

Overview and Configuration Manual

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Manual Revisions

The *LonWorks Carrier Translator Overview and Configuration Manual* is catalog number 808-335, Rev. 08/05. This manual replaces the *LonWorks Overview and Configuration Manual*, catalog number 808-288, 12/03.

Section/Chapter

Changes

Configuration

1. Under Commissioning the Device on the LonWorks Network, on page 12, added new paragraphs 1 and 2.
2. Under Chiller Mapping Configuration (CHLRMAP1) Table 1 on page 21, revised the description of nviOccSchedule.
3. Under Chiller Mapping Configuration (CHLRMAP2) Table 1 on page 23, revised the LON Variable Type for nviPRESS1 and nvoPRESS1 - 4.
4. Revised Figure 3-4, Rooftop Mapping 1 Configuration (RTUMAP1) Table to remove the Value for nvoUnitStatus.in_alarm.
5. Under Rooftop Mapping Configuration (RTUMAP1) Table 1 on page 28, revised the description of nviOccSchedule.
6. Under Rooftop Mapping Configuration (RTUMAP1) Table 1 on pages 30-31, revised the Example for nviPRESS1, and revised the description and Example for nvoPRESS1 - 2.
7. Under Generic Mapping Configuration (GNRCMAP1) Table 1 on pages 39-40, revised the description of nviOccSchedule, and the Lon Variable Type for nviPRESS1 - 2 and nvoPRESS1 - 6.
8. In Figure A-2 on page 65 and Figure A-4 on page 67, revised the SNVT Type for nviPRESS1, and nvoPRESS1 through nvoPRESS4.
9. In Figure A-9 on page 72 and Figure A-11 on page 74, revised the SNVT Type for nviPRESS2, and nvoPRESS3 through 6.

Introduction

Introduction

About this Manual

This manual contains information about the functions of the LonWorks Carrier Translator module with LON FT-10A (free topology) communication and how the user configures the LonWorks Carrier Translator to perform those functions.

The manual is divided into the following sections:

- Introduction
- Operating Characteristics
- Configuration
- Maintenance

The Introduction consists of this description of the manual.

The Operating Characteristics section contains a description of the Carrier Translator hardware and a summary description of its configuration and maintenance tables.

The Configuration section contains detailed lists of the decisions for each Carrier Translator configuration table. Each list entry includes the decision's purpose, the range of values that may be used, and the default values that will appear in the decision if it is not configured by the user. The mapping tables include an explanation of each decision, along with the LonWorks read/write access, LON Variable Type, and an example CCN point name.

The Maintenance section contains detailed lists of the decisions for each Carrier Translator maintenance table. Each list entry includes the decision's purpose and the range of values that may be displayed.

The Appendix contains examples of actual configurations for a chiller, rooftop, and generic template, along with a list of LON SNVTs and corresponding CCN point names and descriptions.

Operating Characteristics

Operating Characteristics

The LonWorks Carrier Translator with LON FT-10A (free topology) communication is a micro controller-based module that provides the ability to integrate Carrier CCN-based controllers into LonWorks-based networks.

The LonWorks Carrier Translator (33CNTRANLON) provides CCN to LON FT-10A ANSI/EIA-709.1 protocol conversion.

The Carrier Translator can be mounted in the controls section of any CCN equipment and converts the CCN-based controller data to LonWorks. The Carrier Translator is outdoor duty rated and contains a CCN RS-485 connector and a LON FT-10A communications connector.

The LonWorks Carrier Translator can convert Carrier equipment with CCN controls to LON and outputs the CCN data in standard LON Rooftop or Chiller profiles. Carrier rooftop units can be converted to the standard LonMark Rooftop Unit (RTU) Functional profile 8030 Version 1.1. Carrier chillers can be converted to the standard LonMark Chiller Functional profile 8040 Version 1.0. The chiller and rooftop profiles include additional LON SNVTs beyond those required by the LON standard profiles. These additional SNVTs allow for enhanced LON capability beyond the standard LON-defined profiles. In addition to the rooftop and chiller profiles, a generic LON profile is also supplied. This profile can be used to convert Carrier controllers that may not convert efficiently into the LonMark Rooftop or Chiller profiles.

When connected to a CCN controller, the LonWorks Carrier Translator allows a third party LON device to read and write to the CCN controller's mapped status display, time schedule, and setpoint schedule data. Note that LON status display write access is subject to the CCN equipment controller's defined read/write access for each status display item.

Templates

The LonWorks Carrier Translator contains chiller, rooftop, and generic LON templates that allow mapping of various CCN points to LON SNVTs. Tables 2-1 through 2-3 show the type and quantity of CCN points in each supplied template.

Table 2-1
Rooftop Template

Reads	Writes
Space Temperature	Space Temperature
Outdoor Air Temperature	Outdoor Air Temperature
Outdoor Air Humidity	Outdoor Air Humidity
CO2 (PPM)	Space Humidity
Cooling Coil %	CO2 (PPM)
Heating Coil %	Supply Air Setpoint (VAV)
Economizer Position %	Setpoint Offset
Fan Speed %	6 Setpoints (degF)
Normal/Alarm Discrete	1 Setpoint (PPM)
Controlling Setpoint	Occupancy Schedule (>64E)
4 Generic Temperature	1 Generic Temperature
8 Generic Discrete	3 Generic Discrete
2 Generic Pressure ("H2O)	3 Generic Discrete
3 Generic Percentage	1 Generic Pressure ("H2O)
2 Generic Delta Temp	2 Generic Percentage
2 Generic (0 to 65535)	1 Generic (0 to 65535)
2 Generic (-32767 to 32767)	

Table 2-2
Chiller Template

Reads	Writes
Percent Capacity	Chiller Start/Stop
Active Demand Limit Percent	Active Demand Limit Percent
Chilled Water Control Temp	Chilled Water Control Temp
Entering Chilled Water Temp	Hot Water Control Temp
Leaving Chilled Water Temp	Occupancy Schedule (>64E)
Entering Cond Water Temp	1 Generic Temperature
Leaving Cond Water Temp	2 Generic Discrete
Chilled Water Flow Discrete	1 Generic Pressure (PSI)
Cond Water Flow Discrete	1 Generic (0 to 65535)
6 Generic Temperature	
6 Generic Discrete	
4 Generic Pressure (PSI)	
2 Generic Percentage	
2 Generic Delta Temp	
2 Generic (0 to 65535)	
2 Generic (-32767 to 32767)	

Table 2-3
Generic Template

Reads	Writes
Cooling Coil %	6 Setpoints (degF)
Heating Coil %	Occupancy Schedule (>64E)
Second Heating Coil %	3 Generic Temperature
Economizer Position %	3 Generic Discrete
Fan Speed %	1 Generic Pressure ("H2O)
Normal/Alarm Discrete	1 Generic Pressure (PSI)
8 Generic Temperature	2 Generic Percentage
8 Generic Discrete	1 Generic PPM
2 Generic Pressure ("H2O)	1 Generic (0 to 65535)
4 Generic Pressure (PSI)	
4 Generic Percentage	
2 Generic Delta Temp	
1 Generic PPM	
2 Generic (0 to 65535)	
2 Generic (-32767 to 32767)	

Default Address and Baud Rate

The LonWorks Carrier Translator's default CCN address is 0,200 (bus number, system element number). The default CCN baud rate is 9600 bps.

Each LonWorks Carrier Translator has a unique LON address. The LON address can be sent to LON configuration tools when the LON service pin is pressed.

The Carrier Translator has three LEDs that are used to indicate operational status:

Table 2-4
Carrier Translator LEDs

LED	Color	Indicates
Status	Red	Operating, initialization and configuration status. The LED blinks at a 2 Hz rate when initializing and at 1 Hz when operating correctly.
CCN	Yellow	The Carrier Translator is sending CCN communication messages to the connected CCN controller. If the connected CCN controller is responding, its CCN LED will blink when a message is sent back to the Carrier Translator.

(continued)

Table 2-4
Carrier Translator LEDs
(continued)

LED	Color	Indicates
LON	Green	The Carrier Translator is sending LON communication messages to the third party LonWorks network.

LonWorks Carrier Translator Configuration Tables

The Carrier Translator contains the configuration tables listed below. For descriptions of the decisions in each table, refer to the Configuration section of this manual. The purpose of each table is summarized on the following pages.

Carrier Translator Device Configuration Table (CtrlID)
Chiller Mapping Table 1 (CHLRMAP1)
Chiller Mapping Table 2 (CHLRMAP2)
Carrier Translator Configuration Table (CONFIG)
Generic Mapping Table 1 (GNRCMAP1)
Generic Mapping Table 2 (GNRCMAP2)
Rooftop Unit Mapping Table 1 (RTUMAP1)
Rooftop Unit Mapping Table 2 (RTUMAP2)

Carrier Translator Configuration Table

The Carrier Translator Configuration Table (CONFIG) contains decisions used to specify the following:

- LonWorks Profile (Rooftop, Chiller, Generic)
- CCN Address
- Auto-mapping
- Reset Points Profile

Chiller Mapping Tables

The Chiller Mapping Tables (CHLRMAP1 and CHLRMAP2) are used to map or associate CCN points with the variables in the LonWorks Chiller profile, which is based on LonMark Functional Profile Chiller 8040 V 1.0. These tables are configured if the Carrier Translator CONFIG Table's Device Type decision is set to 2 (Chiller).

Generic Mapping Tables

The Carrier Translator's Generic Mapping Tables (GNRCMAP1 and GNRCMAP2) are used to map or associate CCN points with the variables in the LonWorks generic controller profile. These tables are configured if the Carrier Translator CONFIG Table's Device Type decision is set to 3 (Generic). This table could be used, for example, to allow LON access to an air handler.

Rooftop Mapping Tables

The Carrier Translator's Rooftop Mapping Tables (RTUMAP1 and RTUMAP2) are used to map or associate CCN points with the variables in the LonWorks rooftop profile, which is based on LonMark Function Profile Rooftop Unit 8030 Version 1.1. The table is configured if the Carrier Translator CONFIG Table's Device Type decision is set to 1 (Rooftop).

Carrier Translator Device Configuration Table

The Carrier Translator contains a Device Configuration Table (CtrlID). By changing the information that appears in this table, you can change the name, description, and location that appears for the Carrier Translator in the CCN front end's (example: ComfortWORKS/ComfortVIEW) Controller List.

Carrier Translator Maintenance Tables

The Carrier Translator contains the following maintenance tables:

- Chiller Mapping Table 1 (CHLRMNT1)
- Chiller Mapping Table 2 (CHLRMNT2)
- Communication Status Table (COMSTAT)
- Generic Mapping Table 1 (GNRCMNT1)
- Generic Mapping Table 2 (GNRCMNT2)
- LonWorks Messages Table (MESSAGES)
- Rooftop Unit Mapping Table 1 (RTUMNT1)
- Rooftop Unit Mapping Table 2 (RTUMNT2)

Chiller, Rooftop, Generic Mapping Maintenance Tables

The maintenance values displayed in these tables are read-only values that show the current value of the CCN points that have been mapped to the Lonworks variables as the points exist in the CCN system element. These values are updated every 30 seconds. Note that if a LonWorks read (nvo) and write (nvi) variable have been mapped to the same CCN point, they will display the same value in the maintenance table display.

Communication Status Maintenance Table

The maintenance values displayed in this table are read-only values that show diagnostic data about LonWorks-to-CCN system element communication.

Messages Maintenance Table

The maintenance values displayed in this table are read-only values that show diagnostic data about LonWorks-to-CCN system element communication messages.

Configuration

Configuration

The LonWorks Carrier Translator's operation is controlled by decisions entered in a group of configuration tables. The Carrier Translator contains the following configuration tables:

CTLR_ID	Carrier Translator Controller Identification Table
CHLRMAP1	Chiller Mapping Configuration Table 1
CHLRMAP2	Chiller Mapping Configuration Table 2
CONFIG	Carrier Translator Configuration Table
GNRCMAP1	Generic Configuration Table 1
GNRCMAP2	Generic Configuration Table 2
RTUMAP1	Rooftop Unit Configuration Table 1
RTUMAP2	Rooftop Unit Configuration Table 2

Configuration Process

LonWorks Carrier Translator configuration and start-up consists of four main processes:

1. Physically connect the LonWorks Carrier Translator to the CCN system element.
2. Select the appropriate LonWorks profile. You do this in the CONFIG Table.
3. Map, or associate, CCN points with LonWorks points by configuring the appropriate set of configuration tables (rooftop, chiller, or generic), depending on the device type that you selected in the CONFIG Table.
4. Commission the Carrier Translator on the LonWorks network.

Each of the above-listed processes is discussed below.

Select the LonWorks Profile

1. Connect the target CCN system element to the Carrier Translator's CCN connector. Confirm that the element is powered and communicating on the CCN Bus.
2. Using a CCN front end (such as a Network Service Tool, ComfortVIEW, or ComfortWORKS) access the Carrier Translator's CONFIG Table and select the appropriate LonWorks profile (Rooftop, Chiller, or Generic) by entering a 1, 2, or a 3 into the CONFIG Table's Device Type decision.

3. Enter appropriate values into all CONFIG Table decisions and download the CONFIG Table into the Carrier Translator.

If the Carrier Translator is on a CCN bus with elements other than the single CCN device with which it is communicating, you must:

- Set Bus and Element #s
- Set the Reset Points Profile decision to *Yes*
- Download.

This chapter's Carrier Translator Configuration (CONFIG) Table section contains explanations of and allowable entries and default values for each CONFIG Table decision.

After approximately 5 seconds, the Carrier Translator should identify the target CCN system element and begin to download its tables. This takes 10 to 40 seconds, depending on the number of tables in the target CCN system element. During this period, the Yellow LED will flash to indicate CCN bus activity. When the flashing stops, the download is complete.

Note: Do not cycle Carrier Translator power within 30 seconds of downloading the CONFIG Table or any of the mapping tables. Be sure that the Yellow CCN LED is NOT flashing.

