ELK-M1XSLZW INSTRUCTIONS

M1 to Leviton Z-Wave Interface

APPLICATION & OVERVIEW:

The **M1XSLZW** is a specialized Elk-M1 serial expander for connecting M1 Controls to Z-Wave enabled devices through a Leviton VRC0P-1LW (vizia rf+3) Z-Wave Serial Interface.
Z-Wave is a wireless, low power, "mesh" network technology widely used for automating devices such as: Lights, Thermostats, Electronic Locks, etc. Z-Wave empowers devices to be remotely controlled from across the room or across the world with benefits such as energy savings, convenience, and comfort.

The VRC0P-1LW (vizia rf+3) is known as a Z-Wave Secondary Controller. It is required as a permanent member of the Z-Wave network to maintain contact with all Z-Wave devices and communicate via RS232 to the M1XSLZW. The M1XSLZW translates the protocol into the M1 control and allows commands to be sent and received on the Z-Wave network.

Functionally the M1XSLZW is a serial expander (RS485 to RS232) and shares the same TYPE 5 databus ID as M1XSP serial expanders. A maximum of seven (7) TYPE 5 serial expanders may be connected to an M1.

A key benefit of combining the M1XSLZW and VRCOP-1LW (vizia rf+3) is the ability to interface with new generation Z-Wave devices such as the electronic deadbolts and locksets from Kwikset, Yale, and Schlage. Locks require a special Security Encrypted (SE) protocol and a process called "Beaming". Both the M1XSLZW and the VRC0P-1LW (vizia rf+3) support these new requirements.

In general, any Z-Wave device that is compatible with the Levitons VRC0P-1LW (vizia rf+3) should also be compatible with the M1. However some devices may have limited functionality due to design or feature differences.

NOTE: The Leviton VRC0P-1LW (vizia rf+3), also known as a VRC0P+3 is not included with the M1XSLZW. It must be purchased separately from a Leviton stocking Distributor. When ordering Specify Leviton Part Number: VRC0P-1LW

SPECIFICATIONS:

- Activity/Status LED (Orange)
- Auto-Reset Hardware Watchdog Circuit
- Addressable (1-7) TYPE 5 Databus ID
- Operating Voltage: 12 Volts D.C.
- Current Draw: 31mA
- Housing: 4.25" x 6.375" x 2.125"
- Circuit Board: 2.75" x 3.95"
- Connection to VRC0P-1LW: DB9M 9 Pin Port
- Connection to M1: Elevator Screw Terminals (4)

Specifications are Subject to Change without notice.

NOTICE: Drawings, illustrations, diagrams, part numbers, etc. are provided as reference only and are based on equipment available at the time the information was created. All information contained in this document are subject to change without notice.

The extent of integration between Elk Products and Partner Mfgs varies, and there may be situations or limitations beyond Elk's control that make certain desirable features unavailable or unusable. Partner products and/or protocols, including Elk's may not contain the capabilities or data definitions to permit additional integration beyond what is currently available. Partners may also, at their option, add, modify, or discontinue features or support without notification.

For reasons stated herein, Elk Products makes no warranty that it will be able to integrate all available features or operations, nor does it make any express or implied warranties of fitness for a particular purpose or of merchantability. Refer to Elk's Limited Warranty.

STEP 1 - READ THIS FIRST!

DO NOT attempt installation of the M1XSLZW until the entire Z-Wave network is setup wth all devices and controllers Associated and Updated. A Leviton VRC0P-1LW (vizia rf+3) Serial Interface is required. Installers NOT experienced with setting up a Z-Wave network are encouraged to obtain Z-Wave training before proceeding. Once the Z-Wave network and the serial interface are setup and working the M1XSLZW is relatively easy to install. Attempting to take shortcuts generally results in wasted time and troubleshooting.

Integrating an Elk-M1 Control to a Z-Wave network requires the following components:

QTY	Part Number & Description
1	**ELK-M1G** or M1EZ8 Control
1	**ELK-M1XSLZW** M1 to Leviton Serial Interface
1	**ElkRP** Remote Programming Software
1	**LEVITON VRC0P-1LW (vizia rf+3)** Serial Interface & cable. **This unit MUST have the +3 marking, i.e. vizia rf+3**. Older units are NOT COMPATIBLE and are not upgradeable! The VRC0P-1LW MUST also have firmware version V2.33S / Z-Wave 3.11 or greater. This can be confirmed by connecting it to a PC serial port with a serial communications program like Hyperterminal. Set it up for 9,600 Baud, 8, N, 1. On power up the VRC0P-1LW will transmit its name and firmware ID to the Hyperterminal display screen.
1	**Leviton VRUSB-1US USB Z-Wave Stick** [RECOMMENDED] Primary Controller.
1	**Leviton PC Installer Software** [RECOMMENDED]
?	**Z-Wave devices** (lights, thermostats, locks, etc.) Leviton vizia rf+ devices are recommended **

** Leviton viziarf+ Z-Wave devices report back their status [exception: devices DO NOT report status from Group Commands] to all other vizia rf+ brand controllers, including the vizia rf+3 serial interface. Unfortunately, other brands/series of Z-Wave devices (including Leviton's DZ series) may only report their status back to the single controller that commanded the change, leaving other controllers out-of-sync and believing a device is On when it's Off, or Off when it's On. Although devices may be polled to determine their status, polling is NOT practical or efficient as consumes extensive bandwidth/time and can delay or disrupt normal communications. Polling is definitely NOT an option that should be performed on a regular basis. Leviton vizia rf+ devices do NOT require polling!

Information in this manual about Z-Wave is NOT a substitute for actual Z-Wave training. Additional Z-Wave information, particularly the Leviton vizia rf+ brand of Z-Wave can be found on the Leviton web site links:

http://www.leviton.com/OA_HTML/ibeCCtpSctDspRte.jsp?section=25545&minisite=10024
http://communities.leviton.com/docs/DOC-2389
http://communities.leviton.com/community/knowledgebaseforums/home_automation

Z-Wave Network: Z-Wave is a wireless (RF) 'Mesh' Network that utilizes a proprietary protocol. The network can be as simple as two devices, or dozens of devices if the installation is large. Typical Z-Wave devices are: Controllers, Light Switches, Lamp Modules, Appliance Modules, Locks, Thermostats, etc.

Network Routing: Routing is used by a 'Mesh' network to provide primary and alternate communications paths. Z-Wave devices have relatively short transmission range ~30 ft. or so. For extended distances messages must be routed (repeated) across the mesh through other 'routable' devices. A message may route through a single neighbor device or multiple devices before reaching its destination. It is very important for Z-Wave devices to be installed in their permanent location PRIOR TO INCLUSION in the network. This way each knows what neighbors are close by. Routing is also called repeating or hopping. A Z-Wave network allows for a maximum of 4 repeats or hops. In other words, messages can be routed through a maximum of 4 devices to reach a destination.

Non-Routable devices - Devices that operate from Battery Only such as motion sensors, handheld remotes, and Locks do not route or repeat Z-Wave communications. This is because they are generally in a state of sleep to preserve and extend their battery life. They must be awakened by touch, movement, or 'beaming' before they can communicate. They are often called 'End Node Devices' since they cannot be used to route communications and are therefore at the end of the path.

Z-Wave NODE IDs: Each device in a Z-Wave Network must have a unique ID called a Node ID from a pool of 128 Nodes allowed. Duplicate Node IDs are not permitted, and a Z-Wave device can only be a member of one network at a time. Setting up Z-Wave devices and assigning Node IDs requires a Z-Wave Primary Controller.

Z-Wave Primary Controller: A Primary Controller is required to setup a network and assign Node IDs. The Leviton vizia rf+ **VRUSB-1US** USB stick Primary Controller and Installer Tool PC Software is recommend. There are other Z-Wave Primary Controllers, but ONLY THE Leviton VRUSB-1US supports the enrollment of Locks. Other advantages of the USB Stick and PC software is that a permanent copy of the network settings may be saved on the PC hard drive for future service.

**** All setup and programming references in this manual utilized the Leviton VRUSB-1US and Installer Tool.** **

Z-Wave Secondary Controller: The VRC0P-1LW (vizia rf+3) is an example of a Secondary Controller, which can be used to control devices but not to setup or configure them. Secondary Controllers MUST obtain a copy of the network configuration from the Primary Controller in a step called Update Controller. **In order for the VRC0P-1LW (vizia rf+3) to communicate and control Z-Wave devices it MUST BE enrolled as a Secondary Controller and Updated from the Primary Controller.**

Node Inclusion: Inclusion is the process used by a Primary Controller to add a Z-Wave device to a Network and assign it a Node ID. Devices retain their Node ID until such time as they are Excluded (removed) from a network or factory defaulted. A device can only belong to a single network, and must be excluded from its previous network before it may be Included with a new network. A new Node ID will be assigned by the new network. There is no known method for moving a device to a new network and having it retain its previous Node ID. And there is no known method for forcing a specific Node ID to a specific device. The Primary Controller picks the next available Node ID (never used in the network) and assigns it to the device. The Primary Controller (Leviton VRUSB-1US Stick and PC) must be held close to the Device (1-2ft) when Including.

Node Exclusion: Exclusion is the process used by a Primary Controller to remove a Z-Wave device from a network when no longer needed. Exclusion removes the device as a member of the network and resets it to factory defaults. It DOES NOT clear routes and associations from other network controllers or devices, and that can cause sluggish communications when devices attempt to route through devices that are no longer present. Processes such as Network ReDiscovery and Update Controllers should be performed after devices are Excluded or Included. This helps refresh routings and improve network performance. If a device stops working or is removed from the premises the network can also be sluggish. Dead or removed devices MUST be Excluded as soon as possible. The process for removing a dead or removed device may differ from regular Exclusion. For more information see the Primary Controller Instructions or seek help from a Z-Wave device manufacturer or training event. Elk does not produce any Z-Wave devices and cannot address Z-Wave questions. The Primary Controller (Leviton VRUSB-1US Stick and PC) must be held close to the Device (1-2ft) when Excluding.

Association: Association is used by a Primary Controller to define Areas and/or relationships between Z-Wave devices (controllers, switches, dimmers, thermostats, locks, etc.) E.G. Take an area or room with a multi-button Scene/Zone Controller Keypad and several Dimmers. The buttons MUST be associated with the Dimmers to be controlled. The Dimmers will not react to a button press if not associated. NOTE: Not all Z-Wave devices support full association.

