



ALARM.COM®

SUPPLEMENTAL Z-WAVE™
DOCUMENTATION

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The Alarm.com Z-Wave™ device described in this documentation enables a host of remote controls and features leveraging the Alarm.com cloud and accessible via the Alarm.com Customer Website, the Alarm.com Customer App, and the Alarm.com Partner Portal. Some features are only available through the Customer Website or through the Partner Portal. The Alarm.com App serves as more convenient ways for customers to access some more commonly used features.

The Alarm.com Z-Wave device is a Security Enabled Z-Wave Plus™ Product.

1 Supported Command Classes

The Alarm.com Z-Wave device always supports the following command classes non-securely:

- Z-Wave Plus Info Command Class v2
- Application Status Command Class v1
- CRC-16 Encapsulation Command Class v1
- Supervision Command Class v1
- Inclusion Controller Command Class v1
- Multi Cmd Command Class v1
- Security Command Class v1
- Security 2 Command Class v1
- Transport Service Command Class v2

The Alarm.com Z-Wave device supports the following command classes non-securely as the primary controller and at the highest common granted security level as a secondary controller:

- Association Command Class v2
- Association Group Info Command Class v1
- Device Reset Locally Command Class v1
- Manufacturer Specific Command Class v1
- Powerlevel Command Class v1
- Version Command Class v2

The Alarm.com Z-Wave device controls the following command classes:

- Alarm Command Class v1
- Association Command Class v2
- Association Group Information Command Class v1
- Barrier Operator Command Class v1
- Basic Command Class v1
- Battery Command Class v1
- Binary Sensor Command Class v1
- Binary Switch Command Class v1
- Clock Command Class v1
- Configuration Command Class v1
- CRC-16 Encapsulation Command Class v1
- Device Reset Locally Command Class v1

- Door Lock Command Class v1
- Firmware Update Meta Data Command Class v1
- Inclusion Controller Command Class v1
- Manufacturer Specific Command Class v1
- Meter Command Class v1
- Multi Channel Command Class v4
- Multi Channel Association Command Class v3
- Multi Command Class v1
- Multilevel Sensor Command Class v1
- Multilevel Switch Command Class v1
- No Operation Command Class v1
- Notification Command Class v3
- Powerlevel Command Class v1
- Schedule Entry Lock Command Class v3
- Security Command Class v1
- Security 2 Command Class v1
- Thermostat Fan Mode Command Class v1
- Thermostat Fan State Command Class v1
- Thermostat Mode Command Class v1
- Thermostat Operating State Command Class v1
- Thermostat Setback Command Class v1
- Thermostat Setpoint Command Class v1
- Time Parameters Command Class v1
- Transport Service Command Class v2
- User Code Command Class v1
- Version Command Class v2
- Wake Up Command Class v2
- Z-Wave Plus Info Command Class v2

2 Z-Wave Add and Remove Process

2.1 Adding devices to the Alarm.com Z-Wave device's network using SmartStart

SmartStart enabled products can be added into the Alarm.com device's Z-Wave network by scanning the Z-Wave QR Code present on the product. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

To add a device to the Alarm.com device using SmartStart both devices must support SmartStart. To complete this process, go through the following steps:

Option 1: Alarm.com Partner Portal

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "Equipment" page.
3. Click the "Z-Wave Devices" tab.
4. Under the "Manage Devices" header, click "Manage S2 & SmartStart Keys." Alternatively, you can go directly to the URL <https://alarmadmin.alarm.com/Support/ManageDeviceKeys.aspx>
5. Click "Add Device Key"

6. You have two options for adding info for the device you want to add:
 - a. Input the full DSK of the device you want to add, and optionally name it.
 - b. Click the “USB Barcode Scanner” button, then use a standard USB barcode scanner to scan the SmartStart QR code of the device. You may also paste in the text from a QR code.
7. You may optionally add a name for this device as well.
8. Click the “Add Device” button.
9. Power up the new device in range of the Alarm.com device. It will automatically be added to the Alarm.com device’s network, and will show up on the Z-Wave equipment page at <https://alarmadmin.alarm.com/Support/DeviceAutomation.aspx>

