LonWorks Integration Guide
i-Vu® Link and Open Link

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 Verify that you have the most current version of this document from **www.hvacpartners.com** or **www.accounts.ivusystems.com** or your local Carrier office.

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

Contents

Overview

Follow the steps in this document to integrate one or more third party LonWorks devices using a Carrier i-Vu® Link/Open Link controller. See the controller's *Installation and Start-up Guide* for installation and networking instructions.

i-Vu® Link/Open Link	
LonWorks port	S2
Module driver	drv_ivulink_lon_6-00-082* drv_ivuopenlink_std_6-00-082*
Read/write capability	Can read from and write to the third-party equipment
Third party points supported	500
Third party	
Supported equipment	Any device that supports the LonWorks protocol using SNVT's**
Network media type	EIA-232 to SLTA-10 network adapter
Quantity of devices you can physically connect to the i-Vu® Link/Open Link	1 LonWorks network segment with up to 64 LonWorks devices, daisy-chained

*You can download the latest drivers from the *Carrier Control Systems Support Site http://www.hvacpartners.com/*, *https://accounts.ivusystems.com/*. Check the latest bulletin releases for new or updated drivers.

** UNVT's and nci SNVT's are proprietary and not supported.

The i-Vu® Link/Open Link drivers support LonWorks devices connected to Port S2 and BACnet or Modbus devices connected on the Ethernet port simultaneously. The third party point count for the i-Vu® Link/Open Link is the total of the 2 ports.

Before-you-begin checklist

Assumptions

☐	You know how to create custom control programs in Snap.
☐	You know how to install, wire, set up, and download memory to the i-Vu® Link/Open Link.
☐	The LonWorks network/devices have been commissioned by the third-party representative using LonMaker.

Items to be installed at the job site

	Item	Notes
☐	i-Vu® Link/Open Link	
☐	LonWorks module driver	drv_ivuopenlink_<latest version>.driver.
☐	Echelon® SLTA-10 Serial LonTalk® Adapter • #73351 for FT-10 networks • #73352 for TP-78 networks • #73353 for TP-1250 networks • #73354 for RS-485 networks	You need 1 adapter for each i-Vu® Link/Open Link that is connected to a LonWorks network segment. Make sure you order the model that matches your network topology. See the *Echelon website* (*http://www.echelon.com*) for your local Echelon sales contact.
☐	Echelon® power supply (part# 78010)	**CAUTION!** You can damage the SLTA-10 if it does not have its own isolated power supply.
☐	EIA-232/RS-232 straight-through cable with 9-pin connectors and an S2-DB9 adapter (purchase S2-DB9 from Carrier) or 18-22 AWG, 4-conductor cable and a DB9 male adapter	To connect the i-Vu® Link/Open Link to its SLTA-10. You can buy an EIA-232/RS-232 cable with connectors or buy 4-conductor cable and wire your own connections.
☐	Custom control programs (.equipment files) and graphics (.view files)	

Other items needed for the integration

	Item	Notes
☐	LonWorks Integration Tool	Install from the i-Vu® **Tools** DVD.
☐	Network variable information (.xif file) for each type of LonWorks device. For example, VAV Controller or Fan Coil Controller.	Get from: • the third-party representative • www.lonmark.com • the LonWorks device. See *Appendix B* (page 20).
☐	Device address information (domain, index, subnet, and node address)	Get from: • the customer • the third-party representative • a .log file obtained from the LonWork's device. See *Appendix B* (page 20).
☐	Manual for each type of LonWorks device	Get from the third-party representative or the third-party website.

1 Create a control program in Snap

When you create a control program for each type of LonWorks device, use the following Network I/O microblocks:

- One ANI, ANI2, BNI, or BNI2 to read each element of interest in an nvo SNVT
- One ANO, ANO2, BNO, or BNO2 to write to each element of interest in an nvi SNVT

TIP The SNVT definitions in *Appendix A* (page 14) may help you determine whether you need an analog or binary microblock.

To format a LonWorks address

All Lonworks addresses should be assigned to "lonworks://" only when setting up address strings in EquipmentBuilder. The **LonWorks Integration Tool** is used to define these addresses.

An example of a LonWorks address:

```
lonworks://0/1/2/3ff5/108/0/0/0
```

Details:

lonworks://domain_index/subnet/node/nv_Number(Selector in HEX)/SNVT Type/NV Element/ Property/group

- group is always `0` (zero)
- Property = `1` for ANI/BNI
- Property = `0` for ANO/BNO

NOTE Carrier does not support a Domain Length of `0` (zero)

2 Assign and download custom control programs and views to the i-Vu® Link/Open Link

1. If using the i-Vu® or Field Assistant application, go to **Devices** page > **Manage** tab and select the i-Vu® Link/Open Link in the navigation tree.
2. Click the **Add Control Program** button on the right. A dialog window appears.
3. Enter a **Display Name**. Select the i-Vu® Link/Open Link from drop-down list under **Programmable Controller**.
4. Click **Add New** under **Control Programs**. A second dialog window will appear.
5. Browse to the .equipment file that you created in **Snap** and click **Continue**.
6. When message appears **File added successfully**, click **Close**.
7. To upload a graphic, click **Add New** under **Views** and browse to your .view file. A second dialog window appears.
8. Browse to the .view file that you created in **ViewBuilder** and click **Continue**.
9. When message appears **File added successfully**, click **Close**.
10. Click **OK**.
11. Repeat steps 3 - 12 to add additional control programs and views.
12. In the navigation tree, select the i-Vu® Link/Open Link in the router list on the right and click **Download All Content**.