Update Controller: Updating transfers existing Node ID information, associations, routings, etc. from the Primary Controller to other Secondary Controllers. This is a VERY IMPORTANT step when setting up or making changes to a Z-Wave network. The Primary Controller (Leviton VRUSB-1US Stick and PC) must be held close to the Device (1-2ft) when Updating. Occasionally the VRC0P+3 Secondary Controller may fail to update "Error=Could not update VRC0P". In this situation the only solution may be to Default it and repeat the Inclusion process followed by the Update and Associate processes.
VERY IMPORTANT! Updating Controllers should be done ANY TIME changes are made to that network. This populates information about new devices and cleans up (removes) remnants of devices that have been removed or excluded.

Summarized steps for setting up a Z-Wave Network *using the Leviton VRUSB-1US and Installer Tool Software.*
Perform these steps PRIOR to connecting to the ELK-M1XSLZW and after any changes.

1. Install all Z-Wave Devices in their intended location, including the Leviton VRC0P-1LW (vizia rf+3).
2. Setup the devices in a network using a Laptop PC, Leviton VRUSB-1US Primary Controller, and Installer Software.
   a. Select **File > New Network**. Follow the software prompt to clear the VRUSB-1US and create a new filename.
   b. Click **Network > Self-Installer Checklist**.
   c. Click **Controllers** followed by **Another Controller** to add each Controller. VRC0P-1LW is a Controller.
   d. Click **Dimmers and Switches** followed by **Another Dimmer/Switch** to add dimmers,switches,locks, Tstats, etc.
   e. Click **Update Controllers** and follow directions to update each Controllers. **IMPORTANT!** Be sure to right click on the VRC0P-1LW icon and select Update Controller.
   f. Click **Create Areas** followed by **Another Area**. Areas or Groups are optional and can be rooms, floors, etc.
   g. Click **Associations** and follow directions. Click **Another Association** if applicable.
   h. Click **Deploy System** followed by **Save and Deploy System**.
   i. Click **Exit Checklist** when finished.
3. Click **Diagnostics > RS232 Setup** on the software title bar**.** Select the VRC0P-1LW Node as the RS232 Module and put a check in the box next to each device, then click **Set Association**. **THIS IS A VERY IMPORTANT STEP!**
4. Expand the **All Devices** folder by clicking the + box. This displays the Node ID and Name of every device in the Z-Wave network. This will come in handy when programming the ElkRP software. TIP: From this view it is possible to right click on the VRC0P-1LW (RS232 Module) Node Icon in order to perform the **Update Controller** or **RS232 Setup**. This is an alternative to steps 2e and 3 above, but can be handy for quickly refreshing the VRC0P-1LW following network changes.

Having each Z-Wave Device installed in its permanent location and INCLUDED by use of a portable Computer and VRUSB-1US USB Primary Controller helps makes sure that neighbor devices are detected and network routing information is fully established.

This page is provided for listing all the Z-Wave Devices, their names, and device types

Z-Wave Node ID	Name or Description of Device	Device Type	Z-Wave Node ID	Name or Description of Device	Device Type
1			65		
2			66		
3			67		
4			68		
5			69		
6			70		
7			71		
8			72		
9			73		
10			74		
11			75		
12			76		
13			77		
14			78		
15			79		
16			80		
17			81		
18			82		
19			83		
20			84		
21			85		
22			86		
23			87		
24			88		
25			89		
26			90		
27			91		
28			92		
29			93		
30			94		
31			95		
32			96		
33			97		
34			98		
35			99		
36			100		
37			101		
38			102		
39			103		
40			104		
41			105		
42			106		
43			107		
44			108		
45			109		
46			110		
47			111		
48			112		
49			113		
50			114		
51			115		
52			116		
53			117		
54			118		
55			119		
56			120		
57			121		
58			122		
59			123		
60			124		
61			125		
62			126		
63			127		
64			128		

STEP 2 - Setting up the M1XSLZW

Mounting - Connections - Setting the Data Bus Address - Enrolling the Data Bus Device

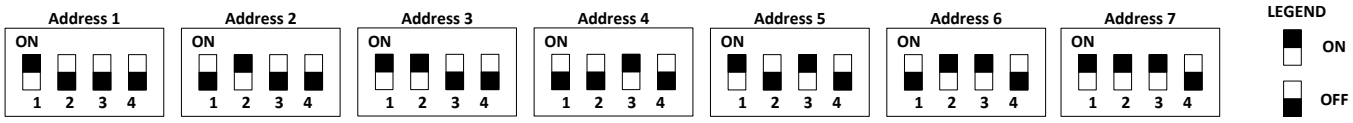
1. Turn off the M1 Master Power Switch and unplug the Leviton VRC0P-1LW (vizia rf+3) before making any wiring connections.

2. Mount the M1XSLZW as close as possible to the Leviton VRC0P-1LW (vizia rf+3) . The RS232 Serial cord supplied by Leviton is approximately 8 ft. DO NOT use an extension or attempt to make this cord any longer!

3. Follow the wiring recommendations in the M1 Installation Manual to connect the data bus terminals +12V, A, B, and Neg from the M1 Control to the terminals on the M1XSLZW. **It may be necessary to install an M1DBH or M1DBHR Data Bus Hub if more than 2 homerun data bus cables are coming into the M1 Control.**

4. Set the data bus address switches on the M1XSLZW to a value between 1 and 7 following the diagram below. Make sure the address you select is NOT being used by any other data bus Type 5 (serial expander) device. Each switch has an OFF and On position (binary value 0 or 1). The combination of these switches represents a decimal value of between 0 (all Off) and 15 (all On).

TABLE 1: Data Bus Address Switch Settings



For Data Bus Type 5 Devices (Serial Expanders) the only valid Addresses are 1 thru 7 and therefore the maximum number of Type 5 Devices is 7.

Data Bus Terminating Jumper JP1 – This is engages a 120 Ohm resistor for terminating the M1 RS-485 Data Bus. See Data bus wiring instructions before use.

5. Connect the Leviton VRC0P+3 Serial Interface to the M1XSLZW using the modular RS232 serial cable supplied with the VRC0P+3. DO NOT use an extension or attempt to make this cord any longer!

6. Once all wire connections are complete plug the Leviton VRC0P+3 into a convenient AC Output that is NOT controlled by a switch (Always On 24hours). Next, turn on the M1 Master Power Switch which will then supply power to the M1XSLZW.

7. Enroll the M1XSLZW to the M1 Control. REQUIRED! This is done either via a Keypad or ElkRP Software. From a Keypad access the Installer level programming and select Menu 01-Bus Module Enrollment. Press the right arrow key to start the enrollment. When complete press the right arrow (edit) key to view the results. The M1XSLZW shares the same bus type as other serial expanders and will display as a "SerialPExpdr T5" followed by a specific address (Addr) number. Verify that the address displayed matches the address selected in step 4 above.

   Should it become necessary to replace a M1XSLZW then set the replacement unit to the same address as the old unit and perform the enrollment process. To permanently remove any data bus device perform the enrollment process AFTER disconnecting the device. This will help avoid a "missing device" trouble condition.

TABLE 2: Diagnostic LED Indicator

Slow blink (1/2 sec.) = Normal communication with M1.

Rapid flicker = Discovery Mode. The M1XSLZW is synchronizing with the VRC0P+3 to collect all current data. This is automatically performed upon reboot or power up.

No blink = No communication with M1. Check the wiring with the M1 and that the device has power.

* * IMPORTANT - PLEASE READ * *

1) Elk does not recommend mixing (combining) Z-Wave devices with other lighting technologies (e.g. Insteon, UPB, Zigbee, Lutron, etc.) on any installation. Potential interference, device ID overlap, and other issues can lead to unreliable operation. If mixing of technologies cannot be avoided, the Installer must assume all risk and liability. Elk does not endorse or support the mixing of Z-Wave and other lighting technologies.

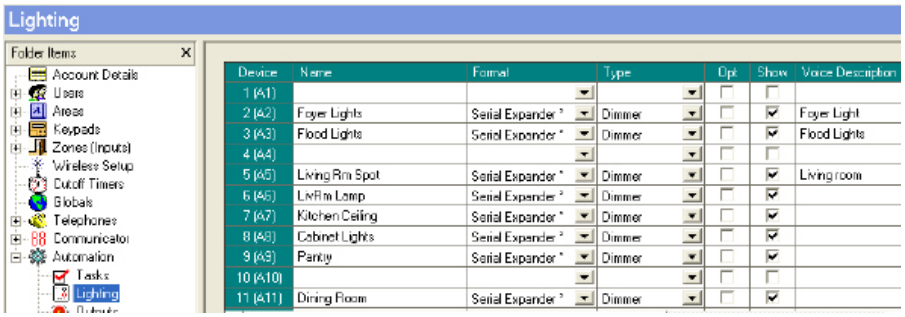
2) Z-Wave Thermostats CANNOT BE MIXED (combined) with other Thermostat technologies or brands. I.E. Do not mix hardwired Thermostats such as RCS RS485, HAI RS232, or Aprilaire RS485 on the same M1 panel with Z-Wave Thermostats. If this advice is not followed AND Z-Wave Thermostats become mixed with hardwired Thermostats on the same installation NO DATA will be displayed for the Z-Wave Thermostat(s).

STEP 3 - Adding Z-Wave Lights to M1

Skip to Step 5 if not adding Lights

Each Z-Wave Light in a network must have a unique Node ID from a pool of 128 Nodes allowed. Adding a Z-Wave light to M1 involves mapping (assigning) its Node ID to a corresponding M1 Light Device number location. See Table 3. NOTE: Leave BLANK any M1 Light Device location that corresponds to a Z-Wave Node ID that is NOT a light. Below are instructions for programming M1 Lighting using ElkRP > Automation > Lighting.

3.1 **Setup the Z-Wave network FIRST. [Page 3] All Z-Wave devices and controllers MUST be Associated and Updated.**
3.2 Make a list of each Z-Wave device, its Node ID, location, and type (light, thermostat, lock, controller, etc.)
3.3 Verify that the M1XSLZW is connected to the VRC0P-1LW (vizia rf+3).
3.4 Select the first Z-Wave Light Node ID and corresponding M1 Light Device number location. See Table 3.

