i-Vu® Express v9.0

Owner's Guide

 • Catalog No. 11-808-1091-01 • 1/27/2025

 Verify that you have the most current version of this document from **www.hvacpartners.com**, the **Carrier Partner Community** website, or your local Carrier office.

Important changes are listed in **Document revision history** at the end of this document.

Contents

Accessing your system

Your system details

Network Name: To access the system, launch a web browser and type in https://_____.

- Your Login Name is _____.
- Your Password is

  NOTE Keep this in a secure location.
- Your i-Vu®'s IP address is

  _____.

To change your password

1 Click  , then select **System Options** > **My Settings** tab.

2 Click **Change password**. Enable this field, then type your current and new passwords.

3 Enter any combination of characters. Limit of 40 characters.

4 Click **Apply** or **OK**.

Add an additional operator

To keep track of your Operators, use the space provided in the back of your Owner's Manual.

1 Click  , then select, select **System Options** > **Operators** tab.

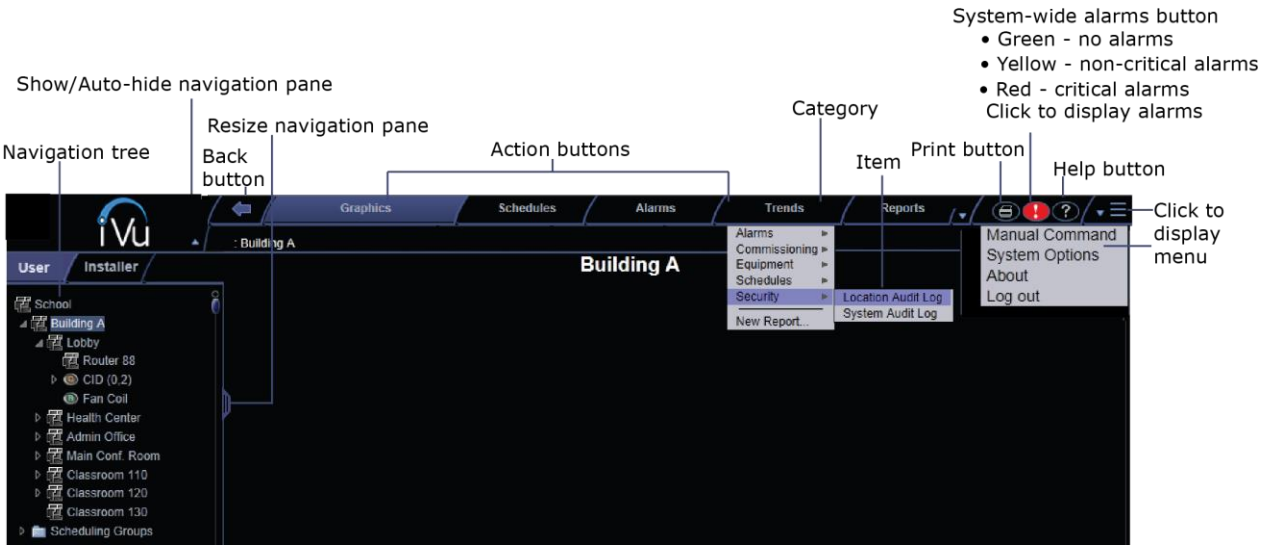
2 Add additional operators with appropriate access roles.

3 Keep a record of your additions and changes.

4 Click **OK** or **Apply**.

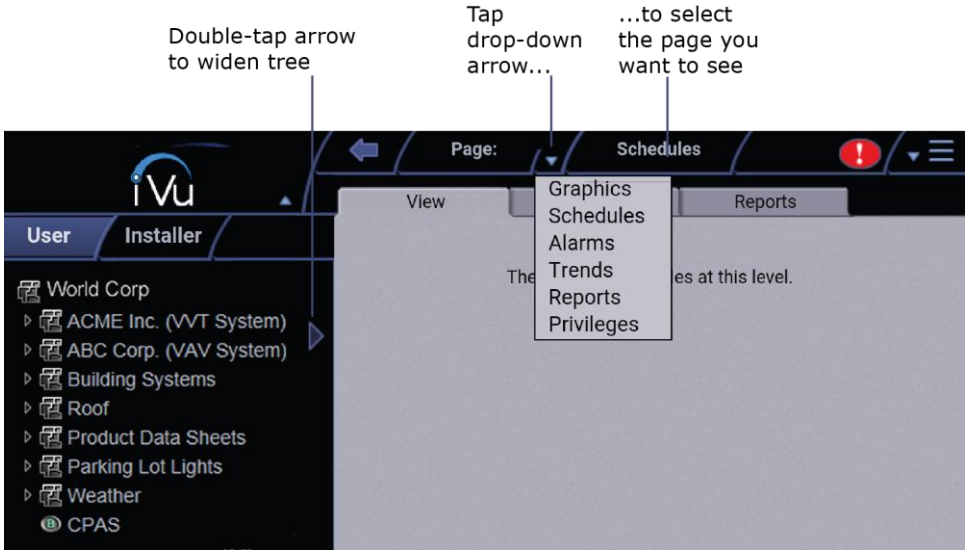
Getting to know the interface

Computer and large-screen mobile interface



Small-screen mobile interface

Most of the i-Vu® interface is the same on small-screen mobile devices except for the differences shown below.



- When you click  to hide the tree, the button changes to  .
- **Help** and **Print** are in the  menu.

NOTES

- After you log in, you will see the page defined as your starting location on the **My Settings** page. To change your opening page, see *To change My Settings* (page 57).
- Roles/privileges control what an operator can see or do in the i-Vu® system. If you cannot see or do something that you read about in Help, ask your System Administrator to check your role/privileges.
- Use only the i-Vu® interface to navigate; do not use the web browser's navigation buttons.
- Click on any tab to refresh the page.

Navigating the system

To navigate in the i-Vu® interface:

1 Select the item you want in the navigation tree.

2 Select the action buttons and their drop-down lists.

3 Use the tabs to filter the information further.

NOTE Use only the i-Vu® interface to navigate; do not use the browser's navigation buttons.

4 Click on any tab to refresh the page.

System Options

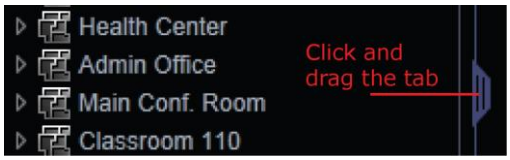
Click  and select **System Options** to view or change the setup and maintenance of your system in your i-Vu® application.

To show, hide, or resize the navigation tree

On a computer or large screen mobile device

Click  at the top of the navigation tree to hide or show the tree.

Click and drag the tab on the right side of the tree to adjust its width.



In the **Installer** view, click and drag the tab at the top of **Arrange User View** to adjust the height of the window.

On a small-screen mobile device

Touch  at the top of the navigation tree to hide the tree. Touch  to show it.

Double-tap the arrow on the right side of the tree to widen the tree. Double-tap again to return to the original size.

Viewing vector graphics

When viewing a vector graphic of a floorplan or site map in the i-Vu® interface, you can manipulate the views using buttons on the **Graphics** page.

The buttons are only present if, in ViewBuilder, when editing the **SVG Floorplan** Control Properties > **General** tab, you select them to display.

Select in ViewBuilder...	to see this button on the i-Vu® Graphics page	Click button to...
Add 3D Toggle		See 3D walls in your floorplan.
Add Ducting Toggle		See ducting, if it was integrated into the floorplan graphic. **NOTE** When the ducting is visible, click on a solid rectangle (representing equipment) to open the corresponding equipment graphic.
Allow Zoom		Switch from a summary graphic to individual areas.
N/A	 	Scroll through areas one at a time.

Zooming in and out

On a computer

- To zoom in and out on the i-Vu® interface:
  - Hold down **Ctrl** and press + or -. Press **Ctrl+0** to return to 100%.
  - Hold down **Ctrl** while rolling your mouse wheel.
  - Use your web browser's zoom functions.
- If a graphic does not fit in the action pane, right-click it and select **Scale to Fit** to make it fit the action pane. Select **Scale to Fit** again to return the graphic to its original size.

On a mobile device

Apple® iPad and iPhone

- Double-tap to zoom in/out.

Microsoft® Surface™

- Pinch-zoom works on individual frames, instead of the whole screen. So, you can zoom and scroll the navigation pane and action pane separately.
- If browser text is too small, use **Ctrl +** to increase your browser's zoom level, then reload the page.

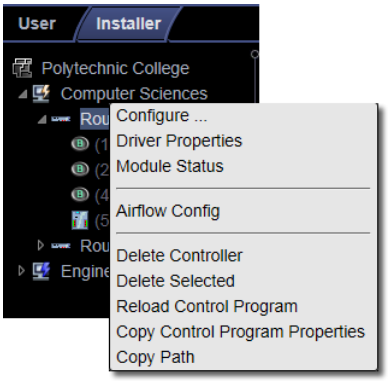
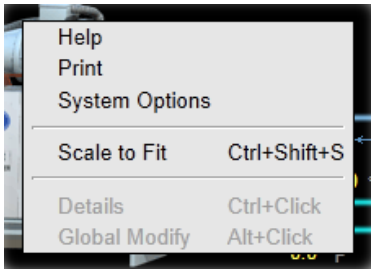
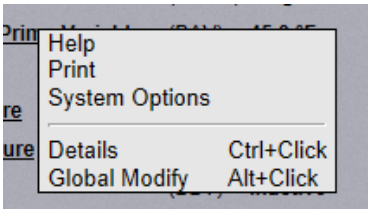
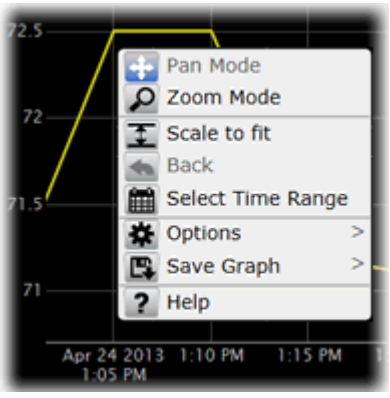
Google™ Nexus™ and Nexus Lumia

- Pinch-zoom to zoom in/out.

Using right-click menus

On a computer

You can right-click the following items to select options:

A tree item	The action pane
	
A property	**A trend**
	

On a mobile device

To access the right-click menu for:

- A tree item–Select the item first, then touch and hold the item for several seconds.
- The action pane–Touch and hold the item for several seconds.

To print the action pane

On a computer

Click  at the top of the page to print the contents of the action pane. Set the print orientation to **Landscape** in the **Print** dialog box.

 **TIP** To print a Graphics page that exceeds the size of the action pane, right-click the graphic and select **Scale to Fit**.

On a mobile device

Touch  and then select **Print**.

Colors and status in the i-Vu® interface

The following colors indicate equipment status throughout i-Vu® interface. These colors are visible on Property pages, Graphics pages and in the setpoint graphs.

Color	Color Name	Status Code	Condition Indicated
	Purple	0 or 15	In a controller—non-operational or no communications In equipment—a hardware or software error
	Charcoal	14	In a controller—a download is required or is already in progress In equipment—a controller has stopped
	Coral	13	Control program error
	Red	2 or 9	Heating or cooling alarm
	Orange	8	Maximum cooling
	Dark blue	3	Maximum heating
	Yellow	7	Moderate cooling

Color	Color Name	Status Code	Condition Indicated
	Light blue	4	Moderate heating
	Grey	1	Unoccupied/inactive
	White	10	Occupied/active
	Light green	6	Free cooling
	Green	5	In a controller—operational or operational read-only In equipment—No heating or cooling

Colors and setpoints

Thermographic colors indicate how much a zone's actual temperature differs from its setpoints.

Five conditions may affect a zone's thermographic color:

- Setpoint adjust
- Timed local override (TLO)
- Optimal start
- Demand level
- Hysteresis

In the examples below, a zone's heating occupied setpoint is 70° and its cooling occupied setpoint is 74°.

If you normally see...	when the zone temp is...	but...	then you will see...
green	72.5°	someone adjusts the setpoints (for example, with a **setpoint adjust** of two degrees, the new setpoints would be 68 and 72°)	yellow
gray	73° (unoccupied)	someone presses the **Override** button on a zone sensor to use the occupied setpoints	green
gray	77° (unoccupied)	the zone is in **optimal start** and is ramping up to its occupied setpoint in the few hours before occupancy	an occupied color
yellow	75°	the zone's electric meter is in **demand level** 2 with relaxed setpoints of 68 and 76°	green
green	73.5°	cooling began when the temperature rose above 74° and the temperature has not yet dropped beyond the 1° **hysteresis** (to 73°)	yellow

Schedules

Using schedules, your equipment can maintain one set of setpoints during occupied periods to provide comfort, and it can maintain a different set of setpoints during unoccupied periods to reduce energy consumption. Schedules are an i-Vu® system's most effective cost-saving strategy.

In the **User** view, you can apply a schedule to a single tree item or to a group of tree items.

When you apply a schedule to a tree item, the schedule affects equipment at and below the area or equipment where the schedule was added.

When you apply a schedule to a schedule group, the schedule affects all pieces of equipment in the group.

For example, a school board meets every third Tuesday of the month and uses the lobby, main conference room, break room, and restrooms. You can create a schedule group to control these different areas with a single schedule.

NOTES

- When multiple schedules affect a tree item, the net result is the *Effective schedule* (page 14).
- Do not include preheating or precooling time in your schedules. *Optimal Start* (page 40), another cost-saving strategy, automatically calculates and controls precise preheating and precooling routines.
- If your system has no need to run schedules, you can turn off this feature. First, delete any existing schedules. Then go to the System Options (or System Settings) > *General tab* (page 61), and check the box **Disable Schedules feature**.

To view schedules

1 Select a navigation tree item (site, area, or equipment).

2 Click **Schedules** > **View** tab.

3 Optional: Click a white **Effective** bar to view all the schedules that contribute to the resulting schedule. If the item has multiple schedules, the schedule closest to the **Effective** bar has the highest priority. You set a schedule's priority when you create the schedule.

NOTES

- When multiple schedules affect a single area or controller, the i-Vu® application sorts the schedules by priority - the higher the priority, the closer the schedule is to the bar. You set a schedule's priority when you add a schedule.
- You can also view schedules on the following detailed, printable schedule reports. These reports are accessible from the **Schedules** page > **Reports** tab or from the **Reports** button drop-down menu.

This report...	allows you to...
Schedule Instances	Find every schedule with its location that is entered at and below a selected tree item. This report can help you discover newly added and conflicting schedules.
Effective Schedules	View all equipment that may be scheduled and the net result of all schedules in effect for a selected date and time. See *Effective schedules* (page 14).

To print schedules

1 Select a navigation tree item and click **Reports**  .

2 Click **Schedules** > **Schedule Instances** or **Effective Schedules**.

3 Click **Run**, then click **PDF**.

This report...	allows you to...
Schedule Instances	Find every schedule with its location that is entered at and below a selected tree item. This report can help you discover newly added and conflicting schedules.
Effective Schedules	View all equipment that may be scheduled and the net result of all schedules in effect for a selected date and time.

To apply a schedule to equipment

Schedules in the i-Vu® application are typically based on zone occupancy.

1 In the User navigation tree, select the area or equipment you want to schedule.

NOTES

- To schedule all equipment in a specified area, select the area you want.
- You can schedule individual controllers from the **Installer** view, but you must be in the **User** view to schedule areas and routers

2 Click **Schedules**, then **Configure** tab.

3 Click **Add**.

4 Select a **Priority**. A schedule's priority determines whether affected zones will use occupied or unoccupied setpoints.

Select...	For...
Normal	A typical occupied period
Holiday	An unoccupied period that overrides a Normal schedule
Override	An occupied period that overrides a Holiday schedule

5 Select a **Type**. See table below.

6 Type a schedule name in the **Description** field (50 characters maximum).

7 Enter desired values in the fields below **Description**.

8 On the graph, change a time segment's **Start** and **End** times by doing one of the following:

- Click the segment, then type the times in the **Start** and **End** fields.
- Click and drag either end of the segment or the entire segment.

9 Optional: Click **Add Time Period** to add one or more segments to the schedule. Or, select a segment and click **Delete Time Period** to delete that segment.

