LG Chiller Multisite Pbase10 Modbus Integration User Manual

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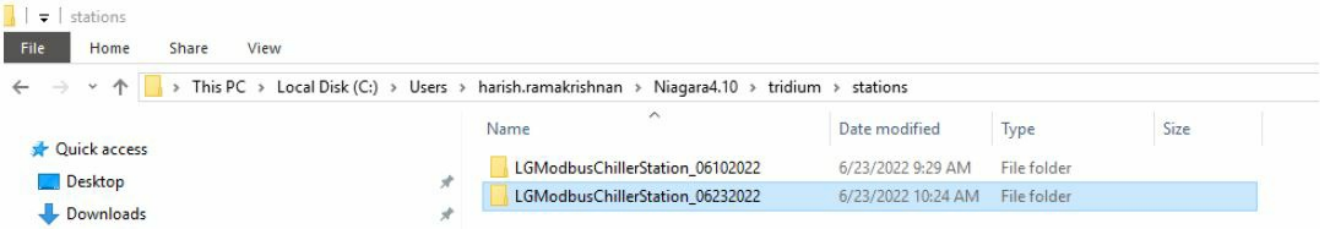
LG CHILLER MODBUS INTEGRATION INTO LG MS-E10 CONTROLLER

Scope & Target Audience
This document is intended to serve as a quick guide for an experienced LG Niagara Systems Integrator and Controls engineers to install the LG Modbus Chiller Device into LG MultiSITE Edge10 (PBASE10) controller.

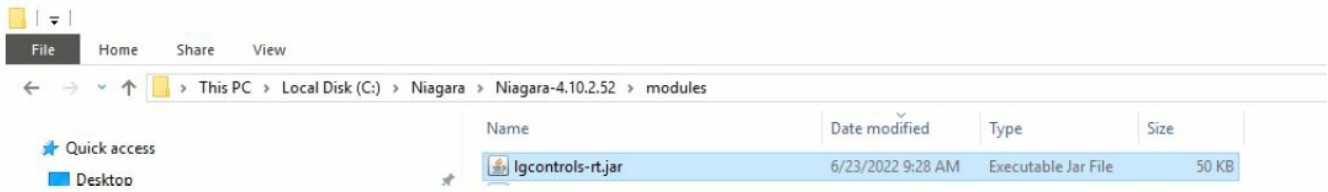
INSTALLATION

1. Obtain a copy of LG's MultiSITE Supervisor 4.10 install pack from your authorized representative.
2. Unzip the Zip file provided and copy the station folder beginning with the name LGModbusChillerStation to your

Niagara station USER HOME as shown below. Note: The Chiller Station version may be different than shown in the image.



3. Save the Jar files into the Modules folder of your MultiSITE Supervisor 4.10 install as shown below.

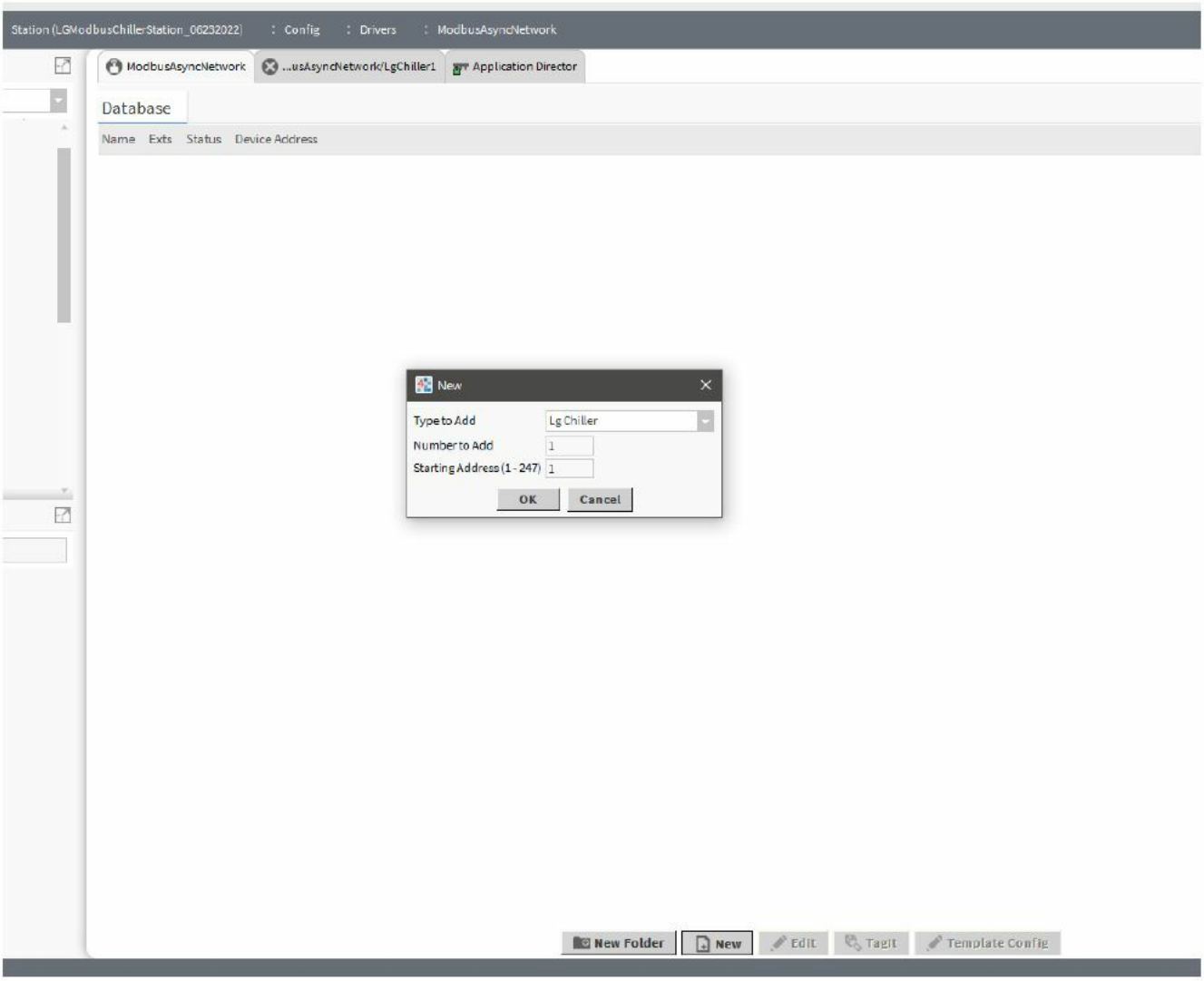


4. Establish platform connection and then go to TCP/IP settings and change the LinkSettings to Standard if it is not as already set (Applicable to Edge10 only).

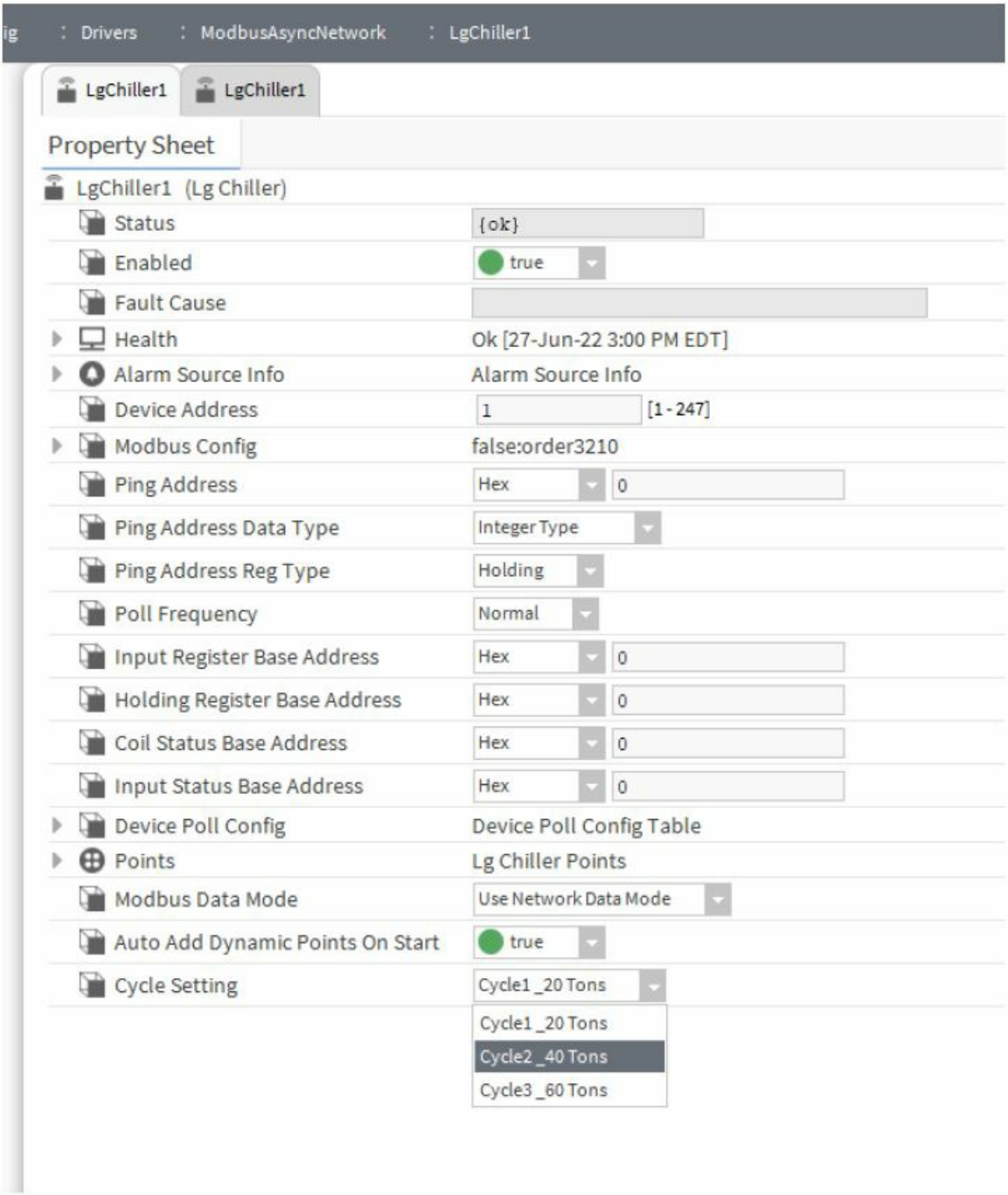
5. Commission the controller to the current Niagara version.
6. Copy the provided station template LGModbusChillerStation to the target device during commissioning. You will be required to enter the station's passphrase to copy the station. The passphrase is ControlsLab123!
7. Make sure to select lgcontrols Jar file(s) during commissioning.
8. Watch the commission finish and the station restart.
9. Login to the station using the credentials supplied. The station's default username is system_admin and the default password is digital21.
10. Navigate to the ModbusAsync network and notice there is one LG Chiller already pre-added with Modbus address 1. Note that this Chiller device is fully populated with many registers (supported by Edge10) pre-added.
11. Add additional devices as needed using the New button on ModbusAsync Network.

LG CHILLER MODBUS DEVICE NAVIGATION AND FEATURES

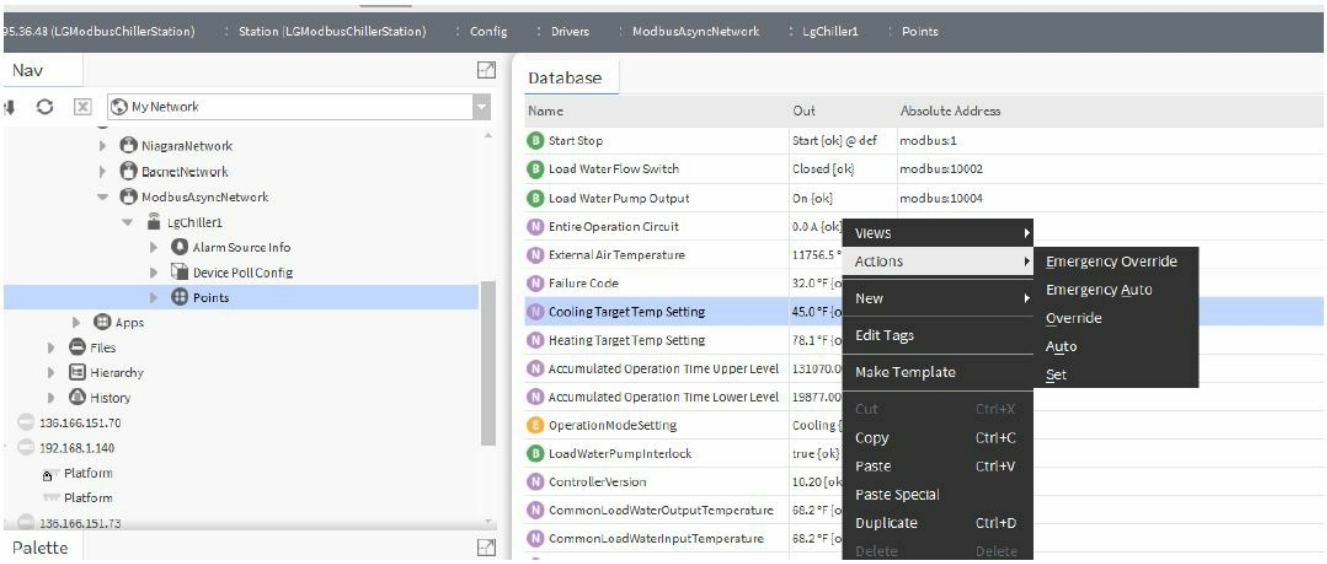
- If you are using the Template station, it should already have one LG Chiller Modbus pre-added in the Modbus Device Manager.
- From the Modbus Device Manager, adding a new device creates a new device with very basic frozen points that cannot be deleted and also adds some dynamic points that can be deleted by the user. Here is the workbench view to add a new LG Chiller device.
- In the Type to Add, leave as LgChiller.
- Number to Add specifies the number of LG Chiller devices to be added.
- Starting Address specifies the Modbus device address of the 1st device.



