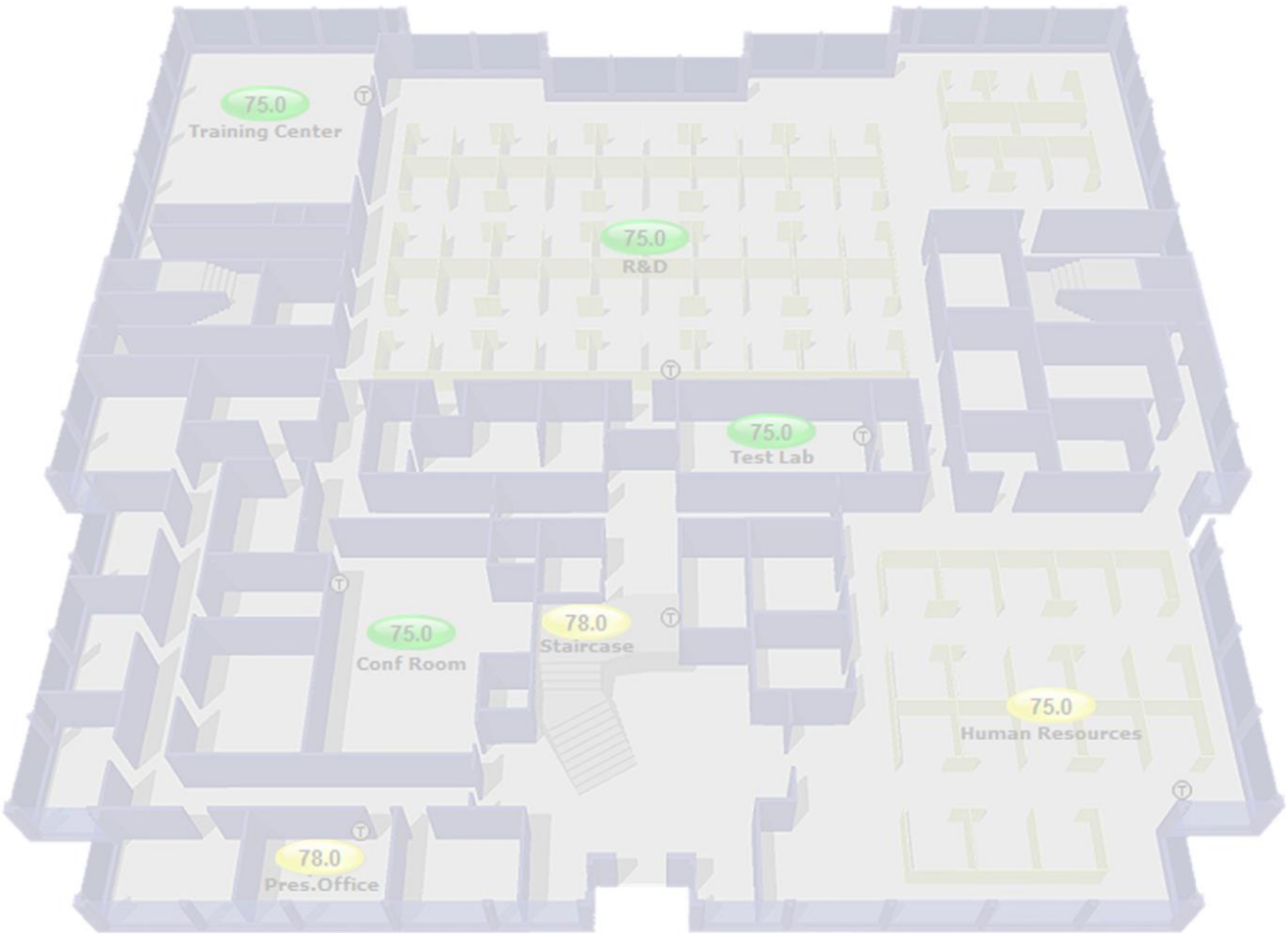
i-Vu® Pro v9.0

Installation Guide



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 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.

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Contents

What is an i-Vu® Pro system?

An i-Vu® Pro system is a web-based building automation system that can be accessed from anywhere in the world through a web browser, without the need for special software on the workstation. Through the web browser, you can perform building management functions such as:

- adjust setpoints and other control parameters
- set and change schedules
- graphically trend important building conditions
- view and acknowledge alarms
- run preconfigured and custom reports on energy usage, occupant overrides, and much more

NOTE If you are upgrading your i-Vu® Pro application from v6.0 or earlier, see the *i-Vu® Application Upgrade Guide*. You must convert your trends, which is not described in this document.

A typical i-Vu® Pro system

An i-Vu® Pro system uses a network of microprocessor-based controllers to control heating and air conditioning. A web-based server communicates with these controllers and generates the i-Vu® Pro interface that the user can access through a web browser. Through the interface, you can gather information, change operating properties, run reports, and perform other building management functions on a single building or an entire campus.

The i-Vu® Pro client uses a supported web browser to access i-Vu® Pro Server as a website.

i-Vu® Pro supports:

- Unlimited simultaneous users
- Multiple operating systems and databases
- CCN, Open, and third-party devices
- Built-in alarming, trending, and reporting
- Third-party integration
- Secure server access using TLS

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i-Vu® Pro tools

Develop and configure graphics and a system database for your i-Vu® Pro system using the following i-Vu® Pro tools.

NOTE The i-Vu® Pro v9.0 Tech Tools and Customer Tools USB drives have a built-in license that expires 2 years after the software is released. When prompted during installation, browse to the i-Vu® Pro v9.0 non-expiring license that you obtained from Carrier.

Use...	To...
ViewBuilder	Create or edit graphics
SiteBuilder	Create and modify the system database Build a system for multiple CCN Gateways

Tech tools for the Installer only:

Use...	To...
EquipmentBuilder	Build or edit control programs (.equipment files) for programmable controllers. Can also produce graphics, sequence of operation, and screen files
Alarm Notification	Receive a message on any networked computer that is running the i-Vu® Pro Alarm Notification Client application
Virtual BACview®	View and change property values and the controller's real time clock
BBMD Configuration Tool	Configure BACnet/IP Broadcast Management Devices (BBMDs) **NOTE** If your system has multiple routers that reside on different IP subnets, you must set up one router on each IP subnet as a BACnet/IP Broadcast Management Device (BBMD).
MSTP Capture Utility	Capture BACnet traffic on MS/TP. It is intended for situations where Carrier Control Systems Support needs a network capture to troubleshoot communications.
Test & Balance	• Calibrate airflow in a VAV or VVT Zone controller • Calibrate the static pressure in a VVT Bypass controller • Commission air terminals • Override reheat and terminal fans **NOTE** Use Test & Balance to manipulate the controllers associated with an air source, but not the air source itself, or heating and cooling equipment, such as chillers and boilers.
Snap	Build custom control programs using individual blocks of programming code called microblocks
LonWorks Integration Tool	Generate the microblock addresses automatically for third-party LonWorks points
AppLoader	Use to download .clipping files to restore factory defaults and check **Module Status** (Modstat) through the Rnet port
Field Assistant	Service or start up and commission a piece of equipment or a network of controllers.

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What's new in v9.0

What's new in the i-Vu® Pro v9.0 application

Feature	Improvement
Simultaneous downloads	i-Vu® Pro now supports multiple simultaneous downloads for faster sub-networks.
Java	i-Vu® Pro now supports Java 17.
Alarm Summary	The alarm **Summary** provides a high-level view of all the alarms in a system to aid in troubleshooting and configuration. It contains the same alarms as the **View** tab with enhanced filtering and sorting.
Alarms View	Added **View** column. **View** is the total count for the view selection at that location (filtered by View and selected Categories)
Security Review	Security Review provides important security information in a single preconfigured report.
API keys	Create an API key to use with a REST API such as SystemServiceProvider or AlarmServiceProvider.
Remote file management	Manage graphics, drivers, and equipment files in your system directory.
Licenses & Add-ons	The following functions have moved to **Licenses & Add-ons**. • Add-ons • Registering and downloading your i-Vu® Pro software • To determine the number of third-party points required for a controller.

