

vNode v.1.22.0

Release Notes

Fixes, changes and features in vNode.

Released January 26, 2026

Platform (v.1.22.0)

Change	Description
Platform Updates	Runtime Upgrade – Updated the underlying runtime environment to Node.js 22 for improved performance and security.
Platform Updates	Operating System Support – Ended support for Windows versions older than Windows 10 and Windows Server 2012.
Platform Updates	Operating System Support – Ended support for Linux versions older than Debian 10, Ubuntu 20, and RHEL 8.
Platform Updates	Architecture Support – Discontinued support for ARM32 architectures.
Platform Updates	Enhanced Security – Multi-Factor Authentication (2FA): Added support for Time-based One-Time Passwords (TOTP) to enhance user login security.
Platform Updates	Enhanced Security – Password Policies: Implemented stricter password management, including the enforcement of password complexity and the removal of default passwords. Administrators are now required to set a password during the initial setup. Additionally, One-Time Password (OTP) functionality has been added to the user configuration.
Platform Updates	Enhanced Security – Encryption: Upgraded certificate generation to 4096-bit keys by default and updated internal encryption algorithms to ChaCha20-Poly1305. Private key files are now stored in an encrypted format to ensure better protection.
Platform Updates	Enhanced Security – Data Integrity: Replaced MD5 with Argon2id for hashing sensitive information in configuration files and logs to enhance security.
Platform Updates	Enhanced Security – Legacy Protocol Support: Discontinued support for TLS 1.2 using common certificates and ended compatibility for vNode Links with version 1.19 and older to ensure secure communications.
Platform Updates	Performance Improvements – Optimized local processing and data transfer speeds across links.
Platform Updates	Performance Improvements – Improved WebVision performance to better handle high volumes of tags and concurrent users.
Platform Updates	Web UI & User Experience – WebVision: Improved the drag-and-drop framework and performance when navigating the configuration tree.
Platform Updates	Web UI & User Experience – Diagnostics: Expanded system metrics and diagnostics information for better observability.

Platform (v.1.22.0)

Change	Description
Platform Updates	Web UI & User Experience – Design: Updated the interface with a new, sharper icon set for a modern look and feel.
Platform Updates	Alarms & Notifier – Webhooks: Added a generic WebHook connector to send notifications to external services like WhatsApp, Slack, Discord, Twilio and more.
Platform Updates	Alarms & Notifier – Flexible Configuration: Added support for multiple conditions and custom conditions in alarm configurations.
Platform Updates	Alarms & Notifier – Flexible Configuration: Introduced “Diagnostics” as a new alarm priority level.
Platform Updates	Historian & Storage – TimescaleDB Support: Added support for TimescaleDB (over PostgreSQL) as a storage backend.
Platform Updates	Historian & Storage – Store & Forward: Implemented a disk-based Store & Forward mechanism. Data is buffered to disk when the database is unreachable, preventing data loss.
Platform Updates	Historian & Storage – Embedded Database: Updated the embedded MongoDB engine to version 8.0.
Platform Updates	REST API Server – Tag Subscriptions: Added the capability to subscribe to tag updates and list the status of active subscriptions.
Platform Updates	New Modules – IEC 60870-5-104 Server: A new module allowing vNode to act as a server, exposing data via the IEC 104 protocol.
Platform Updates	New Modules – Ethernet/IP Client: A new driver enabling communication with Ethernet/IP compatible devices.
Platform Updates	New Modules – MCP Server: A new module designed to facilitate connections with AI agents (Model Context Protocol).
Platform Updates	New Modules – Sparkplug Host: A new host application module for receiving data using the Sparkplug payload specification.
Platform Updates	Discontinued modules – Acquisuite XML Collector: This module has been discontinued and is no longer included in the platform.
Platform Updates	Discontinued modules – Farell Client: This module has been discontinued and is no longer included in the platform.

ABB VIP Client (v.1.4.0)

Change	Description
Improv.	Logging – Downgraded “connection rejected” warnings to the debug log level to reduce log noise during external connection attempts.

Aurora Client (v.1.2.0)

Change	Description
Fix	Timing – Fixed a bug where the scan cycle would always run with 0 delay.