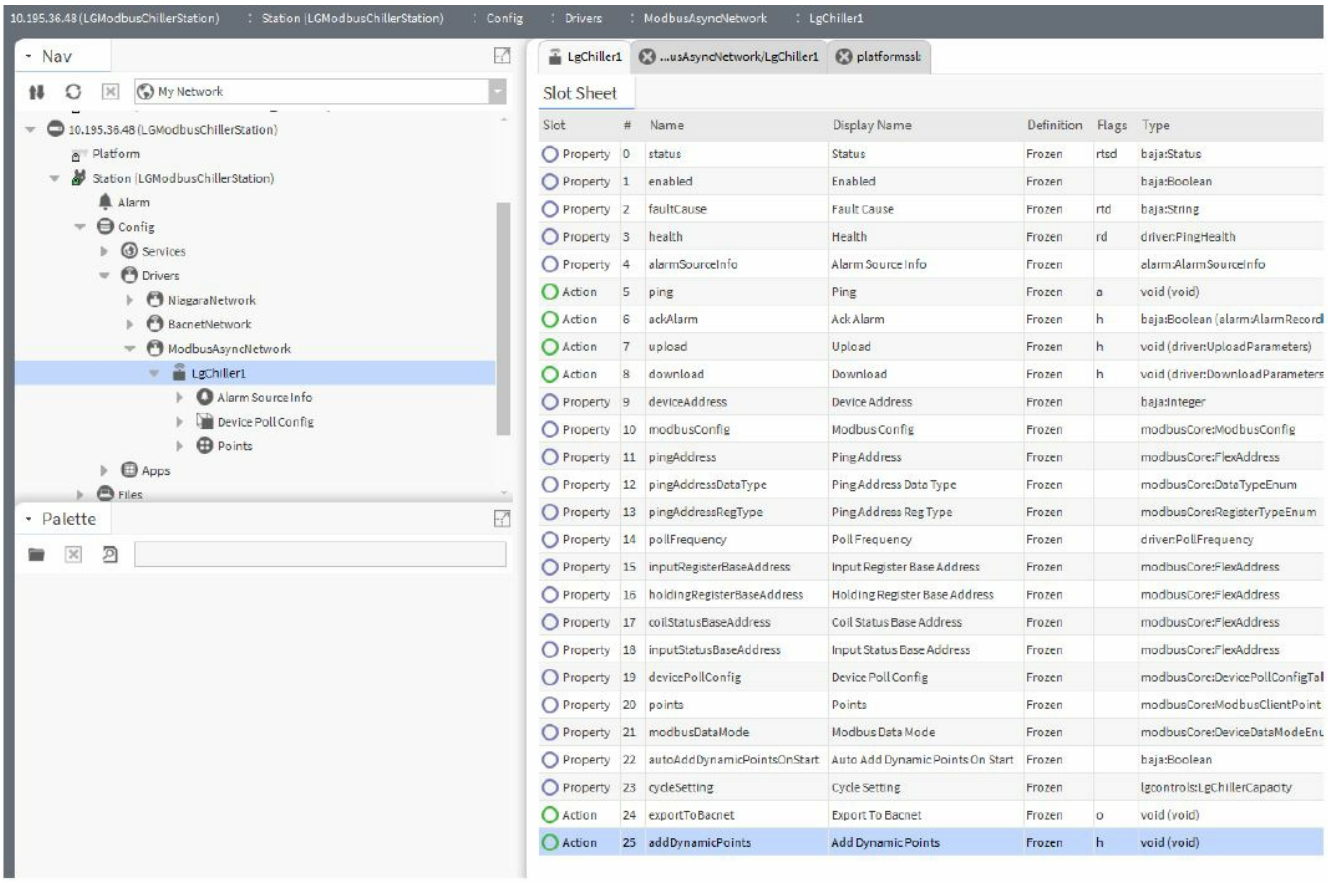
- The newly added device would contain basic points without the cycle points.
- Poll Setting – All Modbus registers are set to Normal polling except for three. Registers that are set to “Fast” poll scheme are FailureCode, RefrigerantFailureInfo & CycleFailureInfo. These points are set to a fast polling scheme because when an error occurs, on certain conditions the Chiller PLC Controller keeps the error code only for 3 seconds, after which the Chiller PLC clears the error code and puts the Chiller in a special sequence per safety design requirements. To capture error codes before they are cleared by the Chiller PLC Controller, they are assigned to a fast poll scheme. History logs are automatically added to these alarm points when the user invokes the “exportToBacnet” action described later in this document.
- Cycle Setting – Go to the property sheet of the newly added Modbus device. Changing the cycle setting will appropriately add or delete respective cycle points. If the Cycle information is changed from 20 Ton to 40 or 60 Ton and vice-versa, then the additional cycle points will be added or removed as applicable.



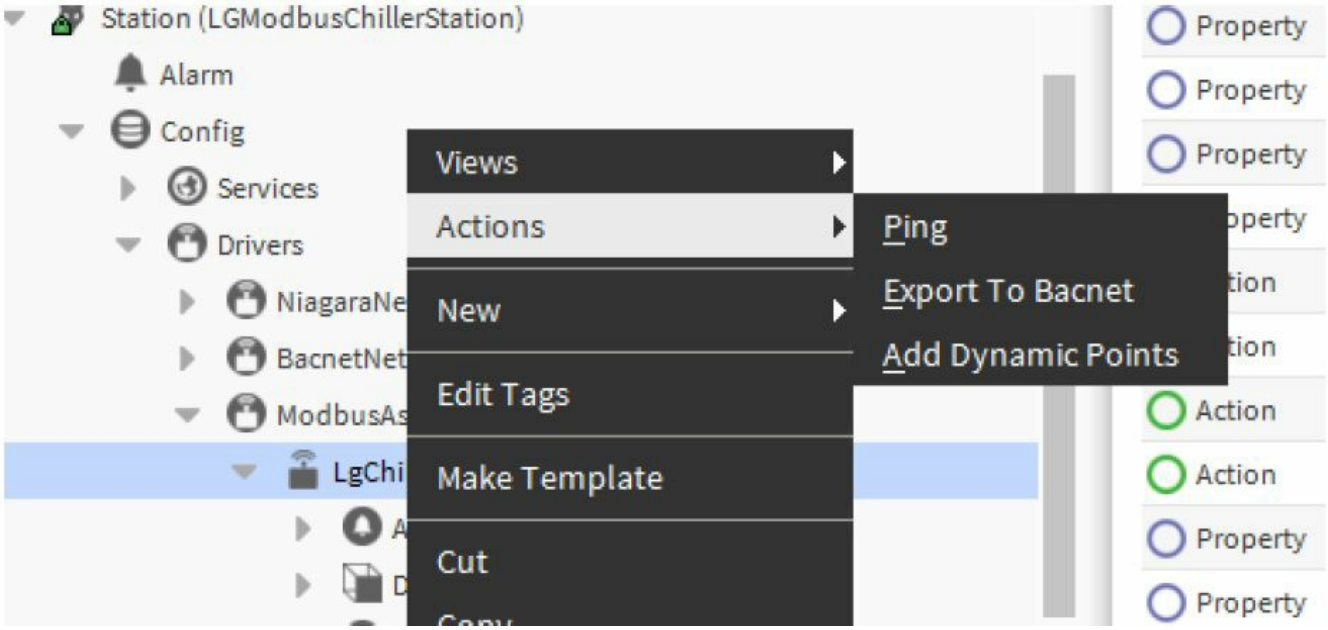
- Auto Add Dynamic Points on Start (True/False) – This property specifies the behaviour upon station start with adding/checking for standard driver-defined dynamic points.
- If the user decides to delete all or some of the dynamic points, then this property must be set to “false” before re-starting the station after making necessary additions/deletions.
- If this property is set to true and the station restarted, the driver automatically adds certain dynamic points.
- Navigating to Modbus Points Manager. Right-clicking on writable points and adjusting the value to the desired value initiates a write action that is sent to the LG Chiller. Example below.



- A frozen action slot named “addDynamicPoints” is displayed on the slot sheet of the LG Chiller Modbus Device. This is a frozen action slot type. If a user deletes some or all of the driver-defined dynamic points, then by invoking this action, those dynamic points can be added back into the driver without having to go through a station re-start.



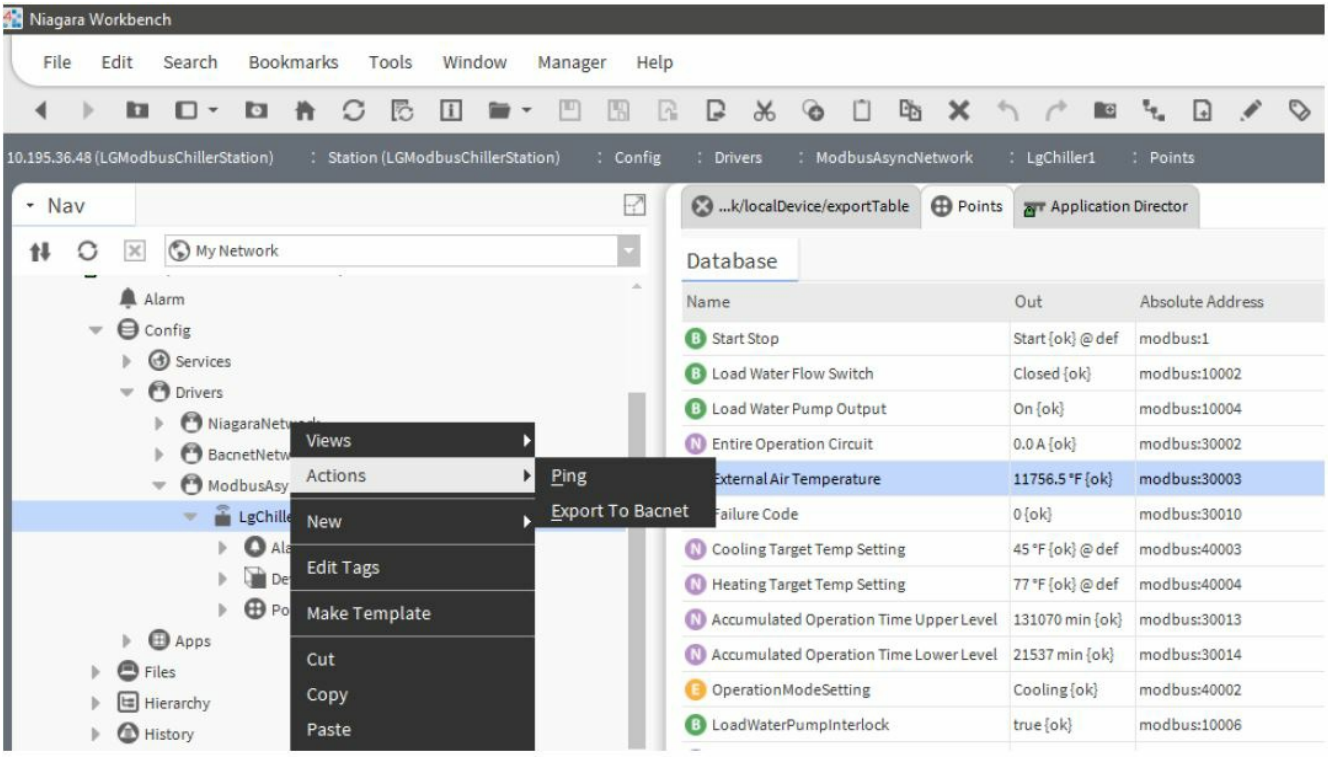
- The slot must be unhidden first and then the action can be invoked from the Nav tree as shown below.



- Even if the Auto Add Dynamic Points on Start property is set to “False” and this action is invoked manually by the user, the driver adds the dynamic points. The use case for this may be in instances where the user may want to keep some of the dynamic objects and delete the rest. Instead of the ones deleted, the SI may choose to add some custom registers and at all times maintain the global point capacity.
- When the Auto Add Dynamic Points on Start property is set the false, the driver will no longer attempt to add any dynamic points on start, and thereby now has maximum flexibility to not only use standard registers from the driver but also add custom registers.