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Before starting the i-Vu® Pro application and your system

You must complete the following steps BEFORE installing i-Vu® Pro.

Step 1: Install Tools and have documentation ready

1 Follow the rest of this document to set up your entire system.

2 Insert the **Tech Tools** USB drive into your computer and wait until the Installation screen appears. If this screen does not appear, open **My Computer** and double-click **Tech Tools**.

3 Click the utilities you wish to install. Depending on how security and permissions are configured on your Windows computer, you may need to right-click the executable file and select **Run as Administrator**. For example, to install Tech Tools, right-click **i-Vu_Tools_v9.0_windows_setup.exe** and select **Run as Administrator**.

NOTE Some utilities are not copied to the hard drive. We recommend that you copy the **Tech Tools** USB contents to a folder on your hard drive. This ensures that you have the utilities when you need them.

Step 2: Install device managers and routers

- If you haven't already, download the *Installation and Start-up Guide*s from the Carrier support website.
- Mount and wire your CCN device manager(s)*, Open, XT, or TruVu™ routers.
- Wire the ports for communication and set DIP switches.
- Set up IP addressing, including BACnet/IP Broadcast Management Devices (BBMDs).

  NOTE If your system has multiple routers that reside on different IP subnets, you must set up 1 router on each IP subnet as a BACnet/IP Broadcast Management Device (BBMD's). See the *BBMD Utility User Guide* for details.
- Configure BACnet device instance and network number using PuTTY or Hyperterminal connected to the Rnet or S2 port. See *Communicating using PuTTY* (page 39) or *Communicating using Hyperterminal* (page 41).

*If you have multiple CCN Gateways, you must obtain the required license and then use SiteBuilder to set up a site and BACnet/IP network per Gateway. See i-Vu®-Pro and SiteBuilder Help.

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Step 3: Use Network Service Tool V to ensure hardware is communicating on the CCN network

1 Connect the 3-terminal connector of the Network Service Tool's **USB to CCN Converter** to Port **S1** on the i-Vu® device manager.

Carrier USB to CCN converter (top CCN Port)	**i-Vu® device manager** (Port S1)
+	Net+ (Pin 1)
G	Signal Ground (Pin 5)
-	Net- (Pin 2)

2 Launch **Network Service Tool** and connect to the i-Vu® device manager. Each i-Vu® device manager defaults to Gateway functionality and has a CCN address of **0, 1**.

CAUTION Every CCN device must have a unique CCN address on the CCN network! Do not use Bus **0**, Element **238**, as it is automatically assigned to the i-Vu® Pro web server.

3 Find the device manager at 0,1 using **Address Search** and change the device manager's CCN address as desired.

NOTE We do not recommend leaving a device manager's CCN address at 0,1, because this is the address that it defaults to when formatted.

4 Upload the i-Vu® device manager.

5 Access the **Service Configuration Table** IP_CONF to enter the following configuration options:

NOTE A static IP address is required, as DHCP is not supported.

- **Host IP Address** - enter the device manager's IP address, provided by the LAN administrator (allowable entries for xxx.xxx.xxx.xxx: xxx is a decimal number between 0 - 255)
- **Subnet Mask** - enter the device manager's IP address, provided by the LAN administrator (allowable entries for xxx.xxx.xxx.xxx: xxx is a decimal number between 0 - 255)
- **Default Gateway** - enter the IP Gateway's IP address, provided by the LAN administrator (typically a router on the Ethernet LAN).

CCN ENET Configuration

Device Type

- Select **0** if this device manager is the Gateway. (**NOTE** Only 1 Gateway is permitted per system.)
- Select **1** if this device manager is the Bridge.

If using the router as a Bridge, enter **CCN/Ethernet Gateway IP** (the IP address of the i-Vu® device manager that is configured as the Gateway). This is the same address that was entered in the **Host IP address** for the CCN Gateway.

NOTE Record the IP address of the Gateway, because you need it to install your i-Vu® Pro system.

6 Repeat the above steps for every i-Vu® device manager used in the CCN system.

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Step 4: Get your systems ready

CCN

1 Have the IP address of the external Gateway.

2 Have a list of all of the devices at your job site, along with the name of each device, the bus and element numbers, and their respective locations.

3 For a retrofit project, which is already using CCN global and network schedules, you must have a list of all existing CCN schedule numbers, systems using global and network schedules, and all global schedule masters.

4 Verify that each device has a unique element number because duplicates will not install correctly.

 **CAUTION** Do not use Bus 0, Element 238. It is automatically assigned to the i-Vu® Pro web server.

BACnet

1 Create a list of all of the i-Vu® Open, XT, or TruVu™ routers and controllers at your job site, with their BACnet Device ID's, IP addresses (where applicable), BACnet network numbers, and the physical location of all devices.

2 Verify that every router has a unique address because duplicates will not install correctly.

See i-Vu® Pro Help for more information about setting schedules in the i-Vu® Pro interface.

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Setting up i-Vu® Pro client devices and web browsers

The i-Vu® Pro 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® Pro 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

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.

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Setting up and using a computer with the i-Vu® Pro 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 view the i-Vu® Pro interface

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**.

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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® Pro 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® Pro 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 appear in the list.

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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® Pro 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® Pro 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® Pro system on the same computer	Start a new web browser session. Click  , then select **New incognito window**.

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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® Pro pop-ups 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® Pro 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® Pro system on the same computer	Start a new web browser session. Select **Safari** > **Private Browsing** > **File** > **New window**

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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**

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i-Vu® Pro v9.0 client, server, operating system, and database requirements

i-Vu® Pro client requirements

The i-Vu® Pro 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® Pro 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

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.

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i-Vu® Pro server requirements

The recommended minimum for an i-Vu® Pro server:

- Dual core processor
- 4 GB RAM
- 30 Gigabyte hard drive
- Communications link of 10 Mbps or higher
- 64-bit server (See *Upgrading from a 32-bit server to a 64-bit server* (page 17).)

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

A i-Vu® Pro server must be 64-bit. Memory requirements vary, based on the:

- number of pieces of equipment and device instances
- size of the control programs
- number of simultaneous users logged in to the i-Vu® Pro application

For this size system...	**With this number of...**		**The computer should have at least a dual core processor and...**				
	Instances of equipment and devices [1]	Physical Points and Display Objects	Passmark Total Score [2]	Passmark Single-threaded Score	RAM Minimum/ Recom-mended	JVM Memory Minimum/ Recom-mended	Disk Mark[4]
Small	0 - 250	0 - 1000	2000	800	4 / 8GB	4 / 4GB	3000
Medium	250 - 1000	1000 - 5000	3000	1000	8 / 12GB	4 / 8GB	5000
Large	1000 - 10,000	5000 - 50,000	5000	1400	12 / 16GB	8 / 12GB	15000
Huge	more than 10,000	more than 50,000	6500	1600	16 / 24GB [3]	16 / 24GB	30000

[1] Total number of control programs and controllers.

[2] For more information, see www.CPUbenchmark.net.

[3] For a huge system with minimal user activity, the average piece of equipment or instance device requires approximately 300KB of server RAM. Contact Technical Support for server sizing recommendations.

[4] SATA SSDs are recommended as baseline performance for i-Vu® Pro on all systems. Large systems benefit from the faster PCIe interface SSDs on both the i-Vu® Pro and database servers. Passmark's Disk Rating "Disk Mark" can be useful in gauging disk performance when designing new servers.
Rotational Drives: 900-1500
SATA SSDs: 3000-5000
PCIe SSDs: 10000-30000

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Operating system and database requirements

To determine which operating system and database management system (DBMS) to use, consider:

- Operating systems and DBMS's already in use in your customer's organization
- Project size and trending requirements. See "Trend archival requirements" below.
- Project budget
- Your skill with the operating system and DBMS

The i-Vu® Pro v9.0 system use of database resources may require a moderate increase in the number of allowed connections if your database management system is set to the default value for the maximum allowed connections.