BACnet Client (v.1.2.0)

Change	Description
Improv.	Device Management – The channel now automatically updates the device and tasks if the device address or port changes.
Improv.	User Interface – The device browser now explicitly displays the device address.
Improv.	Tag Management – Enabled the use of unknown property identifiers in tag configurations.
Improv.	Write Operations – Improved the reliability of writing basic types and ensured tag values are updated immediately after a write operation.
Improv.	Browsing – Refined the browser and type definitions.
Improv.	Browsing – Improved object property list browsing.
Improv.	Documentation – Revised and improved the module help documentation.
Improv.	Configuration – Removed the "Broadcast Address" configuration field; the module now inherits this setting directly from the network interface.
Fix	Tag Updates – Resolved an issue where updating tags would unintentionally trigger reads on disabled devices.
Fix	Connection Handling – Improved the handling of channel close events and added local time and month library fixes for Date and Time tags.

Bootstrap (v.1.44.4)

Change	Description
Improv.	Authentication & Security – Added support for Two-Factor Authentication (2FA) management.
Improv.	Authentication & Security – Introduced password complexity checks during authentication.
Improv.	Authentication & Security – Added CLI commands for user management and setting user passwords.
Improv.	Authentication & Security – Added a "One Time Password" option to the user configuration.
Improv.	Authentication & Security – Added configuration options for a local authentication provider and local user password management.

Bootstrap (v.1.44.4)

Change	Description
Improv.	Alarms – Enhanced alarm functionality with options for multiple conditions and support for custom alarm conditions.
Improv.	API – Improved handshake integrity by sending encrypted information.
Improv.	API – Added API versioning to ensure compatibility between different software versions.
Improv.	API – Increased the API performance to significantly raise the rate of processed events.
Improv.	API – Added support for asynchronous loading of configuration files.
Improv.	API – Added an atomic model subscription API.
Improv.	Redundancy – The FleetManagerClient now remains active even when the node is in standby mode.
Improv.	Redundancy – Added a network interface selector helper to the redundancy configuration.
Improv.	Redundancy – Implemented a redundancy version check during the handshake process.
Improv.	SDK & Development – Added a tag.updates handle to the SDK to improve performance.
Improv.	SDK & Development – Added a method to cancel tag subscriptions.
Improv.	SDK & Development – Added value validation for tag write operations.
Improv.	SDK & Development – Enabled tag history requests over links with multiple hops.
Improv.	Tag Management – Improved error logging when tags or groups fail to load.
Improv.	Tag Management – Improved the tag update log format.
Improv.	Tag Management – Optimized the sorting of the persistency dropdown menu.
Improv.	Tag Management – Hidden “Scaling” configuration options for String tags.
Improv.	Links – Stopped the Link Manager from listening if it is stopped while retrying a listen operation.
Improv.	Links – Prevented link validation if the manager is stopped while receiving a connection.
Improv.	Links – Improved logic to ensure a current link is not kicked if a new link with the same name connects.
Improv.	Links – Deprecated the use of legacy common certificates to increase security.
Improv.	Links – Enabled the sending of empty groups to remote nodes and allowed link requests while a node is in standby.
Improv.	System – Updated the Binary Manager to test bootstrap dependencies in modules.

Bootstrap (v.1.44.4)

Change	Description
Improv.	System – Redundancy backups now have a reduced invalid socket timeout of 5 seconds.
Improv.	System – Licensing now checks module licenses in alphabetical order.
Improv.	System – Native modules now automatically have their permissions set to 755.
Improv.	System – Service restarts will now return an error if permissions are insufficient.
Improv.	System – Linux systems now use abstract Unix Domain Sockets (UDS) instead of anonymous pipes.
Improv.	System – Allowed nodes to be restarted while in standby mode.
Fix	Configuration & Validation – Added validation for host inputs, tag formats, and deadbands.
Fix	Links – Fixed an issue where invalid connections were not detected properly.
Fix	Links – Links now correctly serialize Unicode characters.
Fix	Links – Links now check alarm and tag ownership before processing updates.
Fix	Links – Link output data is now cleared when deleted from the configuration file.
Fix	Alarms – The system now waits for remote completion when acknowledging remote alarms.
Fix	Alarms – Acknowledging alarms now rejects with an error if any single alarm fails to be acknowledged.
Fix	Redundancy – Resolved an issue where the persistence file could grow indefinitely.
Fix	Redundancy – Fixed a synchronization issue with the tag persistence file.
Fix	Tag Manager – Remote memory tags are now correctly created with UNINITIALIZED quality.
Fix	Tag Manager – Fixed issues loading tags with both an Initial Value and Scaling configured.
Fix	Tag Manager – Prevented tag regeneration of persistence data files on load.
Fix	Tag Manager – Prevented history requests for remote tags from being made by local modules.

