



BACnet® Discovery Tool (BDT) Instructions

After you have installed the BACnet Discovery Tool (BDT) you will find the BDT application in the BDT 2.14.01 folder under your Start menu (**Figure 1**).

On some PCs you may have to run BDT as an administrator. Right click the BDT application and select “Run as Administrator.”

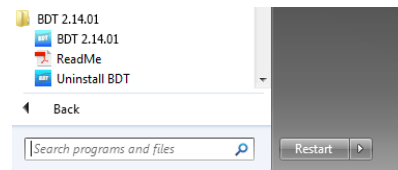
When BDT opens, its default screen will be blank (**Figure 2**).

Default BACnet port number (47808) is displayed near the top right corner of the program. Make sure the indicated port number is correct (you can change this number to any port number). In addition, make sure the IP address shown in “Your IP Address” field matches the IP subnet of the network where your BACnet devices are connected. If not, select the appropriate address in the drop down. If you need to work with a BBMD in order to communicate with your BACnet devices, enter its IP address in the “BBMD Address” box and press the “Set BBMD” button.

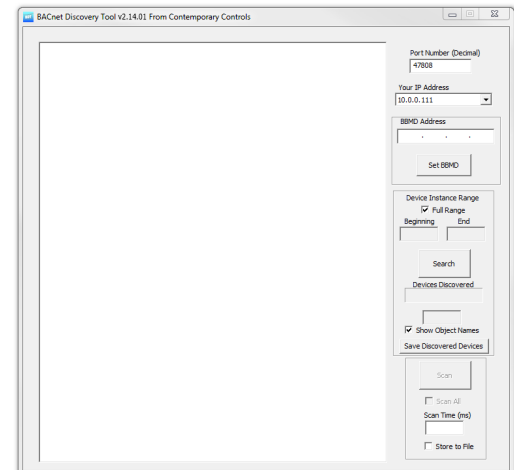
With your host PC connected to the network of interest, click the “Search” button. BDT will start sending BACnet “Who-Is” messages and a progress bar will appear (**Figure 3**). You can limit the range of your search by deselecting the “Full Range” checkbox and entering a specific range of device instances in the “Beginning” and “End” boxes.

You can also enter the same device instance in both boxes to limit your search to one BACnet device.

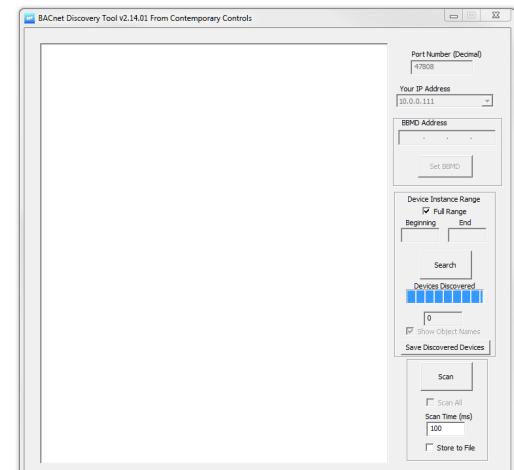
#1



#2



#3



When BDT has completed its search, the progress bar will disappear and the discovered BACnet devices will be listed in the main window. Also, the number of discovered devices will be reported in the “*Devices Discovered*” field (**Figure 4**). In addition, you can Ctrl-double-click and open the webpage of the device.

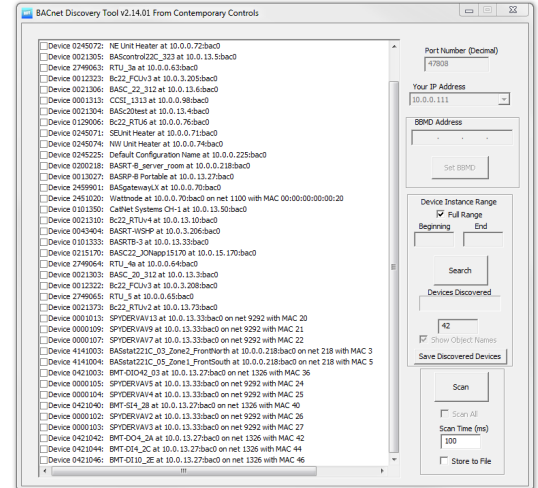
To investigate the objects contained by any discovered device, double-click the device line in the list. A new window will appear and display a list of the discovered objects within the targeted device. Also, the number of discovered objects will be reported in the “*Objects*” field (**Figure 5**).