    NOTE This loads the control programs and graphics into the i-Vu® Link/Open Link.

To edit your control program in Snap

Follow these steps to edit an existing control program:

1. Log in to the i-Vu® or Field Assistant application.
2. Double-click the third party controller in the navigation tree. A dialog window appears.
3. Click **Edit Existing** under **Control Programs**. A new dialog window appears.
4. Save file to a location of your choice.
5. Click **Close**.
6. Start **Snap.**
7. Select **File** > **Open** and open the .equipment file that you saved.
8. Edit the control program and save to your computer.
9. Start the i-Vu® or Field Assistant application.
10. Double-click the third party controller in the navigation tree. A dialog window appears.
11. Click **Add New** button under **Control Programs**. A new dialog window appears.
12. Browse to your edited control program and click **Continue**. When message appears **File added successfully**, click **Close.**
13. Click **OK**.

3 Configure LonWorks points using the LonWorks Integration Tool

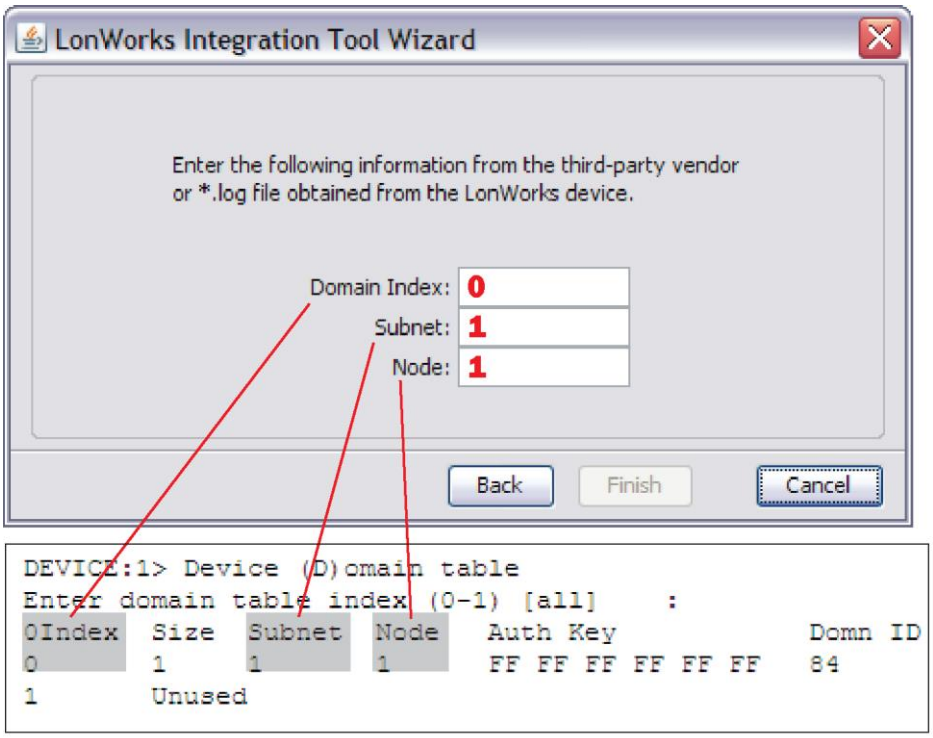
PREREQUISITES

- The LonWorks Integration Tool installed on your computer
- A *.xif file from www.lonmark.com, the third-party representative, or from the LonWorks device (see Appendix A)
- The Domain Index, Subnet, and Node ID from the third-party vendor or from the LonWorks device (see Appendix A)

