



# Installation Instructions

Part Number 33CNDRVCCN

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## DRIVER INSTALLATION

To install the CCN limited access driver onto a Carrier Comfort Integrator (CCI), perform the following procedure:

1. Ensure that the CarrierOne Services software has been upgraded with the appropriate files to support the CCN driver.
  - a. Close CarrierOne Services (WorkPlacePro).
  - b. Copy the ccn.jar file from the installation CD-ROM nre\modules directory to the niagara nre\modules directory.
  - c. Copy the ccn.jar file from the installation CD-ROM emb directory to the niagara emb directory.
  - d. Copy any niagara.dist files from the installation CD-ROM emb directory to the niagara emb directory.
  - e. Copy the ccn.jar file from the installation CD-ROM nt directory to the niagara nt directory.
  - f. Copy any niagara.dist files from the installation CD-ROM nt directory to the niagara nt directory.
2. Ensure that the license.properties file of the CCI has been updated to allow the usage of the CCN driver.
  - a. Run the Admin Tool.
  - b. Log into the CCI.
  - c. Select the Installation Tab in the Admin Tool.
  - d. Select the Install New License button.
  - e. Navigate to the location where the new license is located and select the new license (with CCN access). The license should contain the ccn;ccnl features.

3. Ensure that the driver.properties file of the CCI is updated to associate the proper files with the CCN driver.
  - a. Open the Admin Tool.
  - b. Log into the CCI.
  - c. Select the Installation Tab in the Admin Tool.
  - d. Select the Edit drivers.properties button.
  - e. Add the following CCN Driver file associations:  
*For a CCI 403 or 512 drivers.properties file*  
 driver.ccn=tridium.nre.vxworks.ccn.  
 VxWorksCcnDriver  
*For a CCI NP or NX drivers.properties file*  
 driver.ccn=tridium.nre.win32.ccn.  
 Win32CcnDriver
4. Install the CCN driver and the serial driver onto the CCI.
  - a. Open the Admin Tool.
  - b. Log into the CCI.
  - c. Select the Installation Tab in the Admin Tool.
  - d. Select the Installation Wizard button.
  - e. Choose the appropriate emb (CCI 403 or 512) or the nt (CCI NP or NX) directory.
  - f. Click on the Install Button.
  - g. Choose the Configuration Modules Only choice and press Next. If the CCI version does not match the CarrierOne CD-ROM version, choose the Upgrade Choice and install the appropriate version of Niagara.
  - h. Choose to Upgrade/Add CCN and SerialDriver and complete the CCI installation.
5. A new station must be created and loaded that includes the CCN service and the CCN container. The CCN service and CCN container can be added to a running station by accessing them from the local library. Refer to the Creating a New Station section below.

**NOTE:** When performing all upgrades, it is critical to add the CCN Driver to a CCI with a version that matches the version on the CarrierOne CD-ROM. If the CCI version does not match the version supplied on the CarrierOne CD-ROM, upgrade the CCI and CarrierOne Services to the same version as the CCN driver prior to following the procedure. For further assistance with this upgrade procedure contact Carrier.

The CarrierOne Limited Access CCN driver will provide access to the CCN Status, Set Point, Time Schedule, and Alarm History tables.

## CREATING A NEW STATION

With CarrierOne™ Services software started, proceed as follows to add a new station for training purposes.

1. Click **File** on the **Menu Bar**, then click **New Station**. The New Station Wizard dialog is displayed.
2. In the **New station name** box, type the name of your station.

Station names must be unique and, as with any object name, do not use spaces, math operators, or reserved characters. The station name becomes an integral part of every child node's SWID that is created in that station.

Use as many characters as needed, but remember that you will be entering this identifier every time you reference the station – do not get too lengthy. See Fig. 1.

Notice that the database directory and the configuration database name is specified for you. You cannot make any changes.

3. Click **Next** to proceed. An input dialog is displayed that allows you to specify the administrator's name and password.
4. In the **Name for Administrator** box, type your name. You will be given Administrator-level authority to make database changes.  
Do not use spaces in your user name. For readability, use internal caps to separate first and last names.
5. In the **Password** box, type your password.
6. In the **Confirm** box, confirm the password that you typed in Step 5.
7. Click **Next** to proceed. A dialog is displayed for you to select the services that you want to add. See Fig. 2.

**IMPORTANT:** The CCI-4XX and CCI-5XX use flash memory (instead of a hard disk). Therefore, its memory capacity is limited. To ensure optimum performance, limit the installation and selection of control engine services to only those that are required for system operation.

8. Click on **CCN Services** to select that service.
9. Click **Next** to proceed. An input dialog is displayed that allows you to select whether a Notification Class (zero) is added to your station. Notification Class (zero) is added by default. Leave the checkbox checked.
10. Click **Next** to proceed. An input dialog is displayed that allows you to configure the CCN service. Refer to the Utilizing CCN Service section for more information.
11. Click **Finish**. A pop-up window is displayed that shows you the database changes that are about to be made.
12. Review the configuration properties for accuracy. If you find a mistake or want to change something, click **Cancel** and step back through the wizard steps to make your change. When you are ready, click **OK**.

The New Station wizard creates the station and opens it off-line. Expand the tree to view the services container and the LonTrunk container as shown in Fig. 3.

Before you can view the new station on-line, you must close the off-line session and start the station with the Admin Tool.

**Closing the Station (Off-Line)** — In the CarrierOne Services window:

Click **File** on the **Menu Bar**, then click **Close**. The Workspace View clears.

### Starting the Station

1. Click the **Start** button on the **Taskbar** and expand the **Programs** menu to view the Niagara folder.
2. Click the Admin Tool icon to launch the Admin Tool.