You can examine the properties of any common object by double-clicking its object line which brings up an “*Object Properties*” window (**Figure 6a**).

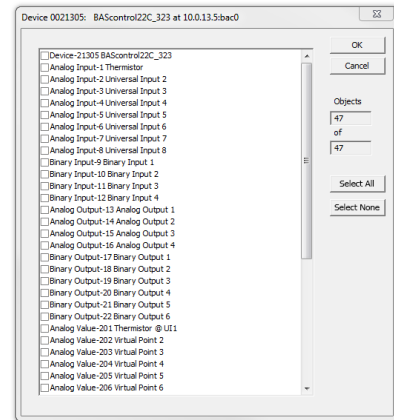
“*Object Properties*” window displays the values of an object — Object Name, its Present Value, and four on/off status reports (checked means on). There are three writeable elements - “*Object Name*”, “*Write Value*” and “*Priority*”. Although “*Write Value*” and “*Priority*” are always visible, they only yield write results for OUTPUT objects. If the “*Write*” button is available (not grayed out), the examined object is writeable — in which case, you can enter a number in the “*Write Value*” box, set a priority level by selecting from the “*Priority*” drop-down list and click the “*Write*” button to apply the write. Priorities 1 through 16 including “*Relinquish Default*” are supported. If your device has a writable object which does not support priority array, then you can choose “*None*” in the “*Priority*” drop down. To change “*Object Name*” write the desired name in the text field and click the “*Write*” button next to the “*Object Name*” text field (**Figure 6b**). The object name write will take effect immediately but to see the change, you will have to run a discovery again by clicking the “*Search*” button on the main BDT page. Not all devices allow the Object Name to be written to in this manner. To view the object’s priority array, click on “*Show Priorities*” button and the “*Priority Array*” window will be displayed (**Figure 6c**).

Using a value “*null*” for the write value will remove a write at the selected priority and allow lower priority writes to take effect. (**Figure 6b**)

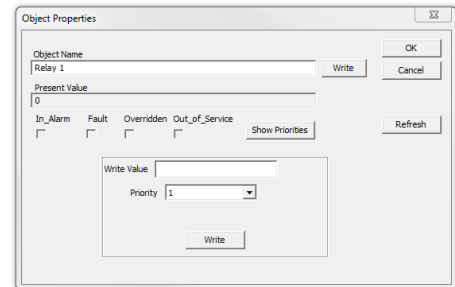
#4



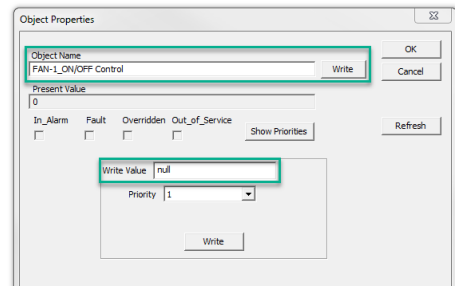
#5



#6a



#6b

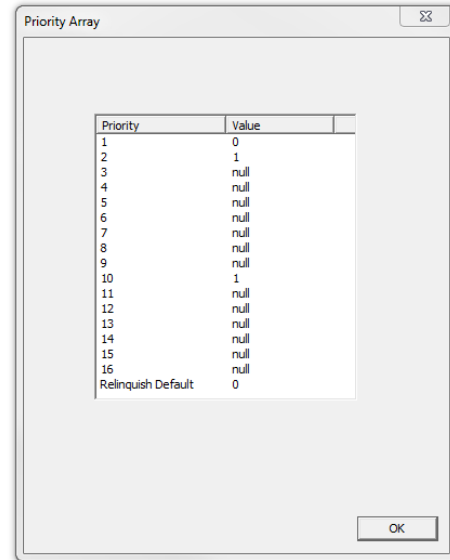


To read a “Trend Log” object, simply double click it like you would any other object and a “Trends” window will open and begin reading the log entries. A progress bar at the bottom of the window is displayed. The total number of trend log entries is displayed in the “Log Buffers” field at the top left corner (**Figure 6d**).