10 Click **Accept**.

Select this Type...	To use the schedule...
Weekly	Every week on the specified days
Date	On a single, specified date
Date Range	Between 2 specified dates
Date List	On multiple, specified dates
Wildcard	According to a repeating pattern (For example, the second Tuesday of every month)
Continuous	Continuously between specified times on 2 separate dates
Dated Weekly	Weekly between a start date and an end date (For example, the summer break in the school year)

NOTES

- To automatically download all schedules that you create or change, click  > **System Options** > **My Settings** and, under **Preferences**, select **Automatically download schedules on each change**. If you want to manually download schedules, clear the **Automatically download...** field and then see Downloading system changes to controllers.
- When you apply a schedule to an item on the navigation tree, the schedule affects that item and all children of that item. If you do not want an item to be affected by schedules from a higher level, select **Ignore Schedules above this level** on the **Schedules** > **Configure** tab.

To apply a schedule to a group of items

You must create a group, then add members (areas, equipment, or other groups) to the group before you can apply a schedule to it.

1 On the **User** navigation tree, select **Scheduling Groups**.

Optional: If you have created folders to organize your groups, select the appropriate folder. See "To organize groups using folders" below.

2 Click **Add Group**.

3 Type a name for the new schedule group in the **Name** field.

4 Optional: Change the default **Reference name**. A group's reference name must be unique throughout the system.

5 Click **Accept**.

6 Click **Add Members to Group**.

7 On the **Members** page, select the areas, equipment, or other groups that you want to add to the group from the tree on the right. Use **Ctrl+click**, **Shift+click**, or both to select multiple items.

8 Click **Add**.

 **TIP** Use the **Raise** and **Lower** buttons to reorder items in the **Members** list. Changing the order is for your viewing convenience and does not affect the system.

9 Click **Accept**.

10 You will see the question **Execute download now?**. Click **OK**.

11 Click the **Schedules** button, then **Configure**.

12 Add a schedule to the group. See *To apply a schedule to equipment* (page 11).

To organize groups using folders

You can create folders and sort your groups into them to organize the Schedule Groups tree. For example, a large school system that has a group for each school may want to create an Elementary School folder, a Middle School folder, and a High School folder, and put the appropriate groups in each folder.

To create folders and add groups to them:

1 On the **User** tree, select **Scheduling Groups**.

2 Click **Add Folder**.

3 Type a name for the new folder in the **Name** field.

4 Optional: Change the default **Reference name**.

5 Click **Accept**.

6 Repeat steps 1–4 for each folder that you want to add.

7 Do one of the following to add a group to a folder:

- If you have already created the group, drag and drop it into the appropriate folder in the tree on the **Scheduling Groups** page, then click **Accept**.
- Select the folder in the tree on the **Scheduling Groups** page, then click **Add Group** to add a new group inside the folder.

NOTE You can also add a folder to a folder, or drag and drop a folder into another folder.

To edit or delete a schedule

1 Do one of the following:

- On the navigation tree, select the tree item where the schedule was defined, then select **Schedules** > **Configure** tab.
- In the **User** tree, click **Scheduling Groups**, then select the group that has the schedule you want to edit or delete.

2 Select the schedule you want to edit or delete.

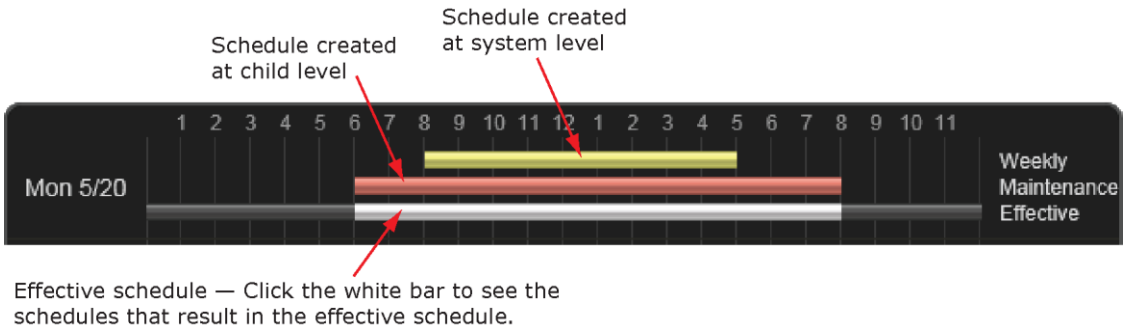
3 Edit the fields you want to change or click **Delete**.

4 Click **Accept**.

NOTE Expired dated schedules are automatically deleted from the database at 3:30 AM every day. But expired schedules remain in the controller until the next time schedules are downloaded to the controller.

Effective schedules

The effective schedule that you see on the **Schedules** > **View** tab can be the result of multiple overlapping schedules.



The following schedule features can influence an item's effective schedule.

Feature	Description
Hierarchy	A schedule applied to an item on the i-Vu® tree affects that item and all of its children. A child item's combined schedule could be the result of multiple schedules applied at different levels above it. To change a child item's combined schedule: • Add a schedule at the child that overrides the current schedule. See the *Priority* feature below. • Set the child to ignore the parent schedules. To do this, select the child item on the tree, then go to **Schedules** > **Configure**. Select the schedule, then click **Ignore Schedules above this level**. You can then add a different schedule for the child. Any schedule change that you make to an item affects it and all of its children.
Priority	You must assign one of the following priorities to every schedule. **Use...** / **For...** **Normal** — A typical occupied period **Holiday** — An unoccupied period that overrides a Normal schedule **Override** — An occupied period that overrides a Holiday time **EXAMPLE** For a school, you define: • A **Normal** schedule that has it occupied every Monday–Friday, 6 am–5 pm • A **Holiday** (unoccupied) schedule for the week of Spring Break • An **Override** schedule on the first day of Spring Break from 9 am–1 pm for the cafeteria only where a teacher's meeting will be held.

Feature	Description
Type	You must assign one of the following types to every schedule.* **Weekly** **Date** **Date Range** **Date List** **Wildcard** **Continuous** **Dated Weekly** See *To apply a schedule to equipment* (page 11) for a description of each type. **EXAMPLE** For a school, you define the following 3 schedules: • Full calendar year: Normal, Weekly, Monday–Friday, 6am–5pm • Summer months: Holiday, Continuous, 12am June 1st –11:59pm August 31st • Work days in summer months: Override, Dated Weekly, Monday–Thursday, 9am–2pm

Using the **Priority** and **Type** options, you can often accomplish the combined schedule you need in several different ways. For example, the combined schedule resulting from the 3 schedules described above for **Type** could also be accomplished with the following schedules:

School year: Normal, Dated Weekly, Monday–Friday, September 1st–May 31st, 6am–5pm

Summer months: Normal, Dated Weekly, Monday–Thursday, June 1st–August 31st, 9am–2pm

i-Vu® CCN schedules

There are 2 types of CCN schedules:

- 1 – 64 are local schedules that reside within the equipment
- 65 – 99 are network or global schedules, which are sent over a CCN network and received by controllers that contain network schedules

The i-Vu® application supports both local and global schedules.

Most CCN equipment is shipped with the default schedule of **64**. See exceptions below.

Equipment	i-Vu®'s default schedule number
Comfort Controller/UC/Expansion Controllers	0
Any controllers using a custom equipment file (*.equip) created with EquipmentBuilder	0
Gen III VVT, 48/50EJ (Conquest), FSM, CSM	1
All PICs	64

CAUTION! Confirm the actual schedule numbers that are used in the controller, as they may have been changed from their programmed default settings.

In order to use i-Vu® schedules, the i-Vu® schedule number must match the CCN schedule number at the controller. This can be set in the i-Vu® interface by selecting the equipment in the navigation tree and clicking **Schedules** > **CCN** tab. It is also accessible at the area or site level.

NOTE To reduce start-up labor on a retrofit project, existing network schedules can be used by the i-Vu® application. However, switching to local schedules allows for schedule retention after a power failure and local schedule maintenance tables.

If a controller uses a different schedule number, complete the following steps.

CAUTION! Failure to follow these steps may result in unexpected equipment operation.

1 On the navigation tree, select the controller.

2 Click the **Schedules** page, then **CCN** tab.

3 Adjust the following fields:

- **Schedule number** - enter the CCN schedule number in use at the controller.
- **Override time (optional)** - enter the number of minutes of the desired override and verify that the controller override time is greater than or equal to this number
- **Override group** - enter the number of the group, if you have established one

Working with equipment in the interface

You can view and adjust equipment operation from the following pages:

Devices pages

Select the system level on the navigation tree to view the Devices page, where you can:

- Upload source files or just parameters
- Download source files, schedules, parameters, or BBMD tables
- Check status and error messages
- View model, IP address, drivers, device ID
- Edit device names

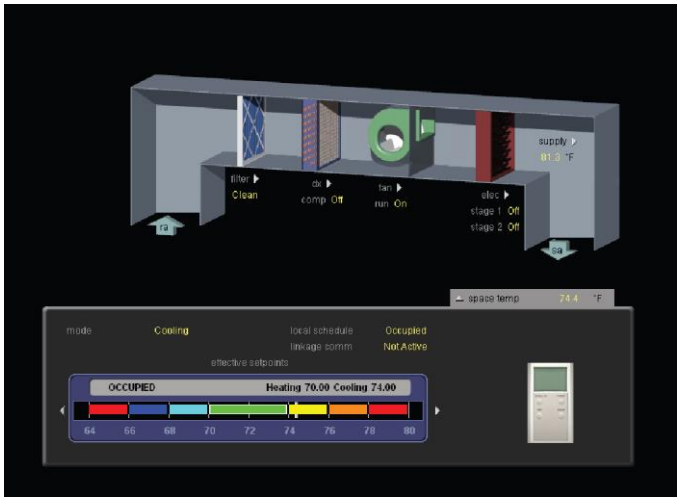
Graphics pages (page 18)

You can view and adjust your essential building controls on most Graphics pages.

Equipment drawings show the current status of mechanical equipment.

Adjust **setpoints** (page 36) on a Graphics page.

To upload a graphic from ViewBuilder, double-click the controller in the navigation tree or right-click and select **Configure**.



Logic pages (page 25)

Logic pages show the control program for a piece of equipment. Use the sequence of control and yellow status values on the Logic pages for troubleshooting your mechanical equipment.

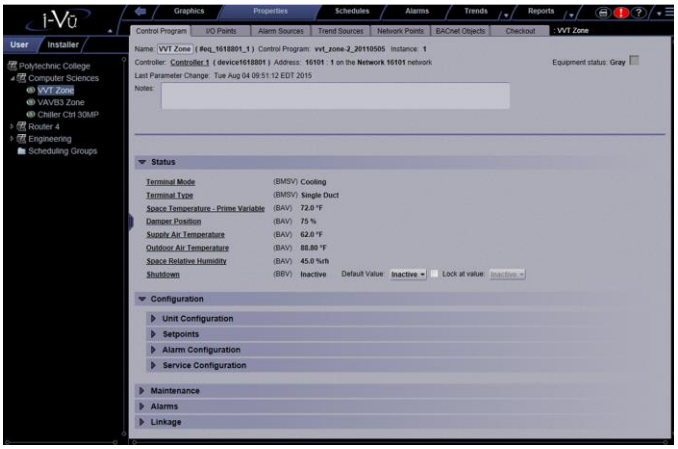
Properties pages (page 22)

You can monitor and control point sources.

1 Select the equipment in the navigation tree.

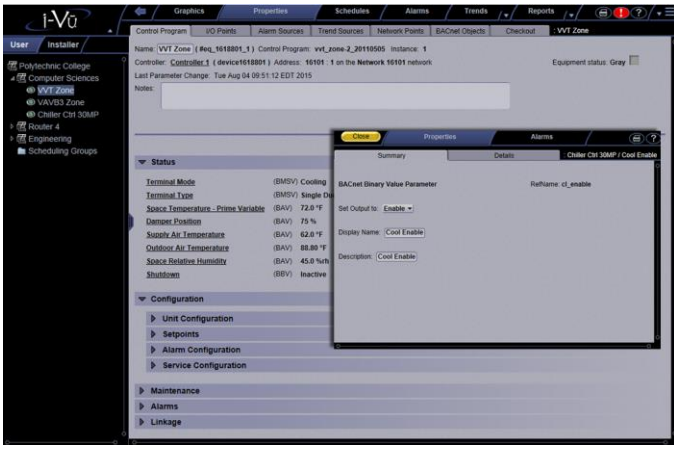
2 Click **Properties** page > **Control Program** tab.

3 Expand the plus sign next to the desired table.



Properties/Microblock popups

Click a property or point to open the microblock popup to view and change details, including forcing or locking values.



Graphics pages

You can view and adjust your system from Graphics pages, which include navigation maps, floor plans, and

equipment.

Some typical controls that may appear on a graphics page are:

- Button or switch to turn equipment on or off
- Input field to set a property value
- Drop-down list to select a state
- Interactive zone sensor to override an unoccupied schedule
- Setpoint graph to adjust setpoints
- Trend graph to view trend information
- Link to jump to another i-Vu® page or to the Internet

NOTES

- Right-click a value, then select **Details** to view and change properties in the microblock pop-up.
- Right-click a value, then select **Global Modify** (page 27) to view and change the property in other control programs.
- A yellow dashed box around a value indicates the value is locked or forced. 

- If a graphic does not fit in the action pane, right-click it and select **Scale to Fit** to make it fit the action pane. Select **Scale to Fit** again to return the graphic to its original size.
- When a chart that is based on a report is displayed on a Graphics page, you can hover over various points on the chart to see values. You can also click on each item in the legend to turn that information on and off. See Custom report as the source for a Graphics page.

To attach a graphic in the i-Vu® interface

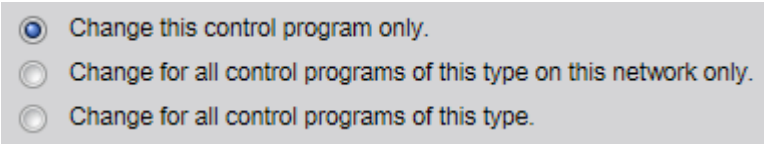
1 On the navigation tree, right-click the item that you want to attach a graphic to, then select **Configure**.

2 Do one of the following:

If the graphic is...	
In the **Graphic Page** drop-down list	a. Select the graphic. b. Click **Accept**.
Not in the **Graphic Page** list	a. Click **Add New**. b. Browse to select the view file. c. Click **Open**. d. Click **Continue**. e. Click **Close**. f. Click **Close** again.

NOTE You can click **Delete Unused** at the bottom of the **Views** section to delete all unattached graphic files from your system.

3 Equipment graphic only: If the system has other control programs of this type, select which control programs you want to change.



NOTES

- If the control program is in an IP router, the second option will change the graphic for all control programs of this type only on the IP network.
- If the control program is on the network below an IP router, the second option will not change the graphic for the router's control programs of this type.

To edit a graphic from the i-Vu® application in ViewBuilder

1 In the i-Vu® interface, double-click the controller in the navigation tree or right-click and select **Configure**.

2 Click **Edit Existing** button under **Views.**

3 Click **Save as** and place the file in an appropriate folder.

4 Open ViewBuilder.

5 Select **File** > **Open.** Browse to your saved graphic and click to open.

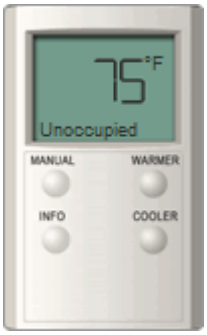
6 Edit and save with a new name - the original system name is locked and cannot be used for an edited graphic.

NOTE Names are case sensitive and should not have spaces and/or special characters.

To control equipment using an interactive zone sensor

An equipment graphic may include an interactive zone sensor that provides you with the following control.

If the sensor is a...	You can...
ZS 	• Click ▲ to raise the setpoint or ▼ to lower the setpoint. • Click ⏻ to override the schedule and put the zone in an occupied state. To cancel an override, continue clicking ⏻ until the display shows 0. • See that the zone is in an occupied state when the green LED is lit.

SPT Standard, Plus, or Pro
 
	• Click the **WARMER** or **COOLER** button to adjust the setpoint.
	• Click the **MANUAL** button to override the schedule and put the zone in an occupied state.
	• Click the **INFO** button to cycle through the following information:
	  • Outside air temperature, if enabled in the control program
	  • Override time remaining
	  • Heating setpoint
	  • Cooling setpoint
	• See the **Occupied/Unoccupied** state in the display.

