ISY-99i / 994i Series User Guide

July 30, 2012
(based on firmware 3.2.6)

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1.0 Introduction

Thank you for purchasing an ISY-99i / 994i Series device – Universal Devices, Inc.'s line of intelligent, stand-alone, web-enabled INSTEON controllers.

With the ISY-99i / 994i Series, you can:

- Program, configure and manage your INSTEON devices
- Automate your home using sophisticated timers, triggers, and macros
- Conserve energy in your home
- Remotely control your home using the ISY's web interface
- ...and MUCH more!

This User Guide will help you to get your ISY-99i / 994i installed and configured, and will provide links to additional resources which you may find helpful. Please read through this guide before beginning installation.

1.1 What's Included

Depending on the package you have purchased, you should receive at a minimum:

- ISY-99i or 994i Series device
- (2) standard Category 5e Ethernet patch cables
- Quick Start guide

The ISY-99i / 994i Series controller also requires a Smarthome 2412S (now discontinued) or 2413S Power-Line Modem (PLM), which is sold separately direct from Smarthome.

NOTE: If using a 2412S PLM, no separate power supply is required for the ISY since the necessary power is supplied directly from the PLM. If using a 2413S PLM, the ISY will require a separate power supply. If needed, use a power supply with the following specs:

- 5-30 VDC
- 300 mA minimum
- Center positive 2mm male barrel jack

1.2 Requirements

- The ISY requires a Smarthome 2412S (now discontinued) or 2413S Power-Line Modem (PLM) to communicate to and from your INSTEON devices:
  http://www.smarthome.com/2413s.html

- A Java-enabled web browser (such as Internet Explorer or FireFox) is required to launch the ISY's Administrative Console. The latest version of Java can be downloaded from:
  http://www.java.com

- A DHCP-enabled router (or other DHCP-enabled network) is recommended for easiest installation and configuration of the ISY.

- If using a non-DHCP-enabled router, or a direct connection to a computer which is not a DHCP server using an Ethernet **cross-over** cable (not included), the following are required in order to configure the ISY's network parameters:

  - For the ISY-99i series device you will need a null-modem serial cable and available serial port (or USB to serial adapter) on your computer.

  - For the ISY-994i series device you will need a micro USB cable and available USB port on your computer.

1.3 Getting To Know Your ISY

The ISY's front panel has several elements you should be familiar with:

- The LEDs on the front of your unit show the current status of your ISY. They can also assist with troubleshooting any issues you may be having. For more infromation on the ISY's front panel LEDs and what they mean, please see **Appendix A: Front Panel LEDs**.

- A Reset Button is located on the front of your ISY. To simply reboot your ISY, use a sharp object to briefly press the ISY's recessed Reset Button. To factory reset your ISY, please see **Appendix B: Performing a Factory Reset**.

- Certain ISY-99i Series controllers include an integrated IR receiver located on the front of the unit. This IR receiver can be used to control your home using an RC-5-capable universal remote control.

The rear panel of the ISY features the following:

ISY-99i Series

ISY-994i Series

- The **Power** port is used to provide power to the ISY with an AC adapter. This may not be necessary if using a 2412S PLM (now discontinued), but is required when using a 2413S PLM. Please use an AC adapter that provides 5VDC, a minimum of 300mA, and is center terminal positive.

  Even if using a 2412S PLM, there are several reasons why you may want to use a separate AC adapter instead of power provided by the PLM:

o An AC adapter can be plugged into a UPS to help protect the ISY from power outages and power surges. The PLM **cannot** be plugged into a UPS.

o Powering the ISY using a separate AC adapter may help improve (by a small amount) the signal strength of the INSTEON PLM.

- **Port A** is an RJ-45 connector used to attach your INSTEON PLM to the ISY. This allows the ISY to communicate with your INSTEON devices. Please use a standard Category 5e network patch cable (included) to connect between your ISY and the PLM. **WARNING: DO NOT use this port to connect to an Ethernet router or switch.**

- **Port B (ISY-99i Series ONLY)** is a 9-pin female RS-232 serial port used for initial configuration for users without a DHCP-enabled network, or for advanced troubleshooting. Please use a standard 9-pin null-modem serial cable (included with the PRO version) to connect your ISY to your PC's serial port.

- The **Monitor** port **(ISY-994i Series ONLY)** is a micro USB port used for initial configuration for users without a DCHP-enabled network, or for advanced troubleshooting. Please use a standard micro USB cable to connect your ISY to an available USB port on your PC.

- The **Network** jack is used to attach the ISY to your Ethernet network. Use a standard Category 5e network patch cable (included) to plug your ISY into an available network jack on your router or switch. If connecting directly to a PC for programming, please use an Ethernet cross-over cable (not included).
WARNING: DO NOT use this port to connect to an INSTEON PLM.

NOTE: Your ISY may also include an externally accessible SD card slot. Please DO NOT remove the SD card while the ISY is running. ISY's without an external SD slot must be opened in order to replace the SD card.

For instructions on replacing your SD card, please see **Appendix C: Replacing / Upgrading Your SD Card**.

2.0 Installation

Installation of the ISY is completed in several easy steps. The following instructions assume that you are installing the ISY on a DHCP-enabled network (true in the vast majority of cases) and are using a Windows-based PC to connect to the ISY.

If you do not have a router or other DHCP-enabled network to plug the ISY into and plan on using a direct connection to a PC, or if you are using an OS other than Windows, please see our online Wiki for more advanced installation instructions: http://www.universal-devices.com/mwiki/

2.1 Hardware Installation

Installation of the ISY hardware is completed in several easy steps:

1. Plug your ISY into your home network. Simply plug one end of an included Ethernet cable into the ISY's **Network** jack. Plug the other end of the cable into your router or network switch/hub.

2. Plug your ISY into the INSTEON PLM. Connect one end of the included Ethernet cable and attach it to **Port A** on the ISY. The other end of the cable plugs into your INSTEON PLM.

3. Apply power to the PLM and ISY by plugging it into a standard power outlet. Do not plug the PLM into a UPS or surge protector of any kind. If possible, avoid plugging the PLM into an outlet on the same circuit as other electronic devices to ensure optimal communications with your INSTEON devices. For information on troubleshooting INSTEON communication issues, and tips on creating a reliable INSTEON network, see **Appendix H: Troubleshooting INSTEON Communication Issues**.

Once power is supplied to your ISY, it will automatically boot up. The RX, TX, and Mem LEDs may flash briefly, and the PWR LED should be on steady. The two small green LEDs on the ISY's Network jack should be on (indicating a good network connection) and may flash (indicating network activity).

2.2 Connecting to the ISY From a Local PC

There are several requirements for connecting to your ISY from a PC on your network:

- **Java.** Please ensure that the latest edition of Java is installed on your computer. The latest Java downloads may be found at:
  http://www.java.com
  After installing Java, please reboot your computer before attempting to connect to the ISY.

- **Web Browser.** Please be sure your PC is running a Java-enabled web browser, such as Internet Explorer or FireFox.

As shipped from the factory, the ISY is configured to obtain an IP address via DHCP. There are a few easy ways to connect to your ISY and find its local URL:

Option 1. In most cases, the quickest and easiest way to connect to the ISY for the first time on a Windows PC is to open a web browser and type in the following URL:

http://isy

The default login information is:
   Username: admin
   Password: admin

Option 2. You can also double-click the My Lighting icon that you'll find in your PC's My Network Places (in Windows XP) or Network (in Windows 7 or Vista).

The My Lighting icon requires that Windows is configured to discover UpnP devices on your network. If you do not see a My Lighting icon, look for an option on the left-hand pane called "Show icons for networked UPnP devices". Please click this option to allow Windows to automatically find the ISY on your network. In Windows 7 and Vista, please be sure Network Discovery is turned on.

Please add this page to your web browser's Favorites for easy access in the future.

Option 3. If the above options are not working for you, or if you are on a non-Windows platform, please visit the following URL:
http://www.universal-devices.com/99i

This will launch a UDI-hosted version of the ISY's Administrative Console and attempt to locate the ISY on your network.

Option 4. To install the ISY's Java applet on your PC and create an icon on your desktop, visit the following URL:
http://www.universal-devices.com/99i/admin.jnlp

Like option 3, this will open the ISY's Administrative Console directly and attempt to locate the ISY on your network. In the future, simply double-click the desktop icon to launch the ISY's Administrative Console.


Once you launch the Administrative Console, you will be presented with a login window asking you to authenticate to your ISY. The default login information is:
Username: admin
Password: admin

To find your ISY's login URL, click the HELP -> ABOUT pull down menu and look for the address listed after "My URL". Type this into your web browser to quickly connect to your ISY in the future. Feel free to add this URL to your web browser's Favorites.
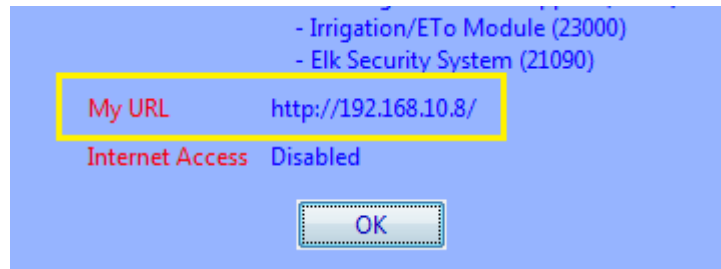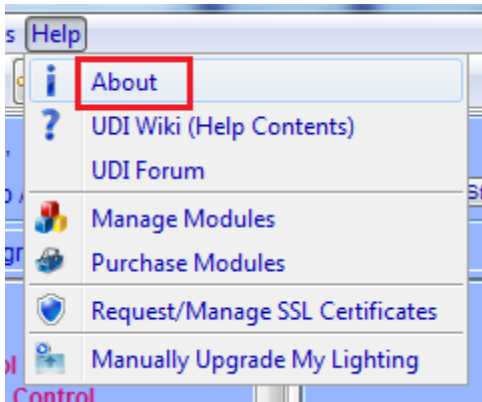
When using DHCP, in some cases your ISY may receive a new IP address from your router (or other DHCP server). If this happens, you may not be able to use the old address to connect to your ISY. To find out your ISY's new address, simply double-click your My Lighting icon or visit the following URL to automatically find the ISY (and its new address) on your network:
http://www.universal-devices.com/99i

If you wish to assign your ISY a static IP address, please see **Appendix E: Assigning a Static IP Address to the ISY**.

Once you find your URL, you are ready to start using the ISY. To connect to the ISY, launch your web browser and type the URL into the address bar. You will then be asked to authenticate. Again, the default login information is:
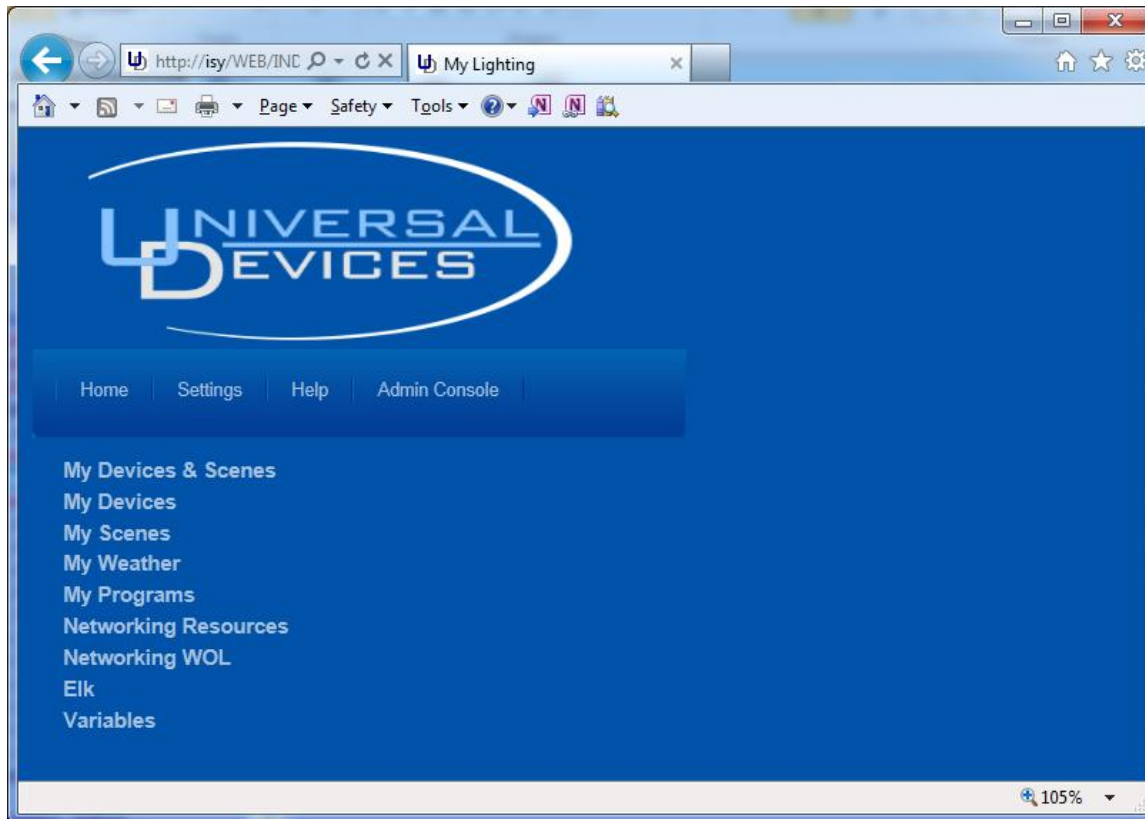   **Username: admin**
   Password: admin

Once you login you will be presented with the ISY's HTML interface.

2.3 The HTML Interface

The ISY's HTML interface provides an easy way to interact with your ISY. The HTML interface does not require Java, and is accessible from just about any web browser – including mobile phones and other devices!

You won't be able to do much until you start configuring your ISY, but here is a summary of what you can do with the HTML Interface:

Under the Home tab:

- **My Devices & Scenes –** This is where you will find a list of all INSTEON devices and scenes you have on your ISY. You can control your devices and scenes as well as check their current states. Use this page to turn lights and other devices on or off, adjust your thermostats, and much more.

- **My Devices –** Same as My Devices and Scenes, but this will show only your devices.

- **My Scenes –** Same as My Devices & Scenes, but this will show only your scenes. You will learn more about Scenes in the section titled **The Administrative Console.**

- **My Weather –** This section, if shown, is where you can see weather information available to your ISY. **This option is only available if the optional Climate Module has been installed on your ISY.** More information is available in the section of this guide titled **3.9.2 Climate Module**.

- **My Programs –** By clicking this link you can view the status of any Programs you have stored on your ISY and also control them. You will learn more about Programs in the section titled **3.3 The Programs \ Details Tab.**

- **Networking Resources –** This section, if shown, is where you can view and control any network resources you may have configured on your ISY. **This option is only available if the optional Network Resources Module has been installed on your ISY.** More information is available in the section of this guide titled **3.9.1 Network Module**.

- **Networking WOL –** This section, if shown, is where you can view and control any Wake-On-LAN entries you may have configured on your ISY. **This option is only available if the optional Network Resources Module has been installed on your ISY.** More information is available in the section of this guide titled **3.9.1 Network Module.**

- **Elk –** This section, if shown, is where you can view and control any resources available from your ELK security system. **This option is only available if the optional ELK Security Module has been installed on your ISY.** More information is available in the section of this guide titled **3.9.5 The ELK Security Module.**

- **Variables –** This section is where you can view and control any variables you have configured on your ISY. More information is available in the section of this guide titled **3.5 Variables**.

Under The Settings tab:

- **SubDevices –** This option allows you to show or hide SubDevices in the HTML interface. SubDevices are typically secondary buttons, such as non-load controlling buttons on KeypadLincs, etc.

- **Controllers –** This option allows you to show or hide Controller-only devices from the HTML interface, such as RemoteLincs and ControlLincs.

- **Disabled –** This option allows you to show or hide disabled devices from the HTML interface. Devices can be disabled through the Admin Console.

- **Max Width –** This option sets the width of the HTML interface.

- **Local Caching –** Enabling this option tells the HTML interface to cache the node list to your system, potentially improving performance. If this option is enabled, however, you will need to periodically hit "Clear Cache" to refresh the interface and see changes to your node list.

- **Clear Cache –** This button clears the disk and memory cache of the HTML interface allowing you to see the latest changes to your node list.

- **Install Admin Console –** This button installs a local copy of the Admin Console applet to your system, creating a desktop icon so you can launch the Admin Console quickly and easily.

Finally, the **Admin Console** tab launches the ISY's Administrative Console, which does require Java. The Administrative Console is where you will be configuring your ISY, adding INSTEON devices, creating Programs, configuring the optional IR interface, and MUCH more.