Supported operating systems and database management systems

A i-Vu® Pro v9.0 or later system is supported on the following 64-bit operating systems. The table below shows which operating systems can be used with each DBMS.

- Windows® 10 Professional and Enterprise
- Windows® 8.1 Professional and Enterprise
- Windows® Server 2019
- Windows® Server 2016

Database	Operating systems supported	Speed	Supports multiple servers	Dynamic defrag-mentation	Database replication	Notes
SQL Server® Express 2019, 2017, 2016	Windows®	Fast	No	Yes	Yes	Database cannot exceed 10 GB.
SQL Server® 2019, 2017, 2016	Windows®	Fast	Yes	Yes	Yes	SQL Server® 2016 Enterprise, Business Intelligence, and Standard editions can be used - only SP2 supported.
MySQL 8.0	Windows®	Fast	Yes	No	Yes	This open source database is free under the GNU Public License.
PostgreSQL 12 and 13	Windows®	Fast	Yes	Yes	Yes	This open source database is free under the BSD Public License.

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Database	Operating systems supported	Speed	Supports multiple servers	Dynamic defrag-mentation	Database replication	Notes
Apache Derby	Windows®	Slow	No	No	Yes	• The i-Vu® Pro Installs for Windows include all the files needed to use an Apache Derby database. • Only one application can access the database at one time. Example: ViewBuilder cannot access the database if SiteBuilder is already running. • Do not use Derby if total historical trend capacity will exceed 2 GB. • Audit database cannot contain an entry of more than 32,700 characters; compact the database before migrating to Derby.

Trend archival requirements

Trend archival (historical trending) requirements are the most significant factors in database selection. Alarms are not usually an issue unless large quantities (10,000+) will be kept for online access.

For each archived trend sample, the i-Vu® Pro application stores approximately 30 bytes of data. Disk space requirements per trended point are:

Sample interval	for 1 week	for 1 month	for 3 months	for 1 year
1 minute	300 kB	1.5 MB	5 MB	18 MB
5 minutes	60 kB	250 kB	1 MB	4 MB
15 minutes	21 kB	85 kB	250 kB	1 MB
1 hour	5 kB	20 kB	60 kB	240 kB

For example, a system with 2000 points archiving at 15 minute intervals for one year will require as much as 5.6 GB (2000 x 2.8 MB) disk space.

NOTES

- To limit disk space required for trend storage, archive trend data only for important system points.
- If your archival requirements are 5 GB or greater, you should consider using a separate server for the trend database.

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Upgrading from a 32-bit server to a 64-bit server

i-Vu® Pro v9.0 will not run on a 32-bit server. To upgrade, first install i-Vu® Pro v9.0 on a 64-bit server. The method for upgrading your system depends on the database type or size.

Derby database

1. Copy your existing system's **i-Vu Prox.x\webroot**<system name> folder.
2. Paste the copied folder under a folder of your choice on the 64-bit server. For example, **i-Vu Prox.x\programdata\systems**.
3. Open the system in SiteBuilder.
4. Select **File** > **Upgrade** > **i-Vu Pro system** and follow the prompts to upgrade the system.

All Non-Derby databases

1. Open your existing system in SiteBuilder.
2. Select **File** > **Manage Database** > **Migrate/Replicate**, and then select **Replicate database** to create a copy of the system in a Derby database.
3. Copy the replicate system's **i-Vu Prox.x\webroot**<system name> folder.
4. Paste the copied folder under a folder of your choice on the 64-bit server. For example, **i-Vu Prox.x\programdata\systems**.
5. Open the system in SiteBuilder.
6. Select **File** > **Upgrade** > **i-Vu Pro system** and follow the prompts to upgrade the system.
7. Select **File** > **Manage Database** > **Migrate/Replicate**, and then select **Migrate to a different database type** to change the system back to the original database type.

Very large databases

If you are moving a very large system to a 64-bit server, contact Carrier Control Systems Support for assistance.

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Installing and setting up databases

The system folder can be saved in any location. The default location is **\i-Vu_Pro_x.x\programdata\systems**. The actual databases may be located in another location if you are using MySQL, MS SQL Server, or PostgreSQL. See any of the following topics for more information:

PostgreSQL on Windows (page 18)

MySQL on Windows (page 20)

SQL Server and SQL Server Express on Windows (page 23)

PostgreSQL 13.x on Windows for the i-Vu® Pro v9.0 system

To set up the databases for a new i-Vu® Pro system, complete all 4 steps below.

Step 1: Install PostgreSQL on Windows

a Download the appropriate PostgreSQL installer from the PostgreSQL downloads page.

b Save **postgresql-<latest version>-windows.exe** to your hard drive.

c If you saved the **postgresql-<latest version>-windows.exe** file to a machine other than the PostgreSQL server, move the file to the PostgreSQL server.

d On the PostgreSQL server, run the **postgresql-<latest version>-windows.exe** file to start the PostgreSQL install.

e Accept the defaults until you are asked for a password.

f Enter a password for the service account, then retype the password.

g Enter the port number you wish to use or leave it at the default port of `5432`.

h Continue the installation process, accepting all defaults until you reach the Finish screen; then clear the checkbox regarding Stack Builder.

i Click **Finish**.

Step 2: Create database user in PostgreSQL

a Go to **Start** > **All Programs** > **PostgreSQL 12.x** > **pgAdmin 4**.

b In the **Browser** pane, expand **Servers** and then double-click **PostgreSQL 12**.

c Type the service account password that you created in step 1f above.

d In the **Browser** pane, right-click **Login Roles/Group Roles**, then select **Create** > **Login/Group Role**.

e On the **General** tab, in the **Name** field, type a name (all lowercase) for the user, such as `xxx_user`; this will be your **Database User Login** in SiteBuilder.

f On the **Definition** tab, in the **Password** field, type a password for the user; this will be your **Database User Password** in SiteBuilder.

g On the **Privileges** tab, enable **Can Login and Create Databases**.

NOTE Verify that **Inherit rights from the parent** is enabled (default).

h Click **Save**.

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Step 3: Create database instances in PostgreSQL

a In the **Browser** pane, right-click on **Databases**, then select **Create Database**.

b In the **Database** field, type a name for the database such as `xxx_main`; this will be your **Database Connect String Instance** in SiteBuilder. Record the name below.

c In the **Owner** field, select the name that was created in Step 2e.

d On the **Security** tab, click the **Privileges** plus sign. In the **Grantee** column, select the name that was created in Step 2e.

e Click the blank space under the **Privileges** column and click the **All** checkbox.

f Click **Save**.

g Repeat steps a-f to create the **Alarms**, **Trends**, and **Audit Log** databases.
NOTE Database names are case-sensitive and must be 18 characters or less in length.

h Close **pgAdmin 4**.

Step 4: Set up the PostgreSQL databases in SiteBuilder

a In SiteBuilder, select **File** > **New**.

b Type a name for the system.

c Select **PostgreSQL** from the **Database Type** drop-down list.

d Select **Make this the default system for i-Vu Pro** if you want the i-Vu® Pro application to automatically run this system each time it starts.

e Complete the remaining fields, then click **Next**.

f Enter the **Database Connect String** information for each i-Vu® Pro database and the **Database User** information. See table below.

g Select your system language.

h Click **Finish**.

NOTE To change **Database Connect Strings** for an existing system, select **Modify database connection parameters** in the **File** > **Open** dialog box and then click **Next**.

Main Database Connect String:	
Server	Type one of the following: • `localhost` if the i-Vu® Pro application and the database are on the same machine • The name or IP address of the machine that the database is on if different than the i-Vu® Pro application
Port	Do one of the following: • Type the default port of `5432`. • Type the port number that the database uses for communication that you set up in step 1g if different than the database default.
Instance	The names that you gave the i-Vu® Pro databases in step 3b.
Database User:	
Login	The user name that you entered in step 2e.
Password	The password that you entered in step 2f.

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MySQL 8.0 on Windows for an i-Vu® Pro v9.0 system

To set up the databases for a new i-Vu® Pro system, complete the following steps:

Step 1: Install MySQL

a Download the appropriate **MySQL Community Server** > **MySQL Installer MSI** from the **MySQL Downloads** page.

b Save **mysql-<installer-community-latest version->msi** to your hard drive.