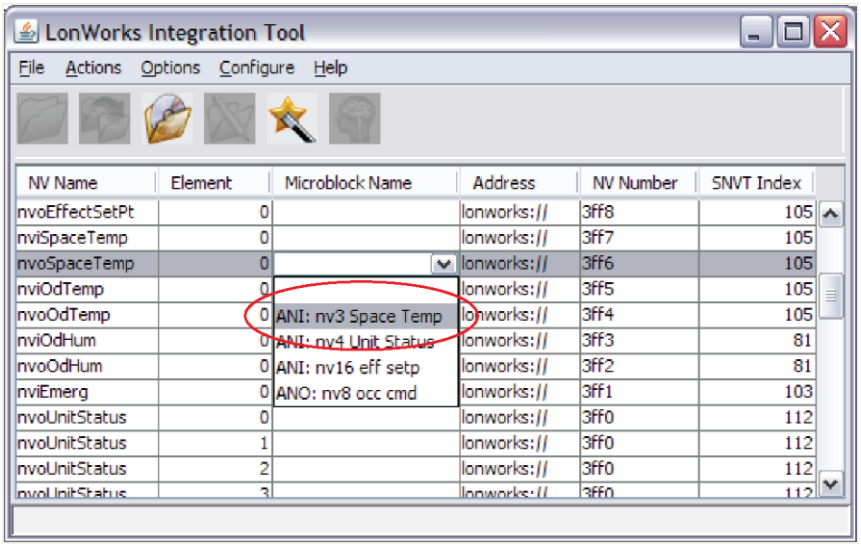
1. Log in to the i-Vu® or Field Assistant application.
2. Double-click the third party controller in the navigation tree. A dialog window appears.
3. Click **Export** under **Integration Points**.
4. Click **Save**.
5. Browse to a location on your PC to save the file. (The file will have a .erl extension.)
6. On the Windows Task Bar, select **Start** > **All Programs** > **i-Vu Tools** > **LonWorks Integration Tool**.
7. Click the wand icon  to start the wizard.
8. Follow the wizard's instructions to create your microblock addresses.

   NOTES

   - If you obtained your Domain Index, Subnet, and Node from the LonWorks device (*Appendix B* (page 20)), you will find this information in your .log file.



- The wizard will display a table of NV's. On the row for the SNVT element you want to read from or write to, click the Microblock Name field to select the microblock that will do the reading or writing. For example, to read nvoSpaceTemp (SNVT105, element 0), select the ANI you named Space Temp in your control program.



- To command a switch SNVT (SNVT 95), use a BNO microblock to write to element 1 of the SNVT.

9 Click the disk-in-folder icon  to save a .erl file with your microblock addresses.

10 Return to the i-Vu® or Field Assistant interface.

11 Double-click the third party controller in the navigation tree. A dialog window appears.

12 Navigate to **Integration Points** at the bottom of the screen and click **Import**.

13 Browse to the .erl file that you saved from the LonWorks Integration Tool.

14 Click **Open** and then **Continue** to upload the file.

15 Click **Close**. The LonWorks addresses are now set

NOTE The LonWorks Integration Tool creates microblock addresses in the following format:

lonworks://domain index/subnet/node/NV number/SNVT index/element/NV parameter/group

EXAMPLE

lonworks://0/1/2/3ff5/108/0/0/0

To edit an integration point address

You can edit an integration point address in the following places:

- In Snap
- In the i-Vu® or Field Assistant interface on the **Properties** page > **Control Program** tab
- In the i-Vu® or Field Assistant interface on the **Properties** page > **Network Points** tab
- In the LonWorks Integration Tool

4 Connect an SLTA-10 to each i-Vu® Link/Open Link on the LonWorks network segment

CAUTION!
You will damage the SLTA-10 if it does not have its own isolated power supply. Do not share power with the i-Vu® Link/Open Link.

1 Turn off the i-Vu® Link/Open Link's power.

2 Remove power from the SLTA-10.

3 Set SLTA-10 DIP switches 1–8 as shown below. Switches 6–8 set the baud rate to 57600 for communications between the control module and the SLTA-10 .

4 Wire the i-Vu® Link/Open Link's Port **S2** to the SLTA-10's **EIA-232** port using one of the following methods:

- If you have an EIA-232/RS-232 straight-through cable with connectors and an S2-DB9 Adapter:
  Connect the adapter to the control module's port. Then connect one end of the cable to the adapter and the other end to the SLTA-10's **EIA-232** port.
- If you have an 18-22 AWG, 4-conductor cable and a DB9 male adapter:
  Wire one end of the cable to the control module's port and the other end to the adapter. See table below. Then connect the adapter to the SLTA-10's **EIA-232** port.

i-Vu® Link/Open Link's...	**...to DB9 adapter pin**
Tx	3
Rx	2
Signal Ground	5

5 Set the jumper for the control module's port to EIA-232.

6 Turn on the i-Vu® Link/Open Link's power.

7 Apply power to the SLTA-10.

5 Set up the driver properties

1. On the i-Vu® or Field Assistant navigation tree, right-click on your third party controller.
2. Select **Driver Properties.**
3. Expand **Protocols** and select **LonWorks.**
4. Select the i-Vu® Link/Open Link Port S2 that connects to the SLTA-10.
5. In the **Baud** field, type 57600, the baud rate that you set on the SLTA-10 DIP switches.
6. Leave the default settings in the remaining fields under **Port Configuration** and the fields under **LonWorks Protocol Setup**.
7. Under **SLTA Domain Table**, select **Yes** in the **Define Domain Table** field.
8. On the first line of the table (Index **0**), enter appropriate values in each field. See table below.
9. In Windows Notepad, open the .log file that NodeUtil created. To see this file, in the Notepad **Open** dialog box, select **All Files** in the **Files of type:** field.

Field	Notes

Domain Length	Locate this number in the .log file. The Domain Length is in the **Size** field highlighted in the following example.
	