LG CHILLER BACNET EXPORT

1. The LG Modbus Chiller application in MultiSITE Supervisor offers out-of-the-box and on-demand functionality to export the Modbus registers as BACnet objects. These BACnet objects can then be read/written to by a 3rd party BMS Controller or supervisor.
2. From the Nav tree view of the LG Chiller device, right-click and then go to Actions Export To BACnet.



3. Resultant exported objects should be displayed as in the figure below. A full list of supported BACnet objects for

one LG Chiller with Modbus device address exported to BACnet is listed in Appendix I.

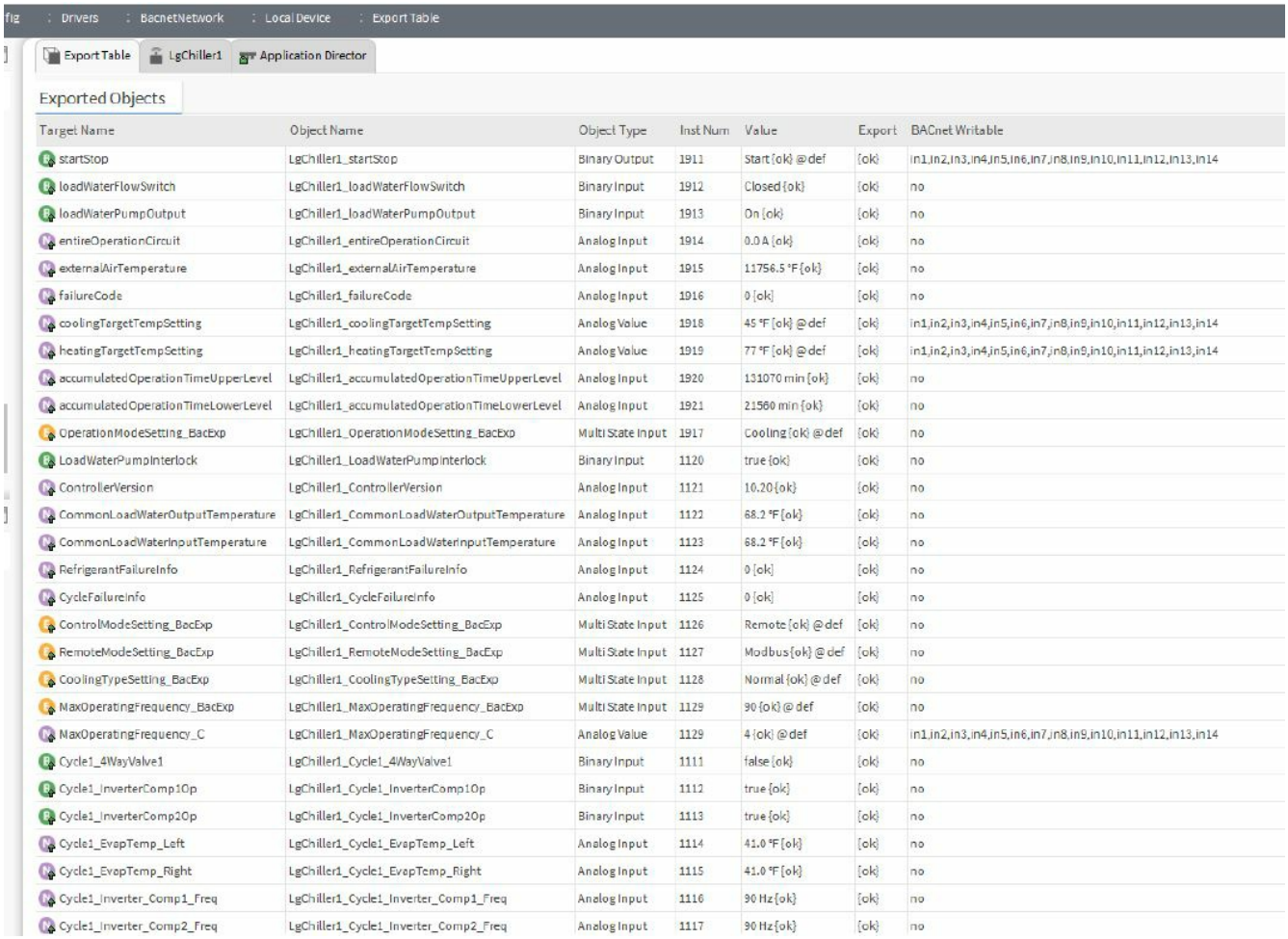


fig : Drivers : BacnetNetwork : Local Device : Export Table

Export Table | LgChiller1 | Application Director

Exported Objects

Target Name	Object Name	Object Type	Inst Num	Value	Export	BACnet Writable
startStop	LgChiller1_startStop	Binary Output	1911	Start {ok} @ def	{ok}	in1,in2,in3,in4,in5,in6,in7,in8,in9,in10,in11,in12,in13,in14
loadWaterFlowSwitch	LgChiller1_loadWaterFlowSwitch	Binary Input	1912	Closed {ok}	{ok}	no
loadWaterPumpOutput	LgChiller1_loadWaterPumpOutput	Binary Input	1913	On {ok}	{ok}	no
entireOperationCircuit	LgChiller1_entireOperationCircuit	Analog Input	1914	0.0 A {ok}	{ok}	no
externalAirTemperature	LgChiller1_externalAirTemperature	Analog Input	1915	11756.5 °F {ok}	{ok}	no
failureCode	LgChiller1_failureCode	Analog Input	1916	0 {ok}	{ok}	no
coolingTargetTempSetting	LgChiller1_coolingTargetTempSetting	Analog Value	1918	45 °F {ok} @ def	{ok}	in1,in2,in3,in4,in5,in6,in7,in8,in9,in10,in11,in12,in13,in14
heatingTargetTempSetting	LgChiller1_heatingTargetTempSetting	Analog Value	1919	77 °F {ok} @ def	{ok}	in1,in2,in3,in4,in5,in6,in7,in8,in9,in10,in11,in12,in13,in14
accumulatedOperationTimeUpperLevel	LgChiller1_accumulatedOperationTimeUpperLevel	Analog Input	1920	131070 min {ok}	{ok}	no
accumulatedOperationTimeLowerLevel	LgChiller1_accumulatedOperationTimeLowerLevel	Analog Input	1921	21560 min {ok}	{ok}	no
OperationModeSetting_BacExp	LgChiller1_OperationModeSetting_BacExp	Multi State Input	1917	Cooling {ok} @ def	{ok}	no
LoadWaterPumpInterlock	LgChiller1_LoadWaterPumpInterlock	Binary Input	1120	true {ok}	{ok}	no
ControllerVersion	LgChiller1_ControllerVersion	Analog Input	1121	10.20 {ok}	{ok}	no
CommonLoadWaterOutputTemperature	LgChiller1_CommonLoadWaterOutputTemperature	Analog Input	1122	68.2 °F {ok}	{ok}	no
CommonLoadWaterInputTemperature	LgChiller1_CommonLoadWaterInputTemperature	Analog Input	1123	68.2 °F {ok}	{ok}	no
RefrigerantFailureInfo	LgChiller1_RefrigerantFailureInfo	Analog Input	1124	0 {ok}	{ok}	no
CycleFailureInfo	LgChiller1_CycleFailureInfo	Analog Input	1125	0 {ok}	{ok}	no
ControlModeSetting_BacExp	LgChiller1_ControlModeSetting_BacExp	Multi State Input	1126	Remote {ok} @ def	{ok}	no
RemoteModeSetting_BacExp	LgChiller1_RemoteModeSetting_BacExp	Multi State Input	1127	Modbus {ok} @ def	{ok}	no
CoolingTypeSetting_BacExp	LgChiller1_CoolingTypeSetting_BacExp	Multi State Input	1128	Normal {ok} @ def	{ok}	no
MaxOperatingFrequency_BacExp	LgChiller1_MaxOperatingFrequency_BacExp	Multi State Input	1129	90 {ok} @ def	{ok}	no
MaxOperatingFrequency_C	LgChiller1_MaxOperatingFrequency_C	Analog Value	1129	4 {ok} @ def	{ok}	in1,in2,in3,in4,in5,in6,in7,in8,in9,in10,in11,in12,in13,in14
Cycle1_4WayValve1	LgChiller1_Cycle1_4WayValve1	Binary Input	1111	false {ok}	{ok}	no
Cycle1_InverterComp1Op	LgChiller1_Cycle1_InverterComp1Op	Binary Input	1112	true {ok}	{ok}	no
Cycle1_InverterComp2Op	LgChiller1_Cycle1_InverterComp2Op	Binary Input	1113	true {ok}	{ok}	no
Cycle1_EvapTemp_Left	LgChiller1_Cycle1_EvapTemp_Left	Analog Input	1114	41.0 °F {ok}	{ok}	no
Cycle1_EvapTemp_Right	LgChiller1_Cycle1_EvapTemp_Right	Analog Input	1115	41.0 °F {ok}	{ok}	no
Cycle1_Inverter_Comp1_Freq	LgChiller1_Cycle1_Inverter_Comp1_Freq	Analog Input	1116	90 Hz {ok}	{ok}	no
Cycle1_Inverter_Comp2_Freq	LgChiller1_Cycle1_Inverter_Comp2_Freq	Analog Input	1117	90 Hz {ok}	{ok}	no

4. Invoking that action will export of ALL frozen slot-type registers. In addition, if other Modbus registers are dynamic slots built-in as part of the LG Chiller Modbus driver, these registers are also exported.
5. Only those Modbus objects that are user-added will not be exported to BACnet.
6. If any changes are made to dynamic points or cycle information, it is recommended to perform a new BACnet export by deleting the export objects from the export table and re-invoking the “Export To BACnet” action from the LG Chiller device.
7. In addition, the three error code points named FailureCode, RefrigerantFailureInfo, and CycleFailureInfo will attach BACnet-compliant Numeric Cov Trend logs to them when the exportToBacnet action is invoked. The corresponding BACnet objectIDs for one LG Chiller are shown below. These can be seen on the ExportTable by accessing Bacnet Niagara Log Export Manager. These logs can then be imported on a BACnet-capable BMS controller. The user may need to apply appropriate execution rates to periodically retrieve the log entries into the BMS controller.


9102022) : Config : Drivers : BacnetNetwork : Local Device : Export Table Bacnet Niagara Log Export Manage

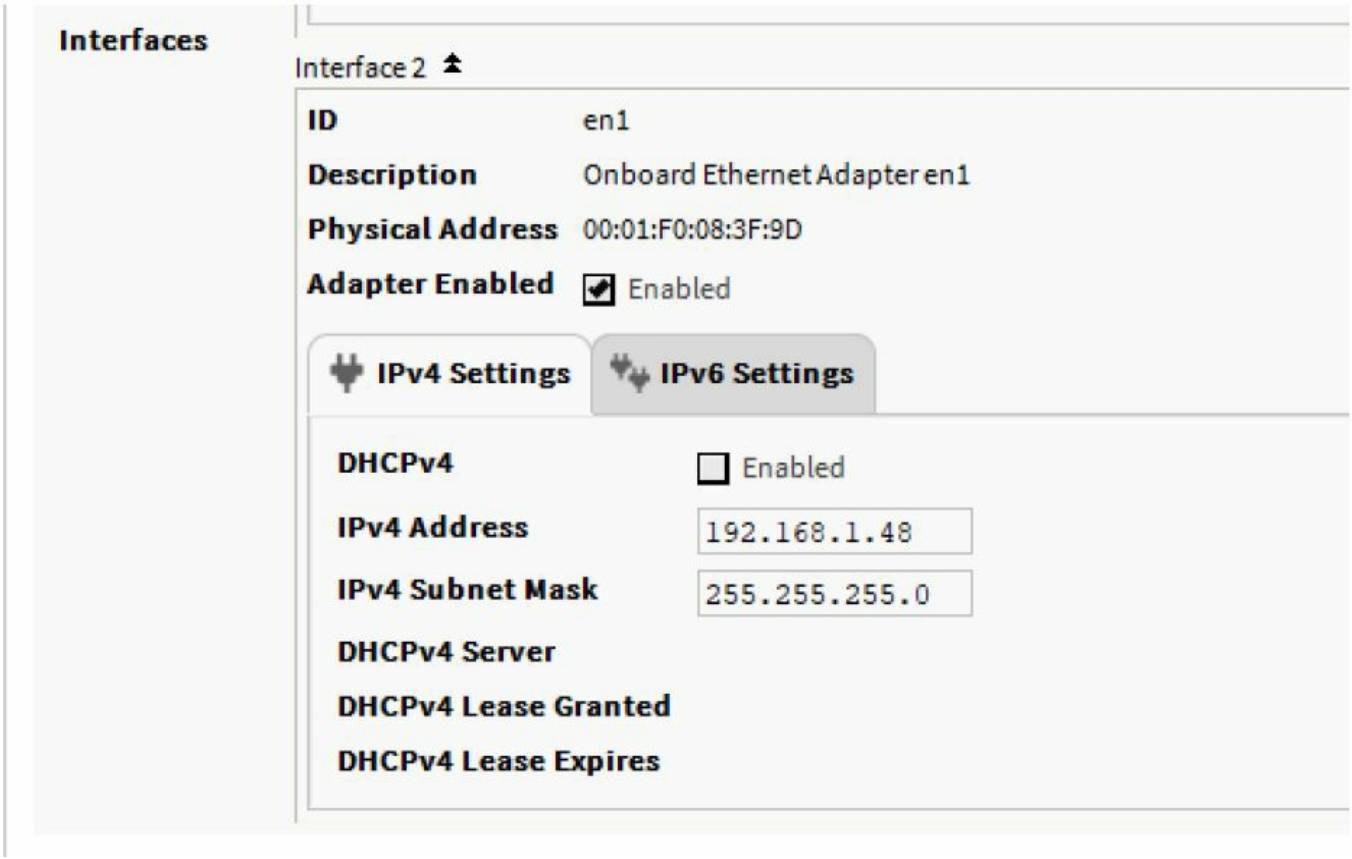
Exported Objects 3 objects

Target Name	Object Name	Object Type	Inst Num	History Type	Export
Datalog	LgChiller1_failureCode_Hist	Trend Log	0	Bacnet Numeric Cov Trend Log Ext	{ok}
Datalog	LgChiller1_RefrigerantFailureInfo_Hist	Trend Log	1	Bacnet Numeric Cov Trend Log Ext	{ok}
Datalog	LgChiller1_CycleFailureInfo_Hist	Trend Log	2	Bacnet Numeric Cov Trend Log Ext	{ok}