Fig. 1 — New Station Wizard



Fig. 2 — New Station Services

3. If you are running Niagara on a temporary license, an expiration warning dialog is displayed that indicates the number of days or hours of runtime that remain prior to expiration. You must obtain a valid license file from Carrier before the temporary license expires.  
Click **OK** to proceed.

The Admin Tool window displays. Each of the stations that you have added should appear listed in the window next to the host name for your machine.

4. Click the station name that you just added, then click the **Start** button on the **Toolbar**. Verify that the status of the selected station updates to 'running'.
5. Click the close icon in the Admin Tool window.

**Opening the Station (On-Line)** — In the CarrierOne Services window:

1. Click **File** on the **Menu Bar**, then click **Open Station**. The Open Station dialog is displayed.
2. In the **Host** box, type the host name of your machine.
3. In the **User Name** box, type your name. This is the name that you specified in the **Creating a New Station** procedure (Step 4) above.
4. In the **Password** box, type your password. This is the password that you specified in the **Creating a New Station** procedure (Step 5) above.
5. Click **Open**.

The Tree View updates and displays the open station. Expand the tree to view the services container and the LonTrunk container as previously illustrated.

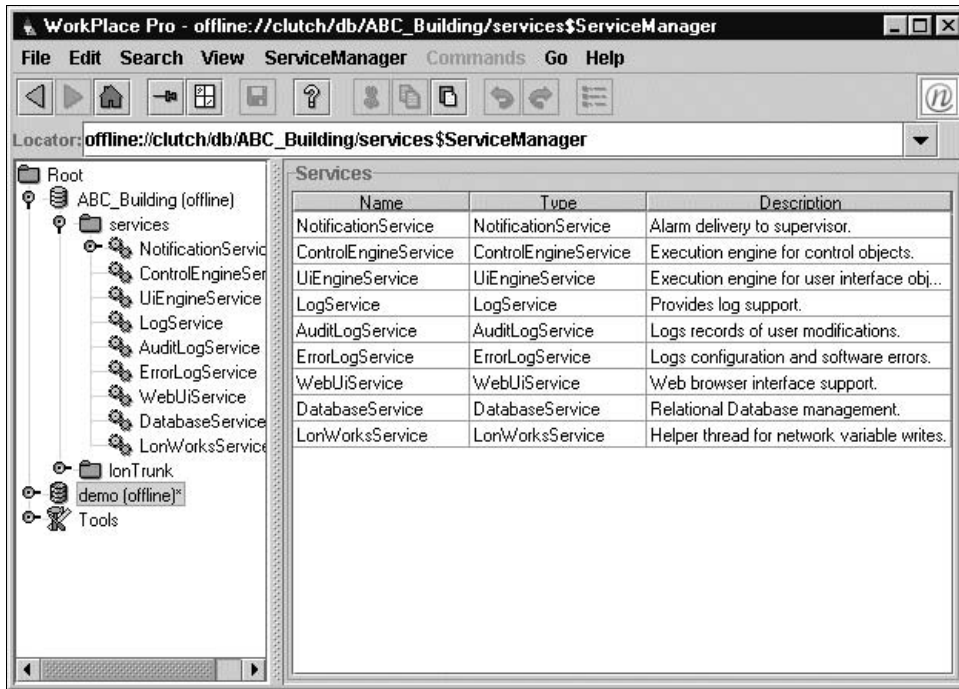


Fig. 3 — New Station Expanded Tree

## UTILIZING CCN SERVICE

**Create Station and Select CCN Basic Parameters** — To create a new CarrierOne™ station and include the CCN driver you must run the CarrierOne Services software. Once the software is loaded you follow the standard method of creating a new station utilizing the File, New Station menu items.

You will then be prompted to enter a name for the new station. After the station name is entered you will be asked to supply a username and password for the station administrator account.

Once the username and password have been entered you use the New Station Wizard to select the appropriate services being sure to select the CCN Service as show in Fig. 4.

Continue answering the prompts in the New Station Wizard until a Carrier One Station Setup screen appears. In this screen you should specify the bus and element number of the Carrier Comfort Integrator, the communications port being used, the baud rate and if the Carrier Comfort Integrator is the time broadcaster or alarm acknowledger. Also, verify that the CCN Network Service container is selected and proceed with the wizard and finish the definition of the new station. See Fig. 5.

Valid Entries are:

Bus Address 0-239

Element Address 1-239

Communications port COM1 through COM4

Baud Rate 9600, 19200 or 38400

NOTE: A CCI has an internal, 2-port, optically-isolated RS-485 card installed on COM3 and COM4. If Alarm Acknowledger is selected, then the CCI must be on BUS 0.

Once completed the station will open in offline mode as shown in Fig. 6. A CCNService component should be located in the Services container and a CCNNetwork container must be located under the main station database name.

Close the offline station and install the station with the Admin Tool Installation tab.

**Configuring the CCNService** — After installing the CCNService it is possible to change the settings of the CCN driver from those selected in the New Station wizard.

The properties for the CCNService can be accessed by double-clicking the station name, selecting the services container and double clicking the CCNService.

**GENERAL/CONFIG TAB** — The General/Config tabs can then be selected and the user can then activate/deactivate the CCN communications, enable/disable alarm acknowledgement, set the CCI's bus address and set the CCI's element address. See Fig. 7.

Valid Entries are:

busAddress: 0-239

eleAddress: 1-239

**POLL/CONFIG TAB** — The Poll/Config tab is used to configure the frequency at which the CCN points are polled. The default of 5000 ms is recommended. Depending on the number of points being polled and the resulting level of bus communication, the value may be adjusted for better performance. See Fig. 8.