There may be other links available in the HTML interface as well depending on how your ISY is configured, and what optional modules you may have purchased.

2.4 Launching The Administrative Console

The Administrative Console is where you will spend most of your time configuring and tuning the ISY, programming your INSTEON devices, etc. Java is required.

The best way to launch the Admin Console is from the following URL (requires internet access):
http://www.universal-devices.com/99i/

You can also install a copy of the Admin Console's applet on your local PC (icon created on desktop) by launching the following URL:
http://www.universal-devices.com/99i/admin.jnlp

Finally, you can also launch the Admin Console by clicking the link located on the ISY's HTML Interface.

Once launched, you will again be asked to authenticate to your ISY. The default login information is:
   Username: admin
   Password: admin

In the future you may go directly to the ISY's Administrative Console by appending */admin* to the URL. For example:
**http://192.168.0.101/admin**

3.0 The Administrative Console

The Administrative Console is divided into several tabs, each used to configure different aspects of your ISY.

3.1 Basic Configuration

Before getting started, it's important to configure a few basic things on the ISY.

3.1.1 Setting the User ID and Password

For security reasons, please change the default username and password used to connect to your ISY. Choose the **Set Userid/Password** option with the Administrative Console's **File** pull-down menu as shown below.
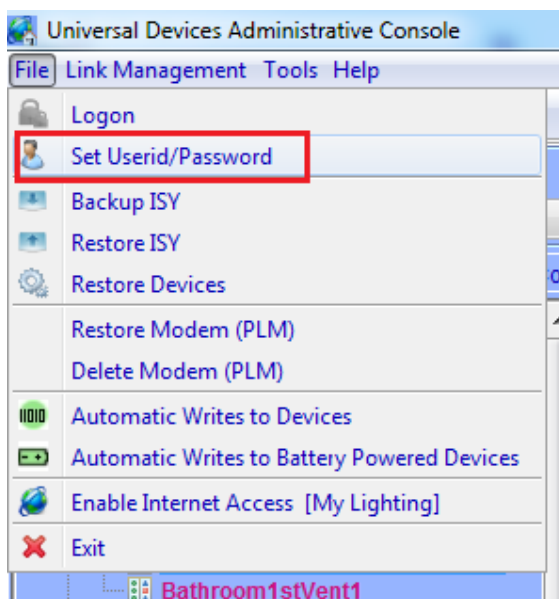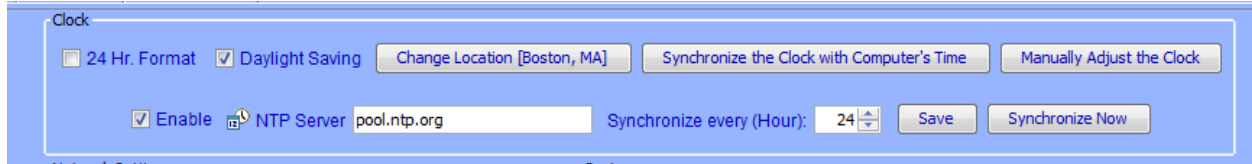

When choosing your new username and password, please consider the following:

- Both the User ID and password must be entered
- User ID and passwords are case sensitive
- The ID and password must be between 3 and 10 characters
- The following characters are NOT allowed: < > / ; &

3.1.2 Setting the Time and Location

Click the ISY's Configuration tab, then the System sub-tab, to set your time (used for Program schedules) and location (used to calculate sunrise/sunset times).

Please be sure to check the Daylight Saving option if applicable in your area.

Also feel free to check and configure the **NTP Server** option if your ISY is able to access the internet. The ISY will periodically sync its clock with the specified NTP server to ensure accurate time. We recommend syncing every 24 hours, as too frequent connection attempts can result in the NTP server refusing the ISY's request.

After adjusting your settings, please be sure to hit the **SAVE** button.

3.2 The Main Tab

The **Main** tab is where you can add, configure, and manage your INSTEON devices.

The left-hand pane displays a hierarchy of folders, devices, and scenes contained within your ISY. The right-hand pane displays detailed information on what you have selected on the left.

3.2.1 Adding INSTEON Devices

Adding INSTEON devices to the ISY can be done via several different methods. Some devices require a particular method; other devices can be added to the ISY in multiple ways. For more specific information, see **Appendix F: INSTEON Device Notes.**

Adding devices to the ISY is done through the **Link Management** pull-down menu. Within that menu are several different options:
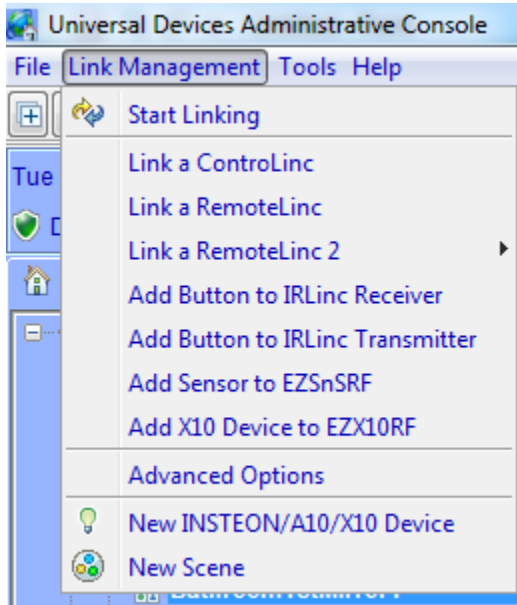
- **Start Linking.** The majority of INSTEON devices can be added using this method. Once this option is selected, simply go to each INSTEON device installed and hold the SET button for 3-5 seconds. The ISY will then see each device, and add it to the device list.

  As you hold the SET button on each device, you will see the device added to the left-hand pane. Once you are finished adding devices, hit the FINISH button which will complete the process. Adding devices to the ISY can take anywhere from a few seconds to minutes per device, depending on how many existing links are contained within each device. Please be patient.

Before adding devices to the ISY, it's important to understand the 3 different options presented:
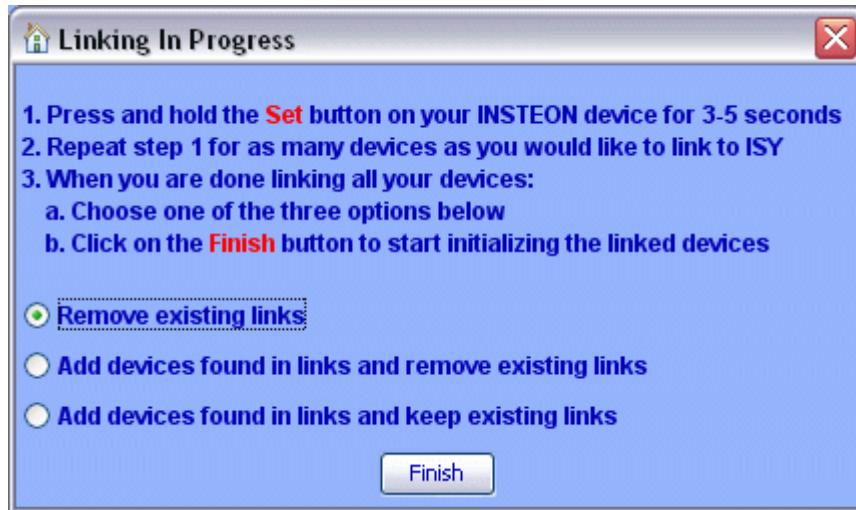
o **Remove Existing Links.** This option will add the device to the ISY, and also remove any existing links in the device. This is the default and the best option to choose if you would like a clean start, or if it is a brand new device.

o **Add Devices Found in Links and Remove Existing Links.** This option will not only add the particular device you press the SET button on, but will also add any devices that the particular device is linked to. Once complete, it will then remove any links contained within the devices. This helps save some time if you have a device you have already linked with other devices, but still clears out all links to give you a fresh start.

o **Add Devices Found in Links and Keep Existing Links.** The option not only adds the particular device you press the SET button on, but will also add any devices that the particular device is linked to. It will also keep any pre-existing links between devices, and build ISY scenes out of those links. This is the best option to choose if you'd like to preserve all existing links between devices.

• **Link a ControLinc, Link a RemoteLinc, Add Button to IRLinc Receiver/Transmitter, Add Sensor to EZSnSRF Add X10 Device to EZX10RF, etc..** These are specific options used to add the respective devices to the ISY. If you are adding one of these devices to the ISY, choose the corresponding menu option and follow the on-screen instructions.

- **Advanced Options.** This option adjusts the method used when the ISY is programming your devices. Please do not touch this option unless instructed by a UDI support rep.

- **New INSTEON Device.** This method works much like the Start Linking method, with one exception – instead of hitting the SET button on each device, you must type in the device's INSTEON address. The ISY will then initiate communications with the device in order to add it to your system. In most cases you can leave the Device Type option set to Auto Discover, but some devices may require you to specify the Device Type. For more information please see: **Appendix F: INSTEON Device Notes.**

  NOTE: This option will be titled "New INSTEON/X10/A10 Device if the optional X10 Module is installed. Please see the section titled *3.9.6 X10 Module* for more information.
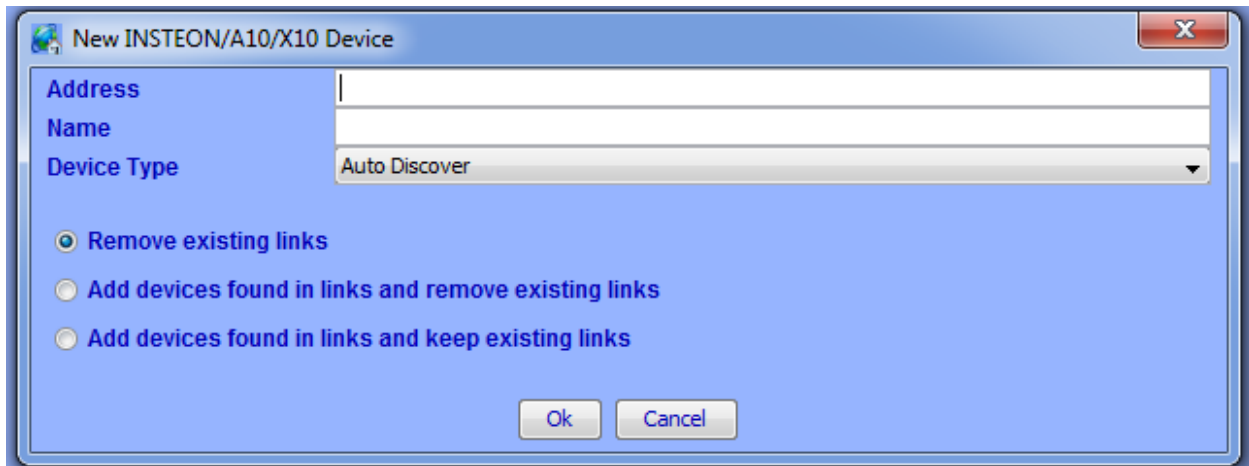
3.2.2 Adjusting Settings on INSTEON Devices

Some INSTEON devices have settings that can be changed through the ISY. For example, dimmable devices have On Levels and Ramp Rates that can be adjusted.

- **On Levels** are the brightness levels at which a device is turned on when pressed (25%, 75%, etc.).

- **Ramp Rates** are the speeds at which a device is turned on when activated. Use a slower ramp rate to ramp a light on more slowly when pressed.

To adjust settings on a device, simply click to select a device. Available settings will be displayed on the right-hand pane.

Some devices may have other options available. To find out more information for a particular device, please see **Appendix F: INSTEON Device Notes**.

Making changes to INSTEON devices, whether adjusting settings or creating/modifying Scenes (see **3.2.3 Creating INSTEON Scenes**), can be a time consuming process. While making minor changes can be relatively quick, making changes to large scenes (for example) can take many minutes.

PRO Series ONLY:

By default, the ISY is set to automatically write updates to devices as you make changes in the Admin Console. In some cases, you might prefer to queue your changes and write all changes to devices at a more convenient time.

To toggle this option, click the FILE menu:
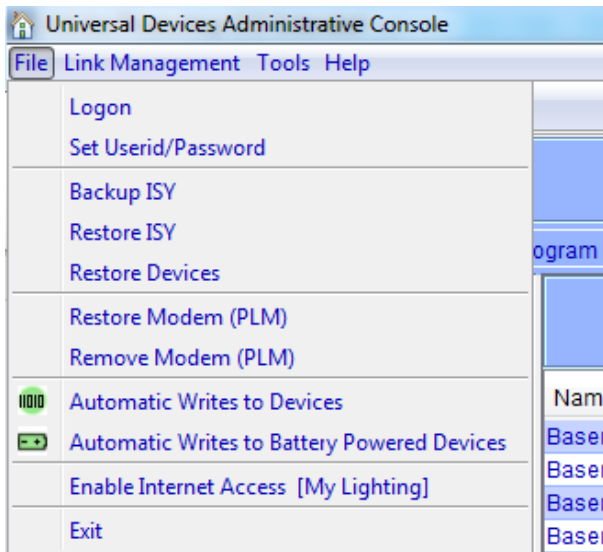
- **Automatic Writes to Devices (PRO Series ONLY).** When this option is on, changes are written automatically to devices. Toggle this option off to disable automatic writes. When toggled back on, all pending changes will be sent to devices.

- **Automatic Writes to Battery Powered Devices (PRO Series ONLY).** This option toggles automatic writes only for battery powered devices. Most battery powered devices need to be manually set to linking mode to accept changes, so utilizing this option to queue up multiple changes can help save time.

Devices that have pending changes waiting to be written or marked with a green icon in the device tree as pictured here:
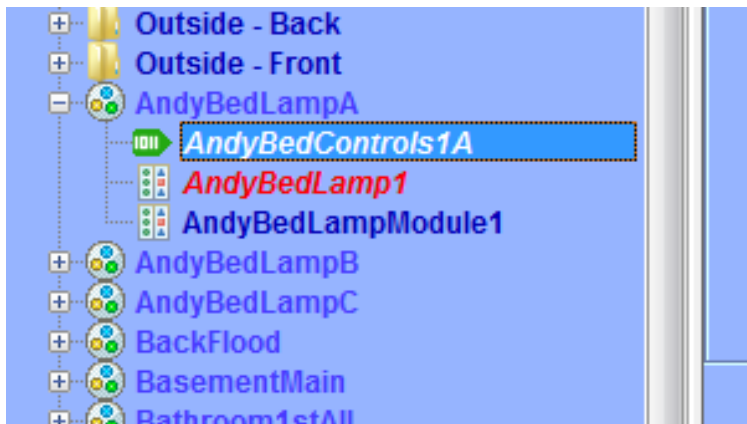
To write all pending changes for a single device (without turning Automatic Writes back on), simply right-click the device and choose Write Updates to Device:
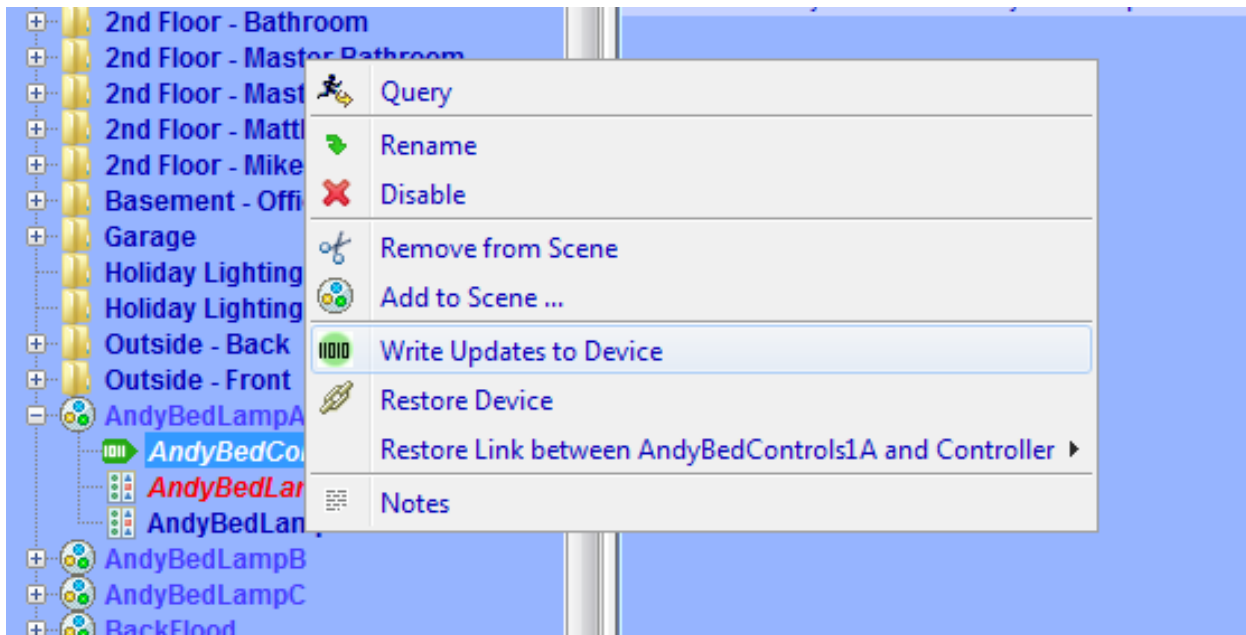
3.2.3 Creating INSTEON Scenes

Scenes are collections of INSTEON devices that react to and with one another in various ways. Scenes are comprised of both Responders and Controllers.