	`DEVICE:1> Device (D)omain table`
	`Enter domain table index (0-1) [all] :`
	`0Index Size Subnet Node Auth Key Domn ID`
	`0 1 1 3 FF FF FF FF FF FF 84`

Domain ID	Locate this number in the .log file. The Domain ID is 1 2-character segment, 3 segments, or 6 segments. In the following example, the highlighted Domain ID is 1 2-character segment.
	
	`DEVICE:1> Device (D)omain table`
	`Enter domain table index (0-1) [all] :`
	`0Index Size Subnet Node Auth Key Domn ID`
	`0 1 1 3 FF FF FF FF FF FF 84`
	
	In the i-Vu® or Field Assistant interface, type `-00 a`after the ID as many times as needed so that the **Domain ID** field has 6 2-character sections.
	
	Domain ID
	84-00-00-00-00-00

Subnet ID	Locate this number in the .log file. The Subnet ID is highlighted in the following example.

Field	Notes

```
DEVICE:1> Device  (D)omain table
Enter domain table index  (0-1)  [all]     :
0Index  Size  Subnet  Node   Auth Key            Domn ID
0       1     1       3      FF FF FF FF FF FF   84
```

Node ID	In this field, you are giving the SLTA/Router or Link an ID number on the LonWorks network. Type any value in the range 1–127, but it **cannot** be the same as the Node ID of any LonLonWorks device on the LonLonWorks network. 99 is typically a good number to use.
Authentication Key	Do not change these values for most applications. The i-Vu® or Field Assistant application uses this authentication code if the third-party device requests authentication.

10 Click the **Apply** to refresh the page. Verify the following values in the **SLTA Node Status** section:

- **SLTA Comm Established**: Yes
  (SLTA-10 and Carrier controller are communicating.)
- **SLTA Node Online**: Yes
  (SLTA-10 and LonWorks network are communicating.)
- **SLTA Node Configured**: Yes
  (SLTA-10 has been commissioned.)
- **Address Domain**: (As displayed in the SLTA Domain Table)

11 On the navigation tree, select **Protocols**.

12 In the **Protocol Status** table, verify that the LonWorks protocol shows **Running** on Port S2.

If the status shows **Not running** or the wrong port, verify port selection and DIP switch settings for that port on the controller.

6 Verify the controller is set up correctly

1 Verify that the latest control programs have been downloaded into the i-Vu® or Field Assistant application.

2 On the i-Vu® or Field Assistant navigation tree, select the third-party controllers for the i-Vu® Link/Open Link.

3 Select **Properties** page > **Network Points** tab.

To capture communication using PuTTY

Use PuTTY, a free open source terminal emulation program that works with all Windows operating systems, to capture communication between the controller and the LonWorks device into a text file.

PREREQUISITES

- Download and install PuTTY from the *PuTTY website* (*http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html*).
- Get the Carrier control module's IP address.
- Get the longest microblock refresh time in the control program that has the error you are troubleshooting. In the i-Vu® or Field Assistant interface, view the control program's **Properties** page > **Network Points** tab to see all the refresh times.

1 Connect your computer's Ethernet port to the control module's Ethernet port using one of the following:
   - A CAT5 or higher Ethernet crossover cable
   - A hub and a CAT5 or higher Ethernet straight-through cable

2 Ping the Carrier control module to verify communications between the control module and the computer you are using to get this capture.

3 On the i-Vu® or Field Assistant navigation tree, right-click the controller, select **Driver Properties**, then select **Protocols**.

4 Click **Properties**, select **Enable Telnet diagnostics**, then click **Accept**.

5 Start PuTTY.

6 Enter the control module's IP address.

7 Select **Telnet** as the **Connection Type**.

8 Click the **Logging** option in the upper left corner of the left pane.

9 Select **Printable output**.

10 Select a location for the capture text file.

11 Click **Open** to start the session.

12 After **Login:>**, type: `diagport`
Press **Enter**.

- To capture data receipts, after **diagport>**, type: `modbus rx`

Press **Enter**.

- To capture data transmissions, after **diagport>**, type: `modbus tx`

Press **Enter**.

- To capture more detailed diagnostic messages, after **diagport>**, type: `modbus vmsg`

Press **Enter**.

- To capture error messages, after **diagport>**, type: `modbus emsg`

Press **Enter**.

13 Verify the displayed text shows:

```
lonworks reporting level status:
      rx on
      tx on
      flush off
      fc1 off
      fc2 off
      vmsg on
      emsg on
          off
```

If `rx`, `tx`, `vmsg`, or `emsg` show `off`, repeat the appropriate step (13, 14, 15, or 16) to turn on capture of that item.

14 After **diagport>**, type: `go`
Press **Enter**.

15 Run the capture for one of the following periods of time:

- If all microblock refresh times are one minute or less, run the capture for 5 minutes.
- If any microblock refresh time is longer than 1 minute, run the capture for 5 times the longest microblock refresh time.

