STM32CubeMonitor advanced features pages of the STM32 MCU wiki at wiki.st.com/stm32mcu. Multiple probes, trigger mode, and snapshot mode are not supported with J-Link probes.
- Renamed the former wording *"access point"* to *"access port"* inside the `variable` node user interface.
- Added support for new STM32 devices.
- Updated the dependencies:
  - Node-RED® updated to the version 3.1.3:
    - `node-red-dashboard` updated to 3.6
    - `node-red-node-serialport` updated to 2.0.2
  - Electron® updated to 27.3.3 with Node.js® 18.17.1
  - The indirect dependencies are also updated

3.1.2 Fixed issues

Table 3. Main issues fixed in STM32CubeMonitor v1.8.0

ID	Summary
123934	Enlarge the area of the variable name in the write widget.
167595	Add help text for the `3D` node.
170831	Acquisition does not work for frequencies below 1 Hz.

3.1.3 Known problems and limitations

- When a flow is deployed, Node-RED® version 3 warns the user about unused nodes. The warning can be ignored, or the unused nodes can be removed. If a flow created with an older version shows the warning, this warning can be ignored.
- When an existing flow is deployed, Node-RED® might raise warnings about invalid `ui_spacer` nodes (namely `spacer 1x1`). This is a side-effect of a dashboard improvement and can be ignored. If the incorrect `ui_spacer` nodes are removed, the dashboard editor generates new valid nodes.
- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.
- On macOS®, the [**Manage Palette**] menu is not displayed when the tool is launched through the icon. The workaround is to:
  1. Open the `STM32CubeMonitor.app` in the finder
  2. Right-click and select [**Show package Content**]
  3. Click on the file `STM32CubeMonitor` (in `Contents/MacOS/`)
- On macOS®, when a password secures the dashboard (`httpNodeAuth`), the password window is displayed several times at startup without reason. The editor security is not impacted. (`adminAuth`).

• The list of MCUs supported by STM32CubeMonitor with the J-Link probe is visible in the J-Link probe configuration.

3.2 STM32CubeMonitor v1.7.0 release information

3.2.1 New features/enhancements

• Node-RED® updated to the version 3.1, released in September 2023, with multiple improvements in the editor[1]:

– Notifications management for each tab

– Bigger workspace

– Lockable flow

– Update context menu

– Group improvement

– Link to help in the node panels

– Improvement of horizontal wiring

• New format added to export `.csv` data:

– The data can be organized in multiple columns, making importing to a spreadsheet very easy. In the array, each variable is listed in one column with a timestamp in the first column.

– The details about data recording and display are available in the STM32CubeMonitor advanced features pages of the STM32 MCU wiki at wiki.st.com/stm32mcu.

• Dependencies updated:

– The main change is the update of Electron® to 25.8.1 with Node.js® 18.15.0.

– The indirect dependencies are also updated.

1. *Details are available in the Node-RED® blog. The features are presented at the first launch in the [**Welcome tour**].*

3.2.2 Fixed issues

Table 4. Main issues fixed in STM32CubeMonitor v1.7.0

ID	Summary
160506	The *exefile* field is never filled in *start*/*stop* messages from the *variable* node.

3.2.3 Known problems and limitations

• When a flow is deployed, Node-RED® version 3 warns the user about unused nodes. The warning can be ignored, or the unused nodes can be removed. If a flow created with an older version shows the warning, this warning can be ignored.

• On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.

• On macOS®, the [**Manage Palette**] menu is not displayed when the tool is launched through the icon. The workaround is to:

1. Open the `STM32CubeMonitor.app` in the finder

2. Right-click and select [**Show package Content**]

3. Click on the file `STM32CubeMonitor` (in `Contents/MacOS/`)

• On macOS®, when a password secures the dashboard (`httpNodeAuth`), the password window is displayed several times at startup without reason. The editor security is not impacted. (`adminAuth`).