- **Responders** are devices contained within scenes that only respond to commands issued to the scene. For example, a lamp module with a table lamp attached would be a likely be a Responder to the scene. When the scene is turned on, the lamp module might turn on. When the scene is turned off, the map module might turn off. Responders are colored blue within a scene.

- **Controllers** not only respond to commands issued to the scene, the also control the scene. An example of a Controller might be a button located on a Keypad – when that Keypad button is pressed, all members of the scene will respond as programmed. Controllers are colored red within a scene.

To create a Scene, simply click the New Scene option under the Link Management pull-down menu, or click the New Scene button on the ISY's toolbar.
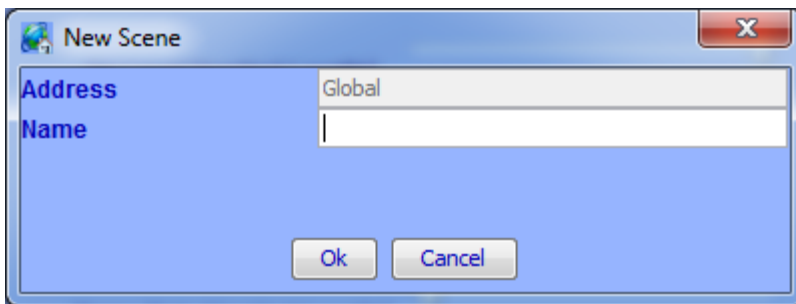
Name the Scene accordingly, click OK, and your scene will appear in the left-hand pane.

To add devices to a scene, simply right-click a device, choose Add To Scene, and choose the appropriate Scene. You can also hold the CTRL key down, click multiple devices, then right-click and choose **Add To Scene** to add multiple devices at once.
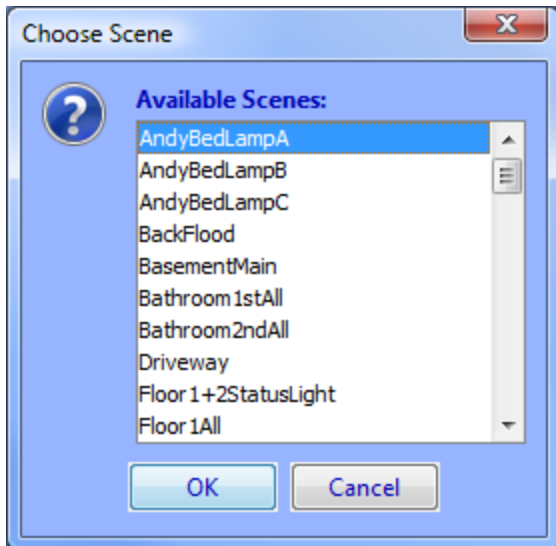
If appropriate, the ISY will ask you if the device should be added to the Scene as a Responder or a Controller. Some devices (typically devices without buttons) cannot be Controllers.

To remove devices from a scene, simply right-click a device from within a scene and choose **Remove from Scene**. To remove an entire scene, simply right-click the scene and choose **Remove Scene**.

One example of a scene might be a group of 2 devices that control the same light – typically called a "virtual 3-way circuit". For example, you might have 2 switches in your kitchen that you'd like to control your kitchen table light. One switch is physically attached to the kitchen table light, but you'd like the other switch to control it as well. In this case you would add both devices as Controllers. In the scene below, both devices in the scene are Controllers (shown below in red). This is commonly called "cross-linking".
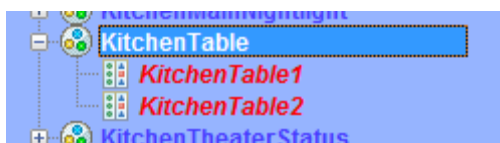
Another example of a scene might be a keypad button that you want to control multiple lights in a room. When the keypad button is turned on, you might want multiple devices to turn on at various levels to create a lighting "mood". When the keypad button is turned off, the devices would all turn off. In the screenshot below, the KitchenDinner scene contains multiple Responder devices (in blue) with a single Controller (in red):

Scenes can contain multiple controllers, and each controller can be programmed to set Responders to various on levels and ramp rates.

- **On Levels** are levels at which a Responder is turned on when activated (25%, 75%, etc.). Devices can have multiple on levels (one per Controller). Relay devices can only be ON or OFF.

- **Ramp Rates** (dimmable devices only) are the speeds at which a device is turned on when activated. Use a slower ramp rate to ramp a light on more slowly.

To set the properties of a scene, click on a Controller within a scene. On the right-hand pane will be options to set each scene member's on levels and ramp rates used when the highlighted Controller is pressed. Simply move the appropriate slider left or right to adjust the values. Once the slider is released, changes will be saved to the device.

To set values when the ISY itself is the controller (for example when controlled through the Administrative Console or through ISY Programs), click the scene itself on the left-hand pane.

In the example below, when the highlighted controller is pressed the TheaterControls1A-Table device will turn on to 60% and the TheaterMain1 and TheaterMain2 devices will turn off. All devices are set to use a 2 second ramp rate.

TheaterControls1A-Table	On Level		Ramp Rate	
	0 20 40 60 80 100		0.1s 19s 30s 1m 4m 9m	
TheaterMain1	On Level		Ramp Rate	
	0 20 40 60 80 100		0.1s 19s 30s 1m 4m 9m	
TheaterMain2	On Level		Ramp Rate	
	0 20 40 60 80 100		0.1s 19s 30s 1m 4m 9m	
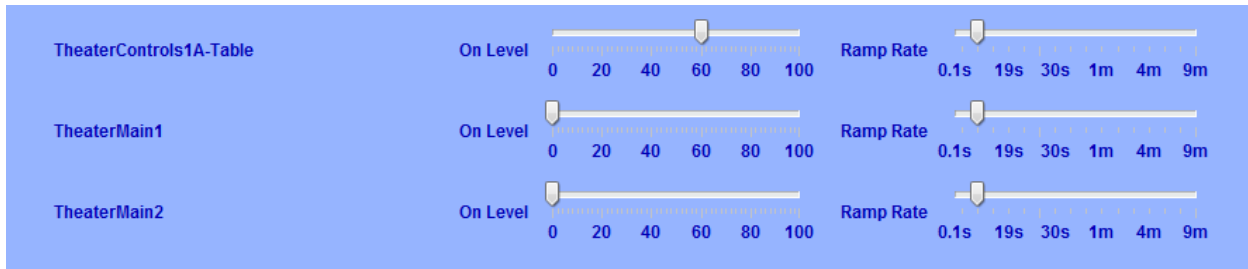
There are a couple of other options available when adjusting scenes:

- **Apply Changes To All Devices.** This option will merge all Responder sliders to one slider to make bulk changes easier. For example, if you want all responders in a scene to turn on to 50%, simply check the Apply Changes To All Devices option and drag the single slider to 50%.

- **Copy Scene Attributes From...** As noted above, the ISY itself is also a controller of every scene. If a controller within a scene should use the same values as the ISY uses when controlling a scene, simply click this button to copy the values from the ISY over to the currently selected Controller.

NOTE: Once programmed, scenes operate independently of the ISY – all programming is saved to the INSTEON devices. If the ISY is turned off or is offline for some reason, programmed Scenes will still operate as expected.

NOTE: It's important that all links between devices are created from within the ISY. Avoid creating links manually between devices or using other software packages – unexpected results will occur.

3.2.4 Organizing INSTEON Devices and Scenes

Once added to your ISY, you can manage and organize your INSTEON Devices and Scenes in a variety of ways:

- **Rename.** When added to the ISY, devices are named their INSTEON address by default. If you right-click a device or scene, a Rename option is available to help make your devices more identifiable. You can also rename by left-clicking to highlight, then hitting the F2 key. A dialog box will pop up giving you several rename options if you'd like to rename associated devices as well.

- **Folders.** Feel free to create folders to help organize your Devices and Scenes. Folders can be created by either right-clicking on the Network node (located on the left-hand pane) and choosing New Folder, or using the New Folder icon located on the Administrative Console's top toolbar. Devices and Scenes can be dragged and dropped onto folders, or simply right-click a Device or Scene and choose Move To Folder and select the appropriate folder to move it to. Folders can also be moved within other Folders to create a nested hierarchy.

- **Delete.** By deleting a Device or Scene you remove it completely from the ISY. The ISY will also remove any links associated with any other Device or Scene.

  NOTE: In order to delete a Device or Scene entirely from the node list, it must be located in the parent "My Lighting" folder. So, to delete a node, be sure to move it out to "My Lighting" first.

- **My Lighting.** Clicking the My Lighting node on the left-hand pane will display a summary of all your devices, their current states, their INSTEON addresses, and their device types / firmware versions. You can sort by any field simply by clicking the appropriate column header (Name, Current State, Address, or Type).

3.2.5 Controlling INSTEON Devices and Scenes

The Admin Console also allows you to control your INSTEON devices and scenes. Simply click on a device or scene, and appropriate controls will be shown on the bottom of the Console as follows:
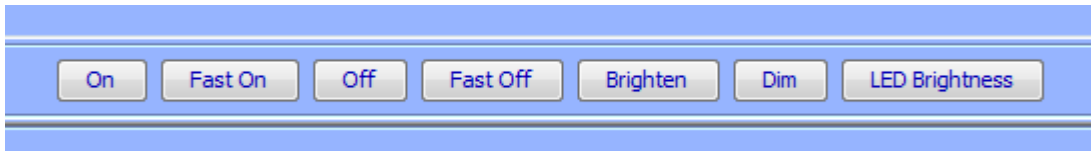
- **On.** Clicking the ON button turns the INSTEON device or scene on to its programmed On Level using it's programmed Ramp Rate.

- **Off.** Clicking the OFF button turns the INSTEON device or scene off using it's programmed Ramp Rate.

- **Fast On.** Clicking the FAST ON button turns the INSTEON device or scene on to its maximum (100%) level instantly (ignoring its programmed On Level and Ramp Rate).

- **Fast Off.** Clicking the FAST OFF button turns the INSTEON device or scene off instantly (ignoring its programmed Ramp Rate).

- **Brighten.** Pressing and holding the BRIGHTEN button starts ramping up the brightness level of a dimmable INSTEON device. Release the button to stop the ramp up.

- **Dim.** Pressing and holding the DIM button starts ramping down the brightness level of a dimmable INSTEON device. Release the button to stop the ramp down.

- **LED Brightness.** Some INSTEON devices will allow you to adjust the brightness of their LEDs by changing this value.

Some devices may have other controls or options available. To find out more information for a particular device, please see **Appendix F: INSTEON Device Notes**.

3.2.6 Other Functions (Restore, Disable, Query, & more)

There are several other functions available when working with INSTEON devices in the Administrative Console's Main tab:

- **Restore Device.** If an INSTEON device has lost all or some of its programming, you can try right-clicking the device and choosing Restore Device. This will attempt to re-write all links in a device, recreating all scenes to match the ISY's internal database.

- **Disable Device.** If an INSTEON device will be taken offline for an extended period of time, it might be desirable to disable that device to stop the ISY from trying to access it. Simply right-click the device you wish to disable, and choose the Disable option.

- **Query.** The Query option is available when right-clicking a device or scene. This will cause the ISY to communicate with the highlighted Device or Devices to find out their current states.

- **Group Devices.** Some INSTEON devices will create multiple entries within the ISY. For example, KeypadLincs have 6 or 8 nodes in the ISY (one for each button). You can choose to group these nodes together by right-clicking the primary node and choosing "Group Devices".

- **Write Updates to Device.** If you have turned off "Automatic Writes to Devices" or "Automatic Writes to Battery Powered Devices" you can manually update a Device with any pending changes by right-clicking it in the node list and choosing this option.

3.3 The Programs \ Details Tab

The Programs \ Details tab is where you can create ISY Programs. ISY Programs are the true power of the ISY, where you can extend the capabilities of INSTEON and other devices using timers, triggers, macros, etc. Programs also allow you to utilize the ISY's optional IR receiver, optional modules, and more.

To open this tab, first click the Programs tab, then click the Details sub-tab. The Programs \ Details screen is divided into several sections. The left-pane is used to show your program hierarchy. As you create ISY programs and folders, they will show here. The bottom-left "Manage Programs" section holds several buttons used to create and manage your Programs.

The top-right portion of the screen shows the details of a highlighted folder or program. The bottom right is where you will create and edit your Program.

3.3.1 The Basics of ISY Programs

ISY Programs are created using simple buttons and pull-down menus. The ISY allows you to easily create simple programs, yet is flexible and sophisticated enough to allow powerful and complex programming.

NOTE: Unlike Scenes, Programs require that the ISY is online in order to function.

There are several buttons available on the bottom-left of the Administrative Console used to create and manage your Programs:

- **New Program.** This button will create a new ISY Program. Once a Program is created, it can be edited and modified as needed.

- **New Folder.** This button will create a new folder in your Program hierarchy.

- **Save Changes.** The ISY requires that you SAVE your changes before they become active. Please be sure to save periodically as you create and edit your ISY Programs.

- **Undo Changes.** If you have made changes to your ISY Programs, click the UNDO button to discard those changes and revert to the last time your changes were saved.

3.3.2 Creating Your First Program

To create a Program click the New Program button and a new program will appear. The ISY will prompt you to name your program – type in something descriptive so you will be able to easily identify it in the future.
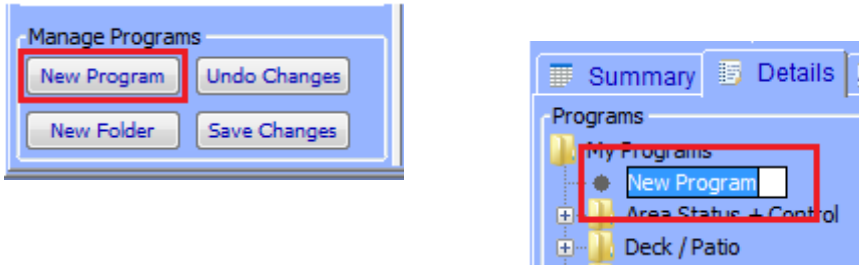
Once you name your program click the IF statement to set your conditions.
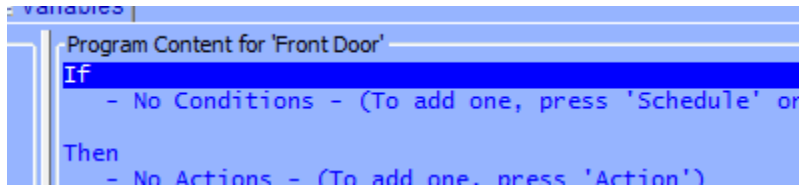
Once highlighted, the bottom portion of the screen allows you to set your conditions using simple buttons and pull-down menus. For this example, we will create a program to turn your front door lights on at sunset.