16 Type: `stop`
Press **Enter**. Verify that you see diagport> before doing the next step.

17 After **diagport>**, type: `logout`
Press **Enter**.

18 To end the PuTTY session, click the X in the upper right corner.

19 In i-Vu® or Field Assistant, clear the **Enable Telnet diagnostics** checkbox (see steps 3 and 4), then click **OK**.

20 Open the text file from the location you selected in step 11, and then verify that it legibly shows the same information that PuTTY displayed.

Appendix A - Common HVAC SNVT's

SNVT #	SNVT Name	Element #	Measurement	Value
39	SNVT_temp	0	°C	-274 — 6,279.5
83	SNVT_state	0		0 — 65,535 Each bit must be parsed out using control program logic.
84	SNVT_time_stamp	0	year	0 — 3,000
		1	month	1 — 12 = January — December 0 = month not specified
		2	day	1 — 31 0 = day not specified
		3	hour	0 — 23
		4	minute	0 — 59
		5	second	0 — 59
85	SNVT_zerospan	0	zero offset	-163.84% — 163.835%
		1	span multiplier	0 — 32.7675
87	SNVT_elapsed_tm	0	day	0 — 65,535
		1	hour	0 — 23
		2	minute	0 — 59
		3	second	0 — 59
		4	millisecond	0 — 999
88	SNVT_alarm	0 — 5	location	0 — 255 (decimal ASCII value) location of node number, description of characters used
		6	object ID (in node)	0 — 65,535

SNVT #	SNVT Name	Element #	Measurement	Value
		7	alarm type	-13 = Alarm header -12 = Alarm footer -11 = Alarm debug -10 = Alarm info -6 = Alarm system info -5 = Alarm value invalid -4 = Alarm constant -3 = Alarm offline -2 = Alarm unknown -1 = Value not available 0 = No alarm condition present 1 = Unspecified alarm condition present 2 = Total/service interval alarm 1 3 = Total/service interval alarm 2 4 = Total/service interval alarm 3 5 = Alarm low limit alarm clear 1 6 = Alarm low limit alarm clear 2 7 = Alarm high limit alarm clear 1 8 = Alarm high limit alarm clear 2 9 = Alarm low limit alarm 1 10 = Alarm low limit alarm 2 11 = Alarm high limit alarm 1 12 = Alarm high limit alarm 2 13 = Fire Alarm Condition 14 = Fire Pre-alarm condition 15 = Fire Trouble (fault) condition 16 = Fire Supervisory condition 17 = Fire Alarm condition in Test Mode 18 = Fire Pre-Alarm condition in Test Mode 19 = Fire Maximum environmental compensation level reached 20 = Fire Abnormal condition with an input object 21 = Fire Maintenance Alert 30 = Alarm fatal error 31 = Alarm error 32 = Alarm warning
		8	priority level	0 (lowest priority) — 3 (highest priority) LONMARK Fire products use the following: 4 = Life Safety Fire Alarms (BACnet Priority 2) 5 = Property Safety Fire Alarms (BACnet Priority 3) 6 = Fire Supervisory Alarm (BACnet Priority 4) 7 = Fire Trouble/Fault (Display) (BACnet Priority 5) 8 = Fire Pre-Alarm, HVAC Critical Equipment Alarm (BACnet Priority 6) 9 = HVAC Alarms (BACnet Priority 8) 10 = HVAC Critical Equipment RTN, Fire RTN (Display) (BACnet Priority 10) 11 = HVAC RTN (lowest priority) (BACnet Priority 16) -1 = Value not Available
		9	index of NV in alarm	0 — 65,535
		10 — 13	values of index	0 — 255, 0=not specified
		14	year	0 — 3,000, 0=not specified
		15	month	0 — 12, 0=not specified

SNVT #	SNVT Name	Element #	Measurement	Value
		16	day	0 — 31, 0=not specified
		17	hour	0 — 23, 0=not specified
		18	minute	0 — 59, 0=not specified
		18	second	0 — 59, 0=not specified
		20	millisecond	0 — 999, 0=not specified
		21 — 24	alarm_limit	0 — 255, 0=not specified
95	SNVT_switch	0	value	0 — 100%
		1	state	0 = off, 1 = on, –1 = undefined
103	SNVT_hvac_emerg	0	enumerated	0 = normal 1 = emergency pressurize 2 = emergency depressurize 3 = emergency purge 4 = emergency shutdown 5 = emergency fire
106	SNVT_temp_setpt	0	°C occupied cool	-273.17 — 327.66
		1	°C standby cool	-273.17 — 327.66
		2	°C unoccupied cool	-273.17 — 327.66
		3	°C occupied heat	-273.17 — 327.66
		4	°C standby heat	-273.17 — 327.66
		5	°C unoccupied heat	-273.17 — 327.66
108	SNVT_hvac_mode	0	enumerated	0 = auto 1 = heat 2 = morning warmup 3 = cool 4 = night purge 5 = pre cool 6 = off 7 = test 8 = emerg heat 9 = fan only 10 = free cooling 11 = ice 12 = max heat 13 = economy 14 = dehumidify 15 = calibrate 16 = emerg cool 17 = emerg steam 18 = max cool 19 = hvac load 20 = no load
109	SNVT_occupancy	0	status	0 = oc–occupied 1 = oc–unoccupied 2 = oc–bypass 3 = oc–standby oc–nul 0xFF

