

## WV-SPN531 Firmware Release Note

VER (ActiveX Ver) Release Date	Priority Rank Level				Priority Rank Level A: Recommend to apply (Major or serious update) B: When issue happened C: Maintenance timing U: Function /Performance improvement (Not Necessary to update)	Contents		
	A	B	C	U		Issue (Phenomenon)	Occurrence condition	Correspondence
Ver1.60 (4.27.01) Oct.,'14	-					First production		
Ver1.61 (4.27.01) Dec.,'14	C			x		Streaming may be stopped or unable to re-start streaming. (Occurrence frequency : Mid)	Connect / disconnect streaming repeatedly while transmitting stream over RTSP.	Fixed.
				x		Reduced number of connectable users temporally. (Occurrence frequency : High)	When RTSP SETUP method returned an error (such as incorrect URL, authentication error, exceeding number of access and so on).	Fixed.
				x		Unable to establish RTSP connection. (Occurrence frequency : Mid)	Receiving 2 or more TCP SYN packets simultaneously at RTSP port.	Fixed.
				x		Unable to transmit video stream. (Occurrence frequency : Low)	In a case restarting connected device (such as recorder, etc.) and disconnect / connect streams repeatedly.	Fixed.
				x		Camera may restart, unexpectedly. (Occurrence frequency : High)	Approx. 5 minutes after disconnecting 3 or more clients (having network cable removed, etc.) while transmitting video stream over RTSP.	Fixed.
Ver1.62 (4.27.01) Dec.,'14	-					Due to factory reason.		
Ver1.71 (4.33.06) Feb.,'15	C				x	-	-	Added "AGC(Audio)" settings.
					x	-	-	Expanded "OSD" display settings; - Added positions of "Upper center" and "Lower center". - Position of the time and date and character strings, separately. - Added choices of character size among "100%", "150%" and "200%".
					x	-	-	<b>For H models only</b> Added displaying bit rate on H.264 live screen
					x	-	-	<b>For H models only</b> Changed factory default settings; - Settings relating H.264; Internet mode (over HTTP): from "Off" to "On". Transmission priority: from "Frame rate" to "VBR". Max bit rate (per client) *: from "4096kbps" to "14336kbps". *: in H.264(1) only - Settings relating image adjust; Super Dynamic (SD): from "On(Normal)" to "Off".
					x	-	-	Added "Contrast enhancement(RGB: 0 to 256)" function for H.264 live picture.
			x	-	-	Added a pop-up screen of "RS-485 operation screen" on "Live" page. *: Required the optional RS485 Output unit (WV-SPN6R481).		

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Ver1.71 (4.33.06) Feb., '15	C			x	-	-	Improved the plug-in software; - Not to accumulate delays at drawing. It might delay up to 30 seconds depends on load of CPU, previously. Changed the strategy that discarding frames before delay were bigger. - Not to corrupt images at scrolling Note: Increased size of the plug-in software; From approx. 2MB to approx. 3.8MB	
					x	-	-	<b>For H models only</b> Removed waiting 2 seconds to start drawing H.264 live picture while "Internet mode (over HTTP)"="On" and "Smooth live video display"="On".
					x	-	-	Changed iVMD information to be overwritten onto JPEG Expansion Area when capturing 1shot of JPEG.
					x	-	-	Changed iVMD information to be overwritten onto JPEG Expansion Area while recording onto SD memory card; - NDR backup (ND200, ND300, ND400K) - Failure at FTP periodic transmission
					x	-	-	Added alarm status onto Additional Information into H.264/JPEG.
					x	-	-	Added "Display type" function (mosaic display) for "Privacy zone".
					x	-	-	Supported additional information as follows; - Status of SD memory card recording. - Audio
					x	-	-	Improved accuracy of detecting iVMD.
					x	-	-	Improved H.264 image quality while VBR were set at Transmission priority.
					x	-	-	Reviewed and updated the Time Zone values.
					x	-	-	Changed the Levels of H.264 from "4.0" to; - 2048x1536: 5.0 - 1920x1080 (60fps): 4.2 - 1280x720(60fps): 4.1
					x	-	-	Added a function to accept collecting iVMD detection area, "/cgi-bin/getdata".
					x	-	-	Supported backup recording H.264 onto SD memory card.
			x	-	-	<b>For WV-SPN531 only</b> Change of the ONVIF® Profile acquisition order by the response of GetProfiles. Previous: Sort by resolution of JPEG in ascending order. New: Sort by resolution of H.264 in descending order.		