**GENERAL/ENGINEERING TAB** — General/Engineering tabs can be used to adjust the number of times the CCN driver will retry communications in the event of a failure and allows the user to enable the sending of CCN diagnostic messages to the standard output window within CarrierOne Services. These features should only be enabled when attempting to troubleshoot CCI communications issues and should be disabled once the troubleshooting is completed. See Fig. 9.

Valid Entries are:

RetryCount: 0-10

The broadcastAcknowledger decision can be set to enable or disable to make the CCI the broadcast acknowledger for the bus that it is connected to.

NOTE: One and only one CCN broadcast acknowledger is required for each bus.

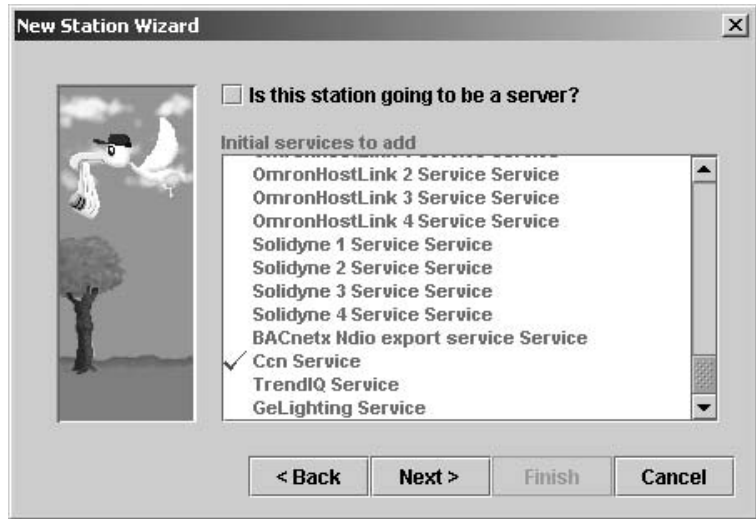


Fig. 4 — New Station Wizard — CCN Service Selection

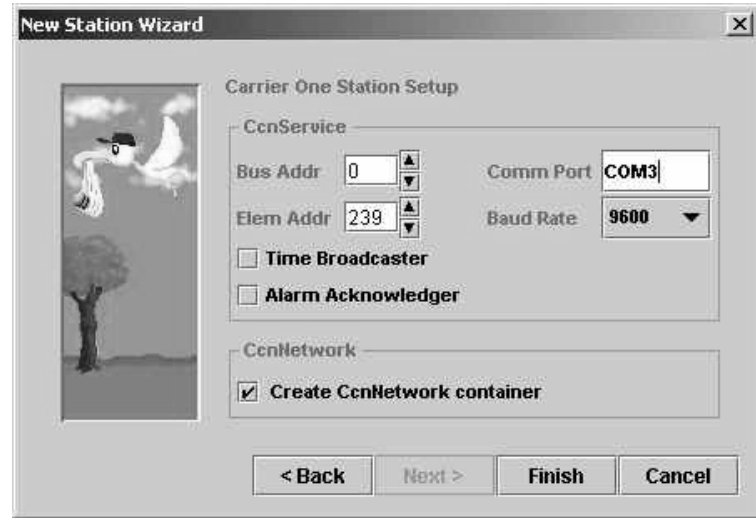


Fig. 5 — CarrierOne™ Station Setup

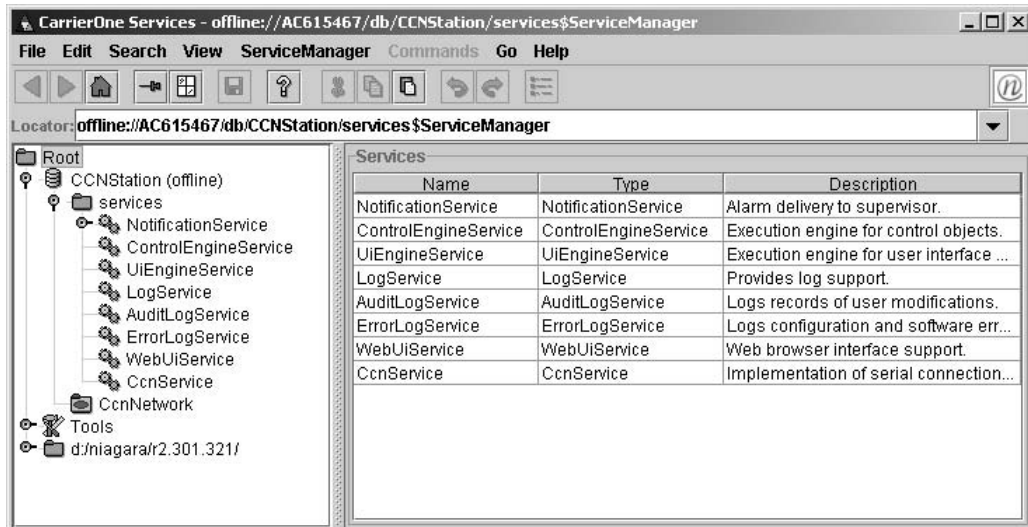


Fig. 6 — Newly Created Station

The autoCreatePoints decision can be enabled to allow the CCI to automatically create linkable points (shadow objects) for all controllers automatically. Enabling this decision will cause the CCI to automatically create linkable points for all status display, time schedule and setpoint schedule data within a controller.

**IMPORTANT:** Enabling this feature will cause CCN controllers to use large amounts of CCI resources. This decision should not be enabled unless the connected CCN system is small and all data needs to be linkable. Generally, it is recommended that you create linkable points for only the data that you wish to use on graphics, trends or share with another Niagara point.

The responseTimeOut should be left at its default of 5 seconds. The retry count can be increased on busy networks.