Option 2: Alarm.com MobileTech App

1. Download the Alarm.com MobileTech app from the app store on your device, then log in using your Partner Portal credentials.
2. Select a customer
3. Tap on the “Equipment” button
4. Tap the “Z-Wave Devices” header
5. Expand the “Z-Wave Actions” drawer at the top of the screen
6. Tap the “Manage Device Keys” button
7. Expand the “Add a Device Key” section
8. Optional: Add a device name
9. Enter the full DSK of the device, or alternatively tap the barcode icon at the right-hand side of the input field to scan the QR code of the SmartStart device you want to add
10. Click the blue “Add” button
11. Power up the new device in range of the Alarm.com device. It will automatically be added to the Alarm.com device’s network, and will show up on the Z-Wave equipment page at <https://alarmadmin.alarm.com/Support/DeviceAutomation.aspx>

2.2 Adding devices to the Alarm.com Z-Wave device’s Z-Wave Network

This process leverages Network Wide Inclusion. In addition, any controllers added to the Alarm.com Z-Wave device will have network information replicated over to them.

2.2.1 No Security, S0 Security, and S2 Unauthenticated Security

To add a device to the network using no security, S0 security, or S2 unauthenticated security, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “Equipment” page.
3. Click the “Z-Wave Devices” tab.
4. Under the “Manage Devices” header, click “Add a Z-Wave Device.”
5. Wait for the bolded message “**Checking for new devices on the network.**” The Alarm.com Z-Wave device’s DSK is also displayed with the first five digits bolded.
6. Trigger a device to add it to the network.
7. When a device is added successfully, it will show up on this screen following a 30 second delay.
8. Continue triggering devices. You may add many devices to the network without reentering Add Mode.

2.2.2 S2 Authenticated and Access Security

2.2.2.1 Adding Devices Without Client-Side Authentication

Adding a device to the network using the S2 Security Command Class with either authenticated or access security requires that the device's DSK (Device Specific Key) is pre-cached in the Alarm.com system. To pre-cache a key, follow the steps listed in [Adding devices to the Alarm.com Z-Wave device's network using SmartStart](#). Then to add the device, follow the steps listed in [No Security, S0 Security, and S2 Unauthenticated Security](#).

2.2.2.2 Adding Devices with Client-Side Authentication

To add a device to the network with Client-Side Authentication (CSA), follow these steps:

1. Add the device as described in [No Security, S0 Security, and S2 Unauthenticated Security](#).
2. When the device requests CSA, a popup will appear on the screen asking if you would like to continue with CSA. Click "Continue."
3. Enter the ten large digits displayed on the screen at the device.
4. CSA will finish executing automatically. Click "Save and Exit" once all nodes have been added.

2.3 Removing devices from the Alarm.com Z-Wave device's Z-Wave network


2.3.1 Removing Communicating Devices

This process leverages Network Wide Exclusion. For SmartStart devices, it is recommended to remove the node from the Provisioning List before removing it from the network, otherwise it may be added back to the network using SmartStart. See [Access and edit the Alarm.com device's SmartStart and S2 provisioning list](#) to remove the node from the Provisioning List. To remove devices from the network, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "Equipment" page.
3. Click the "Z-Wave Devices" tab.
4. Under the "Manage Devices" header, click "Delete a Z-Wave Device."
5. Wait for the bolded message "**Checking for deleted devices on the network.**"
6. Trigger a device to remove it from the network.
7. When a device is removed successfully and its network information is erased, it will show up on this screen following a 30 second delay.
8. Continue triggering devices. You may remove many devices to the network without reentering Remove Mode.

2.3.2 Removing Failed Devices

This process will remove a device from the network which is not communicating with the network anymore. To remove a non-communicating device, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "Equipment" page.
3. Click the "Z-Wave Devices" tab.
4. Ensure that the device you wish to remove is not communicating with the panel. This may be done by powering down the device or moving it far out of range of the Z-Wave network.
5. Expand the device you wish to remove by clicking 
6. Click "Device Commands"
7. Click "Remove Failed Device"
8. Wait one minute. You should get confirmation of the device's deletion in the customer's event history at <https://alarmadmin.alarm.com/Support/ZWaveEvents.aspx>.

9. If you click the “Get Equipment List” button, wait, and refresh the page, the device should be removed from the table.