TCP/IP DEFAULTS

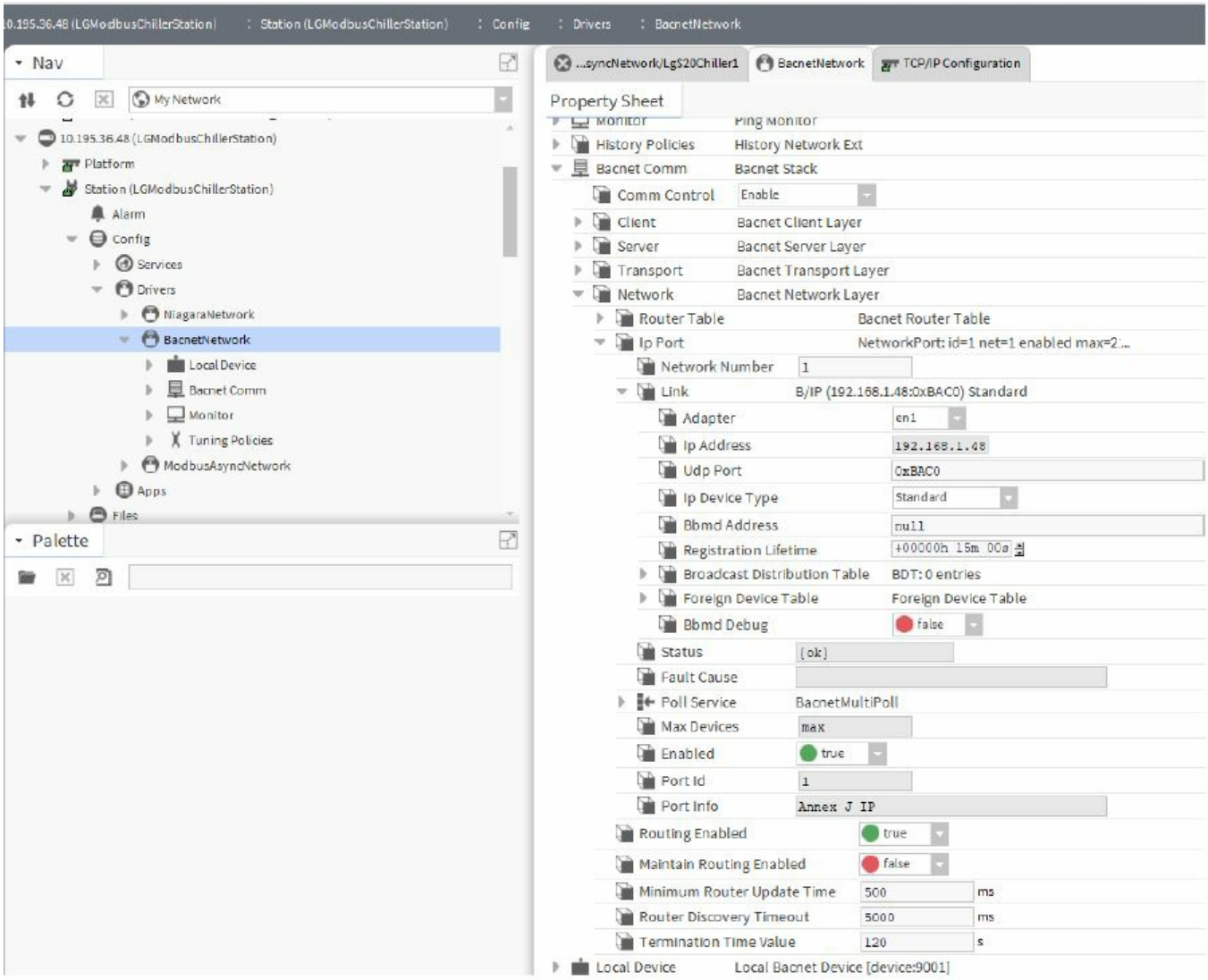
1. LAN1 Adapter is usually set to DHCP to be accessible on the company network or remotely. As mentioned in Section I, the link type must be set to “Standard” for Edge10 devices.
2. LAN2 is set to local as shown below. The example controller is set to 192.168.1.48 (Interface2) as seen from

TCP/IP Configuration on the EDGE10 platform.



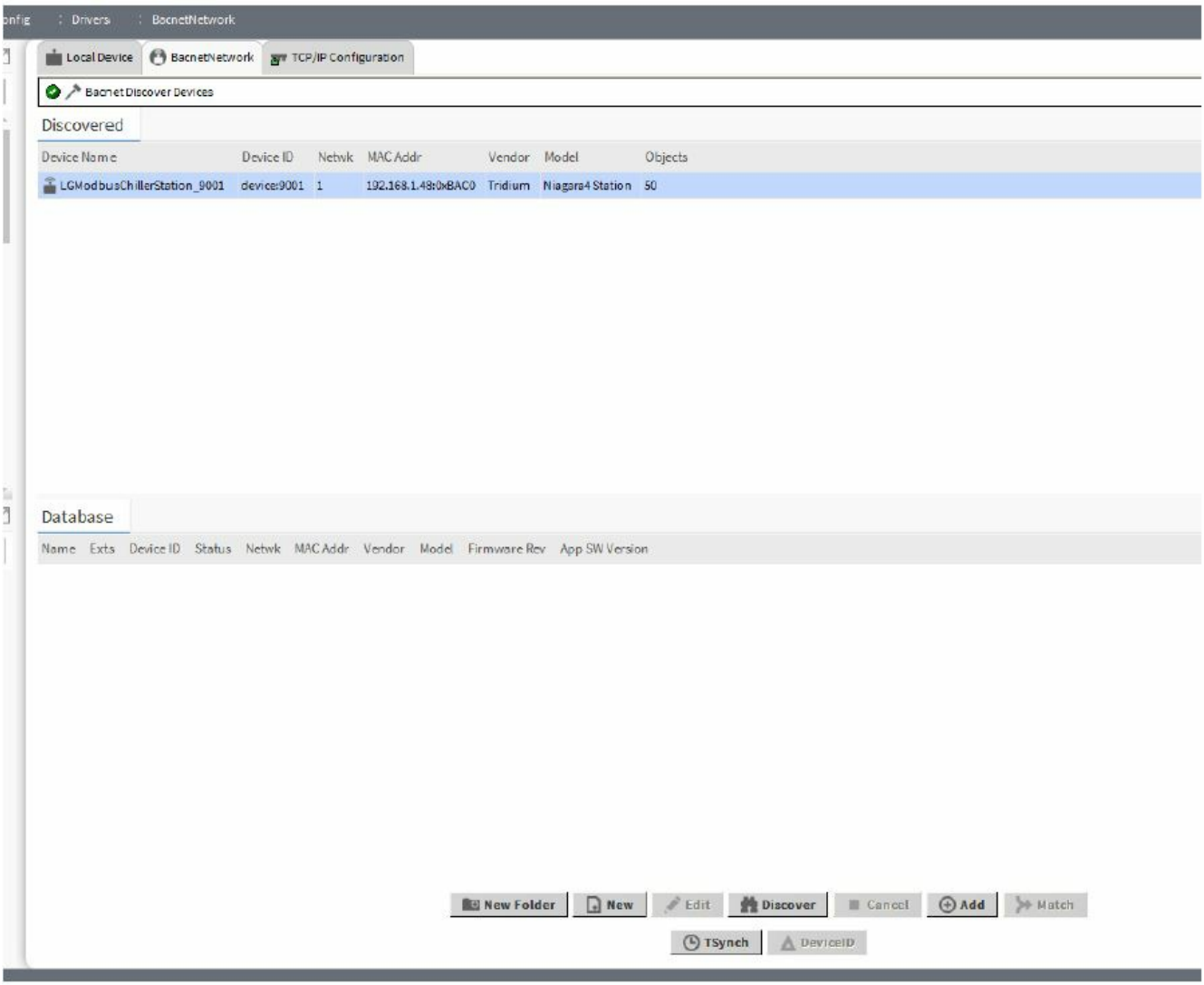
BACNET NETWORK DEFAULTS

- The LG Chiller Modbus Station template is pre-added with BACnet Network with factory defaults as shown below. Settings in bold are part of the factory station template. The others are platform settings which must be set during commissioning.
- Default BACnet IP Address of Edge10 Controller – 192.168.1.48
- Subnet Mask – 255.255.255.0
- BACnet Device ID – 9001
- BACnet adapter set to “en1” i.e., LAN2 port