Map CCN Points with LonWorks Variables

1. Using a CCN front end, access the appropriate set of configuration tables, depending on the value you specified in the CONFIG Table's Device Type decision :

Rooftop (Device Type 1) - RTUMAP1 and RTUMAP2
Chiller (Device Type 2) - CHLRMAP1 and CHLRMAP2
Generic (Device Type 3) - GNRCMAP1 and GNRCMAP2

2. You will now "map" or associate CCN point names with each LonWorks network variable name that is listed in the configuration tables. Note that those LonWorks network variables having read access begin with the characters *nvo* and LonWorks network variables with write access begin with the characters *nvi*.

Entries are case insensitive - upper or lower case characters may be used.

In the Lon structure, there are different types of points for reading and writing purposes. If a CCN point is to be both read and written to by the Lon system, it is recommended that you use two Lon points to accomplish this. The reason for using a separate Lon point to read the CCN point is in case that CCN point is forced by a higher level function than the Carrier Translator itself, which uses Control forces.

Also in the Lon structure, there are dedicated types of points for different types of generic values, such as Temperature, Temperature Difference, Pressure, Percent, and Discrete. You must associate a particular CCN point with the matching Lon point type or the Carrier Translator will not function properly.

In addition, for the Carrier Translator's chiller and rooftop mapping tables, the identity of some Lon points have been pre-determined to conform to the LonMark functional profile for the particular device type. Using these points, where possible, allows the generic point types that appear later in the mapping table to be used for other CCN points. Example: In the Chiller tables there are dedicated Lon points for Entering and Leaving Chilled Water Temperature, and in the Rooftop tables there are dedicated points for Space and Outside Air Temperature.

Explanations of each table decision, along with example CCN point names, can be found later in this Configuration chapter. Examples of completed templates and lists of SNVTs and corresponding CCN points can be found in the Appendix.

Check for Mapping Errors and Confirm Values in Maintenance Tables

1. Using a CCN front end, access the two configuration mapping tables (chiller, rooftop, or generic) that were used in Step 2 of the Map CCN Points with LonWorks Variables procedure, which appears prior to this section of the Configuration chapter.
2. Download each table to the Carrier Translator and wait approximately one minute.

During this time the Carrier Translator performs error checking to verify if you have entered any non-existent point names as well as checks for correct point types (analog/discrete, etc.).

3. Upload the tables and check the displayed tables.

Look for any decisions that may have the message *error**1* or *error**2* displayed in their Value column. These messages indicate that the entry that was made for this decision is invalid:

*error**1* Indicates that the point name was not found in the target CCN system element.

*error**2* The point name was found on the target CCN device but the data type is not valid to this LonWorks network variable.

The errors should be corrected and the tables downloaded.

Example: If, in the CHILLERMAP1 Table, the nvoTEMP1 decision has been configured with the point name DP_A, which is a pressure, the message *error**2* will be displayed because this decision requires a temperature point.

After verifying that there are no error messages in either Configuration mapping Table, cycle power to the Carrier Translator and observe the yellow LED. This is the CCN communication indicator.

Approximately one minute after the yellow LED stops blinking, check the appropriate Maintenance Tables to confirm that the correct data is displayed for each configured point.

Note: The Carrier Translator polls the CCN system element every 30 seconds to both Read and Write CCN points.

Commissioning the Device on the LonWorks Network

The Carrier Translator is now fully commissioned on the Carrier/CCN side and is ready for the Lon systems integrator to commission the Lon side using a Lon software tool such as LonMaker.

A list of the actual CCN points configured in the appropriate MAP1 and MAP2 templates should be supplied to the systems integrator to assist him/her with the commissioning process. A blank copy of these templates can be found in the Appendix of this manual. Additionally, the NeuronID of the Echelon Lon processor chip should also be supplied to the systems integrator. This is a 12 character alphanumeric code that can be found on a white label located along the upper edge of the control board, opposite the Lon connector.

After the LonWorks Carrier Translator is added to the LonWorks network, the LonWorks network variables that were mapped in this chapter's Map CCN Points with LonWorks Variables procedure can be used to read/write data points on the target CCN system element.

Carrier Translator Configuration (CONFIG) Table

The Carrier Translator's CONFIG Table is shown below. An explanation of each decision, including allowable entries and default values follows.

Note: When starting up the Carrier Translator this is the first table you must configure.

Figure 3-1
Carrier Translator Configuration (CONFIG) Table

Description	Value	Units	Name	Notes
Device Type	1		TYPE	
1=Rftp,2=Chillr,3=Gnrc				
Target Bus No.	0		BUS	
Target Address	31		ADDRESS	
Disable Auto-mapping	No		AUTOMAP	
Reset Points Profile	No		POINTS	
Reset Comm. Counters	No		COMM	
Alarm Acknowledger	Yes		ALARM	

Device Type
1=Rftp, 2=Chillr,
3=Gnrc

Use this decision to select the desired LonWorks Profile. After entering this value and downloading this table to the Carrier Translator, the appropriate LonWorks variable names will be loaded into the Carrier Translator.

Allowable Entries 1 = Rooftop
 2 = Chiller
 3 = Generic

Default Value 0

Target Bus No.

Use this decision to specify the bus number of the CCN system element to which the Carrier Translator is connected.

Note: If you do not enter a value for this decision or if the value is incorrect, the Carrier Translator will attempt to find the element address itself. You will then have to upload this table to check if the correct address has been found.

Allowable Entries 0-239

Default Value 0

Target Address

Use this decision to specify the number of the CCN system element to which the Carrier Translator is connected.

Note: If you do not enter a value for this decision or if the value is incorrect, the Carrier Translator will attempt to find the element address itself. You will then have to upload this table to check if the correct address has been found.

Allowable Entries 0-239

Default Value 0

Disable Auto-mapping

Use this decision to disable or enable the Carrier Translator's automatic mapping feature. Setting this decision to *No* will cause the Carrier Translator to upload mapping tables that may exist in the target CCN system element. Setting this decision to *Yes* will disable automatic mapping and will cause the Carrier Translator to use the mapping tables from the Carrier Translator.

Note: No current CCN system element contains automatic mapping tables.

Allowable Entries 0 = No
1 = Yes

Default Value 0

Reset Points Profile

Use this decision to clear the contents of all of the Carrier Translator's CCN point to LonWorks variable mapping tables. This decision resets to *No* on completion of the operation. The following tables will be cleared:

RTUMAP1 and RTUMAP2
CHLRMAP1 and CHLRMAP2
GNRCMAP1 and GNRCMAP2

Note: Do not save this decision set to *Yes*. Do not cycle Carrier Translator power for at least 30 seconds after downloading this decision set to *Yes*. If you do cycle power within 30 seconds of downloading this decision as *Yes*, the Carrier Translator will return to its default address of 0,200 at a baud rate of 9600 baud.

Allowable Entries 0 = No
 1 = Yes

Default Value 0

Reset Comm. Counters

Use this decision to clear the COMMSTAT Maintenance Table's Num Successful Messages and Num Failed Messages counters. This decision resets to *No* on completion of the operation.

Note: Do not save this decision set to *Yes*.

Allowable Entries 0 = No
 1 = Yes

Default Value 0

Alarm Acknowledger

Use this decision to specify whether the Carrier Translator should act as a CCN alarm acknowledger for all alarm messages received from the CCN Bus. There must be only one CCN alarm acknowledger per CCN.

Note that alarms from the Carrier Translator's target system element are placed into the Carrier Translator's buffer.

Allowable Entries 0 = No
 1 = Yes

Default Value 1

Chiller Mapping Configuration (CHLRMAP1)

Table 1

The Carrier Translator's CHLRMAP1 Table is used to map or associate CCN points with the variables in the LonWorks chiller profile (which is based on LonMark Functional Profile: Chiller 8040 V 1.0). This table should be configured if the Carrier Translator CONFIG Table's Device Type decision was set to 2 (Chiller). A sample CHLRMAP1 Table is shown below. An explanation of each decision, including LonWorks read/write access, LON Variable Type, along with an example CCN point name follows.

Allowable Entries and Default Value

CCN point names can consist of up to 8 characters. The default for each decision is blank.

Figure 3-2
Chiller Mapping 1 Configuration (CHLRMAP1) Table

Description	Value	Units	Name	Notes
nviChillerEnable	CHIL_S_S		POINT01	
nviCoolSetpt	CTRL_PNT		POINT02	
nvoOnOff			POINT03	
nvoActiveSetpt	CTRL_PNT		POINT04	
nviCapacityLim	DEM_LIM		POINT05	
nviHeatSetpt			POINT06	
nvoActualCapacity	CAP_T		POINT07	
nvoCapacityLim	DEM_LIM		POINT08	
nvoLvgCHWTemp	COOL_LWT		POINT09	
nvoEntCHWTemp	COOL_EWT		POINT10	
nvoEntCNDWTemp			POINT11	
nvoLvgCNDWTemp			POINT12	
nvoChillerStat.run_mode			POINT13	
nvoChillerStat.op_mode			POINT14	
nvoChillerStat.in_alarm			POINT15	
nvoChillerStat.run_enabl			POINT16	
nvoChillerStat.Local			POINT17	
nvoChillerStat.Limited			POINT18	
nvoChillerStat.chw_flow			POINT19	
nvoChillerStat.cndw_flow			POINT20	
nviOccSchedule			POINT21	

nviChillerEnable	<p>Use this decision to specify the name of the discrete CCN point that the LON system can write to in order to start or stop the chiller.</p> <p>LON Variable Type SNVT_switch</p> <p>Read/Write Access Write</p> <p>Example CHIL_S_S Chiller Start/Stop</p>
nviCoolSetpt	<p>Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set the leaving chilled water temperature setpoint when the chiller is operating in cooling mode.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Write</p> <p>Example CTRL_PNT Control Point</p>
nvoOnOff	<p>Use this decision to specify the name of the discrete CCN point that the LON system can read in order to indicate the chiller's current status (on/off).</p> <p>Note: Most CCN chillers do not contain this point.</p> <p>LON Variable Type SNVT_switch</p> <p>Read/Write Access Read</p>
nvoActiveSetpt	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the current value of the chiller's cooling or heating setpoint. The setpoint to be used (cooling or heating) depends on the chiller's current operating mode.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Read</p> <p>Example CTRL_PNT Control Point</p>
nviCapacityLim	<p>Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set the capacity limit of the chiller.</p> <p>LON Variable Type SNVT_lev_percent</p> <p>Read/Write Access Write</p> <p>Example DEM_LIM Active Demand Limit</p>

nviHeatSetpt	<p>Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set the heating setpoint.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Write</p> <p>Example CTRL_PNT Control Point</p>
nvoActualCapacity	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the current running capacity of the chiller.</p> <p>LON Variable Type SNVT_lev_percent</p> <p>Read/Write Access Read</p> <p>Example CAP_T Percent Total Capacity</p>
nvoCapacityLim	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the chiller's current capacity limit setpoint.</p> <p>LON Variable Type SNVT_lev_percent</p> <p>Read/Write Access Read</p> <p>Example DEM_LIM Active Demand Limit</p>
nvoLvgCHWTemp	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the leaving chilled water temperature.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Read</p> <p>Example LWT Leaving Fluid Temp</p>
nvoEntCHWTemp	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the entering chilled water temperature.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Read</p> <p>Example EWT Entering Fluid Temp</p>

nvoEntCNDWTemp Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the entering condenser water temperature.

LON Variable Type SNVT_temp_p

Read/Write Access Read

Example COND_EWT
Condenser Entering Fluid

nvoLvgCNDWTemp Use this decision to specify the name of the analog CCN point that the LON system can read in order to obtain the leaving condenser water temperature.

LON Variable Type SNVT_temp_p

Read/Write Access Read

Example COND_LWT
Condenser Leaving Fluid

nvoChillerStat.run_mode Use this decision to provide the name of the discrete CCN point that the LON system can read in order to obtain the main running mode of the chiller.

Note: Most CCN chillers do not contain this point.

LON Variable Type SNVT_chlr_status

Read/Write Access Read

nvoChillerStat.op_mode Use this decision to provide the name of the discrete CCN point that the LON system can read in order to obtain the main operating status of the chiller.

Note: Most CCN chillers do not contain this point.

LON Variable Type SNVT_chlr_status

Read/Write Access Read

nvoChillerStat.in_alarm Use this decision to provide the name of the discrete CCN point the LON system can read in order to obtain the alarm status of the chiller.

Note: Most CCN chillers do not contain this point.

LON Variable Type SNVT_chlr_status

Read/Write Access Read

nvoChillerStat.run_enabl	Use this decision to specify the name of the discrete CCN point that the LON system can read in order to obtain the status of the chiller (start/stop).
	LON Variable Type SNVT_chlr_status
	Read/Write Access Read
	Example CHIL_S_S Chiller Start/Stop
nvoChillerStat.Local	Use this decision to specify the name of the discrete CCN point that the LON system can read in order to obtain the chiller's local or network control status.
	Note: Most CCN chillers do not contain this point.
	LON Variable Type SNVT_chlr_status
	Read/Write Access Read
nvoChillerStat.Limited	Use this decision to specify the name of the discrete CCN point that the LON system can read in order to indicate that the chiller cannot reach setpoint.
	Note: Most CCN chillers do not contain this point.
	LON Variable Type SNVT_chlr_status
	Read/Write Access Read
nvoChillerStat.chw_flow	Use this decision to specify the name of the discrete CCN point that the LON system can read in order to indicate if chilled water flow is present.
	LON Variable Type SNVT_chlr_status
	Read/Write Access Read
	Example COOLFLOW Cooler Flow Switch
nvoChillerStat.cndw_flow	Use this decision to specify the name of the discrete CCN point that the LON system can read in order to indicate if condenser water flow is present.
	LON Variable Type SNVT_chlr_status
	Read/Write Access Read
	Example CONDFLOW Condenser Flow Switch

nviOccSchedule

Use this decision to specify the name of the CCN occupancy schedule that the LON system can write to in order to set occupancy times.

Note: The chiller unit must be configured to use a global occupancy schedule (Allowable entries: OCCPC65E to OCCPC99E). Refer to the chiller documentation for additional information on the setup of the global occupancy schedule.

LON Variable Type	SNVT_tod_event
Read/Write Access	Write
Example	OCCPC66E Occupancy Equipment

Chiller Mapping Configuration (CHLRMAP2)

Table 2

The Carrier Translator's CHLRMAP2 Table is used to map or associate CCN points with the variables in the LonWorks chiller profile. This table, in addition to the CHLRMAP1 Table, should be configured if the Carrier Translator CONFIG Table's Device Type decision was set to 2 (Chiller). A sample CHLRMAP2 Table is shown below. An explanation of each decision, including LonWorks read/write access, LON Variable Type, along with an example CCN point name follows.