To set your sunset condition, click the SCHEDULE button and change the right-most drop down menu to SUNSET as shown below.
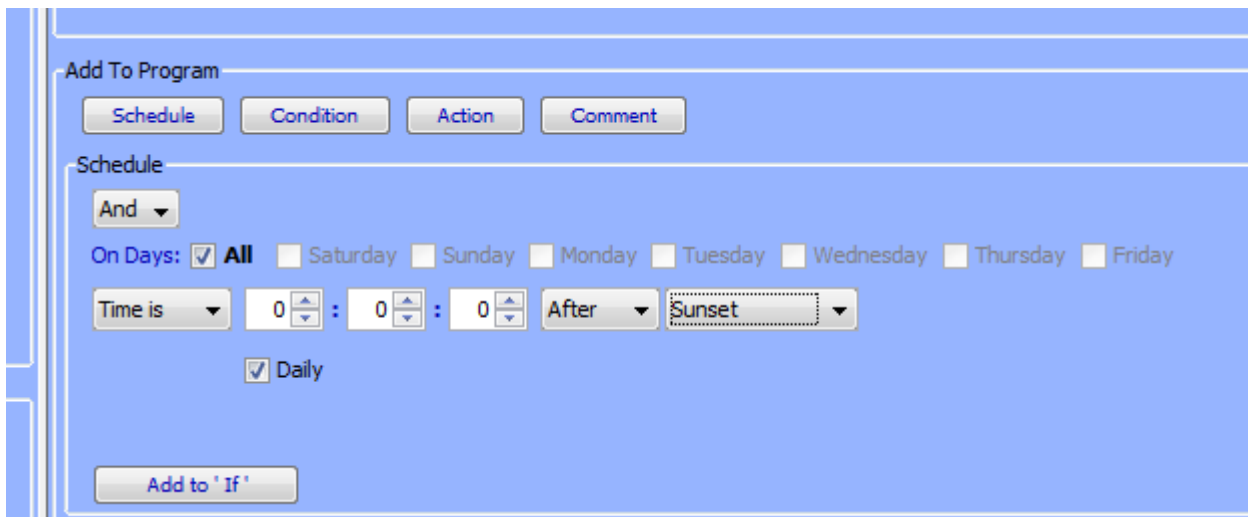
Once your Sunset condition is set, click ADD TO IF and you will see the IF statement added to the top portion of the screen, which shows the actual program you are creating.
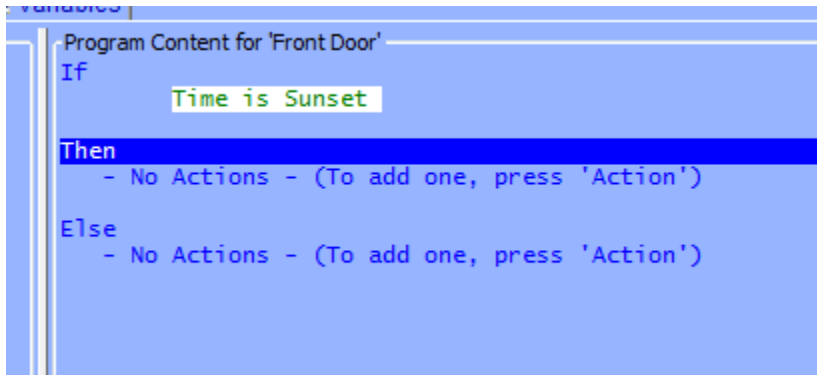
Next, click on the THEN statement to highlight it. The THEN portion of a program runs once the IF portion of a program is true. At the bottom of the screen choose the device or scene that you want to turn on at sunset.

This time hit the ADD TO THEN button to add the THEN statement to your program.

Hit the SAVE CHANGES button to save your program, and you're done! In just a few steps we've created a simply program to turn on your front door lights at sunset.

But, let's say we wanted something slightly more sophisticated. Say we want to turn the lights on 30 minutes AFTER sunset, and turn them off at 10pm. To do that, we'll make a couple of quick adjustments to the program.

First we'll click the "Time In Sunset" IF statement to highlight it.

Once the statement is highlighted we can edit it on the bottom of the screen. Change the TIME IS pull-down mention to a FROM and change the middle numeric value to 30. Then change the FOR pull-down menu to TO and change the values to 10pm as shown below:

Click the UPDATE button to update the highlighted statement. Clicking the ADD TO IF button would add an additional IF statement, which is not what we want to do in this case.

The ELSE portion of a program runs one the IF statement is no longer true. After 10pm the IF statement is no longer true, so the ELSE statement will run. Next click the ELSE statement on the top portion of the screen to highlight it, and on the bottom portion set your Front Door lights to turn off.

Click ADD TO ELSE and your final program should look like this:
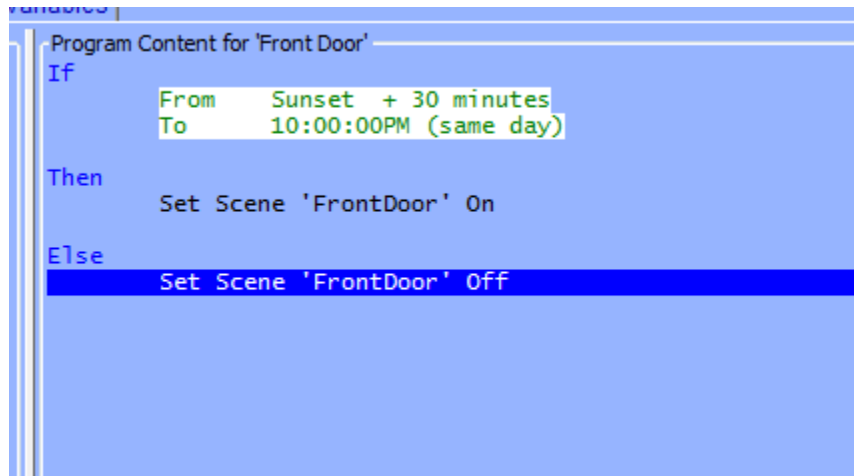
Hit the SAVE CHANGES button in the bottom left, and your new program is complete!

NOTE: Always remember to hit the Save Changes button when finished creating or editing your programs! Changes are not saved to the ISY until this button is pressed.

There is a practically unlimited number of things you can do using ISY programs. For more examples, see **Appendix G: Sample ISY Programs**.

3.3.3 Building Your Programs

There are a variety of on-screen buttons to help build your Programs to suit your needs. Programs are not limited to one condition or action – you can add multiple IF, THEN, and ELSE statements to your program. When adding multiple lines, be sure to choose AND or OR as appropriate.

When working with Programs containing multiple lines, additional buttons will appear to help arrange your lines and group them together with AND / OR parenthesis.

To remove a line, simply highlight it and click REMOVE LINE. To rearrange your lines, highlight them and click MOVE LINE UP or MOVE LINE DOWN.

To group conditions together, use the ADD AND (..) and ADD OR (..) buttons as shown below:

This program will execute only if the time is 9:45pm and the BasementControls1A device is On OR if the time is 10:00pm and the BasementControls1A device is Off.

Click the COMMENT button to add comments to your program as needed. Click the UPDATE button to save your comment.
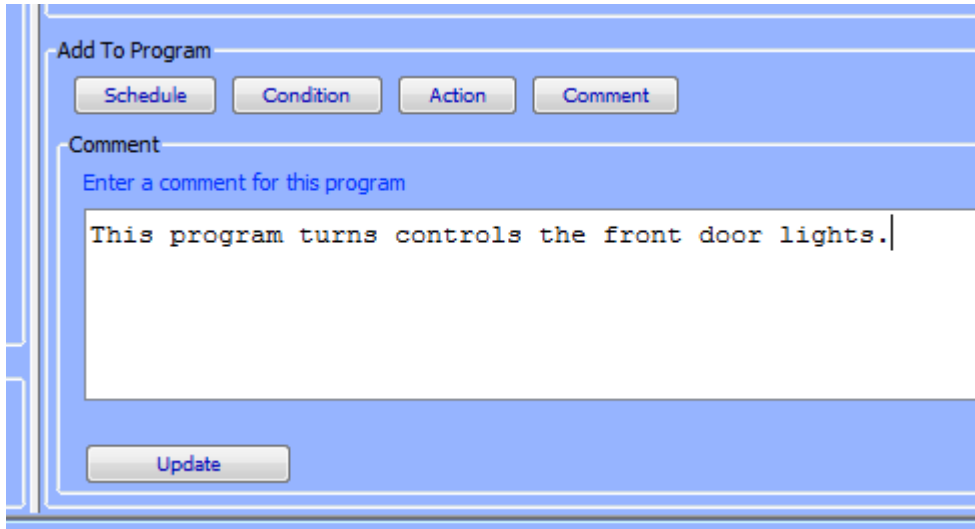
To temporarily disable a program, un-check the ENABLED box on the right-hand side of the screen and hit the SAVE CHANGES button. Or simply right-click a program and choose Disable. Disabled programs are displayed with a red X in the Program list as shown below:
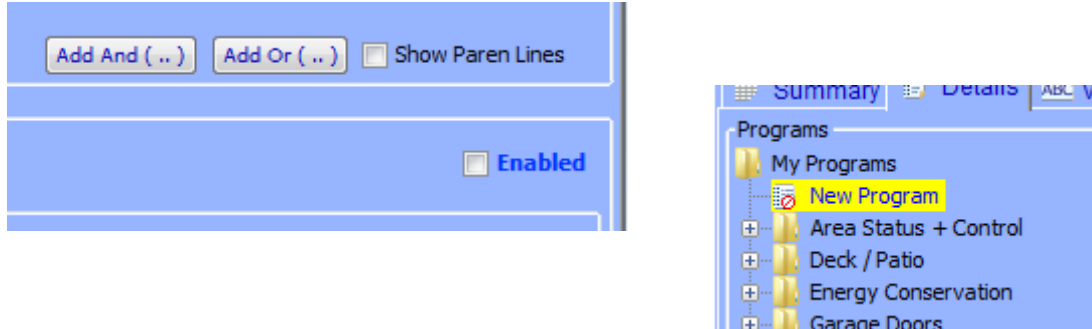
Programs that have changes and need to be saved are displayed in the program list with a green arrow:
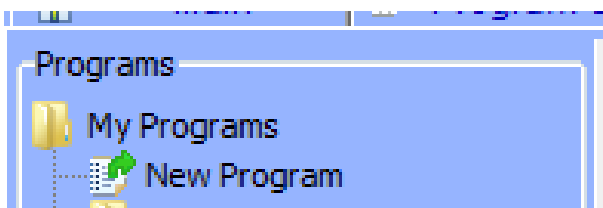
3.3.4 Program Schedules

In the Add To Program button section, click SCHEDULE to add a Schedule to your Program.

Schedules allow you to add IF statement based on time of day, ranges of times, sunrise/set, days of the week, etc.

For example, a program that would run from 6am to 12pm:

Or a program that would run at 10pm on weekdays:

Once your Schedule statement is as intended, click the ADD TO IF button to add it to your program.

3.3.5 Program Conditions

In the Add To Program button section, click CONDITION to add a Condition to your Program.

Program Conditions add other criteria to your IF statement. When adding a Condition to your Program, be sure to choose if you would like to added as an AND or OR.

Types of Conditions are:

- **Status conditions** are true if a selected INSTEON device is at the state you specify. You can check to see if a device is ON, OFF, is NOT ON, is NOT OFF, if a dimmable device is at a specific level, if it's greater than a specific level, etc.

  ON means a device is at 100% brightness. So, if your program is checking to see if a dimmable device is on at ANY level, check to see if it is NOT OFF instead.

  For example, to see if your kitchen light is at 100% brightness you could do the following:
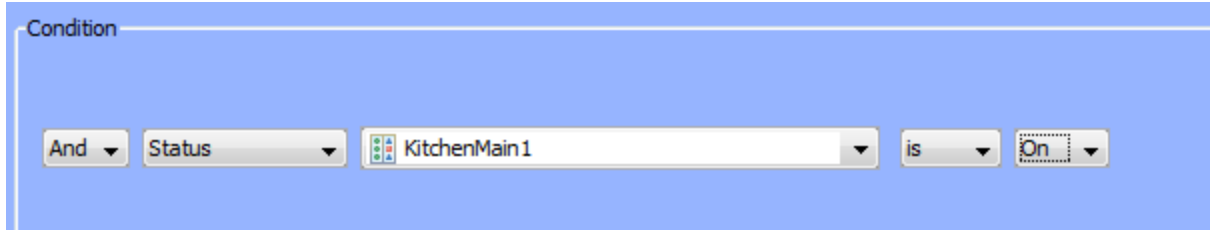
  But, to see if the same lights is on at ANY brightness you might do this instead:
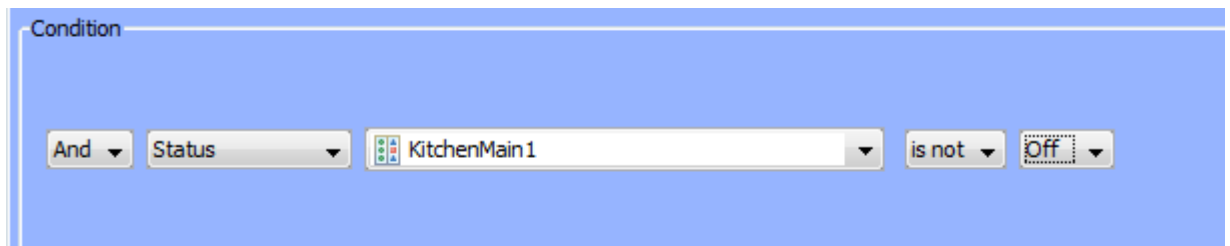
- **Control conditions** trigger only if a specified switch is pressed. The following types of presses are selectable (not all options available for all devices):
  - ON
  - OFF
  - FAST ON (double-tap ON)
  - FAST OFF (double-tap OFF)
  - FADE UP (press and hold ON)
  - FADE DOWN (press and hold OFF)
  - FADE STOP (release of a press and hold)
  - BRIGHT (bright button pressed)
  - DIM (dim button pressed)

For example if you want to trigger a program if your Kitchen switch is double-tapped on you could do the following:
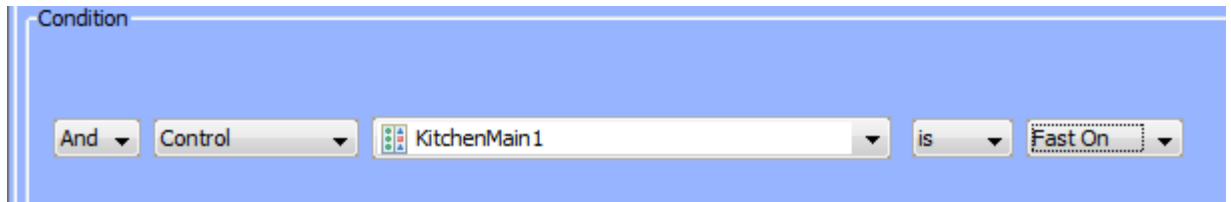
- **Program conditions** check to see whether or not other ISY Programs are currently True or False.

- **X10 conditions** trigger programs when X10 commands are received by the ISY. For example, to run a program if an X10 M1 ON command is received:

- **Variable conditions** trigger programs based on the value of a defined variable. You can read more about variables in the section titled **Using Variables**.

- **IR conditions** trigger programs when IR commands are received from a remote control. See the section titled **3.5 The Integrated IR Receiver** for more information.

- **Module conditions** trigger programs based on option ISY modules, such as the Electricity meter module or the Climate module. See the section titled **3.9 Optional Modules** for more information.

- Elk conditions trigger programs based on the state of available Elk resources, assuming you have an Elk security system installed and communicating with your ISY, and have the optional Elk Security System module installed. More information is available in the section titled **3.9 Optional Modules**.

3.3.6 Program Actions

In the Add To Program button section, click ACTION to add an Action to your Program.

Program Actions are commands that are run when the IF statement is true (a THEN action) or if the IF statement is no longer true (an ELSE action). When adding an Action to your program, be sure to click the ADD TO THEN or ADD TO ELSE button depending on your intended result.

- **Insteon actions** send INSTEON commands to devices or scenes to turn them ON, OFF, etc. Not all options available for all devices:
    - ON (send a standard ON command)
    - OFF (send a standard OFF command)
    - FAST ON (turn device full on ignoring programmed on level or ramp rate)
    - FAST OFF (turn device full off ignoring programmed ramp rate)
    - FADE UP (start the ramp up of a dimmable device
    - FADE DOWN (start the ramp down of a dimmable device)
    - FADE TOP (stop the ramping up or down of a dimmable device)
    - BRIGHT (small increase in brightness of a dimmable device)
    - DIM (small decrease in brightness of a dimmable device)
    - QUERY (query the current state of a device)

- **Send X10 actions** send X10 commands to X10-compatible devices. Using this feature, ISY programs can control a wide range of X10-compatible devices.

- **Notify actions** sends an email or SMS text message to recipients. Please see the section titled **3.6 Notifications** for more information.