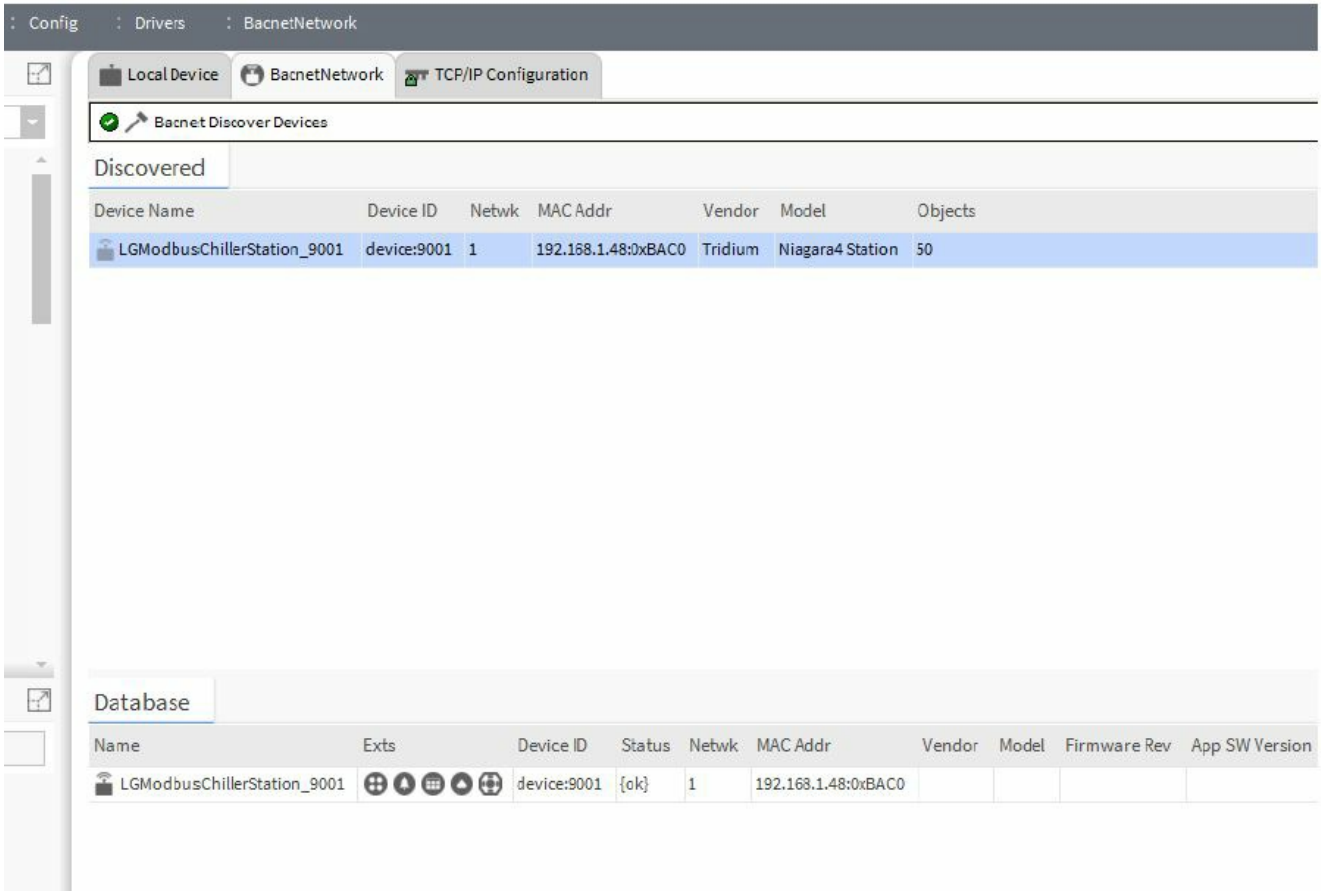


DISCOVERING THE LG CHILLER MODBUS EDGE10 FROM BMS OR BACNET SUPERVISOR

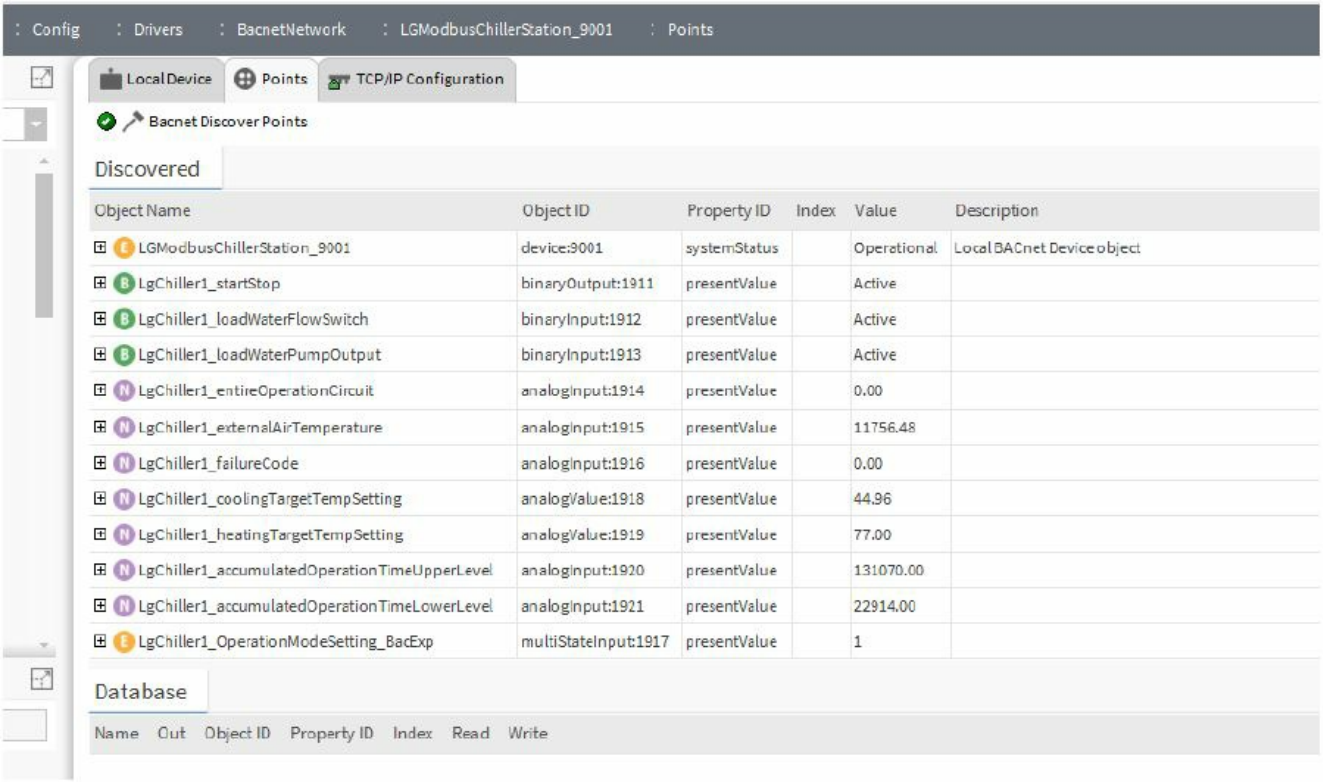
1. All steps in this section are applicable for a Niagara-based BMS controller but the SI is not limited from integrating the LG EDGE10 Chiller device into any BMS system that supports BACnet/IP.
2. A BMS controller or supervisor capable of speaking BACnet/IP may be utilized to communicate with this LG EDGE10 running LGChillerModbusStation. Upon discovering for BACnet/IP devices from the BMS Controller, LG EDGE10 BACnet device is displayed. The example below is from a controller's BACnet network.



3. Add the device to the database.



4. Go to Points and initiate BACnet discovery as shown below.



5. Add the points to the database using the correct Write permissions as shown below.

Database

Name	Out	Object ID	Property ID	Index	Read	Write
LgChiller1_startStop	Start {ok} @ 14	binaryOutput:1911	Present Value	-1	Polled	OK
LgChiller1_coolingTargetTempSetting	48 °F {ok} @ 14	analogValue:1918	Present Value	-1	Polled	OK
LgChiller1_heatingTargetTempSetting	79 °F {ok} @ 14	analogValue:1919	Present Value	-1	Polled	OK
LgChiller1_MaxOperatingFrequency_C	3 {ok} @ 14	analogValue:1129	Present Value	-1	Polled	OK
LgChiller1_loadWaterFlowSwitch	Closed {ok}	binaryInput:1912	Present Value	-1	Polled	readonly
LgChiller1_loadWaterPumpOutput	On {ok}	binaryInput:1913	Present Value	-1	Polled	readonly
LgChiller1_entireOperationCircuit	0.0 A {ok}	analogInput:1914	Present Value	-1	Polled	readonly
LgChiller1_externalAirTemperature	11756.5 °F {ok}	analogInput:1915	Present Value	-1	Polled	readonly
LgChiller1_failureCode	0 {ok}	analogInput:1916	Present Value	-1	Polled	readonly
LgChiller1_accumulatedOperationTimeUpperLevel	131070 min {ok}	analogInput:1920	Present Value	-1	Polled	readonly
LgChiller1_accumulatedOperationTimeLowerLevel	23078 min {ok}	analogInput:1921	Present Value	-1	Polled	readonly
LgChiller1_OperationModeSetting_BacExp	Cooling {ok}	multiStateInput:1917	Present Value	-1	Polled	readonly

6. Writable points can now be commanded at the correct priority level. Supported priority levels are 1 through 14.

CHILLER DASHBOARD GRAPHICAL INTERFACE

Introduction

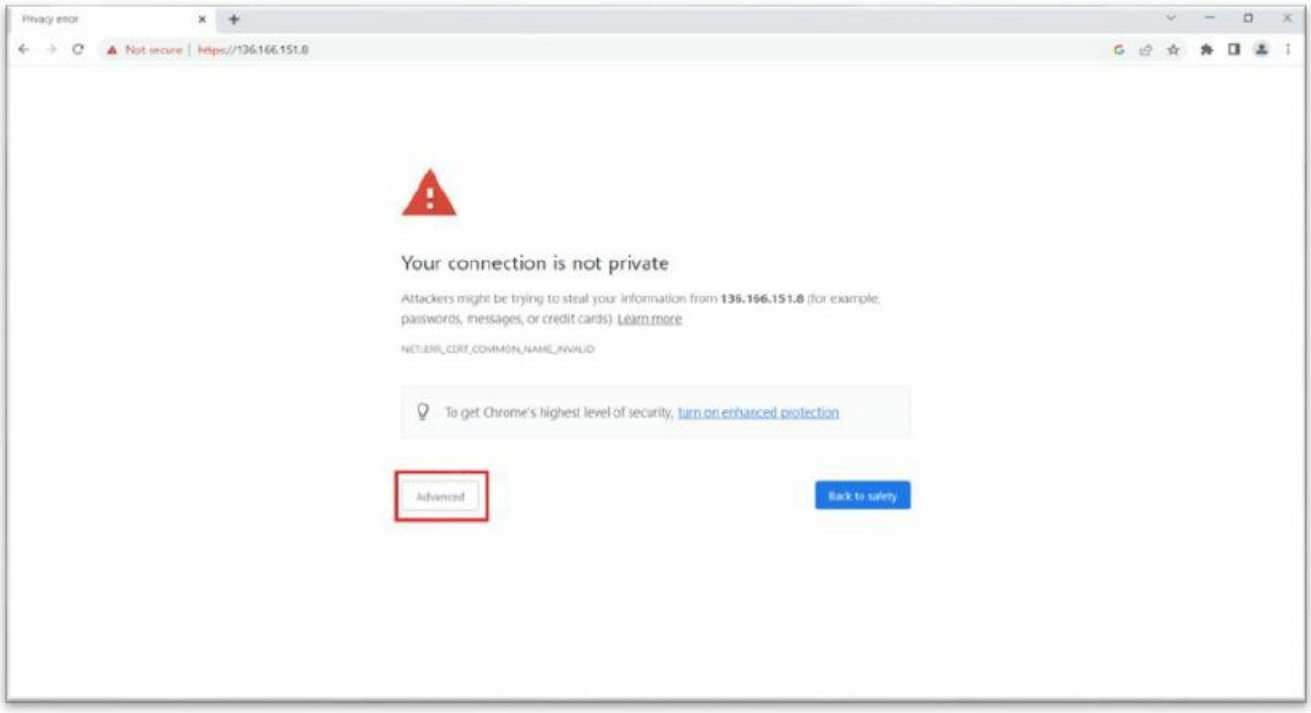
The LG MultiSITE Edge10 Chiller Station v1.1 includes a Dashboard graphical interface accessible through a web browser. The Dashboard allows users to view live operation data as well as issue control commands. Chrome web browser is the recommended browser for using the Dashboard graphical interface. The following guide for using the dashboard assumes Chrome is being used. Other browsers may differ slightly in appearance or function.

Logging in to the Chiller Dashboard

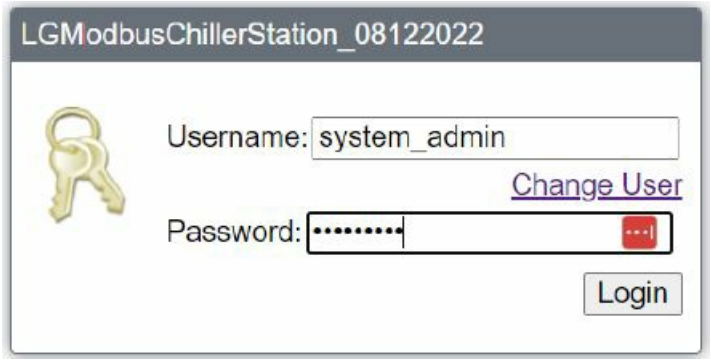
1. To log into the Chiller Dashboard, navigate to the IP address of the MSE10 controller in the Chrome web

browser.

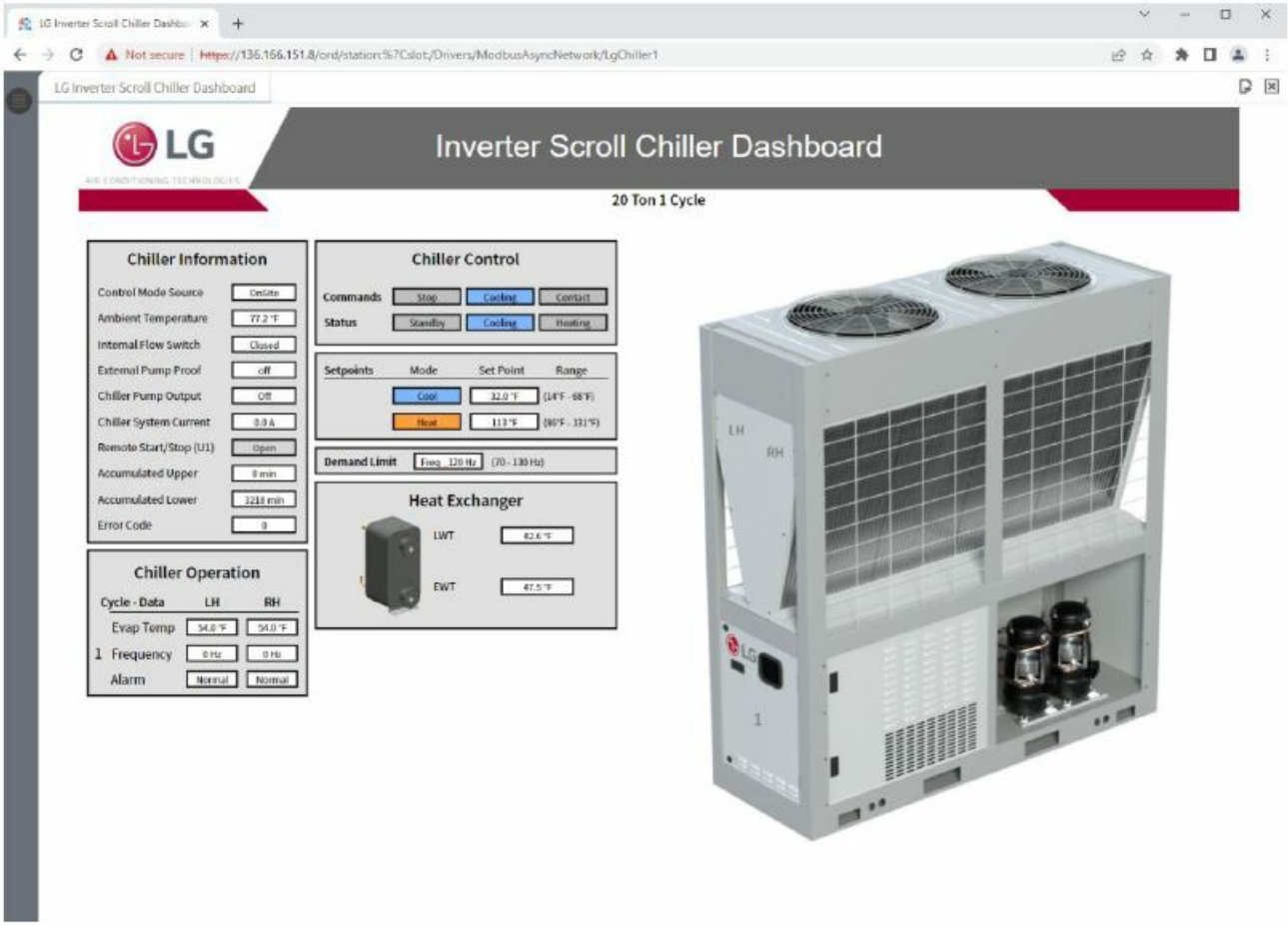
2. The first time connecting to the dashboard the user will be prompted with a privacy warning. This prompt is displayed because the dashboard uses a secure connection, but the security certificate is not registered with a Certificate Authority. This warning may be ignored by clicking “Advanced,” then “Proceed to <IP address of MSE10> (unsafe). See the images below.