3.3 STM32CubeMonitor v1.6.0 release information

3.3.1 New features/enhancements

- Improvement of the `.csv` export:
  - The column order is changed with the time before the value.
  - The time starts from 0 at the beginning of the log.
  - The separator is automatically selected based on the computer settings (digit separator):
    - If the digit separator is a dot, the comma is used to separate columns.
    - If the separator is a comma, the semicolon is used to separate columns.
  - It is possible to log variables with brackets in their names.
- Improvement of the probe naming:
  - It is possible to put a name for each probe config.
    It is easier to identify the probe config with its name than with its serial number.
  - The ST-LINK serial number is fully displayed. In previous releases, this serial number was truncated, sometimes making it impossible to discriminate probes.
- Support for new STM32 microcontrollers:
  - New STM32 references are added to STM32CubeMonitor.
  - Some microcontrollers use the access port 1 for debug instead of the access port 0.
    For instance, set the access port to 1 for STM32WBAxxxx or STM32H56xxx/7xxx microcontrollers.
- Change of the *Variable List* filter to be case insensitive.
- Electron® updated to 20.3.8, including the alignment of Node.js® and software dependencies.

3.3.2 Fixed issues

Table 5. **Main issues fixed in STM32CubeMonitor v1.6.0**

ID	Summary
85889	In the postprocessing panel, rename the button [**clear**] to [**cancel**].
139189	Use the flow file defined in `settings.js`.
138201	*Export CSV* does not support variables with brackets [ ].

3.3.3 Known problems and limitations

- When a flow is deployed, Node-RED® version 3 warns the user about unused nodes. The warning can be ignored, or the unused nodes can be removed. Since the warning was not reported with STM32CubeMonitor v1.4.0, the warning might appear after an update to version 1.5.0 or 1.6.0. If a flow used with an older version shows the warning, this warning can be ignored.
- Node-RED® version 3 validates the code in function nodes more strictly. If a variable is used without declaration, an error is raised when the function is edited. If the flow is not edited, the function works properly.
- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.
- On macOS®, the [**Manage Palette**] menu is not displayed when the tool is launched through the icon. The workaround is to:
  1. Open the `STM32CubeMonitor.app` in the finder
  2. Right click and select [**Show package Content**]
  3. Click on the file `STM32CubeMonitor` (in `Contents/MacOS/`)
- On macOS®, when the dashboard is secured by password (`httpNodeAuth`), the password window is displayed several times at startup without reason. The editor security is not impacted. (`adminAuth`).

3.4 STM32CubeMonitor v1.5.0 release information

3.4.1 New features/enhancements

- ECO mode: new acquisition mode added to lower the CPU consumption when the acquisition is done at low speed.
- Node-RED® updated to version 3 (V3.0.2)[(1)]:
  - Contextual menu added on the workspace
  - Junction element added to interconnect wires between nodes in a simpler way
  - Debug information improved
  - Search bar updated
- Node-RED® dashboard updated to V3.1.7.
- Node `serial-port` updated to 1.0.1.
- Electron® updated to 19.0.17, including the alignment of some software dependencies.
- New nodes added: `radar view`, `activity view`, `3D view`, and `bcrypt`.

1. *The features are presented at the first launch and can be accessed from the [**Help**]>[**Welcome tour**] menu.*

3.4.2 Fixed issues

Table 6. **Main issues fixed in STM32CubeMonitor v1.5.0**

ID	Summary
125558	Cannot secure Node-RED® on Ubuntu®.
132445	Log to CSV variable name with dot character is not managed.
134364	STM32CubeMonitor v1.4.0 is not acquiring on Ubuntu® 20.04.

3.4.3 Known problems and limitations

- On Ubuntu® after version 19.10, the tool used to parse the symbol files requires the library `libncurses5` to work properly. To install it, run `$sudo apt install libncurses5`.
- When a flow is imported, Node-RED® is warning the user if some node would be overwritten. This warning is an improvement and does not mean that there is an issue in the flow. Users have better control and can select which node must be imported.
- When a flow is deployed, Node-RED® version 3 warns the user about unused nodes. The warning can be ignored, or the unused nodes can be removed. Since the warning was not reported with STM32CubeMonitor v1.4.0, the warning might appear after an update to version 1.5.0. If a flow used with an older version shows the warning, this warning can be ignored.
- Node-RED® version 3 validates the code in function nodes more strictly. If a variable is used without declaration, an error is raised when the function is edited. If the flow is not edited, the function works properly.
- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.
- On macOS®, the [**Manage Palette**] menu is not displayed when the tool is launched through the icon. The workaround is to:
  1. Open the `STM32CubeMonitor.app` in the finder
  2. Right click and select [**Show package Content**]
  3. Click on the file `STM32CubeMonitor` (in `Contents/MacOS/`)
- On macOS®, when the dashboard is secured by password (`httpNodeAuth`), the password window is displayed several times at startup without reason. The editor security is not impacted. (`adminAuth`).