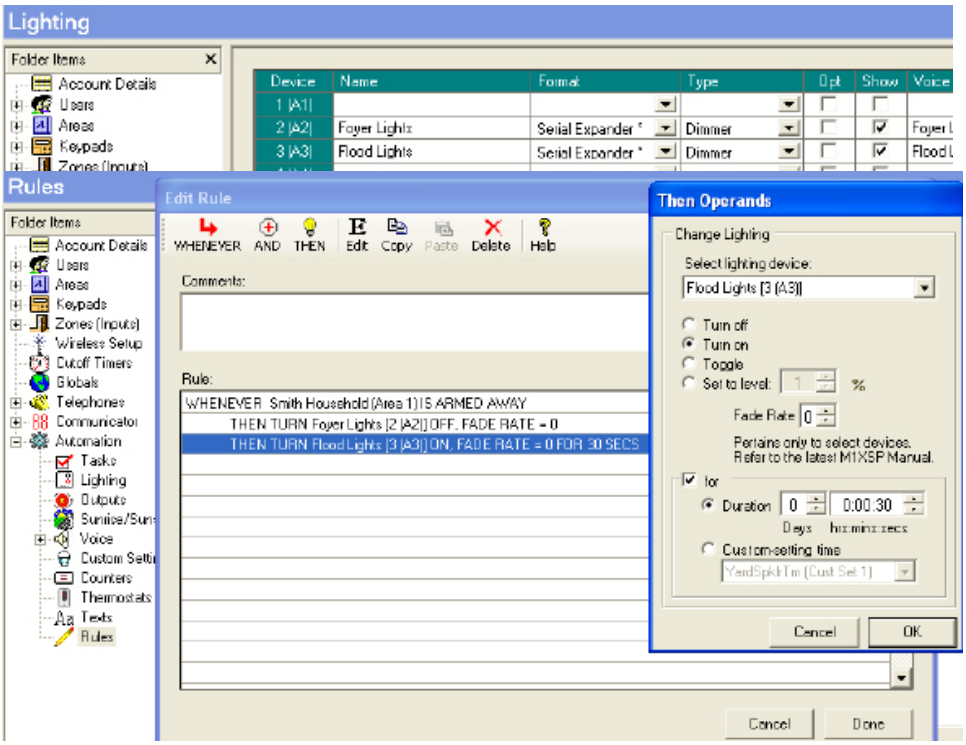


NOTE: All Z-Wave devices are assigned Node IDs, but ONLY those that are lighting types should be entered in the M1 Light Device locations. Leave empty (blank) any location that corresponds to a Node ID that is NOT a light device.

3.5 Program a Name (up to 15 characters) describing the location or name of the light.
3.6 Set the Format to "Serial Expander". This will be the same for all Z-Wave Lights.
3.7 Set the Type according to the Z-Wave device. (On/Off Switch, Dimmer, or Appliance)
3.8 DO NOT put a check mark in the Opt. location.
3.9 Put a check mark in the Show box IF the light needs to be displayed on touchscreens or keypads.
3.10 Voice Description is optional. Up to 6 words may be used to provide a spoken description for each light.

Controlling Z-Wave Lights using ElkRP Rules

3.11 Select **ElkRP > Automation > Rules.**
3.12 Click **New** to start a new Rule. E.G. Turn OFF several Z-Wave Lights when the System is Armed Away.
3.13 Click **WHENEVER > Security/Alarms > Is Armed > Armed Away**. A pop-up box appears to pick the Area (partition). Use the drop down to pick the area or Click OK to accept "Area 1".
3.14 Click **THEN > Control Lighting > Individual**. A new box will appear.
3.15 In the Select lighting device box scroll and select one of the Lights. E.G. Foyer [2 (A2)].
3.16 Click **Turn Off** followed by **OK**. The screen should resemble the first two lines in the illustration below.
3.17 Repeat for additional lights and then click **DONE** to complete the Rule.
3.18 Make sure that ElkRP is connected and on-line with the M1 Control, then click **Send to Control**.



The Rule shown controls 2 lights when the System is Armed Away.

Then Operands - Lights may be Turned Off, Turned On, or Toggled (flip/flop). The "Set to Level" only appears on lights that are type= dimmer. Range is 1 to 99%.

Fade (ramp) Rate - Range is 0 to 7 with the following fade rate times in seconds: 0=immediate, 1=2, 2=4, 3=8, 4=16, 5=32, 6=46, and 7=60. ***Not all Lights support fade rate.***

For - Checking this box allows a time delay for On or Off. Duration is: Days, Hrs, Min, Sec, or may be a Custom Setting selection.

In this rule the Foyer is turned Off. The Flood light is turned On for 30 seconds meaning it will turn off automatically 30 seconds after arming and leaving the home.

TABLE 3: Z-Wave Lighting to M1 Lighting Device Mapping

Z-Wave Node ID	ELK Lighting Device	Z-Wave Node ID	ELK Lighting Device	Z-Wave Node ID	ELK Lighting Device	Z-Wave Node ID	ELK Lighting Device	Z-Wave Node ID	ELK Lighting Device
1	1 (A1)	27	27 (B11)	53	53 (D5)	79	79 (E15)	105	105 (G9)
2	2 (A2)	28	28 (B12)	54	54 (D6)	80	80 (E16)	106	106 (G10)
3	3 (A3)	29	29 (B13)	55	55 (D7)	81	81 (F1)	107	107 (G11)
4	4 (A4)	30	30 (B14)	56	56 (D8)	82	82 (F2)	108	108 (G12)
5	5 (A5)	31	31 (B15)	57	57 (D9)	83	83 (F3)	109	109 (G13)
6	6 (A6)	32	32 (B16)	58	58 (D10)	84	84 (F4)	110	110 (G14)
7	7 (A7)	33	33 (C1)	59	59 (D11)	85	85 (F5)	111	111 (G15)
8	8 (A8)	34	34 (C2)	60	60 (D12)	86	86 (F6)	112	112 (G16)
9	9 (A9)	35	35 (C3)	61	61 (D13)	87	87 (F7)	113	113 (H1)
10	10 (A10)	36	36 (C4)	62	62 (D14)	88	88 (F8)	114	114 (H2)
11	11 (A11)	37	37 (C5)	63	63 (D15)	89	89 (F9)	115	115 (H3)
12	12 (A12)	38	38 (C6)	64	64 (D16)	90	90 (F10)	116	116 (H4)
13	13 (A13)	39	39 (C7)	65	65 (E1)	91	91 (F11)	117	117 (H5)
14	14 (A14)	40	40 (C8)	66	66 (E2)	92	92 (F12)	118	118 (H6)
15	15 (A15)	41	41 (C9)	67	67 (E3)	93	93 (F13)	119	119 (H7)
16	16 (A16)	42	42 (C10)	68	68 (E4)	94	94 (F14)	120	120 (H8)
17	17 (B1)	43	43 (C11)	69	69 (E5)	95	95 (F15)	121	121 (H9)
18	18 (B2)	44	44 (C12)	70	70 (E6)	96	96 (F16)	122	122 (H10)
19	19 (B3)	45	45 (C13)	71	71 (E7)	97	97 (G1)	123	123 (H11)
20	20 (B4)	46	46 (C14)	72	72 (E8)	98	98 (G2)	124	124 (H12)
21	21 (B5)	47	47 (C15)	73	73 (E9)	99	99 (G3)	125	125 (H13)
22	22 (B6)	48	48 (C16)	74	74 (E10)	100	100 (G4)	126	126 (H14)
23	23 (B7)	49	49 (D1)	75	75 (E11)	101	101 (G5)	127	127 (H15)
24	24 (B8)	50	50 (D2)	76	76 (E12)	102	102 (G6)	128	128 (H16)
25	25 (B9)	51	51 (D3)	77	77 (E13)	103	103 (G7)		
26	26 (B10)	52	52 (D4)	78	78 (E14)	104	104 (G8)		

Reminder: Node IDs are assigned to all Z-Wave devices, but ONLY lighting devices should be entered in the M1 Lighting Device table. Any location corresponding to a Node ID which is NOT a light device should be left BLANK.

LIMITATIONS: 1) Elk does not recommend mixing (combining) Z-Wave devices with other lighting technologies (e.g. Insteon, UPB, Zigbee, Lutron, etc.) on any installation. The underlying potential problem caused by mixing technologies is that device IDs may overlap, as well as other issues which could ultimately lead to unreliable operation. If mixing of technologies cannot be avoided, the Installer must assume all risk and liability. Elk does not endorse or support the mixing of Z-Wave and other lighting technologies.

TABLE 4: Z-Wave Light Group to M1 Lighting Device Mapping

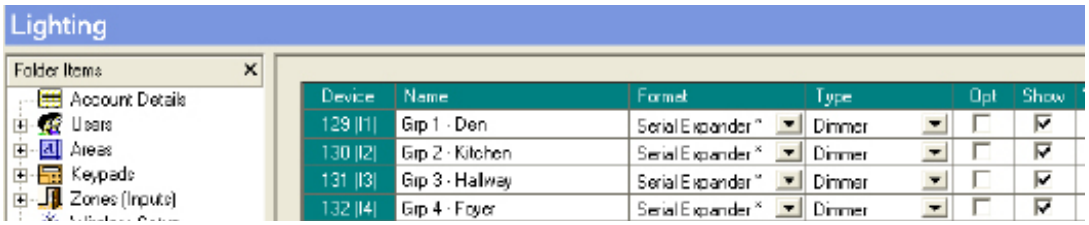
Z-Wave Group #	ELK Lighting Device	Z-Wave Group #	ELK Lighting Device	Z-Wave Group #	ELK Lighting Device	Z-Wave Group #	ELK Lighting Device	Z-Wave Group #	ELK Lighting Device
1	129 (I1)	27	155 (J11)	53	181 (L5)	79	207 (M15)	105	233 (O9)
2	130 (I2)	28	156 (J12)	54	182 (L6)	80	208 (M16)	106	234 (O10)
3	131 (I3)	29	157 (J13)	55	183 (L7)	81	209 (N1)	107	235 (O11)
4	132 (I4)	30	158 (J14)	56	184 (L8)	82	210 (N2)	108	236 (O12)
5	133 (I5)	31	159 (J15)	57	185 (L9)	83	211 (N3)	109	237 (O13)
6	134 (I6)	32	160 (J16)	58	186 (L10)	84	212 (N4)	110	238 (O14)
7	135 (I7)	33	161 (K1)	59	187 (L11)	85	213 (N5)	111	239 (O15)
8	136 (I8)	34	162 (K2)	60	188 (L12)	86	214 (N6)	112	240 (O16)
9	137 (I9)	35	163 (K3)	61	189 (L13)	87	215 (N7)	113	241 (P1)
10	138 (I10)	36	164 (K4)	62	190 (L14)	88	216 (N8)	114	242 (P2)
11	139 (I11)	37	165 (K5)	63	191 (L15)	89	217 (N9)	115	243 (P3)
12	140 (I12)	38	166 (K6)	64	192 (L16)	90	218 (N10)	116	244 (P4)
13	141 (I13)	39	167 (K7)	65	193 (M1)	91	219 (N11)	117	245 (P5)
14	142 (I14)	40	168 (K8)	66	194 (M2)	92	220 (N12)	118	246 (P6)
15	143 (I15)	41	169 (K9)	67	195 (M3)	93	221 (N13)	119	247 (P7)
16	144 (I16)	42	170 (K10)	68	196 (M4)	94	222 (N14)	120	248 (P8)
17	145 (J1)	43	171 (K11)	69	197 (M5)	95	223 (N15)	121	249 (P9)
18	146 (J2)	44	172 (K12)	70	198 (M6)	96	224 (N16)	122	250 (P10)
19	147 (J3)	45	173 (K13)	71	199 (M7)	97	225 (O1)	123	251 (P11)
20	148 (J4)	46	174 (K14)	72	200 (M8)	98	226 (O2)	124	252 (P12)
21	149 (J5)	47	175 (K15)	73	201 (M9)	99	227 (O3)	125	253 (P13)
22	150 (J6)	48	176 (K16)	74	202 (M10)	100	228 (O4)	126	254 (P14)
23	151 (J7)	49	177 (L1)	75	203 (M11)	101	229 (O5)	127	255 (P15)
24	152 (J8)	50	178 (L2)	76	204 (M12)	102	230 (O6)	128	256 (P16)
25	153 (J9)	51	179 (L3)	77	205 (M13)	103	231 (O7)		
26	154 (J10)	52	180 (L4)	78	206 (M14)	104	232 (O8)		