3. At the login screen, enter the station’s default user and password (user: system_admin, password: digital21).

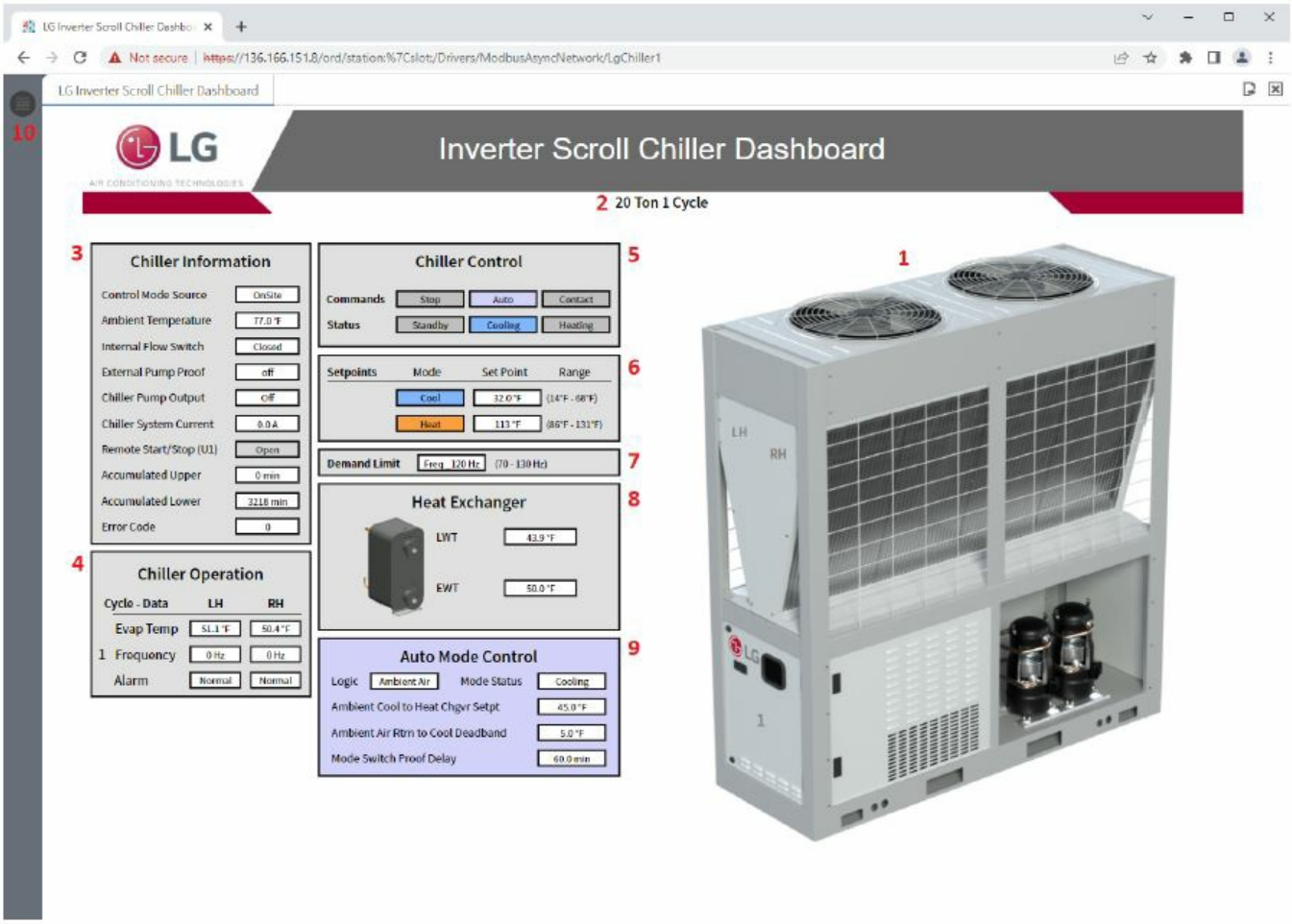


4. After successful login, the main dashboard graphic is displayed. See below. Note: the chiller displayed in the graphic may be a 20 Ton, 40 Ton, or 60 Ton. The chiller size was initially set in Section 2, Step 3.2 (Cycle Setting).

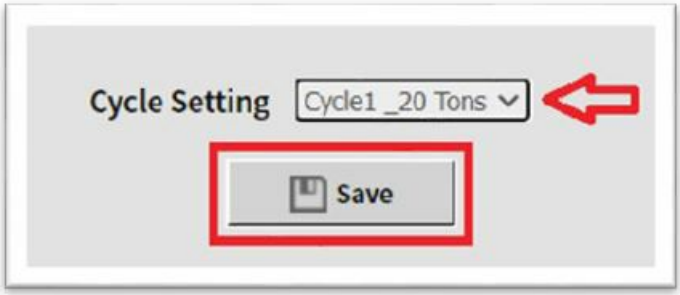


Chiller Dashboard Graphical Features and Functions

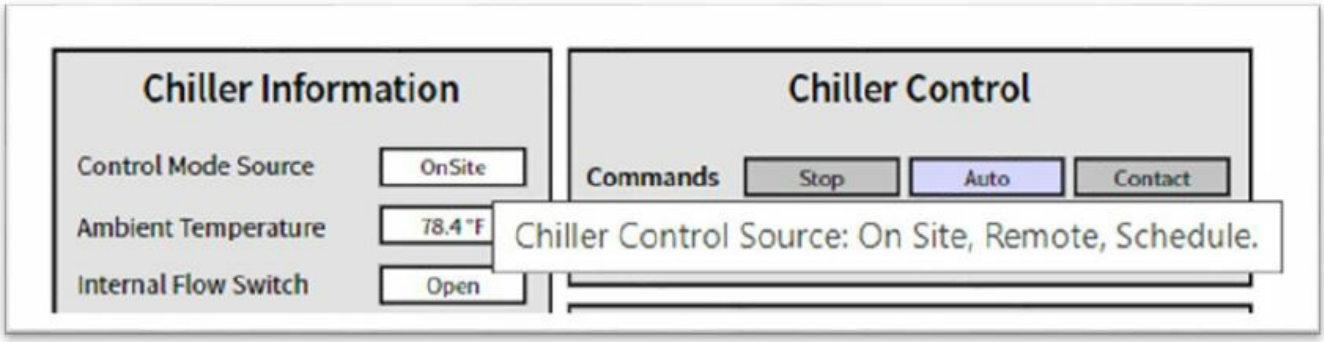
The Chiller Dashboard has many features and functions. Each feature is numbered in red in the image below. See the corresponding description number for details on each feature and function.



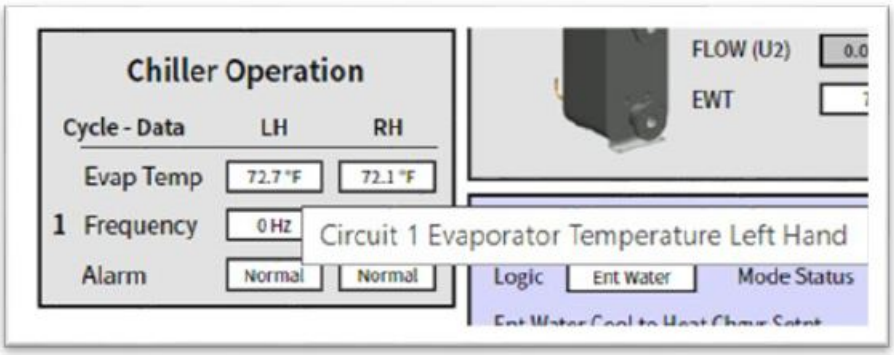
1. Animated Graphic: The chiller image will vary based on the selected size (20 Ton 1 Cycle, 40 Ton 2 Cycle, 60 Ton 3 Cycle. Chiller image fans and compressors will animate based on the chiller operation.
2. Chiller Size Title Bar: Displays currently selected chiller size. To change the chiller size, left-click on the current size in the title bar. In the resulting pop-up window select the size, then click “Save.” See the images below.



3. Chiller Information: Displays chiller general status data. Hovering over a status point displays an informational pop-up. Some informational pop-ups include functional instruction. For example, the Error Code status point includes an Error Code table pop-up screen when left-clicked. See the images below.

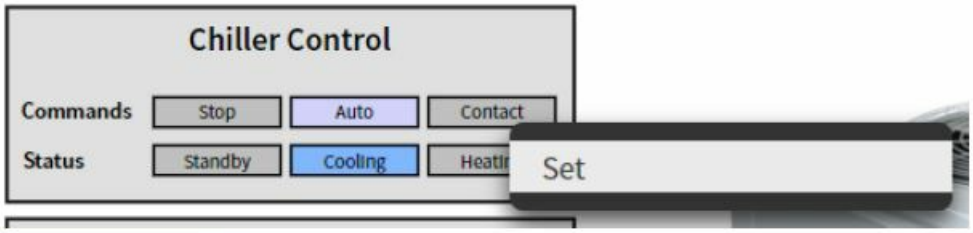


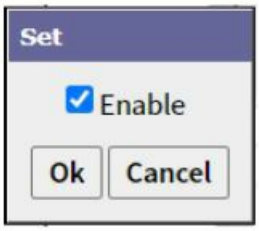
4. Chiller Information: Displays chiller cycle-specific operation data. Hovering over a status point displays an informational pop-up. Informational pop-ups specify Left or Right side circuit operation data. See the image below. See the chiller graphic for details on how to find the Left and Right sides of the circuit.

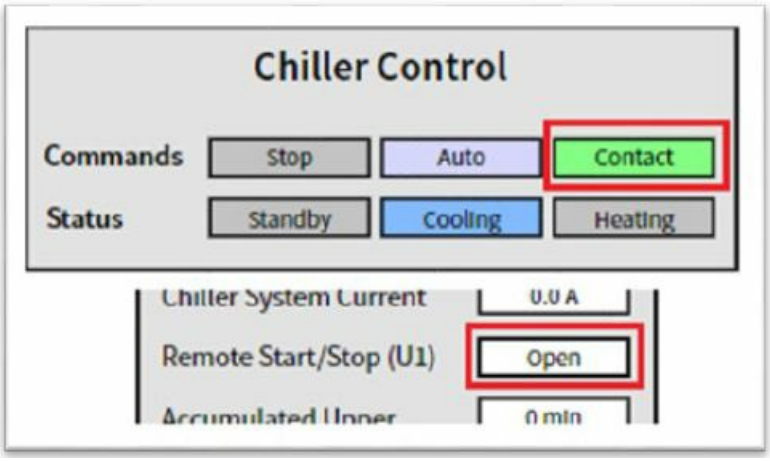


5. Chiller Control: Displays chiller command point control for Start/Stop, Mode, and Remote Contact. Hovering over a status point displays an informational pop-up. Informational pop-ups give more detailed descriptions and include instructions on how to adjust a command point or enable a function. When command points are enabled, the background colour of the control point changes from grey (disabled) to coloured (enabled). See the image below.