CAISO ADS Client (v.1.3.0)

Change	Description
Fix	Logging – Updated status change logs to use the Status enum identifier instead of the numeric value.
Fix	UI – Enabled the use of expressions in dropdown inputs.

Custom Client (v.1.5.0)

Change	Description
Improv.	Scripting – Added support for let and const identifiers in Custom Steps.
Improv.	Performance – Reduced the minimum allowed value for the transaction scan rate to 10ms.

Data Diode (v. 2.0.0)

Change	Description
Improv.	Encryption – Updated the internal encryption algorithm to ChaCha20-Poly1305. Note: This is a breaking change that disrupts compatibility with older versions; both the Sender and Receiver instances must be updated to version 2.0.0 to ensure proper communication.
Improv.	UI – Added a token generator for the sender secret.
Fix	Logging – Downgraded “datagram rejected” warnings to the debug log level.
Fix	Data Integrity – Fixed an issue in the Receiver where the packet index did not wrap back to 0 after reaching 255.

Data Exporter (v.1.10.0)

Change	Description
Improv.	Events – Stopped filtering events by timestamp when using “raw” mode.
Improv.	Logging – General improvements to log messages.

Data Importer (v.1.2.0)

Change	Description
Fix	UI – Renamed “Other” to “5” in column dropdowns for better clarity.
Fix	Logging – Improved error messaging when attempting to delete files that have already been removed by another process.

Derived Tags (v.1.7.0)

Change	Description
Improv.	Buffers – Changed the circular buffer implementation in Aggregated Tags to a dynamically growing buffer (up to max size).
Improv.	Performance – General performance optimizations.
Improv.	Security – Prevented the \$ symbol from being extensible in Expression Tags.
Improv.	Security – Restricted access to certain process and OS APIs within Expression Tags.
Improv.	Expression Tags – Added a “Run on start” configuration option for tags using Periodic and Cron execution triggers.
Improv.	Expression Tags – Introduced \$.read and \$.browse functions to extend expression capabilities.
Improv.	Node Tags – Added new diagnostic metrics for the Node, System, and Modules.

DLMS Client (v.1.4.0)

Change	Description
Improv.	Security – Added a whitelist feature for incoming gateway connections.
Improv.	Redundancy – The Load Profile now includes the last timestamp file in redundancy synchronization.
Fix	Stability – Ensured device message buffers are cleaned correctly.

DNP Server (v.1.5.0)

Change	Description
Improv.	Logging – Downgraded “connection rejected” warnings to the debug log level.
Fix	Connectivity – Fixed an error in the TCP Server log message.

Domino Client (v.1.2.0)

Change	Description
Improv.	Logging – Added log messages in string format for every request and response.

DNP Client (v.1.3.0)

Change	Description
Improv.	Controls – Added support for PULSE_ON and PULSE_OFF operations in Binary Outputs.
Improv.	Logging – Changed the “Event buffer overflow” warning to log only once until the flag is cleared.
Fix	Timing – Fixed a bug where the scan cycle would always run with 0 delay.

Ethernet/IP (v.1.0.1)

Change	Description
New	Ethernet/IP Client – Introduced a new driver enabling communication with Ethernet/IP compatible devices.

Fleet Manager Client (v.1.2.0)

Change	Description
Improv.	UI – Preloaded host URLs for easier configuration and added limits to max users and wait times for raw TCP tunnels.
Improv.	Redundancy – The FleetManagerClient now remains active even when the node is in standby mode.
Fix	Validation – Fixed an issue when validating specific error codes.

Historian (v.1.20.0)

Change	Description
Improv.	TimescaleDB – Added support for TimescaleDB (over PostgreSQL) as a storage backend.
Improv.	Store & Forward – Implemented a new disk-based Store & Forward mechanism. Data is buffered to disk when the database is unreachable.
Improv.	Database – Updated the embedded database engine to MongoDB version 8.0.
Improv.	Database – Removed the option to disable the buffer limit in Store & Forward since this data is now sent to the disk with the new Store & Forward mechanism.
Improv.	Alarms – Alarm results are now sorted by timestamp.