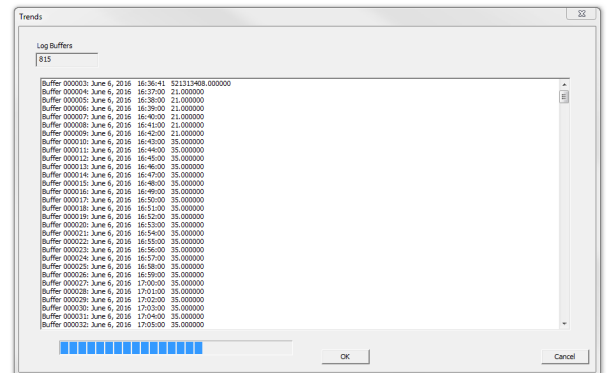
When you are done with the “Object Properties” window, you can close it with either the “OK” or “Cancel” button. Then you can double-click another object to view and/or adjust its properties.

The “Device Object Properties” screen is displayed when the “Device” object is double-clicked from the discovered objects list. The device “Object ID” and “Object Name” could be written to by entering the new value in the box and pressing the “Write” button adjacent to the field (**Figure 7**). Not all BACnet devices support this property. If your device does not, you will not be able to write to “Object ID” and/or “Object Name”. Use caution when writing to the device’s “Object ID” because that is its BACnet Device Instance Number and it may already be in use by BACnet client devices polling its data. The “Device Object Properties” window also displays the “Max Master” value for BACnet MS/TP devices. This is the Max Master value set in the MS/TP device.

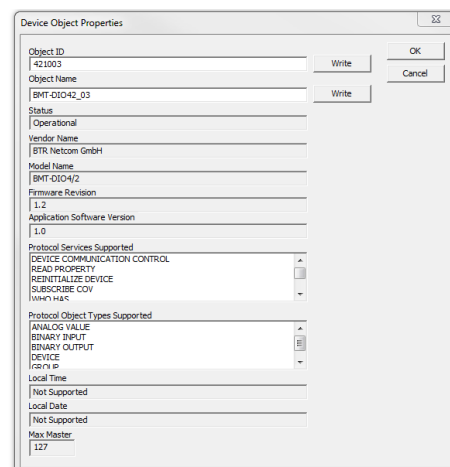
#6c



#6d



#7

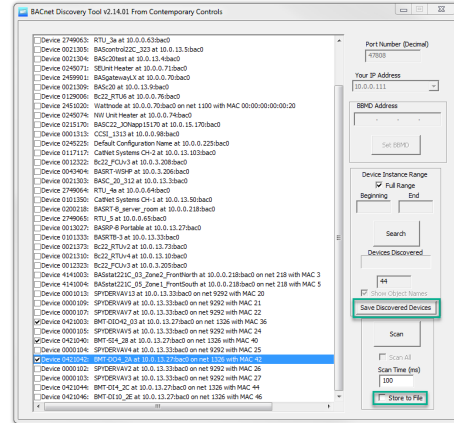


The “*Save Discovered Devices*” button will export a text file with the list of discovered devices to a specified by you directory (**Figure 8a**).