- **Program actions** run or modify other ISY programs. The following options are available:
    - Run (If) (runs the IF portion of a program)
    - Run Then (runs the THEN portion of a program)
    - Run Else (runs the ELSE portion of a program)
    - Stop (stops a currently running program)
    - Enable (enables a disabled program)
    - Disable (disables and enabled program)
    - Enable Run at Startup (sets a program to run at startup)
    - Disable Run at Startup (sets a program to NOT run at startup)

- **Wait actions** create a pause in a running program. For example, to turn your driveway lights off 5 minutes after your front door lights are turned off, you could do the following:


```
Program Content for 'New Program'
If
        Control 'FoyerControls1A-FrontDoor' is switched Off

Then
        Wait  5 minutes
        Set Scene 'Driveway' Off

Else
    - No Actions - (To add one, press 'Action')
```

If the RANDOM checkbox is checked, a random time between 0 and the specified time is used. For example, this program would wait between 0 and 5 minutes:

```
Program Content for 'New Program'
If
        Control 'FoyerControls1A-FrontDoor' is switched Off

Then
        Wait  5 minutes  (Random)
        Set Scene 'Driveway' Off

Else
    - No Actions - (To add one, press 'Action')
```

- **Repeat actions** will repeat an action or group of actions multiple times. If the RANDOM button is checked, a random number of repeats between 0 and the specified value is used.

  For example, to flash your driveway lights on and off 5 times, every 2 seconds, you could:

```
Then
        Repeat 5 times
            Set Scene 'Driveway' On
            Set Scene 'Driveway' Off
            Wait  2 seconds
```

- **Variable actions** allow you to adjust the value of a defined variable within program. For more information on Variables please see the section titled Using Variables.

- **Adjust Scene** actions adjust the On Levels and Ramp Rates of devices or scenes. For example, use this function to adjust scenes so that they turn on at brighter levels during the day, and perhaps at dimmer levels during the evening. Please keep in mind that many devices require a reboot before On Level or Ramp Rate changes take effect, so this function may not be useful in all cases.

- **System actions** are used to notify compatible clients of energy related alerts.

Other Actions may be available depending on what optional modules you may have installed. For more information, see the section titled **3.9 Optional Modules**.

3.3.7 Program Folders

To create a new folder, simply click the NEW FOLDER button on the bottom-left corner of the screen. You can also create new folders by right-clicking on the program hierarchy (left-hand side of the screen) and choosing New Folder.

Folders can be used to store Programs to help organize them by type, category, etc.

Folders can also have conditions set on them to aid in program functionality. For example, you could create a Vacation Programs folder that contains only programs that should run when you are on vacation. In the following example, the user turns a keypad button called "GarageControls2E" on if they are going away on vacation. The folder is set with the following conditions so that the contained programs will run only if that vacation keypad button is on:
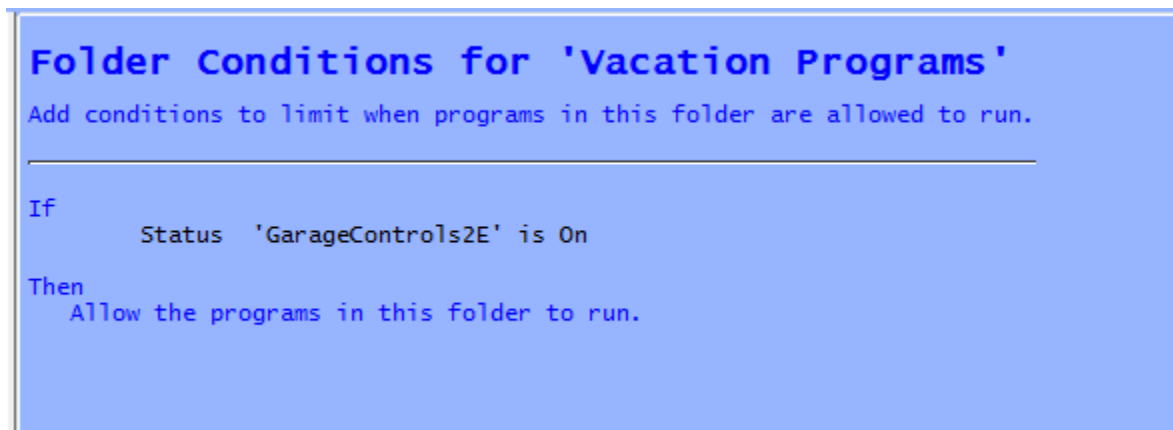
To set conditions on a folder, simply click the folder to select it and adjust conditions as you would any ISY Program.

3.3.8 Other Functions (Status, Copy, Import & more)

- **Status.** To quickly view the current status of a Program, simply right-click it and choose Status which brings you to the Program Summary tab with the selected program highlighted.

- **Copy / Copy Tree.** To duplicate a program, simply right-click the Program and choose Copy. This is especially useful if creating several similar Programs. To duplicate a Folder and all contained Programs, right-click the Folder and choose Copy Tree.

- **Import / Export.** Programs can be imported and exported to the ISY by right-clicking a Program or Folder and choosing the desired function.

- **Find / Replace.** Right-click within your Program hierarchy to start a Fine / Replace. This function allows you to search your programs for specific devices or text strings, and optionally replace the results.

- **Copy To Clipboard.** To copy a specific Program as text to your clipboard, simply right-click it and choose Copy To Clipboard. The text can then be pasted into practically any Windows application, text editor, web browser, etc.

- **Rename.** To rename a Program or Folder, simply right-click it and choose the Rename function.

- **Remove.** To remove a Program or Folder (and all contained Programs), simply right-click it and choose Remove. Remember to hit the SAVE CHANGES button when complete.

3.4 The Programs \ Summary Tab

The Programs \ Summary page displays a list of all your Programs, Folders, and information about each. To open this tab, first click the Programs tab, then the Summary sub-tab. Here are the columns of information available:

- **Name** (the Program or Folder's name)

- **Enabled** (shows whether the Program is currently enabled or disabled)

- **Run At Startup** (shows whether the Program is set to run at startup)

- **Activity** (shows if the Program is currently running or is idle)

- **Status** (shows if the Program's IF statements are currently true or false)

- **Path** (shows the Folder that the program is located in)

- **Last Run Time** (shows the last time the Program's IF statements were evaluated)

- **Last Finish Time** (shows the last time the Program completed)

- **Next Scheduled Run** (shows the next time the Program is scheduled to run, if applicable)

Each column can be sorted by clicking its column header.

There is a toolbar on the top portion of the screen that you can use to interact with ISY programs in a variety of ways.
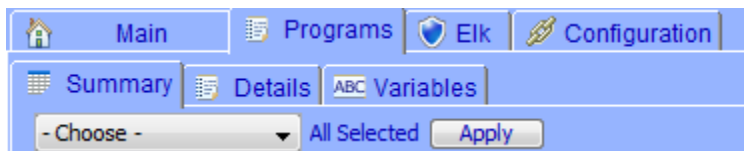
To perform an action on a program, simply selecting it by clicking on it, click the left-most pull-down menu labeled "Choose" to select an action, and click the Apply button.

Available actions are:

- **Enable** – enable a program that has been disabled

- **Disable** – disable a program so that it will not run

- **Run (If)** – force the evaluation of the IF statement and run the program

- **Run Then** – force the run of the THEN portion of a program

- **Run Else** – force the run of the ELSE portion of a program

- **Stop** – stop a currently running program

- **Enable Run At Startup** – set a program so that it will automatically start running when the ISY reboots

- **Disable Run At Startup** – set a program so that it will not automatically run when the ISY reboots

On the left-most side of the tool bar are the EDIT button which will bring you to the Program Details tab and allow you to edit the currently highlighted program. The REFRESH button forces a refresh of the screen.

3.5 Variables

Variables can be incredibly useful when creating programs on the ISY. Variables can be stored, modified using arithmetic operations, and compared. You can use variables to provide information, trigger programs, etc.

To view your variables, click on the Programs tab then the Variables sub-tab.

There are two different types of variables (Integer and State), each divided into a separate sub-tab. The only difference between the two is that State variables create ISY events when modified, so they can be used to trigger ISY Programs.

For example, if you'd like to create an ISY Program that runs only when a variable is or reaches a certain value, use a State variable. Otherwise, if the variable's value will not be used to trigger a program, feel free to use the simpler Integer variable.

3.5.1 Creating Variables

To create a new variable, click the Add button on the bottom of the screen. Here is a list of each column and a quick definition:

- **Name –** This is the user-defined name of the variable. Choose a name that's descriptive so that you'll be able to quickly identify the variable you want to use in ISY Programs.

- **Init** – This is the initial value of the variable, the value it has if the ISY is rebooted. This can be defined here and also updated using ISY Programs so that a variable value can persist even if the ISY loses power.

- **Value** – This is the current value of the variable. Again, this can be defined here and also modified via arithmetic operations using ISY Programs.

- **Last Changed** – This displays the date and time that the variable was last modified.

3.5.2 Using the Status of Variables in Programs

You can use the If portion of an ISY Program to check the state of a variable. To do those, choose Variable when defining your If statement, then choose your Variable, then choose what you'd like to check for.

For example, you can check to see if a Variable is a certain value, if it's NOT a certain value, if it's greater than a certain value, etc. You can also compare one variable to another.

In this screenshot we are checking to see if a variable called Counter is greater than 3:

And ▾ | Variable ▾ | Counter ▾ | > ▾ | 3 ⬍ | Number ▾
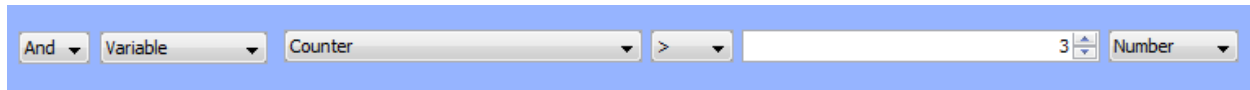
3.5.3 Modifying Variables in Programs

You can also use ISY Programs to modify variables. You can perform standard arithmetic functions on a variable, change a variable to a specific value, or modify a variable's Init state.

The following functions can be performed on a variable:

- **=** This sets the variable to a specified value.

- **+=** This adds to the variable

- **-=** This subtracts from the variable

- ***=** This multiples the variable

- **/=** This devices the variable

- **%=** This performs a remainder function on the variable

- **&=** This performs an And (binary) function on the variable

- **|=** This performs an Or (binary) function on the variable

- **=Random** This sets the variable to a number between 1 and the specified number

- **Init To** This sets the variables Init value

For example, the following screenshot increases a variable by 1:

| Variable ▾ | Counter ▾ | += ▾ | 1 ⬍ | Number ▾ |
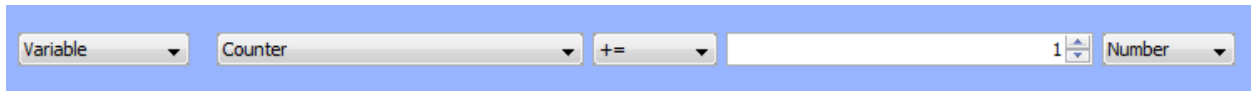
This example sets the Init value of a variable to the current value of another variable:

| Variable ▾ | Counter ▾ | Init To ▾ | Current_State ▾ | Variable ▾ |
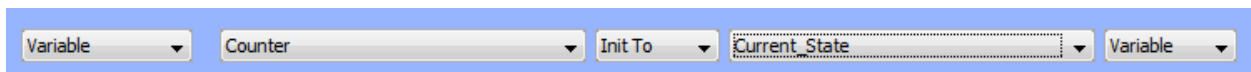
3.5.4 Using Variables in Notifications

Variables can also be useful when sending notifications. Say you have a variable that you use to count the number of times a motion sensor is trigged overnight. You could send yourself an email in the morning telling you how many times it was triggered.

Your notification might look like this:

Custom Notification 'Name.5' [5]

Subject Motion Sensor

Body The Motion Sensor was triggered ${var.2.1} times last night!

| Variables ▾ | Counter ▾ | Add Variable |

Ok   Cancel
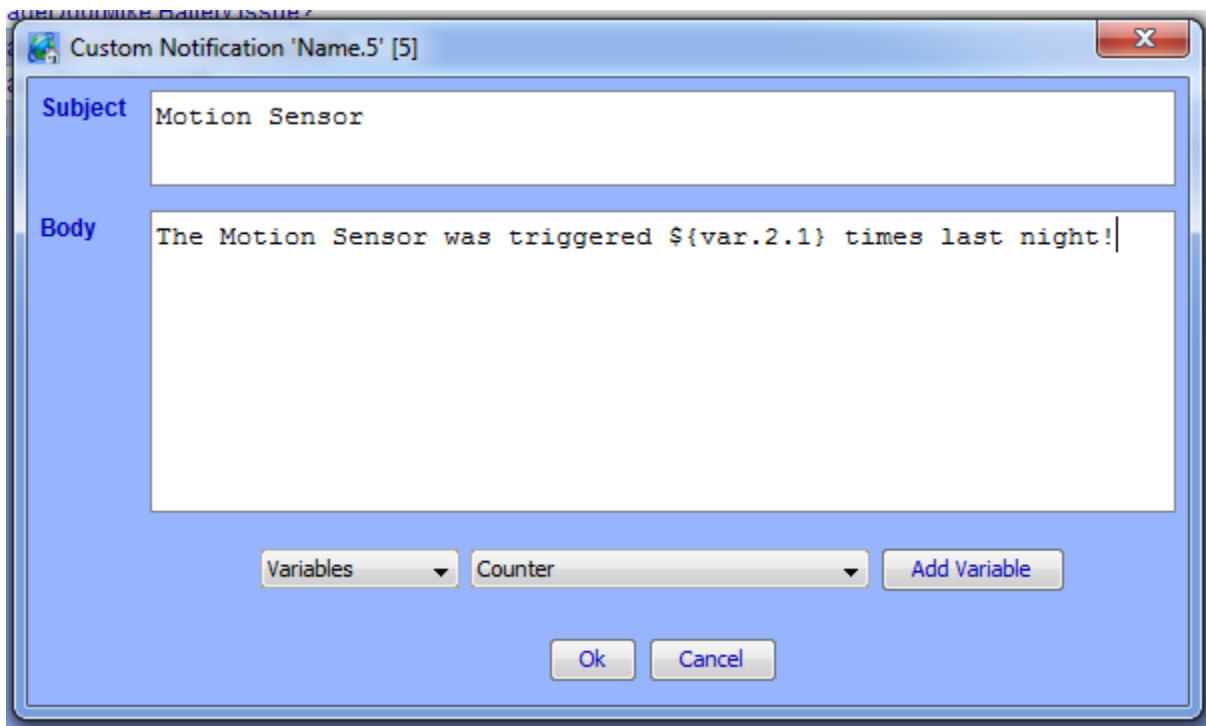
3.6 The Integrated IR Receiver

If your ISY came equipped with an integrated IR receiver (model numbers that contain "/IR"), Programs can be triggered using an RC5-compatible remote control. To program IR codes into the ISY, click the Configuration tab, then the IR sub-tab.

The IR configuration page lists all IR codes currently recognized by the ISY. The first column titled "Name" allows you to customize the name of a stored IR code. Simply double-click the IR code you'd like to change, and type the desired name. This is how the IR code will be listed under ISY Program Conditions.

The "IR Code" is an internal number used to identify the IR code. It cannot be change and for the most part should be ignored.

The "Status" column contains the last Condition received from a particular IR code. The following conditions are available:

- **Pressed –** indicates the remote control button was pressed and released normally.

- **Double-Pressed –** indicates the remote control button was pressed twice quickly (similar to a mouse double-click).

- **Held –** indicates the remote control button was pressed and held (not yet released).

- **Released –** indicates the remote control button was pressed and held, then released.

The above Conditions are available in ISY Programs, allowing you to control your home in a wide variety of ways from a simple remote control.

There are also 3 buttons on the bottom of the IR Configuration Page:

- **Save –** this button saves the currently displayed IR codes to the ISY.

- **Reload –** this button aborts any IR codes learned since the last Save, and "reloads" the last saved IR database from the ISY.

- **Restore Defaults –** this button restores the ISY to its default, blank IR database.

3.6.1 Using the 40 Default IR Codes

The ISY is able to download 40 pre-configured IR codes. These 40 pre-configured codes make it easier to configure remote controls that contain the ISY in their database (such as the Logitech Harmony), or remote controls that can import CCF files.

To import these 40 pre-configured IR codes into your ISY, simply click the "Import Default IR Codes" button at the top of the screen. This will auto-populate the IR Configuration page with 40 codes labeled "IR_001, IR_002, etc." This will overwrite any IR codes you may already have stored on your ISY.

With Logitech Harmony remote controls, you can simply choose the Universal Devices ISY from the Harmony software's built-in database. The Harmony software will allow you to drag and drop the ISY's 40 default IR codes onto buttons on your remote control.

If you're using a Pronto or other CCF-compatible remote control, we have a CCF file available for download here:
http://www.universal-devices.com/ir/99/isy-99.ccf

If you're using a Universal Remote Control (URC) brand remote, we have a MXJ file available for download here:
http://www.universal-devices.com/ir/99/isy-99.mxj

Once your remote control is configured, create Programs to have your ISY perform actions or a series of actions based on your remote's button press. IR codes stored on the ISY will be available as Conditions when creating ISY Programs.