STEP 4 - Adding Z-Wave Light Groups to M1

NOTE: Setting up Z-Wave lighting nodes into Z-Wave lighting groups is currently not possible from the LEVITON Vizia RF Installer Tool and PC Software. Please review the next page for information on how to setup Z-Wave devices into groups.

A lighting Group is a set of one or more lighting nodes that are to operated together as if they were one device. When a group On command is activated, each node in that group will turn on to its last dim level - a level that in general, will differ from node to node. Lighting groups is a valuable Z-Wave feature that cannot be used unless there is a way to setup the nodes. M1 supports 128 Z-Wave Groups by mapping them to M1 Light Device number locations 129 to 256. See Table 4. Group commands are: On, Off, or Set to Level. A Group command will affect all lights in the group. NOTE: Z-Wave lighting devices (including Levton vizia rf+ devices) DO NOT report status back when controlled by a group command. Below are steps for programming Light Groups using ElkRP > Automation > Lighting.

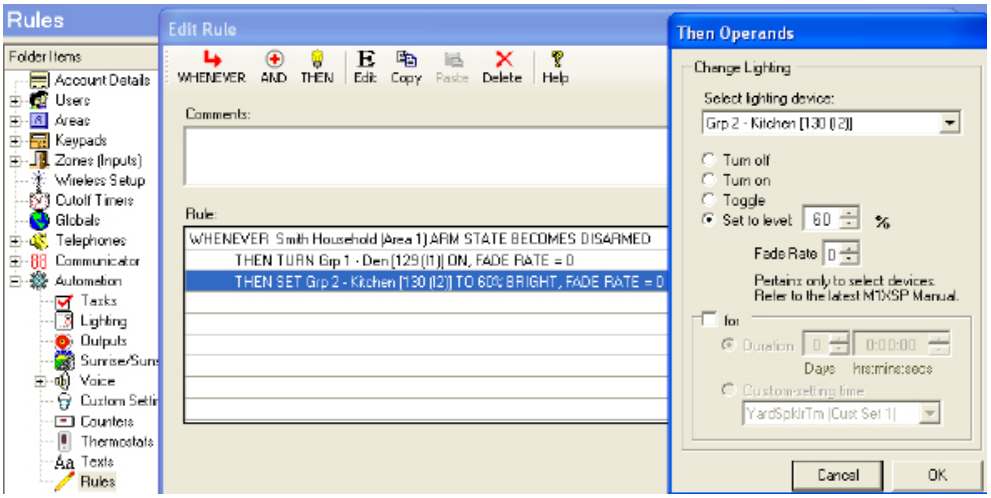
4.1 **Setup the Z-Wave network FIRST. (Page 3) All Z-Wave devices and controllers MUST be Associated and Updated.**
4.2 Make a list of all the programmed Z-Wave Groups by number.
4.3 Verify that the M1XSLZW is connected to the VRC0P-1LW (vizia rf+3).
4.4 Select the first Group to be programmed and match it to the M1 Light Device Number location. See Table 4.



4.5 Program the Name (up to 15 characters) describing the Group or Area. (E.G.location, room name, etc.)
4.6 Set the Format to "Serial Expander". This will be the same for all Z-Wave Groups.
4.7 Set the Type as On/Off or Dimmer. Dimmer adds the advantage of Set to Level and Pre-Set Scenes.
4.8 DO NOT put a check mark in the Opt. location.
4.9 Put a check mark in the Show box IF the Group will need to be displayed on touchscreens or keypads.
4.10 Voice Description is optional. Up to 6 words may be used to provide a spoken description for each Group.

Controlling Z-Wave Light Groups using Rules

4.11 Select **ElkRP > Automation > Rules.**
4.12 Click **New** to start a new Rule. E.G. Turning On 2 Z-Wave Groups when the System is Disarmed.
4.13 Click **WHENEVER > Security/Alarms > Is Disarmed**. A pop-up box appears to pick the Security Area (partition). Use the drop down to pick the area or Click OK to accept "Area 1".
4.14 Click **THEN > Control Lighting > Individual**. A new box will appear.
4.15 In the Select lighting device box scroll and select one of the Group numbers: E.G. Grp1 [129 (I1)].
4.16 Click **Turn On** followed by **OK**. The screen should resemble the first two lines in the illustration below.
4.17 Repeat for additional light groups and then click **DONE** to complete the Rule.
4.18 Make sure that ElkRP is connected and on-line with the M1 Control, then click **Send to Control**.



This Rule controls 2 groups of lights when System is Disarmed.

Then Operands - Turn On, Turn Off, Toggle, & Set to Level. Note that Grp 2-Kitchen is set to 60%.

Fade (ramp) Rate - Range is 0 to 7 with the following fade rate times in seconds: 0=immediate, 1=2, 2=4, 3=8, 4=16, 5=32, 6=46, and 7=60. ***Not all Lights support fade rate.***

For - Checking this box allows a time delay for On or Off. Duration is: Days, Hrs, Min, Sec, or a Custom Setting selection.

* * IMPORTANT - PLEASE READ * *

Leviton vizia lighting devices generally report back their status to the VRC0P-1LW whenever the status changes, whether caused manually or by a command from a Controller. This is unique to Leviton as other brands of Z-Wave lighting devices only report their status back to what Controller issued the change command. Unfortunately, Z-Wave lighting devices (including the Leviton vizia rf+ devices) do not report status back when controlled by a Group Command.

How to setup Z-Wave Groups using a terminal emulator such as Hyperterminal

It is not currently possible to set up Z-Wave lighting nodes into Z-Wave lighting groups using the LEVITON Vizia RF Installer Tool and PC Software. The following is a simple but effective workaround to the missing capability in the Leviton tools. It consists of using a terminal emulator program such as Hyperterminal to send ASCII strings over RS232 from the PC to the Serial Interface (VRC0P) Controller. These ASCII strings contain the node ids and group assignments. Although the task is fairly straightforward, it does require all the Z-Wave nodes to previously been setup and working.

After Z-Wave nodes have been setup into groups the Elk-M1XSLZW Z-Wave Interface can then send Z-Wave Group commands.

NOTE: Setup the Z-Wave network before executing the steps below. The ID numbers of the working Z-Wave Node must be known.

Requirements needed prior to setting up Z-Wave lighting nodes into Z-Wave lighting groups:

1. A PC terminal emulator program such as Hyperterminal. Other comparable programs might also be suitable.
2. A standard RS232 serial port on the PC. If the PC only has a USB port then a suitable USB to RS232 converter cable is required.
3. A Leviton RS232 Serial Interface (VRC0P) Controller. This is the controller being used with the Elk-M1XSLZW. Temporarily disconnect it from the Elk-M1XSLZW and connect it directly to the PC serial or USB/serial cable.
4. Make a listing of the Groups to be setup including a number from 1 to 64 and a descriptive name.
5. Make a listing of the existing Z-Wave nodes IDs that are to be setup into the identified groups. The Node ID MUST be known!

Setup

6. Connect the PC to the VRC0P using the serial or usb/serial converter cable.
7. Open the terminal emulator (Hyperterminal) software.
8. Check the serial connection settings and verify they are set as follows:
   UART Settings: 9600 Baud rate, 8 Data bits, No Parity, 1 Stop bit, No Flow Control
   Properties -> ASCII Setup-> “Send line ends with line feeds=Yes” and “Echo type characters locally=Yes”
9. Locate and click the command or ICON for “Connect” to establish a connection to the VRC0P Controller. If the connection is successful it will be possible to see feedback coming from the VRC0P whenever a Z-Wave device is manually controlled.
10. Format and entry requirements for the Text Strings:
    All typed characters must be UPPERCASE
    Each string must start with the characters: >N
    Follow the >N with the appropriate Node IDs separated with a comma between each ID.
    Do not type a comma after the last Node ID.
    Follow the last Node ID with the characters: GS
    Follow the GS with a number from 1 to 64 corresponding to the desired Group number.
    Click the carriage return key to transmit the string to the VRC0P.

    ASCII string example for Group 1: **>N1,2,3,4GS1** {return} will setup Nodes 1, 2, 3, and 5 into lighting group 1.
    The group 1 can now be manually testing by typing two more strings into Hyperterminal. Each must be a separate line.
    >GR1 {enter}
    >ON {enter} Nodes 1, 2, 3, and 4 should all turn ON. Substitute >OFF {enter} to turn the group off.