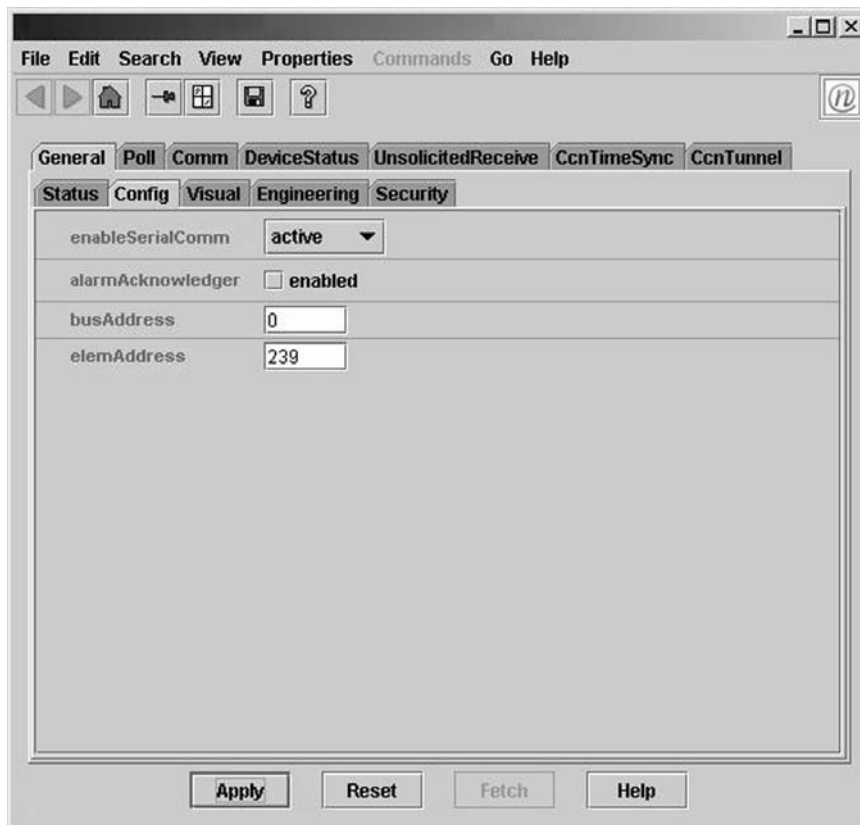
**CCNTIMESYNC/CONFIG TAB** — Select the CCNTimeSync, Config tabs to enable the CCI to be a time broadcaster for its connected CCN. Once enabled to broadcast time the CCI will broadcast time at 1 am and 1 pm and when requested by another device on the CCN system. See Fig. 10. Only one device on the CCN should be broadcasting time.

**COMM/CONFIG TAB** — Select the Comm, Config tabs to adjust the CCI's communications port and baud rate that will be utilized to connect to the CCN system. See Fig. 11.

Valid Entries are:

Comport: COM1 through COM4

hostBaudRate: 9600, 19200 or 38400



**Fig. 7 — CCN Station Properties — General/Config Tab**

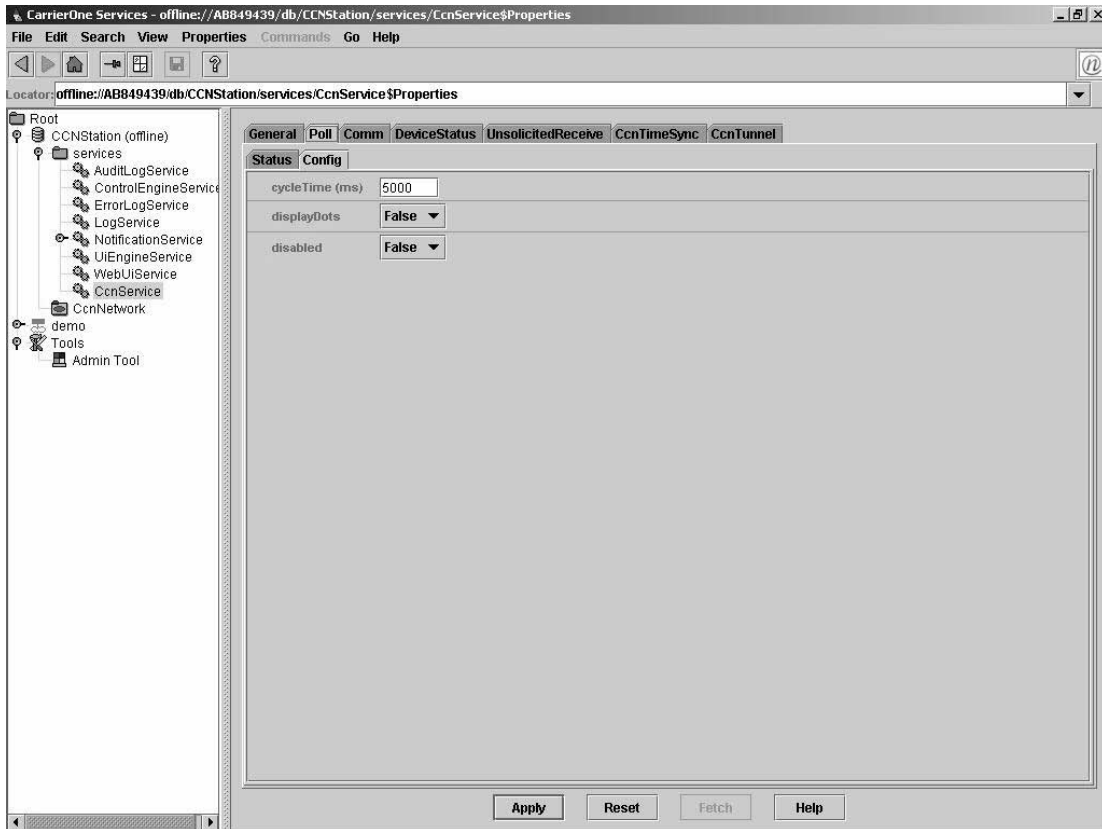


Fig. 8 — CCN Station Properties — Poll/Config Tab

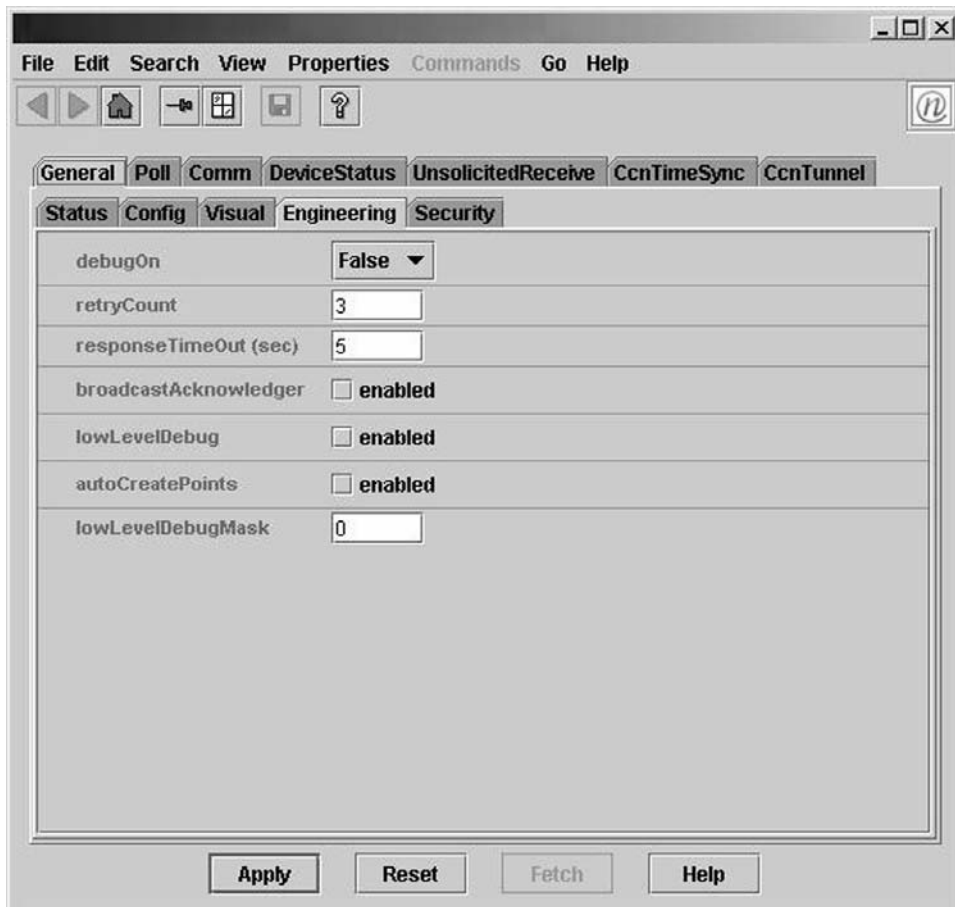


Fig. 9 — CCN Station Properties — General/Engineering Tab

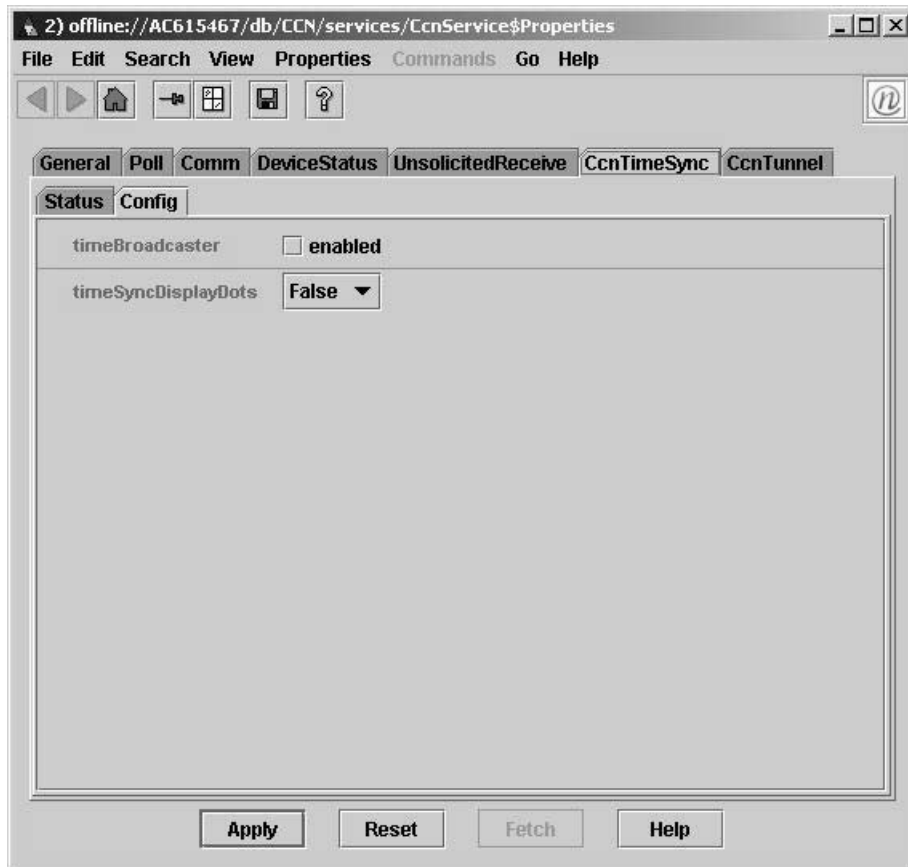


Fig. 10 — CCN Station Properties — CCNTimeSync/Config Tab

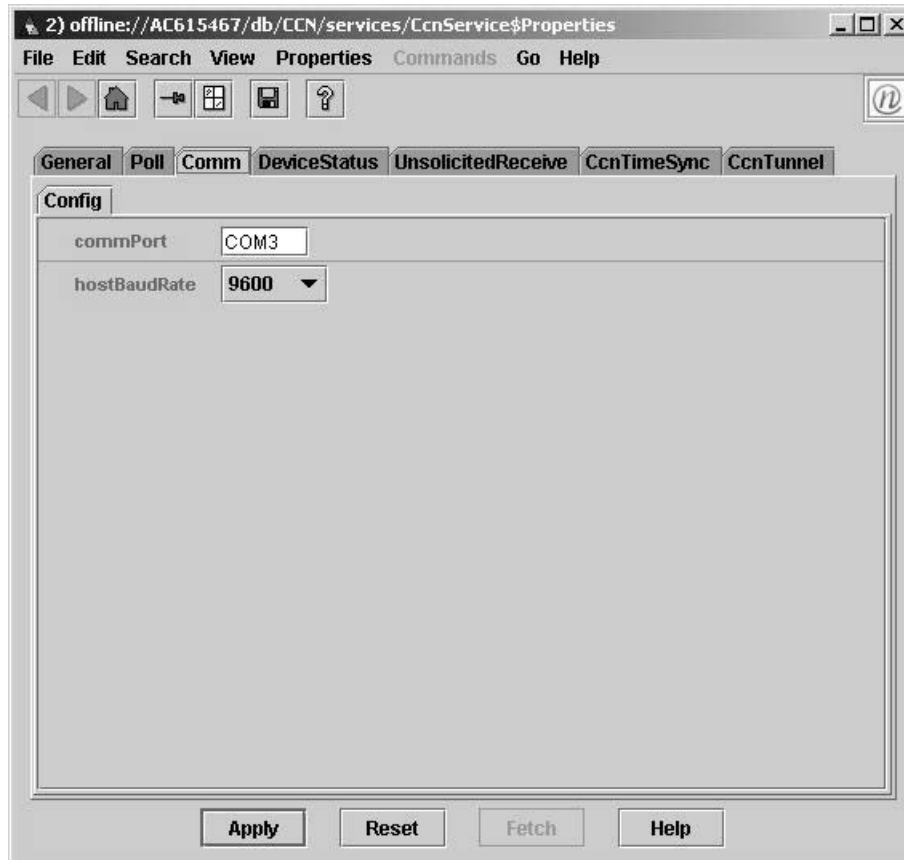


Fig. 11 — CCN Station Properties — Comm/Config Tab

## Creating a Database

**CONTROLLER LIST MANAGER** — In order to learn the CCN controllers that are connected to the network you must right click on the CCNNetwork container and select ControllerListManager from the menu that appears. Once selected, the Controller List for the CCNNetwork container will open. See Fig. 12.

The Edit Learn ranges button is utilized to specify the bus and element range that should be searched for CCN controllers. Once a range is entered the CCI will automatically search the assigned range for CCN controllers and display any controllers that are found in the window at the bottom of the screen.

The Get List button is used to perform a manual learn of CCN controllers that has been defined by utilizing the Edit Learn Ranges button. The Delete button can be utilized to delete the selected controllers from the list of found controllers at the bottom of the window. The Abort button can be utilized to abort a learn process and save the list of controllers found up to the point where the Abort button was pressed. The Append to Discovery List check box should be checked if you want the newly found controllers to be added to the list of already found controllers. If you wish to clear the list of found controllers and perform a new scan make sure the Append to Discovery List check box is not checked and perform a new learn utilizing the Get List button.