IEC 102 Client (v.1.7.0)

Change	Description
Improv.	Security – Remote connections to the gateway can now be whitelisted.
Improv.	Logging – Changed gateway rejection logs from warning to debug level.
Improv.	Load Curve – Synchronized the timestamp cache file across redundant nodes to ensure data consistency.
Improv.	Load Curve – Prevented the use of uninitialized timestamp tags as "Next ts".
Improv.	Load Curve – Sanitized date inputs before reading load curve blocks to prevent errors.
Improv.	Transport – TCP sockets are no longer reused after being force-closed due to a disconnect timeout.
Improv.	Validation – Added back-end validation for configurations.

IEC 104 Client (v.1.2.0)

Change	Description
Improv.	Compliance – Updated sequence number management to better adapt to the protocol specification.
Improv.	Configuration – Deprecated the T3 timeout input in favor of using T1.
Fix	Communication – Fixed supervisory frames not sending the correct sequence number.
Fix	Communication – Fixed incorrect buffer resizing when receiving large TCP packets.

IEC 104 Server (v.1.0.0)

Change	Description
New	IEC 60870-5-104 Server – Introduced a new module enabling vNode to expose data as a server using the IEC 104 protocol.

MCP Server (v.1.1.1)

Change	Description
New	MCP Server – A new module designed to facilitate connections with AI agents (Model Context Protocol).

Mettler Toledo Client (v.1.3.4)

Change	Description
Improv.	Connectivity – Changed the default TCP port to 5000.
Improv.	Connectivity – Enabled “keep alive” on TCP sockets.
Improv.	Connectivity – Improved error handling in the Gareco protocol.

Modbus Server (v.1.3.0)

Change	Description
Improv.	Logging – Downgraded “connection rejected” warnings to the debug log level.

MQTT Client (v.1.12.0)

Change	Description
Improv.	Publisher – Allowed “1 event per message” to support high-frequency publishing.
Improv.	UI – Improved the configuration interface.
Fix	Store & Forward (S&F) – Cleaned up S&F removal error messages.
Fix	Publisher – Transmission is now skipped when a custom parser returns an empty or malformed payload.
Fix	Configuration – Fixed issues with custom parsers in subscriber templates and extra parameters in MQTT 3.x subscriber configs.

Notifier (v.1.4.1)

Change	Description
Improv.	WebHooks – Added a new WebHook connector to send notifications to WhatsApp, Slack, Twilio, Discord, and other systems.
Improv.	Triggers – Added “TagChange” triggers.
Improv.	Triggers – “Periodic Triggers” now include a “Run on start” option.
Improv.	Configuration – Added parameters to all notifiers and updated the SMPPNotifier label from ‘Destinatory’ to ‘Recipients’ for clarity.

Notifier (v.1.4.1)

Change	Description
Improv.	Library – Updated the underlying node-mailer version.
Fix	Stability – Handled undefined parameters in older configurations for the Mail Notifier.
Fix	Stability – Prevented duplicate error handling in messages.
Fix	Logic – Prevented triggers from being reset if they have not been used.

OPC UA Client (v.1.16.0)

Change	Description
Improv.	Drag & Drop Browsing – The browser now displays StatusCode, SourceTimestamp, and ServerTimestamp alongside the Value.
Improv.	Security – Updated the default certificate key size from 2048 to 4096 bits.
Improv.	Security – Private key files are now stored in an encrypted format to ensure better protection.
Improv.	Logging – Updated StatusCode values in logs to be displayed in hexadecimal.
Improv.	Logging – Raised the log level of certain disconnect messages from DEBUG to INFO.
Fix	Connection – Fixed clients not disconnecting correctly if errors occurred during session establishment.
Fix	Tag Quality – Fixed an issue where tag quality would flip to BAD during tag model changes.
Fix	Certificates – The Certificate Manager now correctly skips clients with invalid certificate folder structures.