SNVT #	SNVT Name	Element #	Measurement	Value
111	SNVT_hvac_overid	0	state	0 = Not overridden -1 = Value not available The next 16 override values apply to all devices or groups. 1 = Override position percentage - use percent field 2 = Override flow in liters/sec - use flow field 3 = Override flow percentage - use percent field 4 = Override to position = 100% 5 = Override to position = 0% 6 = Override to configured minimum 7 = Override to configured maximum 8–16 = Unused The next 16 override values apply to the first device or group. 17 = Override position percentage - use percent field 18 = Override flow in liters/sec - use flow field 19 = Override flow percentage - use percent field 20 = Override to position = 100% 21 = Override to position = 0% 22 = Override to configured minimum 23 = Override to configured maximum 24–32 = Unused The next 16 override values apply to the second device or group. 33 = Override position percentage - use percent field 34 = Override flow in liters/sec - use flow field 35 = Override flow percentage - use percent field 36 = Override to position = 100% 37 = Override to position = 0% 38 = Override to configured minimum 39 = verride to configured maximum 40–48 = Unused
		1	Percent of full scale	-163.83 — 163.83%
		2	liters/second (flow)	0 — 65,534

SNVT #	SNVT Name	Element #	Measurement	Value
112	SNVT_hvac_status	0	mode	0 = Controller automatically changes between application modes 1 = Heating only 2 = Application-specific morning warm-up 3 = Cooling only 4 = Application-specific night purge 5 = Application-specific pre-cool 6 = Controller not controlling outputs 7 = Equipment being tested 8 = Emergency heat mode (heat pump) 9 = Air not conditioned, fan turned on 10 = Cooling with compressor not running 11 = Ice-making mode 12 = Max Heat 13 = Economy 14 = Dehumid 15 = Calibrate 16 = Emergency Cool 17 = Emergency Steam 18 = Max Cool 19 = HVC Load 20 = No Load -1 = Value not available
		1	% primary heat output	-163.84% — 163.83
		2	% secondary heat output	-163.84% — 163.83
		3	% cool output	-163.84% — 163.83
		4	% econ output	-163.84% — 163.83
		5	% fan output	-163.84% — 163.83
		6	% in alarm	0 — 255
113	SNVT_press_p	0	Pa(Pascal)	-32,768 — 32,768
127	SNVT_chlr_status	0	chiller run mode	0 = Overwrite this scene with new data 1 = Delete this scene from the list 2 = Display this sceneís data 3 = Report the number of programmed scenes 4 = Report the number of free scene storage spaces -1 = Value not available

SNVT #	SNVT Name	Element #	Measurement	Value
		1	chiller operation mode	0 = Controller automatically changes modes 1 = Heating only 2 = Morning warm-up 3 = Cooling only 4 = Night purge 5 = Pre-cool 6 = Controller not controlling outputs 7 = Equipment being tested 8 = Emergency heat pump 9 = Air not conditioned, fan turned on 10 = Cooling with compressor not running 11 = Ice-making mode 12 = Max Heat 13 = Economy 14 = Dehumidify 15 = Calibrate 16 = Emergency Cool 17 = Emergency Steam 18 = Max Cool 19 = HVC Load 20 = No Load -1 = Value not available
		2	chiller state	1 = in alarm
		3		1 = run is enabled
		4		1 = local
		5		1 = limited
		6		1 = chilled water flow
		7		1 = conditioned water flow
128	SNVT_tod_event	0	current scheduled occupancy state	0 = Area is occupied 1 = Area is unoccupied 2 = Area is temporarily occupied for the bypass period 3 = Area is temporarily unoccupied -1 = Value not available
		1	next scheduled occupancy state	0 = Area is occupied 1 = Area is unoccupied 2 = Area is temporarily occupied for the bypass period 3 = Area is temporarily unoccupied -1 = Value not available
		2	Minutes to next state	0 — 65,535
138	SNVT_Volt_ac	0	Volt	0 — 65,535
139	SNVT_amp_ac	0	Amp	0 — 65,535
145	SNVT_hvac_type	0	enumerated	0 = Generic 1 = Fan coil 2 = VAV Terminal 3 = Heat Pump 4 = Roof Top Unit 5 = Unit Ventilator 6 = Chilled ceiling 7 = Radiator 8 = Air Handling Unit 9 = Self-contained unit
153	SNVT_Enthalpy	0	J/Kg	-32,768 — 32,767

Appendix B - Obtain network, device, and network variable information

Use one of the following devices to temporarily connect a LAPTOP to the LonWorks network.

- *Option 1: Using an Echelon U10/U20 Network Interface* (page 20)
- *Option 2: Using an SLTA-10 Network Adapter* (page 22)
- *Option 3: Using an iLon™10 Ethernet Adapter* (page 24)

PREREQUISITES

- One of the above Echelon devices
- The location of each LonWorks device's service pin from the third-party representative.