Allowable Entries and Default Value

CCN point names can consist of up to 8 characters. The default for each decision is blank.

nviTEMP1

Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set an additional chiller operating temperature.

LON Variable Type	SNVT_temp_p
Read/Write Access	Write
Example	OAT Outdoor Air Temperature

nvoTEMP1 - 6

Use these 6 decisions to specify the names of the analog CCN points that the LON system can read in order to obtain additional chiller operating temperatures.

LON Variable Type	SNVT_temp_p
Read/Write Access	Read
Example	TMP_SCTA Saturated Condensing Temp

Figure 3-3
 Chiller Mapping 2
 Configuration (CHLRMAP2)
 Table

Description	Value	Units	Name	Notes
nviTEMP1			POINT22	
nvoTEMP1	EWT		POINT23	
nvoTEMP2	LWT		POINT24	
nvoTEMP3			POINT25	
nvoTEMP4			POINT26	
nvoTEMP5			POINT27	
nvoTEMP6			POINT28	
nviPRESS1			POINT29	
nvoPRESS1			POINT30	
nvoPRESS2			POINT31	
nvoPRESS3			POINT32	
nvoPRESS4			POINT33	
nvoPCT1			POINT34	
nvoPCT2			POINT35	
nvoTEMPDIFF1			POINT36	
nvoTEMPDIFF2			POINT37	
nviDISCRETE1	EMSTOP		POINT38	
nviDISCRETE2			POINT39	
nvoDISCRETE1	CHIL_S_S		POINT40	
nvoDISCRETE2	EMSTOP		POINT41	
nvoDISCRETE3	FAN_1		POINT42	
nvoDISCRETE4	FAN_2		POINT43	
nvoDISCRETE5	COOLFLOW		POINT44	
nvoDISCRETE6			POINT45	
nviCOUNT1			POINT46	
nvoCOUNT1	STAT		POINT47	
nvoCOUNT2	ALM		POINT48	
nvoCOUNTinc1			POINT49	
nvoCOUNTinc2			POINT50	

nviPRESS1

Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set an additional chiller operating pressure.

- Note:**
1. Most CCN chillers do not allow write access to this point.
 2. For use with points having units of psi (kPa).

LON Variable Type SNVT_press

Read/Write Access Write

nvoPRESS1 - 4

Use these 4 decisions to specify the names of the analog CCN points that the LON system can read in order to obtain additional chiller operating pressures.

- Note:**
1. For use with points having units of psi (kPa).

LON Variable Type SNVT_press

Read/Write Access Read

Example SP_A
Suction Pressure Circuit A

nvoPCT1 - 2

Use these 2 decisions to specify the names of the analog CCN points the LON system can read in order to obtain additional chiller operating parameters in percentage.

LON Variable Type SNVT_lev_percent

Read/Write Access Read

Example CAPA_A
Percentage Operating Capacity

nvoTEMPDIFF1 - 2

Use these 2 decisions to specify the names of the analog CCN points that the LON system can read in order to obtain additional chiller differential temperatures.

LON Variable Type SNVT_temp_diff

Read/Write Access Read

Example SH_A
Suction Superheat

nviDISCRETE1 - 2

Use these 2 decisions to specify the names of the discrete CCN points that the LON system can write to in order to set additional discrete operating parameters.

LON Variable Type SNVT_switch

Read/Write Access Write

Example EMSTOP
Emergency Stop

nvoDISCRETE1 - 6

Use these 6 decisions to specify the names of the discrete CCN points that the LON system can read in order to obtain additional discrete operating parameters.

LON Variable Type SNVT_switch
Read/Write Access Read
Example FANS_1
Fan 1 Relay

nviCOUNT1

Use this decision to specify the name of the analog or multi-state CCN point that the LON system will write to in order to set additional analog or multi-state operating parameters.

LON Variable Type SNVT_count
Read/Write Access Write
Example S_HRS
Service Ontime Hours

nvoCOUNT1 - 2

Use these decisions to specify the names of the analog or multi-state CCN points that the LON system will read in order to obtain additional analog or multi-state values.

LON Variable Type SNVT_count
Read/Write Access Read
Example STAT
Run Status

nvoCOUNTinc1 - 2

Use these decisions to specify the names of the analog or multi-state CCN points that the LON system will read in order to obtain additional analog or multi-state values.

LON Variable Type SNVT_count_inc
Read/Write Access Read
Example STAT
Run Status

Rooftop Mapping Configuration (RTUMAP1)

Table 1

The Carrier Translator's RTUMAP1 Table is used to map or associate CCN points with the variables in the LonWorks rooftop profile (which is based on LonMark Functional Profile: Rooftop Unit (RTU) 8030 Version 1.1). This table should be configured if the Carrier Translator CONFIG Table's Device Type decision was set to 1 (Rooftop). A sample RTUMAP1 Table is shown on the page which follows. An explanation of each decision, including LonWorks read/write access, LON Variable Type, along with an example CCN point name follows.

Allowable Entries and Default Value

CCN point names can consist of up to 8 characters. The default for each decision is blank.

nviSpaceTemp

Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set the space temperature.

LON Variable Type	SNVT_temp_p
Read/Write Access	Write
Example	SPT Space Temperature

nviSetPoint

Use this decision to specify the name of the analog CCN point that the LON system can write to in order to set the temperature setpoint.

LON Variable Type	SNVT_temp_p
Read/Write Access	Write
Example	CTRL_PNT Control Point

nvoSpaceTemp

Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the space temperature.

LON Variable Type	SNVT_temp_p
Read/Write Access	Read
Example	SPT Space Temperature

nvoUnitStatus.mode

Use this decision to specify the name of the discrete CCN point that the LON system can read in order to indicate the rooftop's operating mode.

Note: CCN rooftops do not contain this point.

LON Variable Type	SNVT_hvac_status
Read/Write Access	Read

Figure 3-4
Rooftop Mapping 1
Configuration (RTUMAP1)
Table

The screenshot shows a software window titled "LEItest::LEI-LON::RTUMAP1: Configuration". The window has a toolbar with various icons and a "Direct connection" status indicator. Below the toolbar is a search bar containing the text "nviSpaceTemp". The main area of the window is a table with the following columns: Description, Value, Units, Name, and Notes. The table lists 28 configuration points, each with a unique description, a value or unit, and a name from POINT01 to POINT28.

Description	Value	Units	Name	Notes
nviSpaceTemp	SPT		POINT01	
nviSetPoint	CLSP		POINT02	
nvoSpaceTemp	SPT		POINT03	
nvoUnitStatus.mode			POINT04	
nvoUnitStatus.heat_out_p	HCAP		POINT05	
nvoUnitStatus.heat_out_s			POINT06	
nvoUnitStatus.cool_out	CCAP		POINT07	
nvoUnitStatus.econ_out	ECONPOS		POINT08	
nvoUnitStatus.fan_out			POINT09	
nvoUnitStatus.in_alarm			POINT10	
nviOccSchedule			POINT11	
nviSetPtOffset			POINT12	
nviOutsideTemp	OAT		POINT13	
nviOutsideRH			POINT14	
nvoEffectSetpt	CLSP		POINT15	
nvoOutsideTemp	OAT		POINT16	
nvoOutsideRH			POINT17	
nviSpaceRH			POINT18	
nviCO2			POINT19	
nvoCO2			POINT20	
nviTEMP1	SAT		POINT21	
nvoTEMP1	SAT		POINT22	
nvoTEMP2	OAT		POINT23	
nvoTEMP3	SPT		POINT24	
nvoTEMP4			POINT25	
nviPRESS1			POINT26	
nvoPRESS1			POINT27	
nvoPRESS2			POINT28	

nvoUnitStatus.heat_out_p Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current primary heat capacity in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example HCAP
Heating % Total Capacity

nvoUnitStatus.heat_out_s Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current secondary heat capacity in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example HCAP
Heating % Total Capacity

nvoUnitStatus.cool_out Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate will indicate the current secondary cooling capacity in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example CCAP
Cooling % Total Capacity

nvoUnitStatus.econ_out Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate will indicate the current economizer position in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example ECONOPOS
Economizer Position %

nvoUnitStatus.fan_out Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current fan speed in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example VFD
Variable Frequency Drive Speed %

nvoUnitStatus.in_alarm	<p>Use this decision to provide the name of the discrete CCN point that the LON system can read in order to indicate the alarm status of the rooftop.</p> <p>Note: Most CCN rooftops do not contain this point.</p> <p>LON Variable Type SNVT_hvac_status</p> <p>Read/Write Access Read</p>
nviOccSchedule	<p>Use this decision to specify the name of the CCN occupancy schedule that the LON system can write to in order to set occupancy times.</p> <p>Note: The rooftop unit must be configured to use a global occupancy schedule (Allowable entries: OCCPC65E to OCCPC99E). Refer to the rooftop documentation for additional information on the setup of the global occupancy schedule.</p> <p>LON Variable Type SNVT_tod_event</p> <p>Read/Write Access Write</p> <p>Example OCCPC66E Occupancy Equipment</p>
nviSetptOffset	<p>Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set the active temperature setpoint.</p> <p>Note: Most CCN rooftops do not contain this point.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Write</p>
nviOutsideTemp	<p>Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set the outside air temperature.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Write</p> <p>Example OAT Outside Air Temperature</p>
nviOutsideRH	<p>Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set the outside air relative humidity.</p> <p>LON Variable Type SNVT_lev_percent</p> <p>Read/Write Access Write</p> <p>Example OARH Outside Air Relative Humidity</p>

nvoEffectSetpt	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the temperature setpoint.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Read</p> <p>Example CTRL_PNT Control Point</p>
nvoOutsideTemp	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the outside air temperature.</p> <p>LON Variable Type SNVT_temp_p</p> <p>Read/Write Access Read</p> <p>Example OAT Outside Air Temperature</p>
nvoOutsideRH	<p>Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the outside air relative humidity.</p> <p>LON Variable Type SNVT_lev_percent</p> <p>Read/Write Access Read</p> <p>Example OARH Outside Air Relative Humidity</p>
nviSpaceRH	<p>Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set the relative humidity.</p> <p>LON Variable Type SNVT_lev_percent</p> <p>Read/Write Access Write</p> <p>Example RH Relative Humidity</p>
nviCO2	<p>Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set the CO2 level in ppm.</p> <p>LON Variable Type SNVT_ppm</p> <p>Read/Write Access Write</p> <p>Example IAQ Indoor air quality</p>

nvoCO2 Use this decision to specify the name of the analog CCN point that the LON system will read to indicate the CO2 level in ppm.

LON Variable Type SNVT_ppm
Read/Write Access Read
Example IAQ
Indoor air quality

nviTEMP1 Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set an additional rooftop operating temperature.

LON Variable Type SNVT_temp_p
Read/Write Access Write
Example OAT
Outdoor Air Temperature

nvoTEMP1-4 Use these 4 decisions to specify the analog CCN point names that the LON system will read to indicate additional rooftop operating temperatures.

LON Variable Type SNVT_temp_p
Read/Write Access Read
Example TMP_SCTA
Saturated Condensing Temp

nviPRESS1 Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set an additional rooftop operating pressure.

Note: For use with points having units of "H2O (Pa).

LON Variable Type SNVT_press_p
Read/Write Access Write
Example SP
Static Pressure

nvoPRESS1 - 2

Use these 2 decisions to specify the names of the analog CCN point that the LON system will read to indicate additional rooftop operating pressures.

Note: For use with points having units of "H2O (Pa).

LON Variable Type	SNVT_press_p
Read/Write Access	Read
Example	SP Static Pressure

Rooftop Mapping Configuration (RTUMAP2) Table 2

The Carrier Translator's RTUMAP2 Table is used to map or associate CCN points with the variables in the LonWorks rooftop profile. This table should be configured if the Carrier Translator CONFIG Table's Device Type decision was set to 1 (Rooftop). A sample RTUMAP2 Table is shown on the page which follows. An explanation of each decision, including LonWorks read/write access, LON Variable Type, along with an example CCN point name follows.

Allowable Entries and Default Value

CCN point names can consist of up to 8 characters. The default for each decision is blank.

nviPCT1-2

Use these 2 decisions to specify the names of the analog CCN points that the LON system will write to in order to set additional rooftop operating parameters in percentage.

LON Variable Type	SNVT_lev_percent
Read/Write Access	Write
Example	ECONPOS Economizer Position

nvoPCT1-3

Use these 3 decisions to specify the names of the analog CCN point that the LON system will read to indicate additional rooftop operating parameters in percentage.

LON Variable Type	SNVT_lev_percent
Read/Write Access	Read
Example	CAPA_A Percentage Operating Capacity

Figure 3-5
 Rooftop Mapping 2
 Configuration (RTUMAP2)
 Table

The screenshot shows a software window titled "LEItest::LEI-LON::RTUMAP2: Configuration". The window has a toolbar with various icons and a "Direct connection" status indicator. Below the toolbar is a search bar containing "nviPCT1". The main area displays a table with the following columns: Description, Value, Units, Name, and Notes. The table lists various configuration points and their associated values.

Description	Value	Units	Name	Notes
nviPCT1	ECONPOS		POINT29	
nviPCT2			POINT30	
nvoPCT1	IQMP		POINT31	
nvoPCT2	ECONPOS		POINT32	
nvoPCT3			POINT33	
nvoTEMPDIFF1	STO		POINT34	
nvoTEMPDIFF2			POINT35	
nviDISCRETE1	ENTH		POINT36	
nviDISCRETE2			POINT37	
nviDISCRETE3	SF		POINT38	
nvoDISCRETE1	ENTH		POINT39	
nvoDISCRETE2			POINT40	
nvoDISCRETE3	SF		POINT41	
nvoDISCRETE4	HS1		POINT42	
nvoDISCRETE5	HS2		POINT43	
nvoDISCRETE6	CMP1		POINT44	
nvoDISCRETE7	CMP2		POINT45	
nvoDISCRETE8	CMPSAFE		POINT46	
nciCO2Limit			POINT47	
nciSetPnts.occupied_cool			POINT48	
nciSetPnts.standby_cool			POINT49	
nciSetPnts.unocc_cool			POINT50	
nciSetPnts.occupied_heat			POINT51	
nciSetPnts.standby_heat			POINT52	
nciSetPnts.unocc_heat			POINT53	
nviCOUNT1	IAQS		POINT54	
nvoCOUNT1	IAQI		POINT55	
nvoCOUNT2	OAQ		POINT56	
nvoCOUNTinc1	FLTS		POINT57	
nvoCOUNTinc2			POINT58	

nvoTEMPDIFF1 - 2 Use these 2 decisions to specify the names of the analog CCN points that the LON system will read to indicate additional rooftop differential temperatures.

