



**ISY 994 Z Series**  
**RCS Thermostat Support**  
**Scheduling Addendum**  
Supporting  
**TZ45**

*Web Services SDK*  
*Based on firmware 4.2.30*

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<b>Date/Firmware</b>	<b>Type</b>	<b>Change</b>	<b>Description</b>
2013/04/07 4.0.3	DOC	Initial	Scheduling commands for Zigbee RCS Thermostats

## 1. Introduction

ISY994 Z Series incorporates sophisticated energy management capabilities to the base ISY platform supporting a variety of Zigbee devices including RCS Zigbee thermostats/load controllers. As such, all ISY interfaces, services, and events are applicable to 994Z as well.

ISY994 Z series comes equipped with an integrated high powered Zigbee radio operating on a Zigbee PRO stack. Utilizing the APIs, you can configure all parameters on your RCS Zigbee thermostats/load controllers wirelessly and through Zigbee.

Upon startup, ISY either establishes a PAN (as a Coordinator) or starts operating on the PAN that was already established prior to reboot. It's quite important to make sure that supported Zigbee devices are searching and joining the correct PAN and sending events to the correct end point. As such, there are two phases for the correct operation of the system:

1. Setup ISY for a specific PAN ID and channel mask that is known not to interfere with other RF devices such as WiFi systems.
2. Configure RCS Thermostat to join the configured network

This document describes the web services method through which an ISY WS client can get and set thermostat's schedules.

**Note:** Please do ensure that your thermostat has firmware version .47 or above. If not, please contact RCS for remedy.

## 2. Getting Started

ISY994 Z Series is based on the same framework as ISY and therefore communications and event infrastructure follow the same paradigm. If you have not yet reviewed ISY's WSDK Developer's guide, please send an email to [sales@universal-devices.com](mailto:sales@universal-devices.com).

If you do not already have RCS Zigbee Thermostat Support on ISY, please send an email to [sales@universal-devices.com](mailto:sales@universal-devices.com) with your UUID (Help | About) and your desire to have it activated.

### 2.1 Configuring ISY

Setup Zigbee network as depicted in Figure 1 below.

The screenshot shows the ISY994 Z web interface with the following sections:

- Clock:** Includes options for 24 Hr. Format, Daylight Saving, Change Location [Los Angeles, CA], Synchronize the Clock with Computer's Time, and Manually Adjust the Clock. It also has an NTP Server field set to pool.ntp.org and a Synchronize every (Hour) dropdown set to 24.
- Network Settings:** Includes Automatic (DHCP) checkbox, IP Address (192.168.0.145), Subnet Mask, Gateway, DNS, Http Port (80), and Https Port (443).
- System:** Includes HTML Role (Advanced), Query at Restart, Wait while busy reading, Send compact notifications, Catch up schedules at Restart, and Missed Schedule Grace Period (m:s) (10, 0).
- Zigbee Settings (highlighted with a red box):**
  - Enabled:** Checked
  - Power:** -7
  - Pan ID:** 0345
  - Link Key:** 00000000000000000000000000000001
  - Network Key:** 00000000000000000000000000000001
  - Channels:** 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 (all checked)
  - Status:** Established | 0000000000000345 | 12 | -7db

**Figure 1. Setting up Zigbee Network**

## ***2.2 Configuring RCS Zigbee Thermostat***

1. Click on the Menu button
2. Press and hold the two middle buttons between Menu and Hold/Away
3. Scroll down to Zigbee Install
4. Add your Thermostat to the newtork

### 3. Getting/Querying Schedules

To get if cached on ISY (will query if not cached):

```
<command>GETPROPS</command>
```

To query them use:

```
<command>QRYPROPS</command>
```

```
<s:Envelope>
  <s:Body>
    <u:DeviceSpecific xmlns:u="urn:udi-com:service:X_Insteon_Lighting_Service:1">
      <command>GETPROPS</command>
      <node>0013A200408D1120</node>
      <p1>SCHED</p1> <!-- Property category -->
      <p3>SCHED</p3> <!-- Property Name -->
    </u:DeviceSpecific>
  </s:Body>
</s:Envelope>
```