OPC UA Server (v.1.13.0)

Change	Description
Improv.	Networking– The server is now allowed to listen on all available network interfaces.
Improv.	Data Integrity – Number tags are now published with their specific number type instead of defaulting to Float or Double.
Improv.	Data Integrity – Buffered events during tag model changes to prevent data loss.
Improv.	Diagnostics – Added new system information, module metrics, and node information to diagnostics.
Improv.	Security – Updated the default certificate key size from 2048 to 4096 bits.

OPC UA Server (v.1.13.0)

Change	Description
Improv.	Security – Private key files are now stored in an encrypted format to ensure better protection.
Fix	Subscriptions – Fixed the source timestamp of the server CurrentSubscriptionCount not updating.
Fix	Subscriptions – Fixed MonitoredItemCount not updating correctly on non-graceful disconnections.
Fix	Subscriptions – Added operational limits to comply with the OPC UA specification.
Fix	Stability – Fixed unhandled errors when stopping a server that was not started.

OPC XML Client (v.1.2.0)

Change	Description
Improv.	UI – Updated the host input to a URL format and updated the default value.

Rest API Client (v.1.11.0)

Change	Description
Improv.	Triggers – Added “Tag change” triggers.
Improv.	Triggers – Added “Run on start” option to Periodic Triggers.
Improv.	Parameters – Added an initial filter to events.
Improv.	Parameters – Allowed the use of the same tags in different parameters.
Fix	Timing – Fixed a bug where the scan cycle always ran with 0 delay.

Rest API Server (v.1.9.0)

Change	Description
Improv.	Security – Created certificates now have ‘serverAuth’ enabled.
Improv.	Security – Hashed authentication tokens using Argon2idAdded “Run on start” option to Periodic Triggers.
Improv.	Security – Added an ‘excludeSecrets’ option to the backup creation method.

Rest API Server (v.1.9.0)

Change	Description
Improv.	Alarms – Added “Diagnostics” priority.
Improv.	API Capabilities – Added methods for managing tag subscriptions and listing subscription status.
Improv.	API Capabilities– Added file log export capabilities.
Improv.	UI – Added ‘.cert’ and ‘.cer’ extensions to the file picker for HTTPS configuration.

Scripting (v.2.0.0)

Change	Description
Improv.	API Expansion – Added a new node namespace with calls for ‘errorCount’, ‘getStandby’, ‘generateNewUID’, ‘restart’, and ‘info’.
Improv.	API Expansion – Added ‘system.getSerialPorts’ to list available serial hardware.
Improv.	API Expansion – Note: Calls in the system namespace are now deprecated in favor of the node namespace.
Improv.	Performance – Removed the API call queue in favor of running calls in parallel.
Deprecation	Removed Methods – The “log.export”, “log.cancel”, and “log.subscribe” methods have been removed. Note: Scripts currently utilizing these functions will fail and must be updated to prevent runtime errors.
Fix	Startup – Fixed modules not starting if the library configuration is missing.

Siemens Client (v.1.7.0)

Change	Description
Improv.	Connectivity – Removed ICMP packets used to check connection status on Windows systems.

SMA Client (v.1.3.0)

Change	Description
Fix	Timing – Fixed a bug where the scan cycle would always run with 0 delay.

Sparkplug Client (v.1.3.0)

Change	Description
Improv.	Compliance – The “Quality” property is now sent according to the Sparkplug specification.
Improv.	Compliance – Do not send aliases in NBIRTH templates.
Improv.	Persistency – Enhanced data integrity by utilizing the system’s persistency mechanism for the bdSeq cache file.

Sparkplug Host App (V.1.0.0)

Change	Description
New	Sparkplug Host – Introduced a new host application module for receiving data using the Sparkplug payload specification.

SQL Client (v.1.7.0)

Change	Description
Improv.	Connectivity – OracleDB: Updated to use Oracle Thin Mode for simplified connectivity.
Improv.	Connectivity – MySQL: Improved timezone handling (grouping by offset) and allowed “Pacific/Midway” for backward compatibility.
Improv.	Connectivity – SSL: Changed the default ‘Reject unauthorized’ setting to true.
Improv.	Triggers – Added “Tag Change” triggers.
Improv.	Triggers – Added “Run on start” option to Periodic Triggers.
Improv.	Configuration – Allowed expressions in all configuration fields including the MySQL custom timezone property.
Improv.	Configuration – Enhanced SSL configuration validation in the Connection String Visualizer.
Improv.	Dependencies – Updated the MySQL library.
Fix	Parameters – Allowed the use of the same tags in different parameters.
Fix	Parameters – Fixed group and filter parameters being duplicated on tag reload.
Fix	Validation – Fixed validation regex for Tag Source Config.
Fix	Timing – Fixed a bug where the scan cycle always ran with 0 delay.