TIP If you saved the file to a machine other than the MySQL server, move the file to the MySQL server.

c On the MySQL server, run **mysql-<installer-community-latest version->-.msi** to start the MySQL install.

d In the **Choosing a Setup Type** window, select **Custom** and click **Next**.

e Select the following in the **Available Products** column and then click on the arrow to move them to the **Product/Features** column:

- MySQL Server x86 or -x64 (use x86 for 32 bit operating systems)
- MySQL Workbench
- Connector/J (latest version)

f Click **Next**.

g If there are entries in the **Check Requirements** window, click **Execute** and follow the Install Wizard for each application, until all of them are completed.

NOTE When all applications are installed, the **Execute** button disappears.

h Click **Next**.

i In the **Installation** window, verify that the 3 products from step f are listed and then click **Execute**.

j When the **Status** column shows all items as **Complete**, click **Next**, then click **Next** again.

k Select **Server Computer** from the **Config Type** drop-down list.

l If the site requires a specific TCP port, enter this port number in the **Port Number** field.

m Accept defaults for the remaining configurations, then click **Next**.

n On the **Authentication Method** page choose either **Strong Password** authentication (recommended) or **Legacy Password** authentication.

o Click **Next**. Then type in a root password, confirm it, and click **Next**.

p Accept the **Windows Service** default settings.

NOTE If the site requires that the MySQL service run under a particular user account, select **Custom User** and enter in the user name and password supplied by the IT department.
The account that the MySQL service runs with can be changed later in the Windows Service Control Manager.

q Click **Next** and then click **Execute**.

r Click **Finish**.

s In the product **Configuration** window, click **Next**, and then click **Finish** to complete the MySQL installation and to launch MySQL Workbench.

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Step 2: Create i-Vu® Pro database instances

a Click **+** next to MySQL Connections and enter a connection name, such as the name of your server.

b Click **Test Connection** and **OK**.

c In the list of connections on the Workbench, double-click your new connection to open.

d Click **+** on the cylindrical database icon to add a new Schema (database).

e In the **Name** field, type a name for the database such as `xxxmain`, which will be your **Database Connect String Instance** in SiteBuilder. Record the name below.

f Click **Apply**, click **Apply** again, then click **Finish**.

g Repeat steps f-h to create the **Alarms**, **Trends**, and **Audit Log** databases.

NOTE Database names are case-sensitive and must be 18 characters or less in length.

h Close all Schema Creation tabs.

Step 3: Create a database user

a Click **Users and Privileges**. At the bottom of the window, click **Add Account**.

b On the **Login** tab, type a **Login Name** and **Password.**

NOTE These will be your **Database User Login** and **Database Password** in SiteBuilder.

c Click **Apply**.

d On the **Schema Privileges** tab, select the user you created.

e Select the **Add Entry** button.

NOTE You may have to resize the window to see the button at the top-right.

f Under **Schema**, select **Selected Schema** and then select the Main database schema you added in step 2e.

g Click **OK**.

h Select the row you added in the **Users and Privileges** table, then click **Select "ALL"** under the privilege check boxes.

i Click **Apply**.

j Repeat steps g through j to give the database user privileges to the **Alarms**, **Trends**, and **Audit Log** databases.

k Close **MySQL Workbench**.

Step 4: Install a MySQL database driver

a Locate the mysql-connector-java-.xx.jar file in the **Program (x86)\MySQL\Connector J** folder.

NOTE This is the default location for the JAVA connector file. Search your designated location if you changed the default.

b Copy the mysql-connector-java-.xx.jar to the**i-Vu Pro\database-drivers** folder under the i-Vu® Pro install folder.

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Step 5: Set up the MySQL databases in SiteBuilder

a In SiteBuilder, select **File** > **New**.

b Type a name for the system.

c Select **MySQL** from the **Database Type** drop-down list.

d Select **Make this the default system for i-Vu Pro** if you want the i-Vu® Pro application to automatically run this system each time it starts.

e Complete the remaining fields, then click **Next**.

f Enter the **Database Connect String** information and the **Database User** information for each i-Vu® Pro database. See table below.

g Click **Next**.

h Select your system language.

i Click **Finish**.

NOTE To change **Database Connect Strings** for an existing system, select **Modify database connection parameters** in the **File** > **Open** dialog box and then click **Next**.

Database Connect Strings:	
Server	Type one of the following: • `localhost` if the i-Vu® Pro application and the database are on the same machine • The name or IP address of the machine that the database is on if different than the i-Vu® Pro application
Port	Type `3306`.
Instance	The name that you gave the i-Vu® Pro database in step 2e.
Database User:	
Login	The user name that you entered in step 3c.
Password	The password that you entered in step 3c.

Step 6: Disable MySQL automatic updates

1 Open the **MySQL Installer - Community** under **Start** > **All Programs** > **MySQL**.

2 Click the wrench icon at the top right.

3 Uncheck **Check for updates to the MySQL Installer product catalog**.

Click **Accept** then exit the Installer – Community window.

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SQL Server 2016, 2017, and 2019 on a Windows for the i-Vu® Pro system

SQL Server versions currently supported are 2016, 2017, and 2019.

1 If you do not already have MS SQL installed, install one of the supported versions and any applicable SQL service packs. For instructions on how to install any version of SQL Server, go to http://msdn.microsoft.com/en-us/library/default.aspx and, in the Search window, type **Install <your SQL Version >**. Select Authentication Mode - Mixed Mode during setup and enable TCP/IP on port 1433.

   NOTE As you install MS SQL Server, you must select certain options to use with i-Vu® Pro. For all other options, you may keep the defaults or select your own values. Select the following:

   - SQL Server Database Services
   - Workstation components, Books Online, and development tools
   - Authentication Mode - Mixed Mode (Windows Authentication and SQL Server Authentication)

     NOTE The password you specify grants extensive privileges.
   - Service Account for database engine – NT Authority\System
   - Enable TCP/IP on port 1433

2 If already installed, you must have selected **Authentication Mode - Mixed Mode** during setup and have TCP/IP enabled on port 1433.

If you are the database administrator and TCP/IP is not enabled on port 1433, or you are unsure of the port, follow the procedure below, 'To enable TCP/IP on port 1433' and then proceed to Step 1.

Install the program and follow the instructions below.

To enable TCP/IP on port 1433

a Click **Start** > **All Programs** > **Microsoft SQL Server <your SQL version>** > **Configuration Tools** > **SQL Server Configuration Manager**.

b Expand the **SQL Server Network Configuration**.

c Select **Protocols** for <server instance> where <server instance> is the SQL Server running the i-Vu® Pro application.

d In the next window, under **Protocol Name**, double-click **TCP/IP**.

e On the **Protocol** tab, under **General**, next to **Enabled**, select **Yes**.

f On the **IP Address** tab, scroll down to the **IPAll** section.

g Clear any values from the **TCP Dynamics Port** field.

h In the **TCP Port** field, enter `1433`, then click **OK**.

i Close the **SQL Server Configuration Manager**.

j Restart the SQL Server Service.

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Step 1: Connect to the database engine for i-Vu® Pro SQL Server

a Determine if Microsoft SQL is running on the i-Vu® Pro server:

- If Microsoft SQL is running on the i-Vu® Pro server, select **Start** > **Programs** > **Microsoft SQL Server** > **SQL Server <your SQL version>** > **Management Studio**.
- If Microsoft SQL is running on a different computer, download the SQL Management Studio and install it on the i-Vu® Pro server.

b In the **Connect to Server** dialog box, select or enter the information using the table below.

c Click **Connect**.

To set up the databases for a new i-Vu® Pro system, complete steps 2, 3, and 4 below.

Field	Notes
Server type	Database engine.
Server Name	The address or name of the computer running the SQL Server service. Get from your database administrator.
Authentication	Get from your database administrator.
Username	Get from your database administrator.
Password	Get from your database administrator.