2.4 Access and edit the Alarm.com device’s SmartStart and S2 provisioning list


Customers can see SmartStart and S2 devices that are primed for inclusion by doing the following steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “Equipment” page.
3. Click the “Z-Wave Devices” tab.
4. Under the “Manage Devices” header, click “Manage S2 & SmartStart Keys.” Alternatively, you can go directly to the URL <https://alarmadmin.alarm.com/Support/ManageDeviceKeys.aspx>

From that page it’s possible to either “Edit” or “Delete” keys by clicking the relevant links to the right of devices.

2.5 Replacing failed devices in the Alarm.com Z-Wave device’s Z-Wave network

This process will replace a non-communicating device in the network with another device. It is strongly advised that the replacement device is the same model as the device being replaced. To replace a failed device in the network, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “Equipment” page.
3. Click the “Z-Wave Devices” tab.
4. Ensure that the device you wish to replace is not communicating with the panel. This may be done by powering down the device or moving it far out of range of the Z-Wave network.
5. Expand the device you wish to replace by clicking 
6. Click “Device Commands”
7. Click “Replace Failed Device”
8. Add the replacement device by following the instructions at [Adding devices to the Alarm.com Z-Wave device’s Z-Wave Network](#).

2.6 Reset Alarm.com Z-Wave device to default state

This process will clear all nodes from the Alarm.com Z-Wave device’s network, change the Alarm.com Z-Wave device’s home ID, and reset all Z-Wave settings to their default values. To perform a Z-Wave reset, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “Equipment” page.
3. Click the “Z-Wave Devices” tab.
4. Under the “Advanced Z-Wave Commands” header, click “Remove All Z-Wave Devices.”
5. Allow 3 minutes for the associated commands to go through and for the Alarm.com Z-Wave device to act on them.

If this controller is the primary controller for your network, resetting it will result in the nodes in your network being orphaned and it will be necessary after the reset to exclude and re-include all the nodes in the network. If this controller is being used as a secondary controller in the network, use this procedure to reset this controller only if the network primary controller is missing or otherwise inoperable.

2.7 Learning the Alarm.com Z-Wave device into another Z-Wave network

When learning in the Alarm.com Z-Wave device into a primary controller, network information such as node list and routing information is copied from the primary controller to the Alarm.com Z-Wave device. This process is also called Controller Replication. This is not required unless there are multiple controllers in the network. This may be performed after the Alarm.com Z-Wave device has learned into a network to copy newer network information from the primary controller to the Alarm.com Z-Wave device.

To learn the Alarm.com Z-Wave device into another Z-Wave network, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “Equipment” page.
3. Click the “Z-Wave Devices” tab.
4. If there are any nodes currently in the Alarm.com Z-Wave device’s network, remove them by following the instructions at [Removing devices from the Alarm.com Z-Wave device’s Z-Wave network](#).
5. Start add mode on the primary Z-Wave controller.
6. Under the “Manage Devices” header, click “Add Replicate Z-Wave.” The DSK will be displayed with the first five digits bolded.
7. When the Alarm.com Z-Wave device learns into another network successfully, that network’s information will show up on the screen. This information may be delayed up to two minutes as the Alarm.com Z-Wave device queries the nodes. All Z-Wave network information will be copied from the primary controller to the Alarm.com Z-Wave device

2.8 Excluding the Alarm.com Z-Wave device from another Z-Wave network

To remove the Alarm.com Z-Wave device from another Z-Wave network, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “Equipment” page.
3. Click the “Z-Wave Devices” tab.
4. Put the primary Z-Wave controller in remove mode.
5. Under the “Manage Devices” header, click “Exclude Z-Wave Controller.”

3 Compatibility with Other Manufacturers’ Z-Wave Devices

This product may be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery-operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

4 Basic Command Class Handling

The Basic Command Class may be sent to the Alarm.com Z-Wave device, but it will have no effect.

5 Basic Control with the Basic Command Class

5.1 Sending a Basic Set On or Basic Set Off Command

To send a Basic Set to a node, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the “AirFX Remote Toolkit” page.
3. Click “Send Generic Command.” Alternatively, navigate to <https://alarmadmin.alarm.com/Support/Commands/GenericCommand.aspx>.
4. The command to send a **Basic On** command is **5B000003000000000013[NN]032001FF** where **[NN]** is the node’s hexadecimal Node ID.