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Ver1.71 (4.33.06) Feb.,'15	C			x	Unable to display camera streams in ONVIF®. ( Occurrence frequency : Mid )	In a case, restarting the camera.	Fixed.	
				x	Unable to display H.264 images. ( Occurrence frequency : High )	In a case, Encoded H.264 by CAVLC and QuickTime player were version 7.7.4.	Fixed.	
				x	Playing audio from the PC on the unit speaker may be an error. ( Occurrence frequency : Low )	While load of the camera were high and firmware version depends on the model as follows; - 3 series models: Version 1.55 and newer - 5 series models: Version 1.60 and newer - 6 series models: Version 1.53 and newer	Fixed.	
				x	Camera did not respond. ( Occurrence frequency : High )	When changing configuration in JPEG and H.264 to be a certain combination.	Fixed.	
				x	Hungup Internet Explorer. ( Occurrence frequency : High )	On H.264 viewer, by dragging the slide-bar and dropping without moving the slide-bar at all.	Fixed.	
				x	Unable to stream H.264 with RTSP command. Note: resume streaming H.264 by changing port number again or restarting camera. ( Occurrence frequency : High )	After changing port number of RTSP while streaming H.264 with RTSP command.	Fixed.	
Ver1.80 (4.33.06) Mar.,'15	C			x	-	-	Added usage information and error information display for SD memory card. Notes: The information will be updated once per hour. Model number stored on the SD memory card will be displayed.	
				x	-	-	Added warning outputs about SD memory card to Alarm output terminal.	
				x	-	-	Added "Auto time adjustment" by activating "Alarm input terminal 1". Examples; - Triggered at between 00:00:01 and 00:28:59 : Adjust to 00:00:00. - Triggered at between 00:29:00 and 00:30:59 : No adjustment. - Triggered at between 00:31:00 and 00:59:59 : Adjust to 01:00:00.	
				x	-	-	Added "AAC-LC(HIGH QUALITY)" (sampling freq.=48kHz) setting at Audio encoding format.	
				x	-	-	Became saving FTP trans. error log onto RAM, and added a cgi command to obtain the log in CSV file format.	
				x	-	-	Reserved "%almsrc2%" for HTTP alarm notification to distinguish why HTTP alarm notification occurred by i-VMD.	
				x	-	-	Additional information to be embedded onto the extended area of JPEG for alarm and manual recordings on SD memory card.	
		x	-	-	Additional information to be embedded onto the extended area of MP4 files recorded on SD memory card.			

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Ver1.80 (4.33.06) Mar., '15	C				x	-	-	Expanded cgi commands about searching SD memory card as follows; /cgi-bin/get_mp4_list (Added) /cgi-bin/get_mp4_file (Added) /cgi-bin/get_recording_summary (Expanded to Stream2) /cgi-bin/get_media_attributes (Expanded to Stream2) /cgi-bin/find_recording_seqs (Expanded to Stream2) /cgi-bin/get_recording_seq_search_results (Added)
					x	Added on Dec. 21, 2015  Unable to display H.264 images on Google Chrome. Because Google Chrome does not QuickTime Player since Sept. 1, 2015 due to change their policy about NPAPI plugins. For more details, please refer to the following page; <a href="https://support.google.com/chrome/answer/6213033?hl=en">https://support.google.com/chrome/answer/6213033?hl=en</a>	-	Supported Safari, Firefox and Google Chrome to display H.264 and JPEG; Notes: 1. Tested each browser as follows; Safari: v5.1.7 Google Chrome: v38.0.2125 Firefox: v32.0.3 2. Required installing plug-in software for QuickTime Player to display H.264. 3. Limitations are as follows; <About H.264> - Unicast only. - Delay approx. 3 seconds due to buffering by Quick Time Player. <Audio> - Supporting audio in H.264 only (not in JPEG). - Encoding format: G.711/AAC-LC/AAC-LC(HIGH QUALITY) - One way audio output (Camera to PC) only. <Full Screen Display> New window to be opened. But it does not display the image if it exceeds the number of access allowed.
					x	-	-	Improved display on Internet Explorer while Compatible view = "OFF".
					x	-	-	Added a hyper-link to extension software screen on Upgrade the firmware of Operating Instructions Maintenance of the camera.
					x	-	-	Improved picture quality from the beginning of streaming transmission while in advanced variable bitrate.
					x	-	-	Improved process of a best shot face image selection on WV-ASF900.
					x	-	-	Improved the cgi command "/cgi-bin/get_capability" as follow; Added minimum frame rate (fps) by each resolution in device information.
					x	-	-	Added a cgi command "/cgi-bin/get_capability2", extended the device information received against "/cgi-bin/get_capability".
				x		The icon of live alarm looked i-VMD. (Occurrence frequency : High)	Has Installed iVMD (WV-SAE200) and when selected alarm detection type were "VMD".	Fixed.
				x		No error even if specifying ProfileG and being sent by "Set/AddScopes" command. (Occurrence frequency : High)		Fixed.