WebUI (v.1.21.0)

Change	Description
Enhancement	Security – Authentication: Added support for Two-Factor Authentication (2FA) using Time-based One-Time Passwords (TOTP).
Enhancement	Security – Password Management: Introduced the ability to enforce password complexity policies and required administrators to set a password during the initial login.
Enhancement	Security – User Configuration: Added One-Time Password (OTP) functionality to user configurations.
Enhancement	Security – Encryption: Obfuscated internal encryption methods to enhance security.
Enhancement	User Experience – Updated the icon set to a new, sharper style.
Enhancement	User Experience – Users can now change their passwords directly from the WebUI.
Enhancement	User Experience – Enhanced the Visualizer framework for better drag-and-drop functionality.
Enhancement	Config Editor – Improved performance when navigating the properties tree.
Enhancement	Diagnostics – Added “All” to the module selection in log diagnostics.
Enhancement	Diagnostics – Updated diagnostics with new information and metrics.
Enhancement	Historical – Changed auto-grouping by axis and units instead by configured range.
Fix	Config Editor – Resolved issues when importing CSVs for array-type instance lists with 10+ elements.
Fix	Audit Trail – Elements with identical timestamps are now sorted correctly in the preview.

Web Vision (v.1.8.1)

Change	Description
Improv.	Charts & Visuals – Zoom: Added zoom functionality to charts (enabled via options).
Improv.	Charts & Visuals – Export: Added the ability to export chart data to CSV directly from the menu.
Improv.	Charts & Visuals – Markers: Introduced a new “Markers” group with a “Show” option.
Improv.	Charts & Visuals – Heatmap: Added a “Reversed” option for the legend orientation and introduced comprehensive styling options for series data labels, including visibility (enabled), font size, font family, and color settings.
Improv.	Charts & Visuals – Chart Axes: Added an “Opposite” option to Chart axes and introduced new alignment and positioning settings for axis labels.

Web Vision (v.1.8.1)

Change	Description
Improv.	Charts & Visuals – Historical View: Updated the automatic grouping logic to group series by axis range and units instead of by configured range.
Improv.	Design Tools – Tag Manager: Enabled drag-and-drop functionality for reordering opened tabs in the workspace.
Improv.	Design Tools – Visual Editor: Enabled the ability to adjust a component's origin by directly dragging its anchor point.
Improv.	Design Tools – Resizing: Added resizing via endpoints.
Improv.	Design Tools – Rotation: Added rotation support by dragging corners.
Improv.	Design Tools – Clipboard: Enabled Copy/Cut & Paste for event values and custom properties.
Improv.	Design Tools – Template Tree: Added search functionality to easily locate templates and instances within the configuration tree.
Improv.	Components – Input: Added a "disabled" option to Input components.
Improv.	Components – Tooltips: Added support for multiline tooltips.
Improv.	Components – Legends: Added scroll options to Chart and PieChart legends.
Improv.	Components – Tables: Added an entry count output to all tables.
Improv.	Components – Dropdown: Added new styling options allowing users to customize the button color and background color.
Improv.	Performance – Improved chart performance with large datasets.
Improv.	Performance – Enhanced subscription event processing performance.
Improv.	Performance – Improved performance when multiple inputs update in the same tick.
Fix	Charts – Fixed series activation/deactivation via the legend.
Fix	Charts – Hidden aggregates in tooltips when "Stacked" is disabled.
Fix	Charts – Corrected tooltip positioning on rotated charts.
Fix	Charts – Resolved label positioning issues on PieCharts.
Fix	UI Behavior – Fixed mouse wheel zoom bugs.
Fix	UI Behavior – Prevented labels from overlapping chart axes.
Fix	UI Behavior – Fixed issues where the "Open Instance" action failed on Region components.
Fix	UI Behavior – Scrolling over a context menu no longer triggers a zoom.

Web Vision (v.1.8.1)

Change	Description
Fix	Data Handling – Format non-number values properly in chart tooltips.
Fix	Data Handling – Apply complex filters correctly.



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