11. The serial interface controller performs a simple error checking and should respond with <E000 = No error. If a response other than <E000 is received then check the string for compliance with the formatting in step 10. Make sure that all Nodes IDs are valid.
12. Once all groups have been setup unplug the serial interface from the PC and plug it back into the M1XSLZW Interface. Power cycle the M1XSLZW and allow it time to autodiscover all the new groups.
13. Program the ElkRP rules to activate the groups that have just been setup.

An example of a rule to control Group 1 from the M1:

WHENEVER FRONT DOOR (ZNxx) BECOMES NOT SECURE
THEN TURN LIGHT 129 ON {Light 129 corresponds to Group 1) Nodes 1, 2, 3, and 4 should all turn ON.

WHENEVER FRONT DOOR (ZNxx) BECOMES SECURE
THEN TURN LIGHT 129 OFF {Light 129 corresponds to Group 1) Nodes 1, 2, 3, and 4 should all turn OFF.

STEP 5 - Adding Z-Wave Thermostats to M1

Skip to Step 6 if not adding Thermostats

Each Z-Wave Thermostat in a network must have a unique Node ID from a pool of 128 Nodes allowed. Adding the Thermostat to M1 involves mapping its Node ID to one of 16 Thermostat locations in ElkRP (Thermostats 1-16).

Thermostat mapping is done automatically by the M1XSLZW upon power-up. This is called "Discovery Mode" and it starts from the lowest Z-Wave Node ID and searches UP until it finds a Thermostat. It then maps this to ElkRP Thermostat #1. If other Z-Wave Thermostats are found, the next higher Node ID will be mapped to Thermostat #2, and so on. This means that ALL Z-Wave devices (especially Thermostats) must already be setup, Associated, and Updated. Below are instructions for programming Thermostats using ElkRP > Automation > Thermostats.

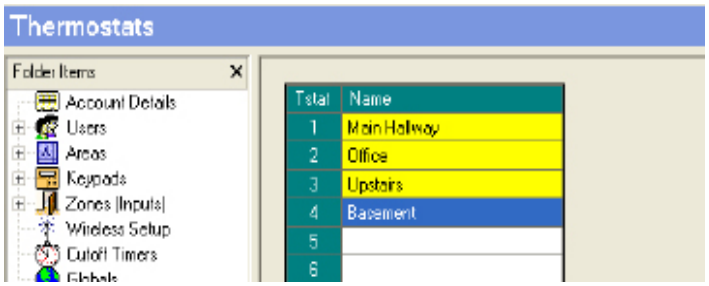
5.1 **Setup the Z-Wave network FIRST. (Page 3) All Z-Wave devices and controllers MUST be Associated and Updated. At least 1 Thermostat and the VRC0P+3 must be installed.**

5.2 Make a list of every Z-Wave device, its Node ID, location, and type (light, thermostat, controller, etc.)

5.3 Verify that the M1XSLZW is connected to the VRC0P-1LW (vizia rf+3).

5.4 Power-up the M1XSLZW to start the Discovery Mode. This requires several minutes during which the status LED will flash rapidly. DO NOT TOUCH anything until the rapid flashing changes to a slow 1 sec. flash. As the M1XSLZW discovers a Thermostat it will map it to an Elk-RP Thermostat number starting with the lowest Node ID and working up.

5.5 From the list of Z-Wave devices pick Thermostat 1 (the Thermostat with the lowest Node ID) and program a name (up to 15 characters) in the ElkRP Thermostat 1 location. Repeat for additional Thermostats starting up through the Node IDs. The name should describe the location of the Z-Wave Thermostat (i.e. Hallway, 1st Floor, etc.). A NAME IS MANDATORY. M1 will ignore (not display) a Themostat that doesn't have a name.



TIP! If the customer wants the Thermostats to appear in a desired order then it will be necessary to perform the Z-Wave Inclusion in exactly that desired order. That's because the order of mapping in M1 is based solely on the Z-Wave Node ID numbering starting at the lowest and working up. Remember that M1 rules reference the Thermostat Name, making it VERY important for each name to describe and/or match the correct location.

* * IMPORTANT - PLEASE READ * *

Z-Wave Thermostats CANNOT BE MIXED (combined) with other Thermostat technologies or brands. I.E. Do not mix hardwired Thermostats such as RCS RS485, HAI RS232, or Aprilaire RS485 on the same M1 panel with Z-Wave Thermostats. If this advice is not followed AND Z-Wave Thermostats become mixed with hardwired Thermostats on the same installation NO DATA will be displayed for the Z-Wave Thermostat(s).

Q - Will the Thermostat Mapping be affected if a Z-Wave Thermostat is replaced?

A - It certainly may but it all depends on the ability to retain (keep) the old Node ID and re-use it in the replacement Thermostat. By carefully following the "**Replace Node/Device**" procedure in the Primary Controller it is possible to swap a Thermostat and retain the previous Node ID, but this MUST be followed meticulously! If the Replace Node/Device procedure is not followed OR fails to work as intended, the Primary Controller will assign a new Node ID to the replacement device. When the Discovery Mode is activated the new Node ID will most likely cause a re-arrangement of the mapping. **IF the old Node ID cannot be transferred to the new device then a complete reprogramming starting at step 5.1 will be required.**

Always TEST each Thermostat after any changes are made to the Z-Wave network. Verify that each is communicating and responding properly. Test all ElkRP Rules that involve a Thermostat. Verify that all keypads, touchscreens, or software interfaces are properly displaying the: 1)Mode i.e. Auto, Heat, Cool, or Aux., 2) Current Temperature, 3) Heat Setpoint, 4) Cool Setpoint, 5)Fan Mode

Controlling Z-Wave Thermostat using Rules

5.6 Select **ElkRP > Automation > Rules.**

5.7 Click **New** to start a new Rule. Example: Lower the Heat and Raise the Cool Setpoints when Armed.

5.8 Click **WHENEVER > Security/Alarms > Is Armed > Armed Away**. A pop-up box appears to pick the Area (partition). Use the drop down to pick the area or Click OK to accept "Area 1".

5.9 Click **THEN > Thermostat**. A new box will appear.

5.10 In the Select Thermostat box scroll and select one of the Thermostats. E.G. Main Hallway [Tstat 1].

5.11 Click **Set heating desired temperature to.**

5.11 In the value box scroll to set the temperature value. Set the F or C box to your preference. Then click **OK**. The screen should resemble the first two lines in the illustration below.

5.12 To set the Cooling setpoint click **THEN > Thermostat**.

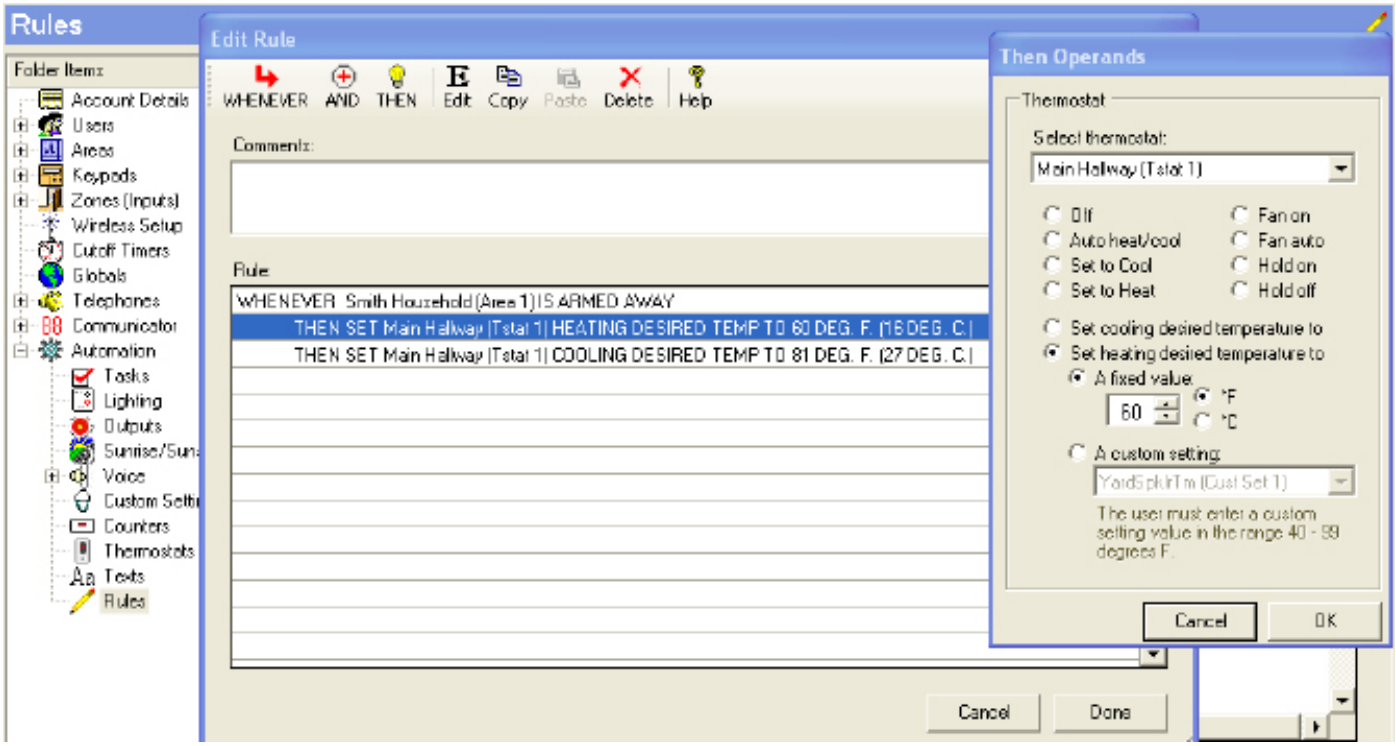
5.13 Select the same Thermostats. E.G. Main Hallway [Tstat 1] as before.

5.14 Click **Set cooling desired temperature to.**

5.15 In the value box scroll to set the temperature value. Set the F or C box to your preference. Then click **OK**. The screen should resemble the first three lines in the illustration below.