5. The command to send a **Basic Off** command is **5B000003000000000013[NN]03200100** where **[NN]** is the node's hexadecimal Node ID.
6. It is possible to send any value with the help of the generic command by replacing the last byte in the command above with a value within the range {0x00...0x63, 0xFF}.
7. To confirm that the command was sent and received, navigate to <https://alarmadmin.alarm.com/Support/ZWaveEvents.aspx> and look for a "Z-Wave Generic Response" from the node.

5.2 Sending a Basic Get Command and Interpreting the Report

To send a Basic Get to a node and interpret the Basic Report, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "AirFX Remote Toolkit" page.
3. Click "Send Generic Command." Alternatively, navigate to <https://alarmadmin.alarm.com/Support/Commands/GenericCommand.aspx>.
4. The command to send a **Basic Get** command is **5B002003000000000013[NN]022002** where **[NN]** is the node's hexadecimal Node ID.
5. Wait one minute. You should get the response in the customer's Z-Wave event history at <https://alarmadmin.alarm.com/Support/ZWaveEvents.aspx> which will be of the form **330000000000[NN]002003[XX][CH]** where **[NN]** is the node's hexadecimal Node ID, **[XX]** is the response to the Basic Get, and **[CH]** is a two byte checksum that may be ignored.

6 Multilevel Sensor Control

Multilevel Sensor Get commands are only sent to Thermostats and Temperature Sensors to request temperature values. To request values, follow these steps:

1. Log into the Customer Website at <https://www.alarm.com/login.aspx>.
2. Navigate to the thermostat page at <https://www.alarm.com/web/system/home/thermostats>.
3. Click the refresh button in the top right corner of a thermostat card to request sensor multilevel values from that thermostat.
4. Wait for the page to update with the newly received values.
5. Multilevel sensor values may also be seen reported in the Event History on the Partner Portal at <https://alarmadmin.alarm.com/Support/ZWaveEvents.aspx>.

7 Multilevel Switch Control

Multilevel switches may be controlled from the Customer Site from the Lights and Switches page. To set a value, follow these steps:

1. Log into the Customer Website at <https://www.alarm.com/login.aspx>.
2. Navigate to the switch page at <https://www.alarm.com/web/system/home/lights>.
3. Click on a switch and adjust the dimming bar to send a multilevel switch set command to the node.

8 Notification V3 Command Class Support

The Alarm.com Z-Wave device utilizes the Notification V3 Command Class to track device state. For example, the Alarm.com Z-Wave device processes Notification Reports from locks indicating when the lock was locked, unlocked, has a low battery, or too many attempts were made to unlock the lock with incorrect user codes.

Notification reports may be used to trigger follow-up actions utilizing Rules. These Rules may be set up on the customer site at <https://www.alarm.com/web/system/automation/rules>.

9 User Code Command Class Support

User codes may be set up and sent to Z-Wave locks from the Alarm.com Customer Website. For security reasons when the first user code is programmed from the Alarm.com Customer Website all user codes on a Z-Wave lock are erased. For this reason, installers are encouraged to only add user codes from the Alarm.com Customer Site and not directly at the lock. To set up user codes, follow these steps:

1. Log into the Customer Website at <https://www.alarm.com/login.aspx>.
2. Navigate to the Users page at <https://www.alarm.com/web/system/users>.
3. Click on a user, ensure they have a valid pin code, and click on the locks that they should be given access to.
4. Click "Save."
5. Allow at least a minute for each user code to be transmitted to the lock. When this process is complete the user code will no longer be shown as "Pending."

10 Wake Up Command Class Support

Support for the Wake Up Command Class is enabled using the Alarm.com Rules Engine. This requires a series of Rules which are automatically sent from the cloud when the Alarm.com Z-Wave device is initialized or reset.

11 Association Command Class

The Alarm.com Z-Wave device has a single association group, group one, the Lifeline association group. The Alarm.com Z-Wave device notifies nodes in the association group when it is reset with a Device Reset Locally Notification. If no associations are set up then the Device Reset Locally Notification is broadcast.

Association group one supports a maximum of 56 node associations.

12 Association Group Info Command Class Support

The Alarm.com Z-Wave device does not send Association Group Get commands and does not process Association Group Reports.