Step 2: Create a database instance

a In the **Object Explorer** pane, right-click **Databases**, then select **New Database**.

b In the **Database name** field, type a name such as `xxx_main`; this will be your **Main Database Connect String Instance** in SiteBuilder. Record the name below.

c Under **Select a Page**, select the **Options** page.

d From the **Recovery model** drop-down list, select **Simple**.

e Click **OK**.

f Repeat steps a-e to create the **Alarms**, **Trends**, and **Audit Log** databases.

NOTE Database names are case-sensitive and must be 18 characters or less in length.

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Step 3: Create a database user

a In the **Object Explorer** pane, click the plus sign to the left of **Security**.

b Right-click **Logins**, then select **New Login**.

c In the **Login name** field, type in a login name for i-Vu® Pro, such as xxx_User; this will be your **Database User Login** in SiteBuilder.

d Select **SQL Server authentication**.

e In the **Password** and **Confirm password** fields, type a password; this will be your **Database User Password** in SiteBuilder.

f Clear the following checkboxes:

- **Enforce password policy**
- **Enforce password expiration**
- **User must change password at next login**

g In the **Default database** drop-down list, select **master**.

h In the **Select a page** pane, select the **User Mapping**.

i Under **Users mapped to this login**, select the **Map** checkbox next to a database name you created in Step 2.

j Under **Database role membership for:** section, select the following checkboxes:

- **db_owner**
- **public**

k Click **OK**.

l Repeat steps i-k for each remaining database.

m Close SQL Server Management Studio.

Step 4: Set up the SQL Server databases in SiteBuilder

a In SiteBuilder, select **File** > **New**.

b Type a name for the system.

c Select SQL Server from the **Database Type** drop-down list.

d Select **Make this the default system for i-Vu® Pro** if you want the i-Vu® Pro application to automatically run this system each time it starts.

e Complete the remaining fields, then click **Next**.

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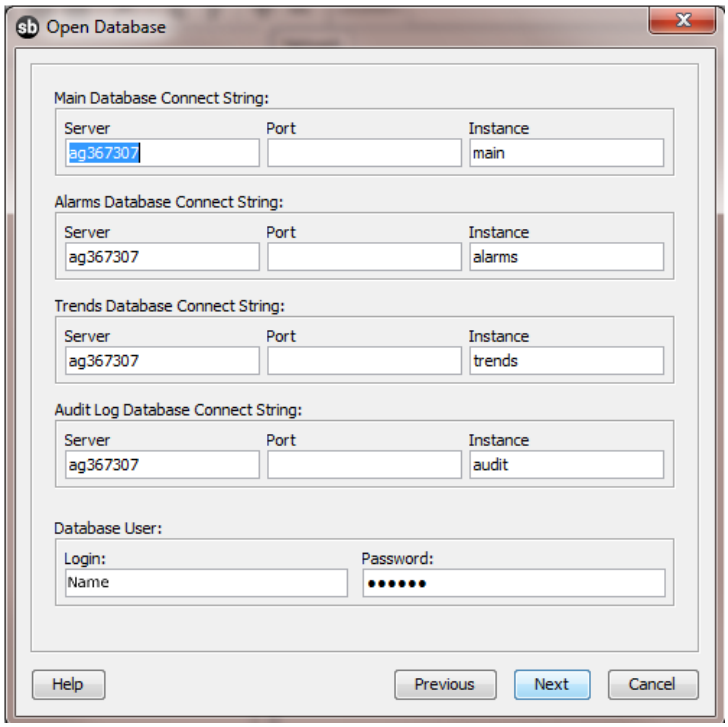
f Enter the **Connect String** information for each i-Vu® Pro database. See below.



g Click **Finish**.

NOTE To change **Database Connect Strings** for an existing system, select **Modify database connection parameters** in the **File** > **Open** dialog box and then click **Next**.

Database Connect Strings:	
Server	Type one of the following: • `localhost` if the i-Vu® Pro application and the database are on the same machine • The name or IP address of the machine that the database is on if different than the i-Vu® Pro application
Port	Do one of the following: • Type the default port of 1433. • Type the port number that the database uses for communication if different than the database default.
Instance	The name that you gave the i-Vu® Pro database in step 2b. **NOTE** If the 4 i-Vu® Pro databases do not reside under the default instance of SQL, then the instance name must be specified under the **Instance** column. The syntax for specifying the instance name of the SQL server is `<Database>;instance=<instance name>`. For example, if the SQL instance name is hvac, the syntax for the Instance field for the main database called i-Vu Pro_Main would be `i-Vu Pro_Main;instance=hvac`.

Database User:	
Login	The username that you entered in step 3c.
Password	The password that you entered in step 3e.

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Registering and downloading your i-Vu® Pro license

To register your software, you must obtain a license from Carrier and then apply it in the i-Vu® Pro interface.

1 Log in to the Carrier Community Portal website.

NOTES

- Only Carrier authorized personnel may access the Community Portal website. To set up your account, please contact Control Systems Support with the following information: name, phone number, e-mail address, office address, and your password of choice.
- If you are an end-user or contractor, please contact your local Carrier office to obtain your license.

2 Click **Order Management** > **Licenses & Subscriptions** > **Software Licenses**, then click the link.

3 Expand the section containing the unregistered license(s) indicated by the  symbol on the right side of the blue bar.

4 Click on the row that shows **unregistered** in the **Registration Status** column.

5 In **License Details**, complete the fields under **Owner Information** and **Site Information**.

6 Click **Register License**.

7 Check **I agree to the terms of use**.

8 Click **Download License** and then save the .properties file to a convenient location to use when installing the i-Vu® Pro application.

To apply the license to the i-Vu® Pro application

During the i-Vu® Pro installation, in the **Setup Wizard**, on the **Product License** screen, check **Browse to a different license**, and select the site license you obtained.

NOTES

- Selecting the default license results in a prompt appearing every few minutes in the i-Vu® Pro interface to remind you to apply your site license.
- Do not edit any part of this registered license file. Editing a license file invalidates the license.
- Store the license in a safe location.

To apply the site license after the installation:

1 In the i-Vu® Pro interface, select **System Options** > **License Administration**.

2 Browse to the license file.

3 Click **Apply**.

4 Restart i-Vu® Pro Server using the rebootserver manual command.

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Installing the i-Vu® Pro application

PREREQUISITES

- SiteBuilder v9.0 no longer supports Access, MSDE, or SQL Server Express database types.
- Installer must have Windows Administrator-level user rights.
- Have the site's i-Vu® Pro license saved on the computer.
- USB Link driver - If your computer does not already have the CP210x driver for the USB Link, a prompt to install it will appear. You must install it before you connect the USB Link to your computer. Please refer to the Silicon Labs website and search "CP210x USB to UART Bridge VCP Drivers" for the most current device drivers.
- For more technical details, see *i-Vu® Pro v9.0 client, server, operating system, and database requirements* (page 13).

Step 1: Install the i-Vu® Pro application

1 Insert the Installation USB drive into your computer and click **Install i-Vu Pro** and the Setup Wizard starts.

2 In the **Setup Wizard**, click **Next**, check **I accept the agreement** and click **Next** again.

3 On the **Product License** screen, check **Browse to a different license**, and select the site license.

NOTE You can select the default license, but it causes a prompt to appear every few minutes in the i-Vu® interface to remind you to apply your site license.

4 Continue to follow the **Setup Wizard**.

NOTE If running on Windows Server 2008 R2, verify that there are no **Failed to Update** errors in **<logs** > **launcher.txt>**.

Step 2: Install the service

NOTE We highly recommend you configure the i-Vu® Pro server to Run as a Service to ensure the i-Vu® Pro server starts after a computer reboot.

1 Click the Windows **Start** button, then select **All Programs** > **Accessories**.

2 Right-click **Command Prompt** and select **Run as Administrator**.

3 Type: `cd <path to the i-Vu install directory>`
`For example, cd c:\i-Vu_Pro_v9.0.`

4 Press **Enter**.

5 Type: `"i-Vu Pro Service.exe"` to install.

6 Press **Enter**.

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Step 3: Launch i-Vu® Pro service as Administrator

By default, the i-Vu® Pro Server Service runs under the built-in Local System account that has extensive system privileges. If the i-Vu® Pro application runs on its own computer or virtual machine, then running the i-Vu® Pro Service under the Local System is acceptable, unless local site policies restrict the Local System account from being used for running services. In this case, you can run the i-Vu® Pro application under a user account with Administrator privileges, as described below.