5.16 Click **DONE** to complete this Rule.

5.17 Make sure that ElkRP is connected and on-line with the M1 Control, then click **Send to Control**.



* * IMPORTANT - PLEASE READ * *

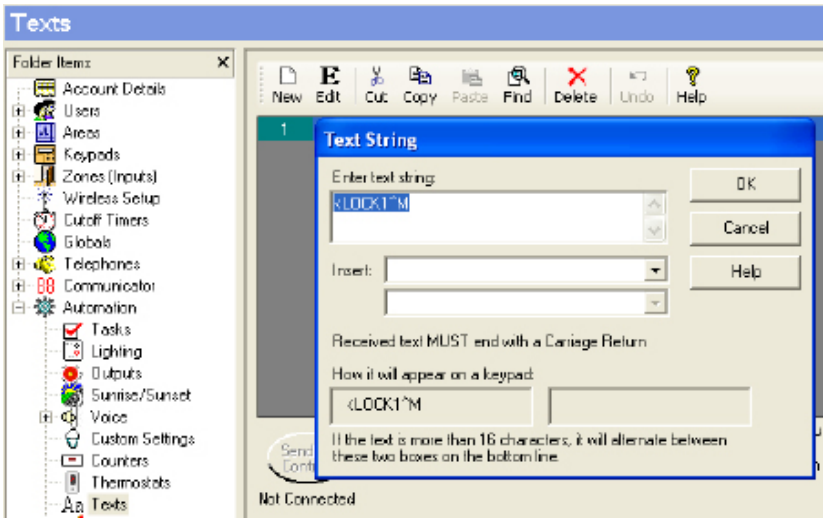
Some makes and models of Z-Wave Thermostats do not broadcast or voluntarily send their data to the VRC0P-1LW (vizia rf+3). The result will be that M1 will display "Not Enabled" since it doesn't have any information from the Thermostat to display. The only solution for this is to POLL the Thermostat(s) to obtain their status and information. See Step 7 and Table 7 concerning Advanced or Optional TEXT Strings available with the M1XSLZW.

STEP 6 - Adding Z-Wave Locks to M1

Each Z-Wave Lock in a network must have a unique Node ID from a pool of 128 Node IDs allowed. Up to ten (10) Z-Wave Locks may be controlled by an M1. Special procedures and steps are required, including: 1) Mapping the Node ID of each Lock to one of ten (10) **Virtual** lock numbers (**LOCK1-LOCK10**). 2) Creating M1 **Text** Strings as Z-Wave Lock commands to the M1XSLZW. 3) Creating a "THEN Send Text to Port X" command in an ElkRP Rule. The *Text* will be your command and the *Port* X will be the Data Bus Address of the M1XSLZW.

Mapping of the locks is done by the M1XSLZW on power-up using "Discovery Mode". This starts with the lowest Z-Wave Node ID and searches UP until a lock is found. The first Lock found is mapped as LOCK1. If other Locks are found then the next higher Node ID will be mapped to LOCK2, and so on. Discovery can only work after ALL Z-Wave devices (especially Locks) have been setup, Associated, and Updated. See ElkRP instructions below:

6.1 **Setup the Z-Wave network FIRST. (Page 3) All Z-Wave devices and controllers MUST be Associated and Updated. At least 1 Lock and the VRC0P+3 must be installed.**
6.2 Make a list of each Z-Wave device, its Node ID, location, and type (light, lock, thermostat, controller, etc.)
6.3 Verify that the M1XSLZW is connected to the VRC0P-1LW (vizia rf+3).
6.4 Power-up the M1XSLZW to start the Discovery Mode. This requires several minutes during which the status LED will flash rapidly. DO NOT TOUCH anything until the rapid flashing changes to a slow 1 sec. flash. As the M1XSLZW discovers a Lock it will map it to one of ten (10) **Virtual** Lock numbers (**LOCK1-LOCK10**) and store them in memory, starting with the lowest Node ID and working up.
6.5 Use the list of Z-Wave devices and select the first Lock (the Lock with the lowest Node ID).
6.6 Select **ElkRP > Automation > Texts** and then Click on **New** to add a new Text String.
6.7 In the **Text String** field enter: **<LOCK1^M** {must be exactly as shown with the < and all capital letters}
6.8 Click **OK** to finalize this Text String. Your screen should resemble the illustration below:



Example: Text String "**<LOCK1^M**" is the command to lock the first Z-Wave Lock (LOCK1). See Table 6 for additional Text Strings that may be sent to control locks.

NOTE: The only way to lock or unlock multiple locks is to use multiple ElkRP Rules because a ElkRP Rule cannot have multiple "THEN Send Text to Port X" commands. Be aware that it can take 8-10 seconds for a lock to respond. In the case of multiple locks, each being controlled by its own individual rule, it will require a significant amount of time for all to complete.

IMPORTANT: A Lock command MUST be in its own separate ElkRP Rule. I.E. Any Rule that contains a THEN Send Text through Port X command for controlling a lock MUST NOT contain any other THEN commands.

TABLE 6: Z-Wave Lock Commands from M1 TEXT Strings

TEXT String	Command interpretation	TEXT String	Command Interpretation
<LOCK1^M	Lock Z-Wave Lock Node ID mapped to LOCK1	<ULOCK1^M	UnLock Z-Wave Lock Node ID mapped to LOCK1
<LOCK2^M	Lock Z-Wave Lock Node ID mapped to LOCK2	<ULOCK2^M	UnLock Z-Wave Lock Node ID mapped to LOCK2
<LOCK3^M	Lock Z-Wave Lock Node ID mapped to LOCK3	<ULOCK3^M	UnLock Z-Wave Lock Node ID mapped to LOCK3
<LOCK4^M	Lock Z-Wave Lock Node ID mapped to LOCK4	<ULOCK4^M	UnLock Z-Wave Lock Node ID mapped to LOCK4
<LOCK5^M	Lock Z-Wave Lock Node ID mapped to LOCK5	<ULOCK5^M	UnLock Z-Wave Lock Node ID mapped to LOCK5
<LOCK6^M	Lock Z-Wave Lock Node ID mapped to LOCK6	<ULOCK6^M	UnLock Z-Wave Lock Node ID mapped to LOCK6
<LOCK7^M	Lock Z-Wave Lock Node ID mapped to LOCK7	<ULOCK7^M	UnLock Z-Wave Lock Node ID mapped to LOCK7
<LOCK8^M	Lock Z-Wave Lock Node ID mapped to LOCK8	<ULOCK8^M	UnLock Z-Wave Lock Node ID mapped to LOCK8
<LOCK9^M	Lock Z-Wave Lock Node ID mapped to LOCK9	<ULOCK9^M	UnLock Z-Wave Lock Node ID mapped to LOCK9
<LOCK10^M	Lock Z-Wave Lock Node ID mapped to LOCK10	<ULOCK10^M	UnLock Z-Wave Lock Node ID mapped to LOCK10
<GSLOCKx^M	Gets the current status of a Z-Wave Lock. Substitute the Node ID (1–10) for x.		
<POLL^M	Useful for activating the Discovery Mode from a Rule		
<BCLOCKx^M	Sends a Battery Check (self-test) to a Lock. Substitute the Node ID (1–10) for x. Requires M1XSLZW firmware 81.0.4 or higher		
<GBLOCKx^M	Received by a rule indicating Good Battery (above 30%) Substitute the Node ID (1–10) for x. M1XSLZW firmware 81.0.4 or higher		
<LBLOCKx^M	Received by a rule indicating Low Battery (below 30%) Substitute the Node ID (1–10) for x. M1XSLZW firmware 81.0.4 or higher		
<JAMx^M	Received by a rule indicating Lock Malfunction. Substitute the Node ID (1–10) for x. M1XSLZW firmware 81.0.4 or higher		

Controlling a Z-Wave Lock using Rules

6.9 Select **ElkRP > Automation > Rules.**

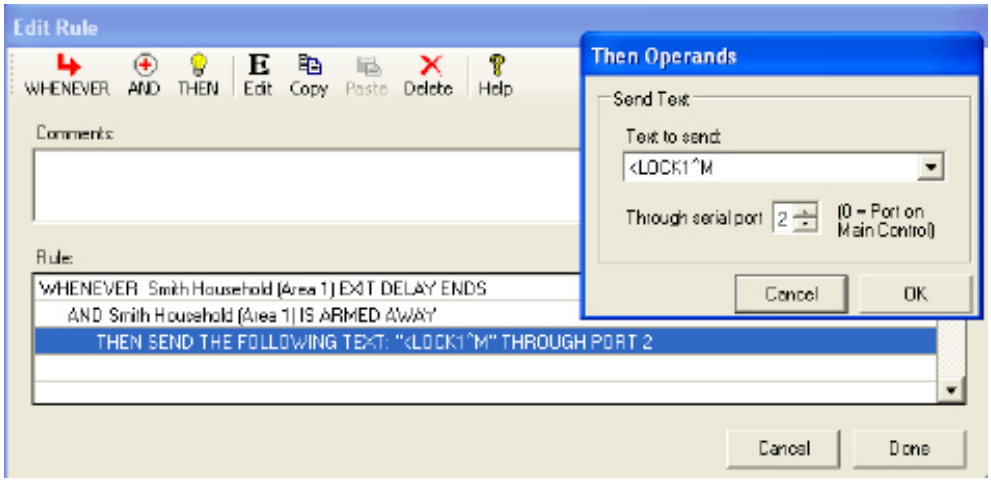
6.10 Click **New** to start a new Rule. E.G. Lock door when Exit Delay expires and System is Armed.

6.11 Click **WHENEVER > Security/Alarms > Exit Delay > Expires**. A pop-up box appears to pick the Area (partition). Click OK to accept Any Area OR pick a specific area and then click OK.

6.12 Click **AND > Security/Alarms > Is Armed > Armed Away**. A pop-up box appears to pick the Area (partition). Click OK to accept Any Area OR pick a specific area and then click OK.

6.13 Click **THEN > Send Text Out Port.** A new box will appear to pick the Text. Use the drop down to pick the **<LOCK1^M** text string. Use the other drop down to pick the serial port. This MUST be the port number of the M1XSLZW which is the same as its data bus address. Then click OK.

6.14 Click **DONE** to complete this Rule. The screen should resemble the illustration below:



6.15 Be sure that ElkRP is connected and on-line with the M1 Control, then click **Send to Control**.

* * IMPORTANT - PLEASE READ * *

As explained, a Lock command is sent from ElkRP using a <u>THEN > Send Text Out Port</u> string. Please be advised that only one (1) THEN Sent Text string may be sent from a single rule. As a result, each lock command will require a dedicated rule. In addition, no other THEN commands should exist in a rule that is being used for Locks.