SPT Pro Plus
 
	• Click the **WARMER** or **COOLER** button to adjust the setpoint.
	• Click the **MANUAL** button to override the schedule and put the zone in an occupied state.
	• Click the **INFO** button to cycle through information such as:
	  • Outside air temperature
	  • Override time remaining
	  • Heating setpoint
	  • Cooling setpoint
	• Click the **FAN** button to adjust the fan speed.
	• Click the **MODE** button to perform customer-specific functions.
	• See the **Occupied/Unoccupied** state in the display.

To control equipment using an interactive zone control

An equipment graphic may include an Interactive Zone control that provides you with the following control.

To...	Click...
View or change temperature	Click  . Use  to raise or lower the setpoint.  **TIP** Check the **Show Zone Color** option in the control's properties in ViewBuilder to match the color of the control's border with the thermographic color of the zone.
Set timed override	Click  . Use  to override the schedule and put the zone in an occupied state. ○ **0** — No override is active. ○ **999** — Continuous override is active. The override remains in effect until the schedule transitions to occupied or until you cancel it. ○ Any other number — Number of minutes remaining until the next transition to an unoccupied state. To cancel an override and return control to the schedule, continue clicking  until the display shows 0.
View or change fan speed	Click  . Use  to change the fan speed. **NOTE** Check the **Allow Fan Adjustment** option in the control's properties in ViewBuilder to enable fan speed control.

Click **Accept** to confirm changes.

Properties pages

Properties pages are automatically generated from control programs. **Properties** pages show the status of a piece of equipment and the points/properties currently stored in it. See Check out point setup for details.

Use **Properties** pages to:

- View the status of a piece of equipment. See *Colors and status in the i-Vu® interface* (page 7).
- View or change the equipment point/properties currently stored in the controller.
- Commission equipment
- Set up Linkage.

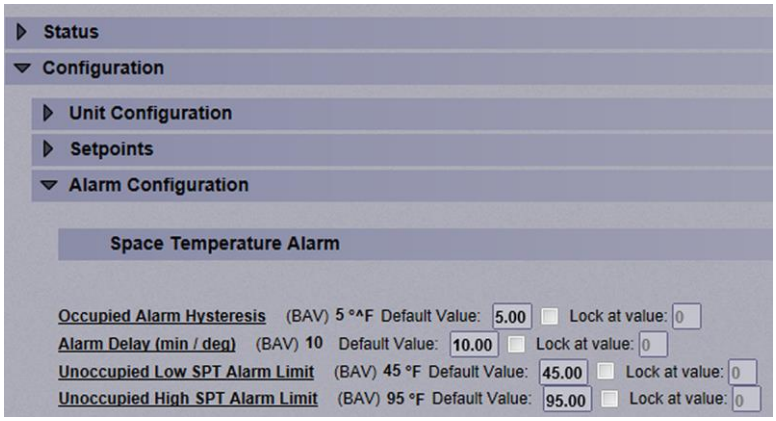
Refer to your individual controller's *Installation and Start-up Guide* for detailed explanations of the points/properties.

To view or edit properties on a Properties page

1 Select a controller on the navigation tree, click **Properties**, and then select the appropriate tab.

NOTE You must resolve any condition described in red text at the top of the page before a **Properties** page can obtain current information from its controller.

2 Click ▶ to show property details.



3 Do one of the following to change a property:

- Select or clear a checkbox
- Select an item on a drop-down list
- Change text in a text field

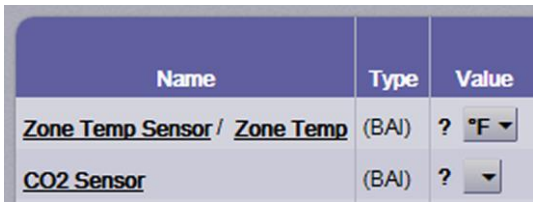
4 Click **Accept**.

NOTES

- Click the bold, underlined point name to open the editable microblock pop-up
- Right-click a value, then select **Details** to view and change properties in the microblock pop-up.
- Right-click a value, then select **Global Modify** (page 27) to view and change the property in other control programs.
- Use **Search/Replace** on the **Network Points** tab to replace a term in the point address with another address.
- For the legend of status colors, see *Colors and status in the i-Vu® interface* (page 7).
- A yellow dashed box around a value indicates the value is locked or forced.

Point types

A point name on the Properties page is followed by a code that tells you the point type. The table below describes each code.



Code	Point type
AI	Analog Input
ANI	Analog Network Input
ANI2	Analog Network Input 2
ANO	Analog Network Output
ANO2	Analog Network Output 2
AO	Analog Output
ASVI	BACnet Analog Sensed Value Input
AV	Analog Value
BAI	BACnet Analog Input
BALM	BACnet Alarm
BAO	BACnet Analog Output
BAV	BACnet Analog Value
BBI	BACnet Binary Input
BBO	BACnet Binary Output
BBV	BACnet Binary Value
BFM	Floating Motor
BI	Binary Input
BMSV	BACnet Multi-State Value
BNI	Binary Network Input
BNI2	Binary Network Input 2
BNO	Binary Network Output
BNO2	Binary Network Output 2
BO	Binary Output
BPTA	Pulse to Analog Input
BPWM	Pulse-Width Output
BRS	RS Sensor
BRSF	RS Sensor Fan
BSVI	BACnet Binary Sensed Value Input
BTLO	Timed Local Override

Code	Point type
BTRN	Trend Log
BV	Binary Value
DI	Digital Input
DO	Digital Output
EVT	BACnet Alarm
POLLAVG	Average Analog Properties
POLLMAX	Maximum Analog Properties
POLLMIN	Minimum Analog Properties
POLLTOT	Total Analog Properties
PTA	Pulse to Analog Input
TLO	Timed Local Override

Logic pages

The **Logic** page shows a custom control program for a programmable controller. The live data (yellow text) is updated every few seconds and when you click the **Logic** button. The control program uses exact property values for its calculations, but values are rounded to 2 decimal places when displayed on the **Logic** page.

TIP Click anywhere on the **Logic** page, then use your keyboard's Page Up, Page Down, and arrow keys to scroll through the page.

NOTE If you find an unexpected value on a **Properties** page or a **Logic** page, you can use the **Logic** page to troubleshoot.

To view a Logic page

1. Select a custom control program on the navigation tree.
2. Click **Logic**.
3. Click a microblock to view its details.

To locate a microblock, section, or label

1. Right-click the Logic page, then select **Jump To**.
2. Do one of the following:
   - On the **Microblock** or **Section** tab, select an item to have it located and highlighted.

- On the **Label** tab, select a label to display a reduced logic page outlined in yellow that shows all instances of the label. A red box indicates an output label; a yellow box indicates an input label. Click a red or yellow box to jump to that label in the full-size logic page.

  NOTE You can also click a label on the full-size Logic page to display the reduced Logic page.

To change properties, alarms, or trends

1. Click a microblock on the equipment's **Logic** page.
2. In the microblock pop-up, click the **Properties**, **Alarms**, or **Trends** button.
3. Change properties, alarms, or trends for that microblock in the same way that you would make changes on a regular *Properties* (page 22), Alarms, or Trends page.
4. Click **Accept**.

NOTE Right-click a value, then select **Global Modify** (page 27) to view and change the property in other control programs.

Using a Logic page to troubleshoot

The i-Vu® application monitors your system and provides feedback. If you get unexpected feedback, you can use a Logic page as a troubleshooting tool. On the Logic page, work your way backward (right to left) through the sequence in the control program to discover what caused the problem. See Microblock Reference to understand what each microblock in the sequence is doing.

Unexpected feedback	Possible cause
Space temperature reads excessively high or low	• The sensor has a short (or open) circuit. Verify wires are properly connected at the sensor and controller. • A sensor is missing or configured incorrectly. Open the sensor or input microblock from the Logic page to verify its configuration.
Equipment displays an unexpected color - effective setpoints are different than the programmed setpoints	**NOTE** Equipment operates using effective setpoints. Open the Setpoint microblock from the Logic page and check the following: • Hysteresis • Demand Level • Optimal Start • Timed Local Override (TLO) • Setpoint Adjust

Unexpected feedback	Possible cause
Gaps in trend data on trend graph	Usually gaps result if network communication was disrupted or a point was temporarily disabled. If the gap is not the result of interrupted communication, send reports more frequently. From the Logic page, open the trend microblock that displayed the gap in data, then decrease the notification threshold so that it is approximately 40% of the buffer size (allocated memory size) for that microblock.
The i-Vu® application is not receiving alarms from a BACnet alarm microblock	Locate the microblock on the Logic page. If the color square on the microblock is black, the alarm is disabled. To enable it: **1** Click the microblock. **2** In the microblock pop-up, click the **Alarms** button. **3** On the **Enable/Disable** tab, select **Potential alarm source**.
The equipment is on when I expect it to be off, or off when I expect it to be on	Use the Logic page to determine whether the program is sending an unexpected signal and why, or if the problem is with the physical equipment. For example, the On-Off-Auto (OOA) switch on the controller for that equipment may be locked in the On (Hand) position.
Sensor value on the Properties page does not match the reading from handheld sensor	Calibrate the sensor. On the Logic page, check to see if the output point is locked on.

Changing multiple microblock properties

Two i-Vu® features, **Global Modify** and **Global Copy**, allow you to view and change multiple microblock properties at the same time.

CAUTION Global Modify and Global Copy are convenient for making widespread changes in your system. But, because they do not take into account the operation of individual equipment, your changes could produce undesired results in your equipment or system operation. Use with caution because these features do not have an Undo function.

TIP Click  to copy a microblock's reference path to the clipboard so you can paste it into another field or application.

To use Global Modify

Use the Global Modify feature to:

- View a microblock's full path, control program name, and the privileges required to change its properties.
- View or change a single property in several control programs at one time.
- View errors on Graphics and Properties pages.

1 Browse to any page that displays the property you want to view or change.

2 Do one of the following to open Global Modify:

- **Alt+click** the property.
- Right-click the property and select **Global Modify.**

3 Make changes to the **Control Program** field, if needed.

NOTES

- Use wildcards in the **Control Program** field to broaden the search.
  For example:

  `vav*` matches vav, vav**1**, vav**x**, vav**12345**

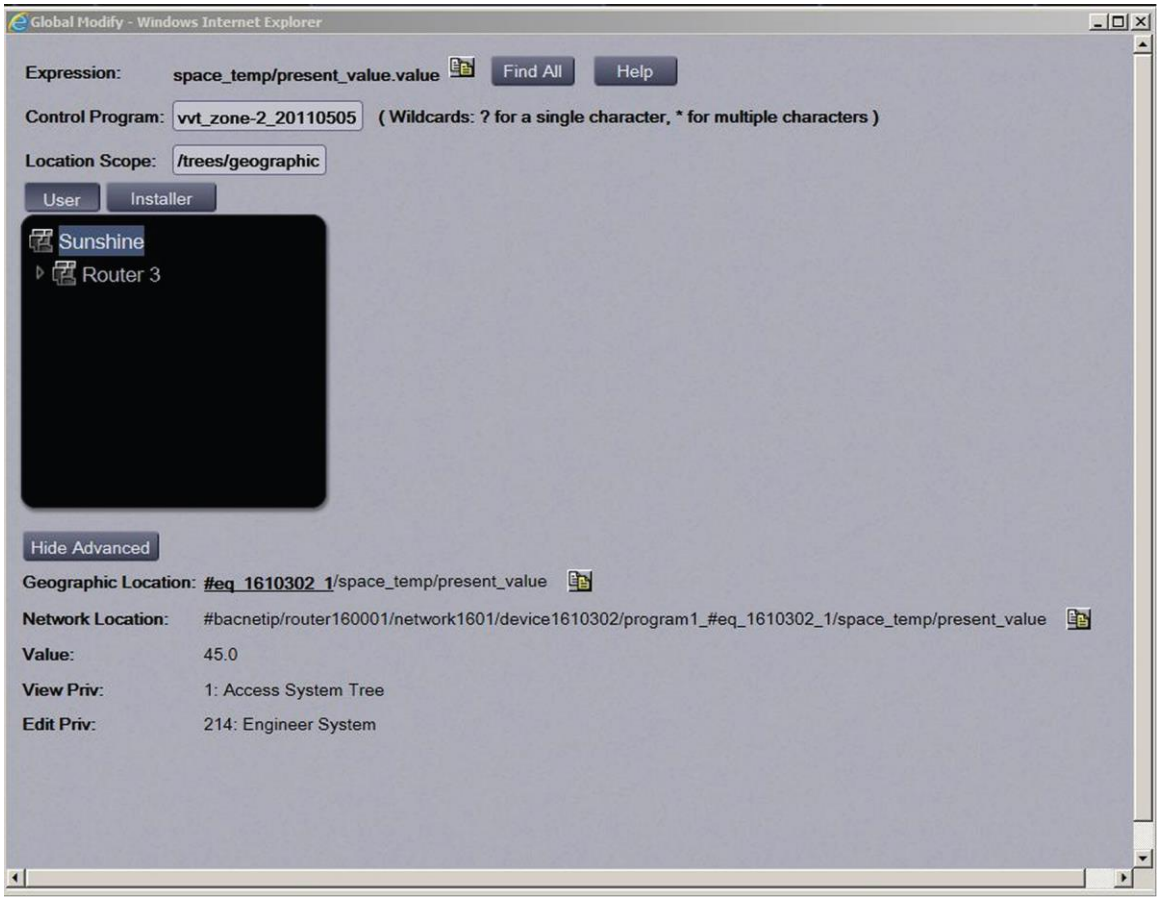
  `vav*z` matches vavz, vav**1**z, vav**x**z, vav**12345**z

  `vav*1*2` matches vav12, vav**abc**1**xyz**2

  `vav??` matches vav**11**, vav**12**, vav**zz**, but does not match vav, vav1, vav123

  `*` matches any control program

- Click **Show Advanced** to view the location, value, and privileges associated with this property.



4 Select the tree item that you want to search under for every occurrence of that microblock in other control

programs.

5 Click **Find All**.

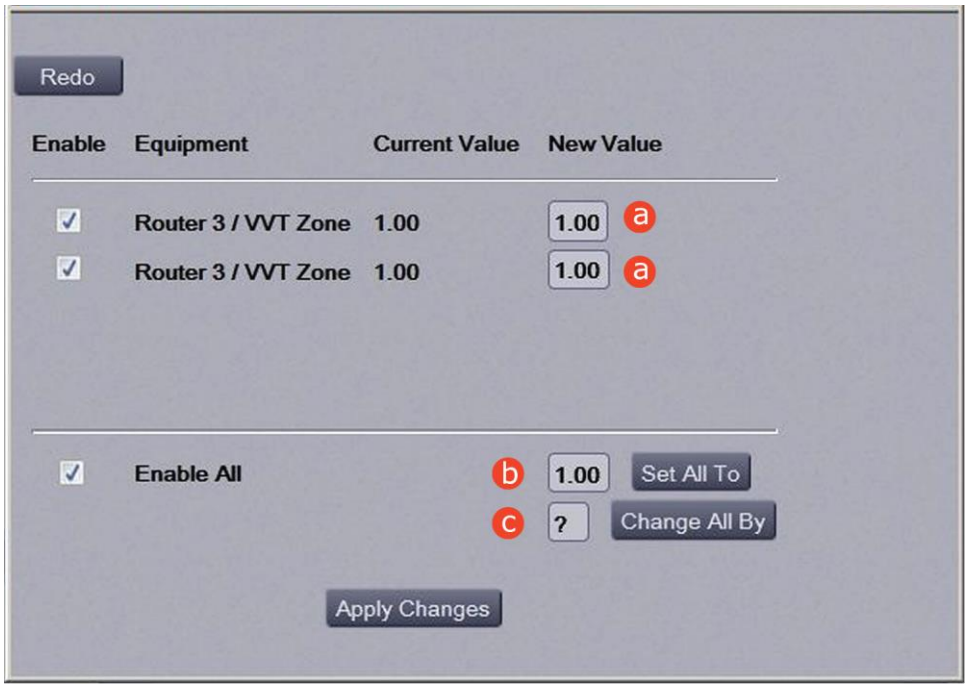
6 Select the properties in the list that you want to change.

