

Imagine a situation where you have kids coming home from school, and enter the house by opening the garage door. It would be nice to know that they're home. You can program the RUC-02 to send you an email when the garage door opens. To do that you will need something like our UPB CM-01 IO module connected to contact sensors on the garage door and have the CM-01 programmed to send out a UPB command when it senses the garage door opening. We won't talk about the actual installation of the hardware but let's discuss how you can setup triggers to send emails from the RUC-02.

You can have the RUC send emails based on schedules, buttons, or by detecting UPB commands on the powerline.

In order to setup this control, we will use what we refer to as Triggers using an IF THIS THEN THAT procedure. We will go through all three trigger types, but let's start with the Schedule Trigger. From the Home Page, click on the Trigger item on the left hand menu. Notice there are two sections—Receive and Send.

Triggers

Web Mountain RUC

Home
Networking Config
Device Config
Admin
UPB Transmission
UPB Status
Receive
Triggers
Control Panel
Export/Voice
Backup/Restore

Triggers

Receive Command

Trigger Name:

H: (24 hr clock)

M:

Use Hrs and Mins as:

Actual Time

Time before sunrise

Time after sunrise

Time before sunset

Time after sunset

Sun (S) M (M) Tue (T)

W (W)

Thu (R) F (F) Sat (U)

Send on schedule

Random (+/- 30 min)

Home

Vacation

Both

Command Type: (S) Sched

Send Command

NID: 1

DID: 0 Other Device

CMD: Activate

of Transmissions: 2

Com Port: (1) COM1

Add Trigger



Schedule Triggers

There are limited applications for sending an email on a schedule. One example might be to have the RUC send you an email every day at 6 PM so that while you're traveling, you know the RUC is working and there hasn't been a power outage. But, no matter your reason, you can do it.

For a Scheduled Trigger, use the dropdown on the left side of the Receive block and select Sched (Sched is the default setting and will come up when the Trigger menu item is selected. Here is what the Receive block with Schedule selected looks like:

Triggers

The screenshot shows a 'Receive Command' configuration window. On the left, there is a 'Command Type:' dropdown menu with '(S) Sched' selected. The main area contains the following settings:

- Trigger Name: Landscape Lights On
- H: 0 (24 hr clock)
- M: 0
- Use Hrs and Mins as:
 - Actual Time
 - Time before sunrise
 - Time after sunrise
 - Time before sunset
 - Time after sunset
- Days of the week:
 - Sun (S) M (M) Tue (T)
 - W (W)
 - Thu (R) F (F) Sat (U)
- Send on:
 - Send on schedule
 - Random (+/- 30 min)
- Location:
 - Home
 - Vacation
 - Both

First, you must give the Trigger a name. Pick something descriptive so that you know what it means later. Then, you need to select the TIME you want the Trigger to activate. This is the IF THIS part of the equation. For example, IF it is SUNSET, THEN do something. Or IF IT IS 11:15 PM, THEN do something. NOTICE that the Hours (H) use a 24 hour clock. 11 PM would be 23:00. For SUNRISE, either pick Time Before Sunrise or Time After Sunrise. One you pick one of those, then the Hours / Minutes allow you to select the amount of time before sunrise or the amount of time after Sunrise that the trigger activates. For example, if you selected Time Before Sunrise and set Hours to 0 and Minutes to 15, the trigger would fire 15 minutes before sunrise. Same with SUNSET. You can select which days of the week the trigger will fire by checking or unchecking the days of the week.



There are two other options:

- You can decide to send the trigger command on Schedule, or Randomize the time (+ / - 30 minutes). When you send On Schedule, it will send out the command exactly at the time you selected, for example SUNSET or 11:15 PM. If you Randomize (typically not used for email triggers), then the command can be sent anytime within the range of + / - 30 minutes and it will be different each time it triggers.
 - You can also set up Triggers to only run in the HOME or the AWAY modes (or both). By default, the MODE is set on the Device Configuration page (with the default being HOME mode). If the system is in the HOME mode, then only Triggers set to run in the HOME mode or BOTH will run. VACATION mode triggers will not run in this mode.
- NOTICE that this example trigger has a name of Landscape Lights On and is set to run at SUNSET (since the Hours and Minutes are set to 0), every day of the week, ON SCHEDULE, and in BOTH Modes (Home and Vacation).
- Ok, now let’s look at the SEND section. This section is the THEN DO THIS part of the IF THIS THEN THAT equation. In the Command Type Dropdown on the left side, select Email. Notice that the screen changes and only provides you with entry options applicable for sending an email—the TO address, the Email Subject, and the Email Message.