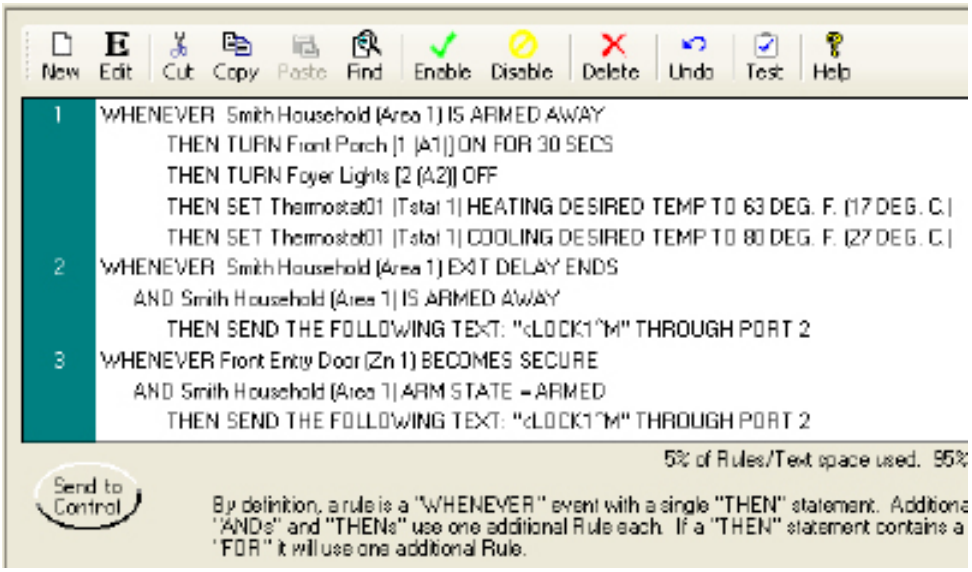
Z-Wave Locks use a special encrypted Security Class for communications, which takes longer to transmit than ordinary Z-Wave transmissions. As a result, we recommend adding some timing delay in between multiple rules that are sending Z-Wave Lock Commands. A minimum of 8 to 10 seconds of delay should be considered.

Q - Will the Lock Mapping be affected if a Z-Wave Lock is replaced?

A - It certainly may but it all depends on the ability to retain (keep) the old Node ID and re-use it in the replacement Lock. By carefully following the "**Replace Node/Device**" procedure in the Primary Controller it is possible to swap a Lock and retain the previous Node ID, but this MUST be followed meticulously! If the Replace Node/Device procedure is not followed OR fails to work as intended, the Primary Controller will assign a new Node ID to the replacement device. When the Discovery Mode is activated the new Node ID will most likely cause a re-arrangement of the mapping. **<u>IF the old Node ID cannot be transferred to the new device then a complete reprogramming starting at step 6.1 will be required</u>.**

<u>Always TEST each Lock after any changes are made to the Z-Wave network.</u> Verify that each lock is communicating and responding properly by testing each ElkRP Rule that involves a lock.

Additional Rule Examples and Information Pertaining to Z-Wave Locks



Rule 1 - When the System is Armed to Away mode this rule will turn on the Flood lights for 30 sec., turn off the Foyer Lights, and change the HVAC Thermostat Settings. This is typical of an Energy Save type of rule.

Rule 2 - When Exit Delay expires and the System is Armed to the Away mode, text string <LOCK1^M will be sent out Port 2 where the M1XSLZW will then send a Z-Wave command to lock the door.

Rule 3 - OPTIONAL This rule will immediately lock the door when the door closes without waiting for the exit delay time to expire.

Rules need to be written is specific ways in order to achieve the correct results. The examples below show a correct and incorrect way that a rule might be written. In both examples the intent of the rule is to Lock the door after the User has armed the system. And since most systems are armed from interior keypads, it is necessary to make sure the door is locked only after the User has had time to arm and leave the building through the exit delay door.

CORRECT

WHENEVER Front Entry Door (Zn 1) BECOMES SECURE
AND Smith Household (Area 1) IS ARMED AWAY
THEN SEND THE FOLLOWING TEXT: "<LOCK1^M" THROUGH PORT 2

Like the optional rule #3 above, this rule triggers only WHEN the Front Door Becomes Secure (CLOSES). It then tests to see if the System is Armed Away. If both conditions are true THEN the Text String command "<LOCK1^M" will be sent, thereby locking the door automatically for the User.

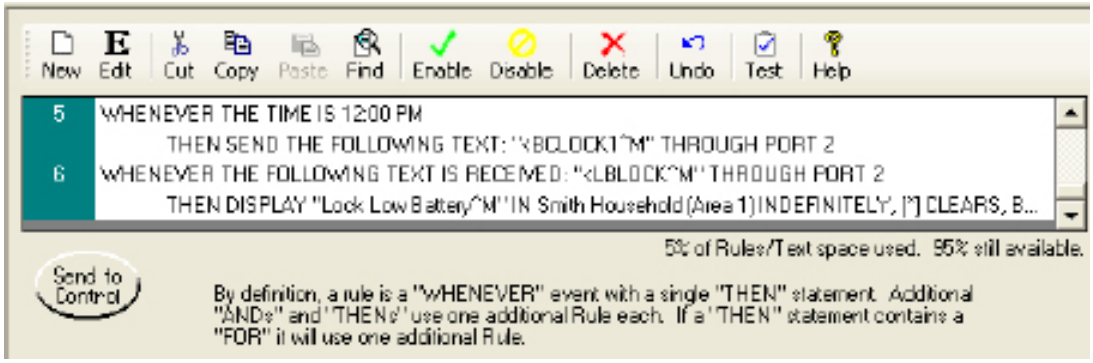
X INCORRECT X

WHENEVER Smith Household (Area 1) IS ARMED AWAY
AND Front Entry Door (Zn 1) IS SECURE
THEN SEND THE FOLLOWING TEXT: "<LOCK1^M" THROUGH PORT 2

This Rule triggers WHEN the System is Armed Away. It then checks to see if the Door is Secure. If so, Text String command "LOCK1^M" will be sent. Should this be a deadbolt lock then it will be locked before the User can exit. Also, if the User attempts to remedy the issue by propping open the door then it will not lock when he closes it because the rule has already ended.

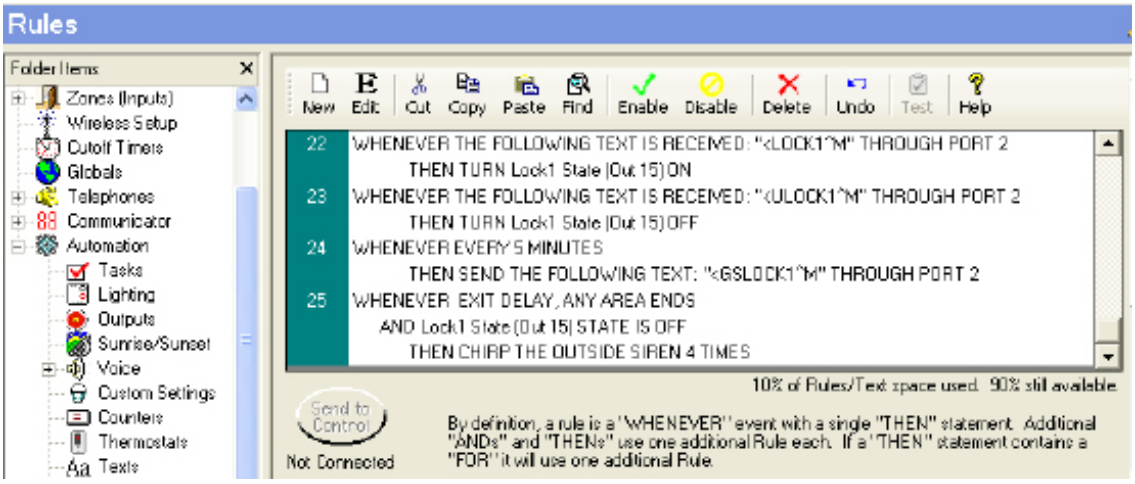
BATTERY STATUS OF LOCKS - Z-Wave battery powered locks generally provide their own local "low battery" alert, but these could easily be missed if the building is unoccupied for a long time period. The M1XSLZW and M1 Control are capable of providing additional elements of low battery alert through the use of automation rules and special text strings. This new capability was added in M1XSLZW firmware version 81.0.4.

1. Select **ElkRP > Automation > Texts** and add the following 3 new text strings:
   <BCLOCK1^M **<LBLOCK1^M** **<Lock Low Battery^M**
2. Select **ElkRP > Automation > Rules** and create 2 new rules as shown in the example below:



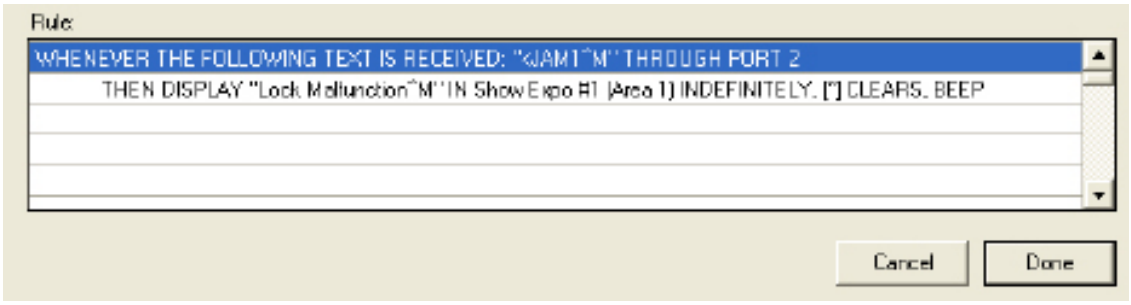
Rule 5 sends text string **<BCLOCK1^M** (Battery Check Lock #1) to the M1XSLZW at 12:00PM each day. The lock should respond to the M1XSLZW with a battery level between 1 and 100%. If the response is 30% or lower the M1XSLZW will send **<LBLOCK^M** (Low Battery) to the M1. Rule 6 watches for this received string and performs the appropriate programmed action. In this example it will cause "Lock Low Battery" to be displayed and a local beep at all keypads until someone presses the * key. The test intervals and actions may be modifed. Be aware that each battery test consumes a small amount of battery capacity. Contrary to the example above, we recommend testing the battery no more than once a week.