7 Do one of the following:

a) Type a **New Value** to the right of each selected item.

b) Select **Enable All**, type a new value in b, then click **Set All To**.

c) Select **Enable All**, type a new value in c, then click **Change All By**.



8 Click **Apply Changes**.

NOTE To modify several properties in multiple control programs at the same time, use **Global Copy**.

To use Global Copy

Use **Global Copy** to copy any or all of the following from one control program to other equipment using the same

control program:

- Embedded trend graph settings
- Custom trend graphs
- Custom reports
- Other editable properties to other pieces of equipment using the same control program.

1 On the navigation tree, right-click the piece of equipment that has the properties you want to copy, then select **Copy Control Program Properties**.

2 Click **OK** when you see **This will copy this control programs properties to other control programs of the same type. Continue?**. This opens the next screen and does not lock in any changes.

3 In the **Global Copy** dialog box, select the items that you want to copy.

4 Select the area on the tree containing similar control programs that you may want to copy these properties to, then click **Search**.

All instances at that level and below are listed in the expanded lower window.

5 Check or uncheck items as needed.

6 Do one of the following:

- Check **Skip bad values** to copy all values except a bad value (it cannot be copied because you do not have the necessary privilege, the property to be copied is undefined, etc.).
- Uncheck this field to prevent any values from being copied if a bad value is found.

7 Click **Apply Changes**, then close the **Global Copy** dialog box.

Checking controller status

On the i-Vu® navigation tree, you can select a router or the system level and then click the **Devices** button to:

- View the status of controllers
- View controller information such as address, model, driver, and .view files included in download
- *Download or upload to resolve a mismatch* (page 34)
- Troubleshoot network communication
- Download or upload files for Field Assistant

NOTES

- Use **Ctrl+click**, **Shift+click**, or the **Select All** checkbox to select multiple controllers.
- Click **Hold** to stop pending downloads or uploads. Active downloads or uploads cannot be stopped.

- Icons in the **Tasks** column indicate the following:

	Active—The i-Vu® application is downloading to the controller.

	Active—The i-Vu® application is uploading from the controller.
	Pending—You initiated the download, and the controller is waiting for its turn to download.
	Failed—The download failed. See If a controller fails to download.
	On Hold—Indicates you clicked **Hold** to stop a pending download.

- Click in the upper left-hand corner to view a log of activity on the **Devices** page in the current session. **Copy to Clipboard** lets you copy the text to paste it into another application.

Status messages

On the i-Vu® navigation tree, you can select a router or the system level and select the **Devices** page to view the status of controllers. The **Status** column shows a description of the controller's current state. Hold your cursor over that description to see hover text with a more detailed description.

If multiple conditions exist, the i-Vu® interface displays the message with the highest priority.

The table below shows all possible messages. The message color indicates the following:

Black—In process
Red—An error occurred
Blue—Requires action from the user

i-Vu® Open routers/controllers

Status column message	Hover text message	Notes
Black messages:		
Downloading	The controller is downloading, communications may be disabled	
Uploading	The controller is uploading, communications may be disabled	
Pending	This controller is waiting to be processed.	
Processing Clipping	Clipping operation in progress. Do not make changes during this operation, as they may corrupt your system.	
Red messages:		
Communications Error	Cannot communicate with this controller.	

Status column message	Hover text message	Notes
Connection Disabled	The connection for this controller has been disabled.	Occurs if someone stopped the connection.
Connection Error	The connection for this controller failed to start.	Occurs if the connection is misconstrues or failed to start.
Controller offline	The controller is offline.	This only appears for equipment controlling slave devices that it is unable to communicate with.
Download Failed	(Message depends on the cause of the failure.)	
Download Not Permitted	This controller is not permitted to download.	
Error	An unknown error has occurred.	
Missing Files	Upload failed. Server is missing the source files.	
Not Uploadable	This controller is not configured for content upload.	Occurs if you attempt to upload a controller with a pre-4.x driver.
Out of Service	This controller is out of service.	
Unsupported Controller	This controller does not support content upload.	
Upload Not Permitted	This controller is not permitted to upload.	
USB Unplugged	Cannot communicate with the controller because the USB cable is unplugged.	Applies only to the i-Vu® Express application.
Blue messages:		
Controller Replaced	This controller has been replaced by another controller of the same type in the field.	4.x driver only
Download All Content	Please download all content to the controller.	
Download Parameters	To download parameters, highlight row and select **Parameters** from the Download Action menu and click **Download**.	
Download Schedule	To download schedules, highlight row and select **Schedules** from the Download Action menu and click **Download**.	
Driver Parameter Mismatch	Driver parameter differences detected. Upload parameters from the controller or download parameters to the controller.	
Network Ready for Upload	To upload this network, select the router in the tree and **Find Devices**.	

Status column message	Hover text message	Notes
Parameter Mismatch	Control program parameter differences detected. Upload parameters from the controller or download parameters to the controller.	
Program Mismatch	Content differences detected. Upload all content from the controller or download all content to the controller.	4.x driver only
Unprogrammed Controller	Applies only to a programmable controller that does not have any control programs in it.	To add control programs, click **Add Control Program**.
Upload All Content	Please upload all content from the controller.	
General messages:		
✓	This controller is ok.	
Cancelled	The last operation on this controller was cancelled	

CCN controllers/equipment

Status column message	Hover text message	Notes
<blank>	This is a known control program from a previous discovery, but communications with it has not been attempted since the user logged in.	
✓	Successful rescan.	
Downloading	Downloading changes. Communications will resume shortly.	
New Control Program	A new controller was found at the scanned address and added to the system.	
New Version Applied	This controller's program or views have been updated with a newer version.	
Red messages:		
Communications Error	Cannot communicate with this controller.	
Download Failed	<The message is specific to the failure.>	
USB Unplugged	Cannot communicate with the controller because the USB cable is unplugged.	Applies only to the i-Vu® Express application.
Blue messages		

Classification Mismatch	The controller at this address was previously a Bridge routing to other controllers.
Download All Content	Please download all content to the controller.
Model Mismatch	The controller at this address is the wrong model.
Rescan Required	A configuration change was made to this control program therefore a rescan is required to get the correct graphic and control logic components.

Handling parameter mismatches

A parameter mismatch occurs when a value in a controller does not match the value in the system database. This can be a driver or control program value.

Use either of the following methods to handle mismatches in your system.

- Method 1: Check **Always resolve parameters on mismatch** on the **System Settings** > **Communications** tab to have the i-Vu® application automatically upload if a value was changed in the controller or automatically download if a value was changed in the i-Vu® interface.

- Method 2: Uncheck **Always resolve parameters on mismatch** so that you can evaluate a mismatch to determine the correct value.

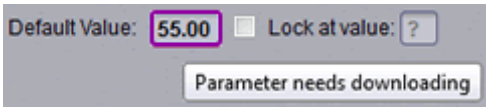
To find mismatches in your system

If your system uses Method 2, you can find mismatches in the following places:

- The **Devices** page > **Manage** tab > **Status** column will show **Parameter Mismatch.**
- The **Properties** page for a controller, driver, control program, or point will show one of the following red messages at the top of the page stating:

  Control Program parameter differences detected.
  Driver parameter differences detected.
  Parameter download required.

  The value that has a discrepancy will appear with a purple box around it. Hover your cursor over the field to see:



or

- Go to **Reports** > **Equipment** > **Parameter Mismatch**, and then click **Run** to get a report of any existing mismatches in your system.

NOTE The **Downloads** page > **Tasks** column will show **Resolve Parameters** for any mismatches that your system discovered in the 3 places listed above.

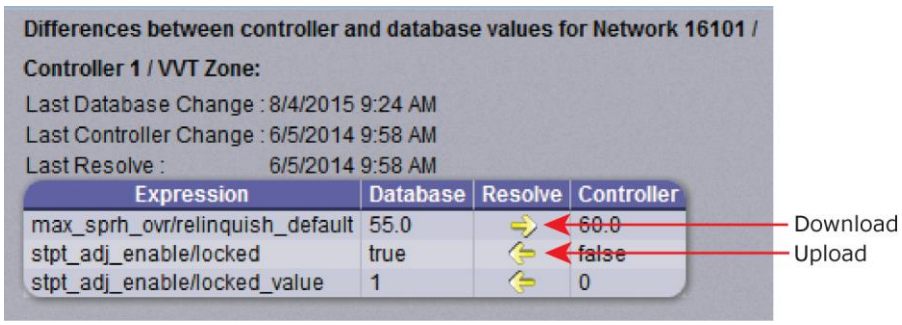
To resolve a mismatch

1 Go to one of the following:

- **Devices** page - Click the **Parameter Mismatch** link
- **Properties** page that shows one of the red messages above

2 Click one of the following:

- **Resolve** to let the i-Vu® application download changes made in the i-Vu® interface or upload changes made in the controller. Click the **Details** button to see what the discrepancy is and whether **Resolve** will download or upload parameters. See NOTE below.



- **Upload** to upload the parameters from the controller to the i-Vu® application
- **Download** to download the parameters from the i-Vu® application to the controller

NOTE On the **Devices** page with **Show Control Programs** unchecked, if a controller has simultaneous mismatches in the driver and control program, clicking **Details** will show that a control program mismatch exists but it will only show details for the driver mismatch. You must go to the control program in the tree to see details of that mismatch. However, clicking **Resolve** will resolve both mismatches.

Managing setpoints

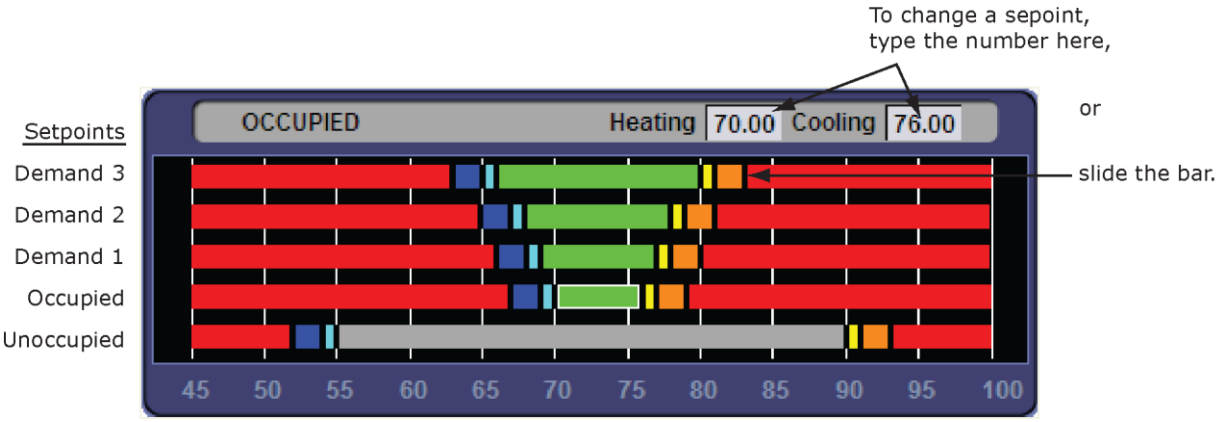
The **Setpoint** graphic shown on a standard equipment graphic indicates the base setpoint values (Occupied High/Low, Unoccupied High/Low). The i-Vu® application reads these values back periodically, typically within 10 seconds. The timing can vary based on network traffic, the number of controllers in the database, and several other variables. Setpoints that are changed in the field via another user interface are displayed in the i-Vu® interface as soon as they are detected.

You can, at any time, change the setpoints from i-Vu® graphics by using the slider or by entering numeric values directly. Updated setpoints are transmitted to the controller when you **Accept** the changes. Setpoints can also be changed on the **Properties** page > **Control Program** tab > **Space Temperature and Setpoints**. or **Configuration** > **Setpoints**.

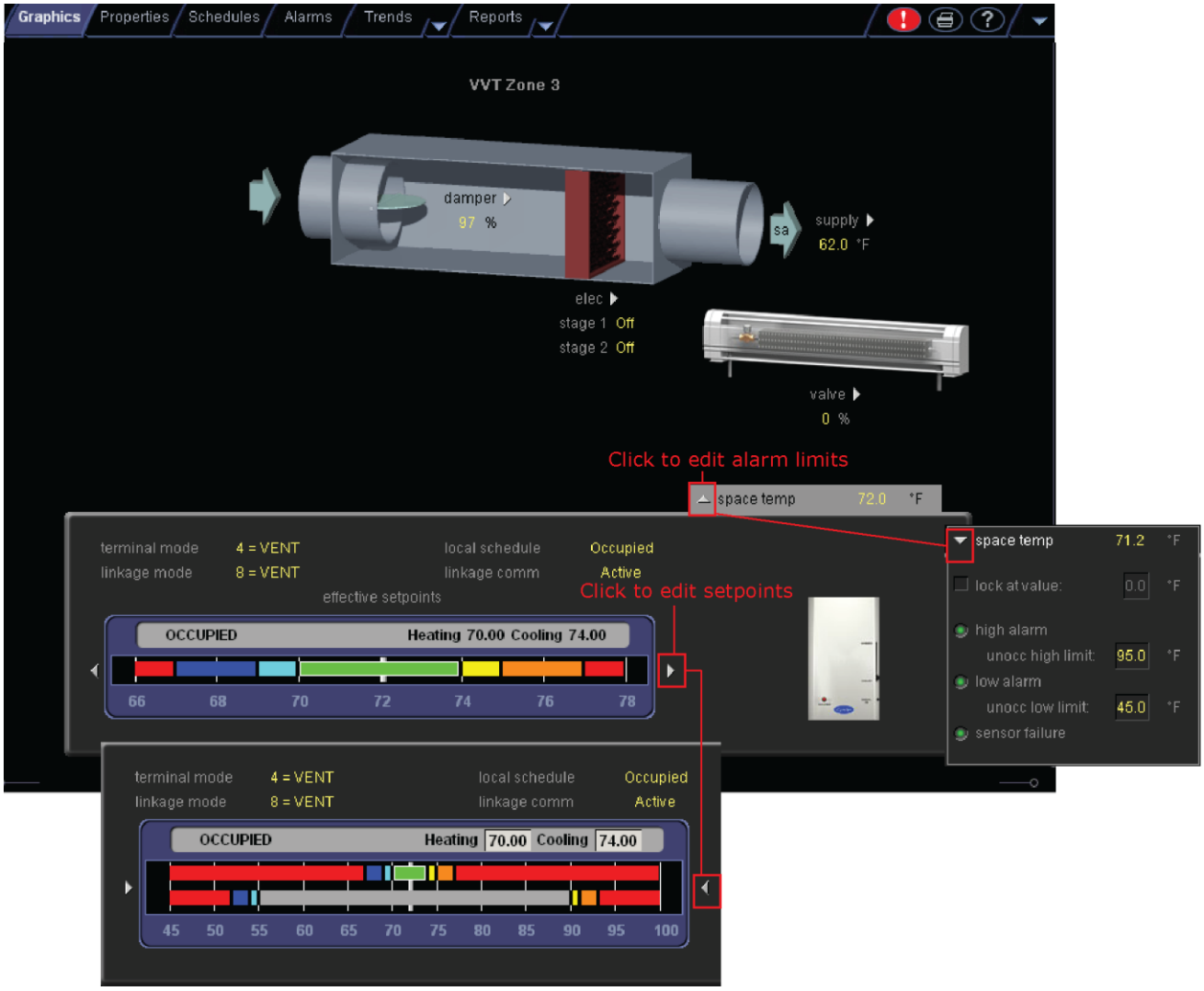
NOTE Power and Standard operators may only edit **Occupied/Unoccupied** and **Heating/Cooling** setpoints. They cannot edit **Demand** levels or more detailed setpoint parameters.

The various color bars indicate adherence to or deviation from the setpoint. You can change the current default settings for setpoint deviation. Select a color band on the setpoint graph to see the current setpoints in the **Heating** and **Cooling** fields. The values in this graphic are Fahrenheit. See setpoint descriptions below.

NOTE This graphic is an example only. Your setpoints may differ.



