# BACnet – Fast Browsing BACnet Devices

APPLICATION NOTE

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**Description:** This application note guides you how to setup, browse and use BACnet data.
**OS Requirement:** Windows Server 2003 x64/Vista x64/ Server 2008 x64/Windows 7 x64/ Server 2008 R2 x64
**General Requirement:** ICONICS Genesis64 v10.7 installation.

## Introduction

BACnet is "a data communication protocol for **B**uilding **A**utomation and **C**ontrol **net**works." A data communication protocol is a set of rules governing the exchange of data over a computer network. The rules take the form of a written specification that spells out what is required to conform to the protocol. What makes BACnet special is that the rules relate specifically to the needs of building automation and control equipment, i.e., they cover things like how to ask for the value of a temperature, define a fan operating schedule, or send a pump status alarm.

## BACnet Client-Server architecture

BACnet is based on a "client-server" model of the world; BACnet messages are called "service requests." A client machine sends a service request to a server machine that then performs the service and reports the result to the client. BACnet currently defines 35 message types that are divided into five groups or classes. For example, one class contains messages for accessing and manipulating the properties of the objects described above. A common one is the "ReadProperty" service request. This message causes the server machine to locate the requested property of the requested object and send its value back to the client. Other classes of services deal with alarms and events; file uploading and downloading; managing the operation of remote devices; and virtual terminal functions.

BACnet specification (135-2004) supports the following objects:

- Binary Input
- Binary Output
- Binary Value
- Analog Input
- Analog Output
- Analog Value
- Averaging
- Life Safety Zone
- Multi-state Input
- Multi-state Output
- Multi-state value
- Loop
- Calendar
- Notification Class
- Command
- LifeSafetyPoint
- File
- Program
- Schedule
- Trend Log
- Group
- Event Enrollment
- Device

## Browsing BACnet Devices

Because BACnet application pool is generated in runtime and it can be browsed only remotely (it is expected that you have your BACnet device placed on the network), it is not possible to browse for local ICONICS BACnet Simulation data. Therefore, you need another machine running ICONICS Simulator or real BACnet device, which will provide the application pool for you to browse.

This application note describes how to browse for the data on the network and how to read the data by ICONICS GraphWorX64 client.

Follow these steps to read the data from BACnet device:

1. Start GraphWorX64 from Start menu
2. Create new process point on your GraphWorX64 display by selecting Dynamics from the menu bar and select Process Point. Left click it anywhere on the display to insert a process point.
3. When Unified Data Browser is opened you need to click on BACnet folder. Select an appropriate input as shown in Figure 1.

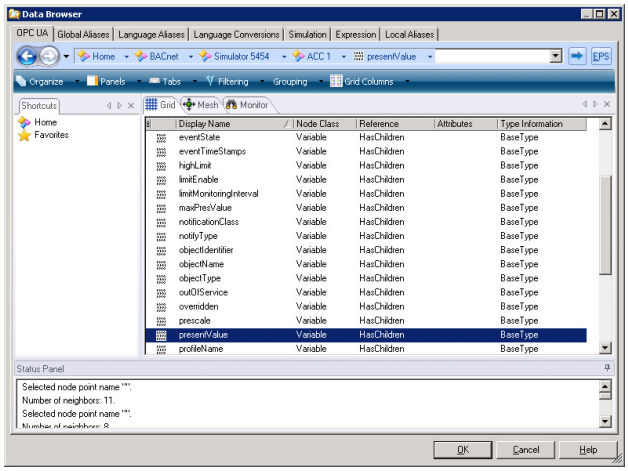


**Figure 1 - Browsing BACnet Device**

**NOTE:** Usually, there is a "presentValue" which provides the current value from that device.

4. Click on OK to confirm the selection.
5. Take note of the process point data source syntax for BACnet and click OK.
6. Switch to Runtime and you should see the data tag value.

## Understanding BACnet Application Pool

BACnet application pool contains the objects below and it is very important to understand how it is designed. Here are two examples on which it can be shown:

When you are browsing throw OPC Classic Servers, you will get following syntax:

@BACnet64:ICONICS BACnet Device Simulator 498\AnalogInput:1\presentValue.Value

In the above tag syntax:

- @ – specifies that the tag is using a legacy OPC server (namely OPC DA)
- **BACnet64:** – indicates the Genbroker plug-in prefix, which means that it is a BACnet Process Point
- **ICONICS BACnet Device Simulator 498** – is the Device name with the unique ID 498
- **AnalogInput 1** – is the <ObjectType> <Instance ID>
- **presentValue** – us the <Property name> (by default ID=85).

When you are browsing direct throw BACnet, you will get the syntax bellow. This allows you read also Trends and Alarms from BACnet device.

bacnet:ICONICS BACnet Device Simulator 498\AnalogInput:1\presentValue.Value

In the above tag syntax:

- **bacnet:** – indicates the BACNet point manager, which means that it is a BACnet Process Point. Using the point manager allows you to use BACnet Trends and Alarms
- **ICONICS BACnet Device Simulator 498** – is the Device name with the unique ID 498
- **AnalogInput 1** – is the <ObjectType> <Instance ID>
- **presentValue** – us the <Property name> (by default ID=85).