3.6.2 Using the IR Learning Mode

If more than 40 IR codes are needed, or if you prefer to "teach" your own IR codes, the ISY features a learning mode that is capable of reading most codes sent from RC5 compatible remote controls. For best results, try using codes compatible with Philips-brand devices, which are typically RC-5 compatible.

To use the ISY's learning mode, hit the button titled "Enter Learning Mode". The ISY will now wait for IR codes, and once received they will be entered into the ISY's IR database. Simply point your remote control at the front of the ISY and press the button you'd like the ISY to learn.

If a button press is not recognized, or a button is not recognized as expected, please try a different button/code.

Some symptoms of an incompatible IR code are:

- Multiple entries created from a single button press

- Inaccurate Status values (eg. you PRESS a button but the ISY shows it as HELD)

We highly recommend testing an IR code well to ensure it is 100% reliable with the ISY before saving. Make sure the ISY consistently displays the code correctly when the button is Pressed, Held, Released, etc.

When done teaching IR codes to your ISY, hit the "Leave Learning Mode" button on the top of the screen and be sure to "Save" your changes. If you wish to revert to the last saved IR codes stored on your ISY, hit the "Reload" button located on the bottom of your screen.
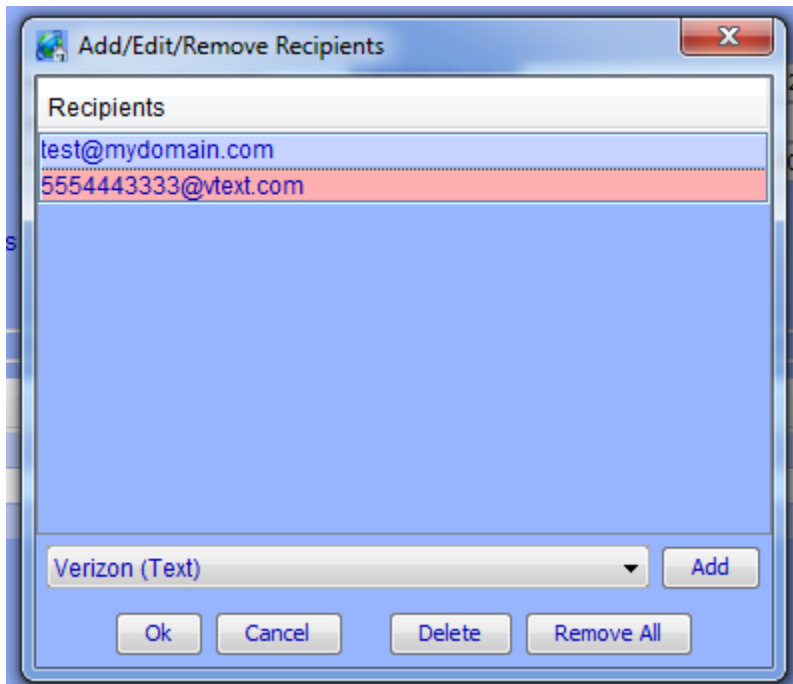
3.7 Notifications

Using Programs, you can configure the ISY to send you notifications via text message or email. For example, the ISY could notify you if your thermostat drops below or above a pre-defined temperature, when motion is detected in an area of your home, or when your garage door opens unexpectedly.

3.7.1 Adding Recipients & Changing Server Settings

To configure recipients of these notifications, click on the Administrative Console's Configuration tab, choose the Emails/Notifications sub-tab, then the Settings/Groups tap below that.

On the bottom portion of the screen, labeled Groups, hit the Add button to create a Group and add recipient information. Simply name your group, then hit the field under the Recipient column to edit the recipients. A group can contain one or more recipients that you would like to notify.

Choose the type of recipient you'd like to add (Regular Email, text notification, etc.), hit the Add button, then type the recipients corresponding address as instructed. When done, hit OK to finish editing the group.

Always remember to hit the Save button on the bottom of the Admin Console to save your settings to the ISY.

To send a test message to one of your recipient groups, highlight the group and hit the Test button on the bottom of your screen.

On the top of the screen you'll also find the "SMTP Settings" window where you can specify the email server used to deliver notifications. If "Use Default" is checked, the ISY will utilize the Universal-Devices server to send out notifications.

For advanced users, or if your ISP is blocking access to outside email servers, you can uncheck this box and specify a custom SMTP server to use.

3.7.2 Custom Notifications

To configure custom notifications, click the Customizations sub-tab and hit the Add button. Simply name your customization and type the message click the Customized Content field to edit the content you want to send with your notification.

Use the drop-down boxes to add real time information to your notification, such as current time/date, variable values, security system information, weather conditions, etc.

Once created, these custom notifications can be triggered and sent using your ISY Programs.

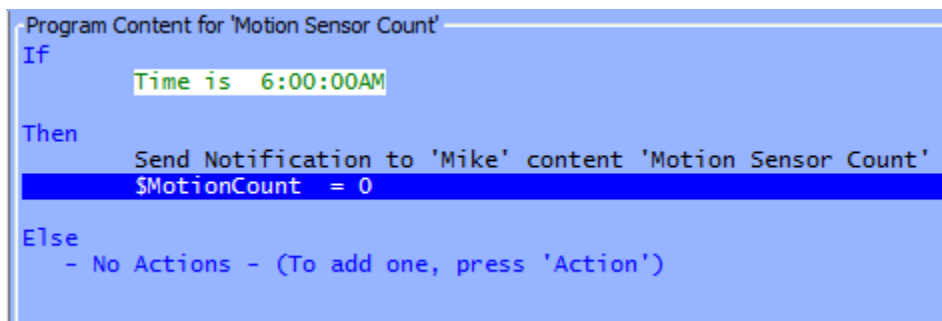For example, you could set up a variable used to count how many times your motion sensor triggered every night. In the morning, the ISY could email this information using the following notification:
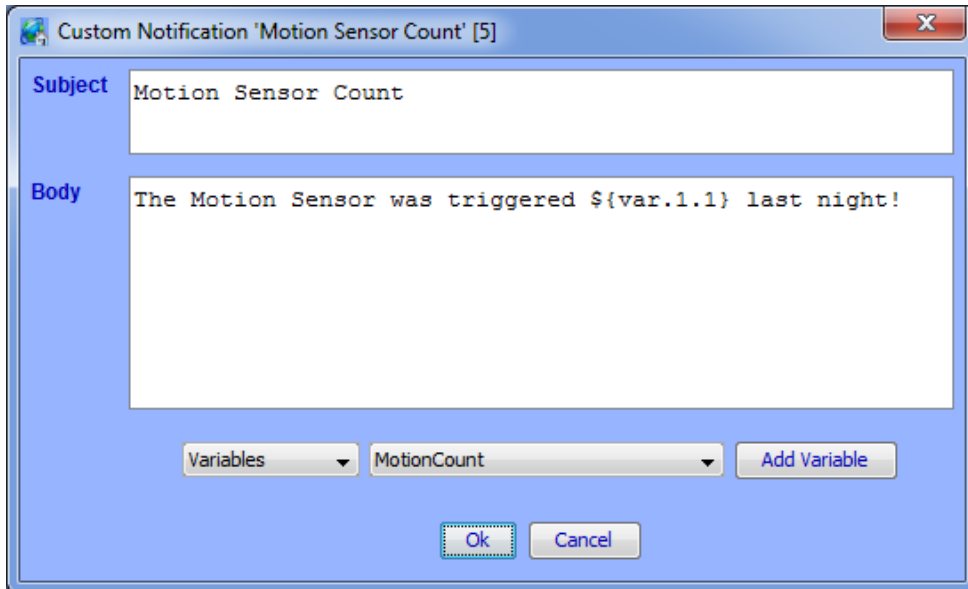
This program would send this notification to you every morning at 6am, then reset the variable back to 0:

Here is a link to a page on the ISY wiki that details the available Email Substitution Variables:
http://www.universal-devices.com/mwiki/index.php?title=ISY-99i_Series_INSTEON:Custom_Email_Substitution_Variables
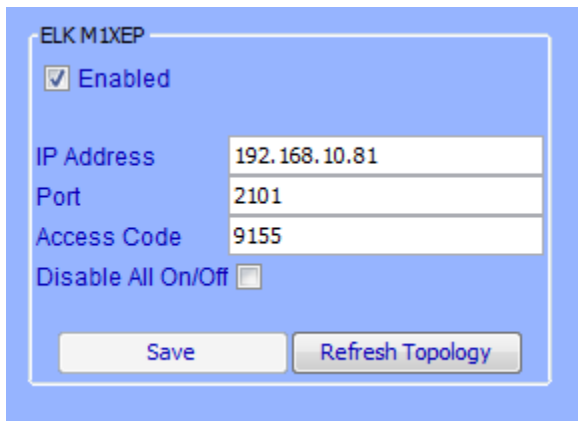
3.8 Interfacing with the Elk

If you have an Elk M1 alarm/automation panel installed, it can be configured to communicate with the ISY. Once communication is established, you can:

- Arm/Disarm your Elk from the ISY's web interface and Administrative Console

- Control Devices and Scenes stored on the ISY from your Elk (through Elk keypads, programs stored on the Elk, etc.)

On the Elk side, you will need an Elk M1XEP which provides an Ethernet-interface for your Elk. We highly recommend configuring your Elk with a static IP address (see your Elk documentation for instructions). Using Elk's ElkRP software, ensure that you enable the Elk's "Non-Secure" port in the M1XEP setup.

In the ISY's Administrative Console, click the Configuration tab, then the Elk sub-tab, then the Configuration sub-tab. This is where you can configure your Elk:

Type your Elk's IP address in the appropriate field, and enter your Elk's Non-Secure Port (default is 2101). Then enter your Elk's security code, and hit the SAVE button to save your settings and initiate communications.

If successful, a "Security System" bar will appear on the top of your Administrative Console showing you the current state of your Elk and allowing you to type your Elk's security code and arm/disarm it:

To allow control of your ISY-configured Devices and Scenes from the Elk, you must export your lighting information from the Administrative Console and import this file onto your Elk using ElkRP. Hit the Export sub-tab to go to the Export screen.

The right-hand column will list all Devices and Scenes available for export to the Elk. Simply highlight your desired nodes and hit the **<<Add To Export List** button to add your selected items to the list.

When done, hit Save, then the Export button. This will create an XML file containing your ISY's information and display it in your default web browser. Save this to your PC as an XML file and import this saved file into your Elk. Using ElkRP:

- Open the Automation folder
- Right-click the Lighting icon and choose "Import Lighting Data"
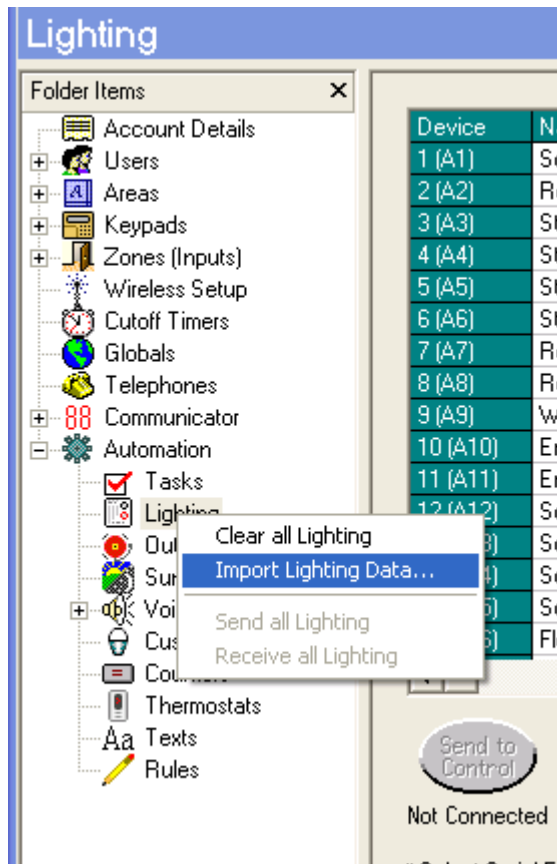
Follow the on-screen instructions to finish importing the ISY's information into your Elk.

Enhanced Elk-integration capabilities are available when using the optional Elk Security System module. See the section titled 3.9.5 The Elk Security System Module for more information.

3.9 Optional Modules

Universal-Devices offers a variety of optional modules that enhance the capabilities of your ISY in a variety of ways.

To purchase a module, click the HELP pull-down menu in the ISY's Administrative Console, choose the "Purchase Modules" option, and follow the on-screen instructions.

3.9.1 Network Module

The ISY's Network Module enhances the ISY with several key features:

- **Web Server –** using the Network Module, the ISY can be used as a web server to server up your own applications, pictures and files.

- **Network Resources –** with the Network Module, the ISY allows you to call any network resource (TCP, UDP, HTTP, HTTPS) using ISY Programs. You can also control serial devices using Ethernet to RS-232 adapters.

- **Wake On LAN –** this feature allows you to turn on PCs and other compatible network devices using their Wake On LAN feature.

Web Server
Once installed, click on the Configuration tab in the ISY's Administrative Console, then the Networking sub-tab, then the Web Server tab to copy files and folders to your ISY's internal web server.

The left side of the screen will allow you to browse your local PC's files and folders. The right side of the screen displays the file/folder structure within your ISY. Simply drag-and-drop files and folders from the left side of the screen to your ISY's /USER/WEB folder on the right-side of your screen.

Right-click a file or folder stored on your ISY to rename, remove, or set it as your ISY Web Interface's default page. To restore the ISY Web Interface to its default home page, click the "Use Default" button on the bottom of the screen.

Network Resources

Once installed, click on the Configuration tab in the ISY's Administrative Console, then the Networking sub-tab, then the Network Resources tab to configure your resources.

Once devices have been added, they will be available in ISY Programs as Actions under the Networking category:
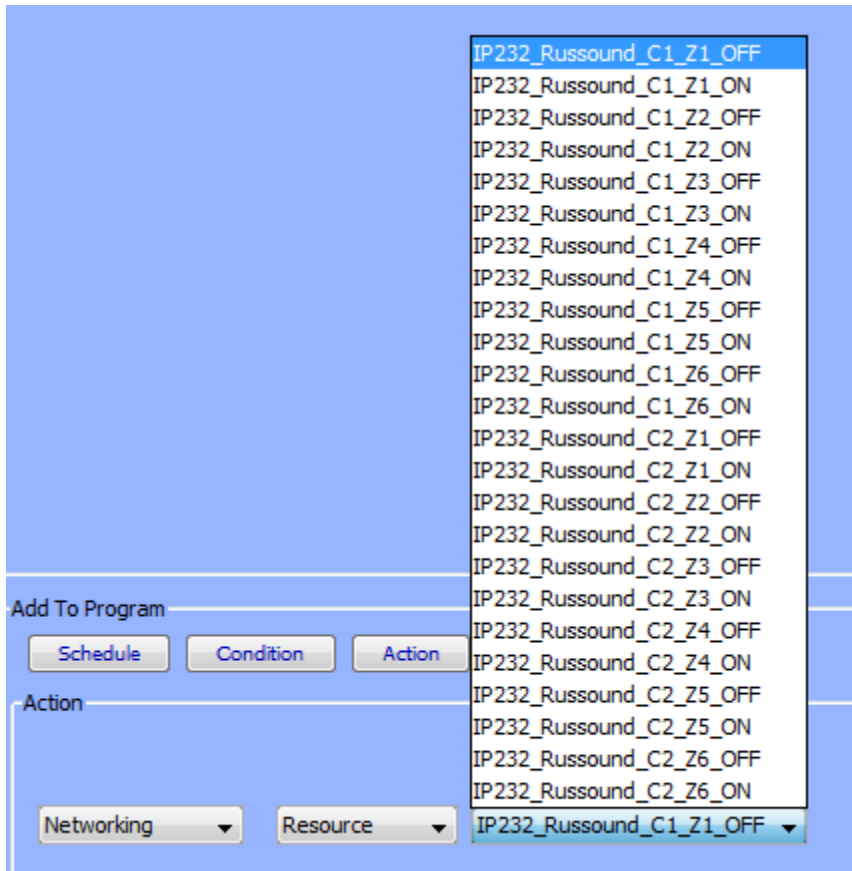
More information on known-compatible 3rd party devices and how to control them is available in this Wiki article:
http://www.universal-devices.com/mwiki/index.php?title=ISY-99i_Series_INSTEON:Networking:Network_Resources

Wake On LAN

Once installed, click on the Configuration tab in the ISY's Administrative Console, then the Networking sub-tab, then the Wake On LAN tab to configure.