  TIP For some VAV devices, the connected sensor's override button may also function as a service pin.

Option 1: Using an Echelon® U10/U20 USB Network Interface

To obtain and install Echelon software:

1. Go to www.echelon.com/downloads.
2. Log in or create a new login account.
3. In **Search for software in**, select **Recommended Downloads**, click **Find**, then download **Open LDV** (latest version) **Network Drivers for Windows 2000/XP/2003**.
4. In **Search for software in**, select **Development Tools**, click **Find**, then download **NodeUtil Node Utility** (latest version).
5. Run the Open LDV .exe file to install the software.
6. Unzip the file that you downloaded for the NodeUtil Node Utility. Make note of this .exe file's location.
   EXAMPLE: `c:\Lonstuff`

To connect your computer to the LonWorks network:

7. Connect the Echelon U10/U20 USB Network Interface to your computer's USB port and to the LonWorks network.
8. On the computer, select **Start** > **Control Panel**.
9. Double-click **LonWorks Interfaces**.
10. Select the item in the left column.
    EXAMPLE: LON2

To obtain the LonWorks device's .log file and .xif file:

11. Select **Start** > **All Programs** > **Accessories** > **Command Prompt**.
12. Type `cd "<path>"`, replacing `<path>` with the path where you unzipped NodeUtil (step 6 above), then click Enter.
    EXAMPLE: `cd "c:\Lonstuff"`

13. Type `nodeutil -d<name>`, replacing `<name>` with the Network Interface Name noted in step above, then click Enter.
    EXAMPLE: `nodeutil -dLON2`

14. Type > after `nodeutil>`.

    EXAMPLE: `nodeutil>>`

15. Type a name for the file that NodeUtil will create with the LonWorks device's network variable information.
    EXAMPLE: `vav_controller.log`

16. Press Enter to create the file.

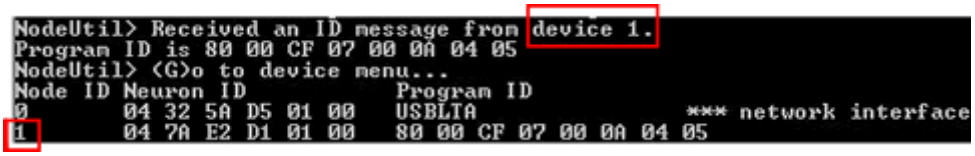
17. Push, then quickly release the service pin on the LonWorks device you want to get information from. The device number is displayed in the window.

    CAUTION! Holding the service pin for 3 seconds or longer can delete memory from some third-party devices.

    TIP For some VAV devices, the connected sensor's override button may also function as a service pin.

18. Type `G` to go to the device menu.

19. Type the device number, then click Enter.



20. Type `D`, then press Enter for [all] domain tables.

21. Type `N`, then press Enter for [all] network variable configuration tables.

22. Type `X`, then wait for NodeUtil to request a file name.

23. Type a name for the .xif file that NodeUtil will create containing the device and network information. Omit the file extension; NodeUtil will automatically add the .xif extension.

    NOTE If you do not specify a path, the file will be saved in the same folder as the NodeUtil.exe file.

24. Press Enter to create the .xif file.

25. Type `E` twice to exit the device menu.

26. Close the Command Prompt window.

Option 2: Using an SLTA-10 Network Adapter

Your computer must have a serial port to use this option.

NOTE Echelon® software is incompatible with some USB to serial port adapters. If your computer does not have a serial port, use a different option to connect your computer to the LonWorks network.

To obtain and install Echelon software:

1. Go to www.echelon.com/downloads.
2. Log in or create a new login account.
3. In **Search for software in**, select **Recommended Downloads**, click **Find**, then download
   - **Open LDV** (latest version) **Network Drivers for Windows 2000/XP/2003**
   - **LonWorks SLTA-10 Serial LonTalk(R) Adapter Software for Windows 98/2000/XP**
4. In **Search for software in**, select **Development Tools**, click **Find**, then download **NodeUtil Node Utility** (latest version).
5. Run the Open LDV .exe file to install the software.
6. Unzip the file that you downloaded for the LonWorks SLTA-10 Serial LonTalk(R) Adapter Software.
7. Run **slta10_Win.exe** to install the software. Make note of the **numeric base for the device name** number. Typically, this number is 1.
8. Unzip the file that you downloaded for the NodeUtil Node Utility. Make note of this .exe file's location. EXAMPLE: `c:\Lonstuff`

To connect your computer to the LonWorks network:

9. Remove power from the SLTA-10.
10. Set DIP switches 1, 4, 6, 7, and 8 in the up position.
11. Connect an EIA-232/RS232 straight-through cable to the SLTA-10 and to the computer's serial port. The SLTA must also be connected to the LonWorks network segment.
12. Reapply power to the SLTA-10.
13. On the computer, select **Start** > **All Programs** > **Echelon SLTA-10 Network Adapter** > **SLTALink Manager**.
14. Select **Link** > **Select/Action.**
15. Click **Edit**.
16. Select the **Update Identifier** checkbox.
17. Click **Next**.
18. In the **Serial Port** field, select the computer port that your EIA-232/RS232 straight-through cable is connected to.
19. In the **Speed** field, select 115200.
20. Click **Next** > **Finish** > **OK**.
21. Select **Link** > **Connect Now**.
22. Minimize the SLTALink Manager.