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Ver1.80 (4.33.06) Mar., '15	C			x	"Overwrite" to be "OFF" unexpectedly at settings of recording by sending "Overwrite = ON" for JPEG with activating ONVIF @ command (CreateRecordingJob). (Occurrence frequency : High)	-	Fixed.	
				x	Distorted date and time display on live image. (Occurrence frequency : Low)	-	Fixed.	
				x	Displayed false error, The specified unicast port2(Audio) is already in use. Please change the port number. (Occurrence frequency : High)	Go into the setting of "Audio detection" after setting "AAC-LC" as audio encoding format.	Fixed.	
				x	Concerning with the cgi command /cgi-bin/set_h264?nr_h264_resolution=xxxx VIQS area would not be resized even if sending it. As a result of this issue, streaming may be defocused (like low resolution). (Occurrence frequency : High)	-	Fixed.	
				x	Unable to open "System log"-tab in "Maintenance" page for several minutes. (Occurrence frequency : High)	When inserting a SD memory card that has been formatted by another model numbered camera and its write protect switch is set to "LOCK".	Fixed.	
				x	Unable to transmit H.264 in RTSP. (Occurrence frequency : High)	In ONVIF® and transmitting H.264 with RTSP control, after repeatedly connecting / disconnecting session total 77 times.	Fixed.	
				x	Time may restore January 1, 1970, unexpectedly and back to correct date/time after 2 hours. (Occurrence frequency : Very low)	While in high load such as 8x iVMD, JPEG recording, H.264 recording and 5x streaming.	Fixed.	
				x	iVMD setting to be enabled unexpectedly. (Occurrence frequency : High)	By installing the extension software, SAEASF, and activated.	Fixed.	
		x	Paused recording onto SD memory card and restart automatically. (Occurrence frequency : High)	By sending ONVIF® streaming request to the stream of recording onto SD memory card.	Fixed.			
Ver1.82 (4.33.06) Apr., '15	C		x	Camera continued to reboot after restoring settings data. (Occurrence frequency : High)	The settings data had been stored from the camera firmware version 1.71 or older and restored it to the camera version 1.80.	Fixed.		
Ver1.83 (4.33.06) Apr., '15	C		x	-	Deleted for correction on Sept.10, 2015	Except WV-SPN531H Added a cgi command to retrieve setting values from SD memory card.		
			x	-	-	Added a function to download H.264 recording files, configured maximum 20MB, onto SD memory card. (WV-ASM200 must be upgraded version 3.30 or newer.)		
			x	-	-	Added a function to recover stopping video transmission by restarting camera.		
			x	-	HTTP access may not be accepted.	By once disconnect LAN cable at PC side while downloading CSV file.	Fixed.	