CONFIRMING LOCK STATUS - Automation Rules and special (received) text strings allow lock status to be confirmed. Most locks provide "unsolicited status", but some may need to be pollied to obtain their status. In rule examples 22 and 23 an output (Output 15 called Lock1 State) is turned On or Off based on the reported lock status (<LOCK1^M or ULOCK1^M). Rule 24 is used to poll for Lock1 status and is not required if lock1 is capable of sending unsolicited status. Rule 25 is triggered by expiration of the Exit Delay (following arming) and will chirp the siren 4 times if Output 15 is Off (not locked). Please note that other actions are possible, but no action is possible unless the lock(s) are capable of reporting current status.



DEADBOLT JAM - (Bolt not fully extended) "MALFUNCTION" - A poorly fitting or misaligned door or door jam can prevent a motorized deadbolt from fully extending, thus leaving the lock and building in an unsecure state. Fortunately, most locks that provide "unsolicited status" also provide a special code to indicate failure of the bolt extension. In the case of these locks it is possible to use the following automation rules and text strings permit the M1XSLZW and M1 to monitor for such a condition. This is generically referred to as a "JAM" and the presence of this condition can be used to provide a produce a visual or audible warning. This new capability was added in M1XSLZW firmware version 81.0.4.

1. Select **ElkRP > Automation > Texts** and add the following new text string(s):
   Text String 1 = **<JAM1^M** - each additional lock will need its own string i.e. <JAMx^M
   Text String 2 = **Lock Malfunction^M**
2. Select **ElkRP > Automation > Rules** and create a rule as shown in the example below:



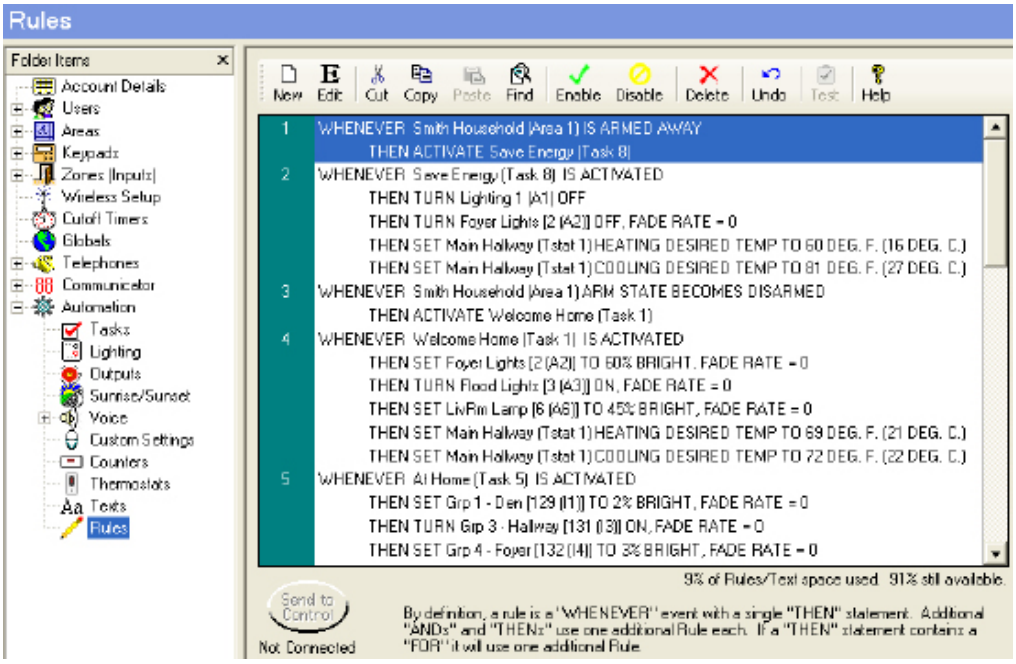
* * IMPORTANT - PLEASE READ * *

Automatic Locking or Unlocking of Locks over the Z-Wave Wireless Network is subject to limitations beyond the control of Elk and the M1 Control. Example: Over-the-air distance between the Leviton VRC0P-1LW (vizia rf+3) Z-Wave and a Z-Wave Lock may be to great, or may be disrupted or compromised to a point where Z-Wave RF signals no longer reach the Lock. And most currently available Z-Wave Devices DO NOT support repeating of the Security Encrypted (SE) Class that is used by Locks. Without a compatible SE Class Repeater node the VRC0P-1LW (vizia rf+3) and the Lock MUST be installed in close proximity (within approximately 35 feet). The alternative is to purchase and install newer Z-Wave Devices which do support the SE Class in order to repeat and extend the distance between the VRC0P-1LW (vizia rf+3) and the Lock. Other factors that affect Z-Wave performance are placement of furniture/appliances, temperature variations, humidity, and atmospheric conditions. Not all brands of Z-Wave Locks send unsolicited status back to the VRC0P-1LW (vizia rf+3) and M1XSLZW. Of the Z-Wave Lock brands currently supported by M1XSLZW only the Kwikset and Yale brands provide unsolicited status feedback. The Schlage brand must be polled using the GSLOCK_ (Get Status) command in order to obtain their status.

Unfortunately the failure of a Lock to properly secure is a security lapse while the failure of a Light to turn on or off is only an inconvenience. For the reasons stated above and more, Elk Products cannot be responsible for and does not make any express or implied guarantees or warranties as to the reliability or operation of electronic locks. It is the sole responsibility of the Installing Company or Individual to use best judgment when remotely controlling or automating door locks.

STEP 7 - Rule Examples and Advanced M1XSLZW Options

Below are Elk-RP Rule examples being used to control Lights, Thermostats, and Locks.



Rule 1 - Activates Save Energy Task* when Armed Away.

Rule 2 - Task* "Save Energy" turns off lights and sets back HVAC (Thermostat) to save $$.

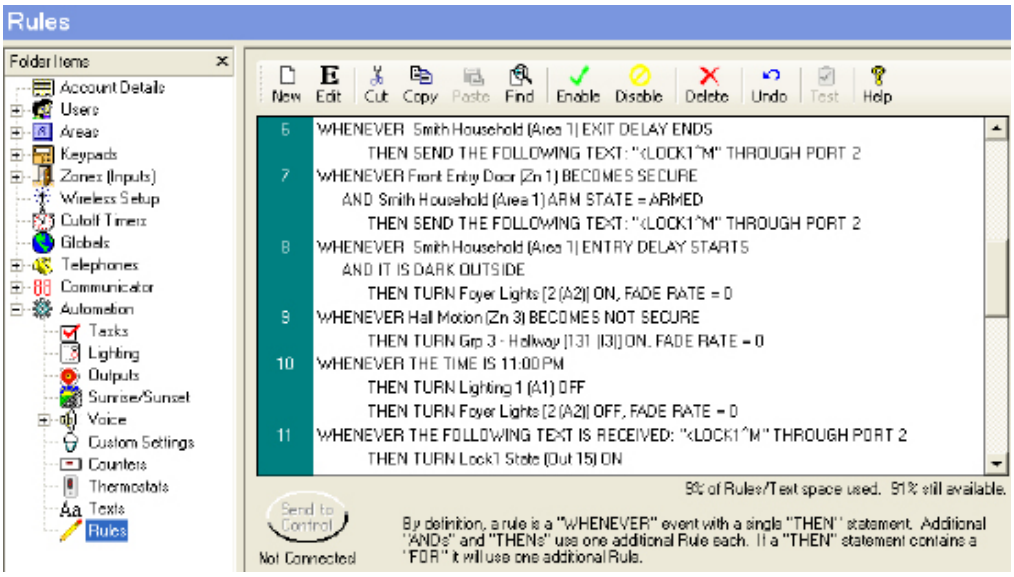
Rule 3 - Activates Welcome Home Task* when Disarmed.

Rule 4 - Task* "Welcome Home" turns on some lights and sets HVAC to 69 & 72 deg.

Rule 5 - Task* "At Home" adjusts lights in Groups.

Rule 6 - Locks door #1 as soon as exit delay expires following System Arming.

Rule 7 - Locks door #1 just as soon as Front Door closes following System Arming. The door will get locked no matter whether Rule 6 or 7 fires first.



Rule 8 - Turns on Foyer Lights when entry delay begins AND it is dark outside.

Rule 9 - Turns on Hallway lighting Group when hallway motion is detected.

Rule 10 - Automatically turns some lights Off at 11:00PM.

Rule 11 - Turns Out15 ON when text string <LOCK1^M is received. Another rule is needed to turn Out15 OFF when <ULOCK1^M is received.

* Tasks are like macros and can be handy for optimizing or saving rule space. The same task can be activated by any of several rules and conditions.

TABLE 7: Advanced Optional M1 TEXT Strings (See section 6.6 for information on creating and sending Text Strings)	
M1 TEXT String	**M1XSLZW and VRCOP-1LW (vizia rf+3) Command Use**
<POLL^M	Manually activates Discovery Mode in the M1XSLZW. Discovery Mode normally activates ONLY when the M1XSLZW is powered up. This Text can be used to activate Discovery Mode without having to power down the M1XSLZW.
<TPOLL^M	Thermostat "**T**imed" **Poll** – Some Z-Wave Thermostats do not broadcast their data back to the serial interface. And if no data is available, the M1 will display "Not Enabled" on the Thermostat display. Text string **<TPOLL^M** tells the M1XSLZW to periodically poll all Z-Wave Thermostats every 15 seconds. An M1 Rule is needed to send the Text String. E.G. WHENEVER System Start Up THEN send text **<TPOLL^M**. DO NOT use the polling if not absolutely necessary as it does create excessive traffic.
<XPOLL^M	Text string **<XPOLL^M** informs the M1XSLZW to stop the timed polling of Thermostats (if enabled). If timed polling is not required or accidentally activated this Text string will disable it.
	Received ONLY Strings (M1XSLZW to the M1)
<LOSS^M	Text string **<LOSS^M** will be sent by the M1XSLZW to the M1 if loss of the VRC0P-1LW (vizia rf+3) is detected. In order to cause any action I.E. A trouble indicator, relay activations, etc. then a rule would have to be written that would receive this string and process it. E.G. WHENEVER Text (ASCII) String is Received on Port _, THEN do something {Turn On an Output, etc}.
<REST^M	Text string **<REST^M** will be sent by the M1XSLZW to the M1 upon a loss and subsequent restoral of the VRC0P-1LW (vizia rf+3) is detected. In order for M1 to process this information an ElkRP Rule will be needed. E.G. WHENEVER Text (ASCII) String is Received on Port _, THEN do something {Turn Off an Output, etc}.

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