LON Variable Type SNVT_temp_diff
Read/Write Access Read
Example SH_A
Suction Superheat

nviDISCRETE1 - 3 Use these 3 decisions to specify the names of the discrete CCN points that the LON system will write to in order to set additional discrete operating parameters.

LON Variable Type SNVT_switch
Read/Write Access Write
Example EMSTOP
Emergency Stop

nvoDISCRETE1 - 8 Use these 8 decisions to specify the names of the discrete CCN points that the LON system will read to indicate additional discrete operating parameters.

LON Variable Type SNVT_switch
Read/Write Access Read
Example FANS_1
Fan 1 Relay

nciCO2Limit Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the CO2 threshold value.

LON Variable Type SNVT_ppm
Read/Write Access Write
Example IAQS
Indoor Air Quality Setpoint

nciSetpnts.occupied_cool Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the occupied cooling setpoint.

LON Variable Type SNVT_temp_setpt
Read/Write Access Write
Example OCSP
Occupied Cool Setpoint

nciSetpnts.standby_cool	<p>Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the cooling setpoint in standby mode.</p> <p>Note: Most CCN rooftops do not use this mode.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p>
nciSetpnts.unocc_cool	<p>Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the unoccupied cooling setpoint.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p> <p>Example UCSP Unoccupied Cool Setpoint</p>
nciSetpnts.occupied_heat	<p>Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the occupied heating setpoint.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p> <p>Example OHSP Occupied Heat Setpoint</p>
nciSetpnts.standby_heat	<p>Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the heating setpoint in standby mode.</p> <p>Note: Most CCN rooftops do not use this mode.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p>
nciSetpnts.unocc_heat	<p>Use this decision to provide the name of the analog CCN point that the LON system will write to in order to set the unoccupied heating setpoint.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p> <p>Example UHSP Unoccupied Heat Setpoint</p>

nviCOUNT1

Use this decision to specify the name of the analog or multi-state CCN point that the LON system will write to in order to set additional analog or multi-state operating parameters.

LON Variable Type	SNVT_count
Read/Write Access	Write
Example	OASP OA cfm Setpoint

nvoCOUNT1 - 2

Use these 2 decisions to specify the names of the analog or multi-state CCN points that the LON system will read in order to obtain additional analog or multi-state values.

LON Variable Type	SNVT_count
Read/Write Access	Read
Example	OACFM OA Airflow

nvoCOUNTinc1 - 2

Use these 2 decisions to specify the names of the analog or multi-state CCN points that the LON system will read in order to obtain additional analog or multi-state values.

LON Variable Type	SNVT_count_inc
Read/Write Access	Read
Example	OACFM OA Airflow

Generic Mapping Configuration (GNRCMAP1)

Table 1

The Carrier Translator's GNRCMAP1 Table is used to map or associate CCN points with the variables in the LonWorks generic controller profile. This table should be configured if the Carrier Translator CONFIG Table's Device Type decision was set to 3 (Generic). This table could be used, for example, to allow LON access to an air handler. A sample GNRCMAP1 Table is shown on the page which follows. An explanation of each decision, including LonWorks read/write access, LON Variable Type, along with an example CCN point name follows. The decision explanations and example point names below are taken from a CCN air handler. Keep in mind, however, that the generic controller profile can also be used with other types of CCN controllers.

Allowable Entries and Default Value

CCN point names can consist of up to 8 characters. The default for each decision is blank.

nvoUnitStatus.mode

Use this decision to specify the name of the discrete CCN point that the LON system can read in order to indicate the air handler's operating mode.

Note: Most CCN air handlers do not contain this point.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

nvoUnitStatus.heat_out_p

Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current primary heat capacity in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example HCV
Heating Coil Valve%

nvoUnitStatus.heat_out_s

Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current secondary heat capacity in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example HCV
Heating Coil Valve%

Figure 3-6
 Generic Mapping 1
 Configuration (GNRCMAP1)
 Table

The screenshot shows a software window titled "LEItest::LEI-LON::GNRCMAP1: Configuration". Below the title bar is a toolbar with various icons and a "Direct connection" label. A search bar contains the text "nvoUnitStatus.mode". Below this is a table with the following data:

Description	Value	Units	Name	Notes
nvoUnitStatus.mode			POINT01	
nvoUnitStatus.heat_out_p	HCAP		POINT02	
nvoUnitStatus.heat_out_s			POINT03	
nvoUnitStatus.cool_out	CCAP		POINT04	
nvoUnitStatus.econ_out	MIXDCAP		POINT05	
nvoUnitStatus.fan_out			POINT06	
nvoUnitStatus.in_alarm	ALARM		POINT07	
nviOccSchedule			POINT08	
nviTEMP1	OAT		POINT09	
nviTEMP2			POINT10	
nviTEMP3			POINT11	
nvoTEMP1	SPT		POINT12	
nvoTEMP2	OAT		POINT13	
nvoTEMP3	SAT		POINT14	
nvoTEMP4	MAT		POINT15	
nvoTEMP5			POINT16	
nvoTEMP6			POINT17	
nvoTEMP7			POINT18	
nvoTEMP8			POINT19	
nviPRESS1	SP		POINT20	
nviPRESS2			POINT21	
nvoPRESS1	SP		POINT22	
nvoPRESS2			POINT23	
nvoPRESS3			POINT24	
nvoPRESS4			POINT25	
nvoPRESS5			POINT26	
nvoPRESS6			POINT27	
nvoTEMPDIFF1			POINT28	
nvoTEMPDIFF2			POINT29	

nvoUnitStatus.cool_out Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current cooling capacity in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example CCV
Cooling Coil Valve

nvoUnitStatus.econ_out Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current economizer position in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

nvoUnitStatus.fan_out Use this decision to specify the name of the analog CCN point that the LON system can read in order to indicate the current fan speed in percent full scale.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

Example VFD
Variable Frequency Drive Speed %

nvoUnitStatus.in_alarm Use this decision to provide the name of the discrete CCN point that the LON system can read in order to indicate the alarm status of the air handler.

Note: Most CCN air handlers do not contain this point.

LON Variable Type SNVT_hvac_status

Read/Write Access Read

nviOccSchedule

Use this decision to specify the name of the CCN occupancy schedule that the LON system can write to in order to set occupancy times.

Note: The CCN unit must be configured to use a global occupancy schedule (Allowable entries: OCCPC65E to OCCPC99E). Refer to the CCN documentation for additional information on the setup of the global occupancy schedule.

LON Variable Type SNVT_tod_event
Read/Write Access Write
Example OCCPC66E
Occupancy Equipment

nviTEMP1 - 3

Use these 3 decisions to specify the name of the analog CCN point that the LON system can write to in order to set an additional air handler operating temperature.

LON Variable Type SNVT_temp_p
Read/Write Access Write
Example OAT
Outdoor Air Temperature

nvoTEMP1 - 8

Use these 8 decisions to specify the analog CCN point names that the LON system can read in order to indicate additional air handler operating temperatures.

LON Variable Type SNVT_temp_p
Read/Write Access Read
Example SAT
Supply Air Temperature

nviPRESS1 - 2

Use these 2 decisions to specify the name of the analog CCN point that the LON system can write to in order to set an additional air handler operating pressure.

Note: 1. Most CCN air handlers do not allow write access to this point.
2. PRESS1 is for use with points having units of "H2O (Pa).
3. PRESS2 is for use with points having units of psi (kPa).

LON Variable Type PRESS1: SNVT_press_p
PRESS2: SNVT_press
Read/Write Access Write

nvoPRESS1 - 6

Use these 6 decisions to specify the names of the analog CCN point that the LON system can read in order to indicate additional air handler operating pressures.

- Note:**
1. PRESS1-2 are for use with points having units of "H2O (Pa).
 2. PRESS3-6 are for use with points having units of psi (kPa).

LON Variable Type	PRESS1-2: SNVT_press_p PRESS3-6: SNVT_press
Read/Write Access	Read
Example	SP Static Pressure

nvoTEMPDIFF1 - 2

Use these 2 decisions to specify the names of the analog CCN points that the LON system can read in order to indicate additional air handler differential temperatures.

- Note:** Most CCN air handlers do not contain these points.

LON Variable Type	SNVT_temp_diff
Read/Write Access	Read

Generic Mapping Configuration (GNRCMAP2) Table 2

The Carrier Translator's GNRCMAP2 Table is used to map or associate CCN points with the variables in the LonWorks generic profile. This table, in addition to the GNRCMAP1 Table, should be configured if the Carrier Translator CONFIG Table's Device Type decision was set to 3 (Generic). A sample GNRCMAP2 Table is shown below. An explanation of each decision, including LonWorks read/write access, LON Variable Type, along with an example CCN point name follows. The decision explanations and example point names below are taken from a CCN air handler. Keep in mind, however, that the generic controller profile can also be used with other types of CCN controllers.

CCN point names can consist of up to 8 characters. The default for each decision is blank.

nviPCT1 - 2

Use these 2 decisions to specify the names of the analog CCN points that the LON system will write to in order to set additional operating parameters in percentage.

LON Variable Type	SNVT_lev_percent
Read/Write Access	Write
Example	MIXD Mixed Air Damper

Figure 3-7
 Generic Mapping 2
 Configuration (GNRCMAP2)
 Table

The screenshot shows a software window titled "LEItest::LEI-LON::GNRCMAP2: Configuration" with a "Direct connection" status. A search bar contains "nviPCT1". Below it is a table with columns: Description, Value, Units, Name, and Notes. The table lists various points such as nviPCT1 through nvoCOUNT2, each with associated values and units.

Description	Value	Units	Name	Notes
nviPCT1	RH		POINT30	
nviPCT2			POINT31	
nvoPCT1	RH		POINT32	
nvoPCT2			POINT33	
nvoPCT3			POINT34	
nvoPCT4			POINT35	
nviDISCRETE1	FANSPD		POINT36	
nviDISCRETE2	FLTS		POINT37	
nviDISCRETE3			POINT38	
nvoDISCRETE1	FANSPD		POINT39	
nvoDISCRETE2	FLTS		POINT40	
nvoDISCRETE3	SFS		POINT41	
nvoDISCRETE4	REMOTE		POINT42	
nvoDISCRETE5	ENTH		POINT43	
nvoDISCRETE6	D11		POINT44	
nvoDISCRETE7	D12		POINT45	
nvoDISCRETE8			POINT46	
nciSetPnts.occupied_cool			POINT47	
nciSetPnts.standby_cool			POINT48	
nciSetPnts.unocc_cool			POINT49	
nciSetPnts.occupied_heat			POINT50	
nciSetPnts.standby_heat			POINT51	
nciSetPnts.unocc_heat			POINT52	
nviPPM	AQ		POINT53	
nvoPPM	AQ		POINT54	
nviCOUNT1			POINT55	
nvoCOUNT1	MODE		POINT56	
nvoCOUNT2			POINT57	
nvoCOUNTinc1			POINT58	
nvoCOUNTinc2			POINT59	

nvoPCT1 - 4

Use these 4 decisions to specify the names of the analog CCN points that the LON system can read in order to indicate additional air handler operating parameters in percentage.

LON Variable Type SNVT_lev_percent
Read/Write Access Read
Example RFVC
 Return Fan Volume Control

nviDISCRETE1 - 3

Use these 3 decisions to specify the names of the discrete CCN points that the LON system can write to in order to set additional discrete operating parameters.

LON Variable Type SNVT_switch
Read/Write Access Write
Example FLTS
 Filter Status

nvoDISCRETE1 - 8

Use these 8 decisions to specify the names of the discrete CCN points that the LON system can read in order to indicate additional discrete operating parameters.

LON Variable Type SNVT_switch
Read/Write Access Read
Example FANS_1
 Fan 1 Relay

nciSetpnnts.occupied_cool

Use this decision to provide the name of the analog CCN point that the LON system can write to in order to set the occupied cooling setpoint.

LON Variable Type SNVT_temp_setpt
Read/Write Access Write
Example OCSP
 Occupied Cool Setpoint

nciSetpnnts.standby_cool

Use this decision to provide the name of the analog CCN point that the LON system can write to in order to set the cooling setpoint in standby mode.

Note: Most CCN air handlers do not use this mode.

LON Variable Type SNVT_temp_setpt
Read/Write Access Write

nciSetpnts.unocc_cool	<p>Use this decision to provide the name of the analog CCN point that the LON system can write to in order to set the unoccupied cooling setpoint.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p> <p>Example UCSP Unoccupied Cool Setpoint</p>
nciSetpnts.occupied_heat	<p>Use this decision to provide the name of the analog CCN point that the LON system can write to in order to set the occupied heating setpoint.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p> <p>Example OHSP Occupied Heat Setpoint</p>
nciSetpnts.standby_heat	<p>Use this decision to provide the name of the analog CCN point that the LON system can write to in order to set the heating setpoint in standby mode.</p> <p>Most CCN air handlers do not contain this point.</p> <p>LON Variable Type SNVT_temp_setpt</p> <p>Read/Write Access Write</p>
nviPPM1	<p>Use this decision to specify the name of the analog CCN point that the LON system will write to in order to set an additional operating parameter in PPM.</p> <p>LON Variable Type SNVT_ppm</p> <p>Read/Write Access Write</p> <p>Example AQ1 Air Quality 1 (ppm)</p>
nvoPPM1	<p>Use this decision to specify the name of the analog CCN point that the LON system will read in order to obtain an additional analog values in PPM.</p> <p>LON Variable Type SNVT_ppm</p> <p>Read/Write Access Read</p> <p>Example AQ1 Air Quality 1 (ppm)</p>

nviCOUNT1

Use this decision to specify the name of the analog or multi-state CCN point that the LON system will write to in order to set additional analog or multi-state operating parameters.