3.5 STM32CubeMonitor v1.4.0 release information

3.5.1 New features/enhancements

- Use of multithreading for acquisition:
  - Improves the data sampling accuracy.
  - Increases the speed significantly when multiple probes are used.
- Changed Node-RED® to version 2 (V2.1.5):
  - Node-RED® dashboard updated to V3.1.3.
  - Update of additional ui nodes (`serial-port` 0.15.0, `ui-led` 0.4.11, `finite-statemachine` 2.1.3)
- Move to Electron® 14.2.3 and Node.js® v14; alignment of all software dependencies.

3.5.2 Fixed issues

Table 7. Main issues fixed in STM32CubeMonitor v1.4.0

ID	Summary
120305	Serial port node is not working on macOS®.

3.5.3 Known problems and limitations

- The control messages of `node-red-contrib-finite-statemachine` change from v2.1.0 onwards. The flows using the FSM node may need to be updated.
- On Ubuntu® 19.10 and Ubuntu® 20.04, the tool used to parse the symbol files requires the library `libncurses5` to work properly. To install it, run `$sudo apt install libncurses5`.
- When a flow is imported, Node-RED® is warning the user if some node would be overwritten. This warning is an improvement and does not mean that there is an issue in the flow. Users have better control and can select which node must be imported.
- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.

3.6 STM32CubeMonitor v1.3.0 release information

3.6.1 New features/enhancements

- Upgraded Node-RED® to version V1.3.7.
- Generates a warning information when the addresses of monitored variables have changed in the symbol file. The new notification is included in the *basic flow* sample.
- Added an option to export the raw data in the CSV format.
- Improved log files to be compliant with the JSON format.
- Improved acquisition regularity on Windows® by requesting a higher priority.

3.6.2 Fixed issues

Table 8. Main issues fixed in STM32CubeMonitor v1.3.0

ID	Summary
104102	In the snapshot mode, the U32 values greater than 7FFF FFFF are rendered as negative values.
107824	The snapshot code is not building with STM32CubeIDE.

3.6.3 Known problems and limitations

- On Ubuntu® 19.10 and Ubuntu® 20.04, the tool used to parse the symbol files requires the library `libncurses5` to work properly. To install it, run `$sudo apt install libncurses5`.

- When a flow is imported, Node-RED® is warning the user if some node would be overwritten. This warning is an improvement and does not mean that there is an issue in the flow. Users have better control and can select which node must be imported.

- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.

3.7 STM32CubeMonitor v1.2.0 release information

3.7.1 New features/enhancements

- Upgrade Node-RED® to version V1.2.9.
- Ensure STM32CubeMonitor compatibility with macOS® on Apple® M1 chip.
- Make it possible to decrease dashboard size down to 256 × 180 pixels.
- Improve the *single value* sub-flow help tooltip and lock field type.
- Add some functions to improve bitwise post-processing operations.

3.7.2 Fixed issues

Table 9. Main issues fixed in STM32CubeMonitor v1.2.0

ID	Summary
80962	Linux® uninstall does not remove the `stm32cubemonitor` folder when requested.
81730	Tool tip is not showing information for SubFlow Single Value node.
83279	Snapshot acquisition - be able to customize the buffer size (SNP_TRC_BUFFER_SIZE).
84740	Copy-paste not working on macOS®.
91528	Libusb not found with macOS®.
92190	Tool takes long time to start with wrong network configuration.
93647	Elf parser stuck at 25% with one `.elf` file.
94699	Some variables have addresses set to 0.
100418	Snapshot acquisition - improve acquisition when the buffer is overflow.
102635	Add pop up to enable security in dashboard.