NOTES

- If you need the **Print Alarm Action**, the i-Vu® Pro Service must run under an Installer account, not the Local System account.
- If using an Administrator account, ensure that the password for this account does not expire.

1 Click the Windows **Start** button, then select **Control Panel**.

TIP If you do not see this option on your Control Panel, click **View by**: and select **Small Icons**.

2 Select **Administrative Tools** and double-click **Services**.

3 Double-click **i-Vu Pro Service v9.0**.

4 On the **Log On** tab, select **This Account**.

5 Enter the password for a user who is a member of the **Administrator Group** on that computer.

To uninstall the service

1 Click the Windows **Start** button, then select **All Programs** > **Accessories**.

2 Right-click **Command Prompt** and select **Run as Administrator**.

3 Type: `cd <path to the i-Vu install directory>`
`For example, cd c:\i-Vu_Pro_v9.0.`

4 Press **Enter**.

5 Type: `"i-Vu Pro Service.exe"-remove.`

6 Press **Enter**.

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Using the i-Vu® Pro v9.0 application

Use SiteBuilder to begin setting up your system

Before starting the i-Vu® Pro application for the first time, you must use SiteBuilder to create a database that the i-Vu Pro Server uses to communicate with the system. Follow the steps to Create a new SiteBuilder database. The i-Vu® Pro application uses this information to scan your system and find the components.

PREREQUISITE For any database type except Apache Derby, you must install and set up the database application before creating your system database. An Apache Derby database is installed with your i-Vu® Pro system. As of v6.5, SiteBuilder no longer supports Access and MSDE database types. As of v7.0, SiteBuilder no longer supports SQL Server Express.

Follow the procedures below to create your system database in SiteBuilder.

To create a new SiteBuilder database

After you create a database in SiteBuilder, you should use the i-Vu® Pro application to automatically discover Open, XT, or TruVu™ controllers and/or a system with a single CCN Gateway. However, you must use SiteBuilder to build a system with multiple CCN Gateways.

1. Click **File** > **New**.
2. Enter appropriate values in each of the **New Database** fields. See table below.
3. Click **Next**.
4. Do one of the following:
   - If you selected a MySQL, PostgreSQL, or SQL Server® **Database Type**, enter the **Database Connect Strings**, **Login** and **Database User** info. See table below. Then click **Next**.
   - If you selected an Apache Derby, go to step 5.
5. Make language selections. See table below.
6. Click **Next**.
7. Click **File** > **Close**.
8. If you have multiple CCN Gateways, use SiteBuilder to build a Network tree for them. See *To build a Network tree for a CCN system* (page 32).
9. For BACnet, or single CCN Gateway systems, use the i-Vu® Pro interface to populate your database. You do not need to set up the information in SiteBuilder.
   a) Launch the i-Vu Pro Server. Wait for it to finish opening the database.
   b) Browse to **http://localhost** to open the i-Vu® Pro interface.
   c) Use the login and password you set up in SiteBuilder.
   d) Find your devices and networks and upload the files. See i-Vu® Pro Help for details.

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Field	Notes
System Name	Enter the name for this system that will be displayed at the top of the i-Vu® Pro navigation tree.
System Parent Directory	You can specify a parent directory folder. The default is **C:\i-Vu_Pro_x.x\programdata\systems**.
System Directory Name	The name of the folder within the system parent directory that contains all the system files. Ex: **I-Vu_Pro_x.x\programdata\systems**<system_directory_name> This name is automatically generated from the **System Name**, but it can be edited. The **System Directory Name** must have: • less than 80 characters • only alphanumeric characters, dashes, and underscores • no spaces
Administrator Login Name, Password, and **Confirm Password**	Type a Login Name and Password (8-character minimum) for the Administrator operator. **CAUTION** To increase the security of your system, do not use "Administrator" as the **Login Name**. **NOTE** You can change the password requirements in the i-Vu® Pro interface. See "Advanced password policy" in i-Vu® Pro Help.
Database Type	Select the type of database your system will use. **NOTE** If you select **Derby**, SiteBuilder automatically creates the necessary files and folder structures under the **I-Vu_Pro_x.x** folder. Do not move or rename system files or folders.
Make this the default system for iVu	Select this box to open this system when you start the i-Vu® Pro application.
Starting Base Network Number **Starting Base Device Instance Number**	SiteBuilder automatically assigns sequential numbers to BACnet networks and devices as you add them to the database. Choose starting numbers that will generate unique network and device instance numbers across all systems that this system will communicate with.
Server BACnet Device Instance	Must be unique to the BACnet network. Unique Server Device IDs are important if you are running multiple copies of the i-Vu® Pro application on the same network.
Languages	Select all languages that you want your system to support.
System	Select the language that you want to use for: • The default language for new operators • Alarms sent to the database • State text and object names downloaded to the field • The default language for the i-Vu® Pro login page. **NOTE** You can select a different language on the login page. All other information is displayed in the operator's language.

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For MySQL, PostgreSQL, or SQL Server® Database Types

Database Connect Strings:	
Server	Type one of the following: • `localhost` if the i-Vu® Pro application and the database are on the same machine • The name or IP address of the machine that the database is on if different than the i-Vu® Pro application
Port	Do one of the following: • Type the appropriate default port number from the list below. • Type the port number that the database uses for communication if different than the database default. Default ports are: MySQL 3306 PostgreSQL 5432 SQL Server 1433
Instance	The name that you gave the i-Vu® Pro database in the database application.
Database User:	
Login	The user login that you set up in the database application.
Password	The password that you set up in the database application.

NOTE To change **Database Connect Strings** for an existing system, select the **Modify database** connection parameters in the **File** > **Open** dialog box, then click **Next**.

To build a Network tree for a CCN system

See details on the following in SiteBuilder Help and i-Vu® Pro Help.

If your CCN system has...	You must...
A single CCN Gateway	Use the i-Vu® Pro application to find and download the Gateway and system
An i-Vu® Integrator	Add it in SiteBuilder, even if it is the only CCN Gateway. See "To add an i-Vu® Integrator" in SiteBuilder Help.
Multiple CCN Gateways without a NAT router	**1** In the SiteBuilder Network tree, add one site with one BACnet/IP network for each Gateway. **2** In the i-Vu® Pro interface, discover all the Gateways, Bridges, and controllers. **NOTES** • You must have the Multi-CCN license for this feature to work. • Supports up to 50 CCN Gateways in one system • Every Gateway must be Bus 0. • Every BACnet/IP Network Number must be the same.

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If your CCN system has...	You must...
Multiple CCN Gateways with a NAT router	**1** In SiteBuilder, configure the NAT information. **2** In the Network tree, add one site with one BACnet/IP network per Gateway. **3** Add one CCN Gateway and all its Bridges to each site you set up. **4** In the i-Vu® Pro application, discover the rest of your controllers under the Bridges. **NOTES** • You must have the Multi-CCN license for this feature to work. • Supports up to 50 CCN Gateways in one system • Every Gateway must be Bus 0. • Every BACnet/IP Network Number must be the same.

CCN Gateways and Bridges can be any of the following:

- i-Vu® Link
- i-Vu® CCN Router
- i-Vu® Integrator
- Carrier® ChillerVu™

NOTE For your i-Vu® Control System, use the i-Vu® Pro application to find your i-Vu® Open, XT, and TruVu™ routers and controllers. You do not need to set up the information in SiteBuilder.

Options for running the i-Vu® Pro system

Running i-Vu Pro Server without connecting to controllers

To verify links between graphics and to set up properties, schedules, alarms, and trends before you connect to the network, run **i-Vu Pro Design Server** instead of **i-Vu Pro Server**. Then view the i-Vu® Pro interface in a web browser.

NOTE Question marks indicate correct microblock paths. Missing data indicates errors.