LON Variable Type	SNVT_count
Read/Write Access	Write
Example	OASP OAcfm Setpoint

nvoCOUNT1 - 2

Use these 2 decisions to specify the names of the analog or multi-state CCN points that the LON system will read in order to obtain additional analog or multi-state values.

LON Variable Type	SNVT_count
Read/Write Access	Read
Example	OACFM OAAirflow

nvoCOUNTinc1 - 2

Use these 2 decisions to specify the names of the analog or multi-state CCN points that the LON system will read in order to obtain additional analog or multi-state values.

LON Variable Type	SNVT_count_inc
Read/Write Access	Read
Example	OACFM OAAirflow

Maintenance

Maintenance

The Carrier Translator contains the maintenance tables listed below.

CHLRMNT1	Chiller Maintenance Table 1
CHLRMNT2	Chiller Maintenance Table 2
COMMSTAT	Communication Status Maintenance Table
GNRCMNT1	Generic Maintenance Table 1
GNRCMNT2	Generic Maintenance Table 2
MESSAGES	Messages Maintenance Table
RTUMNT1	Rooftop Maintenance Table 1
RTUMNT2	Rooftop Maintenance Table 2

The maintenance values displayed in these tables are read-only values that show the current value of the CCN points that have been mapped to the Lonworks variables as the points exist in the CCN system element. These values are updated every 30 seconds. Note that if a LonWorks read (nvo) and write (nvi) variable have been mapped to the same CCN point, they will display the same value in the maintenance table display.

Chiller Maintenance (CHLRMNT1) Table 1

Figure 4-1 on the page which follows illustrates the Chiller Maintenance (CHLRMNT1) Table. An explanation of each value in the table follows. Note that the valid display ranges are dependent on the point.

nviChillerEnable	Indicates the commanded state of the chiller (on or off).
nviCoolSetpt	Indicates the commanded value for the leaving chilled water temperature setpoint when the chiller is operating in cooling mode.
nvoOnOff	Indicates the chiller's current status (on/off). Note: Most CCN chillers do not contain this point.
nvoActiveSetpt	Indicates the current value of the chiller's cooling or heating setpoint. The setpoint to be displayed (cooling or heating) depends on the chiller's current operating mode.
nviCapacityLim	Indicates the commanded value for the capacity limit of the chiller.

Figure 4-1
 Chiller Maintenance
 (CHLRMNT1)
 Table 1

Description	Value	Units	Status	Force	Name	Notes
nviChillerEnable	1				POINT01	
nviCoolSetpt	44.0	dF			POINT02	
nvoOnOff	0				POINT03	
nvoActiveSetpt	44.0	dF			POINT04	
nviCapacityLim	100.0	%			POINT05	
nviHeatSetpt	0.0	dF			POINT06	
nvoActualCapacity	0.0	%			POINT07	
nvoCapacityLim	100.0	%			POINT08	
nvoLvgCHWTemp	-40.0	dF			POINT09	
nvoEntCHWTemp	-40.0	dF			POINT10	
nvoEntCNDWTemp	0.0	dF			POINT11	
nvoLvgCNDWTemp	0.0	dF			POINT12	
nvoChillerStat.run_mode	0				POINT13	
nvoChillerStat.op_mode	0				POINT14	
nvoChillerStat.in_alarm	0				POINT15	
nvoChillerStat.run_enabl	0				POINT16	
nvoChillerStat.Local	0				POINT17	
nvoChillerStat.Limited	0				POINT18	
nvoChillerStat.chw_flow	0.00	GPM			POINT19	
nvoChillerStat.cndw_flow	0.00	GPM			POINT20	
nviOccSchedule	0				POINT21	

nviHeatSetpt	Indicates the commanded heating setpoint.
nvoActualCapacity	Indicates the current running capacity of the chiller.
nvoCapacityLim	Indicates the chiller's current capacity limit setpoint.
nvoLvgCHWTemp	Indicates the leaving chilled water temperature.
nvoEntCHWTemp	Indicates the entering chilled water temperature.
nvoEntCNDWTemp	Indicates the entering condenser water temperature.
nvoLvgCNDWTemp	Indicates the leaving condenser water temperature.
nvoChillerStat.run_mode	Indicates the main running mode of the chiller. Note: Most CCN chillers do not contain this point.
nvoChillerStat.op_mode	Indicates the main operating status of the chiller. Note: Most CCN chillers do not contain this point.
nvoChillerStat.in_alarm	Indicates the alarm status of the chiller. Note: Most CCN chillers do not contain this point.
nvoChillerStat.run_enabl	Indicates the start or stop status of the chiller.
nvoChillerStat.Local	Indicates the chiller's local or network control status. Note: Most CCN chillers do not contain this point.
nvoChillerStat.Limited	Indicates if the chiller cannot reach setpoint. Note: Most CCN chillers do not contain this point.
nvoChillerStat.chw_flow	Indicates the presence of chilled water flow.
nvoChillerStat.cndw_flow	Indicates the presence of condenser water flow.
nviOccSchedule	Indicates the next commanded occupancy state, as determined by the CCN global occupancy equipment table.

Chiller Maintenance (CHLMNT2) Table 2

Figure 4-2 shown below illustrates the Chiller Maintenance (CHLRMNT2) Table. An explanation of each value in the table follows. Note that the valid display ranges are dependent on the point.

Figure 4-2
Chiller Maintenance (CHLRMNT2) Table 2

Description	Value	Units	Status	Force	Name	Notes
nviTEMP1	0.00	dF			POINT 22	
nvoTEMP1	-40.0	dF			POINT 23	
nvoTEMP2	-40.0	dF			POINT 24	
nvoTEMP3	0.00	dF			POINT 25	
nvoTEMP4	0.00	dF			POINT 26	
nvoTEMP5	0.00	dF			POINT 27	
nvoTEMP6	0.00	dF			POINT 28	
nviPRESS1	0.00	PSI			POINT 29	
nvoPRESS1	0.00	PSI			POINT 30	
nvoPRESS2	0.00	PSI			POINT 31	
nvoPRESS3	0.00	PSI			POINT 32	
nvoPRESS4	0.00	PSI			POINT 33	
nvoPCT1	0.0	%			POINT 34	
nvoPCT2	0.0	%			POINT 35	
nvoTEMPDIFF1	0.00	^F			POINT 36	
nvoTEMPDIFF2	0.00	^F			POINT 37	
nviDISCRETE1	0				POINT 38	
nviDISCRETE2	0				POINT 39	
nvoDISCRETE1	1				POINT 40	
nvoDISCRETE2	0				POINT 41	
nvoDISCRETE3	0				POINT 42	
nvoDISCRETE4	0				POINT 43	
nvoDISCRETE5	1				POINT 44	
nvoDISCRETE6	0				POINT 45	
nviCOUNT1	0				POINT 46	
nvoCOUNT1	4				POINT 47	
nvoCOUNT2	1				POINT 48	
nvoCOUNTinc1	0				POINT 49	
nvoCOUNTinc2	0				POINT 50	

nviTEMP1	Indicates an additional chiller commanded operating temperature.
nvoTEMP1 - 6	Indicates additional chiller operating temperatures.
nviPRESS1	Indicates an additional chiller commanded operating pressure.
nvoPRESS1 - 4	Indicates additional chiller operating pressures.
nvoPCT1 - 2	Indicates additional chiller operating parameters in percentage.
nvoTEMPDIFF1 - 2	Indicates additional chiller differential temperatures.
nviDISCRETE1 - 2	Indicates additional commanded discrete operating parameters.
nvoDISCRETE1 - 6	Indicates additional discrete operating parameters.
nviCOUNT1	Indicates chiller commanded analog or multi-state parameter. Note: This point will always display in customary US units.
nvoCOUNT1 - 2	Indicate chiller analog or multi-state values. Note: These points will always display in customary US units.
nvoCOUNTinc1 - 2	Indicate chiller analog or multi-state values. Note: These points will always display in customary US units.

**Rooftop
Maintenance
(RTUMNT1)
Table 1**

Figure 4-3 on the page which follows illustrates the Rooftop Maintenance (RTUMNT1) Table. The maintenance values displayed in this table are read-only values that show the current value of the CCN points that have been mapped to the Lonworks variables as the points exist in the CCN system element. These values are updated every 30 seconds. An explanation of each value in the table follows. Note that the valid display ranges are dependent on the point.

nviSpaceTemp	Indicates the commanded space temperature.
nviSetPoint	Indicates the commanded temperature setpoint.
nvoSpaceTemp	Indicates the space temperature.
nvoUnitStatus.mode	Indicates the rooftop's operating mode. Note: Most CCN rooftops do not contain this point.
nvoUnitStatus.heat_out_p	Indicates the current primary heat capacity in percent full scale.
nvoUnitStatus.heat_out_s	Indicates the current secondary heat capacity in percent full scale.
nvoUnitStatus.cool_out	Indicates the current cooling capacity in percent full scale.
nvoUnitStatus.econ_out	Indicates the current economizer position in percent full scale.
nvoUnitStatus.fan_out	Indicates the current fan speed in percent full scale. Note: Most CCN rooftops do not contain this point.
nvoUnitStatus.in_alarm	Indicates the alarm status of the chiller. Notes: Most CCN rooftops do not contain this point.
nviOccSchedule	Indicates the next commanded occupancy state, as determined by the CCN global occupancy equipment table.
nviSetptOffset	Indicates the commanded temperature setpoint offset. Notes: Most CCN rooftops do not contain this point. Metric points will always assume ^T, even if the point is mapped to a temperature.

Figure 4-3
Rooftop Maintenance
(RTUMNT1)
Table 1

Description	Value	Units	Status	Force	Name	Notes
nviSpaceTemp	75.00	dF			POINT01	
nviSetPoint	82.00	dF			POINT02	
nvoSpaceTemp	75.00	dF			POINT03	
nvoUnitStatus.mode	0				POINT04	
nvoUnitStatus.heat_out_p	0.00	%			POINT05	
nvoUnitStatus.heat_out_s	0.00	%			POINT06	
nvoUnitStatus.cool_out	0.00	%			POINT07	
nvoUnitStatus.econ_out	20.00	%			POINT08	
nvoUnitStatus.fan_out	0.00	%			POINT09	
nvoUnitStatus.in_alarm	0				POINT10	
nviOccSchedule	0				POINT11	
nviSetPtOffset	0.00	^F			POINT12	
nviOutsideTemp	82.00	dF			POINT13	
nviOutsideRH	0.00	%RH			POINT14	
nvoEffectSetpt	82.00	dF			POINT15	
nvoOutsideTemp	82.00	dF			POINT16	
nvoOutsideRH	0.00	%RH			POINT17	
nviSpaceRH	0.00	%RH			POINT18	
nviCO2	0.00				POINT19	
nvoCO2	0.00				POINT20	
nviTEMP1	75.00	dF			POINT21	
nvoTEMP1	75.00	dF			POINT22	
nvoTEMP2	82.00	dF			POINT23	
nvoTEMP3	75.00	dF			POINT24	
nvoTEMP4	0.00	dF			POINT25	
nviPRESS1	0.00	in H2O			POINT26	
nvoPRESS1	0.00	in H2O			POINT27	
nvoPRESS2	0.00	in H2O			POINT28	

nviOutsideTemp	Indicates the commanded outside air temperature.
nviOutsideRH	Indicates the commanded outside air relative humidity.
nvoEffectSetpt	Indicates the setpoint temperature.
nvoOutsideTemp	Indicates the outside air temperature.
nvoOutsideRH	Indicates the outside air relative humidity.
nviSpaceRH	Indicates the commanded space relative humidity.
nviCO2	Indicates the commanded CO2 level in ppm.
nvoCO2	Indicates the commanded CO2 level in ppm.
nviTEMP1	Indicates an additional rooftop commanded operating temperature.
nvoTEMP1-4	Indicate additional rooftop operating temperatures.
nviPRESS1	Indicates an additional rooftop commanded operating pressure.
nvoPRESS1 - 2	Indicate additional rooftop operating pressures.

**Rooftop
Maintenance
(RTUMNT2)
Table 2**

Figure 4-4 illustrates the Rooftop Maintenance (RTUMNT2) Table. The maintenance values displayed in this table are read-only values that show the current value of the CCN points that have been mapped to the Lonworks variables as the points exist in the CCN system element. These values are updated every 30 seconds. An explanation of each value in the table follows. Note that the valid display ranges are dependent on the point.

nviPCT1-2	Indicate rooftop commanded parameters in percentage.
nvoPCT1-3	Indicate additional rooftop operating parameters in percentage.
nvoTEMPDIFF1 - 2	Indicate additional rooftop differential temperatures.
nviDISCRETE1 - 3	Indicate additional discrete commanded operating parameters.

nvoDISCRETE1 - 8	Indicate additional discrete commanded operating parameters.
nciCO2Limit	Indicates the commanded CO2 threshold value.
nciSetpnts.occupied_cool	Indicates the commanded occupied cooling setpoint.
nciSetpnts.standby_cool	Indicates the commanded cooling setpoint in standby mode. Note: Most CCN rooftops do not use this mode.
nciSetpnts.unocc_cool	Indicates the commanded unoccupied cooling setpoint.
nciSetpnts.occupied_heat	Indicates the commanded occupied heating setpoint.
nciSetpnts.standby_heat	Indicates the commanded heating setpoint in standby mode. Note: Most CCN rooftops do not use this mode.
nciSetpnts.unocc_heat	Indicates the commanded unoccupied heating setpoint.
nviCOUNT1	Indicates a rooftop commanded analog or multi-state parameter. Note: This point will always display in customary US units.
nvoCOUNT1 - 2	Indicate rooftop analog or multi-state values. Note: These points will always display in customary US units.
nvoCOUNTinc1 - 2	Indicates rooftop analog or multi-state values. Note: These points will always display in customary US units.