Color		Condition
	Green	Temperature is within the Occupied Low and High Setpoint
	Gray	Temperature is within the Unoccupied Low and High Setpoint
	Light Blue	Temperature is less than 2°F below the Occupied Low Setpoint
	Dark Blue	Temperature is more than 2°F below the effective Low Setpoint but less than 4°F below the effective Low Setpoint
	Yellow	Temperature is less than 2°F above the effective High Setpoint
	Orange	Temperature is more than 2°F above the effective High Setpoint but less than 4°F above the effective High Setpoint
	Red	Temperature is more than 4°F above or below the effective setpoints



Adjust setpoints

- **Programmed setpoints** are set and changed by operators.
- **Effective setpoints** reflect the impact of other system conditions on the programmed setpoints, such as setpoint adjustments, and hysteresis. Effective setpoints control the equipment.

To change programmed setpoints:

1 Navigate to a setpoint control in one of the following places:
   - **Properties** page > **Control Program** tab > **Configuration** > **Setpoints**
   - The setpoint microblock pop-up on a **Logic** page
   - A **Graphics** page (Click a setpoint trend graph control to access the editable setpoint bar.)

2 Make changes on a programmed setpoint bar by either:
   - Clicking and dragging the segment or the gap between segments
   - Typing new values in the **Heating** and **Cooling** fields

3 Click **Accept**.

Demand Control

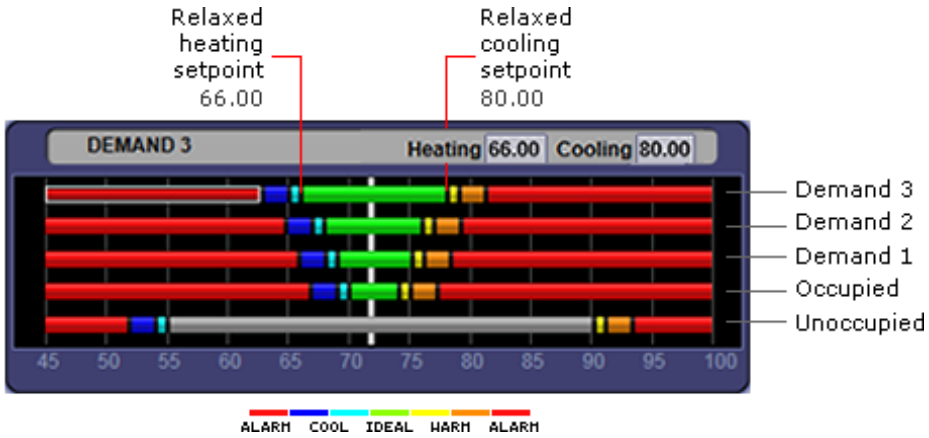
Demand Control is a cost-saving strategy that saves energy while maintaining comfort in the following ways:

- Controlling energy use to avoid peak demand, ratchet, or time of use utility charges
- Maintaining ventilation at relaxed setpoints rather than shutting down equipment (as with load shedding or duty cycling)

Before you can use Demand Control effectively, you must:

- Obtain details regarding past energy usage and peak demand, ratchet, and time of use charges from your energy provider.
- Understand the demand profiles of the zones you are controlling.

Demand Control can be customized at the zone level. For example, you may relax the setpoints in some zones, like break rooms and closets, by a few degrees, but you may not want to relax setpoints in computer rooms at all.



To define Demand Control properties

1 On the navigation tree, select the electric meter.

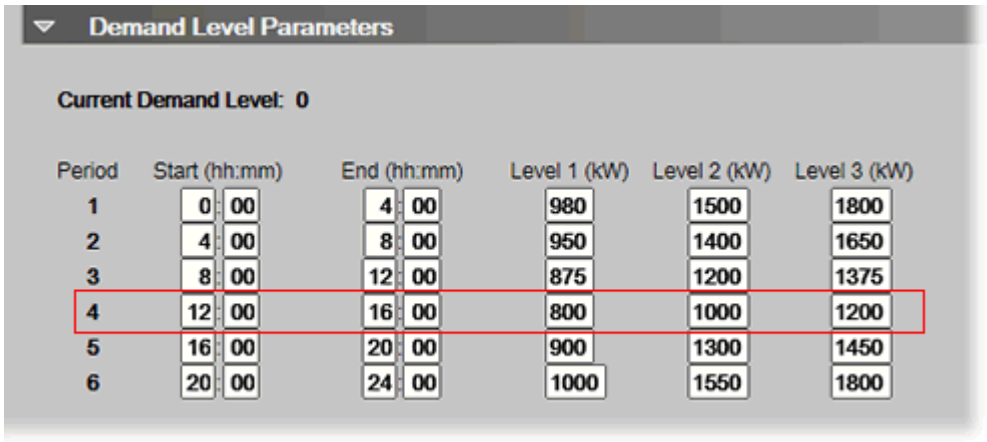
2 Select **Properties** > **Control Program** and expand the **Demand Level Parameters** section.

3 Type the **Start** and **End** time to define the time period that you want demand control to be in effect for this zone.

4 Type kilowatts per hour (kW/hr) in the **Level** columns to define the amount of power that the demand must exceed before the i-Vu® system calls for a higher demand level.

NOTE Levels are defined in the electric meter control program in the Snap application. You can test the Demand Levels by locking the meter to a value.

In the example below, during Period 4, defined as 12:00 (noon) to 16:00 (4:00 p.m.), if the demand exceeds 800 kW/hr, the i-Vu® system will use Demand Level 1 setpoints. If the demand exceeds 1000 kW/hr, the i-Vu® system will use Demand Level 2 level setpoints and so on.



Configuring Optimal Start

Enable and configure Optimal Start on the **Properties** page > **Control Program** tab > **Configuration** > **Setpoints**. Your control program could be configured for **Optimal Start** or for both **Optimal Start** and **Optimal Start Type**.

NOTES

- The **Optimal Start** options depend on the revision date of the control program in your controller.
- Optimal Start is automatically disabled when **Properties** > **Control Program** > **Maintenance** > **Occupancy** > **BAS On/Off** is set to either **Unoccupied** or **Occupied**.

Optimal Start

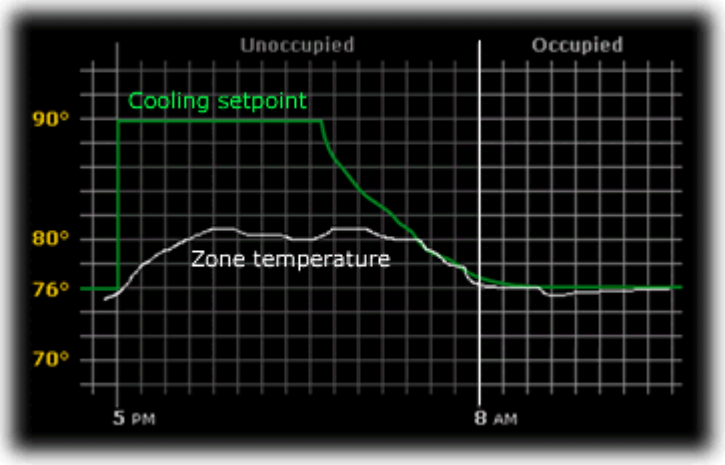
Optimal Start adjusts the effective setpoints to achieve the occupied setpoints by the time scheduled occupancy begins.The Optimal Start recovery period may begin as early as 4 hours prior to occupancy. The algorithm works by moving the unoccupied setpoints toward the occupied setpoints. The rate at which the setpoints move is based on the outside air temperature, design temperatures, and capacities.

The following conditions must be true for optimal start to operate:

- On the **Properties** page > **Control Program** tab > **Configuration** > **Setpoints** > **Optimal Start**, the **Default Value** must be set greater than **0** and less than or equal to **4** (**0.00** disables **Optimal Start**).
- The system is unoccupied

NOTE If the Open controller does not have a valid outside air temperature, then a constant of 65° F is used. This value is not adjustable.

The actual equation that the controller uses to calculate **Optimal Start** is nonlinear. An approximation of the result is shown below.



To change **Optimal Start** settings:

1 In the navigation tree, select the equipment that you want to change.

2 Select **Properties** page > **Control Program** tab > **Configuration** > **Setpoints**.

Optimal Start Type

If you have **Optimal Start Type**, you must choose from the following:

- **None**
- **Temperature Compensated Optimal Start**
- **Learned Adaptive Optimal Start**

To select the method used to change from unoccupied to occupied setpoints:

1 In the navigation tree, select the equipment that you want to change.

2 Click **Properties** page > **Control Program** tab > **Configuration** > **Setpoints**.

3 Select option from the **Optimal Start Type** drop-down list.

4 See below to make further adjustments.

None – The unit will not start to control to the occupied setpoints until the unit goes into an occupied mode. Setpoints do not ramp, but change immediately from unoccupied to occupied values. When you select **None**, you must set all Learning Adaptive Optimal Start transition factors, identified by their thermographic color, to 0. These are located directly above the **Effective Set Points** graph.

Temperature Compensated – The unit changes to occupied setpoints at some time prior to the occupied time, not to exceed the hours you set for **Optimal Start**. The start time is determined by the current error between space temperature and the appropriate heating or cooling setpoint. At that time, the setpoints do not ramp, but change immediately from unoccupied to occupied values. When selecting **Temperature Compensated**, you must set all Learning Adaptive Optimal Start transition factors, identified by their thermographic color, to 0. These are located directly above the **Effective Set Points** graph.

When selecting **Temp Compensated**, you can adjust the following:

- **Heat Start K factor (min/deg)** – If **Optimal Start Type** is **Temp Compensated**, this is the time in minutes per degree that the equipment starts before the occupied period when the space temperature is below the occupied heating setpoint (including any setpoint offset).
- **Cool Start K factor (min/deg)** – If **Optimal Start Type** is **Temp Compensated**, this is the time in minutes per degree that the equipment starts before the occupied period when the space temperature is above the occupied cooling setpoint (including any setpoint offset).

  NOTE The default value for the above is 15.00 and the range is 0 to 99.

Learning Adaptive Optimal Start – This function gradually adjusts the unoccupied setpoints over a specified period of time to achieve the occupied setpoint by the time scheduled occupancy begins. This learning adaptive algorithm uses the **learned heating capacity** and **learned cooling capacity** values to calculate the effective setpoints prior to the occupied start time. The algorithm calculates a learned cooling and heating capacity during the previous unoccupied time. Set the **Learning Adaptive Optimal Start** recovery period from 1 to 4 hours in **Optimal Start**. When the **Learning Adaptive Optimal Start** routine runs, adjustments are based on the color that is achieved when occupancy begins. Adjustment amounts are defined in the thermographic color fields located directly above the **Effective Setpoints** graph under **Setpoints**.

EXAMPLE The heating capacity for a zone is 5° per hour (default). When the zone becomes occupied, the zone temperature is 1° below the occupied setpoint, indicating a need for additional heat. Because the zone temperature was low by 1°, the learned heating capacity is decreased by the value entered in the **LtBlue** thermographic color field (0.0600 default). As a result, the learned heating capacity is adjusted to 4.94° for the next optimal start period. Since the algorithm has calculated that the equipment has less capacity to bring the temperature to setpoint within the configured recovery period, the setpoint adjustment begins sooner in the next unoccupied period.

To change the adjustment values in the **Learning Adaptive Optimal Start** routine:

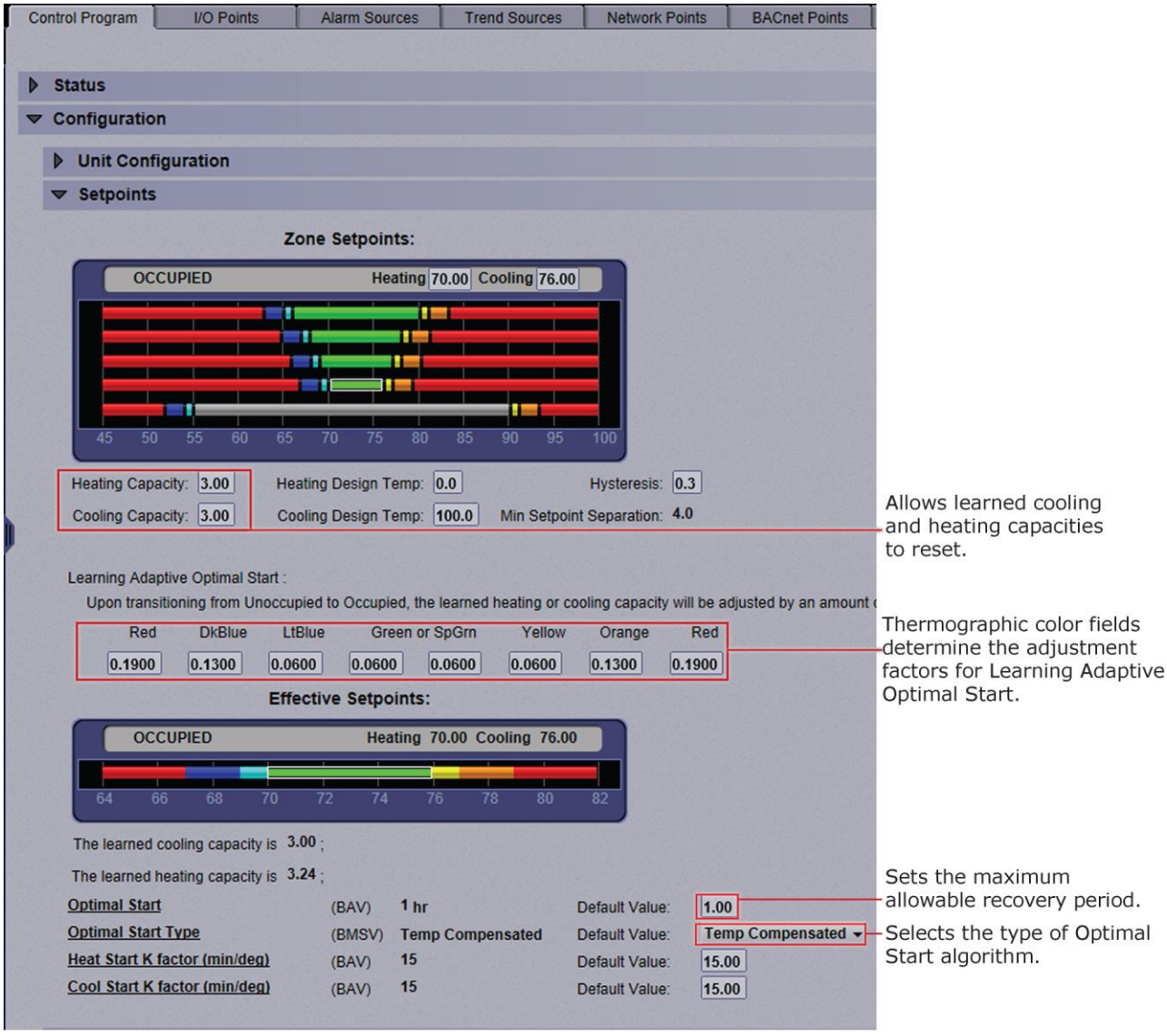
1 In the navigation tree, select the equipment that you want to change.

2 Click **Properties** page > **Control Program** tab > **Configuration** > **Setpoints**.

3 Adjust the color fields between the Zone Setpoints graph and the **Effective Setpoints** graph.

When you determine that no further start time optimization is required, you can disable **Heating** and **Cooling Capacity** adjustments by setting the color field values to 0.0.

You can reset the learned heating and cooling capacities by entering a value into either the **Heating Capacity** or **Cooling Capacity**, located beneath the **Zone Setpoints** graph.



CAUTION When using **Learning Adaptive Optimal Start**, be sure that all equipment is properly maintained so that your system does not “learn” to compensate for dirty filters or loose fan belts.

Monitoring and controlling equipment

You can monitor and control your equipment from:

- The Open and i-Vu® XT controller's **Properties (page 22)** pages
- The CCN controller's **Properties** (page 22) pages and the tables that are available when you expand the categories under the controller in the navigation tree
- *The equipment graphic* (page 18) (if applicable)

To lock a BACnet point or value

You can lock certain editable parameters to a specified setting from the **Properties** page or microblock popup.