Here is where you configure what the Email to be sent looks like. Obviously, you need to tell the trigger who you want the email to be sent to—the TO address. Then, you need to enter a Subject for the Email—enter something that makes it obvious this is coming from the RUC, and then you need to enter the body of the email. Now, recognize this isn’t intended to send out a literary masterpiece—keep it short and sweet—you only get 50 characters in the body of the email. Once you have all of this information entered as you want, press the Add Trigger button.



That’s all there is to setting up a scheduled email trigger in the RUC-02. Again, there are limited applications for a scheduled email trigger, but you can do it if you so desire.

Ok, now let’s verify that the Trigger was properly programmed into the RUC. Go to the Bottom of the Trigger page and you will see this:

Trigger List

Buttons - View Page(s)

Schedules - View

Commands - View

When you click on the dropdown next to Schedules—View, you will get two options:

- View None
- View All

Select View all.

You will see this:

Trigger List

Buttons - View Page(s)

Schedules - View

<p>Send Daily Email Run at Time: 06:00 PM SMTWRFU Send on Schedule To: sales@webmtn.com, Subject: Daily Verification Email</p>	<input type="button" value="Run"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
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This sections shows all of your triggers, in this case, all of your Schedule Triggers. Right now, since we have only added one trigger, there is only one shown. If you had 20 Schedule Triggers, of any Send type, they would all show up here. Notice that for each trigger, it shows you the Trigger Name, the time it is set to run, the days of the week when it will run and whether it is sent on Schedule or Randomized. Then, notice, for an Email Trigger, that it also shows the Email TO address and the Subject.

Also, there are three buttons where you can manually RUN the Trigger without having to wait for the Receive action (in this case, a scheduled time), EDIT the trigger (for example, changing the time from 11:00 PM to 11:15 PM), and you can DELETE the trigger.

When you are in the EDIT mode, you will see that the Receive dropdown (Sched) and Send Dropdown (Email) are grayed out. You can not edit these two items. To change those, you will need to Delete the trigger and re-enter it.

One word of caution with Schedule Triggers. At the current time, the RUC cannot reliably run two schedule triggers at the same time. If you want to send an email at a similar time to another action, setup two separate triggers spaced one minute apart.

Now, let’s move to Button triggers. Again, referring to IF THIS, THEN DO THAT, a Button Trigger would be IF THIS Button is pressed then, do this action.

Button Triggers

Like with Schedule Triggers, there are very limited applications for using a Button Trigger that sends an email. You could use it for testing. But, no matter, you can do it if you so desire. For a Button Trigger, use the dropdown on the left side of the Receive block and select Button. Here is what the Receive block with Button selected looks like:

Triggers

Receive Command	
Command Type: (B) Button	Trigger Name: <input type="text"/>
	Page #: 1
	Button #: 1
	Display Text: <input type="text"/>