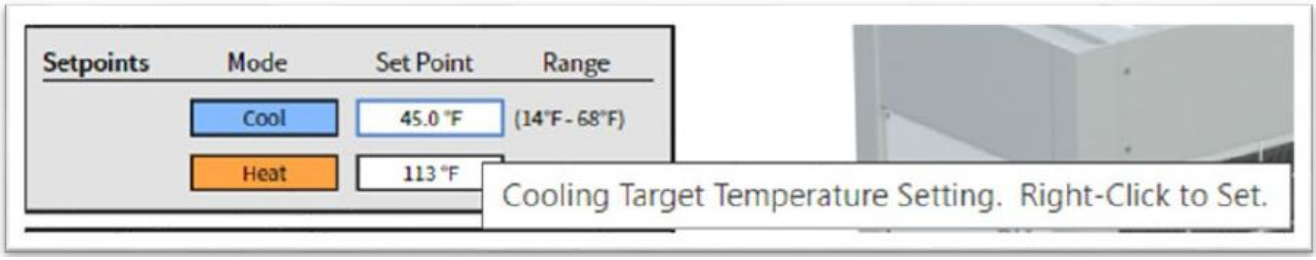
- Remote Contact Mode: The Chiller MSE10 controller can accept a remote contact signal (dry contact) from a third-party BMS wired to UI1. When the contact is closed, the chiller is commanded to “Start.” When the contact is open, the chiller is commanded to “Stop.” To enable this feature, right-click on the “Contact” button, set it to “Enable,” then click “OK.” When Remote Contact Mode is Enabled, the background colour changes to green and the status point in Chiller Status changes from grey to white background. See the images below.





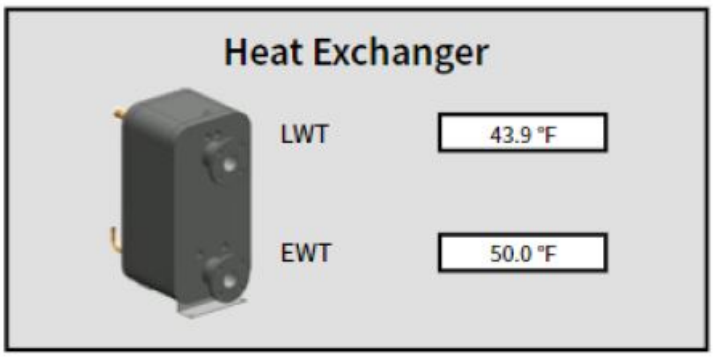


6. Setpoints: Displays setpoint control for Cooling Target Temperature and Heating Target Temperature. Hovering over a setpoint control button displays an informational pop-up. Right-click to change the setpoint(s). See the image below.



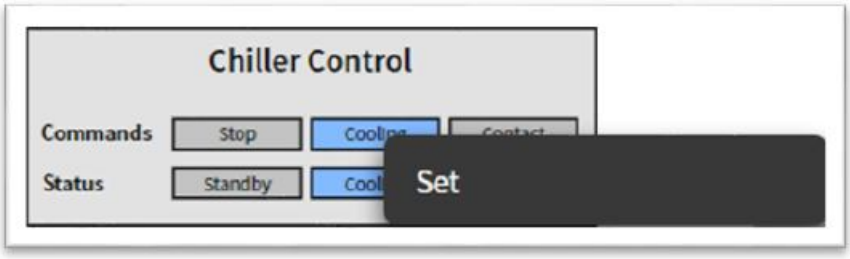
7. Demand Limit: Displays maximum operating frequency set in the chiller HMI (read-only). See the image below.

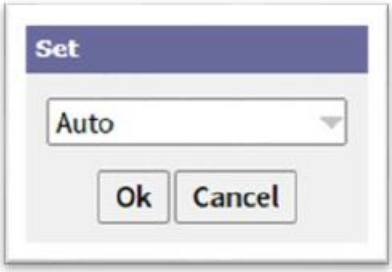
8. Heat Exchanger: Displays heat exchanger information including Leaving Water Temperature (LWT) and Entering Water Temperature (EWT). See the image below.

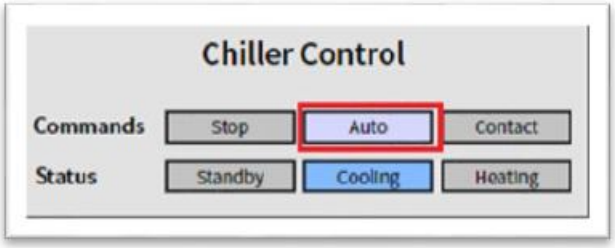


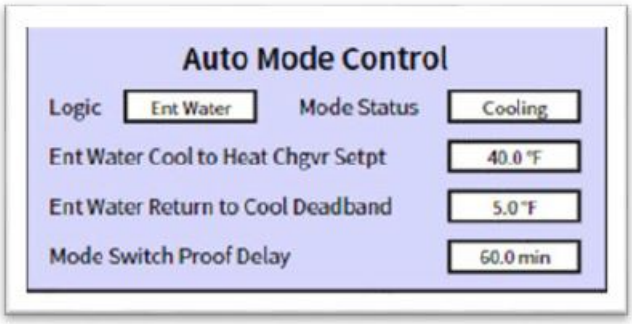
9. Auto Mode Control: The Chiller MSE10 controller can automatically change the chiller control mode from Cooling to Heating when the control mode is set to “Auto” in the Chiller Control panel. To enable Auto Mode

Control, right-click on the Mode button in Chiller Control, set to “Auto,” then click “OK.” When Auto mode is enabled, the Mode button in Chiller Control lights purple and the Auto Mode Control panel displays. See the images below. Note: Auto Mode Control panel is hidden when the chiller is in normal Cooling or Heating modes.

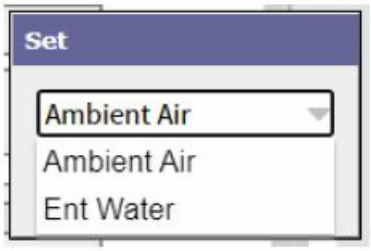






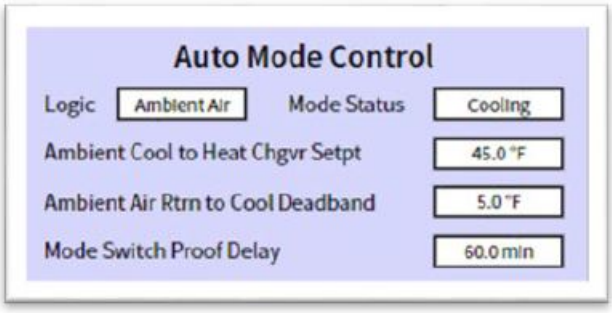


- Auto Mode Control Panel: Auto Mode Control has two control options: Entering Water Temperature and Ambient Air Temperature. To set the control mode, right-click on the Logic control button, set the mode, and then click “OK.” See the image below.

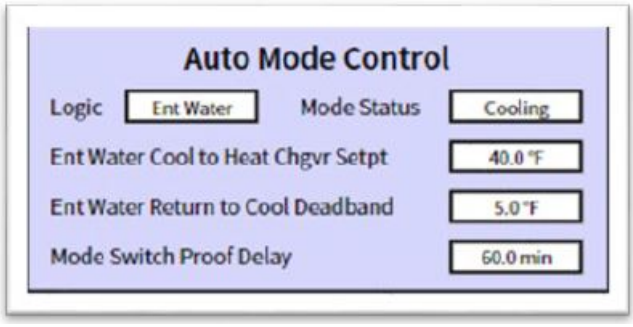


- Ambient Air Control: When Auto Mode Control is set to “Ambient Air,” the chiller automatically changes over from Cool mode to Heat mode when Outside Air Temperature is less than “Ambient Cool to Heat Changeover Setpoint” (default = 45°F) for the “Mode Switch Proof Delay” time delay setpoint (default 60 minutes). Example: Outside Air Temperature < 45°F for 60 minutes, Heating Mode enabled. Chiller returns to Cooling Mode (from Heating Mode) when the Outside Air Temperature rises above the “Ambient Cool to Heat Changeover Setpoint” plus deadband (Ambient Air Return to Cool Deadband =

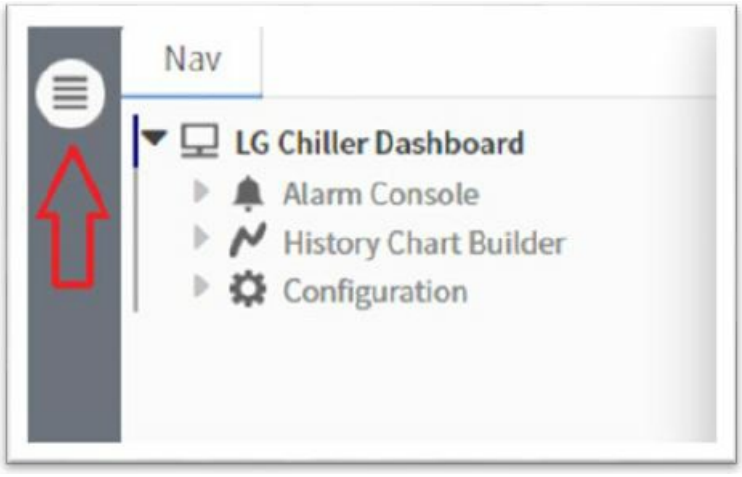
5°F default). Example: Outside Air Temperature > 50°F (45°F + 5°F). See the image below.



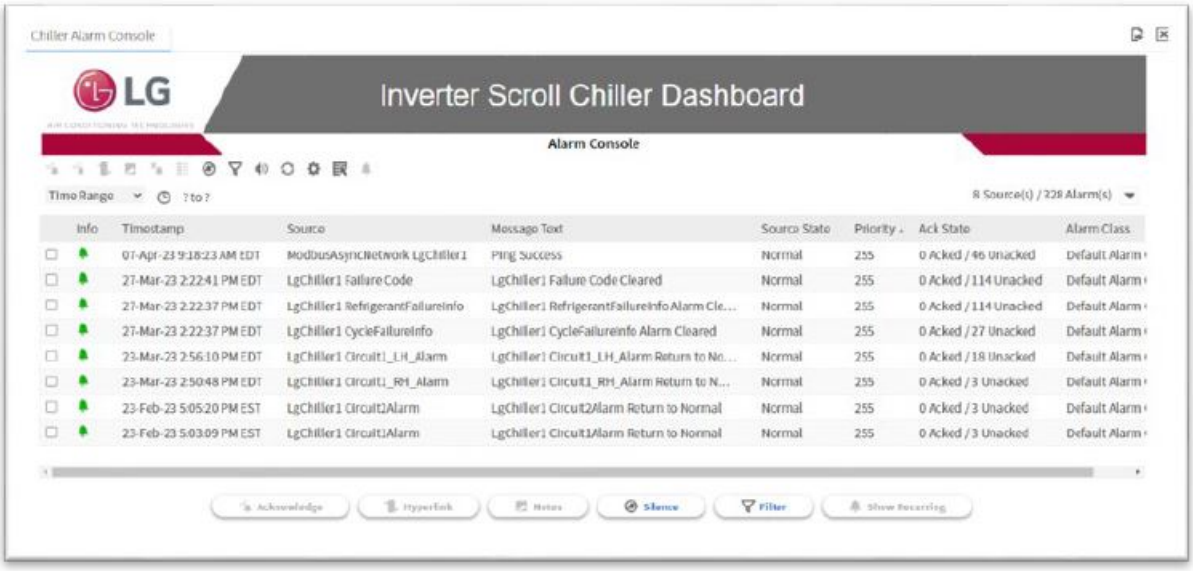
- Entering Water Control: When Auto Mode Control is set to “Ent Water,” the chiller automatically changes over from Cool mode to Heat mode when the chiller Entering Water Temperature is less than “Ent Water Cool to Heat Chgvr Setpt” (default = 40°F) for the “Mode Switch Proof Delay” time delay setpoint (default 60 minutes). Example: Chiller Entering Water Temperature < 40°F for 60 minutes, Heating Mode Enable. The chiller returns to Cooling Mode (from Heating Mode) when Entering Water Temperature rises above the “Ent Water Cool to Heat Chgvr Setpt” plus deadband (Ent Water Return to Cool Deadband = 5°F default). Example: Chiller Entering Water Temperature > 45°F (40°F + 5°F). See the image below.



10. Navigation Menu: Opens the Dashboard Navigation Menu. Click on the circle with four lines icon in the top left corner of the Dashboard to access. Within the Navigation Menu, there are Alarm Console, History Chart Builder, and Configuration icons. Double-click an icon to access the menu item. See the image below.