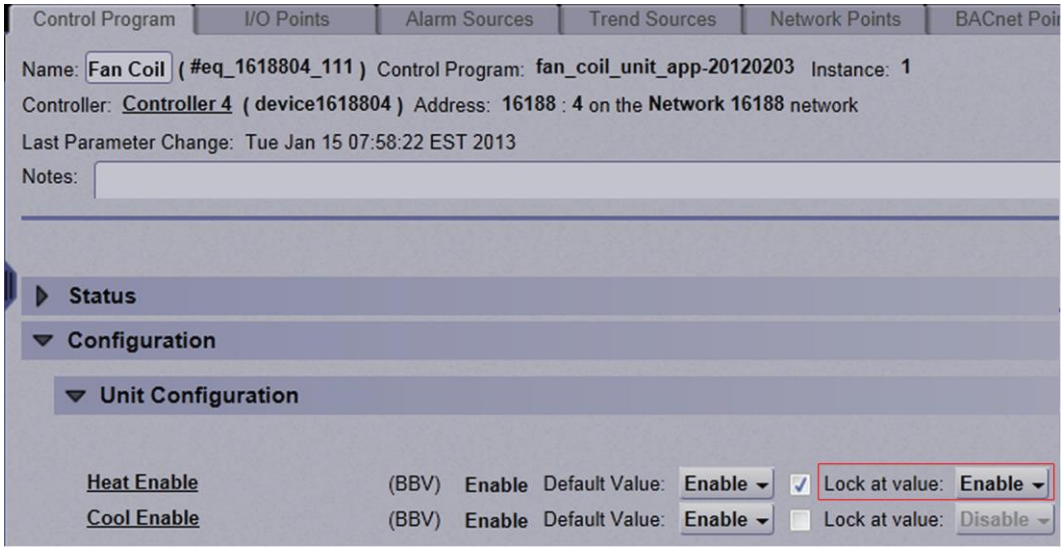
1 Select the **Lock** checkbox.

2 Type the value you want to send to the controller.

3 Click **Accept**.

NOTE Locked values are indicated by a dashed yellow line on graphics.

On **Properties** page > **Control Program** tab, click ▶ to locate the point you wish to lock.



On the microblock popup:

1. Click on the underlined **Name** or **Reference Name** of the point on any of the **Properties** tabs to open the point/properties details popup.
2. Click **Properties** page > **Details** tab to lock a value.

To force a CCN point value

You can force certain editable point values to a specified setting from:

- Equipment tables - click ▶ next to the equipment to expand tables
- A graphic - hold down Ctrl and, using your mouse, click on the point value on the graphic. A microblock popup appears.
- Properties pages

Forced values are indicated by a dashed yellow line on graphics.

1 Select the **Force** checkbox.

2 Type the value you want to send to the device.

3 Click **Accept** or **Apply**.

To set up peer caching

On the **Devices** page > **Advanced** tab, you can select a **Group Cache Controller** from the drop-down list. Choose the router closest to the i-Vu® server to be the peer caching router. The peer caching router will poll other routers on the IP network for colors and prime variables.

Peer caching also checks the communication status of the peer caching router and any routers for which it is caching. If any of the routers cannot communicate, a Dead Module Timeout alarm is issued.

Working with drivers in the i-Vu® interface

You can make the following changes to a driver in the i-Vu® interface.

- Change or upgrade a driver for controllers. See topic below.
- Routers only:

  Reload a driver if it becomes corrupt (for example, a driver page is missing). On the i-Vu® navigation tree, right-click the router or driver, then select **Reload Driver**. Reloading updates all instances of the driver throughout the system and marks the router for an All Content download. Changes you made on the driver pages in i-Vu® remain in effect.

After you make these changes, you must download all content to the affected devices. See Downloading to Controllers.

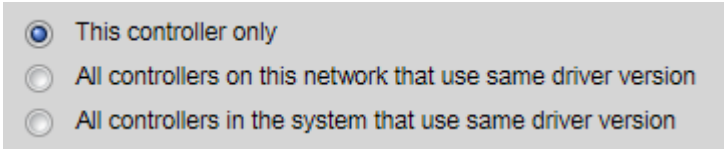
To view or change a driver

To view the driver

- In the Installer view, select the router in the navigation tree and select **Devices** > **Advanced** tab.
- Right-click the controller in the navigation tree and select **Driver Properties**.

To change a driver

1. Right-click the controller in the navigation tree and select **Driver Properties**.
2. Select the **Properties** page > **Update** tab.
3. In the **Controller** section, if other controllers in the system use this driver, select which controllers you want to change.



4 Do one of the following:

If the driver is...	
In the **Driver Version** drop-down list	a. Select the driver. b. Click **Accept**.
Not in the **Driver Version** drop-down list	a. Click **Add**. b. Browse to select the driver. c. Click **Open**. d. Click **Continue**. e. Click **Close**. f. Click **Close** again.

5 You can continue and also change the screen file, or, if finished, Download All Content to the controller.

6 See Update the equipment library for details on implementing a new library version of drivers and screen files.

CAUTION Selecting the **Delete Unused** button permanently removes the files from the database.

To change a screen file

1 If other controllers in the system use this screen file, select which controllers you want to change.

2 Do one of the following:

If the Screen file is...	
In the **Screen file** drop-down list	a. Select the screen file. b. Click **Accept**.
Not in the **Screen file** drop-down list	a. Click **Add**. b. Browse to select the screen file. c. Click **Open**. d. Click **Continue**. e. Click **Accept**..

3 Download All Content to the controller.

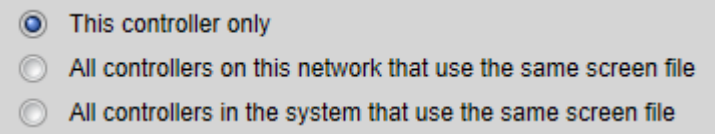
Working with touchscreen or BACview® files in the i-Vu® interface

To use a touchscreen device or BAC*view*® to view or edit a controller's property values, you must download a screen file (.touch, .bacview, .S37, or.kpd) to the controller. The screen file is typically downloaded with the initial download to the controller, but you can select a different file in the i-Vu® interface.

To select a different screen file

1 On the i-Vu® navigation tree, right-click the controller, then select **Driver Properties** > **Update** tab.

2 If other controllers in the system use the current screen file, select which controllers you want to change.



3 Do one of the following:

If the screen file is...	
In the **Screen file** drop-down list	a) Select the file. b) Click **Accept**.
Not in the **Screen file** drop-down list	a) Click **Add**. b) Browse to select the screen file. c) Click **Open**. d) Click **Continue**. e) Click **Close**. f) Click **Close** again.

4 Download All Content to the controller.

NOTE You can click **Delete Unused** in the **Screen File** section to delete all unused screen files.

To edit a screen file on an i-Vu® client

On an i-Vu® client, you can get a copy of a screen file from the server, edit it, then put it back on the server.

To get the screen file

1. On the i-Vu® navigation tree, right-click the controller that uses the screen file, then select **Driver Properties** > **Update** tab.
2. Under **Screen File**, click **Edit**.
3. Click **Save as.**
4. Browse to the folder you want to put the file in.
5. Click **Save**.
6. Click **Close**.

To put the edited file back on the server

1. On the i-Vu® navigation tree, right-click the controller that uses the screen file, then select **Driver Properties** > **Update** tab.
2. Under **Screen File**, click **Add**.
3. Browse to select the file.
4. Click **Open**.
5. Click **Continue**.
6. Click **Close**.
7. Click **Close** again.

Setting up i-Vu® client devices and web browsers

The i-Vu® system can be viewed on the following client devices and web browsers.

Computers

The client computer should have at least:

- Quad core processor
- 4 GB RAM
- Communications link of 100 Mbps or higher

The i-Vu® application will work with slower computers and slower links, but the results may not be satisfactory.

A computer with this operating system...	Supports these web browsers...
Windows®	Google™ Chrome™ v84.0 or later [1]
	Microsoft® Edge v84 or later
	Mozilla® Firefox® v79.0 or later
Mac® OS X® (Apple® Mac only)	Safari® v11 or later [2]
	Google Chrome v84.0 or later
	Mozilla Firefox v79.0 or later
Linux®	Google Chrome v84.0 or later
	Mozilla Firefox v79.0 or later

1 Best performance

2 Best performance unless browser is running on a Mac® Mini or a MacBook:

WARNING If machine is running Mountain Lion 10.8x with an integrated Intel HD 400 graphics card, it will experience display issues. Use one of these workarounds for better performance:

- If an additional NVIDIA graphics card is available, manually switch the graphic card setting in MAC® OS X® to use that card.
- If not, use Google™ Chrome™ v84.0 or later.

Mobile devices

Device type	Platform support
Smart phone	Android™, iOS
Tablet	Android™, iOS, Surface™

NOTE Some functionality may be limited by the capability of the mobile device and operating system.

Setting up and using a computer with the i-Vu® system

- Set the monitor's screen resolution to a minimum of 1920 x 1080 with 32-bit color quality
- You may want to disable the computer's navigation sounds.

Mac only

NOTE The instructions below are for a Mac OS X 10.8. Other versions may vary slightly. See your computer's Help if necessary.

Computer settings	To change setting...
Enable right-clicking to see right-click menus:	
On a Mac	**1** Select **System Preferences** > **Mouse**. **2** Click the drop-down list that points to the mouse's right-click button, then select **Secondary Button**.
On a MacBook	**1** Select **System Preferences** > **Trackpad**. **2** Enable **Secondary click**.

The instructions in Help are for a Windows computer. For instructions that include the **Ctrl** key, replace **Ctrl** with **Command**. For example, replace **Ctrl+click** with **Command+click**.

Setting up and using a web browser to access the i-Vu® interface

After installing and connecting to the i-Vu® application and Management Tool, every computer that will be used to access the application and the Management Tool must install 2 self-signed certificates for your browser. See Install self-signed certificates for network security.

NOTE Thei-Vu® application installer must make sure certificates are installed on the users' computer(s).

To set up and use Microsoft Edge

The instructions below are for Microsoft® Edge.

Web browser settings	To set in Microsoft Edge...
Do not block cookies	1 Click ... to display the Actions droplist. 2 Select **Settings** > **Site Permissions** > **Cookies**.
Disable web browser's pop-up blockers *	1 Click ... to display the Actions droplist. 2 Then select **Settings** > **Site Permissions** > **Pop-ups and redirects**.

To...	Do the following...
Maximize the web browser window *	Use the minimize/maximize button in the top right corner of the browser window.
Have 2 different users logged in to the i-Vu® system on the same computer *	1 Click ... to display the Actions droplist. 2 Select **New Window**.
Clear browser cache	1 Click ... to display the Actions droplist. 2 Select **Settings** > **Privacy, Search, and Services** > **Clear browsing data**. 3 Click **Choose what to clear**. 4 Click **Clear now**.

* Does not apply to Microsoft Edge on a phone.

To set up and use Mozilla Firefox

NOTES

- The instructions below are for Mozilla® Firefox® v60.0 on a Windows operating system. Other versions may vary slightly. See your web browser's Help if necessary.
- If the menu bar is not visible, right-click on the window's title bar, and then select **Menu bar**.
- If a message appears in the i-Vu® interface that includes the checkbox **Prevent this page from creating additional dialogs**, DO NOT check this box.

Web browser settings	To set in Firefox...
Disable Pop-up blocker	1 Click **Tools** > **Options** > **Privacy & Security**. 2 Under **Permissions**, click **Exceptions** next to **Block pop-up windows**. 3 Type `http://` (or `https://`) and then the server name or IP address of your system. 4 Click **Allow** and then **Save Changes.**
Enable JavaScript	1 In the address bar, type `about:config`, and then press **Enter**. 2 Click **I accept the risk**. 3 In the **Search** bar, type `javascript.enabled`. 4 If the value field shows **true**, JavaScript is enabled. If it shows **false**, right-click **Javascript:enabled**, and then select **Toggle**.
Add-ons Manager	Select **Tools** > **Add-ons** > **Extensions**. On this page, you can enable/disable installed add-ons such as: • Adobe® Acrobat® Reader (to view PDF's) • QuickTime Plug-in (to play audible alarms) Only installed Firefox add-ons will show up in the list.

To...	Do the following...
Maximize the web browser window	Press **F11** to turn full-screen mode on\off.
Clear browser cache	1 Click **Tools** > **Options** > **Privacy & Security**. 2 Under **Cookies and Site Data**, click **Clear Data**. 3 Click **Clear**.
Have 2 different users logged in to the i-Vu® system on the same computer	Start a new web browser session. Select **File** > **New Private Window**.

To set up and use Google Chrome

NOTES

- The instructions below are for Google™ Chrome™ v66.0. Other versions may vary slightly. See your web browser's Help if necessary.
- If a message appears in the i-Vu® interface that includes the checkbox **Prevent this page from creating additional dialogs**, DO NOT check this box.

On a computer

Web browser settings	To set in Chrome...
Enable pop-ups	1 Click ⋮ on the browser toolbar. 2 Select **Settings**. 3 Click **Advanced** at the bottom of the page. 4 Under **Privacy and security**, click **Content settings**. 5 Under **Pop-ups** > **Allow**, click **ADD**, and then type http:// (or https://) and then the server name or IP address of your system.

To...	Do the following...
Clear browser cache	1 Click ⋮ on the browser toolbar. 2 Select **More tools** > **Clear browsing data**. 3 Select a time range in the drop-down list. 4 Check the types of information that you want to remove. 5 Click **CLEAR DATA**.
Maximize the web browser window	Press F11 on your keyboard to turn full-screen mode on/off.
Have 2 different users logged in to the i-Vu® system on the same computer	Start a new web browser session. Click ⋮, then select **New incognito window**.

On Chrome for Android

NOTE The following settings are based on Android v11 - options may vary with versions.

Web browser settings	In the Chrome menu...
Turn off desktop mode	Uncheck **Request desktop site**
Disable pop-up blocker	**Settings** > **Advanced** > **Site Settings** > uncheck **Block pop-ups**
Enable JavaScript	**Settings** > **Advanced** > **Site Settings** > check **Enable JavaScript**
Enable Cookies	**Settings** > **Advanced** > **Site Settings** > check **Accept Cookies**

To...	In the Chrome menu...
Clear browser cache	**Settings** > **Basics** > **Privacy** > **CLEAR BROWSING DATA**

To set up and use Safari

NOTES

- The instructions below are for Safari® v11. Other versions may vary slightly. See your web browser's Help if necessary.
- We recommend that you do not run Safari in full-screen mode. If you do, i-Vu® pop-ups will open full-screen, covering the main application window.

On an Apple® computer (Mac®)

Web browser settings	To set in Safari...
Disable pop-up blocker	**Preferences** > **Security** > uncheck **Block pop-up windows**
Enable JavaScript	**Preferences** > **Security** > check **Enable JavaScript**
Enable Plug-ins	**Preferences** > **Security** > check **Enable plug-ins**
Prevent pop-ups from opening in a new browser tab	**Preferences** > **Tabs** > uncheck **Command-click opens a link in a new tab**
Prevent Safari from automatically opening zip files exported from the i-Vu® application	**Preferences** > **General** > uncheck **Open "safe" files after downloading**

To...	Do the following...
Clear browser cache	**History** > **Clear History**
Have 2 different users logged in to the i-Vu® system on the same computer	Start a new web browser session. Select **Safari** > **Private Browsing** > **File** > **New window**

On an Apple® iPad

Web browser settings	To set on the iPad...
Disable pop-up blocker	**Settings**> **Safari** > set **Block pop-ups** to **Off**
Enable JavaScript	**Settings** > **Safari** > set **JavaScript** to **On**

TIP Re-enable popup blocking on your device when not using our software.

To...	Do the following...
Clear browser cache	**Settings** > **Safari** > **Clear History**

TIP Re-enable popup blocking on your device when not using our software.