Figure 4-4
 Rooftop Maintenance
 (RTUMNT2)
 Table 2

The screenshot shows a software window titled "LEITest::LEI-LON::RTUMNT2: Maintenance Display". The window contains a toolbar with various icons and a "Direct connection" status indicator. Below the toolbar is a search bar containing "nviPCT1". The main area is a table with the following data:

Description	Value	Units	Status	Force	Name	Notes
nviPCT1	20.00	%			POINT29	
nviPCT2	0.00	%			POINT30	
nvoPCT1	0.00	%			POINT31	
nvoPCT2	20.00	%			POINT32	
nvoPCT3	0.00	%			POINT33	
nvoTEMPDIFF1	2.00	^F			POINT34	
nvoTEMPDIFF2	0.00	^F			POINT35	
nviDISCRETE1	1				POINT36	
nviDISCRETE2	0				POINT37	
nviDISCRETE3	1				POINT38	
nvoDISCRETE1	1				POINT39	
nvoDISCRETE2	0				POINT40	
nvoDISCRETE3	0				POINT41	
nvoDISCRETE4	0				POINT42	
nvoDISCRETE5	0				POINT43	
nvoDISCRETE6	0				POINT44	
nvoDISCRETE7	0				POINT45	
nvoDISCRETE8	0				POINT46	
nciCO2Limit	0.00				POINT47	
nciSetPnts.occupied_cool	0.00	dF			POINT48	
nciSetPnts.standby_cool	0.00	dF			POINT49	
nciSetPnts.unocc_cool	0.00	dF			POINT50	
nciSetPnts.occupied_heat	0.00	dF			POINT51	
nciSetPnts.standby_heat	0.00	dF			POINT52	
nciSetPnts.unocc_heat	0.00	dF			POINT53	
nviCOUNT1	1150				POINT54	
nvoCOUNT1	1050				POINT55	
nvoCOUNT2	500				POINT56	
nvoCOUNTinc1	1				POINT57	
nvoCOUNTinc2	0				POINT58	

**Generic
Maintenance
(GNRCMNT1)
Table 1**

Figure 4-5 on the page which follows illustrates the Generic Maintenance (GNRCMNT1) Table. The maintenance values displayed in this table are read-only values that show the current value of the CCN points that have been mapped to the Lonworks variables as the points exist in the CCN system element. These values are updated every 30 seconds. An explanation of each value in the table follows. Note that the valid display ranges are dependent on the point.

nvoUnitStatus.mode	Indicates the controller's operating mode. Note: Most CCN controllers do not contain this point.
nvoUnitStatus.heat_out_p	Indicates the current primary heat capacity in percent full scale.
nvoUnitStatus.heat_out_s	Indicates the current secondary heat capacity in percent full scale.
nvoUnitStatus.cool_out	Indicates the current cooling capacity in percent full scale.
nvoUnitStatus.econ_out	Indicates the current economizer position in percent full scale.
nvoUnitStatus.fan_out	Indicates the current fan speed in percent full scale.
nvoUnitStatus.in_alarm	Indicates the alarm status of the controller. Note: Most CCN air handlers do not contain this point.
nviOccSchedule	Indicates the next commanded occupancy state, as determined by the CCN global occupancy equipment table.
nviTEMP1 - 3	Indicates an additional controller commanded operating temperature.
nvoTEMP1 - 8	Indicate additional controller operating temperatures.
nviPRESS1 - 2	Indicate additional controller commanded operating pressures. Note: Most CCN controllers do not allow write access to this point.
nvoPRESS1 - 6	Use these 6 decisions to specify the names of the analog CCN point that will indicate additional controller operating pressures.
nvoTEMPDIFF1 - 2	Indicate additional controller differential temperatures. Note: Most CCN air handlers do not contain this point.

Figure 4-3
 Generic Maintenance
 (GNRCMNT1)
 Table 1

Description	Value	Units	Status	Force	Name	Notes
nvoUnitStatus.mode	0				POINT01	
nvoUnitStatus.heat_out_p	0.00	%			POINT02	
nvoUnitStatus.heat_out_s	0.00	%			POINT03	
nvoUnitStatus.cool_out	0.00	%			POINT04	
nvoUnitStatus.econ_out	0.00	%			POINT05	
nvoUnitStatus.fan_out	0.00	%			POINT06	
nvoUnitStatus.in_alarm	1				POINT07	
nviOccSchedule	0				POINT08	
nviTEMP1	84.50	dF			POINT09	
nviTEMP2		dF			POINT10	
nviTEMP3	0.00	dF			POINT11	
nvoTEMP1	75.00	dF			POINT12	
nvoTEMP2	84.50	dF			POINT13	
nvoTEMP3	82.00	dF			POINT14	
nvoTEMP4	77.00	dF			POINT15	
nvoTEMP5	0.00	dF			POINT16	
nvoTEMP6	0.00	dF			POINT17	
nvoTEMP7	0.00	dF			POINT18	
nvoTEMP8	0.00	dF			POINT19	
nviPRESS1	5.00	in H2O			POINT20	
nviPRESS2	0.00	PSI			POINT21	
nvoPRESS1	5.00	in H2O			POINT22	
nvoPRESS2	0.00	in H2O			POINT23	
nvoPRESS3	0.00	PSI			POINT24	
nvoPRESS4	0.00	PSI			POINT25	
nvoPRESS5	0.00	PSI			POINT26	
nvoPRESS6	0.00	PSI			POINT27	
nvoTEMPDIFF1	0.00	^F			POINT28	
nvoTEMPDIFF2	0.00	^F			POINT29	

**Generic Mapping
Maintenance
(GNRCMNT2)
Table 2**

Figure 4-6 on the page which follows illustrates the Generic Maintenance (GNRCMNT2) Table. The maintenance values displayed in this table are read-only values that show the current value of the CCN points that have been mapped to the Lonworks variables as the points exist in the CCN system element. These values are updated every 30 seconds. An explanation of each value in the table follows. Note that the valid display ranges are dependent on the point.

nviPCT1 - 2	Indicate additional controller commanded parameters in percentage.
nvoPCT1 - 4	Indicate additional controller operating parameters in percentage.
nviDISCRETE1 - 3	Indicate additional commanded discrete operating parameters.
nvoDISCRETE1 - 8	Indicate additional discrete operating parameters.
nciSetpnts.occupied_cool	Indicates the commanded occupied cooling setpoint.
nciSetpnts.standby_cool	Indicates the commanded cooling setpoint in standby mode. Note: Most CCN controllers do not use this mode.
nciSetpnts.unocc_cool	Indicates the commanded unoccupied cooling setpoint.
nciSetpnts.occupied_heat	Indicates the commanded occupied heating setpoint.
nciSetpnts.standby_heat	Indicates the commanded heating setpoint in standby mode. Note: Most CCN controllers do not contain this point.
nviPPM	Indicates a commanded parameter in PPM.
nvoPPM	Indicates an analog value in PPM.
nviCOUNT1	Indicates a commanded analog or multi-state parameter. Note: This point will always display in customary US units.
nvoCOUNT1 - 2	Indicate analog or multi-state values. Note: These points will always display in customary US units.
nvoCOUNTinc1 - 2	Indicate analog or multi-state values. Note: These points will always display in customary US units.

Figure 4-6
 Generic Mapping 2
 Maintenance (GNRCMNT2)
 Table

Description	Value	Units	Status	Force	Name	Notes
nviPCT1	0.0	%			POINT30	
nviPCT2	0.0	%			POINT31	
nvoPCT1	0.0	%			POINT32	
nvoPCT2	0.0	%			POINT33	
nvoPCT3	0.0	%			POINT34	
nvoPCT4	0.0	%			POINT35	
nviDISCRETE1	0				POINT36	
nviDISCRETE2	1				POINT37	
nviDISCRETE3	0				POINT38	
nvoDISCRETE1	0				POINT39	
nvoDISCRETE2	1				POINT40	
nvoDISCRETE3	0				POINT41	
nvoDISCRETE4	1				POINT42	
nvoDISCRETE5	0				POINT43	
nvoDISCRETE6	0				POINT44	
nvoDISCRETE7	0				POINT45	
nvoDISCRETE8	0				POINT46	
nciSetPnts.occupied_cool	0.00	dF			POINT47	
nciSetPnts.standby_cool	0.00	dF			POINT48	
nciSetPnts.unocc_cool	0.00	dF			POINT49	
nciSetPnts.occupied_heat	0.00	dF			POINT50	
nciSetPnts.standby_heat	0.00	dF			POINT51	
nciSetPnts.unocc_heat	0.00	dF			POINT52	
nviPPM	500				POINT53	
nvoPPM	500				POINT54	
nviCOUNT1	0				POINT55	
nvoCOUNT1	0				POINT56	
nvoCOUNT2	0				POINT57	
nvoCOUNTinc1	0				POINT58	
nvoCOUNTinc2	0				POINT59	

Communication Status Maintenance (COMMSTAT) Table

Figure 4-7 below illustrates the Communication Status Maintenance (COMMSTAT) Table. The maintenance values displayed in this table are read-only values that show diagnostic data about LonWorks-to-CCN system element communication. These values are updated every 30 seconds. An explanation of each value in the table follows.

Note: This information is primarily intended to be used by the Lon systems integrator for troubleshooting.

Figure 4-7
Communications Status Maintenance (COMMSTAT) Table

The screenshot shows a software window titled "LEItest::LEI-LON::COMMSTAT: Maintenance Display" with a toolbar and a table of communication statistics. The table has columns for Description, Value, Units, Status, Force, Name, and Notes. The data is as follows:

Description	Value	Units	Status	Force	Name	Notes
Num Successful Messages	11378				COMMGOOD	
Num Failed Messages	0				COMMFAIL	
Communication History 1						
Communication Type	1				TYPE1	
Successful?	Yes				RESULT1	
Communication History 2						
Communication Type	1				TYPE2	
Successful?	Yes				RESULT2	
Communication History 3						
Communication Type	1				TYPE3	
Successful?	Yes				RESULT3	
Communication History 4						
Communication Type	1				TYPE4	
Successful?	Yes				RESULT4	

Num Successful Messages	Indicates the number of successful read, write, and other communication messages sent from LonWorks to the CCN system element. This value is a running total of the number of successful messages detected since the last communication reset. It is not reset on cycling CARRIER TRANSLATOR power. It can be reset, however, using the CONFIG Table's Reset Comm. Counters decision.
	Valid Display 0 - 65,000
Num Failed Messages	Indicates the number of unsuccessful read, write, and other communication messages sent from LonWorks to the CCN system element. This value is a running total of the number of unsuccessful messages detected since the last communication reset. It is not reset on cycling power to the Carrier Translator. It can be reset, however, using the CONFIG Table's Reset Comm. Counters decision.
	Valid Display 0 - 65,000
Communication History 1 - 4	These 4 decisions display the below-listed data about the four most recent LonWorks-to-CCN communication messages.
Communication Type	Indicates the type of communication message.
	Valid Display 1 = Read Network Variable 2 = Write Network Variable 3 = Other
Successful?	Indicates whether or not this communication was successful.
	Valid Display Yes/No

Messages Maintenance (MESSAGES) Table

Figure 4-8 below illustrates the Messages Maintenance (MESSAGES) Table. The maintenance values displayed in this table are read-only values that show diagnostic data about LonWorks-to-CCN system element communication messages. These values are updated every 30 seconds. An explanation of each value in the table follows.

Note: This information is primarily intended to be used by the Lon systems integrator for troubleshooting.

Figure 4-8
Messages Maintenance (MESSAGES) Table

The screenshot shows a software window titled "LEItest::LEI-LON::MESSAGES: Maintenance Display" with a toolbar and a table. The table has columns for Description, Value, Units, Status, Force, Name, and Notes. The data rows list LON Message 1 through 10, all with a value of "Read All NVS".

Description	Value	Units	Status	Force	Name	Notes
LON Message 1	Read All NVS				1	
LON Message 2	Read All NVS				2	
LON Message 3	Read All NVS				3	
LON Message 4	Read All NVS				4	
LON Message 5	Read All NVS				5	
LON Message 6	Read All NVS				6	
LON Message 7	Read All NVS				7	
LON Message 8	Read All NVS				8	
LON Message 9	Read All NVS				9	
LON Message 10	Read All NVS				10	

LON Message 1 - 10

These 10 decisions display diagnostic information about the 10 most recent LonWorks-to-CCN communication messages.

Valid Display

Selfconfiguration
Read all NVs
Propagate NV#
Set NV#
Read NV#

where: NV = Network Variable
= Number of the Network
Variable

The Propagate and Set commands both refer to writes to CCN points. Propagate indicates that the value has not changed, but the Carrier Translator's 30 second refresh has caused Lonworks to write to the CCN point again. Set indicates that Lonworks has written a new value to the CCN point.

Appendix

Appendix

This section contains examples of actual configurations for a chiller, rooftop, and generic template, along with a list of LON SNVTs and corresponding CCN point names and descriptions.

Figure A-2
Sample Configuration for
CHLRMAP1 Table

Job Site:	0,211
LEI Address:	19XR III
Attached Device:	0,1
Attached Device Address:	Chiller Profile
LON Profile:	

CHLRMAP1	SNVT Type	Read or Write?	CCN Point Description	CCN Point Name
nviChillerEnable	SNVT_switch	POINT01	Chiller Start/Stop	CHIL_S_S
nviCoolSetpt	SNVT_temp_p	POINT02	Leaving Chilled Water Control Point	LCW_STPT
nvoOnOff	SNVT_switch	POINT03 .....	.....	.....
nvoActiveSetpt	SNVT_temp_p	POINT04	Leaving Chilled Water Control Point	LCW_STPT
nviCapacityLim	SNVT_lev_percent	POINT05	Active Demand Limit	DEM_LIM
nviHeatSetpt	SNVT_temp_p	POINT06 .....	.....	.....
nvoActualCapacity	SNVT_lev_percent	POINT07	Motor Percent Kilowatts	KW_P
nvoCapacityLim	SNVT_lev_percent	POINT08	Active Demand Limit	DEM_LIM
nvoLvgCHWTemp	SNVT_temp_p	POINT09	Leaving Chilled Water	LCW
nvoEntCHWTemp	SNVT_temp_p	POINT10	Entering Chilled Water	ECW
nvoEntCNDWTemp	SNVT_temp_p	POINT11	Entering Condenser Water	ECDW
nvoLvgCNDWTemp	SNVT_temp_p	POINT12	Leaving Condenser Water	LCDW
nvoChillerStat.run_mode	SNVT_chlr_status	POINT13 .....	.....	.....
nvoChillerStat.op_mode	SNVT_chlr_status	POINT14 .....	.....	.....
nvoChillerStat.in_alarm	SNVT_chlr_status	POINT15 .....	.....	.....
nvoChillerStat.run_enabl	SNVT_chlr_status	POINT16 .....	.....	.....
nvoChillerStat.Local	SNVT_chlr_status	POINT17 .....	.....	.....
nvoChillerStat.Limited	SNVT_chlr_status	POINT18 .....	.....	.....
nvoChillerStat.chw_flow	SNVT_chlr_status	POINT19 .....	.....	.....
nvoChillerStat.cndw_flow	SNVT_chlr_status	POINT20 .....	.....	.....
nviOccSchedule	SNVT_occupancy	POINT21 .....	.....	.....