**Returns:**

**mode** – Predefined settings for a given schedule mode (currently only have settings for ‘away’)

**day** – Settings

For <day> entries, "0" means COOL and/or HEAT attribute shall not change that setpoint at that time

```
<schedule>
  <mode ID="away" COOL="83" HEAT="67"/>
  <day ID="sun">
    <e time="07:15" heat="0" cool="87"/>
    <e time="09:15" heat="68" cool="0"/>
    <e time="16:25" heat="0" cool="0"/>
    <e time="22:25" heat="72" cool="90"/>
  </day>
  <day ID="mon">
    <e TIME="06:05" COOL="78" HEAT="69"/>
    <e TIME="08:00" COOL="81" HEAT="66"/>
    <e TIME="16:00" COOL="78" HEAT="70"/>
    <e TIME="22:00" COOL="81" HEAT="66"/>
  </day>
  <day ID="tue">
    <e TIME="06:10" COOL="78" HEAT="69"/>
    <e TIME="08:00" COOL="81" HEAT="66"/>
    <e TIME="16:00" COOL="78" HEAT="70"/>
  </day>
</schedule>
```

```

    <e TIME="22:00" COOL="81" HEAT="66"/>
  </day>
  <day ID="wed">
    <e TIME="06:15" COOL="78" HEAT="69"/>
    <e TIME="08:00" COOL="81" HEAT="66"/>
    <e TIME="16:00" COOL="78" HEAT="70"/>
    <e TIME="22:00" COOL="81" HEAT="66"/>
  </day>
  <day ID="thu">
    <e TIME="06:05" COOL="67" HEAT="56"/>
    <e TIME="08:05" COOL="66" HEAT="57"/>
    <e TIME="16:05" COOL="65" HEAT="58"/>
    <e TIME="22:05" COOL="64" HEAT="59"/>
  </day>
  <day ID="fri">
    <e TIME="06:20" COOL="79" HEAT="69"/>
    <e TIME="08:20" COOL="78" HEAT="68"/>
    <e TIME="16:20" COOL="77" HEAT="67"/>
    <e TIME="22:20" COOL="76" HEAT="66"/>
  </day>
  <day ID="sat">
    <e TIME="06:25" COOL="78" HEAT="70"/>
    <e TIME="08:25" COOL="78" HEAT="70"/>
    <e TIME="16:25" COOL="78" HEAT="70"/>
    <e TIME="22:25" COOL="81" HEAT="66"/>
  </day>
</schedule>

```



## 4. Setting Schedules

For <day> entries, specify "0" for COOL and/or HEAT attribute to not change that setpoint at that time

```
<s:Envelope>
  <s:Body>
    <u:DeviceSpecific xmlns:u="urn:udi-com:service:X_Insteon_Lighting_Service:1">
      <command>SETPROP</command>
      <node>0013A200408D1120</node>
      <p1>SCHED</p1> <!-- Property category -->
      <p3>SCHED</p3> <!-- Property Name -->
      <CDATA>
        <schedule>
          <mode id="away" heat="67" cool="83"/>
          <day id="sun">
            <e time="07:15" heat="0" cool="87"/>
            <e time="09:15" heat="68" cool="0"/>
            <e time="16:25" heat="0" cool="0"/>
            <e time="22:25" heat="72" cool="90"/>
          </day>
          <day id="mon">
            <e time="06:05" heat="69" cool="78"/>
            <e time="08:00" heat="66" cool="81"/>
            <e time="16:00" heat="70" cool="78"/>
            <e time="22:00" heat="66" cool="81"/>
          </day>
          <day id="tue">
            <e time="06:10" heat="69" cool="78"/>
            <e time="08:00" heat="66" cool="81"/>
            <e time="16:00" heat="70" cool="78"/>
            <e time="22:00" heat="66" cool="81"/>
          </day>
          <day id="wed">
            <e time="06:15" heat="67" cool="78"/>
            <e time="08:00" heat="66" cool="81"/>
            <e time="16:00" heat="70" cool="78"/>
            <e time="22:00" heat="66" cool="81"/>
          </day>
          <day id="thu">
            <e time="06:05" heat="56" cool="67"/>
            <e time="08:05" heat="57" cool="66"/>
            <e time="16:05" heat="58" cool="65"/>
            <e time="22:05" heat="59" cool="64"/>
          </day>
          <day id="fri">
```

```
<e time="06:20" heat="69" cool="79"/>
<e time="08:20" heat="68" cool="78"/>
<e time="16:20" heat="67" cool="77"/>
<e time="22:20" heat="66" cool="76"/>
</day>
<day id="sat">
  <e time="06:25" heat="70" cool="78"/>
  <e time="08:25" heat="70" cool="78"/>
  <e time="16:25" heat="70" cool="78"/>
  <e time="22:25" heat="66" cool="81"/>
</day>
</schedule>
</CDATA>
</u:DeviceSpecific>
</s:Body>
</s:Envelope>
```

## 5. Events

Schedule events are identified by CLISMD Controls the actions for which are listed below:

```
<control>
  <name>CLISMD</name>
  <label>Schedule Mode</label>
  <readOnly>false</readOnly>
  <isQueryAble>true</isQueryAble>
  <isNumeric>false</isNumeric>
  <actions>
    <action>
      <name>0</name>
      <label>Hold</label>
    </action>
    <action>
      <name>1</name>
      <label>Run</label>
    </action>
    <action>
      <name>2</name>
      <label>Away</label>
    </action>
  </actions>
</control>
```