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Ver1.83 (4.33.06) Apr.,'15	C				x	-	-	Improved the accuracy of VMD (Video Motion Detection). Note: This might affect the number of detections if you had adjusted its sensitivity.		
Ver1.84 (4.33.06) May,'15	C				x	It may not return from the problem with the SD memory card.	When "ArgosView" is used to backup JPEG.	Fixed to response an error at the time of SD memory card abnormal.		
Ver1.85 (4.33.06) July,'15	C				x	-	-	Improved downloading MP4 file that allows to select SD memory card 1 or 2. (WV-ASM200 must be version 3.40 or newer).		
						x	Setting may be changed from "On(pan/tilt head)" to "Off" unexpectedly by switching turn power off and on.	After changing the "RS458 operation screen" from "Off" to "On(pan/tilt head)".	Fixed.	
						x	-	-	Improved reliability, not to restart unexpectedly.	
Ver1.86 (4.38.07) July,'15	C				x	<b>For Chinese market models (WV-SPN531H) only</b>		Added a button 简易录像功能 in the "Live" page.		
							x	The setting of time zone may not reflected correctly by synchronizing with NTP server.	In a case, changed Time zone setting after changing "Time adjustment" from "manual" to "Synchronization with NTP server".	Fixed.
Ver1.87 (4.38.07) Aug.,'15	C				x	-	-	Supported Additional Business Intelligence Kit, Model WJ-NVF30.		
						x	On backup function related with WJ-ND400, 1 second JPEG picture(s) on SD memory card may be missing.	At the timing when the recording was switched.	Fixed.	
							x	-	-	Improved picture quality. 1. Resolution feeling. 2. Signal to Noise (S/N) Ratio. 3. H.264 image quality by changing transmission priority control from "frame rate" to "image quality".
							x	Chang of time zone setting may not be effected even if it would be synchronized.	When changing time zone setting after changing Time adjustment by NTP from "Off" to "On".	Fixed.
							x	Unable to restore backed-up settings data.	Made backup data after auto-focusing under black/white.	Fixed.
			x	Ignored ONVIF® (ProfileG) command "Rate-Control:no".	While playing back in RTSP from SD memory card.	Fixed.				

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Ver1.88 (4.38.07) Nov., '15	C			x	For Chinese market models (WV-SPN531H) only Chinese On Screen Display (OSD) may be disappeared.	-	Fixed.	
Ver2.00 (4.38.08) Jan., '16	C			x	-	-	Supported the ONVIF® command, StartFirmwareUpgrade, to upgrade the firmware.	
				x	-	-	Added "Smart Coding mode" function.	
				x	-	-	Made encrypting the firmware. To upgrade the firmware from version 1.88 or older, required 2-step upgrading: - First step: upgrade to version 9.99. <a href="#">Click here to request the version 9.99.</a> - Second step: upgrade to version 2.00.	
				x	-	-	Supported Safari/Firefox/Google Chrome at configuration settings Note: Tested version; - Safari: Version 5.34.57 - Google Chrome: Version 44.0.2403 (Except displaying H.264 images) - Firefox: Version 39.0.0	
				x	For Chinese market model (WV-SPN531H) only.	-	-	Added 25fps as a choice at the setting of image capture mode.
				x	For Chinese market model (WV-SPN531H) only.	-	-	Added mixing up 16:9 and 4:3 aspect ratio as a choice at the setting of image capture mode.
				x	Wrote settings onto the Flash-ROM by clicking the "Set" button on menu setting page even if nothing changed. (Occurrence frequency : High)	-	-	Fixed.
				x	-	-	-	Changed the upper limit value of the set of iVMD function on External software. [Prev.] 100%, 150%, 200%, 250%, 300% [New] 100%, 150%, 200%, 250%, 300%, 350%, 400%, 450%, 500%, Unlimited
				x	-	-	-	Changed the word in Chinese at SD memory card information (SD记忆卡信息) in System log (系统日志); [Prev.] 错误内容 (Description) [New] 内容 (Description)
				x	-	-	-	Changed the action to the following cgi commands; - /cgi-bin/get_capability - /cgi-bin/get_capability2
		x	-	-	-	Corrected the vulnerability by upgrading OSS for NTP; [Prev.] ntp-4.2.6 p3 [New] ntp-4.2.8 p4		
		x	Maintenance page layout may collapse. (Occurrence frequency : High)	-	In the page of User mng.	Fixed.		