Figure A-2
Sample Configuration for
CHLRMAP2 Table

CHLRMAP2	SNVT Type	Read or Write?	CCN Point Description	CCN Point Name
nviTEMP1	SNVT_temp_p	W	POINT22	
nvoTEMP1	SNVT_temp_p	R	POINT23	
nvoTEMP2	SNVT_temp_p	R	POINT24	
nvoTEMP3	SNVT_temp_p	R	POINT25	
nvoTEMP4	SNVT_temp_p	R	POINT26	
nvoTEMP5	SNVT_temp_p	R	POINT27	
nvoTEMP6	SNVT_temp_p	R	POINT28	
nviPRESS1	SNVT_press	W	POINT29	
nvoPRESS1	SNVT_press	R	POINT30	Evaporator Refrig Pressure ERP
nvoPRESS2	SNVT_press	R	POINT31	Condenser Refrig Pressure CRP
nvoPRESS3	SNVT_press	R	POINT32	Oil Pump Delta P OILPD
nvoPRESS4	SNVT_press	R	POINT33	
nvoPCT1	SNVT_lev_percent	R	POINT34	Average Line Current AMPS_%
nvoPCT2	SNVT_lev_percent	R	POINT35	
nvoTEMPDIFF1	SNVT_temp_diff_p	R	POINT36	
nvoTEMPDIFF2	SNVT_temp_diff_p	R	POINT37	
nviDISCRETE1	SNVT_switch	W	POINT38	
nviDISCRETE2	SNVT_switch	W	POINT39	
nvoDISCRETE1	SNVT_switch	R	POINT40	Chiller Start/Stop CHIL_S_S
nvoDISCRETE2	SNVT_switch	R	POINT41	Chilled Water Flow Status CHW_FLOW
nvoDISCRETE3	SNVT_switch	R	POINT42	Condenser Water Flow Status CDW_FLOW
nvoDISCRETE4	SNVT_switch	R	POINT43	
nvoDISCRETE5	SNVT_switch	R	POINT44	
nvoDISCRETE6	SNVT_switch	R	POINT45	
nviCOUNT1	SNVT_count	W	POINT46	
nvoCOUNT1	SNVT_count	R	POINT47	Control Mode MODE
nvoCOUNT2	SNVT_count	R	POINT48	Run Status STATUS
nvoCOUNTinc1	SNVT_count_inc	R	POINT49	System Alarm/Alert SYS_ALM
nvoCOUNTinc2	SNVT_count_inc	R	POINT50	

Figure A-3
 CHLRMAP1 Table SNVTs
 and CCN Points

LEI Address:		
Attached Device:		
Attached Device Address:		
LON Profile:		
CHLRMAP1	SNVT Type	Read or Write? .. CCN Point Description
nviChillerEnable	SNVT_switch	W Chiller Start/Stop (1/0)
nviCoolSetpt	SNVT_temp_p	W Chilled Water Control Temp (degF)
nvoOnOff	SNVT_switch	R Chiller On/Off (1/0) (NA)
nvoActiveSetpt	SNVT_temp_p	R Chilled Water Control Temp (degF)
nviCapacityLim	SNVT_lev_percent	W Active Demand Limit (%)
nviHeatSetpt	SNVT_temp_p	W Hot Water Control Temp (degF)
nvoActualCapacity	SNVT_lev_percent	R Percent Capacity (%)
nvoCapacityLim	SNVT_lev_percent	R Active Demand Limit (%)
nvoLvgCHWTemp	SNVT_temp_p	R Leaving Chilled Water Temp (degF)
nvoEntCHWTemp	SNVT_temp_p	R Entering Chilled Water Temp (degF)
nvoEntCNDWTemp	SNVT_temp_p	R Leaving Cond Water Temp (degF)
nvoLvgCNDWTemp	SNVT_temp_p	R Entering Cond Water Temp (degF)
nvoChillerStat.run_mode	SNVT_chir_status	R (NA)
nvoChillerStat.op_mode	SNVT_chir_status	R (NA)
nvoChillerStat.in_alarm	SNVT_chir_status	R Chiller In Alarm (1/0) (NA)
nvoChillerStat.run_enabl	SNVT_chir_status	R Chiller Run Enabled (1/0) (NA)
nvoChillerStat.Local	SNVT_chir_status	R Chiller Local Enabled (1/0) (NA)
nvoChillerStat.Limited	SNVT_chir_status	R Chiller Demand Limited (1/0) (NA)
nvoChillerStat.chw_flow	SNVT_chir_status	R Chilled Water Flow Detected (1/0)
nvoChillerStat.cndw_flow	SNVT_chir_status	R Cond Water Flow Detected (1/0)
nviOccSchedule	SNVT_occupancy	W Global CCN Occupancy (>64)

(NA) Means not generally applicable to CCN

Figure A-4
CHLRMAP2
Table SNVTs
and CCN Points

CHLRMAP2	SNVT Type	Read or Write?	CCN Point Description
nvoTEMP1	SNVT_temp_p	W	Temperature (degF)
nvoTEMP1	SNVT_temp_p	R	Temperature (degF)
nvoTEMP2	SNVT_temp_p	R	Temperature (degF)
nvoTEMP3	SNVT_temp_p	R	Temperature (degF)
nvoTEMP4	SNVT_temp_p	R	Temperature (degF)
nvoTEMP5	SNVT_temp_p	R	Temperature (degF)
nvoTEMP6	SNVT_temp_p	R	Temperature (degF)
nviPRESS1	SNVT_press	W	Pressure (PSI)
nvoPRESS1	SNVT_press	R	Pressure (PSI)
nvoPRESS2	SNVT_press	R	Pressure (PSI)
nvoPRESS3	SNVT_press	R	Pressure (PSI)
nvoPRESS4	SNVT_press	R	Pressure (PSI)
nvoPCT1	SNVT_lev_percent	R	Percent (%)
nvoPCT2	SNVT_lev_percent	R	Percent (%)
nvoTEMPDIFF1	SNVT_temp_diff_p	R	Delta Temperature (°F)
nvoTEMPDIFF2	SNVT_temp_diff_p	R	Delta Temperature (°F)
nviDISCRETE1	SNVT_switch	W	Discrete (1/0)
nviDISCRETE2	SNVT_switch	W	Discrete (1/0)
nvoDISCRETE1	SNVT_switch	R	Discrete (1/0)
nvoDISCRETE2	SNVT_switch	R	Discrete (1/0)
nvoDISCRETE3	SNVT_switch	R	Discrete (1/0)
nvoDISCRETE4	SNVT_switch	R	Discrete (1/0)
nvoDISCRETE5	SNVT_switch	R	Discrete (1/0)
nvoDISCRETE6	SNVT_switch	R	Discrete (1/0)
nviCOUNT1	SNVT_count	W	Generic analog or discrete (0-65535)
nvoCOUNT1	SNVT_count	R	Generic analog or discrete (0-65535)
nvoCOUNT2	SNVT_count	R	Generic analog or discrete (0-65535)
nvoCOUNTinc1	SNVT_count_inc	R	Generic analog or discrete (-32767 -32767)
nvoCOUNTinc2	SNVT_count_inc	R	Generic analog or discrete (-32767 -32767)

Figure A-5
Sample Configuration for
RTUMAP1 Table

Job Site:	0, 204
LEI Address:	48HG Centurian
Attached Device Address:	0, 1
LON Profile:	Roofop

RTUMAP1	SNVT Type	Read or Write?	CCN Point Description	CCN Point Name
nviSpaceTemp	SNVT_temp_p	W		POINT01
nviSetPoint	SNVT_temp_p	W		POINT02
nvoSpaceTemp	SNVT_temp_p	R	Space Temperature	SPT
nvoUnitStatus.mode	SNVT_hvac_status	R		POINT04
nvoUnitStatus.heat_out_p	SNVT_hvac_status	R		POINT05
nvoUnitStatus.heat_out_s	SNVT_hvac_status	R		POINT06
nvoUnitStatus.cool_out	SNVT_hvac_status	R		POINT07
nvoUnitStatus.econ_out	SNVT_hvac_status	R		POINT08
nvoUnitStatus.fan_out	SNVT_hvac_status	R		POINT09
nvoUnitStatus.in_alarm	SNVT_hvac_status	R		POINT10
nviOccSchedule	SNVT_occupancy	W	Occupancy Schedule	OCCPC65E
nviSetPtOffset	SNVT_temp_p	W		POINT12
nviOutsideTemp	SNVT_temp_p	W		POINT13
nviOutsideRH	SNVT_lev_percent	W		POINT14
nvoEffectSetpt	SNVT_temp_p	R		POINT15
nvoOutsideTemp	SNVT_temp_p	R	Outdoor Air Temperature	OAT
nvoOutsideRH	SNVT_lev_percent	R		POINT17
nviSpaceRH	SNVT_lev_percent	W		POINT18
nviCO2	SNVT_ppm	W		POINT19
nvoCO2	SNVT_ppm	R	Indoor Air CO2 Level	IAQ
nviTEMP1	SNVT_temp_p	W		POINT21
nvoTEMP1	SNVT_temp_p	R	Supply Air Temperature	SAT
nvoTEMP2	SNVT_temp_p	R		POINT23
nvoTEMP3	SNVT_temp_p	R		POINT24
nvoTEMP4	SNVT_temp_p	R		POINT25
nviPRESS1	SNVT_press_p	W		POINT26
nvoPRESS1	SNVT_press_p	R		POINT27
nvoPRESS2	SNVT_press_p	R		POINT28

Figure A-6
Sample Configuration
for RTUMAP2 Table

RTUMAP2	SNVT Type	Read or Write?	CCN Point Description	CCN Point Name
nviPCT1	SNVT_lev_percent	W	POINT29	
nviPCT2	SNVT_lev_percent	W	POINT30	
nvoPCT1	SNVT_lev_percent	R	POINT31	Economizer Position
nvoPCT2	SNVT_lev_percent	R	POINT32	Economizer Min. Position in Effect
nvoPCT3	SNVT_lev_percent	R	POINT33	MIN_POS
nvoTEMPDIFF1	SNVT_temp_diff_p	R	POINT34	
nvoTEMPDIFF2	SNVT_temp_diff_p	R	POINT35	
nviDISCRETE1	SNVT_switch	W	POINT36	Currently Occupied
nviDISCRETE2	SNVT_switch	W	POINT37	Unit Shutdown Input
nviDISCRETE3	SNVT_switch	W	POINT38	OCCUPIED
nvoDISCRETE1	SNVT_switch	R	POINT39	Currently Occupied
nvoDISCRETE2	SNVT_switch	R	POINT40	Supply Fan Status
nvoDISCRETE3	SNVT_switch	R	POINT41	Heating Stage 1
nvoDISCRETE4	SNVT_switch	R	POINT42	Heating Stage 2
nvoDISCRETE5	SNVT_switch	R	POINT43	Compressor A1
nvoDISCRETE6	SNVT_switch	R	POINT44	Compressor B1
nvoDISCRETE7	SNVT_switch	R	POINT45	Compressor C1
nvoDISCRETE8	SNVT_switch	R	POINT46	COMP_A1
nciCO2Limit	SNVT_ppm	R	POINT47	COMP_B1
nciSetPnts.occupied_cool	SNVT_temp_setpt	W	POINT48	COMP_C1
nciSetPnts.standby_cool	SNVT_temp_setpt	W	POINT49	Occupied Cooling Setpoint
nciSetPnts.occupied_heat	SNVT_temp_setpt	W	POINT50	OCSP
nciSetPnts.standby_heat	SNVT_temp_setpt	W	POINT51	Unoccupied Cooling Setpoint
nciSetPnts.unocc_cool	SNVT_temp_setpt	W	POINT52	UCSP
nciSetPnts.unocc_heat	SNVT_temp_setpt	W	POINT53	Occupied Heating Setpoint
nviCOUNT1	SNVT_count	W	POINT54	OHSP
nvoCOUNT1	SNVT_count	R	POINT55	Unoccupied Heating Setpoint
nvoCOUNT2	SNVT_count	R	POINT56	UHSP
nvoCOUNTinc1	SNVT_count_inc	R	POINT57	
nvoCOUNTinc2	SNVT_count_inc	R	POINT58	