Switching i-Vu Pro Server to a different system

Design engineers working on multiple projects can switch systems in the i-Vu Pro Server application.

1 In the i-Vu Pro Server application, select **Server** > **Change Active System**.

2 Select a different system and mode.

3 Click **Select**.

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Running i-Vu Pro Server as a Windows® service

For Windows 8.1, 10, 11, 2012R2, 2016, 2019, 2020, and 2022

Run i-Vu Pro Server as a Windows service if you want i-Vu Pro Server to automatically start up when the server computer is restarted.

NOTE If your i-Vu® Pro system uses a database other than Derby and the database is located on the same computer as i-Vu Pro Server, you must set up Windows to delay starting i-Vu Pro Server until the database service has started. See "How to delay loading of specific services" on the Microsoft® website.

To install i-Vu® Pro Server service

NOTE If you are not sure if the service was previously installed, see *To determine if i-Vu Pro Server service is installed* (page 36).

1. In the Windows **Start** menu, select **All Programs** > **Accessories**.
2. Right-click **Command Prompt**, then select **Run as administrator**.
3. Select **Yes** in the User Account Control message.
4. In the Command Prompt window, type: `cd <path to the i-Vu Pro install directory>`
   For example, type: `cd c:\i-Vu_Pro_x.x`
   replacing x.x with your current version number.
5. Press **Enter**.
6. Type: `"i-Vu Pro Service.exe"`
7. Press **Enter**.

To start i-Vu® Pro Server as a Windows service

1. In the Windows **Start** menu, select **Control Panel**.
2. Select **Administrative Tools**, then double-click **Services**.
3. In the **Services (Local)** list, double-click **i-Vu Pro Service X.X**.
4. In the **Startup type** drop-down list, select **Automatic**.
5. On the **Log On** tab, do one of the following:
   - Use the defaulted **Local System account**.
   - Select **This account**, then browse to select a user who is a member of the **Administrator Group** on that computer.

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6 Optional: If you selected **Local System account** in step 5 and you want to be able to access i-Vu Pro Server on the server computer's desktop, check **Allow service to interact with desktop**.

NOTES

- If you do not check this field, the computer screen will give no indication that i-Vu Pro Server is running; you must view the computer's Services page to see if it is running.
- This checkbox applies only to a user logged in on the server. A Windows Remote Desktop user cannot access i-Vu Pro Server running as a service.
- If you check this field, you cannot use the instructions below to set up printing to a network printer. Ask your Network Administrator to set up **Local System account** to use a network printer.
- If you check this field and the i-Vu® Pro application is to run email alarm actions, ask your Network Administrator to set up **Local System account** to send emails.

7 On the **General** tab, click **Start**.

8 Click **OK**.

NOTE If i-Vu Pro Server does not start after you click **Start**, you may have a Windows permissions problem. Follow the procedure below in *To set up the i-Vu Pro service for network printing* (page 35) to set up the Windows user name and password.

To set up the service for network printing

If i-Vu Pro Server runs as a service on a computer that is using a network printer, you must set up the Windows user name and password for the service. The Print alarm action requires this setup to be able to print.

1 In the Windows **Start** menu, select **Control Panel**.

2 Select **Administrative Tools** > **Services**.

3 Double-click **i-Vu Pro Service x.x**.

4 On the **Log On** tab, select **This account**.

5 Browse to the computer's domain, then select the user that the service will log in as.

NOTE Contact your network administrator if you need help determining the domain.

6 Type the user's password in the **Password** and **Confirm password** fields.

To stop or uninstall i-Vu® Pro Server service

To stop i-Vu Pro Server service

1 In the Windows **Start** menu, select **Control Panel**.

2 Select **Administrative Tools**, then double-click **Services**.

3 In the **Services (Local)** list, double-click **i-Vu Pro Service X.X** (where x.x is the i-Vu Pro version number.

4 In the **i-Vu Pro Service x.x Properties** dialog box, click **Stop** on the **General** tab.

5 Click **OK**.

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To uninstall i-Vu Pro Server service

1. In the Windows **Start** menu, right-click **Command Prompt**, then select **Run as administrator**.
2. Select **Yes** in the User Account Control message.
3. In the Command Prompt window, type: `cd <path to the i-Vu Pro install directory>`
   For example, type: `cd c:\i-Vu_Pro_x.x`
4. Press **Enter**.
5. Type: `"i-Vu Pro Service.exe" -remove`
6. Press **Enter**.

To determine if i-Vu® Pro Server service is installed

If you do not know if the service was previously installed, follow the appropriate steps below.

1. In the Windows **Start** menu, right-click **Command Prompt**, then select **Run as administrator**.
2. Select **Yes** in the User Account Control message.
3. In the Command Prompt window, type: `cd <path to the i-Vu Pro install directory>`
   For example, type: `cd c:\i-Vu Prox.x`
4. Press **Enter**.
5. Type: `"i-Vu Pro Service.exe" -check`
6. Press **Enter**.

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System Management

Update the SAL library

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

Carrier periodically provides updates, which include enhancements and bug fixes.

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, we recommend that you check *Control Systems Support http://www.hvacpartners.com/* for updates. Download the latest SAL files and apply them to all new installations.
- If you are changing to an older SAL file than the current one being used, a warning asks you if you are sure you want to apply an older version.

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 check current SAL library version

1 Login to the i-Vu® Pro application.

2 Click  , then select **System Options** > **Update** tab.

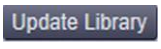
3 Click **Current Libraries (.sal)** to view the current SAL libraries and their revision date.

Step 1: Update library

1 Save the updated library (.sal file) to your computer.

2 Click  , then select **System Options** > **Update** tab.

NOTE Expand **Current Libraries (.sal)** to see the current SAL libraries and their revision. Compare them to what you downloaded from the Control Systems Support to determine if any of them have been updated.

3 Click 

and browse to the updated .sal file that you have saved on your computer, select the file, and click **Open**.

4 Click **Continue**.

5 When process is complete, the message appears **File added successfully**.

6 Click **Close**.

NOTE These changes are not applied to the controllers until you have updated routers and controllers.

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Follow these steps to implement the new equipment library:

Step 2: Update the files for the routers and controllers

1 On the i-Vu® Pro navigation tree, right-click the router or controller to update and select **Driver Properties**.

2 Select **Properties** tab > **Update** tab > **Add New Driver** tab.

3 If the database contains two or more controllers, select which routers to change:

- This controller only
- All controllers on this network that use the current driver version
- All controllers in the system that use the current driver version

4 Click **Update**.

5 Click **Save**.

NOTES

- Check **Stage driver in controller** to stage the driver to the controller before installing it. Use this option to avoid interrupting controller function when installing the driver.
- Click **Delete Unused** to delete all unused drivers in <system_name>**drivers**.

Step 3: 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 4: Apply the update to the routers and controllers

1 Select the **System**  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 are not 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 Downloads page. Click the **Start** button.

NOTES

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

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To back up a system

The type of database your system uses determines the method you use to back up the system.

CAUTION Do not use SiteBuilder's Replicate feature to back up your database.

For Apache Derby

1 Shut down the SiteBuilder and i-Vu Pro Server applications.

2 Copy your system folder.

3 Paste the copy to a new location.

TIP Zip the copy before transporting it over a network or to a USB drive.

For MySQL, MS SQL Server, PostGreSQL, or SQL Server Express

1 Copy your system folder.

2 Use the database management system's backup method. See To safely shut down the i-Vu® Pro application for database server maintenance before doing any maintenance on your database server.

Communicating using PuTTY

You can connect a computer to a controller's Local Access port and then use PuTTY, a free open source terminal emulation program, to:

- Set the baud rate for ports S1 on the i-Vu® Open Router, i-Vu® Open Link, or Carrier® ChillerVu™
- Set controller properties, such as IP address and network information
- Retrieve a Modstat

NOTE Use Network Service Tool V to set the CCN baud rate and configure IP settings for an i-Vu® CCN Router, i-Vu® Link, or Carrier® ChillerVu™.