Once Wake On LAN devices have been added to your ISY, they will be available in ISY Programs as Actions under the Networking category.

3.9.2 Climate Module

Using the Climate Module, you can create ISY Programs using local weather information as conditions. This module gathers information from WeatherBug, which provides a huge number of weather stations to pull data from.

To view and configure your Climate Module, click the Configuration tab in the ISY's Administrative Console then the Climate sub-tab. To choose your local weather station, click the FIND button and type your local zip code. Double-click your Area to see a list of weather stations within your area.
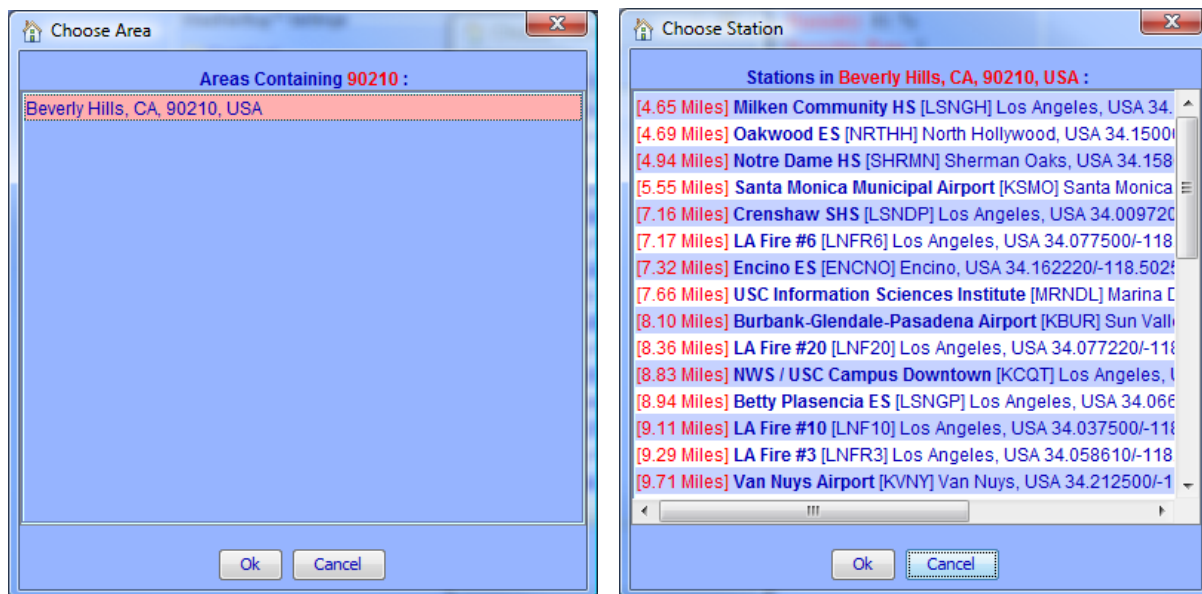
Double-click a station to utilize it with your ISY. For best results, choose a station as close to your location as possible.

Once selected, choose how you would like the information displayed (English or Metric). Also feel free to adjust the Polling Interface, which is how often your ISY connects to WeatherBug for updated weather information. Hit the SAVE button to save your configuration.

You should now see local weather information as shown below:

Now that your Climate Module has been configured, you can use this information as Conditions in ISY Programs. When choosing a condition, choose Module and Climate to see all available conditions:

3.9.3 Electricity Module

This module is available ONLY with the ISY-994i Series.

Brultech Electricity Meters can be utilized to monitor electricity consumption. This information can be used as conditions within ISY Programs.

To configure the ISY to pull information from your Brultech meter, click the Configuration tab in the ISY's Administrative Console and choose the Electricity sub-tab. Check the "Enabled" box, enter your Brultech meter's URL, and choose the preferred polling interval in seconds. Hit SAVE to save your settings to the ISY.

Once your Brultech meter is configured, you can use this information as Conditions in ISY Programs. When choosing a condition, choose Module and Electricity to see all available conditions:
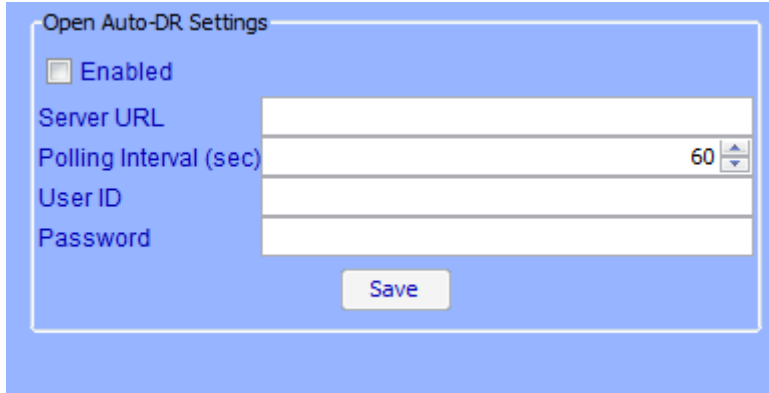
NOTE: Check out our ISY-994iZ Series device which contains Zigbee support for communicating with the Brultech Electricity Meters (and more!)

3.9.4 Open Auto Demand / Response Module

Demand Response is a feature provided by some utility companies. This provides you with information which could be utilized to help curb local demand. Please consult with your electricity provider to make sure you are eligible for this service.

Simply enable this option, provide your server URL, polling interval, user ID and password, then hit SAVE:

Once your Open Auto Demand / Response is configured, you can use this information as Conditions in ISY Programs. When choosing a condition, choose Module and Open Auto-DR to see all available conditions:

3.9.5 ELK Security Module

While the ISY does include some ELK integration built-in, it is fairly limited in that most of the integration must come from the ELK side. For example, you can write a program on the ELK to turn a light on through the ISY, but you cannot write an ISY program that turns a light on based on the state of an ELK resource.

The ELK Security Module changes that, fully integrating the ELK with the ISY allowing you to use the ELK's available resources in your ISY programs.

The list and state of available ELK resources can be found in the main ELK tab in the Admin Console.
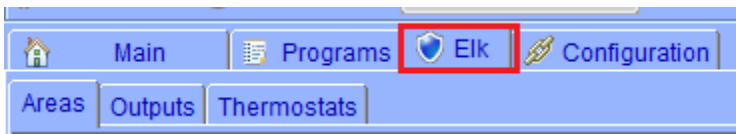
Within this tab you can choose sub-tabs to view ELK resources such as Zones (typically motion sensors, door sensors, window sensors, etc.). You can view Outputs configured on the ELK, and also any thermostats.

Using your ELK resources in ISY Programs is a snap. For example, you could trigger an ISY Program if a garage door sensor tied to your ELK was open:
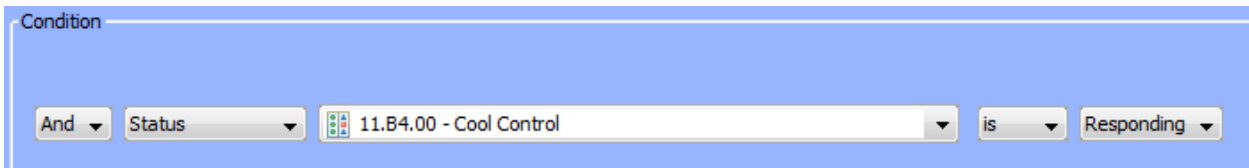
You could also use an ISY Program to arm your ELK security system:
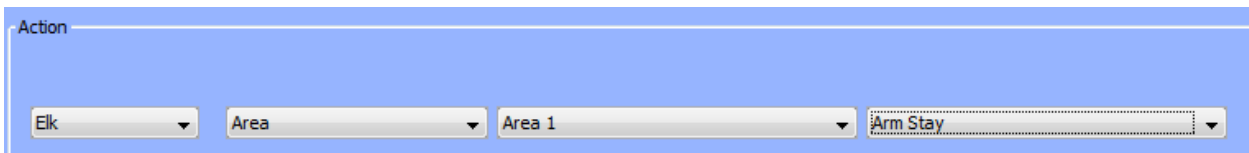
3.9.6 X10 Module

This optional module provides cleaner management and better control over A10/X10 devices, allowing you to add them to the Admin Console's device tree just like INSTEON devices.

Please note the following limitations:

- This module uses simulated INSTEON addresses internally. Though unlikely, it could potentially conflict with existing INSTEON devices in your ISY, stopping you from using those particular INSTEON modules.

- This module only allows for ON/OFF commands in the device tree. No support for bright/dim.

- Note that X10 devices cannot be added to INSTEON Scenes.

To add an A10/X10 device to your tree, click the Link Management pull-down menu and choose New INSTEON/A10/X10 Device.

Type the A10/X10 device's address, name the device, then choose the appropriate device type:
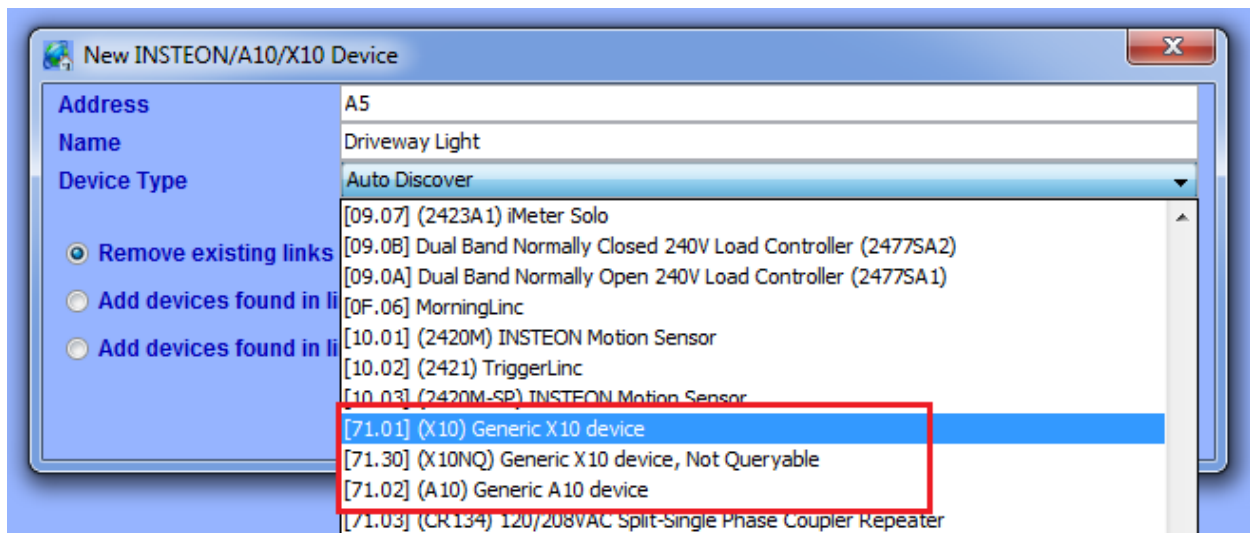
Once added, the A10/X10 device will be shown in your Admin Console's device tree and can be organized or used in ISY Programs just like any other INSTEON device.

3.9.7 The Irrigation Module

This module is designed to calculate the amount of water that is lost from the soil and plants and replace it with a close approximation of what was lost. Today in a world of "Green is good" every consumable resource such as water can be better conserved with such a tool.

 The module takes the local WeatherBug data, the user settings, and calculates each day the average water that has been lost. The user then can have programs that respond to these calculations and apply the appropriate amount of water to replace that loss. When those programs complete they trigger a command that lets the module know that the water has been applied and can be subtracted from the module's tally. Each day this is done completing the cycle of tracking the data and applying the water. During cooler times of the year the watering days frequency will slow down, and during the warmer parts of the year the watering frequency will ramp up to daily.

For more information, please see the article on our Wiki located here:

http://www.universal-devices.com/mwiki/index.php?title=ISY-99i/ISY-26_INSTEON:Using_the_WeatherBug_Irrigation_Module

3.10 Diagnostics

The ISY includes a handful of built-in tools to help troubleshoot problems that might occur, such as Programs that do not behave as expected or communication issues to or from INSTEON devices.

3.10.1 The Event Viewer

The Administrative Console's Event Viewer can be an invaluable tool in helping to diagnose problems you might be having. To access the Event Viewer, click on the Tools pull-down menu, then Diagnostics, then Event Viewer.

The Event Viewer window displays information on what is happening on your ISY, such as commands sent to devices, information received from devices, programs that are executing, and much more.

There are several levels of detail available using the Change Level button (level 3 being the most detailed). Use the "Save Log To" button to save the current Event Viewer output to a text file.

3.10.2 System Status

The System Status screen shows you basic information about the ISY, such as the date and time it was last started, the size of the installed SD card, and how much free space is available.

The access the System Status screen click on the Tools pull-down menu, then Diagnostics, then System Status.

3.10.3 PLM Info/Status

This screen will tell you if the ISY is communicating with an attached PLM, and also display the INSTEON address and firmware version of an attached PLM.

To view this information click on the Tools pull-down menu, then Diagnostics, then PLM Info/Status.

3.10.4 PLM Links Table

To see the link table in your attached PLM click the Tools pull-down menu, then Diagnostics, then PLM Links Table. Hitting Start will begin reading the link table from your attached PLM.

Once complete, you can hit the Count button to see the total # of links read from your PLM. This can be useful as PLMs have limits to how many links they can store. Unfortunately this limit does vary depending on which version PLM you have.

There is a Stop button available on this screen which, if pressed, will abort the reading of your PLM's links table. There are also Save and Load buttons available to export or import the links table to an XML file.

3.10.5 Show Device Links Table

To view the links table of an INSTEON Device, click the Tools pull-down menu, then Diagnostics, then Show Device Links Table. Choose your device, adjust the starting and ending addresses (only if needed) and hit Ok. This will start reading the selected Device's links table.

Once complete, you can hit the Count button to view your Device's total link count. This can be useful as Devices do have limits to how many links they can store. Unfortunately the limits do vary depending on the device.

You can also hit the Compare button to compare the links read in from the Device to the list of links the ISY believes the Device should have. If there is a discrepancy, you may want to run a Restore on the device to correct the links table. For more information on the Restore function, see the section titled **3.2.6 Other Functions (Restore, Disable, Query, & more)**.

There is a Stop button available on this screen which, if pressed, will abort the reading of your Device's links table. There are also Save and Load buttons available to export or import the links table to an XML file.

3.10.6 Show ISY Links Table

To view the list of links that the ISY believes a device should have, click the Tools pull-down menu, then Diagnostics, then Show Device Links Table. Choose your device and hit OK and the links table will be displayed.

You can hit the Count button to view your Device's total link count. This can be useful as Devices do have limits to how many links they can store. Unfortunately the limits do vary depending on the device.

There are also Save and Load buttons available to export or import the links table to an XML file.

3.10.7 Scene Test

The Scene test function can be very helpful in troubleshooting INSTEON communication issues. To open this tool, click the Tools pull-down menu, then Diagnostics, then Scene Test. Choose the Scene you would like to test then hit OK.

The Event Viewer will pop up and an ON and OFF command will be sent to the specified scene. The results of the test will be displayed in the Event Viewer window, indicating whether the test succeeded or failed for each member of the scene.

3.10.8 Query INSTEON Engine

If a device is not behaving as expected, for example of On Level or Ramp Rate functionality is not working properly, the ISY may not have proper information about the device's capabilities. To refresh this information simply right-click the Device in the node list and choose Query INSTEON Engine.

This will update the ISY's stored information and may correct the issue you are having.

Appendix A: Front Panel LEDs

Understanding the ISY's front panel LEDs can be helpful when troubleshooting problems.

Here is a table that helps explain each LED and LED combinations:

PWR on steady	The PWR LED indicates that the ISY has power, either through the PLM or via a separate AC adapter. If the PWR LED is not lit, the ISY does not have power.
RX, TX and MEM off	If all three of these LEDs is off, the ISY is idle.
RX blinking	The RX LED blinks when the ISY is receiving INSTEON traffic.
TX blinking	The TX LED blinks when the ISY is sending INSTEON traffic.
MEM blinking	The MEM LED blinks when the ISY is accessing its internal memory.
RX on steady	If the RX LED is on steady, the ISY is having a problem communicating with the PLM. Unplug the PLM for 10 seconds, then plug it back in to reboot. If the problem continues, either the PLM or cable is most likely defective.
ERR blinking	A blinking ERR LED indicates a file system error. Please power off the ISY and try to re-seat the SD card. If that does not help, the SD card may be defective. Please see **Appendix C: Replacing / Upgrading Your SD Card**

MEM and ERR blinking	If both the MEM and ERR LEDs are blinking, the ISY is unable to communicate with your Ethernet network. Please check all cable connections, try rebooting your router or switch, and ensure that you have a DHCP server available.