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Ver2.02 (4.38.08) Feb., '16	C				x	-	-	Added a notice for each screen that alarm notification will not be appeared while displaying VMD and audio detection.
Ver2.40 (4.38.08) Apr., '16	C				x	Except Chinese market model (WV-SPN531H).		Added a choice to select a certification when using HTTPS. This is effective from products manufactured in April, 2016. Those serial numbers are as follow; "PDxxxxxx", PExxxxxx, PFxxxxxx and after. "Qxxxxxxx", Rxxxxxxx and after.
					x	Except Chinese market model (WV-SPN531H).		Added a choice to select a certification when using the "Alteration detection". This is effective from products manufactured in April, 2016. Those serial numbers are as follow; "PDxxxxxx", PExxxxxx, PFxxxxxx and after. "Qxxxxxxx", Rxxxxxxx and after.
					x	-		1. Changed factory default setting value at User Authentication from "OFF" to "ON". 2. Deleted pre-registered User name (admin), and Password (12345). 3. All users must register User name(s) and Password(s) at initial access. - User name: 1 to 32 characters - Password; 8 to 32 characters, two or more types of characters among alphabets, numbers and symbols. Note: Currently registered User name(s) and Password(s) will NOT be deleted by upgrading firmware, however, you have to register them under the new policy (above "3") after initializing (default reset) by the INITIAL SET button or by the setup menu.
					x	-		Changed Chinese words in "传送模式"; - From "帧率优先" to "恒定速". - From "恒定速率" to "细(画质优先权)".
					x	Best shot of face may not be sent.		If the duration of tracking were too short.
Ver2.41 (4.38.08) Apr., '16	C				x	It may take too long to startup. (Occurrence frequency : Low)		Fixed.
Ver2.43 (4.38.08) May, '16	C				x	Except Chinese market model (WV-SPN531H).		Unable to connect the cameras by the HTTPS protocol.
						After turning power off and on if the connection protocol were configured in "HTTPS" and using with the Root Certification Authorities (CA).	Fixed.	

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Added on June 15, 2016



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Ver2.43 (4.38.08) May,'16			x		Unable to restore the backup file of configuration.	Saved on firmware version on 1.71 or older to firmware version 2.00 or newer.	Fixed.	
Ver2.50 (4.39.00) July,'16	C			x	-	-	Added choices of "Bandwidth control(bit rate)". 1024kbps/15360kbps/20480kbps/25600kbps/30720kbps/35840kbps/40960kbps/51200kbps	
				x	-	-	Added choices of "On(Mid)" and "On(High)" to "Smart Coding mode".	
				x	-	-	ONVIF®: Supported "WS Addressing".	
				x	-	-	Added information about place of product destination and model number with suffix to the reply of CGI command "/cgi-bin/getinfo".	
				x	-	-	Updated hyperlink to the web sites of support.	
			x			Layout of image display may be collapsed.	By inputting "</script>" at input-field.	Fixed.
				x		-	-	Corrected the vulnerability by upgrading OSS for NTP; [Prev.] ntp-4.2.6 p4 [New] ntp-4.2.8 p7
				x		Unable to change settings of "Transmission priority" and "Refresh interval" simultaneously by CGI command, "/cgi-bin/set_h264".	On firmware version between 2.01 and 2.43.	Fixed.
				x		Confirmation window would not appear even if "Bandwidth control(bit rate)" to be set less than "Max bit rate (per client)".	When attempting to set "Bandwidth control(bit rate)" to be set less than "Max bit rate (per client)" on "H.264(2)" through "H.264(4)".	Fixed.
					x	<b>For Chinese market model (WV-SPN531H) only.</b>		
			x	-	-	Changed responses to CGI command "/cgi-bin/get_capability"; - Added 25/50fps at "viqs.support_mode" (a parameter that image capture mode can use VIQS) - Changed text string from "min_framerate.2m_2fps" to "min_framerate.2m_25fps".		
			x	Setting of "Refresh interval" left "8s" internally (should become "1s") even if settings both "Smart coding = On" and "H.264 streaming = SD" although "Smart coding" become "Off". As a result, recording in H.264 on SD memory card may be abnormal.	-	Fixed.		
			x	The camera may restart, unexpectedly.	In a case, connect/disconnect H.264 streaming , repeatedly.	Fixed.		