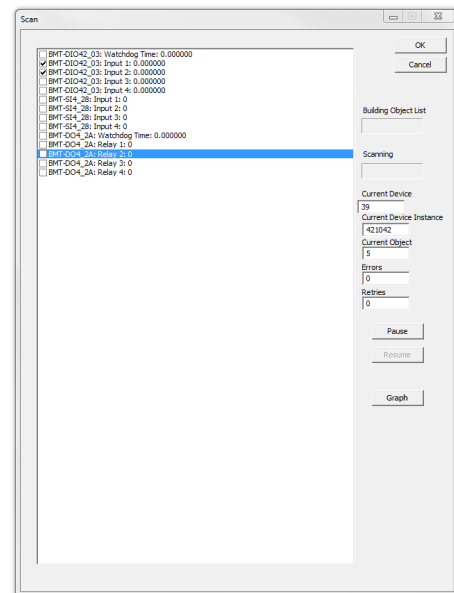
The “*Scan*” button on the main BDT page can be used to scan the present-values of objects on various devices at a periodic rate. First, set up your scanning parameters:

You can select devices by checking their checkboxes in the “*Discovered Devices*” list on the main window and their objects to scan by double-clicking on the device and checking the desired objects in the “*Object View*” window for each device. You can also select all or select none of the objects in this window. After you have selected your devices and their objects to scan, you can enter a scan time period in ms (default = 100ms) in the “*Scan Time*” field. As an option, you can check off the “*Store to File*” checkbox on the main window and your scanned values will be stored to a CSV text file (**Figure 8a**). You will be prompted where to create the CSV file once you click the “*Scan*” button. To begin the scan, press the “*Scan*” button. A new “*Scan*” window will appear (Figure 8b) that shows the present-value of the selected objects. The values will be continuously read and displayed in the “*Scan*” window. The scan will detect and keep count of errors and retries while scanning the objects, and will display these values in “*Errors*” and “*Retries*” fields. You may pause and resume the scan using the “*Pause*” and “*Resume*” buttons on the “*Scan*” window (**Figure 8b**). To end the scan, press “*OK*” or “*Cancel*” button on the “*Scan*” window. If the “*Store to File*” checkbox was checked, scanned values will be stored in a CSV file in the directory you specified.

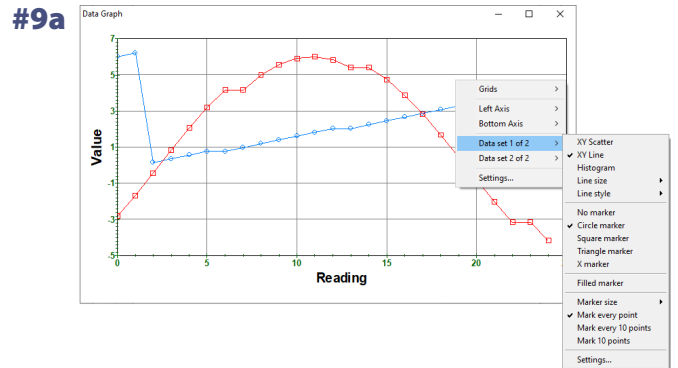
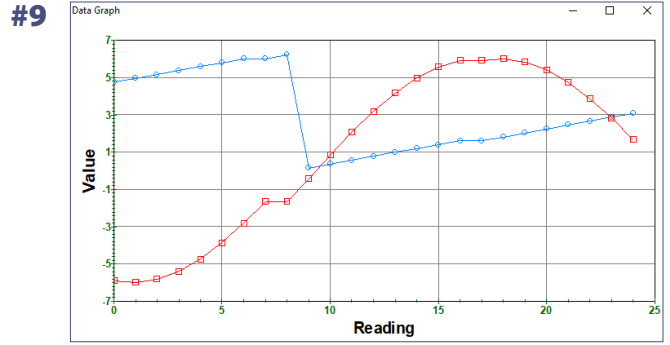
#8a



#8b



You can also graph scanned values. While in the scan window press pause. Then check the points you wish to graph (up to 10). Then press the graph button to view the graph. The scanning will continue and you will see one graph that contains all of the selected points (**Figure 9**). The last 25 scanned values will be displayed in the graph. Right-click on the graph (**Figure 9a**) to select graph options such as the color of the lines, the type of point markings, and the thickness of the lines. You can also add a grid to the graph. The scaling is automatic based on the values to be graphed for all points on the graph.



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