PREREQUISITES

- A computer with a USB port
- A USB Link cable
  The USB Link driver is installed with an i-Vu® Pro v6 or later system. Please refer to the Silicon Labs website and search for "CP210x USB to UART Bridge VCP Drivers" for the most current device drivers. Install the driver before you connect the USB Link to your computer.

CAUTION If multiple controllers share power but polarity was not maintained when they were wired, the difference between the controller's ground and the computer's AC power ground could damage the USB Link and the controller. If you are not sure of the wiring polarity, use a USB isolator between the computer and the USB Link. Purchase a USB isolator online from a third-party manufacturer.

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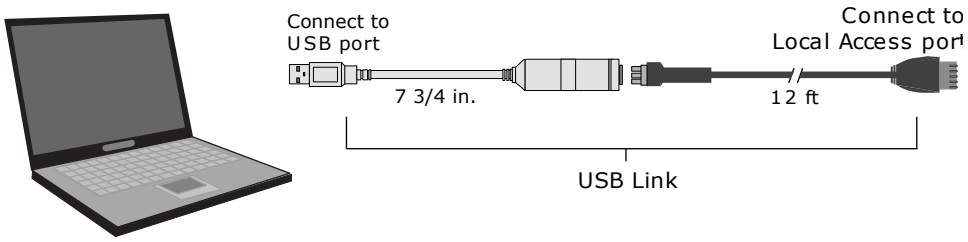
1 Download and install PuTTY from the *PuTTY website* (*http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html*).

2 Connect the laptop to the local access port of the controller, ZS sensor, or an SPT sensor using the USB Link cable(s).



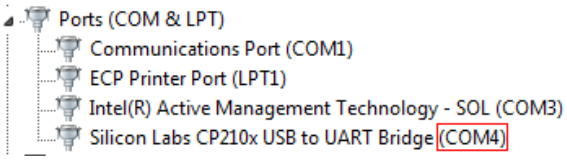
NOTE If using a USB isolator, plug the isolator into your computer's USB port, and then plug the USB Link cable into the isolator.

3 To change a router's IP address, subnet mask, or default gateway, set its **IP Address** DIP switch to **Assigned**.

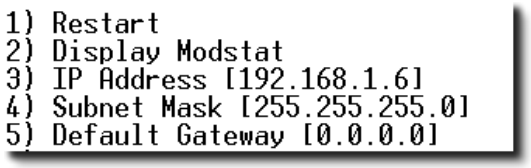
4 Start PuTTY.

5 Under **Category** > **Connection**, select **Serial**.

6 Under **Options controlling local serial lines**, enter the following settings:

Field	Value
Serial line to connect to	Replace X with the computer's port number that the USB Link cable is connected to. **NOTE** To find the port number, select **Start** > **Control Panel** > **System** > **Device Manager** > **Ports (Com & LPT)**. The COM port number is beside **Silicon Labs CP210x USB to UART Bridge**. 
Speed (baud)	115200
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None

7 Click **Open**. A window similar to the one below appears.



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8 Do one of the following:

- To change a property value:
  a. Type the number of the property, then press **Enter**.
  b. Type the new value, then press **Enter**.
- To take an action, type number of the action, then press **Enter**.

9 If you changed a value, type `1`, then press **Enter** to restart the controller.

10 Close PuTTY.

Communicating using HyperTerminal

You can connect a computer to a controller's Local Access port and then use HyperTerminal, an application installed with Windows XP and older operating systems, to:

- Set the baud rate for ports S1 or S2 on the i-Vu® Open Router or i-Vu® Open Link
- Set controller properties, such as IP address and network information
- Retrieve a Modstat

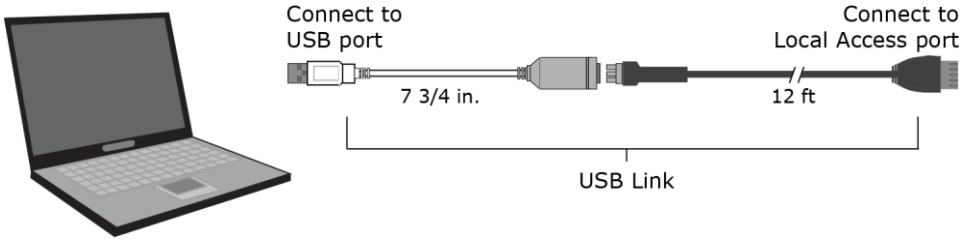
NOTE Use Network Service Tool V to set the CCN baud rate and configure IP settings for an i-Vu® CCN Router or i-Vu® Link.

PREREQUISITES

- A computer with a USB port
- A USB Link cable
  NOTE The USB Link driver is installed with an i-Vu® Pro v6 or later system. Please refer to the Silicon Labs website and search "CP210x USB to UART Bridge VCP Drivers" for the most current device drivers. Install the driver before you connect the USB Link to your computer.

CAUTION If multiple controllers share power but polarity was not maintained when they were wired, the difference between the controller's ground and the computer's AC power ground could damage the USB Link and the controller. If you are not sure of the wiring polarity, use a USB isolator between the computer and the USB Link. Purchase a USB isolator online from a third-party manufacturer.

1 Connect the computer to the local access port of the controller, ZS sensor, or an SPT sensor using the USB Link cable(s).



NOTE If using a USB isolator, plug the isolator into your computer's USB port, and then plug the USB Link cable into the isolator.

2 Verify that the baud rate is set to 115,200.

3 To change a router's IP address, subnet mask, or default gateway, set its **IP Address** DIP switch to **Assigned**.

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4 Start Windows HyperTerminal located under **Start** > **Programs** > **Accessories** > **Communications**.

5 **NOTE** This option is not available in Windows v7 or later. You can download it from the Internet.

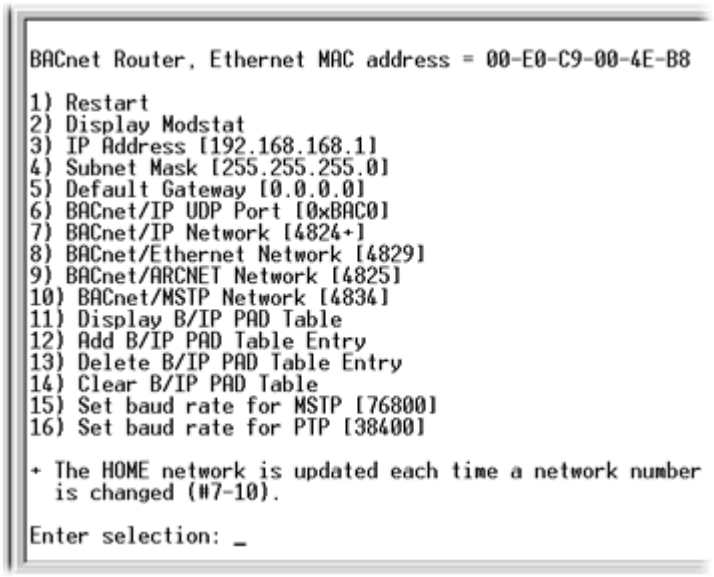
6 Select an icon for this connection file, then click **OK**.

7 In the **Connect to** dialog box, set the **Connect using** field to **ComX**, where **X** is the number of the computer's Com port that the USB Link cable is connected to, then click **OK**.

8 In the **Com Properties** dialog box, set the **Port Settings** for your local access port, then click **OK**.

Port Setting	Value	
Bits per second	i-Vu® Open Link or i-Vu® Open Router	115200
	i-Vu® Link or i-Vu® CCN Router	
Data Bits	8	
Parity	None	
Stop Bits	1	
Flow Control	None	

9 From the main HyperTerminal screen, press **Enter** to view a router configuration screen like the one below.



10 Do one of the following:

- To change a property value:
  a. Type the number of the property, then press **Enter**.
  b. Type the new value, then press **Enter**.
- To take an action, type number of the action, then press **Enter**.

11 If you changed a value, type `1`, then press **Enter** to restart the controller.

12 Close HyperTerminal.

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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*
4/14/25	Update the SAL library	Updated procedure for new interface	X-PM-RD-E-RD

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