On an Apple® iOS 12.2

Web browser settings	To set on the iPhone...
Enable JavaScript	**Settings** > **Safari** > **Advanced**

Using Alarms, Trends, and Reports

See i-Vu® Help for detailed information on:

- Setting up and using **Alarms**
- Viewing and customizing **Trends**
- Running standard reports and creating custom **Reports**

Using System Options for administrative utilities

Click  and select **System Options** for the following tasks. On the:

- **My Settings** (page 57) tab, change the Installer's:
  - Password
  - Starting view and page
  - Preferences to automatically collapse trees, automatically download schedules on each change, and alarm notification
- **Operators** tab, set up:
  - Login names and passwords
  - Logoff rules
  - Starting locations
  - Levels of access (roles)
- **General** (page 61) tab
  - View system statistics - number of devices in the system, number of trends, estimated time for importing or exporting system clipping.
  - Download weekly logs
  - Access the **Management Tool** (page 66)
  - Set system date, time, timezone, and time/date format
  - Enable time synchronization schedule
  - Enable Alarm Notification Client
  - Enable/Disable Schedules feature
  - Import/Export Source Files, which include control programs, drivers, views, screen files, and report design files
  - Enable or disable Full Source download to Open PIC controllers and select to include or not include graphics in download
  - Import/export clipping files
  - Set up the email server
- **Security** (page 68) tab - Set advanced password and operator control
- **Update** tab
  - Install .update files
  - Update SAL libraries
  - View current Help updates and current libraries
- **Daylight Saving (page 70)** tab - update scheduled DST dates
- **Licenses & Add-ons (page 73)** tab - Install add-ons such as Tenant Override Billing or Weather

NOTES

- Some operators will not see all of the **System Options** tabs, depending on their assigned roles.
- See the i-Vu® Help for more details on the **System Options** tabs.

My Settings tab

To change your settings:

1 Click  , then select **System Options** > **My Settings** tab.

2 See table below for explanation of settings.

3 Click **Accept** or **Apply**.

4 Changes become effective when operator logs in again.

Field	Notes
Login	Enable this field, then type your current and new password and confirm. Limit is minimum of 8 and maximum 40 characters of any type.
Starting Location and Starting Page	The i-Vu® location and page that will display after you log in. Select the User or Installer tree, if you have Installer role.
Automatically collapse trees	Expands only one tree branch at a time.
Automatically download schedules on each change	Select to automatically download all new schedules that you create and schedules that you change
Play sound at browser when server receives	The system audibly notifies you when one of the selected alarms is received. Check **Non-critical alarms** or **Critical alarms** if you want the system to audibly notify you when that type of alarm is received.

NOTE An operator with the Guest role cannot edit any settings on this page.

Operators tab

Select the necessary settings and assign **Roles** (access rights) to set up operators.

NOTES

- You can have up to 10 simultaneous users.
- We highly recommend that only 1 user at a time commission the system.

To add or edit operators, passwords, and roles

1 Click  , then select **System Options**.

2 Select **Operators** tab.

3 Click **Add** to enter a new operator, or, select an operator to edit his settings.

4 Enter information as needed. The required fields are **Name, Login Name,** and **Roles**. See table below.

5 Click **Accept** or **Apply**.

Field	Notes
Login Name	Must be unique within the system.
Force user to change password at login	Forces the operator to change his password immediately after his next login. **NOTE** You can combine the use of this field and the **Change Password** field to create a temporary password that the operator must change after his next login.
Starting Location	Set the starting location for each individual operator by choosing the specific area or controller in the navigation tree and the starting page from the drop-down menu.
Roles	See table below.

This privilege...	allows an operator to...
Installer	• Add, edit, and delete operators, operator groups, and privilege sets. • Update the i-Vu® system with service packs and patches. • Register the i-Vu® software. • Enable and set up the *advanced password policy* (page 69). • Add and remove i-Vu® add-ons.

Access privileges

Guest	Standard User	Power User	Admin	Installer	The following can be accessed but not edited...
☑	☑	☑	☑	☑	User tree
	☑	☑	☑	☑	Control program tables and Properties pages
	☑	☑	☑	☑	Scheduling Groups pages in the User view navigation tree
		☑	☑	☑	System Options Items
☑	☑	☑	☑	☑	Alarms
				☑	Logic Pages

Functional privileges

Guest	Standard User	Power User	Admin	Installer	The following allows an operator to...
		☑	☑	☑	**Manage Alarm Messages and Actions** - add, edit, and delete alarm messages and actions.
			☑	☑	**Maintain System Parameters** - edit all properties on the System Options pages.
	☑	☑	☑	☑	**Maintain Schedules** - add, edit, delete, and download schedules.
	☑	☑	☑	☑	**Maintain Schedule Group Members** - add, edit, and delete schedule groups.
		☑	☑	☑	**Maintain Categories** - add, edit, and delete categories.
		☑	☑	☑	**Acknowledge Non-Critical Alarms** - acknowledge all non-critical alarms.
		☑	☑	☑	**Acknowledge Critical Alarms** - acknowledge all critical alarms.
		☑	☑	☑	**Force Normal Non-Critical Alarms** - force non-critical alarms to return to normal.
		☑	☑	☑	**Force Normal Critical Alarms** - force critical alarms to return to normal.
		☑	☑	☑	**Delete Non-Critical Alarms** - delete non-critical alarms.
		☑	☑	☑	**Delete Critical Alarms** - delete critical alarms.
			☑	☑	**Execute Audit Log Report** - run the **Location Audit Log** and **System Audit Log** reports.
			☑	☑	**Download Controllers** - mark equipment for download and initiate a download.
			☑	☑	**System Shutdown** - issue the Shutdown manual command that shuts down i-Vu® Server.
				☑	**Access Commissioning Tools**: • Equipment Checkout • Airflow Configuration • Trend, Report, and Graphic categories that require this privilege • Discovery tool
				☑	**Manage Program Operations** - reload a control program, revert to definition defaults, and copy control program properties
		☑	☑	☑	**Maintain Graphs and Reports** - add, edit, and delete trend graphs and reports.
			☑	☑	**Remote Data Access-SOAP** - retrieve i-Vu® data through an Enterprise Data Exchange (SOAP) application.
			☑	☑	**Manual Commands/Console Operations** - access the manual command dialog box and issue basic manual commands.
				☑	**Manual Commands/File IO** - execute manual commands that access the server's file system.

Guest	Standard User	Power User	Admin	Installer	The following allows an operator to...
				☑	**Manual Commands/Adv Network** - execute manual commands that directly access network communications.
	☑	☑	☑	☑	**Change My Settings** - edit preferences on operator's **My Settings** page.

Edit privileges

Guest	Standard User	Power User	Admin	Installer	The following allows an operator to edit properties such as...
	☑	☑	☑	☑	**Setpoint Parameters** - occupied and unoccupied heating and cooling setpoints
			☑	☑	**Setpoint Tuning Parameters** - demand level setpoint offsets, color band offsets, heating and cooling capacities and design temperatures, color hysteresis, and learning adaptive optimal start capacity adjustment values
		☑	☑	☑	**Tuning Parameters** - gains, limits, trip points, hysteresis, color bandwidths, design temperatures, and optimal start/stop.
		☑	☑	☑	**Manual Override Parameters** - locks on input, output, and network point.
		☑	☑	☑	**Point Setup Parameters** - point number, type, range, and network source and destination
		☑	☑	☑	**Restricted Parameters** - properties the installer restricted with this privilege
		☑	☑	☑	**Category Assignments** - Alarm, Graphic, Trend, and Report category assignments
		☑	☑	☑	**History Value Reset** - elapsed active time and history resets, and runtime hours
		☑	☑	☑	**Trend Parameters** - enable trend logging, log intervals, and log start/stop time.
		☑	☑	☑	**Calibration Parameters** - point calibration offsets
		☑	☑	☑	**Hardware Controller Parameters** - module driver properties
					Critical Configuration - critical properties the installer protected with this privilege
		☑	☑	☑	**Area Name** - area display names
		☑	☑	☑	**Notes** - note entries
		☑	☑	☑	**Control Program Name** - equipment display names

Guest	Standard User	Power User	Admin	Installer	The following allows an operator to edit properties such as...
		☑	☑	☑	**Alarm Configuration** - enabling/disabling alarms and editing alarm messages, actions, categories, and templates
		☑	☑	☑	**Status Display Tables** - tables available under Status
		☑	☑	☑	**Maintenance Tables** - tables available under Maintenance
		☑	☑	☑	**User Config Tables** - tables available under User Config
				☑	**Service Config Tables** - tables available under Service Config
	☑	☑	☑	☑	**Setpoint Tables** - tables available under Setpoint
	☑	☑	☑	☑	**Time Schedule data Tables** - tables available under Time Schedule

General tab

1 Click  , then select **System Options** > **General** tab.

2 Enter information on this page as needed.

3 Click **OK** or **Apply**.

You can edit or use the following fields and buttons.

Field	Notes
System Information	
System Statistics	Check to **Use metric units for CCN tables and control** programs Click to see: • Numbers of controllers allowed and present in system • Number of trend sources and samples in the database • Estimated time to import/export clipping
Levels displayed in paths	The number of levels displayed in i-Vu® paths. For example, if **Node Name Display Depth** is set at: 2, a typical path might be ..\AHU-1\RA Temp 3, a typical path might be ..\Atlanta R&D\First Floor\AHU-1 **NOTE** Changing this field does not take effect until you restart the i-Vu Server application.
Use metric units for CCN tables and control	Check to use metric values.

Field	Notes
Logs	
Select a week of logs to review	For troubleshooting, download a zip file that contains a log of system activity. Logs are available for a maximum of 4 weeks.
Management Tool	
Make a backup or change server setup	Select **Management Tool** (page 66) button to access the following: • Download weekly system logs • View or change system name and IP addresses • Port Configuration • Backup and Restore, Compress Trend Storage • Reset to Factory Defaults • Upgrade System Version • Reboot • NTP Configuration See *Management Tool* (page 66).
Time	
Time Format	Select one of the following for the system's time: • **12-hour clock** (Example: 4:34 pm) • **24-hour clock** (Example: 16:34)
Date Format	Select the format you want the system to use.

Field	Notes
Time Sync	Click to immediately synchronize the time on all IP network controllers in the system database to the i-Vu® server's time. Check **Enable time synchronization of controllers daily at____** to set daily time synchronization occurs daily if the field on the Scheduled Tasks tab is enabled. Automatically synchronizes the time on all equipment to the time on the server, adjusting for different time zones and Daylight Saving Time. We recommend that you check this field. The i-Vu® application will send a daily time sync message to each IP network device that is in the system database. IP devices not in the database will not be synchronized. For all MS/TP networks in the database, the i-Vu® application will send a broadcast time sync message. All devices on these networks will be synchronized, regardless of whether or not the devices are in the database. **CAUTIONS** • Make sure that your server's time and time zone setting are correct. • To prevent time sync problems when the transition to and from Daylight Saving Time occurs, set the time sync to occur at least 1 hour after the last controller in the system is adjusted for DST. For example, your server and part of your system is in the Eastern Standard Time zone, but you also have controllers in the Pacific Time zone. Your server is adjusted for DST at 2:00 a.m. Eastern Standard Time, but the controllers in the Pacific Time zone are not adjusted until 3 hours later. So you would set the time sync to occur daily at 6:00 a.m. or later. **NOTES** • You can perform system-wide time synchronizations using the **Time Sync** button. • Between time sync broadcasts, Carrier® routers include time sync information in each color request to the devices below the router. This ensures devices without a battery-backed clock will get the time shortly after powering up.
Reports	
Display Date and Time in	Choose whether to display the date and time together in a single column or to have separate columns for each.
Display preceding zeros in Date and Time	**Yes—**displays preceding zeros. Ex. 01/01/2023 02:05:09 PM **No—**omits preceding zeros. Ex. 1/1/2023 2:05:09 PM
Display missing Trend data as	You can specify text of up to 20 characters to appear in the report when there is no tend data. The default is a dash "-".

Field	Notes
Report logo	1 Click **Choose File**, and select your logo file. The logo must be a JPEG or PNG of less than 2 MB in size. 2 Click **Upload**. A preview of the logo appears to the right. You can review the preview to ensure the correct file was uploaded. **TIPS** • For best results, use a transparent or white background on your logo. • The logo is resized to fit within a 100 x 100 pixel area. We recommend that you upload a logo of this size or larger.
Alarms	
Enable support for Alarm Notification Clients to connect to this server	Select the checkbox to enable Alarm Notification functionality. See Alarm Popup alarm action.
Schedules	
Disable Schedules	If your system has no need to run schedules, check this box so that the Schedules feature is no longer visible in i-Vu® interface.
Trends	
Keep trends for ___ days	Stores trend data in the i-Vu® database for the time you specify. This is a default setting that you can change when you set up trends for an individual point.
Display gap in graph line for missing data	Check to show a gap if trend data is missing.
Source Files	
All Source Files	Use to import or export source files in a .zip file that can be imported or exported to/from another i-Vu® or Field Assistant system. Source files include: • Control programs (.equipment files only) • Drivers • Graphics (.view files only) • Screen files • BACview® files • Report design files for Equipment Values or Trend Sample reports **NOTE** If import detects a difference between a database file and an import file with the same name, import does not overwrite the database file. A message lists any file differences so that you can resolve them. See Commissioning equipment using Field Assistant.
Download	
Optimize download for Open PIC controllers	Check to increase download speed. The full source files are not downloaded into the PIC controllers when this is checked.
Include graphics in Open programmable controller download	Uncheck to increase download speed. If you are not changing the graphics, you may not want to include them in every download.

Field	Notes
Clippings	
Import	Click button to import clipping files, which include: • Navigation tree items including attached control programs, graphics, drivers, and screen files • Trend data • Reports • Alarm categories • Schedules and schedule group membership (including the entire schedule group and schedules, if it does not exist in the target system) • Alarm actions **NOTES** • Does not include operators or alarms • A clipping containing CCN controllers does not include the CCN tables. When importing a clipping containing CCN devices, you must re-scan the table.
Email Server Configuration	The information in this section is used by the Send email alarm action and used to email a Scheduled Report.
From	Enter a valid address if required by your mailserver.
Mail Host	The mailserver's address. This can be an IP address or a system name, such as mail.mycompany.com.
Mail Host Port	Change this field if using a port other than the default port 25.
Mail Host Security Options	Select the type of security the mailserver uses. • **Cleartext (SMTP)** – Uses the SMTP protocol to send as clear text over TCP/IP • **Secure SSL (SMTP with SSL)** – Uses SSL, a communication protocol that provides data encryption • **Secure TLS (STARTTLS)** – Uses TLS, but does not begin encryption until the i-Vu® application issues STARTTLS command
Specify Mail User for Mail Host Authentication	Select if your mailserver requires a username and password.
Test connection	Click to have i-Vu® try to connect to the email server. A message will appear below this button stating if the connection was successful or if it failed.
Privacy Policy	
Policy Text	The text you enter here appears under **Privacy Notice** on the i-Vu® and Management Tool login pages.

Management Tool

Access the Management Tool using one of the following methods:

- Click  , then select **System Options** > **General** tab > **Management Tool**.
- Launch your browser and type the host name followed by /mgttool/. (Ex. https://ivu/mgttool/)

NOTES

- The Management Tool is password-protected and can only be accessed by a user with Installer role.
- After 5 invalid login attempts, you will be locked out for 30 minutes.
- If multiple users are in the Management Tool at the same time, only the first one to access it is able to make changes. Other users see it in View Only mode.
- If you are in the Management Tool and are inactive for 30 minutes, you will be logged out. You must refresh the browser and log back in.

To access the Management Tool for the first time or after resetting to factory defaults

Log in with the following factory default credentials:

Username—management
Password—First 8 digits of the Appliance ID followed by "@I" (uppercase letter I). (Ex. 12345678@I)

NOTE You can find the Appliance ID in several locations:

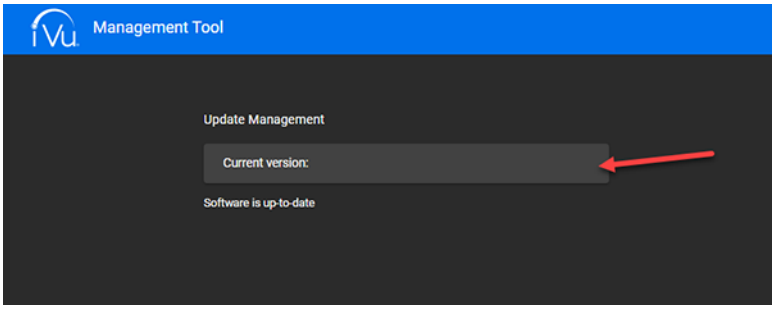
- on the back of the i-Vu® web server
- on the i-Vu® shipping box
- under **Device ID** if a monitor is connected to the i-Vu® web server

Once you have set up a system, the factory default credentials are no longer valid. Use your i-Vu® credentials with Installer privilege to access the Management Tool.