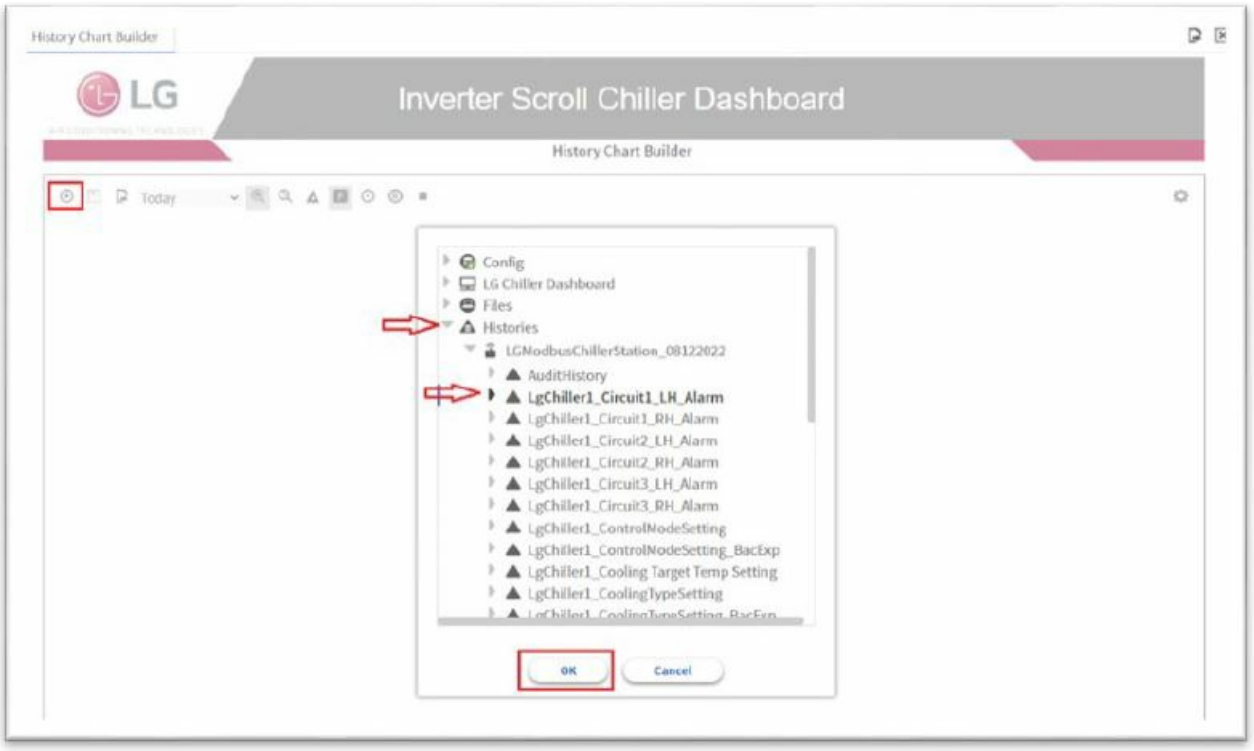
Alarm Console: Displays current and historical alarm data. Provides an interface for users to manage alarm data in the chiller station. See the image below.



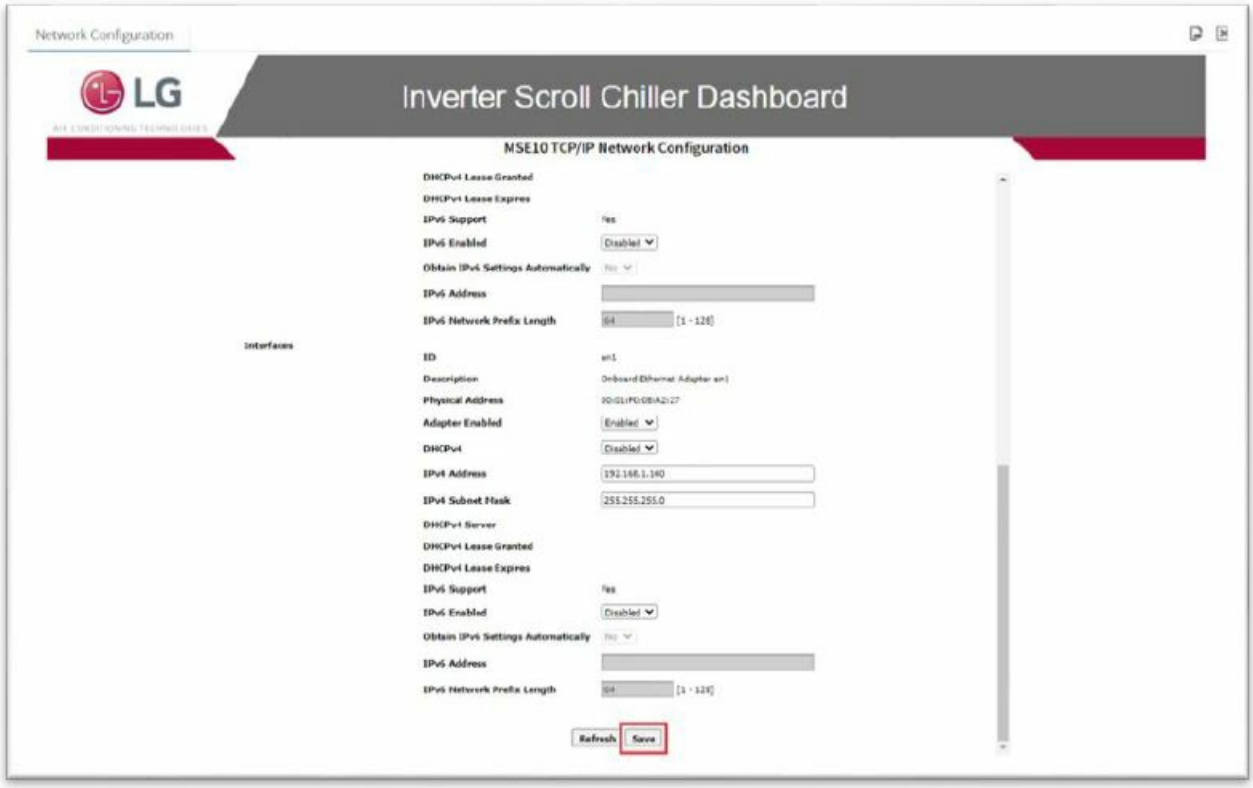
History Chart Builder: Provides an interface for users to create history charts and view historical data for chiller data points with history extensions. To create a history chart, add points by clicking the plus (+) button in the top left-hand corner, navigate to the Histories directory, select a history point, then click “OK.” For more information on History Charts, see Niagara Help Document “Using Web Charts.” See history points list and chart builder image below.

1. Circuit 1 LH Alarm
2. Circuit 1 RH Alarm
3. Circuit 2 LH Alarm
4. Circuit 2 RH Alarm
5. Circuit 3 LH Alarm
6. Circuit 3 RH Alarm
7. Common Load Water Input Temperature
8. Common Load Water Output Temperature
9. ControlModeSetting
10. ControlModeSetting_BacExp
11. Cooling Target Temp Setting
12. CoolingTypeSeting
13. CoolingTypeSetting_BacExp
14. Cycle 1 4WayValve1
15. Cycle1 EvapTemp Left
16. Cycle 1 Evap Temp Right
17. Cycle 1 Inverter Comp1Op
18. Cycle 1 Inverter Comp2Op
19. Cycle 1 Inverter Comp1Freq
20. Cycle 1 Inverter Comp2Freq
21. Cycle 1 Main EEV Status Left
22. Cycle 1 Main EEV Status Right
23. CycleFailureInfo_Hist
24. External Air Temperature
25. Heating Target Temp Setting
26. Load Water Flow Switch

27. Load Water Pump Output
28. LoadWaterPumpInterlock
29. MaxOperatingFrequency
30. MaxOperationgFrequency_BacExp
31. OperationModeSetting
32. OperationModeSetting_BacExp
33. OperationgModeSetting_C
34. RefrigerantFailureInfo_Hist
35. RemoteModeSetting
36. RemoteModeSetting_BackExp
37. Start Stop
38. failureCode_Hist



Configuration/Network Configuration: Provides an interface for users to edit MSE10 network configuration. Notes: After network settings are edited, click “Save.” Network configuration changes may require a reboot. See the image below.



APPENDIX I: BACNET EXPORT POINTS

Object Name	Object Type	Modbus Device Address (Exa simple)	Base Assignment	BACnet Inst Num	BACnet Writable
LgChiller1_startStop	Binary Output	1	911	1911	in1 through in14
LgChiller1_loadWaterFlowSwitch	Binary Input	1	912	1912	no
LgChiller1_loadWaterPumpOutput	Binary Input	1	913	1913	no
LgChiller1_entireOperationCircuit	Analog Input	1	914	1914	no
LgChiller1_externalAirTemperature	Analog Input	1	915	1915	no
LgChiller1_failureCode	Analog Input	1	916	1916	no
LgChiller1_coolingTargetTempSetting	Analog Value	1	918	1918	in1 through in14
LgChiller1_heatingTargetTempSetting	Analog Value	1	919	1919	in1 through in14

LgChiller1_accumulatedOperationTimeUpperLevel	Analog Input	1	920	1920	no
LgChiller1_accumulatedOperationTimeLowerLevel	Analog Input	1	921	1921	no
LgChiller1_OperationModeSetting_BacExp	Multi-State Input	1	917	1917	no
LgChiller1_LoadWaterPumpInterlock	Binary Input	1	120	1120	no
LgChiller1_ControllerVersion	Analog Input	1	121	1121	no
LgChiller1_CommonLoadWaterOutputTemperature	Analog Input	1	122	1122	no
LgChiller1_CommonLoadWaterInputTemperature	Analog Input	1	123	1123	no
LgChiller1_RefrigerantFailureInfo	Analog Input	1	124	1124	no
LgChiller1_CycleFailureInfo	Analog Input	1	125	1125	no
LgChiller1_ControlModeSetting_BacExp	Multi-State Input	1	126	1126	no
LgChiller1_RemoteModeSetting_BacExp	Multi-State Input	1	127	1127	no
LgChiller1_CoolingTypeSetting_BacExp	Multi-State Input	1	128	1128	no
LgChiller1_MaxOperatingFrequency_BacExp	Multi-State Input	1	129	1129	no
LgChiller1_MaxOperatingFrequency_C	Analog Value	1	129	1129	in1 through in14
LgChiller1_Cycle1_4WayValve1	Binary Input	1	111	1111	no
LgChiller1_Cycle1_InverterComp1Op	Binary Input	1	112	1112	no
LgChiller1_Cycle1_InverterComp2Op	Binary Input	1	113	1113	no
LgChiller1_Cycle1_EvapTemp_Left	Analog Input	1	114	1114	no
LgChiller1_Cycle1_EvapTemp_Right	Analog Input	1	115	1115	no
LgChiller1_Cycle1_Inverter_Comp1_Freq	Analog Input	1	116	1116	no
LgChiller1_Cycle1_Inverter_Comp2_Freq	Analog Input	1	117	1117	no

LgChiller1_Cycle1_Main_EEV_Status_Left	Analog Input	1	118	1118	no
LgChiller1_Cycle1_Main_EEV_Status_Right	Analog Input	1	119	1119	no
LgChiller1_Cycle2_4WayValve1	Binary Input	1	211	1211	no
LgChiller1_Cycle2_InverterComp1Op	Binary Input	1	212	1212	no
LgChiller1_Cycle2_InverterComp2Op	Binary Input	1	213	1213	no
LgChiller1_Cycle2_EvapTemp_Left	Analog Input	1	214	1214	no
LgChiller1_Cycle2_EvapTemp_Right	Analog Input	1	215	1215	no
LgChiller1_Cycle2_Inverter_Comp1_Freq	Analog Input	1	216	1216	no
LgChiller1_Cycle2_Inverter_Comp2_Freq	Analog Input	1	217	1217	no
LgChiller1_Cycle2_Main_EEV_Status_Left	Analog Input	1	218	1218	no
LgChiller1_Cycle2_Main_EEV_Status_Right	Analog Input	1	219	1219	no
LgChiller1_Cycle3_4WayValve1	Binary Input	1	311	1311	no
LgChiller1_Cycle3_InverterComp1Op	Binary Input	1	312	1312	no
LgChiller1_Cycle3_InverterComp2Op	Binary Input	1	313	1313	no
LgChiller1_Cycle3_EvapTemp_Left	Analog Input	1	314	1314	no
LgChiller1_Cycle3_EvapTemp_Right	Analog Input	1	315	1315	no
LgChiller1_Cycle3_Inverter_Comp1_Freq	Analog Input	1	316	1316	no
LgChiller1_Cycle3_Inverter_Comp2_Freq	Analog Input	1	317	1317	no
LgChiller1_Cycle3_Main_EEV_Status_Left	Analog Input	1	318	1318	no
LgChiller1_Cycle3_Main_EEV_Status_Right	Analog Input	1	319	1319	no
LgChiller1_OperationModeSetting_C	Analog Value	1	917	1917	in1 through in14
LgChiller1_failureCode_Hist	trending	1	NA	0	
LgChiller1_RefrigerantFailureInfo_Hist	trending	1	NA	1	
LgChiller1_CycleFailureInfo_Hist	trending	1	NA	2	

CONTACT

- LG Customer Information Center, Commercial Products
- 1-888-865-3026 USA
- Follow the prompts for commercial A/C products and parts.
- LG Electronics, U.S.A., Inc.
- Air Conditioning Technologies
- 4300 North Point Parkway
- Alpharetta, Georgia 30022
- www.lghvac.com.

Documents / Resources

	LG Chiller Multisite Pbase10 Modbus Integration [pdf] User Manual Chiller Multisite Pbase10 Modbus Integration, Chiller, Multisite Pbase10 Modbus Integration, Pbase10 Modbus Integration, Modbus Integration, Integration

References

- Experience the LG Difference in HVAC - LG Air Conditioning Technologies
- User Manual