There are also 2 LEDs on the rear of the ISY where the Ethernet cable attaches. One LED indicates a good network connection (should be on solid) while the other should flash with network activity.

Appendix B: Factory Reset

There are only a few reasons why you might want to factory reset your ISY. In most cases, a factory reset will not help any problems you might be having.

Please be sure to thoroughly investigate your problem before trying a factory reset. If possible, be sure to have a known good backup of your ISY's configuration before factory resetting.

NOTE: A factory reset of the ISY will not erase any programming stored on INSTEON devices.

To factory reset your ISY:

- Use a sharp object (for example an straightened paperclip) to push in the recessed Reset button and watch for the RX, TX, MEM, and ERR LEDs to start flashing (once per second).

- Hold the Reset button for approximately 10 seconds more, until the above LEDs turn off and the MEM LED flashes quickly.

- Release the Reset button and wait for the ISY to reboot (when the MEM LED stops flashing).

Appendix C: Replacing / Upgrading Your SD Card

In some instances you may want to upgrade or replace your SD card. For example:

- You have purchased the ISY's Networking Module and need more storage for the internal web server.

- You are experiencing a blinking ERR light which could indicated a bad SD card.

The ISY supports up to a 16GB SD card.

Once your SD card is replaced, you will need to re-load the firmware onto your ISY as well as restore your configuration from a backup. Please be sure to have a good backup before attempting an SD card upgrade.

Newer ISY
Newer ISYs have an externally accessible SD card. Simply unplug all cables from your ISY, pull out the old SD card, and insert the new SD card. You will also need to reload the firmware onto your ISY. Proceed to the paragraph labeled "Reloading The ISY Firmware and Restoring From Backup".

Older ISY
Older ISY's have internal SD cards, so the unit must be taken apart for the SD card to be replaced. Please proceed with caution, and only if you feel comfortable taking apart your ISY.

There are 4 screws holding on the cover to the ISY. Remove those screws, and simply slide the cover off. Once off you will see 4 screws holding the ISY's circuit board to the bottom of the ISY's case. Simply unscrew all four screws, remove the ISY's circuit board with caution, and replace the SD card.

Once you screw the ISY back together, you will need to reload the firmware. Proceed to the paragraph labeled "Reloading The ISY Firmware and Restoring From Backup".

Reloading the ISY Firmware and Restoring From Backup
Once you've replaced your ISY's SD card, you will need to re-load the firmware as well as restore your configuration from a backup.

- Boot your ISY with the new SD card installed

- From a PC on your LAN, visit the following URL to launch the Administrative Console and locate your ISY:
  http://www.universal-devices.com/99i

- Login to the Administrative Console (default username and password are both "admin")

- Click on the HELP pull-down menu, then MANUALLY UPGRADE MY LIGHTING.

- Browse to the firmware file you wish to install. If you do not have a copy of the ISY firmware, please visit our forum for the download link:
  http://forum.universal-devices.com/viewforum.php?f=25

- After the firmware is installed your ISY will reboot. Please re-launch the Administrative Console and login: http://www.universal-devices.com/99i

- Click on the FILE pull-down menu, then RESTORE ISY and choose your last backup.

Appendix D: Upgrading Your Firmware

The ISY's Administrative Console checks for latest release firmware automatically. When a new release is detected, you will be notified and given on-screen instructions on performing the update.

In some cases, however, you may want to manually download and install a newer firmware. Some beta firmware releases may contain important features or device support that you may want to utilize. The Administrative Console will NOT notify you of beta firmware releases.

To manually download and install a firmware release, please see the following forum where both final and beta releases are regularly posted along with specific upgrade instructions:
http://forum.universal-devices.com/viewforum.php?f=25
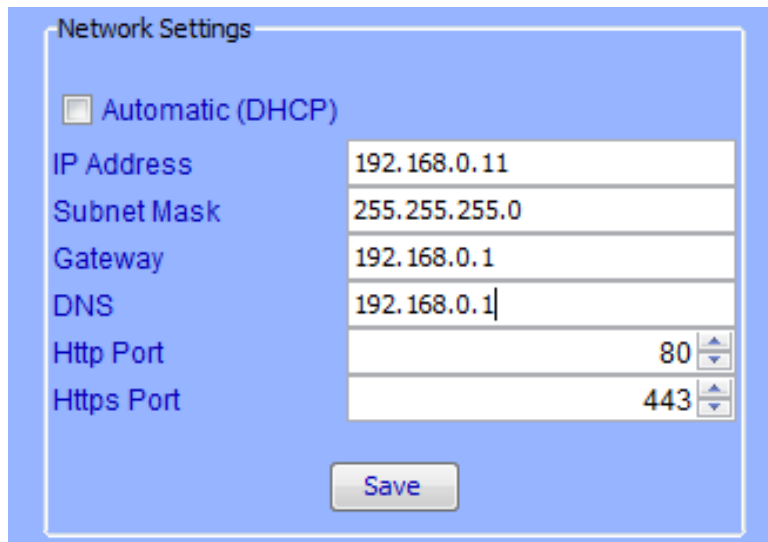
In general, please note the following before performing a firmware update:

- The downloaded firmware MUST remain zipped. DO NOT unzip the downloaded file.

- Please ensure you have a good backup before attempting a firmware update.

- Disable all anti-virus and firewall software before attempting a firmware update.

- Be sure to run firmware updates from a stable and, if possible, hardwired network connection. Avoid running firmware upgrades from marginal wifi connections or off-site locations if possible.

- Once downloaded, click the HELP pull-down menu, then MANUALLY UPGRADE MY LIGHTING, and browse to the firmware file you have downloaded.

- After upgrading your firmware, please close all browser windows and clear your Java cache as outlined in this article:
http://www.universal-devices.com/mwiki/index.php?title=ISY-99i/ISY-26_INSTEON:Clearing_Your_Java_Cache

Appendix E: Assigning a Static IP Address to the ISY

If you wish to assign a static IP address to your ISY, please open the Configuration tab, then the System sub-tab. Uncheck the "Automatic (DHCP)" box and fill out the fields in the Network Settings section:

To avoid IP address conflicts, be sure to choose an address outside of the DHCP range set on your router. Also be sure to type the correct Gateway and DNS addresses (typically your router IP address), otherwise the ISY will not have access to the internet.

You can also configure custom HTTP and HTTPS ports on this screen.

If you check the "Automatic (DHCP)" option, the ISY will not use a static IP address but instead get an IP address automatically from a DHCP server on your network.

Appendix F: INSTEON Device Notes

Some INSTEON devices require special care when used with the ISY. Some need to be added to the system in a specific way, and some have unique options available when configuring with the ISY. This section details some of this information and more.

As always, please refer to the manufacturer's documentation first. Please consider the following notes as a secondary source of information.

The following notes are sorted alphabetically by device name.

ApplianceLinc

Current ApplianceLincs will not act as controllers – they will not notify the ISY or control other linked devices if turned on or off locally (via the SET button or using load sensing).

EZI/O Devices (SimpleHomeNet)

Due to variations in firmware on SimpleHomeNet devices, some units (especially older firmware) may not work well with the ISY. Symptoms include the ISY not being notified of sensor state changes.

If you're having an issue with the ISY receiving status updates from an EZIO device, try the following steps:

- o remove the device from the ISY
- o factory reset the device
- o add the device back to the ISY by using "New INSTEON Device" and typing in the address

I/OLinc

Several options are available when configuring an I/OLinc on the ISY. These include:

- Timeout (seconds) - Sets the length of time the relay will close when Momentary is selected.
- Program Lock - Disables Set Button programming.
- Relay Follows Input - Sets Relay On when Sensor is On and Off when sensor if Off.
- Send X10 Send On (or Off) - Send X10 when the sensor changes.
- Trigger Off - If the TrigOff bit is set, Close Switch sends an OFF and Open Switch sends an ON. If the TrigOff bit is clear, Close Switch sends an ON and Open Switch sends an OFF.
- LED on TX - The LED will flash when the device sends Insteon commands.
- Momentary: A - The relay will close momentary. If it is Linked while On it will respond to On. If it is Linked while Off it will respond to Off.
- Momentary: Look at Sensor - If the sensor is On the relay will close momentarily when an On command is received. If the sensor is Off the relay will close momentarily when an Off command is received.
- Momentary: Both - On and Off both cause the relay to close momentary.

KeypadLinc

KeypadLincs show up as multiple nodes on the ISY (6 button or 8 button, depending on which model KeypadLinc). When switching between 6 and 8 button modes on the KeypadLinc, the device must be removed and re-added to the ISY.

Only the KeypadLinc's primary load button can be controlled directly by the ISY (through the Admin Console and ISY Programs). To control secondary buttons, create a Scene containing the button and control the scene.

KeypadLincs support several unique options, such as:

- Manually Exclusive Buttons – groupings of buttons so that one and only one button in the group can be ON at any one time.
- Toggle Mode – toggle a button to always stay ON or OFF (and only send the respective command when pressed)
- LED Brightness – adjust the KeypadLinc button LED brightness

Due to variations in KeypadLinc firmware, some configuration options may or may not be available.

LampLinc

Most LampLincs will not act as controllers – they will not notify the ISY or control other linked devices if turned on or off locally (via the SET button or using load sensing). LampLincs labeled v4.2 or higher (firmware v33+) should act as controllers.

Motion Sensor

Motion Sensors are RF devices, thus require the installation of an INSTEON RF receiver (such as an INSTEON AccessPoint).

The Motion Sensor cannot be linked using Auto Discover. To link a Motion Sensor to the ISY, please choose the LINK MANAGEMENT pulldown, then NEW INSTEON DEVICE. Enter the device address manually (found inside the battery compartment), then select the "2420M INSTEON Motion Sensor" from the Device Type list.

Since the Motion Sensor is a battery-saving RF device, you must put the device into linking mode to add it to the ISY (and make any changes to the device, such as adding/removing from scenes). Please follow the on-screen instructions to put the Motion Sensor into linking mode when prompted (hold SET button for 5 seconds).

Once added to the ISY, the Motion Sensor will show up as 3 nodes. The primary node is the motion sensing portion of the device, which updates according to sensed motion (or lack of motion).

There is also a DUSK/DAWN node that will show ON when the device senses darkness and show OFF when the device senses light. The Motion Sensor will not update this node until approximately 3.5 minutes after a state change has persisted.

Finally, a Low Battery node will show as ON when the Motion Sensor senses a low battery condition and notifies the ISY.

Motion Sensors support several unique options, such as:

- Timeout (minutes) - Defines the period of inactivity before the Motion Sensor will send an Off. Default = 1 minute. Range = 0.5 - 8.5 minutes in 30 second increments.
- LED Brightness - Default = 100. Range is 0 - 255.
- Darkness Sensitivity - The higher the value, the darker it needs to be for the unit to see night. Default = 35. Range = 0 - 255.

RemoteLinc

RemoteLincs are RF devices, thus require the installation of an INSTEON RF receiver (such as an INSTEON AccessPoint).

RemoteLincs link differently than other INSTEON devices, this require a separate linking routine. To link a RemoteLinc to your ISY, click the LINK MANAGEMENT pulldown and choose LINK A REMOTELINC and follow the on-screen instructions. Since the RemoteLinc is a battery-saving RF device, it must be put into linking mode whenever adding to the ISY or making changes (such as adding or removing from a scene). To put the device in linking mode, hold Button 1 down for 10 seconds, or until

the light starts flashing.

To EXIT linking mode, either wait for the RemoteLinc to time out and the LED to stop flashing (4 minutes), or simply hit the BRIGHT or DIM button. DO NOT hit one of the 6 rocker buttons.

RemoteLincs show up as a multiple nodes on the ISY (one node per button).

Thermostat Adapter

Older INSTEON Thermostat Adapters cannot act as controllers, thus they do not notify the ISY of any state changes. To get the most current information from your thermostat, we recommend using an ISY Program to poll the device periodically. See **Appendix G: Sample ISY Programs**.

Newer Thermostat Adapters (V2) do notify the ISY of state changes, so a poll Program will not be necessary.

TriggerLinc

TriggerLincs are RF devices, thus require the installation of an INSTEON RF receiver (such as an INSTEON AccessPoint).

The TriggerLinc cannot be linked using Auto Discover. To link a TriggerLinc to the ISY, please choose the LINK MANAGEMENT pulldown, then NEW INSTEON DEVICE. Enter the device address manually (found inside the battery compartment), then select the "2421 TriggerLinc" from the Device Type list.

Since the TriggerLinc is a battery-saving RF device, you must put the device into linking mode to add it to the ISY (and make any changes to the device, such as adding/removing from scenes). Please follow the on-screen instructions to put the TriggerLinc into linking mode when prompted (hold SET button for 5 seconds).

Once added to the ISY, the TriggerLinc will show up as 2 nodes. The secondary node is only used when the TriggerLinc is in "Multi-Scene" mode.

When in Normal mode, the TriggerLinc will send an ON command to the primary node when the sensor is open (magnet pulled away) and an OFF command when the sensor is closed (magnet close to sensor).

When in Multi-Scene mode, the TriggerLinc will send an ON command to the first node when the sensor is open, and an ON command to the second node when the sensor is closed. It will NOT send an OFF command to either node when in Multi-Scene mode.

Appendix G: Sample ISY Programs

This section contains some sample ISY Programs to get you started.

Periodically poll your Thermostat Adapter:

> *If*
> > *From   12:00:00AM*
> > *For   24 hours*
>
> *Then*
> > *Repeat Every 15 minutes*
> > *Wait 10 minutes*
> > *Set 'Thermostat' Query*
>
> *Else*
> > *- No Actions - (To add one, press 'Action')*

Front door light ON 20 minutes after sunset, OFF at 10pm:

> *If*
> > *From   Sunset + 20 minutes*
> > *To   10:00:00PM (same day)*
>
> *Then*
> > *Set Scene 'FrontDoor' On*
>
> *Else*
> > *Set Scene 'FrontDoor' Off*

Turn off closet light after 10 minutes:

If
> *Status 'Closet' is not Off*

Then
> *Wait 10 minutes*
> *Set 'Closet' Off*

Else
> *- No Actions - (To add one, press 'Action')*

Notify you of extreme temperature conditions:

If
> *Status 'Thermostat' > 90° (Temperature)*
> *Or Status 'Thermostat' < 60° (Temperature)*

Then
> *Send Notification to All*

Else
> *- No Actions - (To add one, press 'Action')*

Turn driveway lights ON and OFF with an X10 remote:

If
> *X10 'A2/On (3)' is Received*
> *And X10 'A2/Off (11)' is not Received*

Then
> *Set Scene 'Driveway' On*

Else
> *Set Scene 'Driveway' Off*

Increase a counter called "LightCounter" whenever a particular light is switched on:

> *If*
>> *Control 'Basement Light' is switched On*
>
> *Then*
>> *$LightCounter += 1*
>
> *Else*
>> *- No Actions - (To add one, press 'Action')*

Send a notification email whenever the variable "LightCounter" reaches a value of 5, then reset it back to 0:

> *If*
>> *$LightCounter is 5*
>
> *Then*
>> *Send Notification to 'My Email'*
>> *$LightCounter = 0*
>
> *Else*
>> *- No Actions - (To add one, press 'Action')*

Appendix H: Troubleshooting INSTEON Communication Issues

It is important to have a pair of INSTEON AccessPoints or other INSTEON RF devices (or an INSTEON-compatible hardwired coupler) installed to ensure good communications between both legs of power in your home. See Smarthome's documentation for ensuring your AccessPoints are installed on opposite legs of power. We recommend placing them as close to your electrical panel as possible.

An AccessPoint (or other INSTEON RF receiver, such as their 2413S Dual-Band PLM) is also required to communicate with INSTEON RF devices.

Most INSTEON devices use powerline technology to communicate with one another. Some devices on in your home may interfere with device communications. Some known offenders are:

-   Low voltage lighting
-   Fluorescent lighting
-   CFLs
-   Desktop computers and notebooks
-   Surge protectors
-   UPSs

In many cases these devices can exist on your powerline with no problem. But, if you are experiencing communication issues, we highly recommend unplugging any devices you have on the above list. Once you establish reliable communications, add the devices back in one at a time to find the cause. Most troublesome plug-in devices can be filtered using FilterLincs from Smarthome.

Because the ISY sends and receives all INSTEON signals through the PLM, we highly recommend plugging it in to an outlet away from potentially noisy electrical devices, such as PCs and UPSs, and as close to your electrical panel as possible. DO NOT plug your PLM into a surge protector or UPS. We also highly recommend installing an AccessPoint as close to your PLM as possible.