Each tab in the Management Tool is outlined below.

System Status	
System Status	Use to troubleshoot server or LAN communications. Click **Stop Server** to stop the i-Vu® web server. When stopped, the button changes to **Start Server.** Do NOT close the Management Tool before restarting the server. Click to restart.
System logs	Use for troubleshooting (same as logs available from **System Options** > **General** tab). Logs are available for a maximum of 4 weeks.
Manage System	
Backup	Save the entire database zipped into one file to your computer.
Restore	Replace the current server data with a backup from an i-Vu® system.
Legacy Restore	Replace the current server data with a backup from a v7.0 or earlier i-Vu® system.

Reset Defaults	Delete all server data and reset the device to the original factory default values. **NOTE** Executing this option does not delete configuration data under the **Addressing** section of the Management Tool.
Reboot host OS	Restart the host operating system running on appliance and all application services.
Addressing	
Name	The name used to access your system from the Internet. Do not use special characters or spaces. **CAUTION** If you change the name or the IP address of your system, record the numbers in a secure place.
Obtain an IP address automatically	Uncheck this field to manually assign addresses for the following: ○ i-Vu Address ○ Subnet Mask ○ Default Gateway ○ DNS Address — IP address of the Domain Name Server ○ Domain — Host name of the domain ○ USB Network Type — Read-only field shows either CCN or BACnet types. ○ USB Network Address — IP address of the internal BACnet router or the internal CCN Gateway
Redirect HTTP requests to HTTPS	Check this field to have all HTTP requests automatically redirected to the more secure HTTPS.
NTP	
Enable time synchronization from an NTP server	Network Time Protocol (NTP) is a networking protocol for clock synchronization. You can designate an NTP source that sends the correct time to the i-Vu® web server, ensuring constant accurate time. You can enter 2 static addresses (DNS name or IP) of NTP servers or use the default addresses provided by the i-Vu® application. If you do not enable NTP, the i-Vu® system clock must be monitored and updated regularly in **System Options** > **General** tab. You can configure DHCP servers to supply IP addresses of NTP servers to the i-Vu® web server. If you have checked **Obtain an IP address automatically** on the **Addressing** tab and **Enable Time Synchronization** on the **NTP** tab, the i-Vu® web server tries to obtain an NTP server address from the DHCP server on site. If it cannot find one, the i-Vu® web server uses the User Assigned NTP addresses, if any, in the User Assigned fields. **CAUTION** Contact your Network Administrator for guidance in entering these settings.
User Assigned NTP Server Address	You can use the default website addresses if your system allows it. Firewalls may prevent successful access to the default websites. Your Network Administrator can provide alternate addresses for a local server, a remote server, or a website.

Update Management	
Current version	Displays your i-Vu® system's version information. Click on the current version for more details. **NOTE** If the **Current version** field is blank, as shown below, the web server is not connected to the Balena Cloud and cannot receive updates. Check whether the web server can access api.balena-cloud.com by pinging the URL using a computer on the same subnet as the web server. If pinging is unsuccessful, contact the customer IT or ISP. 
There is a software update available	Appears if a software update is available. Click **Apply** to download the update.

Security tab

To adjust security settings,

1 Click  , then select **System Options** > **Security** tab.

2 Enter information as needed. See table below.

3 Click **OK** or **Apply**.

Field	Notes
Return operators to previous locations when server reconnects.	Returns operators to current navigation tree locations when the server reconnects.
Log off operators after _:_ (HH:MM) of inactivity	The system automatically logs off an operator who has had no activity in the system for the time period specified. This is a default setting for the system. The Installer or Administrator can change this setting for an individual operator on the *Operators* (page 57) tab.
Lock out operators after __ minutes after __ failed login attempts	Set the time that a user will be locked out of the system after the failed number of login attempts has been reached. **NOTE** Restarting the i-Vu® application removes lockouts.

Field	Notes
Clear Lockouts	Remove lockouts for all users.
Use advanced password policy	You can place specific requirements on passwords to increase security. See *Advanced password policy* (page 69).
Permissions	
Permissions	When control programs, views, touchscreen, and BACview® files are created by an original equipment manufacturer (OEM), they cannot be used in the i-Vu® system without the creator's permission. However, the creator can produce a key for a system with a different license that will grant permission to the key's recipient. If you receive a key, put it in a convenient location on your computer. To activate a key, click **Add**, then browse to the key. To delete a key from your system, select the key in the table, then click **Delete**. Red text in the table indicates the key has a problem such as it does not apply or has expired. See the **Notes** column for an explanation.

Advanced password policy

You can set up a password policy to meet your security needs.

1 On the **System Options** tree, select the **Security** tab.

2 Enter information in the fields described below.

Field	Notes
Use advanced password policy	Enable this field to put restrictions on passwords. An operator's login name and password must be different when this policy is enabled. After you change the password policy, any operator whose password doesn't meet the new requirements will not be locked out of the system, but will be prompted to create a new password. **NOTE** This password policy also applies to site-level passwords.
Passwords must contain	You can specify how many characters and which of the following types of characters a password must contain: • Numbers • Special characters—any keyboard character that is not a number or letter. • Letters—uppercase, lowercase, or both.
Cannot be changed more than once every __ days.	Enter a number to limit how often users can change their passwords. When set to 0, users can change them as often as they want.

Field	Notes
May not be reused until __ different passwords are used.	Enter a number between 1 and 20. Enter 0 to reuse passwords without a delay.
Expire after __ days	Enable to set the number of days an operator can use his password before the system requires him to change it. Enter a number between 1 and 999.
Force expiration	Click this button to force every user's password to expire. Each user will be prompted to change their password when they next attempt to log in to the i-Vu® interface.

Daylight Saving tab

On this tab, you can adjust the Daylight Saving Time settings.

Click **Update** to automatically set the table's **Begin** and **End** dates for the next 10 years based on the system's timezone. This marks all controllers for a Parameters download.

If the updated dates are incorrect

If you clicked **Update** but the dates are incorrect, your system's Java timezone data may be out-of-date. Do the following:

1. Go to the *Internet Assigned Numbers Authority* (*http://java.sun.com/javase/downloads*) website and navigate to **Time Zone Database**.
2. Download the **tzdata**< version >**.tar.gz** file.
3. In the i-Vu® interface, click  , then select **System Options** > **Daylight Saving** and then click **Import**.
4. Browse to the **tzdata**< version >**.tar.gz** file, select it, and then click **Open**.
5. Click **Continue**. This restarts the i-Vu® application.
6. On the **System Options** > **Daylight Saving** tab, click **Update**.

Update tab

Select the **Update** tab to check the current SAL library version and install .update files. Click ▶ next to **Applied Updates** and **Current Libraries** to view all currently applied updates and .SAL files.

Carrier periodically provides updates that include enhancements, big fixes, and new SAL files. You can apply these updates in the Management Tool.

The i-Vu® SAL files update your i-Vu® controllers. The SAL libraries contain control programs, graphics, drivers, screen files, and other important controller data.

NOTES

- The library update only changes **default** graphics. If you have edited your graphic in ViewBuilder, it is not updated.
- The last digits in the SAL library name are the release date of the library.
- All of the SAL files will not necessarily have the same <date> revision.
- To ensure that your installation is running the latest software, check the Management Tool for updates.

  NOTE Keep copies of the latest libraries in a safe place. In the event of a system restore, the updated .sal file must be reapplied.

To ensure that your installation is running the latest software, access the Management Tool for updates.

Step 1: Apply available updates

1 Access the **Management Tool** using one of the following methods:

   - Click  , then select **System Options** > **General** tab > **Management Tool**.
   - Launch your browser and type the host name followed by /mgttool/. (Ex. https://ivu/mgttool/)

   NOTE You need the Installer privilege to access the Management Tool.

2 In the **Update Management** tab, check if any updates are available. An available update is indicated by an  icon on the tab's title.

3 Click **Apply** to install and apply the latest update.

If the update contains new SAL files, follow these steps to implement the new equipment library:

Step 2: Update the files for the routers

1 Select the router that you wish to update in the navigation tree.

2 Right-click and select **Driver Properties**.

3 Select **Properties** page > **Update** tab.

4 If the database contains two or more routers, you must check **Change for all controllers of this type?** in the **Controller** section.

5 Click **Update**. A message appears **Changes the driver and screen file to use the current library version. Continue?**

   NOTE If more than one router exists, the additional routers are listed below the **Update** button.

6 Click **OK.**

7 Click **Accept.**

Step 3: Update the files for Open controllers

1. Double-click the controller in the navigation tree or right-click and select **Configure**.
2. If you have multiple controllers of the same type, enable **Change for all control programs of this type?**.
3. Click **Update** under **Control Program**. A message appears **Changes the control program, view, driver, and screen file to use the current library version. Continue?**
4. Click **OK.** When the message **Updated to the library version xx.** appears, click **Close.**
5. Repeat steps 1 - 4 for any additional types of controllers.
6. Click **Close** again.

Step 4: Update the files for CCN controllers

1. In the navigation tree, select the CCN device manager associated with the controllers that are to be updated.
2. Select **Devices** > **CCN Discovery** and re-scan any controllers that need to be updated by checking **Rescan Controllers Selected Below for Configuration Changes** and clicking **Start Scan**.

Step 5: Apply the update to the routers and controllers

1. Select the site level in the navigation tree and then select the **Downloads** page.
2. If you wish to apply the new SAL file to your entire system, you can use this page to compare to your navigation tree and verify that you have selected all of your routers and controllers for download.

   NOTE Only the CCN Gateway and device managers require download, so the CCN controllers/equipment will not be listed.
3. A network's controllers download in the order shown. To change the order, select a controller(s), then drag and drop or click **Move to Top** or **Move to Bottom**.
   EXCEPTION If a controller's router requires a download, it will download first regardless of its position on the Download page.Click the **Start** button.

   NOTES

   - Use **Ctrl+click**, **Shift+click**, or the **Select All** checkbox to select multiple controllers.
   - Up to 5 routers can download simultaneously.
4. See To download from the Downloads page in Help for more details.

Licenses & Add-ons tab

Licenses and Add-ons

The i-Vu® Express application supports add-ons, such as Tenant Override Billing or Weather, that retrieve and use i-Vu® data. The i-Vu® Express application allows only add-ons that are supported by Carrier®.

To install an add-on

1 Save the add-on's file (.addon or .war) to your computer.

2 Click  , then select **System Options** > **Licenses & Add-ons** tab, and browse to the file.

3 Click **Install**. After a few seconds, the add-on will appear in the **Installed** table, and will be enabled. The table below gives a description of each column.

Column	Notes
Name	The add-on's name.
Path	To open the add-on in a web browser, append this path to your i-Vu® system's address. For example, to start Tenant Billing, type `http://<system_name>/override`, or `http://<system_IP_address>/override`
Version	The version is shown if the author provided the information in the add-on.
License	Displays: ○ **Licensed** if the add-on license is present ○ **Not Licensed** the add-on license is not present ○ The expiration date of the license if it has one.
Status	If this column shows: ○ **Running**, you can open the add-on in a web browser. ○ **Disabled**, click **Enable** to run the add-on. ○ **Startup error**, select the table row to see an explanation of the error under **Details**.

4 Select an add-on in the **Installed** table to disable or enable it, or to see the following **Details**.

Add-on main page	Click the main page link to open the add-on, if the author provided a main page.
Description	A description of the add-on, if the author provided one
Vendor Name	The add-on's author
Public Data Directory	This public directory contains data generated by the add-on. This data is visible in a web browser.
Private Data Directory	This private directory contains information such as configuration data.

To back up the add-on's private and public data directories

NOTE This procedure will not back up data stored in an external database.

1 Select the add-on in the table.

2 Click **Save Data**.

3 Click **OK**.

4 Click **Save**.

5 Select the location where you want to save the data, then click **Save**.

To update an add-on

NOTE Add-ons for i-Vu® v6.0 and later systems have a different folder structure than previous versions.

1 Select the add-on in the table.

2 Click **Remove Add-on and Keep Data**

3 Follow the procedure above to install the new version of the add-on.

To uninstall an add-on

1 Select the add-on in the table.

2 Click **Remove Add-on and Data**.

Controller Licensing

Some devices have third-party integration points that require a license. You can verify the total number of licensed points that are required for a given protocol in the device by generating a requirements file. See the steps below.

1 Click  , then select **System Options** > **Add-ons & Licenses** tab.

2 Under **Licenses for Controllers**, select the area or equipment on the tree for which to verify points, and click **Generate Requirements**.

3 Open the downloaded **.requirements** file to verify the total number of licensed points needed for a given protocol for each controller.

4 Click **Choose File** and browse to the license file(s), then click **Upload**.

5 Select the equipment on the tree to apply the license to and click **Apply**.

System Management

Although the i-Vu® application is a reliable front-end, you must perform periodic backups of the i-Vu® database to ensure a quick recovery in case of failure. To make sure that your controllers have the latest version of software, you must install periodic library upgrades. The sections below describe how to backup and restore the i-Vu® database and how to install the library updates.

Backup data from i-Vu® Management Tool

Access the Management Tool using one of the following methods:

- Click  , then select **System Options** > **General** tab > **Management Tool**.
- Launch your browser and type the host name followed by /mgttool/. (Ex. https://ivu/mgttool/)

Backup data to your computer

1. In the **Manage System** tab, click **Backup** to save the entire database zipped into one file to your computer.
2. Click **OK** when you see the message **The system will be stopped and restarted. Do you wish to proceed?** Watch **Operation Status** to see the progress.
3. Click the message **Save/Download Backup File to Your Local Hard drive** when it appears.
4. Click **Save** when asked **Do you want to open or save this file?**
5. Save this system.backup.zip file to a convenient location on your computer.

   CAUTION! Do not alter the name of this file!
6. Exit from **Management Tool**.

Restore data from backup

1. Access the **Management Tool** using one of the following methods:
   - Click  , then select **System Options** > **General** tab > **Management Tool**.
   - Launch your browser and type the host name followed by /mgttool/. (Ex. https://ivu/mgttool/)

   NOTE You need the Installer privilege to access the Management Tool.
2. Go to the **Manage System** tab.
   - If restoring a backup from an i-Vu® Standard or Plus system, click **Legacy Restore**.
   - If restoring a backup from an i-Vu® system, click **Restore**.
3. Browse to your backup file and click **Perform Restore**.
4. Restore is complete when **Operation Status** displays **No Background Operations Currently Active**.
5. If you wish to change the name of your i-Vu® system from the default **ivu**, enter the new name in the **Name** field under **Addressing**.

Restore factory defaults

Restoring factory defaults deletes your existing data and restores your system to factory defaults.

1 Access the **Management Tool** using one of the following methods:

- Click  , then select **System Options** > **General** tab > **Management Tool**.
- Launch your browser and type the host name followed by /mgttool/. (Ex. https://ivu/mgttool/)

2 In the **Manage System** tab, click **Reset Defaults**. This deletes all server data and resets the device to the original factory default values.

NOTE Executing this option will not delete configuration data under the **Addressing** tab.

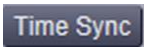
3 Begin setting up your system.

NOTE To access the Management Tool after restoring factory defaults, you must use the factory default login credentials until you set up your system. See *Management Tool* (page 66).

Synchronize to system time

To update all routers and controllers to the system time:

1 Click  , then select **System Options** > **General** tab.

2 Click 

to immediately synchronize all controllers.

3 To adjust the time when controllers are automatically synchronized each day, click **Enable time synchronization of controllers daily at** and fill in time.

Appendix: Operator Record

Name_____

Login Name_____

Assigned Role_____

Password_____

Name_____

Login Name_____

Assigned Role_____

Password_____

Name_____

Login Name_____

Assigned Role_____

Password_____

Name_____

Login Name_____

Assigned Role_____

Password_____

Name_____

Login Name_____

Assigned Role_____

Password_____

Name_____

Login Name_____

Assigned Role_____

Password_____

Document revision history

Important changes to this document are listed below. Minor changes such as typographical or formatting errors are not listed.

Date	Topic	Change description	Code*
		No changes yet	

* For internal use only