3.7.3 Known problems and limitations

- On Ubuntu® 19.10 and Ubuntu® 20.04, the tool used to parse the symbol files requires the library `libncurses5` to work properly. To install it, run `$sudo apt install libncurses5`.

- The *single value* sub-flow and default flows are updated. If an old flow is imported, there could be two sub-flow instances in the palette. This is not an issue: the user can still use the old one, or update the flow with the new *single value* (the new sub-flow is blue instead of brown).

- When a flow is imported, Node-RED® is warning the user if some node would be overwritten. This warning is an improvement and does not mean that there is an issue in the flow. Users have better control and can select which node must be imported.

- On some computers, some dashboards with control groups are not properly displayed at initial load. The hidden groups are visible while they should not. The dashboard goes back to normal mode as soon as the user clicks on controls and groups get updated.

- In the snapshot mode, the U32 values greater than 7FFF FFFF are rendered as negative values.

3.8 STM32CubeMonitor v1.1.0 release information

3.8.1 New features/enhancements

- Optimize the access point management in read procedure to improve speed
- Chart:
  - Keep color and order of data lines of variables at each start
  - Autozoom considers only the visible variables to compute the zoom factor
- Add binary operators in post processing
- Support `bool` type from `<stdbool.h>` as `uint8_t`
- Update UI look and feel and STMicroelectronics logo
- Add some nodes in STM32CubeMonitor palette: `node-red-contrib-finite-statemachine` and `node-red-contrib-ui-led`
- Ask the user if the `stm32cubemonitor` folder should be removed when Linux® software is uninstalled
- Add the new STM32 part numbers
- Executable/elf file parser: support of C++ classes
- Avoid displaying variables with undefined type
- The trigger name field indicates `Variable list is empty` when the variable list is empty

3.8.2 Fixed issues

Table 10. Main issues fixed in STM32CubeMonitor v1.1.0

ID	Summary
81386	Sometimes, import data raises an exception.
81996	Acquisition out node displays errors in console and in debug Node-RED® console while it should not.
82464	Not able to display dashboard and open online help simultaneously.
82592	Wrong value is read for 16-bit variables when the value is oscillating around overflow from one byte to the other.
82819	STM32CubeMonitor crashes when expanding variable list on executable files containing a big arrays.
84007	The processing node is not detecting linked-variable nodes on import (because of the new node IDs).
84015	STM32CubeMonitor loses some variable selections on edit (issue raised in community.st.com).
84801	The trigger name field is not updated when there is no executable file.

3.8.3 Known problems and limitations

On Ubuntu® 19.10, the tool used to parse the symbol files requires the library `libncurses5` to work properly. To install it, run `$sudo apt install libncurses5`.

3.9 STM32CubeMonitor v1.0.0 release information

3.9.1 Features

The version v1.0.0 is the first release of STM32CubeMonitor. The application provides STMicroelectronics nodes and reference flows to perform data acquisition on target.

3.9.2 Known problems and limitations

The menu [**Manage Palette**] is not available when `npm` is not installed on the computer. In order to add nodes in the palette, the user must install `nodejs` (with `npm`).

Revision history

Table 11. Document revision history

Date	Revision	Changes
28-Feb-2020	1	Initial release.
07-Sep-2020	2	Added information related to STM32CubeMonitor v1.1.0.
02-Apr-2021	3	Added information related to STM32CubeMonitor v1.2.0.
23-Sep-2021	4	Added information related to STM32CubeMonitor v1.3.0.
10-Mar-2022	5	Added information related to STM32CubeMonitor v1.4.0.
28-Oct-2022	6	Added information related to STM32CubeMonitor v1.5.0.
17-Feb-2023	7	Added information related to STM32CubeMonitor v1.6.0.
06-Oct-2023	8	Added information related to STM32CubeMonitor v1.7.0.
13-Mar-2024	9	Added information related to STM32CubeMonitor v1.8.0.
03-Oct-2024	10	Added information related to STM32CubeMonitor v1.9.0.

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