If another device sends an Association Group Command List Get, Association Group Info Get, or Association Group Name Get command to the Alarm.com Z-Wave device, it will respond accordingly.

13 Time Parameters Command Class Control

Whenever the Alarm.com Z-Wave device receives an updated time from the Alarm.com cloud it will use the Time Parameters Command Class to update the time on any devices that support it. In addition, if the Alarm.com Z-Wave device has already received a time from the Alarm.com cloud it will forward that time information to devices supporting the Time Parameters Command Class upon learn-in.

To manually send the time to the Alarm.com Z-Wave device and nodes in the network, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "AirFX Remote Toolkit" page.
3. Click "Panel Time." Alternatively, navigate to <https://alarmadmin.alarm.com/Support/Commands/PanelDateTime.aspx>.

4. Click "Set Time."

14 Clock Command Class Control

The Clock Command Class is handled the same way as the Time Parameters Command Class, but for nodes that support the Clock Command Class. See [Time Parameters Command Class Control](#) for behavior and how to manually set the time.

15 Configuration Command Class Control

The Configuration Command Class is used to set configuration parameters on devices learned into the Alarm.com Z-Wave device. It is also used to read the configuration parameters of a device learned into the Alarm.com Z-Wave device.

To send a Configuration Get, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "Equipment" page.
3. Click the "Z-Wave Devices" tab.
4. Click a Z-Wave node to expand it.
5. Click the "Device Commands Button."
6. Click "Configure Parameter Values."
7. Enter the parameter number you want to get a value for and click "Get Value."
8. Wait a few seconds and refresh the page. The value will be displayed in the table.
9. Once a value is in the table, you may select the checkbox in that value's row in the table and click "Get Current Values" to get that value, or multiple values, again.

To send a Configuration Set, follow these steps:

1. Log into the Partner Portal at <https://alarmadmin.alarm.com/default.aspx> and select a customer.
2. Navigate to the "Equipment" page.
3. Click the "Z-Wave Devices" tab.
4. Click a Z-Wave node to expand it.
5. Click the "Device Commands Button."
6. Click "Configure Parameter Values."
7. Enter the parameter number you want to set a value for.
8. Enter the value you want to set.
9. Select the size of the value, either 1, 2 or 4 bytes.
10. Click "Set Value."

16 Schedule Entry Lock Command Class, Version 3


The Schedule Entry Lock Command Class is used to program user codes that only work during specific times on those locks. The Schedule Entry Lock Command Class V3 is only used currently used with Yale's Real Living's Z-Wave locks. To set this up, follow these steps:

1. Log into the Customer Website at <https://www.alarm.com/login.aspx>.
2. Navigate to the Users page at <https://www.alarm.com/web/system/users>.
3. Click on the user you wish to add a temporary code for.
4. Use the page that pops up to schedule their code for "Limited Access Time."
5. Click "Save." The Schedule Entry Lock Command Class will be used to program that scheduled user code into the lock.

17 Firmware Update Meta Data Command Class

The Alarm.com Z-Wave device uses the Firmware Update Meta Data Command Class to update the firmware on devices in the network. Before a device may be updated, Alarm.com must receive and verify a firmware binary from the device manufacturer. Currently the only device that Alarm.com has an update available for is the Alarm.com Smart Thermostat.


To update the firmware on a device, follow these steps:

1. Learn the device into the Alarm.com Z-Wave device as described in [Adding devices to the Alarm.com Z-Wave device's Z-Wave Network](#).
2. Click the  button in the top right corner and click "Support Center." Alternatively, navigate to the Support Center at https://alarmadmin.alarm.com/Support/Issues/Issue_Summary.aspx.
3. Create a new "Home Automation" issue ticket with the account's Customer ID and the node ID for the device to update.
4. It may take up to one business day to have the update sent to your device.

The Alarm.com Z-Wave device may not be updated via the Firmware Update Meta Data Command Class. Firmware updates are delivered over the internet connection from an Alarm.com server.

18 Controlling Other Z-Wave Devices

For more information on how to control Z-Wave devices, like Thermostats or Locks, visit the Alarm.com Knowledge Base. To get there, follow these steps:

1. Log into the Customer Website at <https://www.alarm.com/login.aspx>.
2. Click the  button in the top right corner.
3. Click "Help Documentation."
4. Search for relevant terms like "Thermostats" or "Locks."