Figure A-7
RTUMAP1 Table SNVTs and
CCN Points

Job Site:	RTUMAP1	SNVT Type	Read or Write?	CCN Point Description
LEI Address:	nviSpaceTemp	SNVT_temp_p	W	Space Temperature (degF)
Attached Device:	nviSetPoint	SNVT_temp_p	W	Supply Air Setpoint on VAV units (degF)
Attached Device Address:	nvoSpaceTemp	SNVT_temp_p	R	Space Temperature (degF)
LON Profile:	nvoUnitStatus.mode	SNVT_hvac_status	R	(NA)
	nvoUnitStatus.heat_out_p	SNVT_hvac_status	R	Heating Coil Valve (%)
	nvoUnitStatus.heat_out_s	SNVT_hvac_status	R	Secondary Heating Coil Valve (%) (NA)
	nvoUnitStatus.cool_out	SNVT_hvac_status	R	Cooling Coil Valve (%)
	nvoUnitStatus.econ_out	SNVT_hvac_status	R	Economizer (%)
	nvoUnitStatus.fan_out	SNVT_hvac_status	R	Fan Speed (%)
	nvoUnitStatus.in_alarm	SNVT_hvac_status	R	Discrete Alarm point (1/0)
	nviOccSchedule	SNVT_occupancy	W	Global CCN Occupancy (>64)
	nviSetPtOffset	SNVT_temp_p	W	Temperature (degF)
	nviOutsideTemp	SNVT_temp_p	W	Outdoor Air Temperature (degF)
	nviOutsideRH	SNVT_lev_percent	W	Outdoor Air RH (%)
	nvoEffectSetpt	SNVT_temp_p	R	Controlling Setpoint (degF)
	nvoOutsideTemp	SNVT_temp_p	R	Outdoor Air Temperature (degF)
	nvoOutsideRH	SNVT_lev_percent	R	Outdoor Air RH (%)
	nviSpaceRH	SNVT_lev_percent	W	Space RH (%)
	nviCO2	SNVT_ppm	W	IAQ (PPM)
	nvoCO2	SNVT_ppm	R	IAQ (PPM)
	nviTEMP1	SNVT_temp_p	W	Temperature (degF)
	nvoTEMP1	SNVT_temp_p	R	Temperature (degF)
	nvoTEMP2	SNVT_temp_p	R	Temperature (degF)
	nvoTEMP3	SNVT_temp_p	R	Temperature (degF)
	nvoTEMP4	SNVT_temp_p	R	Temperature (degF)
	nviPRESS1	SNVT_press_p	W	Pressure ("H2O)
	nvoPRESS1	SNVT_press_p	R	Pressure ("H2O)
	nvoPRESS2	SNVT_press_p	R	Pressure ("H2O)

(NA) Means not generally applicable to CCN

Figure A-8
RTUMAP2 Table SNVTs and
CCN Points

RTUMAP2	SNVT Type	Read or Write?	CCN Point Description
nviPCT1	SNVT_lev_percent	W	POINT29 Percent (%)
nviPCT2	SNVT_lev_percent	W	POINT30 Percent (%)
nvoPCT1	SNVT_lev_percent	R	POINT31 Percent (%)
nvoPCT2	SNVT_lev_percent	R	POINT32 Percent (%)
nvoPCT3	SNVT_lev_percent	R	POINT33 Percent (%)
nvoTEMPDIFF1	SNVT_temp_diff_p	R	POINT34 Delta Temperature (°F)
nvoTEMPDIFF2	SNVT_temp_diff_p	R	POINT35 Delta Temperature (°F)
nviDISCRETE1	SNVT_switch	W	POINT36 Discrete (1/0)
nviDISCRETE2	SNVT_switch	W	POINT37 Discrete (1/0)
nviDISCRETE3	SNVT_switch	W	POINT38 Discrete (1/0)
nvoDISCRETE1	SNVT_switch	R	POINT39 Discrete (1/0)
nvoDISCRETE2	SNVT_switch	R	POINT40 Discrete (1/0)
nvoDISCRETE3	SNVT_switch	R	POINT41 Discrete (1/0)
nvoDISCRETE4	SNVT_switch	R	POINT42 Discrete (1/0)
nvoDISCRETE5	SNVT_switch	R	POINT43 Discrete (1/0)
nvoDISCRETE6	SNVT_switch	R	POINT44 Discrete (1/0)
nvoDISCRETE7	SNVT_switch	R	POINT45 Discrete (1/0)
nvoDISCRETE8	SNVT_switch	R	POINT46 Discrete (1/0)
nciCO2Limit	SNVT_ppm	W	POINT47 IAQ Setpoint (PPM)
nciSetPnts.occupied_cool	SNVT_temp_setpt	W	POINT48 Temperature Setpoint (degF)
nciSetPnts.standby_cool	SNVT_temp_setpt	W	POINT49 (NA)
nciSetPnts.unocc_cool	SNVT_temp_setpt	W	POINT50 Temperature Setpoint (degF)
nciSetPnts.occupied_heat	SNVT_temp_setpt	W	POINT51 Temperature Setpoint (degF)
nciSetPnts.standby_heat	SNVT_temp_setpt	W	POINT52 (NA)
nciSetPnts.unocc_heat	SNVT_temp_setpt	W	POINT53 Temperature Setpoint (degF)
nviCOUNT1	SNVT_count	W	POINT54 Generic analog or discrete (0-65535)
nvoCOUNT1	SNVT_count	R	POINT55 Generic analog or discrete (0-65535)
nvoCOUNT2	SNVT_count	R	POINT56 Generic analog or discrete (0-65535)
nvoCOUNTInc1	SNVT_count_inc	R	POINT57 Generic analog or discrete (-32767 - 32767)
nvoCOUNTInc2	SNVT_count_inc	R	POINT58 Generic analog or discrete (-32767 - 32767)

Figure A-9
Sample Configuration for
GNRCMAP1 Table

Job Site:	0, 182
LEI Address:	PremierLink
Attached Device:	0, 31
Attached Device Address:	Generic
LON Profile:	

GNRCMAP1	SNVT Type	Read or Write?	CCN Point Description	CCN Point Name
nvoUnitStatus.mode	SNVT_hvac_status	R	POINT01	
nvoUnitStatus.heat_out_p	SNVT_hvac_status	R	POINT02	
nvoUnitStatus.heat_out_s	SNVT_hvac_status	R	POINT03	
nvoUnitStatus.cool_out	SNVT_hvac_status	R	POINT04	
nvoUnitStatus.econ_out	SNVT_hvac_status	R	POINT05	
nvoUnitStatus.fan_out	SNVT_hvac_status	R	POINT06	
nvoUnitStatus.in_alarm	SNVT_hvac_status	R	POINT07	
nviOccSchedule	SNVT_occupancy	W	POINT08	
nviTEMP1	SNVT_temp_p	W	POINT09	
nviTEMP2	SNVT_temp_p	W	POINT10	
nviTEMP3	SNVT_temp_p	W	POINT11	
nvoTEMP1	SNVT_temp_p	R	POINT12	Supply Air Temperature SAT
nvoTEMP2	SNVT_temp_p	R	POINT13	Outdoor Air Temperature OAT
nvoTEMP3	SNVT_temp_p	R	POINT14	Space Temperature SPT
nvoTEMP4	SNVT_temp_p	R	POINT15	
nvoTEMP5	SNVT_temp_p	R	POINT16	
nvoTEMP6	SNVT_temp_p	R	POINT17	
nvoTEMP7	SNVT_temp_p	R	POINT18	
nvoTEMP8	SNVT_temp_p	R	POINT19	
nviPRESS1	SNVT_press_p	W	POINT20	
nviPRESS2	SNVT_press	W	POINT21	
nvoPRESS1	SNVT_press_p	R	POINT22	
nvoPRESS2	SNVT_press_p	R	POINT23	
nvoPRESS3	SNVT_press	R	POINT24	
nvoPRESS4	SNVT_press	R	POINT25	
nvoPRESS5	SNVT_press	R	POINT26	
nvoPRESS6	SNVT_press	R	POINT27	
nvoTEMPDIFF1	SNVT_temp_diff_p	R	POINT28	
nvoTEMPDIFF2	SNVT_temp_diff_p	R	POINT29	

Figure A-10
Sample Configuration
for GNRCMAP2 Table

GNRCMAP2	SNVT Type	Read or Write?	CCN Point Description	CCN Point Name
nvIPCT1	SNVT_lev_percent	W		
nvIPCT2	SNVT_lev_percent	W		
nvOPCT1	SNVT_lev_percent	R	Cooling % Total Capacity	CCAP
nvOPCT2	SNVT_lev_percent	R	Heating % Total Capacity	HCAP
nvOPCT3	SNVT_lev_percent	R	Economizer Position	ECONPOS
nvOPCT4	SNVT_lev_percent	R		
nvDISCRETE1	SNVT_switch	W	Remote Occupied Mode	RMTOCC
nvDISCRETE2	SNVT_switch	W		
nvDISCRETE3	SNVT_switch	W		
nvDISCRETE1	SNVT_switch	R	Supply Fan Relay	SF
nvDISCRETE2	SNVT_switch	R	Economizer Active	ECOS
nvDISCRETE3	SNVT_switch	R	Remote Occupied Mode	RMTOCC
nvDISCRETE4	SNVT_switch	R		
nvDISCRETE5	SNVT_switch	R		
nvDISCRETE6	SNVT_switch	R		
nvDISCRETE7	SNVT_switch	R		
nvDISCRETE8	SNVT_switch	R		
nciSetPnts.occupied_cool	SNVT_temp_setpt	W	Occupied Cooling Setpoint	OCCSP
nciSetPnts.standby_cool	SNVT_temp_setpt	W		
nciSetPnts.unocc_cool	SNVT_temp_setpt	W	Unoccupied Cooling Setpoint	UCSP
nciSetPnts.occupied_heat	SNVT_temp_setpt	W	Occupied Heating Setpoint	OHSP
nciSetPnts.standby_heat	SNVT_temp_setpt	W		
nciSetPnts.unocc_heat	SNVT_temp_setpt	W	Unoccupied Heating Setpoint	UHSP
nvIPPM	SNVT_ppm	W		
nvOPPM	SNVT_ppm	R		
nvICOUNT1	SNVT_count	W		
nvOCOUNT1	SNVT_count	R		
nvOCOUNT2	SNVT_count	R		
nvOCOUNTTinc1	SNVT_count_inc	R		
nvOCOUNTTinc2	SNVT_count_inc	R		

Figure A-11
GNRCMAP1 Table SNVTs
and CCN Points

Job Site:	SNVT Type	Read or Write?	CCN Point Description
LEIAddress:	nvoUnitStatus.mode	R	(NA)
Attached Device:	nvoUnitStatus.heat_out_p	R	Heating Coil Valve (%)
Attached Device Address:	nvoUnitStatus.heat_out_s	R	Secondary Heating Coil Valve (%)
LON Profile:	nvoUnitStatus.cool_out	R	Cooling Coil Valve (%)
	nvoUnitStatus.econ_out	R	Economizer (%)
	nvoUnitStatus.fan_out	R	Fan Speed (%)
	nvoUnitStatus.in_alarm	R	Discrete Alarm point (1/0)
	nviOccSchedule	W	Global CCN Occupancy (>64)
	nviTEMP1	W	Temperature (degF)
	nviTEMP2	W	Temperature (degF)
	nviTEMP3	W	Temperature (degF)
	nvoTEMP1	R	Temperature (degF)
	nvoTEMP2	R	Temperature (degF)
	nvoTEMP3	R	Temperature (degF)
	nvoTEMP4	R	Temperature (degF)
	nvoTEMP5	R	Temperature (degF)
	nvoTEMP6	R	Temperature (degF)
	nvoTEMP7	R	Temperature (degF)
	nvoTEMP8	R	Temperature (degF)
	nviPRESS1	W	Pressure ("H2O)
	nviPRESS2	W	Pressure (PSI)
	nvoPRESS1	R	Pressure ("H2O)
	nvoPRESS2	R	Pressure ("H2O)
	nvoPRESS3	R	Pressure (PSI)
	nvoPRESS4	R	Pressure (PSI)
	nvoPRESS5	R	Pressure (PSI)
	nvoPRESS6	R	Pressure (PSI)
	nvoTEMPDIFF1	R	Delta Temperature (^F)
	nvoTEMPDIFF2	R	Delta Temperature (^F)

(NA) Means not generally applicable to CCN

Figure A-12
GNRCMAP2 Table SNVTs
and CCN Points

GNRCMAP2	SNVT Type	Read or Write?	CCN Point Description
nviPCT1	SNVT_lev_percent	POINT30 W	Percent (%)
nviPCT2	SNVT_lev_percent	POINT31 W	Percent (%)
nvoPCT1	SNVT_lev_percent	POINT32 R	Percent (%)
nvoPCT2	SNVT_lev_percent	POINT33 R	Percent (%)
nvoPCT3	SNVT_lev_percent	POINT34 R	Percent (%)
nvoPCT4	SNVT_lev_percent	POINT35 R	Percent (%)
nviDISCRETE1	SNVT_switch	POINT36 W	Discrete (1/0)
nviDISCRETE2	SNVT_switch	POINT37 W	Discrete (1/0)
nviDISCRETE3	SNVT_switch	POINT38 W	Discrete (1/0)
nvoDISCRETE1	SNVT_switch	POINT39 R	Discrete (1/0)
nvoDISCRETE2	SNVT_switch	POINT40 R	Discrete (1/0)
nvoDISCRETE3	SNVT_switch	POINT41 R	Discrete (1/0)
nvoDISCRETE4	SNVT_switch	POINT42 R	Discrete (1/0)
nvoDISCRETE5	SNVT_switch	POINT43 R	Discrete (1/0)
nvoDISCRETE6	SNVT_switch	POINT44 R	Discrete (1/0)
nvoDISCRETE7	SNVT_switch	POINT45 R	Discrete (1/0)
nvoDISCRETE8	SNVT_switch	POINT46 R	Discrete (1/0)
nciSetPnts.occupied_cool	SNVT_temp_setpt	POINT47 W	Temperature Setpoint (degF)
nciSetPnts.standby_cool	SNVT_temp_setpt	POINT48 W	(NA)
nciSetPnts.unocc_cool	SNVT_temp_setpt	POINT49 W	Temperature Setpoint (degF)
nciSetPnts.occupied_heat	SNVT_temp_setpt	POINT50 W	Temperature Setpoint (degF)
nciSetPnts.standby_heat	SNVT_temp_setpt	POINT51 W	(NA)
nciSetPnts.unocc_heat	SNVT_temp_setpt	POINT52 W	Temperature Setpoint (degF)
nviPPM	SNVT_ppm	POINT53 W	IAQ (PPM)
nvoPPM	SNVT_ppm	POINT54 R	IAQ (PPM)
nviCOUNT1	SNVT_count	POINT55 W	Generic analog or discrete (0-65535)
nvoCOUNT1	SNVT_count	POINT56 R	Generic analog or discrete (0-65535)
nvoCOUNT2	SNVT_count	POINT57 R	Generic analog or discrete (0-65535)
nvoCOUNTInc1	SNVT_count_inc	POINT58 R	Generic analog or discrete (-32767 - 32767)
nvoCOUNTInc2	SNVT_count_inc	POINT59 R	Generic analog or discrete (-32767 - 32767)

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