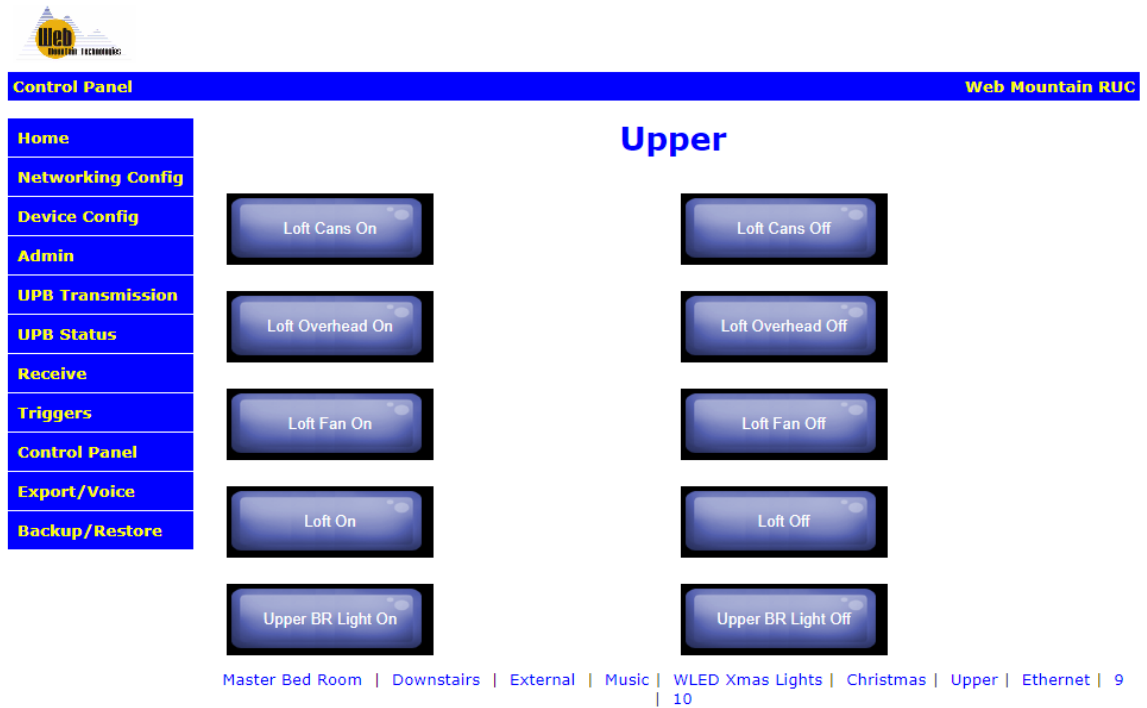


First, just like with a Schedule trigger, you must give the Trigger a name. Pick something descriptive so that you know what it means later. Now, we need to discuss what the Page #s and Button #s refer to.

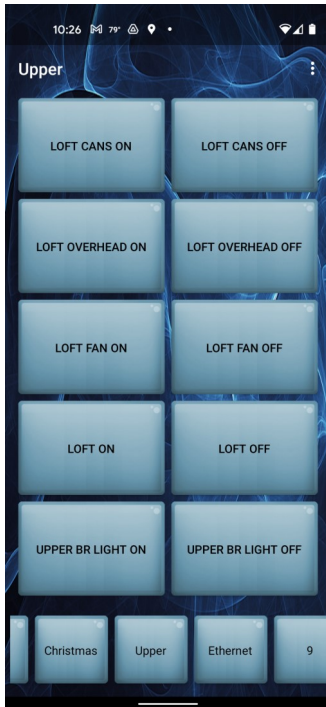
When you enter a Button Trigger, you are creating a button that will show up on the Control Panel (on the left hand menu on the RUC User Interface (UI), right under Triggers). The Control Panel serves two purposes. First, the Control Panel gives you a simple user interface from any browser to quickly and manually control UPB devices and scenes. Second, the Control Panel is how our mobile app for the RUC is set-up—the buttons that show up on the Control Panel are the buttons you see on the app, albeit with a prettier interface. The Control Panel has 10 pages and you can have 10 buttons per page, for a total of 100 buttons. Just remember that in many cases, you will need an Activate (or ON) button and also a Deactivate (or OFF) button for each device and or Scene.

Buttons can be used to create Button triggers that send out any of the command types listed as Send Types (UPB Direct, UPB Link, Email, Ethernet, GET / POST, or MODE). As an example, you could easily set-up a Button Trigger to change the mode from Home to Vacation and back again.

Here is screenshot showing the Control Panel with multiple trigger types:



Here is a screenshot of what the Control Panel looks when mirrored into our mobile app:



Notice that the buttons that were added to the Control Panel are identical to what shows up on the app. This is how you design the user interface on the mobile app.