To obtain the LonWorks device's .log file and .xif file:

23. Select **Start** > **All Programs** > **Accessories** > **Command Prompt**.
24. Type `cd "<path>"`, replacing `<path>` with the path where you unzipped NodeUtil (step 8 above), then press Enter.
    EXAMPLE: `cd "c:\Lon stuff"`
25. Type `nodeutil -dlon<number>`, replacing `<number>` with the number you wrote down in step 7 above, then press Enter.
    EXAMPLE: `nodeutil -dLON1`
26. Type `>`.
27. Type a name for the file that NodeUtil will create with the LonWorks device's network variable information.
    EXAMPLE: `vav_controller.log`
28. Press Enter to create the file.
29. Push, then quickly release the service pin on the LonWorks device you want to get information from. The device number is displayed in the window.

    CAUTION! Holding the service pin for 3 seconds or longer can delete memory from some third-party devices.

    TIP For some VAV devices, the connected sensor's override button may also function as a service pin.
30. Type `G` to go to the device menu.
31. Type the device number, then click Enter.

32. Type `D`, then press Enter for [all] domain tables.
33. Type `N`, then press Enter for [all] network variable configuration tables.
34. Type `X`, then wait for NodeUtil to request a file name.
35. Type a name for the .xif file that NodeUtil will create containing the device and network information. Omit the file extension; NodeUtil will automatically add the .xif extension.

    NOTE If you do not specify a path, the file will be saved in the same folder as the NodeUtil.exe file.
36. Press Enter to create the .xif file.
37. Type `E` twice to exit the device menu.
38. Close the Command Prompt window.

Close your connection

39. In the SLTA Link Manager, select **Link** > **Disconnect Now**, then close the window.

Option 3: Using an iLon10 Ethernet Adapter

To obtain and install Echelon software:

1. Go to www.echelon.com/downloads.
2. Log in or create a new login account.
3. In **Search for software in**, select **Recommended Downloads**, click **Find**, then download **Open LDV** (latest version) **Network Drivers for Windows 2000/XP/2003**.
4. In **Search for software in**, select **Development Tools**, click **Find**, then download **NodeUtil Node Utility** (latest version).
5. Run the Open LDV .exe file to install the software.
6. Unzip the file that you downloaded for the NodeUtil Node Utility. Make note of this .exe file's location.
   EXAMPLE: `c:\Lonstuff`

To connect your computer to the LonWorks network:

7. Connect your computer to the iLon10 using a crossover cable alone or a straight-through cable with a hub. The iLon10 must also be connected to the LonWorks network segment.
8. On the computer, select **Start** > **Control Panel**.
9. Double-click **LonWorks Interfaces**.
10. Click **Add**.
11. Type a name such as `iLon10` and write down the name. You will use it later.
12. Click **Next** twice.
13. Type `1628` for the IP Port address of the iLon10.

    NOTE 1628 is the default port and is used for most installations. If your computer does not connect to the LonWorks network, ask the third-party representative if a different port was used.
14. Click **Finish**, then click **Close**.

To obtain the LonWorks device's .log file and .xif file:

15. Select **Start** > **All Programs** > **Accessories** > **Command Prompt**.
16. Type `cd "<path>"`, replacing `<path>` with the path where you unzipped NodeUtil (step 6 above), then press Enter.
    EXAMPLE: `cd "c:\Lon stuff"`
17. Type `nodeutil -dx.default.<name>`, replacing `<name>` with the name you typed in step 11 above, then press Enter.
    EXAMPLE: `nodeutil -dx.default.iLon10`
18. Type `>`.
19. Type a name for the file that NodeUtil will create with the LonWorks device's network variable information.
    EXAMPLE: `vav_controller.log`
20. Press Enter to create the file.

21. Push, then quickly release the service pin on the LonWorks device you want to get information from. The device number is displayed in the window.

    CAUTION! Holding the service pin for 3 seconds or longer can delete memory from some third-party devices.

    TIP For some VAV devices, the connected sensor's override button may also function as a service pin.

22. Type `G` to go to the device menu.

23. Type the device number, then click Enter.

24. Type `D`, then press Enter for [all] domain tables.

25. Type `N`, then press Enter for [all] network variable configuration tables.

26. Type `X`, then wait for NodeUtil to request a file name.

27. Type a name for the .xif file that NodeUtil will create containing the device and network information. Omit the file extension; NodeUtil will automatically add the .xif extension.

    NOTE If you do not specify a path, the file will be saved in the same folder as the NodeUtil.exe file.

28. Press Enter to create the .xif file.

29. Type `E` twice to exit the device menu.

30. Close the Command Prompt window.

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*
5/24/18	Overview	Added note that nci SNVT's are not supported.	C-TS-JN-F

* For internal use only

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