The Select All button is utilized to select all found controllers in the bottom of the window. Individual controllers can be selected and deselected by clicking or control-clicking the controller list at the bottom of the window. Once controllers are selected the Create button is utilized to create the controller in the station database and upload the CCN available information within the controller. The Overwrite On Create check box can be selected if you have already learned a controller and wish to delete and then add the controller to the database. The Create Tables check box can be selected if you wish to automatically learn the controller status, time schedule, setpoint schedule

displays when the Create button if selected. If the Create Tables check box is not selected and the Create button is pressed the station will only enter the controllers name and address into the station database and tables will have to be learned manually with the TableListManager described below.

When CCN bridges are found they will be listed in the box in the top center of the screen. To clear this list when learning a network you can place a check in the Clear Bridge List check box.

**TABLE LIST MANAGER** — In order to learn the CCN controller tables manually you must right click on the controller and select TableListManager from the menu that appears. Once selected, the Table List for the CCN controller will open. See Fig. 13.

To learn table types you must first select the desired table types with the check boxes on the right side of the window. You can specify that the CCI learn the Status displays, Time Schedules, Setpoints, and Alarm History table via the check boxes supplied. Once the proper data tables are selected the Get List button can be used to get the table names of the selected categories. The Abort button can be utilized to stop the get list process. The Append To List check box should be selected to add the table names to the tables already found. If the box is unchecked all of the tables found will be removed and only the newly discovered tables will be display.

Once the table types have been found they can be selected by clicking on them with the mouse or utilizing the Select All button. Control-Click can be utilized to select multiple tables. When the proper tables are selected the Create button will create the chosen tables under the controller in the station database. The Overwrite On Create check box can be selected if you have already learned a controller's tables and wish to delete and re-read the controller's tables.