Also, notice that the pages on the Control Panel are listed as 1—10, but you can relabel the numbers to names for greater clarity.

At this point, you should give some thought as to how you want to layout the Control Panel User Interface. Consider making a page refer to devices or scenes in a room and then relabel that page to a room name, for example, Kitchen, or Master Bedroom, or Outside. Then, add Button triggers to that page that correspond to that room. However, you can organize them as you desire.

Next, the layout of the buttons on the pages are 1—5 in the first column, then 6—10 in the second column.

So, you've given some thought as to how you want the buttons laid out—now it's time to create the buttons. You've already given the Trigger a name, so now use the Page # dropdown and select the page where you want your new button to be located (pages will be shown as #s if you haven't labeled them or will show the label name if you did give the page a name). Then, use the Button # dropdown and select the button location where you want this button.

Now, you get to create the label or name that goes on the actual button. Normally, this will match the label you provided for the Trigger Name above, but it doesn't have to—just realize that long names will wrap on the button making it harder to read the button label—shorter and sweeter is better.



Now, go the SEND section and setup your Email Trigger just as you did for a Schedule trigger—the setup is identical. Do you remember how you did that? If not, go back to page 3 of this Application Note and follow those instructions.

Once you’ve setup the Send section, click on Add Trigger. That’s it—you’ve created a button trigger!

To verify the Trigger, go to the bottom of the page , under Trigger List, and use the dropdown next to BUTTONS—View Page(s). However, notice there’s a difference with this View—you can Select View None, View All, or you can select a single page from the 10 pages of the Control Panel. Here’s a small example:

Trigger List

Buttons - View Page(s)

Send Garage Email Page: 1 Button: 1 Text: Send Garage Email To: sales@webmtn.com, Subject: Garage Door Opened	<input type="button" value="Run"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
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Schedules - View

Commands - View

This shows you the name of the Trigger, the page the button is on, the text for the button, the TO email address, and the Subject line for the email. Also, just like with the Schedule Trigger, you can Run, Edit, or Delete the Trigger.

Command Triggers

Ok, now let’s show you how to setup a Command Trigger. This is the best use of an Email Trigger. Again, referring to IF THIS, THEN DO THAT, a Command Trigger would be IF THIS UPB COMMAND IS RECEIVED ON THE AC POWERLINE then do some action (in this case, send out an email).

While the RUC-02 is normally used as a Transmitter to send commands out to control devices and scenes, it can also monitor the powerline and detect any command that might be sent from another device on the UPB network. It can then use those commands to trigger sending out an email (or other Send command if desired).



NOTE: The RUC cannot trigger based on a Command it sends itself—it must be triggered by a command it detects on the powerline, meaning it had to come from another device.

Here is the Receive section for a Command Trigger:

Triggers

The Command Trigger Receive section is very simple from a UI standpoint but more complicated from a user standpoint. As always, you first start by giving the Trigger a name that describes its function.

However, the next step is entering in the Regex. The Regex refers to the actual UPB command as denoted in its ASCII format. For example, a good example of a Regex is 87000101FF2058. A few words on the structure of a UPB command are called for now.

A very simple UPB command is built like follows (there are much more complicated options):

- A prequel (in most cases, a hex 0x14)
- 4 characters that describe some UPB options
(starts with 0/1 for devices, 8/9 for links)
- 2 character (hex) NID
- 2 character Destination ID (hex) - who you're sending it to
- 2 character Source ID (hex) - who's sending the command
- 2 character checksum for error checking
- A suffix (normally a hex 0x0D, hex for a carriage return)

So, let's break down our sample Regex, 87000101FF2058.

We don't need to add the leading 0x14 or the trailing 0x0D. The RUC will add those automatically for you. So, just concentrate on the command in between those two.



The 8700 indicates it's a Scene command and it's only sent one time (other info that I won't go into)

The next 01 is the UPB NID

The next 01 is the Destination ID, in this case it refers to Scene 001, since it's a Scene command.

The FF is the source ID. FF normally indicates some kind of controller (like the RUC). If the command is sent from a UPB device, this will show the Device ID of that device.