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Ver2.52 (4.39.00) Dec., '16	C			x		Replied to the "SetVideoSourceMode" command (ONVIF®).	-	Fixed.
					x	The Real-time Pull-Point Notification Interface did not conform to ONVIF®.	-	Fixed.
					x	-	-	Improved security.
Ver2.54 (4.39.00) Mar., '17	C			x		Unable to work time adjustment function synchronizing with NTP server.	When the difference between the clock and the NTP server is within 5 seconds.	Fixed.
					x	Streaming in RTSP for the network disk recorder, Model WJ-NX400, may stop.	In case of operating continuously.	Fixed.
					x	Refresh interval may be switched to "8s", unexpectedly.	By changing "Transmission priority" of H.264 for the options other than "VBR", initiated by PSSCT or WJ-NV300 only if it is the first time from the installation of the camera.	Fixed.
Ver2.56 (4.39.23) Sept., '17	C				x	-	-	Changed company name to the new company name in the plug-in (ActiveX) software.
					x	-	-	Updated the URL of support website displayed on screen.
Ver2.58 (4.39.23) Mar., '18	C				x	-	-	Improved security.
					x	-	-	In CGI command of "get_io2", added new parameter "3" for "format" so that possible to obtain Command alarm / i-VMD information.
					x	-	-	Added new Panasonic alarm notifications as follow; SD-MEMORY WRITE ERROR SD-MEMORY READ ERROR SD-MEMORY DELETE ERROR SD-MEMORY FILESYSTEM ERROR SD-MEMORY OTHER ERROR
					x	-	-	Discarded a restriction that only "Unicast port (AUTO)" in RTSP transmission would be available when "Transmission type" is "On".
					x	Leaked POST connection.	in a case of disconnect network in "over HTTP" for 2 and half minutes or more.	Fixed.
					x	Image capture size may become incorrect.	By setting Image capture size from Image Viewer.	Fixed.
Ver2.60 (4.39.23) Jun., '18	C				x	Administrator password may be deleted.	-	Fixed.
					x	-	-	Changed factory default setting for Authentication method; Previous: "Digest or Basic" New: "Digest"

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Added on May 15, 2017

Added on June 5, 2017

For more details: [security\\_upgrade\\_June2018.pdf](#)

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Ver2.60 (4.39.23) Jun., '18	C				x	-	-	Changed password policy that it must include at least 3 types of characters among "upper case letters / lower case letters / numbers / symbols". For more details, click here. <b>Note:</b> Original passwords and authentication method of products on the system are kept unchanged even firmware and software have been updated. For more details: <a href="#">security_upgrade_June2018.pdf</a>
					x	-	-	Added user authentication at host authentication.
					x	<b>Except Chinese market model (WV-SPN531H).</b>		
					x	-	-	Became saving history of login failure into system log.
					x	-	-	Changed saving setting data with encryption. <b>Note:</b> unable to restore the setting data if you would downgrade the firmware.
					x	-	-	Made some other security measures enhanced.
					x	-	-	Added "Drawing method", "Decoding options" and "Frame Skip Options (When PC is Heavy Processing Load)" onto plug-in software.
Ver2.70 (4.39.23) Sept., '18	C				x	If an RTSP header contains two or more User-Agent headers. no HTTP400(Bad Request) error returned and ignore the second and subsequent User-Agent headers. <b>Revised on Nov. 7, 2018</b>	-	Fixed.
					x	Frame rate and bit rate may drop.	By transmitting JPEG live images continuously over 1 year without being rebooted.	Fixed.
Ver4.00 (4.39.23) Feb., '19	C				x	May not be able to change the save destination at the time of FTP periodical transmission error.	-	Fixed.
					x	ONVIF RTSP Multicast transmission may not work.	-	Fixed.
					x	-	-	Improved to link HTTP alarm function with "HTTP max segment size" setting in "Network setting"
					x	-	-	ONVIF: Supported DTT v18.06.
					x	<b>Except Chinese market model, WV-SPN531H.</b>		
			x	-	-	Enhanced security.		
			x	-	-	Changed the URLs of hype-link destination according to change of support page URL (from "http" to "https").		

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## WV-SPN531 Firmware Release Note