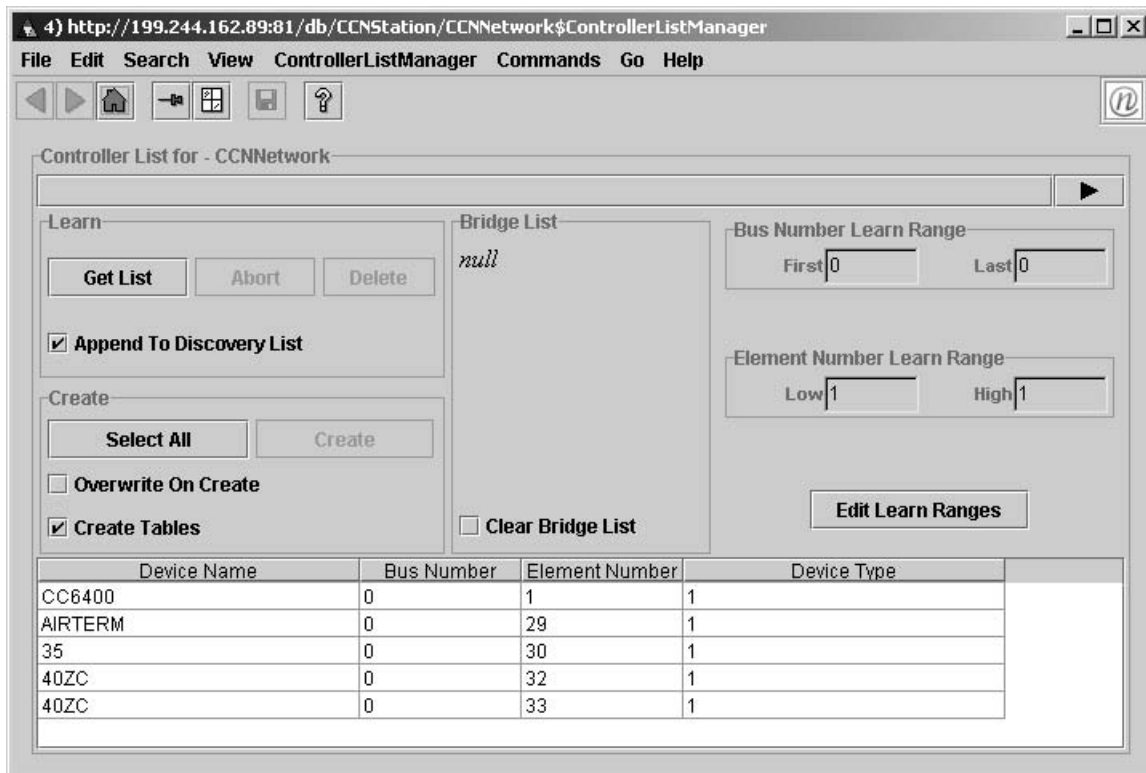


Fig. 12 — Controller List Manager



**SHADOW OBJECTS** — In order to utilize CCN data on graphics, trends or links to other controllers you must create shadow objects for each point. Data from Status displays, Maintenance displays, Time Schedules, Setpoints tables can be mapped to shadow objects and exposed in the CarrierOne™ system.

**NOTE:** You should only create shadow objects for points which you wish to expose on graphics, trends or link to other controls systems. Exposing all points as shadow objects will utilize large amounts of resources and may limit the number of controllers that can be learned by the CCI.

Once the data is displayed they can be selected by clicking on them with the mouse or utilizing the Select All button. Control-Click can be utilized to select multiple data points. When the proper data points are selected the Create button will create the chosen points under the table name in the station database. The Overwrite On Create check box can be selected if you have already learned a controller's data points and wish to delete and re-read the controller's data points. See Fig. 14.

When a table display is open, the values in the status display tables that can be forced are in bold. These points can be forced and autoed with the buttons located on the display. All other tables with configuration data that can be changed can be double-clicked and the new value can be entered and sent down to the controller.

All table data can be updated from the controller by pressing the Refresh button on the table display. Status data will be automatically refreshed every 10 seconds as they are in a Poll on Demand container which means that they will be read continuously whenever they are displayed on the screen.

Data points that have been made into shadow objects will be displayed under the appropriate CCN table name and have a lightning bolt as an icon. The Workspace for the data table will contain graphical representation of the shadow objects that have been created. See Fig. 15.

All dynamic CCN points display tables will be created in PollOnDemand containers by default. PollOnDemand containers will only collect real time point data when the point is being

viewed by the user. To force CCN points to update in real time 24 hours a day you must place the entire points display in a PollAlways container. A PollAlways container can be cut and pasted from the local library under D:\niagarar2.xxx.xxx.xxx\tridium\containers. A PollAlways container is required for all points you wish to trend log or share with another control.

**Linking to CCN Shadow Objects** — When linking to CCN shadow objects the following link types should be utilized to link to the corresponding types of CCN points.