The "20" indicates an Activate command. A "21" would be a Deactivate command.

The 58 is the checksum.

So, now you're asking yourself "How in the world would I figure out what command to use for the Regex?"

There are two ways. First, you can generate it yourself. We have a UPB command calculator we can provide that will allow you to generate the command. But, the second method is much easier.

Setup the device that you're going to use to generate the command. Then, create the conditions and send the command (press a button, cause a sensor to send the command, etc). Now, go to the RUC User Interface and select the left hand menu item Receive. Look at the last received command—that should be the command you're looking for. If you need help, email us at sales@webmtn.com and we'll help you out.

So, when would you use a Command Trigger? Here's an example:

You are using a UPB IO module, such as the Web Mtn CM-01, to detect when your garage door opens. When it opens, the CM-01 detects this and sends out a command (say 87000101FF2058) to turn on Scene 1 and turn on the hallway lights. However, you can also trigger a second trigger to send out an email telling you that the garage door has opened.

That brings us to the Delay part of the Receive section of a Command Trigger. Notice that you can add delay in hours, minutes and seconds. So, here is where you setup the delay. You can only have 23 hours, 59 minutes, or 59 seconds of delay. For sending an email, the delay isn't important but you can add a small delay as you desire.

NOTE: Delays of less than 5 seconds or so won't be all that accurate, due to the processor timing.

Now, I'm sure you have another question. What happens if I want to have a command trigger that might come from many different devices? For example, I want to trigger on a UPB command, NID of 1, LID of 1, and an Activate command, but this command could come from more than one device?

That's where Wild Cards come in.....



Wild Cards for use with Command Triggers

So, let's say that you have two UPB wall controllers located in different spots of your home. And, both are programmed with a button that will send the same command, let's say turn on outside spots lights. So, if you hear a noise outside, you can go to either of these wall controllers and turn on the outside spot lights. And, then after 10 minutes, you want the lights to turn off. Each of these controllers will send basically the same command, but their Source ID is going to be different. Rather than setting up two different command triggers, we can use Wild Cards and only make one Command Trigger. Let's take an example using our old favorite standby Regex, 87000101FF2058.

Wild cards use periods and asterisks to represent ignore characters. For example, you could represent the above string using wild cards like this:

PU8...0101..20.*

The "." character means "don't care – it can be any character". The "*" wild card means ignore any characters after the last one. Using wild cards, you can ignore some of the more esoteric functional characters (# of times to send, the source ID, etc) and make the capture command easier to determine. **YOU DO NEED TO PUT** the period (.) after the *.

So, now the Command Trigger is going to trigger when it receives a link command from any source for a NID of one and a LID of one and an Activate command.

Another example using wild cards:

Original command A90401010220FFFF31

Using wild cards A...0101..20.*

Now you know you're looking for a trigger command that is a link command, NID=1, LID=1, and command = Activate. We don't care about any of the other characters in the original command.

Ok, now that we have the Receive section of the Command Trigger setup, it's time to setup the Send section. Again, this is setup just like you did for a Schedule Trigger or a Button Trigger. If you don't remember how to do that, go back to Page 3 of this App Note and refresh your memory.



Then, to verify the Trigger, drop down to the bottom of the page, and click on the dropdown next to Command Trigger and you'll see this:

Trigger List

Buttons - View Page(s)

Schedules - View

Commands - View

Garage Door Opened Pattern: 8...0101..20.. To: sales@webmtn.com, Subject: Garage Door Opened	<input type="button" value="Run"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
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Summary—Using the RUC-02 to Trigger UPB Commands

Well, there you have it. You now know how to create Schedule, Button, or Command Triggers in order to send an email alert. It might look complicated, but once you've done a few, you'll get the hang of it and see how intuitive it is.

The RUC-02 is a powerful UPB controller and offers many other options for control. One of the most notable other options for UPB control is Voice Control using Amazon Alexa. But, that's the topic of another Web Mtn Application Note!

If you need any help or further assistance with your RUC-02, just contact us at 303-627-1856 or sales@webmtn.com, and be sure to read through our other RUC-02 Application Notes!