VER (ActiveX Ver) Release Date	Priority Rank Level					Contents		
	A	B	C	U	Issue (Phenomenon)	Occurrence condition	Correspondence	
Ver4.00 (4.39.23) Feb., '19	C					For Chinese market models, WV-SPN531H only.		
					X	-	-	Changed factory default settings as follow; - Internet mode (over HTTP) from "On" to "Off" - Image capture mode from 30fps to 25fps, SD from "Off" to "On" - Date/time display format from "DD/MM/YYYY" to "YYYY/MM/DD" - Time zone from "GMT+00:00" to "GMT+08:00"
					X	The recorded data of the log one before the relevant time might be downloaded when downloading the recorded data from the log list.	-	Fixed.
					X	Camera may restart unexpectedly while receiving ONVIF command continuously.	-	Fixed.
					X	-	-	Changed the response of "/cgi-bin/get_io2?format=3&"; It became not to notify CGI response each time even if detecting command alarm continuously.
					X	Camera may restart when a file which cannot be deleted were created during JPEG overwrite recording on the SD memory card.	-	Fixed.
					X	When deleting SD card data on the log list screen, data that can not be deleted may be left while displaying the play window.	-	Fixed.
					X	Communication error may occur while connecting with WJ-NX series recorders. (Occurrence frequency: Rare)	-	Fixed.
					X	Transmission type (H.264/H.265) and image capture size of stream may not be changed (transmission type and image capture size hold before change).	If those were changed within 2 minutes after the network had been disconnected with over RTSP connection.	Fixed.
					X	Solid black screen may appear during sequencing with the network disk recorder due to it takes time to output the video.	-	Fixed.
Ver4.10 (4.39.23) June, '19	C				X	-	-	Security has been enhanced.
					X	Audio may not output by attempting to connect two sessions simultaneously and failure to authenticate one of them.	-	Fixed.
					X	-	-	Added an ONVIF command, "DeviceIO:GetVideoSources".
					X	-	-	Added a note in the window of DDNS setting page when using "Dynamic DNS Update", "Dynamic DNS Update(DHCP)".

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## WV-SPN531 Firmware Release Note

VER (ActiveX Ver) Release Date	Priority Rank Level				Priority Rank Level A: Recommend to apply (Major or serious update) B: When issue happened C: Maintenance timing U: Function /Performance improvement (Not Necessary to update)	Contents		
	A	B	C	U		Issue (Phenomenon)	Occurrence condition	Correspondence
Ver4.10 (4.39.23) June,'19	C				x	For Chinese market models only		
					x	-	-	Changed factory default setting of the time zone to Chinese Standard Time(CST), UTC+8.
				x		ONVIF communication may become a cause of destroying resources.		Fixed.
				x		-	-	Fixed Session Description Protocol/SDP (IPv6) on ONVIF.
				x		Unable to find ONVIF search.	-	Fixed.
					x	-	-	The file may not be found by opening the log list during overwrite recording of the SD memory card and attempt to browse.
Ver4.30 (4.39.24) May,'20	C			x		The camera may show a black image on the "Live" page.	-	Fixed.
					x	Except Chinese market model, WV-SPN531H.		
					x	-	-	Improved the response when reconnecting in HTTPS connection on Windows 10.
Ver4.70 (4.39.24) Mar.,'21	U				x	Except Chinese market model, WV-SPN531H.		
					x	-	-	Improved the [HTTP alarm notification] function as follows: 1. Supports Digest authentication - The camera performs either "Digest" or "Basic" authentication according to the response from the HTTP server when initially accessed without ID and password. 2. Adds an error log for the failure in HTTP server user authentication - Displays "<HTTP alarm notification> authentication error" in the system log when the authentication fails. 3. Supports HTTPS Communication - Entering "https://" in [Address] enables HTTPS communication.
					x	Except Chinese market model, WV-SPN531H.		Enabled both digital certificates "Digicert" and "GlobalSign". Note: Firmware upgrade does not change the certificate in a camera. <a href="#">Click here for further information in case of SSL communication.</a>

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## WV-SPN531 Firmware Release Note

VER (ActiveX Ver) Release Date	Priority Rank Level				Priority Rank Level A: Recommend to apply (Major or serious update) B: When issue happened C: Maintenance timing U: Function /Performance improvement (Not Necessary to update)	Contents		
	A	B	C	U		Issue (Phenomenon)	Occurrence condition	Correspondence
Ver4.70 (4.39.24) Mar.,'21					U	Except Chinese market model, WV-SPN531H.	Modified on Oct. 14, 2021	<p>Changed the behavior related to bit rate when the communication protocol is changed from "HTTP" to "HTTPS" as below.</p> <p><del>Previous versions: the camera automatically sets the bit rate to 4 Mbps when the selected one is larger than 4 Mbps.</del></p> <p><del>This version or later: the camera does not change the bit rate.</del></p> <p>Previous versions:            - The camera automatically sets [Max bit rate (per client)*] to 4096kbps when the selected one is larger than 4096kbps.</p> <p>This version or later:            - The camera does not change the value in [Max bit rate (per client)*].            - The following note has been added to the "Connection" field in [Setup]-&gt; [Network] page-&gt; [Advanced] tab-&gt; "HTTPS" window.            When "HTTPS" is selected for "Connection", the maximum bandwidth(bit rate) is limited to 16Mbps.</p>

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