When selecting **Link From** and **Link To** in CarrierOne service you must link to the following shadow object parameters to read data from Carrier points:

CARRIER POINT TYPE	CARRIERONE OBJECT LINK PARAMETER
<b>Analog Inputs or Outputs</b>	floatValue set
<b>Discrete Inputs or Outputs</b>	bitValue set
<b>Multistate Inputs or Outputs</b>	stringValue set
<b>All</b>	autoset (clear force)

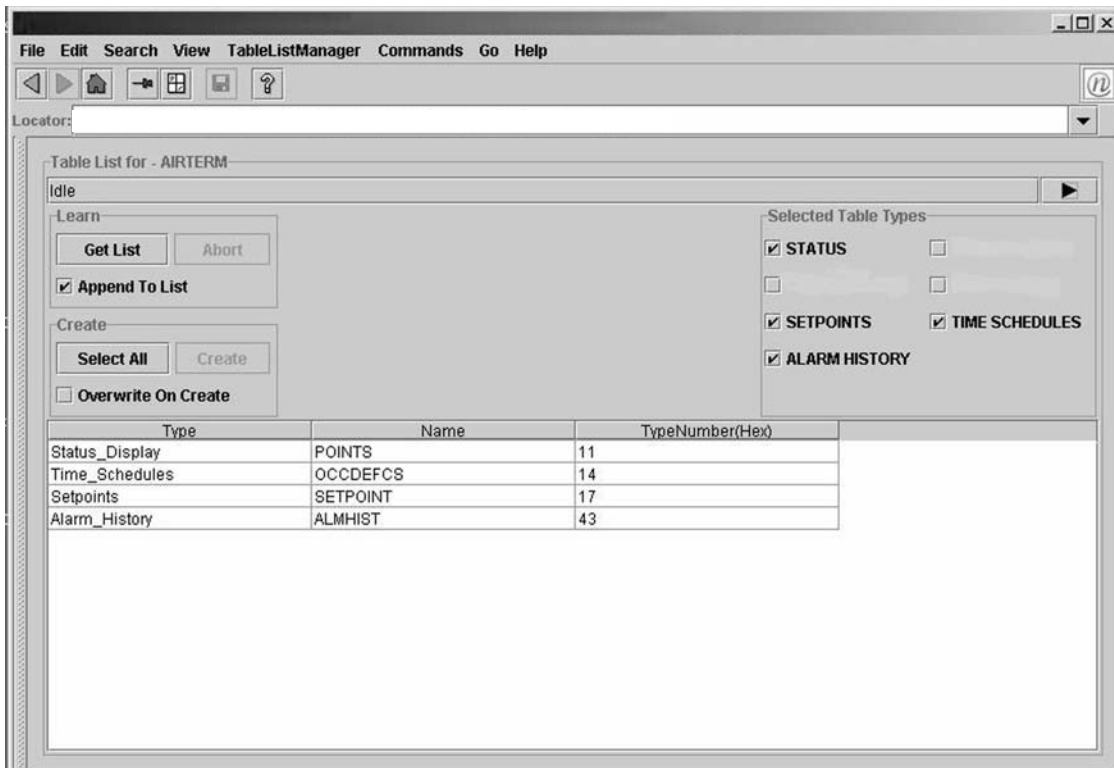
When selecting Link From and Link To in CarrierOne service you must link to the following shadow object parameters to write data to Carrier points:

CARRIER POINT TYPE	CARRIERONE OBJECT LINK PARAMETER
<b>Analog Inputs or Outputs</b>	floatValueSet
<b>Discrete Inputs or Outputs</b>	bitValueSet
<b>Multistate Inputs or Outputs</b>	stringValueSet

**NOTE:** Multistate points are those points that display multiple text data depending upon the status of the CCN controller. For example, a chiller mode may be displayed as:

- 0 = Off
- 1 = Local
- 2 = CCN

In order to read or write to these types of points you should utilize the stringValue parameter as described above.



**Fig. 13 — Table List Manager**

1) http://199.244.162.89:81/db/CCNStation/CCNNetwork/AIRTERM\_0\_29/Status\_Display/PollOnDema...

File Edit Search View PointListManager Commands Go Help

Point List for - POINTS

Learn Create Point

Refresh Select All Create Force

Overwrite On Create Auto

Desc	Value	Units	Status	ForceLevel	Name
Terminal Mode	COOL				MODE
Terminal Type	SNGLDUCT				TYPE
Controlling Set...	75.0	°F			CNTSP
<b>Space Temper...</b>	<b>77.7</b>	°F			<b>SPT</b>
<b>Primary Airflow</b>	<b>15</b>	<b>cfm</b>			<b>PRIFLO</b>
Primary Dampe...	98	%open			DMPPPOS
<b>Supply Air Tem...</b>	<b>0.0</b>	°F			<b>SAT</b>
Local Heating ...	0	%			HCAP
<b>Terminal Fan</b>	<b>Off</b>				<b>FAN</b>
Relative Humidi...	0.0	%			RH
<b>Air Quality (ppm)</b>	<b>0</b>				<b>AQ</b>
<b>Secondary Airfl...</b>	<b>0</b>	<b>cfm</b>			<b>SECFLO</b>
<b>Primary Air Te...</b>	<b>0.0</b>	°F			<b>PATEMP</b>
<b>Heat</b>	<b>Disable</b>				<b>HEAT</b>
<b>Remote Start</b>	<b>Off</b>				<b>REMTCIN</b>

Fig. 14 — Point List Table Display

File Edit Search View Workspace Commands Go Help

Locator:

- Root
  - CCNStation
    - services
      - CCN
        - AIRTERM\_75\_150
          - Status\_Display
            - PollOnDemand
              - POINTS
                - MODE
                - TYPE
                - CNTSP
                - SPT
                - PRIFLO
                - DMPPPOS
                - SAT
                - HCAP
                - FAN
                - RH
                - AQ
                - SECFLO
                - PATEMP
                - HEAT
                - REMTCIN
              - Time\_Schedules
              - Setpoints
              - Alarm\_History
            - Tools
              - Admin Tool

ConOutput

REMTCIN

ConOutput

HEAT

ConOutput

PATEMP

ConOutput

SECFLO

ConOutput

AQ

ConOutput

RH

ConOutput

FAN

ConInput

HCAP

ConOutput

SAT

ConInput

DMPPPOS

ConOutput

PRIFLO

ConOutput

SPT

ConInput

CNTSP

ConInput

TYPE

ConInput

MODE

Fig. 15 — Workspace Data Table



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